

RiceCAP Outreach Team Gets Young Students Involved in Biotechnology

On October 12th, some representatives from the RiceCAP Outreach team were part of a Math, Science and Technology Days program for 294 4th-6th grade elementary children, which is held each year at Colorado State University. These are children from local schools which are comprised of a majority of hispanic and other minorities. The objective of the program is to get them interested in the sciences from an early age. We presented a "Mystery Plant" that had a disease. We had four tables set up – one at which they extracted DNA from the "mystery" plant, one where a gel electrophoresis was running, the third with information about DNA sequencing and the last one with examples of

diseased plants. The clues provided were the color and smell of the lysate from the DNA extraction and a photo of the "fingerprint" of the mys-

tery plant). At the DNA sequencing table they were given a photo with the "fingerprints" of all the plants on display (which included our mystery plant). At the DNA sequencing table they



KATIE & PATTY EXPLAIN DNA SEQUENCING.

tery plant from gel electrophoresis. At the DNA sequencing table they learned how the genetic code is used to determine amino acid sequence and at the fourth table they

were given a clue that they had to work out using the genetic code table. Most of the children had the answer figured out from the first three clues but the code provided them with the definitive answer. Can you work it out?

TCT ACT CGT GCT
TGG b GAA CGT
CGT TAT

(For the answer, go to page 4.)



CHILDREN WORK ON THEIR ACTIVITY SHEETS.

RICE FACTS & FOLKLORE

- ◆ In Japan, people do not think in terms of breakfast, lunch, and dinner, but rather morning rice (asa gohan), afternoon rice (hiru gohan), and evening rice (ban gohan)
- ◆ In Taiwan and China, death is symbolized by chopsticks stuck into a mound of rice.
- ◆ In Singapore, a good job is symbolized by an iron rice bowl, and being out of a job, a broken rice bowl.



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People

The Food and Agriculture Organization (FAO) estimates world cereal production for 2005 at 1984 million tons which is 3.4 per cent less than last year's record output. Weather conditions such as the adverse hot and dry weather in the United States and drought in parts of the European Union contributed to lower yields.

For more information, contact FAO's Pierre Antonios at Pierre.antonios@fao.org or visit <http://www.fao.org/newsroom/en/news/2005/107900/index.html>

Dr. Anna McClung has become the new Director of the Dale Bumpers National Rice Research Center in Stuttgart, AR. Anna received her Ph.D. from North Dakota State University and MS and BS from Texas A&M University. Dr. McClung joined ARS in 1991 after working for 7 years with a biotechnology company developing corn hybrids having improved nitrogen use efficiency. Since 1995, she has been the Research Leader for the ARS Rice Research Unit in Beaumont, TX. Dr. McClung has developed 16 rice cultivars for conventional and specialty markets since joining ARS. She also has produced over 100 peer reviewed manuscripts and other articles since joining ARS. Over the past 10 years, she has worked with colleagues at Beaumont and College Station to develop DNA marker technology that can be used to increase the efficiency and effectiveness of



DR. ANNA MCCLUNG

rice breeding programs in the US. This molecular breeding effort is being expanded through the Rice Coordinated Agricultural Project grant that was awarded in 2003 by the USDA/CSREES National Research Initiative and on which Dr. McClung serves as a Co-Principal Investigator.

Dr. McClung replaces Dr. Dave Gealy who has been serving as Acting Center Director since January. Please extend your congratulations to Dr. McClung as she takes on this very important leadership

position in ARS.

On Oct 26-Oct 30, Yulin Jia, RICECAP co-PI, from the Dale Bumpers National Rice Research Center, Stuttgart, AR will chair a plenary session and present a plenary talk at the International Conference on Plant Molecular Breeding in Hainan, China. He will present results on translational genomics with a case study of the rice blast resistance gene Pi-ta. While in China, he will also present talks at Zhejiang University, South China Agriculture University which will include a review of the RiceCAP objectives.

