

MINUTES  
43<sup>rd</sup> RICE CROP GERMLASM COMMITTEE MEETING

Friday, February 16, 2024  
Virtual meeting

The 43<sup>rd</sup> Rice Crop Germplasm Committee (CGC) meeting was held virtually on Fri., February 16, 2024. Members in attendance were Georgia Eizenga (Chair), Brijesh Angira, Stan De Guzman, Teresa DeLeon, Ed Redoña, Stanley (Omar) Samonte, Qiming Shao, Gretchen Zaunbrecher, Shane Zhou, Bishwo Adhikari, Harold Bockelman, Trevis Huggins, Gary Kinard and Jack Okamuro. Members Nick Bateman and Yulin Jia were unable to attend. Guests in attendance were Jai Rohlia (DBNRRC) and Taylor Schulden (PGQP).

Georgia Eizenga, Rice CGC chair, opened the meeting and noted that the minutes of the 42<sup>nd</sup> Rice CGC meeting held in Hot Springs, AR were approved via email on May 22, 2023. She mentioned that the minutes are included in the 39<sup>th</sup> Proceedings of the Rice Technical Working Group available at: (<https://rtwg.org/proceedings.html>). Georgia also noted that the minutes of the Rice CGC committee meetings (1984 to present) are now available at: <https://www.ars-grin.gov/CGC>.

**Gayle Volk**, currently on detail in the USDA/ARS Office of National Programs since Peter Bretting retired at the beginning of 2024, gave the National Plant Germplasm System (NPGS) report “2024 Status, Prospects and Challenges”. Gayle discussed the new plant hardiness zone map released in Nov. 2023 overlaid with the NPGS locations and reviewed the functions of the NPGS, stating there are over 621,441 accessions totaling 17,500 species in the NPGS operating on a flat budget when adjusted for inflation. The four budget increases for FY23 to the ARS NPGS were for the National Arboretum, sugarcane, small fruits and pecans. Gayle discussed that the 2018 Farm bill directed USDA to develop and implement an assessment to address the significant backlogs in the NPGS and this plan was released in 2023. She reviewed the key elements of the plan using the Infographic developed as a diagrammatic summary with a 1-5-year and 6–10-year timeline. Recently, Gayle co-authored a *Crop Science* article discussing challenges of safeguarding the US plant genetic resources (PGR) in the face of climate change which she briefly reviewed. Lastly, the GRIN-U Educational YouTube videos and infographics on PGR that are available at: <https://grin-u.org/> were mentioned. CGC members are encouraged to subscribe to the quarterly GRIN-U newsletter. Gayle asked the group to submit some PGR success stories for rice to highlight the importance of the NPGS and update the rice vulnerability statement. In summary the key challenges for NPGS are operational costs, personnel transitions, preserving seed viability, and acquiring and conserving additional PGR, especially crop wild relatives.

**Gary Kinard**, USDA/ARS National Germplasm Resources Lab (NGRL), reviewed his report for the lab, highlighting points of interest to the committee. Gary mentioned there are four vacancies in the NGRL and they are working on hiring for the positions. He noted GRIN Taxonomy currently includes accepted scientific names for 14,720 genera and 129,188 species and has coverage of crop wild relatives for 397 major and minor crops, thus a good place to start when checking species designations. Gary noted that as of Jan. 1, 2024, all distributions from ARS collections to locations outside U.S. states and territories are now accompanied by the Standard Material Transfer Agreement (SMTA). Domestic orders are accompanied by the SMTA only if the NPGS acquired the material with a SMTA. Gary also mentioned several improvements were made to the GRIN-Global public website to enhance the

searchability and ordering process. Of note, a feature to search plant part images was added. The number of non-research requests declined significantly in 2023. Lastly, GRIN-U (<https://grin-u.org/>) has added additional educational and training materials related to PGR, also mentioned by Gayle.

