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106th Annual Research Report

Rice Research Station

Crowley, Louisiana • 2014

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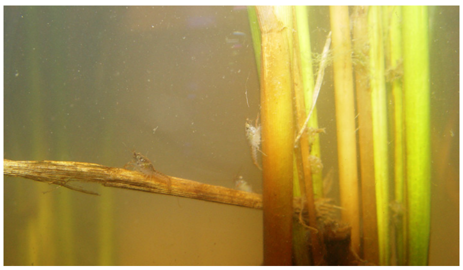
Cover Photos

Rice that's very susceptible to sheath blight, at left, versus sheath blight resistant breeding line, on right.

Drill seeding rice into plots treated with various rates of a soil applied silica ash material.



Hatchling crawfish use rice stalks as cover, a vertical structure to access the water column and a platform from which to feed on organisms that are attached to the substrate.

Aerial seeding of smooth cordgrass over a newly constructed wetland at Marsh Island.

Applying a burn-down application of Roundup to control weedy rice.

Main office and research laboratories at the Rice Research Station.

106th Annual Research Report

RICE RESEARCH STATION

Crowley, Louisiana

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Louisiana State University Agricultural Center
Louisiana Agricultural Experiment Station
Louisiana Cooperative Extension Service
Louisiana College of Agriculture

William B. Richardson, LSU Vice President for Agriculture

Southwest Region/Rice Research Station

Steven D. Linscombe, Regional Director/Resident Coordinator

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INTRODUCTION

Research at the Rice Research Station, Crowley, Louisiana, is conducted by scientists with the LSU AgCenter's Louisiana Agricultural Experiment Station. The 2014 rice research program included breeding/variety development, biotechnology, variety testing, fertilization, soil and water management, cultural practices, weed control, insect control, disease investigations, rice economics, and agronomy extension programs. Crops grown in rotation with rice were evaluated relative to increasing the efficiency of land use. The aquaculture research program places emphasis upon production practices, forages, and multi-cropping of crawfish with agronomic crops. Another important area of work is the production and distribution of foundation seed. The Rice Research Station also conducts research studies in improving species for coastal restoration. In addition, the statewide rice extension agronomist conducts numerous educational programs from the Rice Research Station. Although most research work was performed by members of the Rice Station faculty, several faculty members from the Baton Rouge campus conducted research at this station.

The research activities of this station include both fundamental and applied research, although the latter predominates because of the mission of the Rice Research Station. Research accomplishments and general progress of the Rice Station during 2014 are presented in this report representing the 106th Annual Research Report of the Rice Research Station, Louisiana Agricultural Experiment Station, and LSU Agricultural Center. It is significant that this research facility has been providing new technology to the Louisiana rice industry for more than 100 years.

In addition to research responsibilities of the Rice Research Station faculty and cooperators, a large number of farmers, extension personnel, and others were trained and otherwise contacted during 2014. Approximately 500 people attended the annual Rice Research Station field day to view plots and participate in discussions of research findings. Field days also were conducted in Evangeline, Jefferson Davis, Richland, St. Landry, and Vermilion parishes. In addition, the faculty participated in industry meetings, both on and off the station, and worked individually with farmers and others in solving immediate problems. Several thousand people received services from the Rice Research Station during 2014.

Projects at this station are conducted under the supervision of research scientists from the Rice Research Station and also by cooperating personnel from certain departments of the Louisiana Agricultural Experiment Station. Following the reports, station personnel and cooperators in 2014 are listed.