Dr. Lieceng Zhu, a RiceCAP postdoc working in Dr. Jia's lab, resigned on Oct 20 for personal reasons. The position vacancy is now posted on the UA website, and may be viewed at: <http://hr.uark.edu/employment/listingsjob.asp?ListingID=3414>.

Beaumont ARS Rice Research Unit Update 10/14/05

Most of the ARS staff returned to work at Beaumont on Tuesday 10/11/05. All employees now have utilities at their homes. One employee has had to move to an apartment while repairs are conducted on her home. Most of the damage was due to the hurricane force winds and wind driven rain followed by

two weeks of no power that prevented people from returning to the area and making repairs. There are still many businesses in the area that are closed or have limited supplies. Most people are on waiting lists for insurance adjusters, construction inspectors, and companies that do repairs for fencing, electrical work, tree

removal, carpeting, wall repairs, etc. Bottomline - just about everyone has incurred damage. Our summary for the ARS staff indicates that this averages \$11,000 per household.

Phil Smith from the ARS Area Office made a site visit to assess the damages at the Re-

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Research Updates

Brown Spot Disease Observed in RiceCAP Trial at Beaumont

During 2005, the MY1 mapping population (RT0034/Cypress) was grown in Stuttgart, AR, Crowley, LA, and Beaumont, TX. Originally, only two locations were planned for the evaluation, but there was concern that a loss of one of these due to unforeseen events would result in significant setback for the RiceCAP project. Although fungicides were applied in a

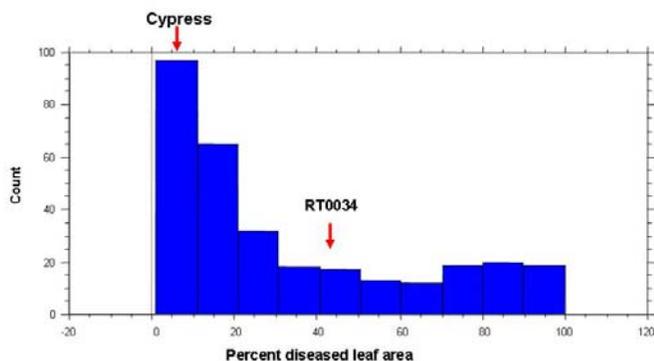
preventative manner at all three locations, brown spot disease caused by *Bipolaris oryzae* was observed in the trial conducted at Beaumont. Most southern US cultivars appear to have good resistance to this pathogen and it is not commonly observed in production fields. However, the RT0034 parent was observed to be quite susceptible to this disease (see leaf pictures). The Winseedle scanning device and software will be used to determine grain dimension in the MY1 (see scanner picture) but



RT0034



CYPRESS



MY1 population distribution for susceptibility to *Bipolaris oryzae* in Beaumont 2005

also shows promise as a means to quantify the amount of diseased leaf area. The frequency distribution of disease incidence in this population suggests there may be one or two major genes associated with resistance (see chart). Although it remains to be determined if the presence of this disease will confound milling yield results for the Beaumont harvested samples, it is possible that we may be able



WINSEEDLE SCANNING DEVICE

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Beaumont Update cont.

(Continued from page 2)

search Station and provide advice on repair efforts. As noted previously, the damage to the station is relatively minor but we are having to deal with the same things as local families - downed fences, damaged roof, mold on ceiling tiles and walls, etc.

Since there is nothing left to harvest in many of our field experiments, we are using this time to clean up our facilities and make repairs. It will be a few weeks before we will have fully assessed the damage to genetic primers, DNA extracts, pathology cultures, and seed supplies. In addition, a main storage building for field

equipment has been destroyed that will need to be replaced.

The great news is all our staff are safe and have homes to return to. We all learned valuable lessons from the devastation that was experienced following hurricane Katrina that helped minimize the damages and loss of life as a result of hurricane Rita.



Research Updates cont.

