MINUTES

Potato Crop Germplasm Committee Meeting

July 19 2022 6:30 AM-8:00 AM (MDT)

Room: Madison, Holiday Inn, Downtown Missoula, Montana

Chair: Sagar Sathuvalli

Vice Chair: Dave Douches

Secretary: Alfonso Del Rio

Participants: Ames, Anglin, Bamberg, Behling, del Rio (Secretary), Douches (Vice-Chair), Fenstemaker, Goyer, Han Tan, Novy, Parsons, Sathuvalli (Chair) Shannon, Whitworth, Yencho

Potato Crop Germplasm Committee Meeting

Agenda (attached) had been distributed earlier.

1. A brief introduction was given by each of the participants.
2. Bamberg gave a general overview of Potato Crop Germplasm Committee (PCGC). He offered a summary of the CGC program and its history, its role in potato and, how CGC connects to the US Potato Genebank (USPG). He emphasized that the CGC vulnerability statement is a good option to identify problems that need to be addressed. Sathuvalli added that the statement needs to be updated with new emerging threats, so the group is aware, one example given of this was Mop Top Virus (PMTV).
3. Bretting sent an e-mail with an attached report to the group with an update of the status of the USDA/ARS NPGS NPL,
4. The group took time to remember the late David Spooner who passed away in July 2022. Many had good memories of him as a colleague and friend, some of them were shared in the meeting.
5. Bamberg reported that the US Potato Genebank is moving to Madison, Wisconsin but a specific date is not available yet. Yencho asked if NRSP-6 project still supports the genebank, Bamberg indicated that this multistate project is now ended and the USPG does not have this funding anymore. Novy praised the work of the USPG highlighting its importance in providing research materials, as an example he indicated that breeding lines with resistance to tuber greening was possible thanks to materials shared by the USPG.
6. A report from PI of last evaluation grant recipient Jiwan Palta was discussed. Palta gave a presentation in the previous CGC meeting in April 2022. del Rio updated that this project was now completed, the study found that heat tolerance and acclimation capacity is possible. Palta's group is working on a couple of scientific manuscripts to report the results. Yencho emphasized that research on heat stress is critical as extreme elevated temperatures are happening in the country, in particular North Carolina, and affecting the crop. The group agreed and indicated that drought should be also included as both heat and drought interrelate.

7. CGC new grant progress was given by Fenstemaker. This project is investigating accessions in the USPG that are not associated to a given species and hence cannot be distributed. Fenstemaker reported that these unknown accessions have already been planted and evaluations started. He introduced Dr. Mercedes Ames as a collaborator in this project because of her expertise in taxonomy. Genotyping using GBS is planned to validate morphological identification. In addition, he indicated that scans of representative plants for each accession will be conducted and sent to GRIN.
8. Priorities for future CGC grants. Bamberg indicated that the group should think about research priorities for future grant proposals. In the discussions some potential research options were indicated such as tolerance to water stress, screening for PMTV to identify genetic resources, and developing molecular markers for scab. The idea of having a CGC meeting before the PAA was proposed but will be further discussed by the group.
9. Leaders were selected for subcommittees involving specific areas. Vulnerability statement update = Whitworth; Tissue Culture Collection rationalization = Anglin and Fenstemaker and Phytosanitary advice for USPG = French
10. Bamberg commented that the vulnerability statement needs to be updated with emerging issues like new diseases, vandalism, etc. The group discussed about USPG materials that are never used and/or requested to make decisions to remove them. Anglin and Fenstemaker volunteered in the previous meeting and are currently working on this.
11. Fenstemaker was elected as new Secretary.
12. Future CGC Meeting is expected to be at the Annual PAA meeting at Prince Edward Island, Canada in July 2023. However, discussions about having an additional meeting on April 2023 took place but no decision was taken.

