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

APRIL 2024

MONTHLY RESEARCH HIGHLIGHTS

For More Information: Dr. Yulin Jia, Research Leader/Center Director
yulin.jia@usda.gov

- **Technology Transfer**

  ✓ **Interactions with the Research Community**

  On April 4, 2024, Dr. Jeremy Edwards, gave a guest lecture on quantitative genetics with interactive visualizations virtually for the Genetics course at the University of Arkansas at Pine Bluff (UAPB). Dr. Edwards was invited to give the lecture by UAPB Associate Professor and valued DB NRRC collaborator Dr. Sathish Ponniah.

  On April 16-18, 2024, Victor McCoy, SEA Section Head for Acquisitions, Roosevelt Sanders, SEA Section Head for Facilities and Everett Wilson, SEA Engineer visited the Stuttgart location to meet our team and see our facilities. While in Stuttgart, they meet with Maintenance, Admin and Research personnel to get acquainted, answer questions, and find solutions for our contracting and facility needs. These efforts ensure the sustainability of rice research conducted at DBNRRC.

On April 17, 2024, Dr. Shannon Pinson provided to Ms. Hana Suliman, a graduate student at Columbia University, New York, NY, information on how changing environments have impacted rice production and yields over the last 30 – 50 years, and on how current research and government programs, such as the USDA Climate-Smart Commodity Partnerships along with several water and wildlife conservation programs overseen by USDA-NRCS, can encourage farmers to adopt crop production systems that are more sustainable and environmentally friendly by conserving water, sequestering carbon, emitting less greenhouse gasses, and resulting in less fertilizer run-off. Ms. Suliman is earning a M.S. in the School of Public Health at Columbia University and sought this information to write a science-based essay for a class project.

On April 22, 2024, all staff members of DBNRRC and SNARC celebrated Earth Day with coffee and donuts. A short presentation was given by Joel Ledbetter, and awards ceremony was performed using a hybrid format. A few trees and perennials were planted in flower beds at both centers.

On April 30, 2024, three USDA-ARS Administrators visited Stuttgart, AR: Mr. Joon Park, Associate Administrator, Research Operations & Management (Washington DC), and Mr. Archie Tucker and Dr. Prasana Gowda, Area Director and Assistant Director of the Southeast Area (Stoneville, MS). Mr. Park presented a budget update to all scientists and employees at the DB NRRC and SNARC, and Dr. Yulin Jia presented overviews of DB NRRC and SNARC research accomplishments. After the employee meeting, they toured the facility.

✓ **Rice Germplasm Distributed**

During the month of April, 17 rice genetic stocks were shipped to researchers in Belgium, Spain, and the United States.

Stakeholder and Congressional Interactions

On April 3, 2024, a team of six staffers from the office of U.S. Senator John Boozman, a ranking member of the U.S. Senate committee on Agriculture, Nutrition, and Forestry, and the state of Arkansas Department of Agriculture, visited Dale Bumpers National Rice Research Center (DB NRRC). The individuals on the visiting team were Jeremy Witte, Kate Covington, Dudley Hoskins, Macie Kelly, Bryce McWilliams, and Ty Davis. Dr. Yulin Jia, Research Leader and Director of the DB NRRC welcomed the visiting team and provided an overview of DB NRRC followed by rice tasting of three different varieties - 'Eclipse', a newly released medium grain variety with improved resistance to rice blast disease, 'Santee Gold', a long grain variety from DBNRRC and 'Tiara', a long grain variety with purple-colored antioxidant compounds in its bran. Dr. Shannon Pinson

delivered a short presentation on rice quality work focused on developing germplasm and genetic markers for "resistant starch" in rice, a trait that lowers its glycemic index. Afterwards, the team took a quick tour of DBNRRC facility where each scientist presented their ongoing research work on multiple topics such as: abiotic stress tolerance (Dr. Jai Rohila), rice disease tolerance (Dr. Yulin Jia), use of diverse rice germplasm - hidden treasures (Dr. Georgia Eizenga), use of machine learning, artificial intelligence and tour of genomics core facility, (Dr. Jeremy Edwards), worldwide rice collections, characterizations and distribution (Dr. Trevis Huggins).

On April 30, 2024, Mr. Ty Davis, State Agriculture Liaison for Arkansas U.S. Senator John Boozman, toured the facility.

On April 30, 2024, updates on cooperation between ARS and University of Arkansas were discussed in the DB NRRC conference room. Attendees included ARS administrators - Mr. Joon-Park, Associate Administrator, Research Operations & Management, Mr. Archie Tucker, Southeast Area Director, Dr. Prasanna Gowda, Associate Director of the Southeast Area, Dr. Yulin Jia, Research Leader/Center Director of DBNRRC, and University of Arkansas Administrators - Dr. Alton Johnson, Director of University of Arkansas Rice Research and Extension Center, Dr. John Anderson, Senior Associate Vice President for Extension, and Dr. Jean-Francois Meullenet, Senior Associate Vice President for Agriculture Research & Director of the Arkansas Agricultural Experiment Station.

- **Education and Outreach**

  Eclipse Viewing: On April 8, 2024, about 15 DBNRRC employees took a break to watch the deepest point (sun most covered) of the nearly total eclipse at 1:53:43 pm.

- **New Research Grants**

  Arkansas Rice Research and Promotion Board (ARRPB): Incorporating Genetic Tolerance to Reduced Irrigation into the Arkansas Rice Breeding Program; with PI: Christian De Guzman (University of Arkansas, UA), co-PIs: Jai Rohila (DB NRRC), Xueyan Sha (UA), and Paul Counce (UA); $50,000, year 1 of 3. This is a part of teamwork of ARS with University of Arkansas addressing Arkansas rice farmers need. An overarching goal of the project is to save water in rice production with genetically improved rice varieties. For accomplishing this goal, the team will conduct a multi-year comprehensive evaluation of hundreds of advanced breeding lines for yield, milling and grain quality traits from Arkansas' long grain breeding program under multiple irrigation regimes. This research effort is towards bringing profitability, sustainability, and increasing water-use-efficiency in the Arkansas state's rice production system. The objectives of this research are (1) evaluate advanced rice breeding lines for grain yield, quality, and milling yields under three irrigation schemes, (2) increase selection accuracy and prediction accuracy of measured traits to assist Arkansas breeding programs for greater genetic gains under reduced irrigation, and (3) Identify critical traits that need genetic improvements for bringing further stability in yield, quality, and milling traits.

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/