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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. Direct inquiries to USDA NRCS, Plant Materials Center, 98 South River Road, Bridger, MT 59014, Phone 406-662-3579, Fax 406-662-3428; or Larry Holzworth, Plant Materials Specialist, USDA NRCS Montana State Office, Federal Bldg., Rm 443, 10 East Babcock Street, Bozeman, MT 59715-4704, Phone 406-587-6838, Fax 406-587-6761.

Majerus Retiring

After 31 ½ years at the Bridger Plant Materials Center, I am going to move on to the next stage in my life—whatever that may be. My last day will be July 28, 2006. I have had a great career at the PMC, having the privilege of working in one location my entire SCS/NRCS career. A job with the Plant Materials Program is the best that USDA has to offer. I have also been fortunate enough to have had the opportunity to make several official trips to China and Mongolia and host foreign scientists at the Bridger PMC. I am going to miss being down on the farm, as it has been a major part of my life for a long time. I would like to extend my thanks to all of you Plant Materials folks around the country, the NRCS people of Montana and Wyoming, Bill Grey MSU-Foundation Seed (previously Howard Bowman and Loren Weisner), Certified Seed people (Ron Larson & staff-Montana, and Mike Moore & staff-Wyoming), and all the seed growers that I have had the pleasure of working with--it's been a great ride!

By Mark E. Majerus, PMC Manager.

2006 Seed Collection Reminder

The Plant Materials (PM) Program is requesting seed collections of nine species in Montana and Wyoming. In 2006, continued collection is requested of fuzzytongue penstemon *Penstemon eriantherus* ssp. *eriantherus*, silverleaf phacelia *Phacelia hastata*, scarlet globemallow *Sphaeralcea coccinea*, and American vetch *Vicia americana*. There are five legumes species requested to address emerging conservation concerns. These include groundplum milkvetch *Astragalus crassicarpus*, silverleaf Indian breadroot *Pediomelum argophyllum* (synonym *Psoralea argophylla*), large Indian breadroot *Pediomelum esculentum* (synonym *Psoralea esculenta*), slimflower scurfpea *Psoralidium tenuiflorum* (synonym *Psoralea tenuiflora*), and prairie thermopsis *Thermopsis rhombifolia*.

A complete description of each species, along with photographs, can be accessed via each state's homepage. Helpful tips on seed collection can be found in *The NRCS Field Office Guide to Collecting Wildland Seed*, shich is located on the Montana and Wyoming NRCS webpages as the Plant Materials Technical Note MT-50 and WYPM11. Please schedule time to make seed collections and send directly to the PMC.

By Larry Holzworth, Plant Materials Specialist.

Summer Internship

My name is Brianne Athearn and I'm working at the Bridger PMC this summer as an student intern funded through the MSU Foundation Seed Program. I graduated from Captial High School in Helena and am attending Western Washington University. This fall I will be entering my senior year pursuing a degree in terrestrial ecology. In Bridger I am assisting with such projects as the Wildflower Herbicide Study, Irrigated Pasture Trial, and the study on woody species' growth in saline soils. With this internship I am gaining experience with seed harvest, land rehabilitation, and other range studies.

By Brianne Athearn, PMC Intern.

Pinedale Emerges!

As reported in the January newsletter, a new Field Evaluation Planting (FEP) was installed last fall near Pinedale, WY, in cooperation with the Shell Exploration and ProductionS Company. Initial results are in, and despite above normal spring temperatures and abysmally low precipitation, approximately 90% of the entries in the replicated plots demonstrate some degree of seedling emergence.

Karen Claus, NRCS Rangeland Management Specialist, and her diligent crew, are impressed so far with the establishment of American vetch, blue and prairie flax,

Richfiled Selection of Eaton's penstemon, silverleaf phacelia, basin saltbush, 'Wytana' fourwing saltbush, and Gardner saltbush. The key sagebrush species have yet to make an appearance in these precision-planted plots.

The areas broadcast-seeded with two different mixtures also have seedling emergence of some grasses, lupine, silverleaf phacelia, sagebrush,and fourwing saltbush. This suggests that a very shallow planting depth may result in better establishment of sagebrush. The hydroseeded area appears to be the lowest in percentage seedling emergence.

Due to precipitation levels 50% and 25% below normal in April and May (respectively), the study is being closely monitored for signs of severe stress. The advent of recent moisture events may preclude the need to provide a minimum level of supplemental irrigation and avoid a complete failure on the site.

This 1st phase project leads the way into the 2nd phase, which is scheduled to be planted as a shrub FEP this fall, in cooperation with the Questar Exploration and Production Company. The proposed site is located in critical mule deer winter habitat and is presently under heavy development for oil and gas exploration.

By Susan R. Winslow, PMC Agronomist.

Tree and Shrub Salinity Tolerance Study Installed

One of the most frequent questions that we receive at the BPMC is, "what tree/shrub will grow on my salty soil?" That's a loaded question with a complicated answer, and most of the information available to address that question is anecdotal. In order to provide better "real world" recommendations for establishing woody plants on saline impacted sites, a tree and shrub salinity tolerance study was installed at the BPMC in May 2006 in cooperation with the North Dakota PMC, PMS, and State Forester.