Adjourned at 8 AM (MDT)

Respectfully submitted,

Alfonso del Rio

POTATO CGC 2022

AGENDA

Potato Crop Germplasm Committee Meeting

April 15 11:00 AM-12:30PM (PST)

https://oregonstate.zoom.us/j/98892629726?pwd=SEZObmZWU25YYWdXZGw4clhwRHYrdz09

Chair: Sagar Sathuvalli

Vice Chair: Dave Douches

Secretary: Alfonso Del Rio

Agenda

1. Introductions
2. Overview of Potato Crop Germplasm Committee (PCGC) – Dr. John Bamberg
3. Administrative Report – Dr. Peter Bretting
4. National Germplasm Resources Laboratory – Report -Dr. Gary Kinard
5. Report from PI of last evaluation grant recipient – Dr. Jiwan Palta
6. PIs of FY22 proposals present their plan and have questions & group discussion
7. PCGC identifies a separate subcommittee chair to organize CGC advice for curator on these three topics:
    a. Vulnerability Statement update.
    b. Phytosanitary protocols at the genebank.
    c. Assessing relative value and priorities of items in the TC and seed collections.
8. Review of membership and potential additions / retirements
9. Progression of PCGC leadership, plan for future meetings, etc.

USDA-ARS
National Germplasm Resources Laboratory
Beltsville, Maryland
2022 Report to PGOC, RTACs, and CGCs

The National Germplasm Resources Laboratory (NGRL) supports the acquisition, introduction, documentation, evaluation, and distribution of germplasm by the National Plant Germplasm System (NPGS) and other components of the U.S. National Genetic Resources Program (NGRP). The Laboratory is comprised of the Plant Exchange Office (PEO), the Database Management Unit (DBMU), and the Plant Disease Research Unit (PDRU).

Dr. Dimitre Mollov transferred to the ARS Horticultural Crops Research Unit in Corvallis, OR, in June 2021. NGRL hopes to fill this vacant Plant Pathologist position in 2022.

Dr. Anne Frances joined NGRL as a Botanist in August 2021. Anne comes to ARS and NGRL after serving as the Lead Botanist for NatureServe, a conservation science-based NGO, for ten years. Anne is a scientist in the Plant Exchange Office project.

Plant Exchange Office

Plant Exploration and Exchange Program:

- The PEO supports the collection of germplasm for the NPGS through the management of the Plant Exploration and Exchange Program. Guidelines for developing plant exploration and exchange proposals will be distributed to CGC chairs in February 2022. Proposals must be endorsed by the appropriate CGC or other crop experts to be considered for funding.
- Most explorations approved for funding in FY 2020 and FY 2021 were postponed due to the pandemic. It is unclear at this writing (January 2022) whether the postponed explorations and any new ones approved for FY 2022 will be able to proceed this year. Due to funding constraints imposed by proposals already approved, it may not be possible to approve new exploration or exchange proposals for funding in FY 2023. Please consult with PEO before developing proposals for FY 2023.

- Two explorations were conducted in FY 2021. One international exploration was conducted in the country of Georgia for *Salix* by in-country scientists. One domestic exploration was conducted in Illinois for *Aronia* species, deciduous shrubs used as ornamental landscape plants and as an edible fruit crop. All postponed explorations will be rescheduled when pandemic-related travel restrictions are lifted and conditions are considered safe.
- All foreign explorations supported by PEO must comply with the principles in the Convention on Biological Diversity covering access and benefit sharing related to genetic resources. Prior informed consent to collect genetic resources is obtained from the host country before the exploration. The PEO is involved in most requests to foreign governments for permission to collect and negotiates the terms of agreements when necessary.

Collaboration on Crop Wild Relatives in the U.S.:

The NGRL is collaborating with NatureServe, the US Botanic Garden, and other partners on the conservation of *Vitis* species native to North America, which are crop wild relatives and used as rootstock for the cultivated grapevine (*Vitis vinifera*). Conservation status assessments are being completed and an invitational workshop is planned for fall of 2022.

GRIN Taxonomy for Plants:

- GRIN Taxonomy, available through GRIN-Global (https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch), provides online current and accurate scientific names and other taxonomic data for the NPGS and other worldwide users. This standard set of plant names is essential for effective management of ARS plant germplasm collections, which now represent ca. 16,300 taxa. A broad range of economically important plants is supported by GRIN nomenclature, including food, spice, timber, fiber, drug, forage, soil-building or erosion-control, genetic resource, poisonous, weedy, and ornamental plants. The search page (excluding the World Economic Plants search) was rewritten in 2021 to allow a broader range of searches and provide the option to export most search results.
- GRIN Taxonomy includes scientific names for 27,931 genera (14,715 accepted) and 1,422 infra-genera (1,355 accepted) and 125,758 species or infra-species (69,125 accepted), with over 67,798 common names, geographical distributions for 61,212 taxa, 510,559 literature references, and 32,468 economic importance records. These numbers increase regularly.
- Since 2008, a project to provide thorough coverage of wild relatives of all major and minor crops in GRIN Taxonomy has been underway. We have completed our initial work on 386 major and minor crops from 174 genera, and CWR from 4,295 taxa have been mapped to these crops and others under progress. An interface to query these data is available (https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearchcwr.aspx). We invite feedback from NPGS curators and CGC members for those CWR classifications already developed.

