2020 W6 Idaho State Report
Joseph C. Kuhl

In 2019, 1,385 accessions were requested in Idaho from the National Plant Germplasm System. The total number of accessions was significantly down from 2017 and 2016 when 3,024 and 5,709 accessions were requested, respectively. The 2019 orders were more in line with 2018 when 1,810 accessions were requested. A total of 79 orders were placed from Idaho in 2019, more than the 63 orders placed in 2018, however significantly down from 107 orders in 2016. The major user groups (assessed by the number of accessions requested) in 2019 were once again USDA scientists (primarily based in Aberdeen, Idaho) accounting for 40% of total accessions, while University of Idaho and private entities accounted for 35% and 25% of total accessions, respectively. The number of orders placed in 2019 by private, University and governmental entities was 40, 19, and 20, very similar to 2018 when 31, 14 and 18 orders were placed, respectively. The top three private requests were Snake River Earth Arts Institute with 71 accessions, Simplot Plant Sciences (Aardevo) with 61 accessions, and Magic Seed Inc with 50 accessions. Overall, USDA-ARS Aberdeen Plant Pathologist, Gordon Tyler, placed the largest request(s) with seven orders totaling 541 accessions, primarily for cereal rust and bunt research. Of the 1,385 accessions requested, there were 32 genera and 62 species. The top three genera by number of accessions requested were *Triticum*, 522 accessions, *Avena*, 487 accessions and *Solanum* with 98 accessions requested.

Publications: 2

Tyler Gordon, Rui Wang, David Hole, Harold Bockelman, J. Michael Bonman, Jianli Chen. 2020. Genetic characterization and genome-wide association mapping for dwarf bunt resistance in bread wheat accessions from the USDA National Small Grains Collection. Theoretical and Applied Genetics. https://doi.org/10.1007/s00122-020-03532-0

Tyler Gordon, Rui Wang, Brian Bowman, Natalie Klassen, Justin Wheeler, J. Michael Bonman, Harold Bockelman, Jianli Chen. 2020. Agronomic and genetic assessment of terminal drought tolerance in two-row spring barley. Crop Science. http://dx.doi.org/10.1002/csc2.20040

<u>Germplasm user reports for 2019 (or older) requests (9 replies out of 38 emails)</u>:

Dear Dr. Kuhl,
Thank you for your inquiry and interest in NPGS germplasm. My responses are below.

1. What is the planned use for the NPGS germplasm(s) you received in 2019?

   Our group requested material from the NSGC for genetic resistance studies. We work with cereal rusts and bunts and attempt to find new sources of resistance to these diseases. Specifically, material was requested for dwarf bunt, oat stem rust and wheat stem rust (Ug99) screening and mapping studies.

2. Did you release any plant material(s) to the public in 2019 that was partially or fully derived from any NPGS germplasm(s) that you received in 2019 or previously? If yes, please provide as much information as possible about the released plant material(s).

   No.

3. If you published an article in 2019 that includes NPGS germplasm that you received in 2019 or earlier, please provide the publication citation (authors, title, journal, etc.).

   Two articles that referenced NPGS germplasm were accepted in 2019, but published in 2020, see below.
   1. Tyler Gordon, Rui Wang, David Hole, Harold Bockelman, J. Michael Bonman, Jianli Chen. 2020. Genetic characterization and genome-wide association mapping for dwarf bunt resistance in bread wheat accessions from the USDA National Small Grains Collection. Theoretical and Applied Genetics. https://doi.org/10.1007/s00122-020-03532-0
   2. Tyler Gordon, Rui Wang, Brian Bowman, Natalie Klassen, Justin Wheeler, J. Michael Bonman, Harold Bockelman, Jianli Chen. 2020. Agronomic and genetic assessment of terminal drought tolerance in two-row spring barley. Crop Science. http://dx.doi.org/10.1002/csc2.20040

Let me know if you would like additional information about our research.

Best regards,

Tyler Gordon, USDA-ARS, Plant Pathologist

Hello,

1. What is the planned use for the NPGS germplasm(s) you received in 2019?
   a. Control for disease strain testing.

2. Did you release any plant material(s) to the public in 2019 that was partially or fully derived from any NPGS germplasm(s) that you received in 2019 or previously? If yes, please provide as much information as possible about the released plant material(s).
   a. Did not release.

3. If you published an article in 2019 that includes NPGS germplasm that you received in 2019 or earlier, please provide the publication citation (authors, title, journal, etc.).
   a. Did not publish.

Thank you!

Timothy Carroll, Associate Transformation Scientist II, Simplot Plant Sciences

Mr. Kuhl,

Below are the answers for our material use:

1. Stock material for disease testing controls
2. No
3. NA

Thank you for providing this service.