MONTHLY RAINFALL DATA
RICE RESEARCH STATION - CROWLEY, LA
2014

DATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR TOTAL
1								0.92					
2	0.36					0.30		1.00	0.16	0.38			
3		1.02	0.31			0.64			0.02	0.51			
4						0.21		0.12					
5		0.09	0.59	0.35									
6	0.10			0.18				0.03	1.54		2.72		
7		0.02		0.14					0.05	0.92		0.04	
8		0.06							0.40				
9				0.02	0.08		0.36		0.02				
10					0.55	1.50	0.05	2.95	0.02				
11	0.30	0.56				1.59	0.03		0.03				
12		0.92	0.15		0.06			0.19		0.25	0.22		
13	0.31				0.15	0.24			0.14		0.12		
14	0.27			0.02						1.28	0.08		
15					0.05								
16			0.25			0.07	0.24		0.92			0.09	
17			0.02						0.16		2.15		
18							2.83	0.47					
19							1.53		0.42			0.86	
20								0.15				0.50	
21	0.14	0.50						0.05					
22								2.20					
23											1.27		
24	0.05	2.82	0.12				0.62					1.56	
25						0.93	0.28						
26	0.28	0.68				0.27	0.50	1.12					
27		0.02				0.75	0.02					0.02	
28			0.17		7.44	0.16						0.85	
29	0.05		0.22		0.17				0.43			0.35	
30					0.18			.60	0.03			0.03	
31								2.01					
2014 MONTH TOTAL	1.86	6.69	1.83	0.71	8.68	6.66	6.46	11.81	4.34	3.34	6.56	4.30	63.24
2013	17.32	6.43	1.60	11.18	5.27	2.94	1.68	3.32	4.22	2.27	4.60	3.51	64.34

RICE BREEDING

GENETIC IMPROVEMENT OF RICE FOR LOUISIANA PRODUCTION[1]

S.D. Linscombe, K.F. Bearb, R.R. Dilly, Jr., B.W. Theunissen,
R.E. Zaunbrecher, B.J. Frey and H.L. Hoffpauir

INTRODUCTION

The primary objective of the Rice Breeding Project is the development of superior varieties for the Louisiana rice industry. The Breeding Project is developing improved genotypes of both long- and medium-grain types, which are both important in the state and region. A major area of emphasis is the development of Clearfield varieties of both long- and medium-grain types. The project is also placing major emphasis on the development of special purpose types. Work is also progressing on incorporating the Clearfield trait in the Jazzman and Jazzman-2 varieties.

In addition to the primary objective of varietal development, the Breeding Project also conducts other research that may have direct and/or indirect contributions for varietal development. Included here are studies on milling quality, mutation breeding, date of planting, and herbicide tolerance of new varieties and experimental lines.

The 2014 rice breeding nursery included more than 76,000 breeding rows, 146 F_1 transplant populations, and 124 space planted F_2 populations. About 233 new crosses were made. On- and off-station testing included more than 5,000 yield plots. Yield testing included the Cooperative Uniform Regional Rice Nursery, which contained 200 experimental lines and checks (49 Louisiana entries). The Commercial-Advanced Trial was conducted at the Rice Research Station and seven off-station locations.

The Preliminary Yield testing program evaluated over 1,000 lines (mainly of F_5 and F_6 generations), most for the first time. In addition to yield testing, these lines were also evaluated for seedling vigor, milling characteristics, quality parameters, and numerous other agronomic characteristics.

[1] This research is supported in part by funding provided by rice producers through the Louisiana Rice Research Board.

COMMERCIAL-ADVANCED TRIAL

The Commercial-Advanced Trial (CA) is a multi-location test conducted by the Rice Breeding Project in the major rice growing regions in Louisiana. The objective of this trial is to evaluate the adaptation and stability of commercial rice varieties and advanced experimental lines for a number of important agronomic and yield characteristics.

Test locations in 2014 included the Rice Research Station (RRS) at Crowley and four on-farm test sites in Jefferson Davis, Evangeline, Vermilion, and Acadia parishes.

Fifty-seven entries were tested in a randomized complete block design with three replications. Varieties and hybrids were seeded at 90 and 38 lb/A, respectively. Planting dates were: RRS, March 19; Acadia, March 26; Evangeline, March 27; Jefferson Davis, March 14; and Vermilion, March 9. Harvest dates were: RRS, August 14; Acadia, August 22; Evangeline, August 20; Jefferson Davis, August 13; and Vermilion, August 11. Results from these trials are shown in Tables 1-6.

Table 1. Entry number, pedigree, grain type, and source information for entries in the Commercial-Advanced Trial, 2014.