Facilitation of Germplasm Exchange:

The PEO helps expedite the distribution of germplasm from the NPGS to foreign scientists and international genebanks through a long-standing collaboration with USDA-APHIS at Building 580, BARC-East in Beltsville. The pandemic caused a backlog in shipment of orders in 2020. Although the backlog was significantly reduced in 2021, international shipments remain challenging. Only one APHIS inspector is currently available to inspect NPGS outgoing shipments, and logistical delays related to global shipping are continuing.

In 2021, 735 public orders containing a total of 48,196 samples of NPGS accessions were shipped from Beltsville to individuals in 72 countries for research and education. This is more orders than have been shipped from Beltsville in any previous year. In addition, PEO facilitated the agricultural inspection of arriving germplasm shipments containing accessions from numerous foreign countries for researchers and curators at NPGS sites.

Crop Germplasm Committees:

- Many committees continue to meet regularly and are active, although the second year of the pandemic continued to create challenges, especially for committees that typically meet in person. Committees are urged to meet at least annually, and especially to update their Crop Vulnerability Statements. Several CGCs recently completed new versions. The NPGS has been fortunate to fill numerous vacant positions in the last 1–1.5 years, and we hope more will be filled in 2022. These new staff would especially benefit from active and supportive CGCs.
- A virtual meeting/web conference for CGC Chairs is scheduled for March 3, 2022. The 2021 CGC Chairs meeting was held February 21, 2021, and the presentations are archived on the CGC page at https://www.ars-grin.gov/CGC.
- NGRL has a Zoom conferencing account that is available to the CGCs to use for hosting virtual meetings.
- Please send updates to the individual crop committees of the CGC page on GRIN (https://www.ars-grin.gov/CGC) to Gary Kinard.

Database Management Unit

GRIN and GRIN-Global:

- At the time of this report, the GRIN-Global plant database included the following:

  600,495 active accessions representing 16,308 species and 2,568 genera
  3,506,531 inventory records
  2,147,592 seed germination/viability testing records
  9,126,834 characteristic/evaluation records

1,404,683 attachment files, primarily digital images

These numbers increase regularly, some almost daily.

- Incremental improvements were made in the GRIN-Global applications throughout 2021. One of the major enhancements was in GRIN Taxonomy, which received a major redesign. Search pages, especially for nodulation data, received a new interface, a browse feature was added with family, genus, species, and common name search options, and the capability to perform species-level searches on geographical distribution was improved. In June 2021, a major enhancement was made to allow for public display and ordering, if the curator implements it, of multiple inventories or propagule forms of single accession. This is particularly relevant for clonal collections that may curate both asexual (whole plant with cuttings, stolons, etc. distributed) and sexual (seeds, pollen, fruit) forms of a single accession This also assists with requesting cuttings from a specific gender of dioecious accessions where both male and female plants are curated. Another feature added in 2021 was implementation of a tool to filter automatically incoming orders that have characteristics potentially indicative of illegitimate requests, which we call Non-Research Requests (NRR). This NRR Tool allows staff to manage efficiently and consistently such requests NPGS-wide, including using system-generated emails to communicate decisions about submitted orders.
- Current information about the project, including user documentation and release notes from each version of the software, can be found on the project website at https://www.grin-global.org/.

Plant Disease Research Unit

The PDRU conducts research on pathogens that infect clonally propagated prohibited genus (i.e., quarantine) plant germplasm, including their etiology, detection, and elimination by therapeutic procedures. This project provides direct support to the APHIS Plant Germplasm Quarantine Program and helps facilitate the safe introduction, conservation, and international exchange of valuable plant germplasm. PDRU also collaborates on virus related problems with NPGS germplasm repositories, state departments of agriculture, and university scientists. Additional updates will be provided for those committees whose crops are within the scope this project's research.

Key NGRL Contacts

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