**Harold Bockelman**, Retired Curator of the National Small Grains Collection (NSGC), reported there are currently 18,921 *Oryza sativa* accessions and 212 other *Oryza* species, totaling over 19,000 accessions. Since Feb. 2023, eight new PI assignments were made of recently released varieties developed in Arkansas, California or Louisiana with only Deltabelle not having a PVP. Since Feb. 1, 2023, NSGC has distributed 2,587 seed packets of rice as part of 78 separate seed requests. Lastly, Harold showed seed of the *O. sativa* accessions having the lowest length to width ratio, CIor 4957 originating from Laguna, Philippines (L/W=1.0), and the highest ratio, PI 353444 originating from Punjab, Pakistan (L/W =5.3).

**Trevis Huggins**, USDA/ARS Dale Bumpers National Rice Research Center (DBNRRC), reported the Genetic Stocks-*Oryza* (GSOR) collection currently holds 32,371 accessions because the Nipponbare TILLING mutants (approx. 6,000 accessions) were, at the donor's request, being returned to the donor. Five new collections were added (or will be added later in 2024) to GSOR, bringing the total number of collections in GSOR to 32. In 2023, GSOR shipped 3,059 seed packets to fulfill 60 requests with 49 being shipped to U.S. requestors. Seed from 36 *O. australiensis* accessions imported from IRRI and 12 NERICA (New Rice for Africa) accessions imported from Africa Rice, will be added to the NSGC currently curated by Harold. Trevis described the new *Tropical Japonica* (TRJ) Core collection which consists of 487 accessions which are mostly TRJ accessions. The TRJ Core was evaluated for agronomic, panicle and seed traits, and reaction to leaf blast disease. Also, 364 accessions were sequenced at 3X coverage using genome skimming, a low-pass shallow sequencing technique.

**Bishwo Adhikari**, USDA/APHIS Plant Germplasm Quarantine Program (PGQP), Team Lead for the *Poaceae* Quarantine Program reported Taylor Schulden recently hired as a research scientist and two molecular biologists. PGQP has handled the following quarantine grow-outs. Of the 37 *O. sativa* accessions imported from the International Rice Research Institute (IRRI), five were released with the remaining 32 testing positive for endornavirus. Five perennial rice varieties from Yunnan University, China were all released from quarantine, and 16 genetically modified lines were imported from CIRAD, France with nine lines testing negative for endornaviruses being released. A population of 300 Heat-MAGIC rice lines imported from IRRI will be grown in 2024. As on update on endornaviruses, the literature suggests endornaviruses are ubiquitous among *japonica* rice cultivars in Japan and rare in *indica* cultivars. Bishwo mentioned that their results suggest that endornaviruses may not be as common in the US rice germplasm as in Japan, but they are already present in different US rice-growing areas. He noted that of the over 60 commonly grown U.S. rice varieties tested, only four that tested positive for either of the two endornaviruses tested, suggesting the endornaviruses may not be as common in the U.S. rice germplasm as in Japan, but endornaviruses are already present in different U.S. rice-growing areas. Of note, an earlier survey by pathologists at Louisiana State Univ. described in Plant Breeding 130:271-274 (2011) reported similar results. Transmission studies conducted by PGQP staff indicate the endornavirus is seed transmitted, predominantly in rice, with no horizontal plant-to-plant spread being observed in the field, and no potential vectors identified. Results from these PGQP studies are currently being analyzed for publication.

The “Rice Crop Vulnerability” slide was reviewed. Updates included adding the bacterial pathogen, *Pantoea ananatis* which causes bacterial leaf blight, updating the numbers for the GSOR and the NPGS distributions, adding the Breeding Insight software, including the issue of methane emissions in flooded rice, and mentioning the need to import health beneficial and stress tolerant rice from IRRI. These edits will be made by Georgia and the revised slide sent to the committee members for review.

Qiming Shao made a motion to adjourn the 43<sup>rd</sup> Rice Crop Germplasm Committee meeting. This motion was supported by Bishwo Adhikari and supported by the committee membership.

