

Meeting Minutes of the W-6 Technical Committee Meeting

Date: Monday, June 25, 2018

Location: Conference Room at the National Clonal Germplasm Repository, Corvallis, OR

Officers:

Chair – Carol Miles

Vice Chair – Ian Ray (call in)

Secretary – Joe Kuhl

2018 W6 TAC participants:

In person (Conference Room at the National Clonal Germplasm Repository, Corvallis, OR):

Carol Miles, Washington State University, Mount Vernon, WA, email: milesc@wsu.edu;

Joseph Kuhl, University of Idaho, Moscow, ID, Email: jkuhl@uidaho.edu;

Scot Hulbert, Washington State University, Pullman, WA, email: scot_hulbert@wsu.edu;

Jinguo Hu, ARS WRPIS, Pullman, WA, email: jinguo.hu@ars.usda.gov;

Dave Stout, ARS WRPIS, Pullman, WA, email: Dave.Stout@ars.usda.gov;

Brian Irish, ARS WRPIS, Pullman, WA, email: Brian.irish@ars.usda.gov;

Joseph Postman, ARS NCGR, Corvallis, OR, email: Joseph.Postman@ars.usda.gov;

Kevin Jensen, ARS FRR, UT, email: Kevin.Jensen@ars.usda.gov;

Pat Byrne, Colorado State University, email: Patrick.byrne@colostate.edu

Ali Missaoui, University of Georgia, email: cssamm@uag.edu

Dan Parfitt, University of California, Davis, CA, email: fzparfit@plantsciences.ucdavis.edu;

Gary Kinard, ARS NGRL, Beltsville, MD, email: Gary.Kinard@ars.usda.gov;

Melinda Yerka, University of Nevada Reno, Reno, NV, email: myerka@unl.edu;

Kim Hummer, ARS NCGR, Corvallis, OR, email: Kim.Hummer@ars.usda.gov;

Called In:

Ian Ray, New Mexico State University, Las Cruces, NM, email: iaray@nmsu.edu;

Peter Bretting, National Program Leader, email: Peter.Bretting@ars.usda.gov;

Ann-Marie Thro, National Program Leader, email: athro@nifa.usda.gov;

Harold Bockelman, ARS NSGC, Aberdeen, ID, email: Harold.Bockelman@ars.usda.gov;

John Preece, ARS NCGR, Davis, CA, and ARS NALPGR, Parlier, CA, email:

John.Preece@ars.usda.gov;

Roger Chetelat, University of California - Davis, Davis, CA, email: trchetelat@ucdavis.edu;

Stephanie Greene, ARS NLGRP, Ft. Collins, CO, email: Stephanie.Greene@ars.usda.gov;

Tracie Matsumoto, ARS TPGDR, Hilo, HI, email: tracie.matsumoto@ars.usda.gov;

Marylou Polek, ARS NCGRCD, Riverside, CA, email: Marylou.Polek@ars.usda.gov;

Michael Giroux, Montana State University, Bozeman, MT, email: mgiroux@montana.edu;

Action item 1: Resolution to request the issue of new farmland to replace land lost due to airport expansion, to be resolved by 2019.

Action item 2: Jinguo Hu and Brian Irish will meet to discuss and decide if moving the alfalfa germplasm to Central Ferry is viable, report back to the group in 2019.

Action item 3: Determine use of state reports and W6 annual report; what are other regions reporting; share annual request letters; follow up with recipients who received germplasm several/3 years ago; TAC subgroup: Pat Byrne, Kevin Jensen, Carol Miles, others welcome.

Action item 4: 2019 annual meeting will be hosted by W6-WRPIS in Pullman in mid-June, will have webinar connection with WebX; 2020 annual meeting tentatively to be held in Logan UT

Opening remarks:

The meeting was called to order by Chair Carol Miles at 8:35am. There were brief opening remarks regarding agenda and procedure.

2017 Minutes were introduced, moved and seconded to approved without changes, unanimously approved.

Resolutions committee was discussed: Kim Hummer and Dan Parfitt agreed to co-chair. Brian Irish possible member?

Administrative Advisor report (Scot Hulbert):

Dr. Hulbert is replacing Dr. Jim Moyer, and is serving on 5 multi-state meetings. W6 5-year plan was renewed in 2016. Five-year plan reviews were very good. TAC reports need to emphasize impacts, in particular economic/commercial impacts, use bullets and keep short.

The proposed FY2019 budget of \$446,257 looks fine. It was noted that in the proposed budget, ARS appropriations, were flat year to year, while MRF funding increased 2.3% annually. Kevin Jensen moved with Dan Parfitt second to approve the FY2019 budget. Motion passed.

It was also noted that no money was included to move alfalfa germplasm production from Prosser to Central Ferry, which is estimated to cost ~\$3 million. The idea was that by moving alfalfa germplasm grow-out from Prosser to Central Ferry, the grow-out would not be exposed to potential pollen drift from GE alfalfa, which is widespread around the Prosser site. There are approximately 13,000 alfalfa accessions and 4-5,000 accessions could be contaminated with genetically engineered transgenes. Some sources are free of the transgenes, some are not. After much discussion it was evident that since commercial alfalfa fields are within 5 miles of Central Ferry it would not be a satisfactory solution. Brian Irish commented that currently guidelines are in place and are being followed for seed production using isolation protocols (cages).

Significant costs are associated with managing genetically engineered crops within germplasm management groups, and the private sector needs to recognize this issue, especially as it related to the federal germplasm program. A report on GE and Organic crops was presented to secretary of agriculture Tom Vilsack. It was noted that for the private sector GE represents a public relations issue, while for public germplasm groups it was a matter of integrity. The American Seed Trade Association (ASTA) might be willing to speak up on behalf of germplasm users. Collections that might be contaminated with GE transgenes might include: alfalfa, cotton, and sugar beet. Within USDA this contamination is referred to as Adventitious Presence (AP). It was noted that unless one or more stakeholders voice concern about this issue it is unlikely to attract much attention. It was suggested that a resolution could be created to address this issue.

Additional comments were made regarding W6 budget related issues.

Due to an airport expansion W6 will loss 28.5 acres. State and Federal authorities are working to resolve the loss of acres, however new land may cost ~\$100/acre, ~\$3,000 increase to budget. Some land being discussed is too steep for the desired use. W6 will also need to adapt to moving equipment longer distances than they have in the past. Farm managers are working on solutions to moving farm equipment around.

Short break.

