W6 RTAC Annual Meeting
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California Report
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Summary of germplasm user survey

In 2024, 73 orders placed by 53 scientists in California and in 2021, 47 orders from 34 scientists were received for germplasm from the W-6 repository. By way of comparison, in 2022, 49 orders were placed by 40 scientists, but in 2019, pre-pandemic, 104 orders were placed by 74 scientists. The long shadow of the pandemic still seems to be present.

This year, I used a Qualtrics survey to compile the data on users. This worked very well, making tracking the responses much easier than doing it by email. I emailed a link to the survey to the 87 scientists who received germplasm in either 2021 or 2024 and followed up with a second email reminding them of the survey. Twenty-six users completed the survey (30%!).

The respondents were from universities and colleges (13), commercial companies (9), federal agencies (2), and other organizations (2). All users said they received the germplasm in a timely fashion (one respondent added "mostly").

Not surprisingly, given the origin of most respondents, the intended uses for the germplasm were primarily research (68%) and secondarily varietal and germplasm development (24%); a few orders included educational or other objectives. One respondent mentioned that they used the germplasm for all three, and likely others did as well. We didn't include a multiple answer option on this question, which we should do next year.

One scientist indicated that they had released cultivars (these were dry bean cultivars released in 2021, not from germplasm received in 2021) and one scientist indicated they had referenced germplasm in a publication, but didn't give the details.

The main comments are that users of the collection recognize the value of the collection and appreciate the service provided by the W6 (and other) germplasm curators and that users are concerned with germination and seed viability of some collections but recognize this is an issue with funding.

The detailed comments I received are listed below.

The germplasm from the NPGS is incredibly important! It is a great resource that is essential for enabling basic and applied research in plant biology and breeding. Not commenting specifically about W6, but about the germplasm collection in general:

1. Often times the seeds we receive are old and don't germinate or germinate poorly. It appears that important germplasm is being lost because it is not propagated for new seed frequently enough. I think NPGS needs more support to better maintain the collection. Much of this germplasm is very hard to replace, so maintaining it is incredibly important.
2. The collection appears to be quite haphazard, with some species and families highly represented and others having very little representation. I think there would be a benefit in getting more representation in under-represented clades.

3. In some cases the species reported don't appear to match exactly how the plants look. Sometimes plants reported to be from different species look the same, whereas other times varieties reported to be the same species look quite different. I imagine much of this comes from historic classifications done without the benefit of DNA sequencing. I would recommend some systematic effort for DNA sequencing (like a ribosomal gene) that can be reported in the database and used to be more accurate with species names. It is quite cheap and easy to do a DNA prep, PCR and sequencing using some universal primers.
4. It would be great if NPGS could move towards stocking the specific varieties of plants that have published genomes. Particularly those listed on Phytozome and NCBI.

Thank you for your work on this important resource!

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i believe the NPGS germ plasm repository is a must for all of our private and public breeding entities. i began my company 10 years ago, with a few small sample packets from the repository, and have never been happier with my decision to bring back some of the traits from older genetics.....times continue to change in the market, but there is always a need for some of the older genetics to be a part of the future markets. Trust me, ive been doing this 30+ years, we need the repository.

We have been very grateful for this resource. We are focused on Asian crop variety development and preservation, and many varieties maintained by GRIN would not be available to us elsewhere. I've also enjoyed corresponding with David Brenner about some of the crops he maintains and appreciated articles he's written and shared with me. Also, Charlie Brummer is always a wonderful person to talk to about plants. Having access to additional writings and findings from the crop committees is always really helpful and educational as well. We have also offered to send back seeds if that's ever helpful. I know that as a public resource, everyone is operating within a lean system, so if there are ways for farmers to decentralize some efforts at ongoing variety maintenance and preservation, I would be interested in participating.

Germination and vigor varied from crop to crop. Sometimes we did not have a strong enough stand to gain relevant information from a trial or initial grow out.

The USDA germplasm has been pivotal to my PhD research. I am interested in quantifying the widespread natural chemical diversity in the Brassicales. Obtaining seeds through the germplasm repository has allowed me to analyzed hundreds of samples from all over the world without incurring into additional expenses. Otherwise, I would not have been able to complete my thesis project.

The NPGS is a critical resource for both public and private breeding programs. Investment in this resource pays dividends across industries and yields innovations that would not otherwise be possible. Thank you for your work and service to agriculture.

The germplasm I received was used for research purposes to identify a genetic marker for a trait as well as used to breed improved populations containing that trait.

I ordered and received some native lupine seed. I understand the difficulties with the feasibility of having samples of...everything - all the time- and keep it viable. But for what it's worth, among the 4-5 species I ordered, my germ viability ranged between 10-40%. It is what it is.

Keep up the great and important work to preserve and distribute genetic diversity, important for food security!

I received the lettuce seed requested from the W6 in a timely manner, and it was exactly as described. Both the current and incoming curators took the time to meet with me via video call to discuss the material, their preservation protocols, and their distribution system. This discussion was highly beneficial to my research and has enabled me to more accurately communicate information about these materials to other interested parties.

I am part of a collaborative effort investigating emerging races of a lettuce pathogen that is severely impacting lettuce production in Salinas, California, and Yuma, Arizona—two of the primary lettuce-producing regions in the United States. This and other plant pathogens pose significant global threats to U.S. agriculture. The resources provided by the USDA National Plant Germplasm System (NPGS) are essential to our national capacity to respond to plant diseases and play a vital role in maintaining food security across the U.S. Lettuce seed in particular has a short shelf life and is difficult to preserve, thus without support from staff at W6, the availability of these materials would be greatly limited.

We are grateful for the essential work being done by the W6 germplasm repository.

Thoughts on the RTAC meeting

Beyond the survey, I want to raise an issue I've brought up in the past regarding the purpose of this meeting. While these state reports have some value, it is mainly in showing that users value the germplasm resources, which is something that is widely appreciated already. However, the reports do not do anything to address our primary mission as a RTAC, which is to provide oversight to the W-6 repository specifically and, with lesser importance, to the NPGS more generally.

In the past, I've suggested that we have annual reports from each of the curators – what are they doing, what are their limitations, and how can we, as an RTAC, better support each of them. Further, having time for each curator to present to the RTAC gives them more visibility and a higher profile with the committee and other participants in the meeting. Eliminating the state reports (or at least, the oral reports) would open up time for curatorial reports and discussion, which would be much more in-line with what I see as the role of the RTAC.