Entry	Pedigree	Grain Type†	Source‡
201	CL111	L	LAES
202	CL151	L	LAES
203	CL152	L	LAES
204	CL161	L	LAES
205	CL261	M	LAES
206	CL271	M	LAES
207	CL-JAZZMAN	L	LAES
208	COCODRIE	L	LAES
209	CHENIERE	L	LAES
210	CATAHOULA	L	LAES
211	CYPRESS	L	LAES
212	MERMENTAU	L	LAES
213	WELLS	L	AAES
214	ROY J	L	AAES
215	ANTONIO	L	TAES
216	COLORADO	L	TAES
217	REX	L	AAES
218	PRESIDIO	L	TAES
219	JAZZMAN	L	LAES
220	JAZZMAN-2	L(A)	LAES
221	DELLA-2	L(A)	LAES
222	NEPTUNE	M	LAES
223	JUPITER	M	LAES
224	CAFFEY	M	LAES
225	LAH10	M	LAES
226	9502008-A//AR1188/CCDR/3/CFX-26/9702128/4/CHENIERE	L	LAES
227	XL753	L	RICE TEC
228	CLXL729	L	RICE TEC
229	CLXL745	L	RICE TEC
230	NEPTUNE//BNGL/CL161	M	LAES
231	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	M	LAES
232	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	L	LAES
233	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	L	LAES
234	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	L	LAES
235	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	L	LAES
236	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	L	LAES
237	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	L	LAES
238	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	L	LAES
239	9502008-A/DREW//CLR 20/3/TAGGART	L	LAES
240	CPRS/KBNT//WELLS CFX 18/3/MBLE	L	LAES
241	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	L	LAES
242	CL131/3/CPRS/KBNT//9502008-A	L	LAES

Continued.

Table 1. Continued.

Entry	Pedigree	Grain Type†	Source‡
243	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	L	LAES
244	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	L	LAES
245	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	L	LAES
246	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	L	LAES
247	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	L	LAES
248	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	L	LAES
249	CL131/3/CPRS/KBNT//9502008-A	L	LAES
250	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	L	LAES
251	BNGL/CL161//CAFFEY	M	LAES
252	JZMN/2/08CLR004	L(A)	LAES
253	RU0802134/RU0902155	L	LAES
254	8603006//3/MARS/NWRX//TBNT	L	MAFES
255	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	L	MAFES
256	LGRU//KATY/STBN/3/LGRU	L	AAES
257	M206/STG99F5-07-118//JPTR	M	AAES

† L = Long grain, M = Medium grain, and (A) = Aromatic.

‡ AAES - Rice Research and Extension Center, Arkansas Agricultural Experiment Station, Stuttgart, AR; LAES - Rice Research Station, Louisiana Agricultural Experiment Station, LSU Agricultural Center, Crowley, LA; MAFES - Mississippi Agricultural and Forestry Experiment Station; TAES - Texas A&M Research and Education Center, Texas Agricultural Experiment Station, Beaumont, TX.

Table 2. Grain and milling yields and agronomic performance of entries in the 2014 Commercial-Advanced Trial. Acadia Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD
227	XL753	XL753	4	86	45		10,799
223	JPTR	JUPITER	5	90	41		10,170
229	CLXL745	CLXL745	4	84	47		9,942
256	0101081	LGRU//KATY/STBN/3/LGRU	6	89	46		9,833
225	LAH10	LAH10	7	90	50	53	9,830
228	CLXL729	CLXL729	4	85	46		9,698
224	CFFY	CAFFEY	5	90	41		9,603
251	1402125	BNGL/CL161//CAFFEY	4	87	40		9,305
230	1402008	NEPTUNE//BNGL/CL161	4	86	42		9,223
250	1402103	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	85	42		9,015
239	1402048	9502008-A/DREW//CLR 20/3/TAGGART	4	89	41		8,947
231	1302192	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	4	84	41		8,787
257	1301021	M206/STG99F5-07-118//JPTR	5	82	40		8,715
245	1402115	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	87	41		8,687
210	CTHL	CATAHOULA	6	88	42		8,666
244	1402109	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	4	83	42		8,537
246	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	87	42		8,439
226	1402146	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	88	41		8,404
238	1402042	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	94	44		8,381
206	CL271	CL271	4	88	41		8,356
254	1104077	8603006//3/MARS/NWRX//TBNT	6	93	43		8,328
252	1402195	JZMN/2/08CLR004	4	87	42		8,309
222	NPTN	NEPTUNE	6	92	39		8,260
207	CLJZ	CL-JAZZMAN	6	93	43		8,252
205	CL261	CL261	4	85	41		8,164
247	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	86	43	13	8,160
237	1402025	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	83	41		8,157
232	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	86	41		8,149
202	CL151	CL151	5	87	41		8,081
240	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	88	41		8,076
217	REX	REX	5	90	41		8,051
253	1402165	RU0802134/RU0902155	5	86	41		8,048
241	1402094	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	4	85	44		8,031
255	1104122	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	6	90	44		7,999
219	JZMN	JAZZMAN	5	94	43		7,901
234	1302112	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	88	42		7,880
242	1402097	CL 131/3/CPRS/KBNT//9502008-A	4	90	39		7,876

Continued.