ARS National Program Office report (Peter Bretting):

Dr. Bretting presented Powerpoint slides summarizing the status, prospects and challenges facing the National Plant Germplasm System in 2018. Successes include state/federal partnerships. The number of accessions has gradually increased over the last 10 years. Germplasm distribution has remained relatively constant over the last 10 years, around 250,000 accessions disturbed annually. The ARS National Plant Germplasm System budget peaked in 2012 and has been flat since 2014. Staff retirements are projected at 30% over the next 5 years. Retirement include John Wiersema (ARS-Beltsville), Dave Stout (ARS-Pullman), and Jack Peters (ARS-Corvallis). New hires include Ben Gutierrez (ARS-Geneva). With the recent hiring freeze lifted, additional staff are expected to be hired in the near future. Currently, no formal, comprehensive program exists for training new PGR managers. Gayle Volk and Pat Byrne secured a USDA/NIFA planning grant for a workshop in Fort Collins in April 2018 to discuss designing and developing a training program. The workshop generated numerous insights and another grant (Higher Education Challenge) has already been submitted to extend concepts and ideas from the workshop.

National Program leader Plant Systems-Production NIFA update (Ann-Marie Thro):

Dr. Thro presented Powerpoint slides summarizing management and utilization of plant genetic resources and associated information. In her talk, Dr. Thro highlighted two types of funds: Capacity funds and Competitive funds. Within Competitive funds Dr. Thro mentioned that a new AFRI program with a separate RFA will be released October 10, 2018 called Sustainable Agricultural Systems (SAS). This new program seeks large projects for correspondingly large grants. She noted that it is very difficult to find competitive funding for maintenance and distribution of plant germplasm.

Business meeting, NPGS Station Reports:

National Small Grains Collection, Aberdeen, ID (Harold Bockelman):

The National Small Grains Collection (NSGC) presently holds 146,225 accessions of the small grains (wheat, barley, oat, rye, triticale, rice, and related wild species). This number includes more than 10,000 accessions of mapping populations with GSHO (Genetic Stock – Hordeum) and GSTR (Genetic Stock – Triticum) numbers, which will not be maintained for perpetuity. NSGC distributed 36,868 accession samples in 727 separate requests in the past 12 months. Approximately 30% of the distributions were to foreign scientists. NSGC provided back-up samples to NLGRP totaling 470 accessions. Almost 99% of NSGC accessions have been backed-up. NSGC has prepared a total of 12,400 samples to be sent to Svalbard in the next shipment. More than 60,000 accessions will then be backed-up at Svalbard. We are continuing our efforts to capture voucher images of spikes, panicles, and seeds. The images and characterization data provides valuable information to both the germplasm user and for NSGC curation. The “Accession-Inventory Attach” function was completed in GRIN-Global in late 2017. Since that time more than 36,800 images have been added.

Evaluations of NSGC wheat landrace accessions are continuing for reaction to the Ug99 stem rust race in Kenya. We continue to coordinate the assembly of the Stem Rust Nursery in Kenya in cooperation with the Kenya Agricultural & Livestock Research Organization, CIMMYT, and wheat and barley breeders in public and private programs throughout the U.S. The latest shipment in May included more than 3800 entries from U.S. public and private breeders and researchers. Agronomist position has been vacant since January, 2017.

National Germplasm Resources Laboratory, Beltsville, MD (Gary Kinard):

The Plant Exchange Office (PEO) supports the collection of germplasm for the NPGS through the management of a Plant Exploration and Exchange Program. Guidelines for developing plant exploration and exchange proposals will be distributed to CGC chairs in January 2018. Proposals must be endorsed

by the appropriate CGC or other crop experts. The deadline for submitting proposals for explorations or exchanges to be conducted in FY 2019 is July 20, 2018.

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

In 2016, ARS and the U.S. Forest Service established a new agreement to foster collaboration on conservation of crop wild relatives on U.S. National Forests. A pilot project on complementary (*in situ* and *ex situ*) conservation of CWR of the genetic resources of wild cranberry (*Vaccinium macrocarpon* and *V. oxycoccos*) in National Forests is underway. In 2017, leaves and germplasm of *V. oxycoccos* were collected from wild populations in National Forests in Oregon and Washington. Germplasm was sent to the National Clonal Germplasm Repository in Corvallis, Oregon. Leaf samples were sent to the ARS Vegetable Crops Research Unit at the University of Wisconsin for genetic analysis. This analysis and other factors will be used to determine which sites should be designated as *in situ* reserves.

Discovery and Documentation of Historical Plant Introductions:

A project to identify historical plant introductions (PIs) that are not in the NPGS continues.

In 2017, 35 historical PIs were located at the former Cheyenne (Wyoming) Horticultural Station. The information on the PIs was distributed to curators for their input on the need to acquire samples of the germplasm.

GRIN Taxonomy for Plants:

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 190 major and minor crops from 111 genera, and an interface to query these data in various ways will be available as part of the first 2018 update of the GRIN-Global public website (test version at <https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearchcwr.aspx>).

Facilitation of Germplasm Exchange:

The PEO helps expedite the distribution of germplasm from the NPGS to foreign scientists and other international genebanks through a long-standing collaboration with USDA-APHIS at Building 580, BARC-East. In 2017, 640 public orders containing a total of 55,912 samples of NPGS accessions were shipped from Beltsville to individuals in 69 countries around the world for research and education. In addition, PEO facilitated the agricultural inspection of arriving germplasm shipments containing accessions from numerous foreign countries for researchers and curators at NPGS sites.

GRIN and GRIN-Global:

At the beginning of 2018, the GRIN-Global plant database included the following:

584,449 active accessions representing 15,720 species and 2,533 genera

3,023,069 inventory records

1,973,427 germination records

8,192,598 characteristic/evaluation records

410,476 digitized images

These numbers increase almost daily.

The U.S. NPGS made the transition from GRIN for plants to GRIN-Global on November 30, 2015. The GRIN-Global Development Team initiated improvements and enhancements to both the Curator Tool and Public Website, and corrected any bugs that were reported in 2017. 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/>.

National Clonal Germplasm Repository, Corvallis, OR (Joseph Postman):

Stakeholder/Service Accomplishments:

