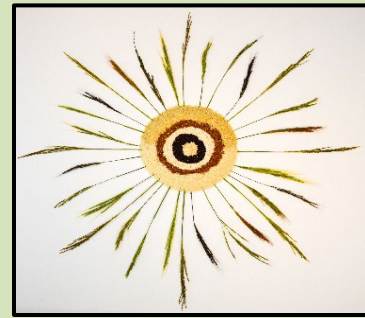




**Dale Bumpers National Rice Research Center
USDA-ARS
Stuttgart, Arkansas**



JANUARY 2024

MONTHLY RESEARCH HIGHLIGHTS

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- **Technology Transfer**
 - ✓ **Interactions with the Research Community**

On January 10-11, 2024, Dr. Quentin Read, Southeast Area Statistician visited the Stuttgart location to conduct a hands-on workshop, “R for SAS users”. R CRAN, a versatile open software for performing several types of statistics analyses was used for the workshop. The workshop featured hands-on work in basic R programming, introduction to mixed models, lectures on mean comparison in statistical models and troubleshooting. The workshop had nineteen participants from Dale Bumpers National Rice Research Center (DB NRRC) and Harry K. Dupree Stuttgart National Aquatic Research Center (SNARC) which included scientists and support staff, as well as two students from the University of Arkansas at Pine Bluff. Dr. Trevis Huggins worked with Dr. Read to set up a room for the workshop at Dale Bumpers. Dr. Huggins worked with workshop participants to install the R software and packages and download example files and codes for the sessions. During the two days of the workshop, Dr. Huggins helped Dr. Read with participants to get scripts in working order to produce output and troubleshoot issues. Subsequently, Dr. Read toured both (DBNRRC and SNARC) facilities led by Dr. Yulin Jia.

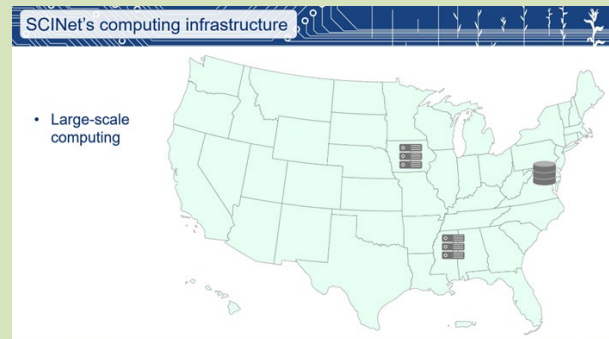


Drs. Yulin Jia, Jeremy Edwards and Trevis Huggins from the Dale Bumpers National Rice Research Center attended the 31st International Plant and Animal Genome (PAG)

Conference held January 12-17, 2024, in San Diego. The three scientists interacted with US and international scientists, and attended scientific workshops, industry workshops, digital tools and resources sessions, and poster sessions. Dr. Jia organized a workshop and presented entitled "Rice as a Model for Genetics, Genomics and Breeding". Dr. Edwards organized the "Allele Mining" workshop. Dr. Huggins gave an oral presentation titled "Establishing a Global Tropical japonica Rice Core Collection for Allele Mining and Gene Discovery: Construction, Sequencing, and Phenotyping". The scientists also attended a meeting with National Program Leaders Drs. Jack Okamuro, Tim Rinehart, and Oswald Crasta to discuss artificial intelligence and new research opportunities.



On January 30, 2024, Drs. Brian Stucky and Heather Savoy from the SCINet Office held a virtual visit to the Stuttgart location. The SCINet initiative is an effort by the USDA Agricultural Research Service to improve the USDA's research capacity by providing scientists with access to high-performance computing (HPC) clusters, high-speed networking for data transfer, and training in scientific computing. This was the first of many location visits planned by the SCINet Office to assess scientific computing needs across the agency and develop a five-year strategic plan for SCINet. Drs. Stucky and Savoy presented an overview of SCINet resources. Dr. Jeremy Edwards, who is the Scientific Point of Contact (SPOC) for SCINet at Stuttgart and chair of the SCINet Scientific Advisory Committee presented examples of research at DB NRRC which has been made possible using SCINet high performance computing systems. Researchers of DB NRRC and Harry K. Dupree Stuttgart National Aquaculture Research Center at Stuttgart and university collaborators at UA Pine bluff attended the meeting. ARS Area Associate Director Dr. Prasanna Gowda presented potential opportunities for collaboration with UA Pine Bluff.



Rice Germplasm Distributed

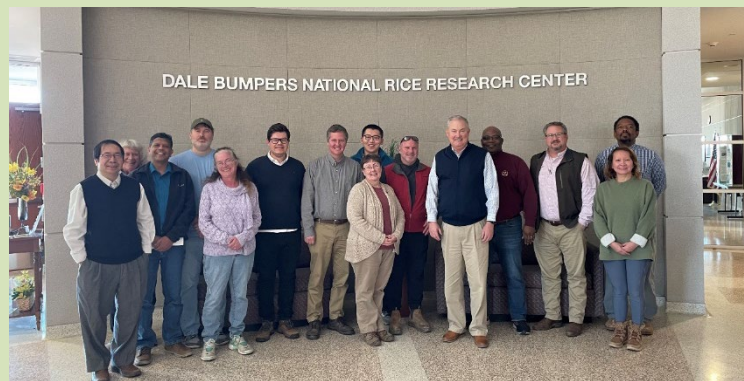
During the month of January, 192 rice genetic stocks were shipped to researchers in Canada, Netherlands, Pakistan, Spain, and the United States.