(Continued from page 3)

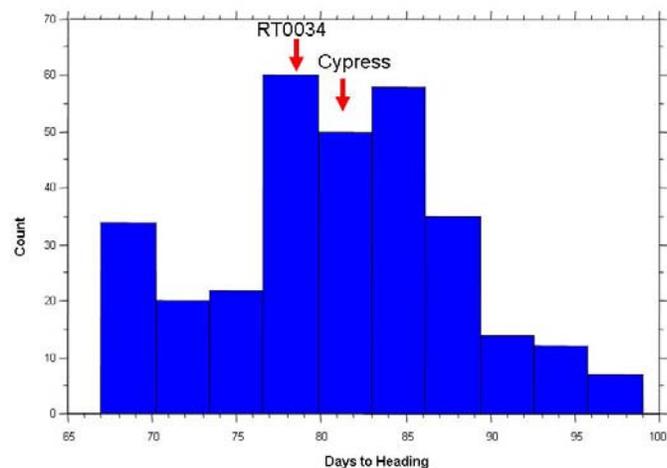
to identify markers associated with resistance to *B. oryzae* in MY1.

Differences in Maturity and Outcrosses Observed in the MY1 and MY2 Populations

Although the parents of the MY1 population were observed to differ in days to heading by only three days, a range of 30 days was observed among the progeny that were evaluated at three southern US locations (see chart.) This wide range in maturity results in grain filling and grain ripening processes occurring under diverse climatic conditions among the progeny of the mapping population. What impact this may have on milling yield will be determined following further data collection and analysis. In contrast, although the parents of the MY2 population, Cypress and LaGrue, also differed by only three days in days to heading, the progeny of this mapping

population were observed to range in heading by just 14 days. This suggests that the MY2 population will have fewer potential confounding factors that may impact milling yield than the MY1. Moreover, although a large number of outcrosses were identified and discarded from the MY1 population, an initial screen of some 300 progeny of the MY2 population with five markers by Karen Moldenhauer's lab indicates that only 1% of the

progeny are outcrosses and need to be discarded. At this point, Bob Fjellstrom's lab has identified 244 polymorphic markers between the parents of the MY1 population, averaging 6 Cm apart, which indicates that there is good marker saturation for identifying QTL associated with milling yield in this population.



Days to heading distribution in the MY1 population grown in Beaumont 2005

RiceCAP Outreach Team cont.

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The mystery plant is "Strawberry" which is encoded by the oligonucleotide sequence.

TCT ACT CGT GCT TGG b GAA CGT CGT TAT (oligonucleotide sequence)

Ser Thr Arg Ala Trp b Glu Arg Arg Tyr (amino acid sequence in 3 letter abbreviation)

S T R A W b E R R Y (amino acid sequence in single letter abbreviation)

The following sequence is a simpler code for the most important, but less mysterious crop!

AGA ATA TGT GAG (By the way, it's rice.)

Upcoming Events

The 2005 USA Rice Outlook Conference will be held December 4-6, 2006 at the Hilton Austin Hotel in Austin, Texas. The Hilton Austin is located in downtown Austin in the famous 6th Street District.

http://www.usarice.com/industry/meetings/hotel_outlook.html

Hotel and General Information:

Hilton Austin Hotel
500 East 4 th Street
Austin, TX 78701-3720
Reservations: 1-800-236-1592
General Phone: 512-482-8000
Fax: 512-469-0078

Web site:

www.austin.hilton.com

Room rates, dates and availability: A special rate of \$137.00 single/double is offered on a limited number of rooms for Sunday, December 4 through Tuesday, December 6, on a first-come first-serve basis. This rate is available for up to three days prior and three days after the official conference dates based on hotel availability. To make a reservation, call the Hilton Austin Hotel directly at 1-800-236-1592 and ask for the special USA Rice Outlook Conference rate. Make sure to request a reservation confirmation number and make a note of it for your records. Hotel reservations must be made no later than November 2, 2005.