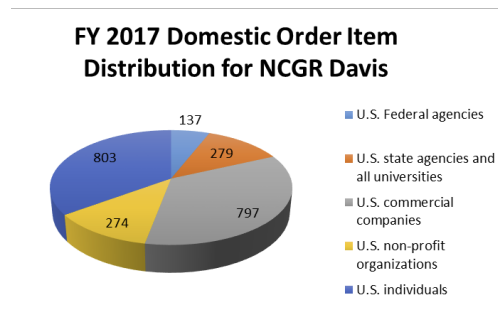
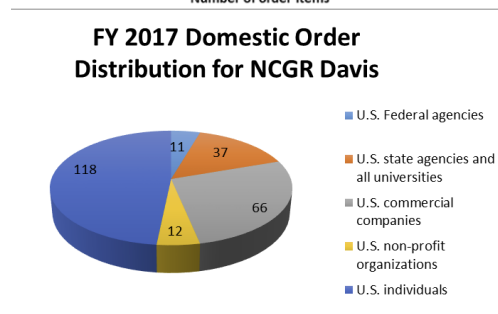
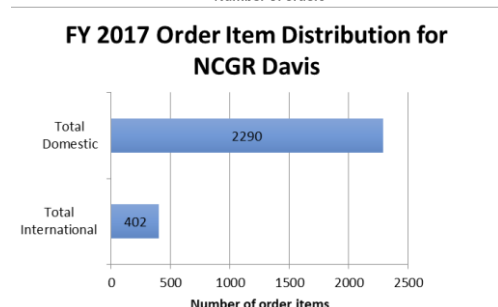
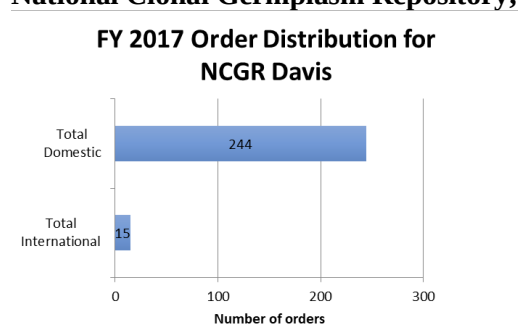
- 12,443 accessions, 73 genera and 774 taxa of 677 species of temperate fruit, nut, and specialty crops were conserved.
- Managed > 3,600 accessions of fruit tree and nut crops on 22 acres of orchard.
- Obtained a total of 80 new accessions and 290 new inventory items in CY 2017.
- Received 1,202 order requests and shipped 5,789 items.
- Collaborated with NGRPL, Ft. Collins, CO, on cryopreservation protocols of dormant blueberry, hazelnut, pear, currant and gooseberry.
- Collaborated with staff of NCGR-Davis to backup genetic resources of hazelnuts in Parlier, and butternuts and kiwifruit in Corvallis, Oregon.
- Trained visiting scientists from the Netherlands, China, and the US.
- Participated on Governing Board for USDA National Clean Plant Network.
- Participated as Science Editor of the ISHS Proceedings and Journals.
- Provided tissue culture assistance to hop breeders for a hop mutation breeding project.
- Collaborated with Forest Service scientists and USDA botanist and geneticist on in situ conservation of cranberry within National Forests of eastern US.
- Implemented dormant bud cryopreservation as one of several backup strategies for woody clonal germplasm accessions.
- Expanded potted greenhouse backup collections of *Pyrus* and *Cydonia* for accessions represented by a single tree and at risk of loss due to disease susceptibility, lack of hardiness or small tree size.
- Trained two high school student recruited through the Apprenticeship in Science and Engineering Program in field and molecular evaluation of blueberry, blackberry, red and black raspberry plants.
- Trained visiting graduate student in evaluating sequence variation possibly associated with powdery mildew resistance in red raspberry.
- Provided DNA testing expertise in blueberry to the Federal Bureau of Investigation to assist in solving a murder mystery.
- Enabled marker assisted seedling selection for black raspberry aphid resistance, perennial flowering in strawberry, and aromatics profile in the USDA-ARS-Corvallis, the University of Florida and University of New Hampshire small fruit breeding programs.

Research Accomplishments

- Determined and published on susceptibility/resistance to egg laying of spotted wing drosophila in fruit of *Vaccinium* species.
- Screened strawberry crop wild relatives for perennial blooming in screenhouses in Corvallis, Oregon, and published list of accessions with photoperiod-insensitive flowers.
- Determined phylogenetic relationships in *Rubus* species based on target enrichment DNA sequencing.
- Detected Black currant reversion virus infection in several black currant (*Ribes nigrum*) collection; worked with APHIS to develop a national response plan for this disease.
- Used chloroplast DNA sequence data to differentiate pear species groups, and to identify genetic relationships between pears and other related crops in collaboration with NCGRP, Fort Collins.
- Used interstem grafts to evaluate pear germplasm for dwarfing potential. Correlated pear mother tree architecture traits with dwarfing potential.
- Developed a high-density SNP array for large-scale genotyping of pear germplasm for marker assisted breeding and germplasm collection diversity analysis in collaboration with UC Davis.

- Analyzed genetic diversity and population structure of American wild southeastern blueberry germplasm in the NCGR collection- Identified true-to-type Florida-4B using parentage analysis and provided evidence of its hybrid status (*V. darrowii* and *V. fuscatum*).
- Demonstrated the diagnostic potential of a current marker for *Phytophthora* crown rot in the University of Florida breeding program but not in other diverse germplasm preserved at the NCGR.
- Demonstrated the usefulness of a bioinformatics pipeline in identifying subgenomes of the octoploid strawberry.
- Discovered a potentially novel gene for black spot resistance in rose.
- Identified *Vaccinium* germplasm that is slow to become infected with, and potentially resistant to Blueberry shock virus.

National Clonal Germplasm Repository, Davis, CA (John Preece):



New Acquisitions:

In recent years, explorations were conducted in the Caucasus and Central Asian centers of diversity to fill gaps, especially in crop wild relatives. This new germplasm is clearing quarantine and will add significant diversity annually for the next 5 years and beyond. During the past year, 32 new *Prunus* accessions were received from APHIS. These include 10 species collected from 6 countries.

C.M. Rick Tomato Genetics Resource Center, Davis, CA (Roger Chetelat):

Acquisitions. The TGRC acquired 444 new accessions this year, including a large set of backcross inbred lines (BILs) from *S. pennellii* LA0716 in cv. M82, as well as an accession of *S. pennellii* used for genome sequencing, and an introgression line with a segment of *S. lycopersicoides* chromosome 12. Obsolete or redundant accessions were dropped. The current total of number of accessions maintained by the TGRC is 4,360.

Maintenance and Evaluation. A total of 1,576 cultures were grown for various purposes, of which 974 were for seed increase, including 53 wild species accessions. Germination tests were run on 655 seed lots. Progeny tests were performed on 89 stocks of male-steriles, trisomics, and other segregating lines or accessions with unexpected phenotypes. 175 stocks were grown for introgression of the *S. sitiens* genome. Other stocks were grown for research on interspecific reproductive barriers. All plants grown for seed regeneration were tested twice for PSTVd; no positive plants were found. Newly regenerated seed lots were split, with one sample stored at 5° C to use for filling seed requests, the other stored in sealed pouches at -18° C to better maintain long term seed viability. For backup storage, 93 seed samples were sent to the USDA and 26 samples were sent to the Svalbard Global Seed Vault.

Distribution and Utilization. A total of 5,978 seed samples representing 2,241 different accessions were distributed in response to 330 requests from 275 researchers and breeders in 31 countries; at least 17 purely informational requests were also answered. The overall utilization rate (i.e. the number of samples distributed relative to the number of accessions available) was 137%. Information provided by recipients indicates our stocks continue to be used to support a wide variety of research and breeding projects. Our annual literature search uncovered 115 publications that mention use of our stocks.