Table 2. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD
208	CCDR	COCODRIE	7	90	42		7,793
249	1402091	CL131/3/CPRS/KBNT//9502008-A	4	86	40		7,759
209	CHNR	CHENIERE	5	90	40		7,629
216	CLRD	COLORADO	6	82	41		7,616
214	ROY J	ROY J	6	95	47		7,587
221	DLLA 2	DELLA-2	5	93	44		7,529
248	1402082	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	87	42		7,487
236	1402022	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	4	89	42		7,482
201	CL111	CL111	4	86	40		7,470
204	CL161	CL161	5	93	42		7,441
243	1402106	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	84	41	30	7,407
212	MRMT	MERMENTAU	6	89	41		7,396
203	CL152	CL152	5	92	42		7,315
235	1402011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	89	40		7,279
218	PSDO	PRESIDIO	6	92	41		7,252
233	1402140	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	4	85	40		7,238
215	ANTO	ANTONIO	6	90	40		7,216
211	CPRS	CYPRESS	5	90	42		6,890
213	WELLS	WELLS	6	93	45		6,753
220	JZMN2	JAZZMAN-2	6	92	39		6,042

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 3. Grain and agronomic performance of entries in the 2014 Commercial-Advanced Trial. Evangeline Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
227	XL753	XL753	4	89	17	10,711
229	CLXL745	CLXL745	4	86	18	10,296
228	CLXL729	CLXL729	4	90	18	10,281
225	LAH10	LAH10	7	92	20	10,173
230	URN 008	NEPTUNE//BNGL/CL161	3	90	16	10,154
232	URN 062	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	4	89	15	9,478
250	URN 103	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	90	16	9,243
202	CL151	CL151	4	89	16	9,078
251	URN 125	BNGL/CL161//CAFFEY (URN 125)	3	91	16	9,075
240	URN 088	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	91	16	9,046
255	MS 1104122	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	4	93	16	8,994
241	URN 094	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	4	56	16	8,993
239	URN 048	9502008-A/DREW//CLR 20/3/TAGGART	4	92	15	8,898
244	URN 109	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	4	87	16	8,869
257	AR 1301021	M206/STG99F5-07-118//JPTR	5	86	15	8,843
256	AR 0101081	LGRU//KATY/STBN/3/LGRU	5	89	16	8,821
243	URN 106	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	89	15	8,794
238	URN 042	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	94	16	8,779
223	JPTR	JUPITER	5	92	15	8,768
247	URN 137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	89	16	8,764
236	URN 022	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	5	92	15	8,716
237	URN 025	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	87	15	8,705
231	URN 192	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	4	88	16	8,688
226	URN 146	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	92	15	8,684
246	URN 134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	90	16	8,638
233	URN 140	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	3	87	15	8,591
215	ANTO	ANTONIO	5	90	15	8,571
214	ROY J	ROY J	6	92	17	8,527
206	CL271	CL271	4	90	15	8,481
221	DLLA-2	DELLA-2	5	94	16	8,448
224	CFFY	CAFFEY	4	92	16	8,441
208	CCDR	COCODRIE	6	92	16	8,255
245	URN 115	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	90	15	8,226
249	URN 091	CL131/3/CPRS/KBNT//9502008-A	4	91	14	8,214
248	URN 082	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	90	16	8,190
234	URN 112	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	91	16	8,177
207	CLJZ	CL-JAZZMAN	5	92	16	8,154

Continued.