Reservation after November 2, 2005, and/or after the conference's room block is filled, are subject to availability. Rooms may be unavailable or unavailable at the special rate. Please make your reservations early.

Hotel room rates offered:

Single/Db. \$137.00
Triple: \$157.00
Quadruple: \$177.00
Executive Level add \$25.00.

Ground transportation: Taxi fare from the Austin-Bergstrom International Airport averages \$20 one-way. The Hilton Austin is located approximately 15 minutes (7 miles) from Austin-Bergstrom International Airport.

Directions to the hotel: From Austin-Bergstrom Airport: Exit airport bearing right on Presidential Blvd. Continue on Cardinal Loop toward airport exit. Turn left on TX 71E, take the TX 71-West ramp and continue on TX71 west to US 183 North. Continue on US 183 North to the 1st - 5th Sts ramp and continue onto Cesar Chavez St E. Right onto Trinity St, right onto E 5th St, Right onto Neches.

Parking: Self-parking is \$12 and Valet parking is \$17 per day. Self-parking is located under the Hilton Austin Hotel.

The University of Arizona will be offering the next in a series of practical microarray workshops at the University

of Arizona from January 8-13 2006. This is conveniently prior to the PAG meeting in San Diego. Details about this workshop can be found at <http://ag.arizona.edu/microarray/workshopJan2006.html>

The title/summary submission deadline for papers to be presented at the 31st RTWG has been extended. Hurricane Rita disrupted the operations at the Beaumont Research and Extension Center. The Center and RTWG web site was down for several weeks. This disrupted the ability of authors to download paper submission and registration forms. The title/summary submission deadline for papers has been extended until November 11, 2005. Please submit your papers as soon as possible. Instructions are given below and on the RTWG web site (<http://beaumont.tamu.edu/RTWG2006/>).

Please contact Garry N. McCauley (gmccaule@elc.net), local arrangements chair Anna McClung (amclung@ag.tamu.edu), or any of your Texas colleagues if you have any questions or suggestions. We look forward to seeing you in Texas!

Xanthomonas oryzae pv. *oryzicola* is an important pathogen which causes bacterial streak disease in rice. It is especially significant in Asia, since rice has no inherent source of resistance to the bacterium. Bingyu Zhao and colleagues of Kansas State University, however, take a leap into maize territory and bring back news that "A maize resistance gene functions against bacterial streak disease in rice." Their work is published in the latest issue of the Proceedings of the National Academy of Sciences online.

For more information, visit: <http://www.pnas.org/cgi/content/full/102/43/15383>



Calendar of Events

NOVEMBER 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 VIGS	2 VIGS	3 VIGS	4 VIGS	5 VIGS
6	7	8	9	10	11 RTWG Titles Due	12
13	14	15	16	17	18	19 Internat'l Rice Genet- ics Sympos- ium
20 IRRI	21 IRRI	22 IRRI	23 IRRI	24	25	26
27	28	29	30			

DECEMBER 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 RTWG Abstracts due	2	3
4 USA Rice Outlook Conference	5 USA Rice	6 USA Rice	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SCHEDULE OF EVENTS

*10/30-11/5/05 RiceCAP VIGS
Workshop*

*11/11/05 RTWG Titles/
Summaries Due*

*11/19-23/05—5th International
Rice Genetics Symposium, Manila,
Philippines*

*12/1/05—RTWG digital ab-
stracts due*

*12/4-6/06 USA Rice Outlook
Conference*

*2/24-25/06—RiceCAP PI meet-
ing held in conjunction with
RTWG meeting [http://
beaumont.tamu.edu/
RTWG2006/](http://beaumont.tamu.edu/RTWG2006/)*

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RiceCAP

A coordinated research, education, and extension project for the application of genomic discoveries to improve rice in the United States. A project supported by the National Research Initiative (NRI) of the Cooperative State Research, Education and Extension Service (CSREES).

We're on the web!
www.uark.edu/ua/ricecap