Documentation. On our website we added a ‘comments’ page to facilitate user feedback, and we removed most contact information on users to protect their privacy. Additional images of mutants and wild species were uploaded. Passport data on new accessions was added. Seed request records and passport information on seed samples submitted for off-site back up were provided to the USDA for uploading to their GRIN-Global database.

Research. The TGRC continued research on the mechanisms of interspecific reproductive barriers and on introgression of the *S. sitiens* genome. We published a paper on natural variation for pollen incompatibility genes in *S. arcanum*, *S. chmielewskii*, and *S. neorickii*. We further advanced a set of breeding lines representing the genome of *S. sitiens* in a cultivated tomato background. The goal of this project is to develop a set of ‘introgression lines’ – prebred stocks containing defined chromosome segments from the donor genome – that will provide the first breeder friendly germplasm resources for this wild species. We contributed to a paper reporting a second reference genome sequence for *S. pennellii*. We also participated in collaborative research to evaluate methods for creating doubled haploids by manipulation of centromere histone proteins.

Noon to 1:20pm, Working lunch

Special topic: Kimm Hummer presented “Doomsday vaults, clonal style”

Business meeting, NPGS Station Reports: continued

National Laboratory for Genetic Resource Preservation Ft Collins, CO (Stephanie Greene):

Plant and Animal Genetic Resources Preservation Unit

Plant Preservation Group- safety backup of plant and microbe collections (NPGS and other designated collections)

Clonal CNPGS collection backed up: 84% - seed; 18% - clonal

Plant Germplasm Preservation Research Unit

Developing state-of-art tools to improve gene bank management

Status of the Base Seed Collection:

150,000 base samples have at least one monitor test

2014-2017- focused on monitoring vulnerable base samples

- conducted 22,000 monitor tests

71%- viability changed ($\pm$) < 20 percentage points

23%- viability declined > 20 percentage points

- 2885 base samples (335 taxa) have declined more then 20% since initially tested.
- Yet to be assessed - decline of base samples with monitor tests prior to 2014 (128,000 samples)

Highlights 2018

Svalbard 10th Anniversary

Sent 13,000 accessions representing 280 taxa. 60% comprised of wheat, barley and soybeans. Our lab receives seed from NPGS active sites around the country, repackages and consolidates into a single shipment. This is the first time we are shipping our seed in plastic totes.

Tropical Plant Genetic Resources and Disease Research, Hilo, HI (Tracie Matsumoto):

The Tropical Fruit & Nut Germplasm Repository in Hilo, HI will start the recruitment process for a new curator within the next few months.

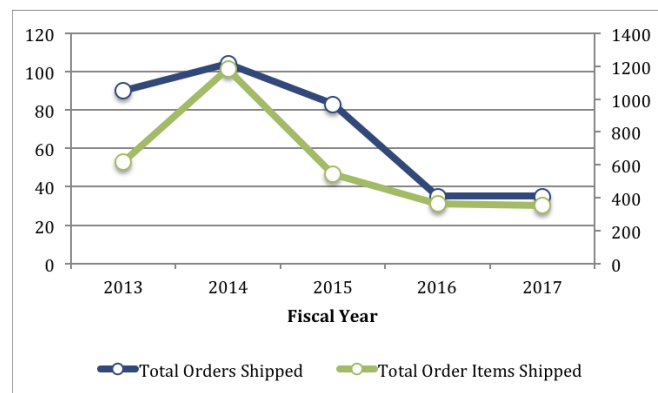
At the Hilo repository, we maintain 13 designated clonal germplasm collections with 1200 accessions representing 61 genera and 145 species in 33 acres of fields, greenhouses and a tissue culture laboratory. Forty-five accessions of papaya and *Vasconcellea* have been regenerated (7000 gm seed) from Hilo, Paauilo and Lalamilo fields. Forty-eight accessions of guava seed were collected (1100 gm). In vitro back-up of breadfruit (20), *Vasconcellea* (11), pineapple (25), ginger (3) starfruit, litchi (2), macadamia (4), guava (3) and passiflora were initiated. Working closely with the USDA, ARS, germplasm repository in Miami we are continuing transfer of the avocado to Hilo through Fort Detrick with eighty-one accessions. Working closely with the USDA, ARS, germplasm repositories in Puerto Rico and Miami we are continuing transfer of the cacao germplasm with fifty-six accessions. Field trials of cacao are being established to evaluate select varieties. Observations have been collected for pineapple plant (9604), flower (2852) and fruit (3708), titratable acid (447), longan fruit (380), peach palm fruit (85), litchi fruit (5580), papaya fruit (450), breadfruit fruit (464), breadfruit plant (672), pilinut (1284), guava fruit (290), rambutan fruit (240), litchi & longan flower (462). GRIN-Global allows researchers to search characterization records, accession and history information available globally within NPGS system and cooperator's collections for specific traits. Entered 14 photos, 53 cooperator, 175 orders, 1661 order items, 66 accession, 127 inventory, 12 narrative, and 7536 observations records and updated 24 environments. 249 requests were filled with 1675 items. Different propagation methods are being explored for breadfruit and once established will be used to expand our collection from the accessions at the National Tropical Botanical Garden, Kahanu, Maui. Tissue cultured pineapple plants are being tested for pineapple mealybug wilt viruses in preparation of being sent to Fort Collins NLGRP for development of cryogenic storage, seeds from 8 papaya accessions have already been sent. Rejuvenation of guava, rambutan, and breadfruit plantings are substantially complete. Air-layers of older trees are field planted or potted for back-up. In addition, cacao, breadfruit, guava, macadamia, rambutan, litchi, longan, and starfruit are pruned for size control and to stimulate new growth. 1061 pineapples replanted. The *Vasconcellea* collection is rejuvenated, 12 accessions representing nine species was moved to different greenhouse to avoid infection by various viruses. Peach palm planting was thinned of 80 trees to stimulate new growth from the roots of the old tall trees.

We also continue to serve as a backup for the ARS germplasm repositories in Miami, Florida, and Mayaguez, Puerto Rico. This year, seven new accessions of avocado were introduced to Hilo from Miami, Florida, through Fort Detrick, Maryland, after scions were tested for both Avocado Sun Blotch Viroid and Laurel Wilt disease in Miami, Fort Detrick and Hilo. Avocado sunblotch viroid (ASBVd) and

laurel wilt (*Raffaelea lauricola*) testing protocols have been established at Hilo repository. We hosted Barbara Freeman from the Miami laboratory to show us how to conduct the assays and thus far all shipped material as well as existing avocation on the station is free of ASBVd.

National Arid Land Plant Genetic Resources Unit, Parlier, CA (John Preece)

Distributions from NALPGRU are in the form of seed, green cuttings/propagules, tissue or rooted plants depending on the crop and the nature of the request, and are filled and shipped year-round. The trend in distributions from NALPGRU is flat after a decrease due to a change in policy regarding distributions to home gardeners. In FY 2017, 80.5% of orders were sent to domestic co-operators, and these were splits equally between federal agencies, universities, and unaffiliated individuals.