The study consists of 30 plants each of 18 different species planted across a salinity gradient. The test species include silver buffaloberry *Shepherdia argentea*, chokecherry *Prunus virginiana*, Colorado spruce *Picea pungens*, blueleaf honeysuckle *Lonicera korolkowii*, silverberry *Elaeagnus commutata,* golden currant *Ribes aureum*, seaberry *Hippophae rhamnoides*, Russian olive *Elaeagnus angustifolia*, Siberian peashrub *Caragana arborescens*, Siberian elm *Ulmus pumila*, ponderosa pine *Pinus ponderosa*, western snowberry *Symphoricarpos occidentalis*, green ash *Fraxinus pennsylvanica*, American plum *Prunus americana*, western sandcherry *Prunus besseyi*, skunkbush sumac *Rhus trilobata,* Nanking cherry *Prunus tomentosa*, and plains cottonwood *Populus deltoides*. The goal is to correlate plant survival, height growth, and vigor rating to salinity level, and possibly to soil moisture level. Brianne Athern, BPMC summer intern, has already collected baseline plant performance data, and some "saline-tolerant" species are not faring well.

As an interesting side note, the impact of salinity level on soil structure and moisture holding capacity was amazing. The high salinity planting sites remained wet, and the soil excavated from the hole dried in large clods. As a result, the roots of many plants remained saturated for up to two weeks after planting, and elimination of air pockets at planting time was very difficult. These conditions are probably typical of many saline sites in Montana and Wyoming, and may explain the "optimistic" soil salinity tolerances reported in studies conducted under controlled greenhouse conditions or on light-textured soils. Root desiccation and lack of soil aeration may be as important as the soil salinity level. Preliminary results should be available this winter.

By Joe Scianna, PMC Horticulturist.

Bridger PMC Hosts "Native Plant Propagation and Nursery Management Workshop"

Last August, BPMC staff traveled to Glacier National Park (GNP) for a site visit and coordinating meeting. While reviewing propagation and nursery management practices in the native plant nursery, Joyce Lapp, Restoration Biologist for GNP, suggested a training session so that all of her revegetation staff could participate. When the idea was presented to program coordinators Sara Wynn (National Park Service [NPS]) and Russ Haas (NRCS), they both responded with a resounding "yes!" The idea then snowballed, and invitations were extended to western parks with revegetation programs, as well as the Confederated Salish and Kootenai Tribes, and Salish Kootenai College.

On June 13-15, 2006, the BPMC conducted the first formal plant materials training for NPS employees by hosting the "Native Plant Propagation and Nursery Management Workshop." A total of 30 participants from Glacier, Zion, North Cascades, Joshua Tree, Sequoia, Yellowstone, Rocky Mountain, and Lassen National Parks, as well as the Confederated Salish and Kootenai Tribes, and Salish Kootenai College attended. The three day workshop featured speakers Sara Wynn and Russ Haas (program overview), Joyce Lapp (restoration project planning; monitoring results), Mark Majerus, Manager, BPMC (direct field seeding), Tara Luna, botanist and horticulturist (Target Seedling Concept; breaking seed dormancy), Dave Baumbauer, Plant Growth Center Manager, Montana State University (MSU) (managing greenhouse insects and disease; container crop fertility), Cheryl Moore-Gough, Extension

Horticulture Specialist, MSU (asexual plant propagation), Dr. Tracy Dougher, Assistant Professor of Horticulture, MSU, (greenhouse lighting), and Joe Scianna, Research Horticulturist, BPMC (nursery stock storage and handling; planting and maintenance). In addition, Phil Johnson with the Montana Department of Transportation conducted an afternoon tour of the massive revegetation efforts along the famous Beartooth Highway, a road that incurred extensive damage from mud and rock slides caused by heavy rains in the spring of 2005. Field demonstrations and exercises were also conducted over the course of the workshop.

The BPMC would again like to thank Sara Wynn and Russ Haas, all of the speakers, and especially the participants, for their interest, sharing of ideas and experiences, and uncontainable enthusiasm. My personal thanks to Shannon Majerus and Margie McClurg, the BPMC staff, and the summer help for all of their efforts and assistance.

By Joe Scianna, PMC Horticulturist.

Broadcast Seeding Demonstration

As part of the National Park Service--Native Plant Propagation and Nursery Management Workshop the development of seed mixtures, seeding techniques, and monitoring was discussed. One month prior to the training session plots were established to demonstrate various broadcast seeding techniques. Seeding projects within the Parks usually necessitate broadcast seeding because of the roughness of the terrain and the need for natural-looking distribution of plants (not in drill rows). Slender wheatgrass was broadcast seeded at a rate of 50 Pure Live Seeds (PLS) per square foot. Seven different techniques were tested. Half of each plot was loose from rototilling and the other half was packed. Workshop participants utilized three random frames per plot to estimate seedling density. Plots were not replicated as this was for demonstration purposes only. The plots were sprinkle irrigated during the week of establishment as our area is still experiencing drought conditions.

Treatment	Packed	Loose
	(seedlings/ft^2)	
broadcast only	2.9	7.0
broadcast-barley nurse	6.3	7.5
broadcast-raked	10.0	10.4
pitted-logs-broadcast	7.1	12.8
broadcast-excelsior mat	39.5	27.9
broadcast-hay mulch	31.3	36.3
broadcast-bark mulch	34.1	45.0

Most treatments responded as anticipated except that the loose soil had better overall establishment than did the packed soil. The use of some form of mulching more than tripled establishment success.

By Mark E. Majerus, PMC Manager.