Wyoming

Compiled by Lisa Taylor

For 2018, NPGS shipped 13 orders with a total of 103 items (37 from WRPIS) to 5 people in Wyoming. All thirteen orders were submitted over the GRIN-Global Website. We received 2 responses to our email questionnaire from requestors. Their responses are listed below:

(1) Kristina Hufford

1. Did the material arrive in good condition? Did the material germinate and/or root well? Did the material grow well? Any observations you may have on general growth and development?

   Yes. Although on one occasion we did not receive material and did not follow up due to time constraints. Overall, we've had moderate success growing accession seeds. We never have complete failure, but we don't see everything germinate.

2. Was this material useful to you? If yes, how? If no, why not?

   The material is always useful, and we are grateful to be so close to a Germplasm facility and also to have access to nation-wide germplasm collections.

3. What were the outcomes from any plant germplasm you received: Was it part of a research experiment? Did you make crosses? Are you developing any new plant offerings? What are your future plans with this material?

   We are still processing data from outcomes but comparisons of cultivars (via accessions) and wild populations collected by our team have proven very useful both for greenhouse studies of competition and for DNA studies. We do not plan on developing new plant offerings. Instead, we are developing a better understanding of 1) the use of cultivars in ecological restoration and 2) the differences among accessions of natural populations.

4. Have you completed any publications or news items related to the material you received at any time? If yes, please include a list of your publications and news items.

   Manuscripts are underway. One MS Thesis has been published

https://www.researchgate.net/publication/319875140_Investigation_into_the_Long-term_Persistence_of_Cultivars_along_a_30-year_Restoration_Chronosequence

Please email your report to me, lisa.taylor@ars.usda.gov, at your earliest convenience. Submit your report within the body of your email message or as an attached Word document. Thank you for your help in documenting how NPGS is useful to you and serves science and business in the state of Wyoming.

(2) Jim Heitholt

1. Did the material arrive in good condition? Did the material germinate and/or root well? Did the material grow well? Any observations you may have on general growth and development?

   Yes, the seed arrived in great condition. Packaged perfectly and it arrived very quickly after the request. I had a little problem with the germination not being 100% but that did not affect my project. On four or five occasions, the one seed within a pot germinated one or two months after it was planted but the other germinated and emerged with one week. Perhaps there is some dormancy or hard seed in some of the accessions. Overall, the lines have grown well and the photoperiod-sensitive lines grew 10 feet tall in some cases until the days became short enough to trigger flowering. This was the second winter that I've grown the photoperiod-sensitive lines and because I live in the north, I have to do this in the greenhouse and do it between September and March.

2. Was this material useful to you? If yes, how? If no, why not?

   Yes, the photoperiod-sensitive lines are being used as a recurrent parent. The day-neutral lines have been used in straight crossing programs or in crosses with the photoperiod-sensitive lines. Multiple non-photoperiod-sensitive accessions have served as parents in other crosses.

3. What were the outcomes from any plant germplasm you received: Was it part of a research experiment? Did you make crosses? Are you developing any new plant offerings? What are your future plans with this material?

   In almost all cases, I have used the lines as parents. The advance lines derived from the Collection are still in the segregating progeny stage. I am mostly breeding for earliness and upright stature (lodging resistance). My goal is a variety release or germplasm release. In one case, we were able to grow two of the photoperiod-sensitive lines in a replicated greenhouse experiment. Of course, to do that, we used second-generation seed that I advanced during the winter of 2017-2018. The 25 seed that was sent was a great start but not enough to do a replicated test but we were able to conduct the test after growing one pot of each line the previous winter. We hope to have publication on that study sometime during 2019.

4. Have you completed any publications or news items related to the material you received at any time? If yes, please include a list of your publications and news items.

   Wyoming Department of Agriculture Annual Performance Reports (November 2018)
   One of these reports was associated with a breeding program seeking to generate drought-tolerant lines and lines tolerant to low soil N (unfortunately Phaseolus is a poor N2 fixer and many producers fertilize with N). LREC (Laramie, WY) Ag Field Days – presentation and popping bean handout (August 2018) SAREC (Lingle WY) Field Day – August 2018; presentation about breeding progress