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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 Jim Jacobs, Plant Materials Specialist, USDA NRCS Montana State Office, Federal Bldg., Rm 443, 10 East Babcock Street, Bozeman, MT 59715-4704, Phone 406-587-6995, Fax 406-587-6761.*

### And the Winners Are....

The Bridger PMC is pleased to announce the results of the Montana and Wyoming NRCS Field Office seed collection efforts in 2007. Montana field staff contributed 38 collections from 10 counties with a combined weight of 2½ pounds. NRCS personnel from the Miles City Area sent in the majority of the collections, with Robert Kilian at the head of the pack and Kathy Knoblach nipping at his heels. The largest sample was *Thermopsis rhombifolia* weighing 58 grams submitted from a Great Falls Area group of collectors headed up by Bruce Waage.

Wyoming field staff contributed 11 collections from nine counties with a combined weight of ½ pound. Ray Gullion sent in the most collections along with repeated efforts from several other NRCS personnel across the state. The largest sample was submitted as *Vicia americana* weighing 73 grams from Brian Jensen.

Not since 1994 has the PMC received so many seed collections in a year! Field Office seed collections are the fundamental backbone of the plant materials program and the driving force behind all conservation germplasm released to the commercial seed industry. We really appreciate the effort and hope you folks will continue to make collections of plants with promising conservation applications. Annual results will be included in PMC reports and promising material will advance for further testing.

*By Susan R. Winslow, PMC Agronomist.*

### Field Office 2008 Seed Collection List

The Plant Materials (PM) Program is requesting seed collections of 7 species in Montana and Wyoming. In 2008, continued collection is requested of *Pediomelum argophyllum* (synonym *Psoralea argophylla*), large Indian breadroot *Pediomelum esculentum* (synonym *Psoralea esculenta*), slimflower scurfpea *Psoralidium tenuiflorum* (synonym *Psoralea tenuiflora*), scarlet

globemallow *Sphaeralcea coccinea*, prairie thermopsis *Thermopsis rhombifolia* and American vetch *Vicia americana*. New to the list this year is the Montana state grass, bluebunch wheatgrass *Pseudoroegneria spicata*.

When scouting around for likely sites in which to make seed collections, look for populations of healthy plants growing in harsher than normal conditions. Specific guidelines for seed collecting can be found in an online technical note at the websites mentioned below. Collections are needed from all areas of Montana and Wyoming.

A bulletin will be distributed electronically to each field office in Montana and Wyoming to provide guidance on accessing the seed collection instructions via each state's homepage. For immediate access to the respective guidance documents, species descriptions, and photos, go to the Montana or Wyoming NRCS homepage and click on Plant Materials, and then the Seed Collection List. Seed is subsequently planted in evaluation studies to test performance and utility for solving conservation problems outlined in the Plant Materials Long-Range Plans for Montana and Wyoming.

*By Jim Jacobs, Plant Materials Specialist.*

### Herbicide Study on Native Wildflower Seed Production is Underway

Inadequate and costly seed supplies and inconsistent establishment have limited the use of native species in revegetation projects. Wildflower seed producers need to gain scientific, technical, and practical knowledge for the successful production of native seeds. To fill this knowledge gap MSU-Bozeman and the BPMC evaluated broadleaf herbicide damage and integrated weed management practices for native wildflower seedlings in seed production fields and in a greenhouse setting. Wildflower species, slender white prairie clover *Dalea candida*, blanketflower *Gaillardia aristata*, fuzzytongue penstemon *Penstemon eriantherus*, silverleaf phacelia *Phacelia hastata*, and prairie

coneflower *Ratibida columnifera* were evaluated for herbicide damage. The treatments consisted of trifluralin, linuron, imazapic, halosulfuron, and pendimethalin with a mechanical weeding component in the field study.

The greenhouse experiment was an herbicide screening evaluating chemical treatments, forb seedling height, and biomass production. A ranking table displays relative treatment effects on seedling injury, with 1 the least affected (compared to the Control) and the greatest impact rated as 10.