Service Regenerations

A significant component of the NALPGRU mission is seed regenerations of accessions from other NPGS sites that require a long growing season and/or dry conditions. NALPGRU staff work closely with curators at the home sites to coordinate planting, data collection, and harvest. The following accessions were increased at Parlier during the 2017 season:

Site	Crop	# accessions harvested
W6	Allium	253
W6	Lactuca	3
W6	Vicia faba	1
NSGC	Triticum/Hordeum/Secale	1366
S9	Capsicum	36
S9	Vigna	43
S9	Citrullus	18
NC7	Helianthus	39
NC7	Cumin	1

Acquisitions

NALPGRU was approved for funding through the Plant Exploration Office and the New Crops CGC for a collection trip targeting *Parthenium* in southwest Texas. The trip is being planned for late summer 2018. Three new accessions of wild *Cucurbita foetidissima* were donated from an NPGS collection trip to Oklahoma.

Collection maintenance and propagation

The NALPGRU performs routine regenerations of their seed crops, and manages the rest as clonal accessions with periodic replanting. The backup *Corylus* block was removed in spring 2017 to allow space for a new, more comprehensive planting. The first 55 trees were planted in the new block in summer 2017. The next set of trees has been propagated by Corvallis staff and is awaiting shipment to Parlier for planting.

Evaluation and Research

Grants focused on the collections at NALPGRU: USDA-NIFA, \$7 million “Sustainable Bioeconomy for Arid Regions (SBAR)” includes replicated field trials of NALPGRU *Parthenium* collection, 2017-2020; California State University Agricultural Research Institute, \$150,000 (evaluation of NALPGRU guayule accessions for drought, salt and boron tolerance, 2016-2018); CGC evaluation funding, \$30,000 (developing an in-vitro screen for rubber content in *Parthenium*, in collaboration with Colleen McMahan USDA-ARS Albany).

Temperate-adapted Forage Legume germplasm collection, Prosser, WA (Brian Irish)

- Personnel: A full-time Curator (Geneticist) is responsible for overall project implementation and for design of service and research activities. Project is also supported by a full-time USDA-ARS Biological Science Technician and one ½ time USDA/WSU Technician/Farmer as well part time Laborers throughout the year.
- Late 2017/early 2018 a ‘new’ Project Plan was developed and submitted for OSQR peer-review. This Project Plan is specific to the Temperate-adapted Forage Legume germplasm collection and outlines activities proposed for the next 5-year program cycle. Plan received a ‘minor revisions’ score and was certified on January 29, 2018. Project intends to focus resources on maintenance, documentation and distributions. As resources permit, possibilities exist to target germplasm for acquisition as well as several research objectives.
- As part of the newly drafted project plan, collaborations were set up with several scientists at Arizona State University Polytechnic (Dr. Steele – *Medicago* spp.) and Loyola University Chicago (Dr. Laten – *Trifolium* spp.) and the University of Puerto Rico (Dr. Siritunga – *Lotus* spp.) to correctly voucher species and to examine possible mislabeling and/or misidentification in TFL germplasm using DNA barcoding. Dr. Melanie Schori, USDA-ARS systematist, is also aiding this collaborative effort.
- During the 2017 summer regeneration period, alfalfa (*M. sativa* subsp. *sativa* ‘Vernal’) sentinel plots (½ covered and ½ uncovered) were established around germplasm regeneration field plots to monitor adventitious presence of genetically engineered (GE) glyphosate trait in alfalfa germplasm. Using a glyphosate-amended seedling germination assay and a seed grinding technique more than **140,000** seed was tested from 13 plots. No AP was detected from any covered (insect proof cage covers) sentinel plots, however AP was detected in five of the uncovered plots. AP detection in uncovered sentinel plots suggests transgenic gene flow to regeneration field site and extreme care must be taken to ensure timely placement of cage covers for alfalfa regenerations.
- Low seed number and low viability inventories continue to accumulate, especially for wild clover species and some accessions have been lost. These difficult to regenerate accessions are being targeted systematically for regeneration utilizing an in vitro germination procedure followed by clonal propagation in greenhouses. The idea is to increase the low number of plants germinating in the laboratory to the optimal (100) needed for field establishment. Personnel understands that genetic erosion might be occurring due to the less-than-ideal effective population size, but must do everything possible to avoid losing accessions.
- A recent systematic review of the *Lotus* genus has reclassified former native North American *Lotus* species into two new genera: *Acmispon* and *Hosackia*. Therefore, the TFL project gained **19** *Acmispon* species with **63** accessions and **6** *Hosackia* species with **14** accessions. The number of *Lotus* species/accessions was adjusted correspondingly.
- Project coordinated the field planting and harvest (regeneration) of **184** *Medicago*, *Trifolium*, *Lotus* (*Acmispon*/*Hosackia*) germplasm accessions during the 2017 growing season. Additionally, **50** *Medicago*, *Trifolium* and *Lotus* species germplasm accessions were planted in the fall to be overwintered and regenerated CY 2018. The regeneration field site also included **10** sentinel plots and one faba bean (*Vicia faba*) accession.

- Project personnel were involved in the collection and scanning of **143** flower images for accessions being regenerated in **2017** as well as **173** seed and **109** pod voucher images for **2016** regenerated accessions. These images will be included in the GRIN-Global database and associated with corresponding accessions.
- During FY **2017** project coordinated the distribution of a total of **180** (1742) requests from **154** (142) cooperators (**135** U.S./**19** Int.). The number of unique accessions distributed was **3,222** (2,052) and total number of items distributed was **4,407** (3,243).
- Significant distributions during the FY were made to National and International requestors associated with Governmental, Private and Non-profit organizations. These genetic resources were used mostly in breeding and varietal development using traditional and genomic techniques, screening for disease resistance and abiotic stresses, screening for use as a cover crop, companion or in rotation, chemical analyses, phylogenetics, phytoremediation, class instruction and basic research (especially for model species - e.g., *M. truncatula*).