## Appendix I. CGC members with year term ends in parentheses (Feb. 15, 2024).

<p>Dr. Georgia Eizenga, Chair (2025)          USDA-ARS Dale Bumpers National Rice          Research Center          2890 Hwy 130 E          Stuttgart, AR 72160  <a href="mailto:Georgia.Eizenga@usda.gov">Georgia.Eizenga@usda.gov</a></p>	<p>Dr. Brijesh Angira (2029)          H. Rouse Caffey Rice Research Station          Louisiana State University          1373 Caffey Road          Rayne, LA 70578  <a href="mailto:BAngira@agcenter.lsu.edu">BAngira@agcenter.lsu.edu</a></p>
<p>Dr. Nick Bateman (2029)          Rice Research and Extension Center          University of Arkansas          2900 Hwy 130 E          Stuttgart, AR 72160  <a href="mailto:nbateman@uada.edu">nbateman@uada.edu</a></p>	<p>Dr. Christian (Stan) De Guzman (2027)          Rice Research and Extension Center          University of Arkansas          2900 Hwy 130 E          Stuttgart, AR 72160  <a href="mailto:deguzma@uark.edu">deguzma@uark.edu</a></p>
<p>Dr. Teresa De Leon (2027)          California Cooperative Rice Research          Foundation          P.O. Box 306          955 Butte City Highway (Hwy 162)          Biggs, CA 95917-0306  <a href="mailto:Tdeleon@crff.org">Tdeleon@crff.org</a></p>	<p>Dr. Edilberto (Ed) Redoña (2025)          Delta Branch Experiment Station          Mississippi State University          82 Stoneville Rd.          P.O. Box 197          Stoneville, MS 38776  <a href="mailto:ed.redona@msstate.edu">ed.redona@msstate.edu</a></p>
<p>Dr. Stanley (Omar) Samonte (2025)          Texas A&amp;M AgriLife Research Center          1509 Aggie Drive          Beaumont, TX 77713  <a href="mailto:stanley.samonte@ag.tamu.edu">stanley.samonte@ag.tamu.edu</a></p>	<p>Dr. Qiming Shao (2025)          Nutrien Ag Solutions          676 County Rd 324          El Campo, TX 77437  <a href="mailto:qiming.shao@nutrien.com">qiming.shao@nutrien.com</a></p>
<p>Dr. Gretchen Zaunbrecher (2029)          California Cooperative Rice Research          Foundation          P.O. Box 306          955 Butte City Highway (Hwy 162)          Biggs, CA 95917-0306  <a href="mailto:gzaunbrecher@crff.org">gzaunbrecher@crff.org</a></p>	<p>Dr. Xin-Gen (Shane) Zhou (2025)          Texas A&amp;M AgriLife Research Center          1509 Aggie Drive          Beaumont, TX 77713  <a href="mailto:xzhou@aesrg.tamu.edu">xzhou@aesrg.tamu.edu</a></p>
<p>Dr. Bishwo Adhikari, Ex-officio          Lead Plant Pathologist &amp; Program Manager,          Poaceae Quarantine Program          USDA-APHIS          Plant Germplasm Quarantine Program          Bldg. 580, BARC-East          Beltsville, MD 20705  <a href="mailto:bishwo.n.adhikari@usda.gov">bishwo.n.adhikari@usda.gov</a></p>	<p>Dr. Harold Bockelman, Ex-officio          Curator, NSGC (recently retired)          USDA-ARS          National Small Grains Collection          1691 S 2700 W          Aberdeen, ID 83210  <a href="mailto:Harold.Bockelman@usda.gov">Harold.Bockelman@usda.gov</a></p>
<p>Dr. Gayle Volk, Ex-officio          USDA-ARS, NPS          Acting Nat. Prog. Leader, Plant Germplasm          and Genomes          1111 South Mason St.          Fort Collins, CO 80521  <a href="mailto:Gayle.Volk@usda.gov">Gayle.Volk@usda.gov</a></p>	<p>Dr. Trevis D. Huggins, Ex-officio          Curator GSOR          USDA-ARS Dale Bumpers National Rice          Research Center          2890 Hwy 130 E          Stuttgart, AR 72160  <a href="mailto:Trevis.Huggins@usda.gov">Trevis.Huggins@usda.gov</a></p>

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