



**August 2015**  
**Highlights from the Dale Bumpers National Rice Research Center**  
**Stuttgart, AR**

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## **1. Recently Accepted Publications**

ARS Anticipated Product: Plants with Resistance to Diseases.

Wang, X., Jia, M., Ghai, P., Lee, F.N., and Jia, Y. 2015. Genome wide Association of Rice Blast Disease Resistance and Yield Related Components of Rice. *MPMI*.  
<http://dx.doi.org/10.1094/MPMI-06-15-0131-R> • posted 08/18/2015.

Disease resistance may require expenditure of energy by the plant that may be at the expense of grain yield. In the present study, we examined the relationships between agronomic traits in response to exposure to commonly found isolates of the rice blast fungus using an association mapping approach with diverse rice germplasm. We found that twenty one genetic markers distributed among rice chromosomes 2 to 12 were associated with blast resistance, and 16 genetic markers were associated with seed weight, heading date and plant height. Most noticeably, shorter plants were significantly correlated with resistance to blast isolates and rice germplasm possessing the blast resistance gene *Pi-ta* were associated with lighter seed weights. This study points a way to improve both blast disease resistance and yield.

## **2. New Significant Research Collaborations**

### **International**

A one year research project funded by the Foreign Agricultural Service was developed between Drs. Gealy and McClung of DBNRRC and two researchers from Taiwan. The one year program will focus on assessing the source of red rice infestation in Taiwan rice fields and development of production methods for its control. The two teams met at the DBNRRC during Aug. 7-11, 2015 to discuss details of the collaborative project.

### **USA**

## **3. New Awarded Grants**

## **4. Technology Transfer**

### **a. Formal Events:**





### **To Non-research stakeholders**

Staff from the DBNRRC hosted two display tables at the University of Arkansas Rice Expo held in Stuttgart, AR on Aug, 7, 2015. Research conducted on rice disease control and the Genetic Stocks *Oryza* collection were presented.

### **To Research Community**

On July 31, Research Plant Pathologist, Dr. Yulin Jia served as moderator at a workshop for the development of the NP303 project plan that was held in conjunction with the annual meeting of American Phytopathological Society, Pasadena, California.

From August 1 – 6, Research Plant Pathologist, Dr. Yulin Jia presented an update of the project “Novel Strategies for Managing Blast Diseases on Rice and Wheat” funded by USDA-NIFA, and co-chaired a joint symposium of American Phytopathological Society (APS) and Chinese Society of Plant Pathology on “Plant Pathology and Disease Control” at the annual meeting in Pasadena, California.

From August 23 – 26, Research Plant Pathologist, Dr. Yulin Jia, co-chaired a scientific session and presented a talk on “Development of molecular markers for breeding for disease resistant crops” at XVIII International Plant Protection Congress (IPPC) in Berlin, Germany. The XVIII IPPC conference had 1400 attendees from 85 countries.

#### **b. Informal Contacts:**

#### **c. New MTAs**

#### **d. Germplasm Exchanged:**

3,242 rice accessions from the Genetics Stocks *Oryza* (GSOR) collection were distributed to researchers in the US.

In a collaborative project with Dr. Argelia Lorence, Arkansas State University, Jonesboro, seed of 27 mapping population parents were provided for use in an undergraduate honors project focused on assessing genetic differences for vitamin C content which is associated with stress tolerance in some plant systems.

## **5. Educational Outreach**

On August 6-7, 2015, Georgia Eizenga hosted a group of seven “Rice Scholars” from the University of Illinois. The group was coordinated by Dr. Erik Sacks, Assistant Professor in the Department of Crop Science and included four Lee scholars pursuing their Ph.D., originating from Bangladesh, India, Philippines, and Vietnam; a visiting





scientist from China; and a J. B. Turner Fellow pursuing a M.S. degree. All rice scholars are currently involved with rice research and made the trip to learn about U.S. rice research. They presented their research projects and spent time with DBNRRC and Univ. of Arkansas scientists conducting research in their area of interest. The group also attended the Univ. of Arkansas Rice Expo 2015.

August 13 and 14 Lorie Bernhardt, GSOR Computer Assistant, hosted two graduate students and a geneticist from the University of Central Arkansas, Conway, as they received germplasm from a large rice mutant population. Tours of DBNRRC facility, greenhouses, and field plots were also provided.

## **6. Awards/Honors**