Western Regional Plant Introduction Station, Pullman, WA (Jinguo Hu):

2017 highlights:

- On December 31, 2017, there were 98,405 accessions belonging to 1,060 genera, 4,769 species (5,447 taxa) in the WRPIS collection.
- We acquired 1,499 new accessions including 1,384 native plant accessions collected by the Seeds of Success (SOS) project and 807 accessions from various sources.
- We distributed a total of 42,484 packets of seed samples to 1,060 requestors with addresses in each of the 50 domestic states and 46 foreign countries. Sixty percent (25,913 packets) were distributed to the U.S. and 40% (16,571 packets) were distributed to foreign countries. Requestors in each of the 50 domestic states received germplasm samples from WRPIS in the Year of 2017. A total of 9,682 packets from WRPIS went to the 13 Western states.
- We uploaded 17,006 observation data points on 3,515 accessions into the Germplasm Resources Information Network (GRIN)-Global database. These data points are on 97 established descriptors for 13 different crop species. Our collaborators contributed 7% and WRPIS staff provided 93% of the evaluation data. The database is accessible by researchers worldwide via the internet.
- We entered 2,314 seed viability records into GRIN-Global in 2017. The WRPIS tested 985, the National Laboratory for Genetic Resource Preservation (NLGRP), Fort Collins, CO tested 1,329 accessions.
- We packed and stored 1,772 newly regenerated/harvested inventories of a broad range of plant species. We determined seed quantities of 6,513 inventories.
- We shipped 1,573 seed inventories to the National Laboratory for Genetic Resource Preservation (NLGRP), Fort Collins, CO and 602 inventories to the Svalbard Global Seed Vault, Svalbard, Norway for secured backup.
- With the partial support by a germplasm evaluation grant from the NPGS Root & Bulb Crop Germplasm Committee, we demonstrated the potential for dramatically lowering *Fusarium proliferatum* infestation by planting bulbils instead of seed cloves for regeneration of garlic and reported the result at the American Phytopathological Society conference.
- We evaluated 100 faba bean accessions with replicated small plots under organic environment on the Lundberg Family Farms, Richvale, California with the support of a grant from the Food Legume Crop Germplasm Committee. Evaluation data, such as biomass, plant height, days to flower and seed yield, were collected and uploaded into our GRIN-Global database.
- Our genome-wide association study identified SNP markers that were significantly associated with Verticillium wilt (VW) resistance in two alfalfa populations, that were developed for

mapping the disease resistance genes. Six significant markers on chromosome 8 explain 40% of the total phenotypic variation and represent novel loci associated with VW resistance. Candidate genes closely linked to the resistance loci were identified. These markers are useful for selecting alfalfa lines with improved VW resistance.

- In collaboration with USDA-ARS NWISRL, Kimberly ID, we described *Penicillium cellarum* sp. nov., a pathogen of stored sugar beet roots, together with demonstrating its pathogenicity and environmental preferences.

National Clonal Germplasm Repository for Citrus and Dates, Riverside, CA (MaryLou Polek):

- In CY 2017, 17 additional accessions were cryoprocessed in Riverside. However, due to the Hold Order placed on the repository when the HLB quarantine was implemented (see section on Distributions), these have not been sent to Ft Collins at the time of this writing. It is expected that they will be sent in June or July, 2018.
- NCGRCD acquired 3 new citrus accessions in CY 2017: Okitsu wase X Maltese ovale (RSD 2017002), *Micromelum minutum* (RSD 2017001), and TI (Rush) (RRUT 545). RSD 2017002 was a controlled pollination specifically intended for use at NLGRP and will not be maintained as an accession. RSD 2017001 did not establish. RRUT 545 was received as sanitized budwood from the Citrus Clonal Protection Program (CCPP).
- In CY 2017, NCGRCD completed sanitation of 17 accessions that were released from State and Federal quarantine in November of 2017.
- During the period 2016 – 2017, sixteen germplasm accessions were laboratory tested and indexed. Release is pending dsRNA analysis on 10 of the 16. Note: The dsRNA analysis has become difficult to carry out because the resin (CF-11) used in the classical protocol has been discontinued. Identification of an alternative or modification of the current dsRNA assay is in progress in collaboration with the Vidalakis lab.
- Seventeen accessions were tested in the laboratory in CY 2017 and are in the process of being biologically indexed. Pending tests for quarantine release include sPAGE, stubborn culture, and dsRNA. Both the proceeding and the following should be released in CY 2018.
- During CY 2017, a total of 7988 laboratory tests were performed in support of distributions, therapy items, CVC backup and SH CTV.
- Distribution of citrus germplasm was greatly reduced in CY 2017 due to phytosanitary restrictions implemented by USDA-APHIS and CDFA after HLB was detected approximately 3 miles from the UCR Agricultural Operations area in July. This resulted in the NCGRCD, CVC, and CCPP being within the 5-mile radius quarantine zone. Within 24 hours of confirmation, APHIS instilled a Hold Order on the repository. As a result, material from the SH cannot be distributed until sampled twice at 6 month intervals by an certified laboratory (specifically, the CDFA diagnostic laboratory).
- The quarantine and other associated regulations have also limited the types of seeds that can be moved domestically. USDA-APHIS formerly restricted all seeds of Aurantioideae. The restriction on *Citrus* spp and *Poncirus* spp was removed in 2017, but not restrictions on other types, including *Citrus* X *Poncirus* hybrids, the most common rootstocks. Interstate movement of pollen, leaves, and other germplasm is also restricted; but most of these can be moved if the appropriate permits are in place.
- In CY 2017, NCGRCD distributed 262 items to 99 requestors. All but 6 items were citrus or related taxa, the remaining 6 being date palm materials. In recent years there was a high number of requests for date palm accessions from scientists conducting genomic research. This project is nearing completion and therefore, the number of date palm distributions has decreased.
- CY 2017 Propagations: there were 283 total propagations made from 170 genotypes

Critical Issues

- The Crop Germplasm Committee needs to be made aware of critical issues threatening the future of the NCGRCD. These include:

- Budgetary shortfalls: The annual NCGRCD budget allotment has remained stagnant for the past several years while the cost of operations has significantly increased. In particular these include but are not limited to; increased lease assessment (\$2,250/yr), the new levy of municipal fees (\$20,000/yr), UC greenhouse bench rent (15% increase for 3 consecutive years), janitorial services (almost doubled in 2017).
- Laboratory equipment is aging and will be needing replacement soon; the cost of service agreements are unsustainable.
- Protective Screenhouse is almost at capacity; expansion is vital.
- Impact of HLB Quarantine
- Threat of palm weevils to the CVARS field collection
- Personnel Issues: the unit lacks genetic, data management, and tissue culture expertise; anticipated retirements within the next 5 years, term (temporary) positions need to be converted to permanent.

Business meeting, State Reports:

TAC members summarized their written state reports.

California state report (Dan Parfitt)

624 requests for plant introductions from California users were filled by the NPGS in 2017, very similar to the 676 from last year, representing 341 different users, almost identical to the 342 from last year. The request level for this year was similar to last year.

Collection of germplasm information: The collection methodology was the same as used in the last few years. 320 queries were sent by e-mail. 1.3% of the e-mail addresses were not received, an even lower % than last year. This is an exceptionally low number, much less than in prior years. 45 recipients sent reports, for a 14 % response rate, almost identical to last year. Comments from the respondents are provided below.

