



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



FEBRUARY 2018

MONTHLY RESEARCH HIGHLIGHTS

**For More Information: Dr. Anna McClung, Research Leader/Center Director
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- **Technology Transfer**

- ✓ **Interactions with the Research Community**

Dr. Shannon Pinson from the DBNRRC, Stuttgart, AR was invited to visit (Feb. 5-6) with faculty, graduate students, and undergraduate students in the Department of Biochemistry, Molecular Biology, Entomology, and Plant Pathology at Mississippi State University, Starkville, MS. She presented a seminar on her research to identify genes and field management strategies to reduce accumulation of inorganic arsenic in rice grains.

February 13-18, Dr. Trevis Huggins, a geneticist post doc at DBNRRC, attended the Phenome 2018 conference in Tucson, Arizona. The conference focused primarily on high throughput plant phenotyping and machine learning. Dr. Huggins presented a poster detailing research on bioinformatics analysis to identify new genes for rice grain quality.



On Feb. 13, Dr. Anna McClung met with Mark Groat who is a Nuffield Australia Farming Scholar that is traveling to the United States, Thailand, Vietnam, Philippines, India, South and Central America to learn of new sustainable rice production practices that can be helpful to the Australian industry.

The 38th Rice Crop Germplasm Committee was held on Feb. 18, with DBNRRC committee members, Drs. Georgia Eizenga and Anna McClung, attending. In addition to the reports by the appropriate USDA/ARS personnel, the addition of molecular marker descriptors to the USDA world rice collection (GRIN-Global) was discussed.

All of the DBNRRC scientists attended the 37th Rice Technical Working Group Meeting that was held in Long Beach, CA, Feb. 19-22. They made 12 oral presentations and 3 poster presentations. The meeting was attended by some 300 US and international rice researchers.

Dr. Anna McClung served as the organizer for a symposium on “Application of Genomic Technologies to USA Rice Breeding Programs” held at the RTWG meeting Feb. 20 in Long Beach, CA. The meeting was attended by some 60 researchers that came to hear talks from Dr. Brian Scheffler (USDA/ARS Stoneville, MS) on development of a new tropical japonica reference genome for use by USA breeders, using marker assisted selection in rice breeding by Dr. Adam Famoso (LSU, Crowley, LA), and the potential of gene editing by Dr. Michael Thomson (Texas A&M, College Station, TX).



✓ **Rice Germplasm Distributed**

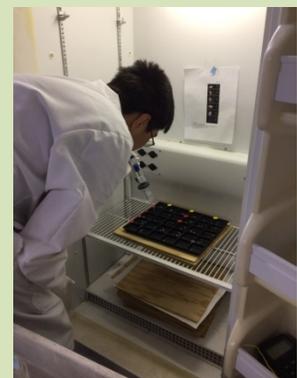
During February, 1,134 rice accessions from the Genetics Stocks *Oryza* (GSOR) collection were distributed to researchers in the US, Belgium, China and Japan.

Drs. Anna McClung and Ming-Hsuan Chen of DBNRRC, along with Dr. Susan McCouch of Cornell University, announced the release of Scarlett rice. This is the first rice variety with red bran to be released in the USA. Unlike weedy red rice, Scarlett does not possess undesirable traits like grain shattering and dormancy that causes the weed seed to persist in the soil. The variety development came from a National Science Foundation collaborative grant with McCouch that started in 2005. Numerous scientific papers have been published, including those by Dr. Chen, demonstrating that Scarlett rice is high in natural anti-oxidant compounds that are associated with human health benefit. Pictured (R to L) Susan McCouch, Ming-Hsuan Chen, Anna McClung, and Jack Okamoto (ARS National Program Leader).



● **Education and Outreach**

Drs. Ming-Hsuan Chen and Shannon Pinson of DBNRRC, mentored Mr. Devin Sha on a research project for his high school science fair. His research developed a low-cost, high throughput method for identifying breeding progeny which have inherited a mutant gene that alters the digestibility of rice starch. Rice containing this mutant gene would have lower rates of digestion after consumption, and the non-



digestible starch portion (the “resistant starch”), which is a form of dietary fiber, would provide health benefits to the colon. Devin won 3rd place in the poster competition.

At this same competition, Ms. Emily Sookaserm who was mentored by Dr. Dave Gealy, won 2nd place for her oral presentation “A comparison of allelopathic properties of Katy and PI 312777: Suppression of weeds without herbicides” and Ms. Mary Jia, mentored by Dr. Yulin Jia, won 2nd place in her poster presentation “The effect of ethyl methane sulfonate, Co-60 gamma radiation and fast neutron mutagenesis on Katy rice: Phase one morphological mutations.” Emily and Mary will advance to the state level competition.



On February 16th, Aaron Jackson, Geneticist, participated in the “Real Men Read” program at the Park Avenue Elementary, Stuttgart, AR and spoke to a kindergarten class about the USDA’s role in helping to get rice from the farm to the table. “Grow your own rice” seed packets were provided to the children as a hands-on agriculture project. This was followed by an interactive and lively reading from Dr. Seuss and select poems from “Where the Sidewalk Ends.”

The RTWG meeting in Long Beach, CA hosted an expanded student competition with 22 students making oral presentations and 16 students presenting posters. Drs. Georgia Eizenga, Jai Rohila, and David Gealy from DBNRRC assisted in judging the posters. The idea for a student competition was first presented to RTWG in 2014 by ARS scientist, Bob Fjellstrom (now deceased), as a means to encourage new scholars in rice research.

February 21, 2018, Dr. Trevis Huggins, a Geneticist post doc, also participated in the “Real Men Read” program and read “A Giraffe and a Half” to a third grade class. At the urging of the kids to explain where he was from, he provided them with a description of his homeland, the Caribbean island of Saint Kitts.

February 22nd, Melissa Jia, Geneticist, and Jonathan Moser, Biological Science Technician, participated as judges in the Junior Academy of Sciences competition at Arkansas School for Mathematics, Sciences, and the Arts (ASMSA) in Hot Springs, Arkansas. Students gave 10 minute presentations on research experiments they had conducted. (Left photo Jonathan Moser and Melissa Jia, Right photo Melissa Jia and Dr. Brian Monson, Director of the West Central Regional Science Fair)