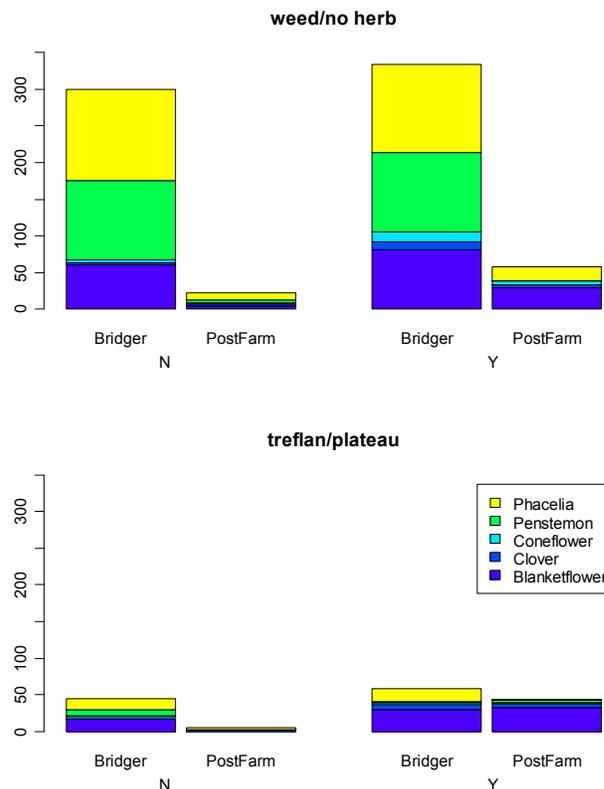
Symbol	Pendimethalin	Imazapic	Linuron	Halosulfuron
GAAR	4	7.5	6	7
DACA	1	4.5	2.5	1.5
RACO	2.5	6.5	3	5
PHHA	2	9.5	2	9

The *Gaillardia aristata* was more sensitive to all the herbicides than the other three species tested. Imazapic was injurious to all species tested and halosulfuron caused significant damage to all species except *Dalea candida*. Additional results on herbicide effects on the number of leaves, seedling height, and biomass production are available upon request.

In addition to the greenhouse study, two field sites were established with the same wildflower species and herbicide treatments at Bozeman (latitude 45.679N, longitude 111.037W) and Bridger (latitude 45.294 N, longitude 108.916421W) to represent different Montana climates. Each treatment was subdivided into hand-weeded and non-weeded plots. Extensive results on wildflower injury, percentage cover, seed production, germination and viability, along with weed composition and cover are available upon request. Seedling injury varied by species with all combinations of trifluralin (Treflan™) and post-emergence herbicides causing reduced emergence in 3 of the 5 species. This is in direct contrast to the pre-emergence herbicide greenhouse study conducted at MSU-Bozeman 2 years ago.

Field testing herbicides represents a necessary step in understanding herbicide effects on wildflower species as environment is a large factor in efficacy. Imazapic (Plateau®) resulted in excellent weed control, but high crop (wildflower) injury levels indicated this herbicide may not be a good choice for field production, also contrasting past research. We found the hand-weeded control plots showed significantly higher establishment rates than any of the herbicide treatment plots for all species. This implies a combination of management techniques may work better than herbicide alone. The graph below shows the number of plants established at each site in the control plots compared to the plots

where trifluralin and imazapic were used. With herbicide included the number of plants is greatly reduced.



A second field season in summer 2008 will elucidate useful broadleaf herbicides for seed production fields and determine effects of treatments on wildflower seed viability and germination.

By Jessie Wiese, MSU Graduate Student.

### New Employee on PMC Staff

Beth Graham is an environmental engineer that has been assisting with PMC research projects since 2005. Her former experience included remedial study and design work at industrial and abandoned hazardous waste sites. Beth has helped with design, installation, and evaluation of the subirrigation tube and tree and shrub salinity tolerance studies, as well as greenhouse propagation and production. She enrolled in the Earth Team Volunteer program in late 2007 and recently began an intermittent position at the PMC through the National Older Workers Career Center. Beth is also assisting with the Warren Air Force Base project in various capacities and is particularly interested in restoration and reclamation research of mineland and other drastically disturbed sites.

Beth is considering graduate studies at Montana State University in connection with cooperative studies at the PMC. She resides in Bridger with her husband Karl and their three children, Frances, Jay, and Ava. Beth has proved a valuable addition to our staff – welcome aboard Beth!

*By Joe Scianna, PMC Horticulturist*

### **PMC Happenings**

To Top or Not to Top: On March 22, twelve people participated in the Pruning Workshop hosted at the BPMC. Although the weather and snowfall during the previous night kept a few people who had registered from attending, the afternoon hands-on pruning portion on the Center's trees and shrubs went very well. Attendees were from Red Lodge, Joliet, Bridger, Billings, Columbus, and Mammoth Hot Springs; and they learned

how to make proper cuts, tree anatomy, when to prune, etc.. Plans are for annual spring workshops to be held at the BPMC, covering an assortment of agronomic or horticulture topics that we see a training need for, so please "stay tuned" for future announcements!

Mark Your Calendars! The Bridger PMC will host their biennial Field Day beginning at 10 a.m. on Wednesday, June 18th. Participants will have an excellent opportunity throughout the day to take part in different tours focusing on foundation seed production, seed processing and cleaning equipment, weed control, horticulture plantings, technology development, ongoing research studies, and cooperative and future projects. Lunch will be provided with an RSVP no later than June 11. See the attachment to this newsletter for more information.

*By Roger Hybner, PMC Manager*

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