The distributed germplasm was used for plant breeding research, testing in home gardens, and propagation of both clonal and seed propagated species. Several respondents used the germplasm for demonstration projects in school settings, though not as much as in prior years. Several researchers used materials as reference materials or checks in their experiments. Some germplasm was used as archeological reference material, similar to the last several years. Germination of the samples is not needed for this application. Much of the germplasm continues to be used for commercial breeding research (private, university or USDA) and examination of the distribution list suggests that this category is highly under-reported, especially from private companies. This is not surprising as these companies are competing with each other and are in the business to release proprietary intellectual property. There seems to be less interest to use the collections for molecular/biochemical studies. This is a continuing trend. Several members of the California Rare Fruit Growers requested materials for evaluation and distribution to their members as in past years.

Colorado state report (Patrick Byrne):

Orders for germplasm from the NPGS included delivery of accessions from both clonal repositories and Plant Introduction Stations. A total of 2,450 accessions were delivered in Colorado, constituting 123 orders. This represented an increase in shipments from the previous year (1,661 accessions and 96 orders in 2016), but is similar to the numbers for 2015 (2,312 accessions and 140 orders). Orders were shipped from the following locations in 2017: COR, DAV, GEN, HILO, NC7, NE 9, NR6, NSGC, NSSL, OPGC, S9, SOY, TGRC, and W6.

Idaho state report (Joe Kuhl):

In 2017, 3,024 accessions were requested in Idaho from the National Plant Germplasm System. The total number of accessions were down from 2016 and 2015 when 5,709 and 7,533 accessions were requested, respectively. A total of 83 orders were placed from Idaho in 2017, down from 107 orders in 2016, but similar to 73 orders in 2015. As observed in past years orders were fairly evenly divided among state, federal and private groups, 31, 20, and 32 orders, respectively. The major user groups (assessed by the number of accessions requested) in 2017 were USDA scientists (primarily based in Aberdeen, Idaho) accounting for 66% of total accessions, while state entities accounted for 25% of total accessions, together accounting for ~91% of the total accessions requested in Idaho. University researcher requests made up the vast majority of requests from state agencies. While the number of private orders placed in 2017, 32, were only slightly down from 35 placed in 2016, the total accessions requested dropped significantly with 276 accessions requested in 2017 compared to 703 accessions in 2016. The top two private requests were from companies, Crookham Company with 67 accessions and Mountain River Kirby, 52 accessions. A breakdown of accessions requested in 2017 by genus and species was not available.

Montana state report (Michael Giroux):

Thirty-three recipients received 1941 plant germplasm accessions in Montana during 2016. Twenty of the recipients responded to inquiry. About 1/3 of the accessions were for *Triticum* species (bread or durum wheat), 1/3 for *Hordeum* species (barley) and 1/3 for pulse crop accessions. The biggest increase over previous years was for barley and pulse crop accessions which reflects the fact that Montana State hired a pulse crop breeder (Kevin McPhee) who began work at Montana State in January 2017 and several years ago hired a new barley breeder (Jamie Sherman) who is screening barley accessions for traits of interest. We also continue to have a number of individuals requesting accessions of various species including tree fruit to screen for those that may tolerate MT winters.

New Mexico state report (Ian Ray):

Twenty-five individuals from New Mexico placed 52 orders and received 945 accessions from the NPGS in 2017. In general, these materials were utilized for agronomy, botany, genetics, physiology, taxonomy, and plant pathology research (51%); educational and demonstration programs (29%), varietal development (10%), and undeclared use (10%).

Nevada state report (Melinda Yerka):

Ten individuals from Nevada placed 17 orders and received 91 accessions from the NPGS in 2017. Plant materials were used for chemistry/molecular genetics (40%), plant pathology (18%), anthropology (3%), breeding/varietal development (10%), public educational (19%), and undeclared (11%) efforts. Researchers at the University of Nevada, Reno (UNR) continue to be the primary users (54%), which accounts for the significant reduction in requests made in 2017 as opposed to previous years (large projects are initiated when new plant science faculty are hired or obtain significant grant funding). Users reported that materials would be used for research (70%), education (19%), or other/unspecified (11%) use.

Oregon state report (Present by Carol Miles in place of Shawn Mehlenbacher):

Oregonians continue to use the PI system extensively. Users include state and federal researchers as well as private seed companies and private individuals. Oregon is a major user in the western region, along with California and Washington. 23 publications utilizing NPGS germplasm were published in 2017 and the first part of 2018.

Utah state report (Kevin Jensen):

Dr. Kevin Jensen sent out three rounds of emails to 2017 germplasm users. Their responses are documented in the 2017 Utah report.

Washington State report (Carol Miles):

In 2017, 126 Washington State residents requested a total of 6,032 germplasm samples from the National Plant Germplasm System (NPGS). Recipients were with universities (37, 32 at WSU), USDA (17), private research groups (10), commercial firms, seed companies and nurseries (27), and non-profit organizations (8), as well as 27 private individuals. Recipients received germplasm (in the form of seeds and cuttings) from 17 NPGS repositories or stations in 239 orders. The germplasm material was used in diverse scientific disciplines such as agronomy, anthropology, archaeology, botany, genetics, horticulture, plant pathology, entomology, and soil science, and contributed significantly to scholastic and economic activity in the State of Washington. Several recipients stressed the importance of the NPGS service, and mentioned the increasing difficulty of obtaining germplasm for breeding uses from private sources, so that the NPGS is globally important for the development of new breeding programs.

Alaska, Arizona, Hawaii and Wyoming do not have state representatives. Dave Stout collected and summarized the information from these states.

Alaska State report (Dave Stout):

During 2017 NPGS there shipped 14 orders with a total of 102 order items (18 from WRPIS) to 10 people in Alaska. Eleven orders were submitted over the GRIN-Global Website and others were through emails or other means. We received three responses to our email questionnaire from requestors.

Arizona state report (Dave Stout):

During 2017 NPGS there shipped 62 orders with a total of 1,936 order items (83 from WRPIS) to 41 people in Arizona. Fifty-three orders were submitted over the GRIN-Global Website and others were through emails or other means. We received eight responses to our email questionnaire from requestors.

Hawaii state report (Dave Stout):

During 2017 NPGS there shipped 28 orders with a total of 320 order items (only one from WRPIS) to 19 people in Hawaii. Sixteen orders were submitted over the GRIN-Global Website and others were through emails or other means. We received four responses to the questionnaire from Rebecca Canevali, Priscilla Carbajal, Ken Love and Nancy Redfeather, respectively.

Wyoming state report (Dave Stout):

During 2017 NPGS shipped 38 orders with a total of 886 order items (494 from WRPIS) to 10 people in Wyoming. All the orders were submitted over the GRIN-Global Website. Only one person, Saleh Osama, responded to my email questionnaire.