- **Stakeholder Interactions**

On January 8-11, 2024, Dr. Shannon Pinson served by invitation on the committee that conducted a once-every-5-years outside review of the University of Arkansas Rice Breeding Program. The review culminated in both an oral and written report submitted to multiple administrators with the University of Arkansas System Division of Agriculture, including Dr. Deacue Fields, VP of Agriculture; Dr. Jean-Francois Meullenet, Associate VP for Agriculture Research & Director of the Arkansas Agricultural Experiment Station; Dr. John Anderson, Sr. Associate VP for Agriculture-Extension & Director of the Cooperative Extension Service; Dr. Nathan Slaton, Associate VP for Agriculture & Assistant Director of the Arkansas Agriculture Experiment Station. Also in attendance were Dr. Alton Johnson, Director of the Rice Research and Extension Center in Stuttgart, AR, and Mr. Jay Coker, who represented the Arkansas Rice Research and Promotion Board.

On January 31, 2024, Keith Glover and Steven Caver (Producers Rice Mill, Inc. CEO and VP of Operations, respectively) met with scientists at the DB NRRC to present their concerns about a decline in rice milling quality which they have detected using proprietary milling data collected at the mill over the last two decades. This decline in head rice yields after milling has been observed in pure line varieties as well as hybrids, showing that it is not due to an increase in hybrid acreage over time, and appeared to be especially severe in years with higher-than-average day and/or nighttime temperatures during grainfill (July/August), and was notably severe in 2023 when a significant portion of rice brought in to the mill was also overmature (with less than 16% grain moisture). Dr. Shannon Pinson presented a summary of her research with collaborators which identified QTLs for resistance to rice kernel fissuring, a trait which could be used to improve the milling quality and stability of rice varieties. This in-person meeting at the DB NRRC was joined virtually by ARS National Program Leaders Dr. Jack Okamura and Dr. Nora Lapitan, and Dr. Brennan Smith, Research Leader of Food Processing and Sensory Quality Research. Mr. Jay Coker, rice farmer and representative of the Rice Producers Board

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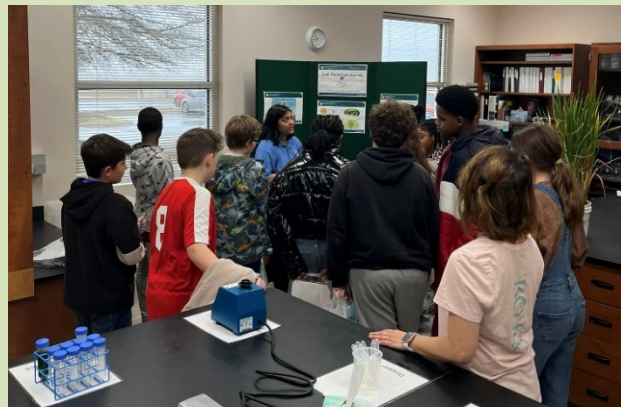


(<https://www.facebook.com/share/p/yEA2qAuLTSEVv8Hv/?mibextid=WaXdOe>), and by several scientists from the University of Arkansas Rice Research and Extension Center, including Dr. Alton Johnson, RREC Director, the two rice breeders, Drs. Xueyan Sha and Christian de Guzman, and Dr. Paul Counce, plant physiologist with expertise in grain chemistry changes due to high nighttime temperatures. The meeting closed with discussion

of how the scientists at DB NRRC and U of A can collaborate to develop rice varieties containing higher and more stable milling quality.

Education and Outreach

DB NRRC hosted over 100 5th grade students from Meekins Middle School in Stuttgart, AR for a plant/science exploration day on January 24, 2024. These students explored digestion with Dr. Shannon Pinson, seed processing with Laduska Sells, DNA extraction with Aaron Jackson, John Mitchell, and Dr. Yixiao Huang. They also enjoyed activities such as collecting disease evidence with Dr. Yulin Jia and Dr. Rodrigo Pedroza, dehulling different varieties with Dr. Georgia Eizenga, learning about the diversity of rice and the NSGC and GSOR germplasm collections with Dr. Travis Huggins, Adam Rice and Jonathan Moser, with a trip into our own doomsday vault (cold room), and chlorophyll collection with Tiffany Sookaserm and Dr. Nisha Patwa. Lots of excitement and questions proceeded all the activities for our tour leaders. Rice tasting rounded off our fun time together, with requests for more rice to taste being made many times! Overall, this experience was successful for both DBNRRC staff and the 5th graders. Feedback comments were very positive, such as, “it was so interesting”, “that was really cool”, or “can we sit down?” and “it was hot in there.” Several students asked on the way out if they could visit DBNRRC again on a future field trip. Our staff did well to prepare all the hands-on activities, lots of work was put into this day and it showed. This effort sought seeds for the next generation of agricultural scientists from rural American and enhanced our relationship with local stakeholders.



See the web version of all DBNRRC research highlights at: <https://www.ars.usda.gov/southeast-area/stuttgart-ar/dale-bumpers-national-rice-research-center/docs/monthly-research-highlights/>