Best regards,

Jessica Schoenwald
Simplot Plant Sciences

Joseph,
I received about 100 Darnel Grass seeds from the center in 2019. I use the plants as living specimens in a conservatory type greenhouse on Brigham Young University-Idaho campus in Rexburg, Idaho. Usually I grow them in a large planter next to wheat to highlight similarities and differences in growth and appearance. From my initial seeds, I have harvested more than double what was initially received and have a sustainable seed bank for myself now. I have not released any seeds to the public. Nobody has ever asked me for any. I found them to be very prolific seed producers and easy to grow. I have some growing now and can provide a picture if you would like.

Thank you for your support of my seed request.

On a side note, do you know anyone who can give me tips on germinating frankincense *Boswellia*? I have tried many times with seeds I have ordered but without much success.

Thank you.

Ross A. Spackman, Ph.D.
Assoc. Dean, College of Ag. and Life Sciences, BYU Idaho

Hello,

Please find the information below:

1. What is the planned use for the NPGS germplasm(s) you received in 2019?

For a genetic study on wheat resistance to bunt disease.

2. Did you release any plant material(s) to the public in 2019 that was partially or fully derived from any NPGS germplasm(s) that you received in 2019 or previously? If yes, please provide as much information as possible about the released plant material(s).

No.

3. If you published an article in 2019 that includes NPGS germplasm that you received in 2019 or earlier, please provide the publication citation (authors, title, journal, etc.).

None.

Rui Wang, PhD
Postdoctoral Fellow
Department of Plant Sciences
University of Idaho, Aberdeen Research & Extension Center

Dear Joseph,

1. Germplasm received at Simplot Plant Sciences in 2019 (recipients Craig Richael and Cari Schmitz Carley) has been used for research activities and breeding by Aardevo North America, a joint venture between JR Simplot and KWS SAAT that focuses on breeding diploid hybrid potatoes.

2. No plant materials derived from the germplasm received in 2019 from NPGS have been released to the public.

3. No publications were submitted in 2019 making use of NPGS germplasm.

We are grateful for the contributions of NPGS to our activities!

Thank you,
Cari
Dr. Cari Schmitz Carley
Senior Breeder | Aardevo North America

Hello,

I have provided the following information per your request.

1. What is the planned use for the NPGS germplasm(s) you received in 2019?

   The germplasms are currently being used in an overwintering experiment involving psyllids. This experiment examine if specific plant hosts provide psyllids with a greater tolerance to cold temperatures.

2. Did you release any plant material(s) to the public in 2019 that was partially or fully derived from any NPGS germplasm(s) that you received in 2019 or previously? If yes, please provide as much information as possible about the released plant material(s).

   No

3. If you published an article in 2019 that includes NPGS germplasm that you received in 2019 or earlier, please provide the publication citation (authors, title, journal, etc.).

   Not currently

I hope this information is useful for your documentation.

Regards,

Jessica Parker, University of Idaho

Hi Dr. Kuhl,

I have a brief answer for the information you want to know

1. The Plan is that using the seeds I received from NPGS as the mother material, the barley population was created by hybridization. But the father material all died, so the plan was cancelled.
2. No
3. No

   If you have any question, please feel free to ask me. Have a good day.

Xiao Wang, University of Idaho

Joe,

Answers to your questions are in blue font. Please let me know if something is not clear.

1. What is the planned use for the NPGS germplasm(s) you received in 2019?
Our program, the Treasure Valley Native Plant Network, merges two goals: 1-engage citizens and community groups in creating functional native habitats close to where people can access them and 2-restore that function through native planting to enhance bird and pollinator habitats. We are using the germplasms we received to enhance the diversity of the native restoration areas we are creating, both ecological diversity (by adding a few species for which we don't have available seed stock) and genetic diversity (by augmenting our seed inventories with novel (to us) genetic stock). So, ultimately, plants produced from the germplasm we received will be planted at restoration sites in the greater Boise, Idaho area.

2. Did you release any plant material(s) to the public in 2019 that was partially or fully derived from any NPGS germplasm(s) that you received in 2019 or previously? If yes, please provide as much information as possible about the released plant material(s).
We did not release any plant materials to the public. Although we do share seeds with a broad array of publics (school classrooms, scouts, etc), **all the NPGS germplasm we received were seeds sown in nursery settings by myself or by our partners at the College of Western Idaho's Horticulture program**. The plants generated from seed we received will be planted out on public lands and open spaces. We don't give or sell and plant materials to private interests, but rather plant the seedling in semi-wild urban landscapes.

3. If you published an article in 2019 that includes NPGS germplasm that you received in 2019 or earlier, please provide the publication citation (authors, title, journal, etc.).
We did not publish any journal articles.

Best regards,

Sean Finn
Golden Eagle Audubon Society