Open discussion:

The W6 TAC has discussed how state representative prepare state reports over the years. This year the topic came up and there was interest in possibly coordinating the questions asked to germplasm users. A standardize set of questions might be agreed upon by all members so that there is greater uniformity between state reports and increased ability to summarize all state reports into a single annual review. It was also discussed how to address the issue that many germplasm users that request germplasm in the previous year do not necessarily have results in time for the report, and in many cases the impact of germplasm use may not be realized for many years after received. How many years back should

germplasm use be assessed? How do we get an accurate assessment of germplasm use when it may take years to collect results and determine utilization?

A brief discussion revised the issue of GM traits contaminating alfalfa germplasm.

A motion to adjourn was made and seconded, unanimously approved.

W6 TAC Secretary: Joe Kuhl

Meeting Minutes of the W-6 Technical Committee Meeting - Continued

Date: Tuesday, June 26, 2018

Location: Conference Room at the National Clonal Germplasm Repository, Corvallis, OR

In person:

Kim Hummer, Jinguo Hu, Dan Parfitt, Brian Irish, Pat Byrne, Dave Stout, Kevin Jensen, Carol Miles

Called In:

Anne-Marie Thro and Ian Ray on conference call,

Challenges of the W-6 Station (Jinguo Hu)

Farmland issue – WRPIS lost 4 parcels of land, 28.5 acres, when Pullman Airport expanded; 5 yr rotation needed to rotate by crop species, disease cycle and hard-seeded issue

Central Ferry 60 miles away, chickpeas appeared to grow well there last year with good seed size, but when seed was sent to Colorado State for back up, germination test was 30%, temperature was too high during final seed set

May be able to use 1/3-2/3 of NRCS farm (7 acres) that is right next to current buildings

Cup Farm is the private commercial farm on the other side of current buildings, and Scot said he could contact the farmer to see if he might be interested in a long-term lease

Kevin: is WSU obligated to provide land?

Jinguo and Kim: not sure, but excellent relationship between WSU and WRPIS so no need to be concerned, and Scot said yesterday WSU has land available for WRPIS

Action item: The tac wrote a resolution to request this issue is resolved by 2019

Central Ferry and alfalfa issue – at Central Ferry 37 acres WSU and 100 A long-term lease to ARS from local coop; 3 acres per year is all that is needed, plus a 5-yr rotation, so 15 A total currently needed; so plenty of land to accommodate the alfalfa program

Commercial private alfalfa planting 1 mile down river and across the other side of the river; farmer has agreed not to grow GE alfalfa, but no signed/official agreement

Co-existence strategy is 5 mi separation

Constructing new building to house alfalfa program \$1.3 mil; Pullman has office space but not greenhouse space

Brian will plant sentinel plots without cages to see if there is any contamination

Action item: Jinguo and Brian plan to meet to discuss and decide if move is viable, report back to the group next year

The greenhouse is being constructed at Central Ferry, should be ready by winter, for *Phaseolus* program

Staff – technician resigned, WSU position, 3 months until rehire is complete
Dave Stout's position in process of being refilled, position description is complete, will be advertised soon
Vicky Bradley retired last week, may be 1 yr until rehire; Jesse acting curator temporarily for now, working well

Impact (Pat) – we have to demonstrate impact for what we are doing, good anecdotal reports in state reports

Create a narrative of 1-2 success stories for each state; economic impact good to show but hard to demonstrate

Kevin: Oregon hazel nuts and Shawn's work a big impact story, so is Utah wheat breeding

Anne-Marie: each state create a table highlighting impacts

Can we coordinate efforts with other regions?

Every few years a meeting of the 4 regions, we can discuss then, last meeting was in CO 2 years ago

Action item: Form a subgroup of the tac to: determine what is done with the state reports and W6 annual report; ask other regions what they are doing ; ask each state representative in W6 to share annual request letter; maybe we need to ask recipients who received germplasm several/3 years ago (Kevin); subgroup volunteers: Pat, Kevin, Carol, others let Pat know if you are interested

More states participated this year than in the past (Dan), how do we keep state representatives engaged?

Charley Brummer identified as a replacement for Dan (CA), need to make sure if Charley agrees

Distribution of germplasm (Kim) – need to restrict distribution next year due to lack of resources (budget is not adequate to maintain current samples or ship requests)

Dan: it's a quandary, we are promoting importance of NRGS to public, so public wants to use it

Kevin: exposure is good, there is a genetic diversity movement

Missy: they have a letter letting people know they won't receive material, could update it so people understand the lack of resources

Are cultural practices included with each order, so people know how to plant/grow the material they receive? No, we assume if they order a stick or a tissue culture plantlet, the recipient knows what to do with it. Could this be a screen to limit orders, that is, if they are made aware these are not 'plants' would they not order

Kim: some people are asking for germplasm so they can sell it, can recognize some names and screen them out

Missy: people asking for hops germplasm (a few 100) so they can start a commercial production operation

Kevin: create a core set of germplasm for general requesters?

Kim: homeowners would see a small set in GRIN, scientists see whole set

Brian: GRIN data used by many people who don't request germplasm

Kevin: could still make data available but mark germplasm unavailable to limit requests; primary function of NPGS is preservation not distribution

Dave: each order is reviewed by staff and decision is made to fill order

Dan: requester submit experimental plan with each order and also a propagation plan to validate they know how to handle the material, could eliminate some requests

Brian: he reviews each order and decides which orders to fill

Dan and Brian: grant projects could include funds for orders, and especially shipping and handling; ARS not able to accept funds

Kevin: he has a Suspense account, a federal/ARS account, needs to be renewed every 5 years, charges for stock/foundation seed sales, restricted use for funds such as no travel, but funds used to pay land lease for seed production, personnel who work with seed production, bags and other seed production supplies, 40-50K annual amount in the account

Kim: has an account with Friends of NCGR, up to 10K, when they fill orders they ask for a donation of \$10-100 depending on amount of material requested/shipped

Carol: has a WSU Service account where funds from fruit sales are placed, no restricted use

Kevin: can't give away/sell government property, make sure charging for NPGS services is OK

Action item: 2019 annual meeting will be hosted by W6-WRPIS in Pullman in mid-June, will have a webinar connection with WebX; 2020 annual meeting tentatively to be held in Logan UT

Resolutions:

Resolution 1. The W-6 Technical Advisory Committee thanks Dr. Kim Hummer, Joseph Postman and the staff of the USDA ARS National Clonal Germplasm Repository in Corvallis for their efforts in organizing and hosting the 2018 W-6 meeting with teleconference options.

Resolution 2. The W-6 Technical Advisory Committee thanks Dr. Jim Moyer for his many years of service as Administrative Advisor for the W-6 Regional Technical Advisory Committee.

Resolution 3. The W-6 Technical Advisory Committee thanks Dave Stout and Vicki Bradley for their many years of service at the W-6 station and their contributions to NPGS.

Motion to adjourn the meeting by Kevin, Dan seconded, passed unanimously

Meeting minutes for Tuesday, June 26, 2018 recorded by Carol Miles.