

California Rice Research Board

Issue #32, Fall 2014

New Chairman

Seth Fiack was elected Chairman of the RRB at the annual meeting in August. Seth has served as Vice Chair for the last several years. A fifth generation farmer, he grows a 775 acre mixture of rice and walnuts. He is presently in the USA Rice Leadership program class of 2013-15, gaining a nationwide perspec-



Seth Fiack

tive on rice production and related governmental affairs. During his time at the helm, Chairman Fiack sees success as continuing the accomplishments of the Rice Research Board to serve and provide the research needed for the California rice industry. He hopes to minimize the impact on industry research projects through this drought, all the while providing the highest return on investment with our members assessment funds so that our industry continues to be viable.

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Five Year Referendum

The RRB and the other Advisory Boards in California operate at the pleasure of those voting them into existence. To insure the continued relevance and value to the industry, a continuation vote on the program is conducted every five years. As it states in the CDFA document defining the RRB, "...every fifth (5th) year thereafter, the Department shall conduct a referendum of producers to determine whether or not this Program should be terminated or continued." So, coming up in January 2015, there will be a ballot asking that question. This will be your opportunity to vote on this matter. We hope that this newsletter will give you information on what the RRB has done over the last five years. We encourage you to vote when the ballot comes in January and mail it in before the deadline.

Funding of Rice Specialist Position

During the last five years, the RRB has chosen to fund a Rice Specialist position. This position was previously held by Jim Hill, and is currently held by Bruce Lin-



Bruce Linquist

quist. Unfortunately, gone are the days when such positions were fully funded by UCCE. The reason for the funding was to secure the position on terms favorable to the Rice industry. The industry understood the potential of losing the position, so the RRB entered into an agreement with UCCE to fund the position for six years. UCCE would then guarantee the position for nine more years without any further cost to the RRB. Total cost to the industry, \$1,272,000. In addition, the Board chose to fund an endowment of one million dollars to support the positions operational needs. Since the average time a Specialist stays at a position is 25-30 years, the Board determined that it was a good investment. Bruce Linquist has stepped into the Specialist role and is doing an admirable job.

Research Progress Since the Last Referendum

In this section, you will see a review of research performed during the period of 2009-2014. Projects from 2014 are sketchy since results are not in yet. Each highlight is very briefly stated. If you would like more detail, full reports can be found on www.carrb.com. The RRB continues to respond to industry needs and new regulatory requirements.

Rice breeding: Each year about 1,000 new crosses, 4,200 small plots, 3,500 large plots, 79,000 nursery rows,



150,000 panicles are selected for second generation screening and advancement. 2009—panicle mites at UCD, med grain hybrid rice, rice CAP nation-wide project on milling quality and disease resistance. 2010—new variety M-105 introduced. Herbicide tolerance, hybrid rice crosses made with Chinese introductions, milling quality, DNA mapping of stem rot resistance. 2011—M-105 & Calhikari-202 introduced, pyramiding blast resistance genes. 2013—A-202 introduced.

Molecular Marker Assisted Rice Improvement: 2009—determining yield, quality and wide compatibility genes for CA varieties. 2010—yield related genes isolated and characterized. 2011—new DNA marker technology, 2012—Restriction Enzyme Site Comparative Analysis (RESCAN). 2013—Next-generation genotyping

Variety Trials: Testing of advanced

breeding lines and comparing them to standard lines in seventeen locations, demonstrating the ability of a given variety to thrive in various environments. It also helps establish the boundaries where a given variety will grow well. 2011—Twitchell Island cold tolerance study.

Improving Fertilizer Guidelines: 2009—phosphorus management timing and ap-

plication, proving that growers could eliminate N starter. 2010—phosphorus management recommendations, nitrate leaching study. 2011—Nitrate leaching, web based tools predicting early season weed emergence. 2012

Preplant N, Potassium status. 2013—alternating wet/dry rice.

Weed control: Herbicide and organic weed control methods. Diagnostic studies on resistance. Resistant weed analysis service. Scaling out alternative rice establishment practices and the unique nutrition needs of this practice. 2012—Winged primrose willow, weed modeling.

Rice Disease Research: 2012—Timing of fungicide applications for Aggregate Sheath Spot, Stem Rot, and Blast. Compare



race of rice blast IG-1 to new outbreak in M-208

Methods for Managing Algae: Algaecide studies and Phosphorus management recommendations to reduce algae blooms. A variety of algaecides were studied for their effectiveness on black algae and as a copper replacement.

Protection of Rice from Invertebrate Pests: RWW flight and biology, RWW chemical controls [dimilin, warrior, mustang, trebon, belay, dermacor], tadpole shrimp, non-target studies, and Panicle rice mite. Seed treatments, pre-plant/at-planting/post-planting applications. RWW variety susceptibility studies, pecky rice studies.

Evaluation of RWW sampling and Distribution: sampling, distribution and grain yield impacts to improve management guidelines for RWW control.



Evaluation of mercury in CA rice systems. Levels have remained relatively constant from year to year. MeHg

concentrations follow a seasonal pattern. Concentrations are similar in the Sacramento and Feather watersheds.

Arsenic in groundwater, soil, and surface water in rice growing areas of the Sacramento Valley. A study supporting the USA Rice efforts to address arsenic in rice.

Development of Analytical Methods for Profiling Rice Aroma Volatiles. Developed a sensitive analytical method, using gas chromatography combined with tandem mass spectrometry (GC-MS/MS) to analyze 2AP (pop-



corn scent) in single grains of rice.

