



August
Highlights from the Dale Bumpers National Rice Research Center
Stuttgart, AR

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1. Recently Accepted Publications

Jia, Y., Berger, G., McClung, A.M. 2016. Registration of 42 blast resistant medium grain rice genetic stocks with suitable agronomic, yield, milling yield, and grain characteristics. Journal of Plant Registrations. doi:10.3198/jpr2016.03.0015crgs.

Blast disease of rice is one of the major constraints for rice production in the southern USA and worldwide. Without blast resistance, fungicides are used to protect the yield and quality of the rice crop. Although the southern USA primarily produces long grain rice, there is a market demand for premium quality medium grain rice that is commonly grown in California. Our objective was to develop medium grain rice genetic stocks that have broad spectrum blast resistance that can be used by breeders to develop new varieties for the medium grain market. We performed backcrossing and crossing with an US adapted blast resistant rice cultivar Katy which carries the major blast resistance gene *Pi-ta* that provides resistance to all but one of the known races of blast that are commonly found in the southern USA. A total of 42 improved genetic stocks with *Pi-ta* and suitable agronomic traits, which are highly similar to M202, were developed. From 2013 and 2014, using field plot experiments, we determined that agronomic traits, yield components, seed characteristics, and yield and milling yield were suitable for breeders to use for developing improved medium grain rice germplasm and cultivars. These genetic stocks will help in the development of blast resistant medium grain rice germplasm and cultivars in the southern USA and worldwide.

2. New Significant Research Collaborations

International

USA

3. New Awarded Grants

4. Technology Transfer

a. Formal Events:





To Non-research stakeholders

To Research Community

August 3, 2016 Research Plant Pathologist, Dr. Yulin Jia presented an invited talk “Development of controlled high throughput and user friendly assays for host responses to rice pathogen isolates”, co-chaired a symposium of American Phytopathological Society (APS) on “Promising Phenotyping Efforts for Understanding Genetic and Molecular Bases of Plant Disease Resistance” and chaired annual APS and Chinese Society of Plant Pathology (CSPP) working group meeting at the annual meeting in Tampa, Florida.

b. Informal Contacts:

Drs. David Gealy and Jai Rohila of ARS-DBNRRC, Stuttgart, AR, and Dr. Dong-Hong Wu of Taiwan Agricultural Research Institute (TARI) attended the RiceTec field day in Harrisburg, AR on August 3, 2016 to observe the latest advancements in hybrid rice systems for the US and to interact with rice growers.

August 8, 2016 Dr. Yulin Jia provided career consultation for a graduate from Mississippi State University on plant pathology.


August 12, 2016 Dr. Yulin Jia provided methods for evaluating host response to the fungal pathogen *Rhizotonia solani* and two field isolates of *R. solani* to a researcher in University of Florida.


August 26, 2016 Dr. Yulin Jia provided information to a University colleague for the seed source of a model rice variety for studying host-pathogen interaction.

August 29, 2016 Dr. Yulin Jia showed a rice farmer one of rice genetic stocks in ARS field plots.

On August 4, Dr. Shannon Pinson of the Dale Bumpers National Rice Research Center, Stuttgart, AR consulted with Dr. Alvaro Roel at the Instituto Nacional de Investigacion Agropecuaria (INIA) in Uruguay, as to how arsenic enters rice plants, and how various environmental conditions can thereby impact the amount of chemical form of arsenic accumulated in rice grains.

On August 9, Dr. Shannon Pinson of the Dale Bumpers National Rice Research Center, Stuttgart, AR consulted with Dr. Renuka Sankaran at Lehman College, New York as to how genetic and environmental factors affect the amount of cadmium that is accumulated in rice grains, and the advantages and disadvantages of various mapping populations for identifying the genes affecting rice Cd concentration.





On August 22, Dr. Shannon Pinson of the Dale Bumpers National Rice Research Center, Stuttgart, AR consulted with Mr. Claire Robinson, Editor of GMWatch.org, about natural variation for concentrations of iron and zinc in rice from around the world, compared to the average seen in standard U.S. rice, and that reported recently by others in GM rice varieties.

c. **New MTAs**

d. **Germplasm Exchanged:**

During August, 1,685 rice accessions from the Genetics Stocks *Oryza* (GSOR) collection were distributed to researchers in the US.


5. Educational Outreach

August 6, 2016 at the “Back-2-School Extravaganza” in Stuttgart, Arkansas, participants learned about USDA Agricultural Research Service research effort on rice disease control with genetics. Research Plant Pathologist Dr. Yulin Jia with his biological science lab technician Tracy Bianco, undergraduate Research Assistant Holly Herald, Tyler Franzen, and visiting scientists Dr. Haijun Zhao and a visiting graduate student from China Agricultural University Xinglong Chen participated in the event. The event drew 1325 participants, 794 of whom were school age children and was sponsored by the local Community Outreach Program for our Youth (COPY).

Dr. Georgia Eizenga had a display entitled “Rice Wild Relatives, the Source of Novel Traits for Rice Improvement” at the University of Arkansas RiceExpo2016 (field day) held on August 10, 2016, with approximately 950 people in attendance.

Drs. Georgia Eizenga and Shannon Pinson of the Dale Bumpers National Rice Research Center, Stuttgart, AR, joined the other members of the Crop Science Society of America (CSSA) Board of Directors in visiting the Donald Danforth Plant Science Center, Monsanto Company including The Climate Corporation, and the Missouri Botanical Garden in St. Louis, MO on August 29-30, 2016. The purpose of this meeting was to view first-hand the successful public-private partnerships that have been established, especially in the area of plant science research, and to look for ways to connect these organizations with CSSA. Drs.





Eizenga and Pinson represent their respective divisions on the CSSA Board, C01: Breeding and Genetics and C09: Biomedical, Health Beneficial, and Nutritionally Enhanced Plants.

6. Awards/Honors

