



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



SEPTEMBER 2024

MONTHLY RESEARCH HIGHLIGHTS

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

From September 9-11, 2024, the Dale Bumpers National Rice Research Center (DB NRRC) scientists and Researchers led by Dr. Yulin Jia with Dr. Rod Wing of University of Arizona and Dr. Vibha Srivastava of University of Arkansas Divisions of Agricultural systems supported by ARS Stuttgart Administrative office Heather Farmer and Jennifer and Katie Wing hosted the 2024 International Symposium of Rice Functional Genomics (ISRFGC) in Little Rock and Stuttgart.



The theme for this symposium was to celebrate the 20th anniversary of the completion of rice genome sequence and how the genome sequence has been enabling rice production and protection. The meeting was opened with welcome remarks by Dr. Deacue Fields, vice president for Division of Agriculture of University of Arkansas system followed by ARS Deputy Administrator Dr. Nora Lapitan and National Program Leader Dr. Jack Okamuro and International Chair Dr. Rod Wing. About 170 participants attended the symposium which provided the platform for scientific knowledge exchange and training

opportunities for next generation scientists and farmers. On September 11, 2024, ISRFGC attendees toured the DB NRRC facilities and fields.



From left to right: Jack Okamuro, Nora Lapitan, Fields, Pankaj Jaiswal and Yulin Jia at the conference.

Attendees were presented with information about DB NRRC, its history and direction by Dr. Yulin Jia. During the presentation, attendees had the opportunity to taste three rice varieties developed by DB NRRC and coordinated by Ms. Jackie Hughes and Ms. Heather Box. Attendees were divided into smaller groups to tour the facilities and discuss research on rice grain quality with Dr. Shannon Pinson, abiotic stress tolerance with Dr. Jai Rohila, plant pathology with Dr. Yulin Jia, diverse rice species with Dr. Georgia Eizenga, Genomics with Dr. Jeremy Edwards, rice germplasm collection with Dr. Trevis Huggins, and grain processing with Ms. LaDuska Sells. The groups were escorted to each research station with the assistance of Ms. Quynh Grunden, Mr. Eric Grunden, Mr. Adam Rice, Mr. Jonathan Moser, Ms. Tiffany Sookaserm, Mr. John Mitchell, Mr. Aaron Jackson and Mr. Jace Everett. After the tour of the DB facility, the group was given a tour of the University of Arkansas Rice Research and Extension Center field observation plots, the DB NRRC rice/fish experiment and methane emission study organized by Drs. Alton Johnson (Director of University of Arkansas Rice Research and Extension Center), Yulin Jia and Trevis Huggins. The group was delighted and grateful to experience the many aspects of rice research in Stuttgart, Arkansas and



The meeting attendees of 2024 ISRFG at observation bay of University of Arkansas Rice Research and Extension Center.

proved to be an excellent opportunity to transfer ARS technology to US and international rice stakeholders.

On September 12, 2024, Drs. Jia, Edwards, Eizenga, Huggins, Pinson, and Rohila met with Dr. Alberto San Bautista, a rice agronomist from the Polytech University of Valencia in Spain and with Dr. Ben Runkle, research agronomist from the University of Arkansas, Fayetteville, AR, along with five of their graduate students, all originally from Spain. Many similarities and differences in rice production between the USA and Spain were discussed, including water source and its delivery by cascade to multiple farmers' fields in Spain. Production challenges common to both countries include blast and sheath blight diseases and weedy red rice. Bomba rice, a landrace variety grown in Spain for approximately 100 years, was a primary topic of discussion. Bomba is not high yielding but is still produced commercially today in Spain because its unique endosperm starch attributes allow it to command a premium market price. Dr. Edwards determined through an on-the-spot literature search that Bomba's genomic sequence is made openly available through the US-NIH National Center for Biotechnology Information (NCBI). Rain prevented the group from visiting DBNRRC field research plots, but Dr. Pinson followed up the meeting by emailing on 9/18 pictures of brown spot leaf lesions and fully filled panicles collected from her Bomba field plots grown in Stuttgart, AR in 2024.

On September 15, 2024, Dr. Yulin Jia, Dr. Jai Rohila, Melissa Jia and Jackie Hughes hosted a delegation of 11 visitors from Indonesia led by Minister of Agriculture HE Dr. Andi Amran Sulaiman. Dr. Jia attended the welcome discussion at the University of Arkansas Rice Research and Extension Center led by Drs. Alton Johnson and Xueyan Sha and presented a history and vision of DB NRRC followed by a field tour of experiments conducted by University of Arkansas and DB NRRC. Other hosts for this delegation included Wes Ward, Arkansas Secretary of Agriculture and Josh Hankins, Director, Grower Relation & Rice Stewardship Partnership, USA Rice.





✓ Rice Germplasm Distributed

During the month of September, 7 rice genetic stocks were shipped to researchers in the United States.

New Addition of Genetic Stock

GSOR added the L-202 × Trembese rice (*Oryza sativa* L.) mapping population (211 lines and 2 parental lines), which was developed from the Rice Diversity Panel 1 accessions L-202 (GSOR 301090) originating from California, USA, and Trembese (GSOR 301156) originating from Indonesia. Genotyping classified both parents as tropical japonica. Both accessions were characterized as phenotypically and genotypically diverse from each other. The population consists of 211 F2:9 recombinant inbred lines (RILs) and parents (GSOR 104301 through GSOR 104513), which were genotyped with 1,439 polymorphic SNP markers selected from the Cornell-IR LD Rice Array (C7AIR) and four simple sequence repeat (SSR) markers. The population was phenotyped for 20 yield component traits including seven agronomic traits (days to heading, plant height, culm habit, awn presence, seed shattering, lodging and panicle number per plant), seven panicle architecture traits (panicle length; number of primary and secondary branches, number of florets, seeds, and sterile florets per panicle; and percent fertility), and six seed traits (seed length, width, and length-to-width ratio with the hull, 100-seed weight, seed weight per plant and seed weight per panicle).



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