Environmental Fate of Rice Pesticides: Evaluates the primary degradation pathways and products for CA materials. During this time, clomazone (Cerano), Entofenprox (Trebun), Clothianidan (Belay), Imazosulfuron (League), and Benzobicyclon (Butte) were evaluated for degradation in water, soil and/or air.

Rice Milling Quality and Yield: 2009–Different drain dates after 50% heading, rate of drying by variety, storage insect pests. 2010–Draining 24 days after 50% heading maintains quality.

Rice Quality: Fissuring due to drying method, moisture movement in the rice kernel

Rice Utilization and Product Development: 2009-Rice bran stabilization and extraction, 2010-sampling methodology and shrink chart analysis. 2011-Rice harvester output quality comparison. 2012-alternative techniques for sta-

bilizing rice bran using Infrared heating.

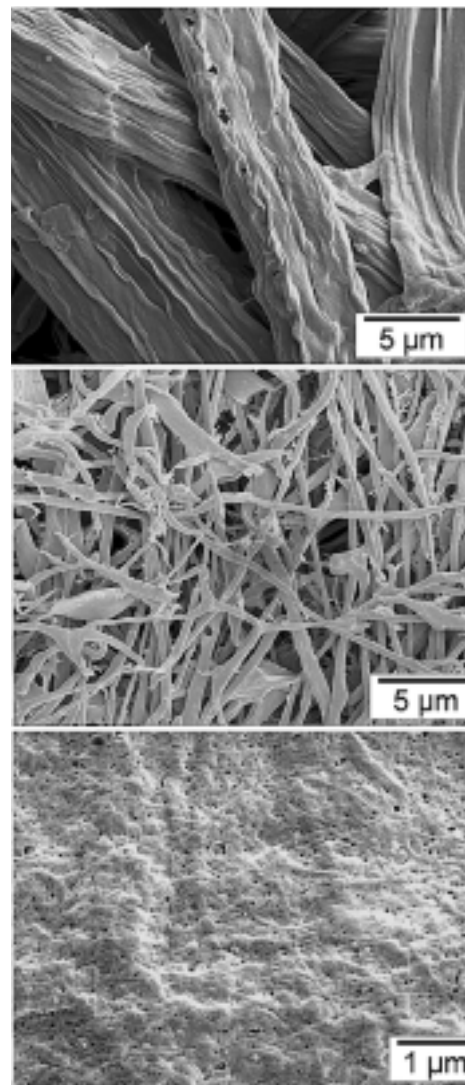
Dairy Feeding of Rice Hay: 2009–Analysis of nutrients removed from the field when baling rice straw, nutritional analysis of rice straw, feeding demonstrations of rice straw on CA dairies. 2010–Comparison of rice straw and wheat straw in replacement heifer rations. 2012–digestibility of rice straw

Demonstration of Rice “Strawlage” production: 2012-13–Tarping high moisture rice straw and applying two different treatments that produced “strawlage” resulting in a feed aggressively consumed by cattle.

Rice waste conversion to biodegradable plastic: Rice bran/hulls/straw were used to produce lactic acid which was converted into bio plastic for picnic ware, rice boards without VOC’s to replace particle-

board, and clay target replacements.

Novel Nanomaterials and Performance Industrial Products: 2010–separation of rice straw into cellulose, hemicellulose, silica, and lignin. 2011–Successful conversion of rice-straw components to cellulose nanocrystals, self-assembled fibrils, as well as silica gel and nanoparticles. Rice-straw nanocellulose aerogels, super-absorbing and ultralight aerogels. Discoveries from this work are excellent candidates



for applications in filtration, separation, sensing, and chemical-oil-water separation in various industries.

Improving Water Use Efficiency: Develop a database from variety trials, create a crop development model, predict water savings based on water management changes

Assessment Rate

During the last five years the assessment rate for the RRB has moved from six cents for the 2009 crop to seven cents in 2011. It has remained at seven cents since then. Even for the 2014 crop budget, with large acreage reductions and the impact on the crop size, the Board of Directors kept the assessment rate at seven cents. They chose to use over one million dollars of RRB reserve funds to keep the rate at seven cents while maintaining the course of research funding.

Review of Budget

The RRB budget is quite stable. Looked at from an overall perspective, currently 92.4% of the expenditures go directly to research related projects. About 6.4% of the budget goes to Administering the program. The research budget has grown from \$2.407 million in 2009 to \$3.229 million in 2014. Administration has also grown from \$191,200 to \$222,357 over the same period. This means that the research budget has grown 34% during those years (25% if you take out the Specialist funding mentioned on page 1), while the Administration budget has grown 16%.



Departure of Chris Greer

Vice President of UCCE, Barbara Allen-Diaz announced that Chris Greer has been selected as the vice provost of UCCE effective July 1, 2014. Since 2002, he has served as UCCE area rice advisor, first in Colusa, Glenn and Yolo counties, and most recently in Sutter, Yuba, Sacramento, and Placer counties. His educational background includes a

Ph.D. in plant pathology from UC Davis and B.S. in bioenvironmental sciences from Texas A&M.

In his new role as vice provost, Chris will be responsible for guiding all county based academic programs. He will coordinate programs and priorities with those of the Agricultural Experiment Station counterpart units and ensure ANR programs align with UC ANR's strategic vision and are relevant

to the people of California. As a senior leader he will serve as a statewide administrative leader for county-based Cooperative Extension programs. The directors of county-based UCCE programs will report to this position, as will the executive director of the ANT Academic Personnel Unit. As vice provost, Chris will serve on the ANR Program Council and report directly to the associate vice president.

The RRB is already conversing with UCCE about finding a replacement for Chris in the Sutter County office.