Table 3. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
204	CL161	CL161	4	94	16	8,111
210	CTHL	CATAHOULA	5	92	16	8,106
235	URN 011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	93	15	8,080
252	URN 195	JZMN/2/08CLR004 (URN 195)	3	91	15	8,074
242	URN 097	CL 131/3/CPRS/KBNT//9502008-A (URN 097)	4	91	14	8,028
201	CL111	CL111	4	89	15	8,016
213	WELLS	WELLS	5	92	16	7,998
254	MS 1104077	8603006//3/MARS/NWRX//TBNT	5	93	15	7,979
253	URN 165	RU0802134/RU0902155	5	90	15	7,968
203	CL152	CL152	5	93	16	7,936
212	MRMT	MERMENTAU	6	92	16	7,929
216	CLRD	COLORADO	6	88	15	7,868
205	CL261	CL261	4	87	15	7,705
219	JZMN	JAZZMAN	5	94	15	7,640
211	CPRS	CYPRESS	5	92	15	7,580
209	CHNR	CHENIERE	6	92	14	7,483
222	NPTN	NEPTUNE	5	92	14	7,408
217	REX	REX	5	92	16	7,231
218	PSDO	PRESIDIO	5	94	15	7,183
220	JZMN2	JAZZMAN-2	5	92	14	6,518

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 4. Grain and agronomic performance of entries in the 2014 Commercial-Advanced Trial. Jefferson Davis Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	YIELD
228	CLXL729	CLXL729	5	87	9,751
229	CLXL745	CLXL745	6	83	8,931
227	XL753	XL753	5	87	8,416
255	1104122	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	7	93	8,033
256	0101081	LGRU//KATY/STBN/3/LGRU	5	92	7,912
230	1402008	NEPTUNE//BNGL/CL161	6	91	7,797
202	CL151	CL151	7	91	7,606
247	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	7	89	7,574
257	1301021	M206/STG99F5-07-118//JPTR	5	86	7,562
241	1402094	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	7	90	7,508
248	1402082	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	6	90	7,380
243	1402106	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	7	87	7,361
215	ANTO	ANTONIO	6	93	7,335
201	CL111	CL111	5	89	7,307
203	CL152	CL152	6	95	7,278
244	1402109	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	6	81	7,211
246	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6	90	7,193
232	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	7	90	7,060
239	1402048	9502008-A/DREW//CLR 20/3/TAGGART	6	93	7,024
212	MRMT	MERMENTAU	6	93	7,014
214	ROY J	ROY J	7	97	6,932
252	1402195	JZMN/2/08CLR004	6	92	6,905
249	1402091	CL131/3/CPRS/KBNT//9502008-A	7	91	6,883
213	WELLS	WELLS	7	94	6,859
254	1104077	8603006//3/MARS/NWRX//TBNT	7	94	6,846
233	1402140	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	7	91	6,837
206	CL271	CL271	6	91	6,831
207	CLJZ	CL-JAZZMAN	7	95	6,793
245	1402115	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	7	91	6,718
226	1402146	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6	91	6,692
240	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	7	91	6,649
205	CL261	CL261	5	88	6,591
217	REX	REX	6	93	6,469
235	1402011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	8	93	6,359
238	1402042	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	7	94	6,347
209	CHNR	CHENIERE	7	96	6,235
242	1402097	CL131/3/CPRS/KBNT//9502008-A	7	93	6,226

Continued.

Table 4. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	YIELD
204	CL161	CL161	7	93	6,172
237	1402025	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	7	89	6,165
251	1402125	BNGL/CL161//CAFFEY	7	91	6,124
224	CFFY	CAFFEY	7	95	5,929
210	CTHL	CATAHOULA	8	96	5,715
211	CPRS	CYPRESS	8	98	5,551
231	1302192	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	8	91	5,524
250	1402103	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	8	90	5,512
236	1402022	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	8	94	5,461
216	CLRD	COLORADO	7	87	5,433
223	JPTR	JUPITER	8	94	5,370
234	1302112	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	8	91	5,324
253	1402165	RU0802134/RU0902155	8	92	5,041
220	JZMN2	JAZZMAN-2	7	95	4,983
219	JZMN	JAZZMAN	8	97	4,881
218	PSDO	PRESIDIO	8	95	4,015
208	CCDR	COCODRIE	9	96	3,805
225	LAH10	LAH10	9	92	2,553
221	DLLA-2	DELLA-2	9	99	2,406
222	NPTN	NEPTUNE	9	97	2,272

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 5. Grain and milling yields and agronomic performance of entries in the 2014 Commercial-Advanced Trial. Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
223	JPTR	JUPITER	4	86	38	7	11,452	63.4	68.1
225	LAH10	LAH10	7	86	50	83	11,072	64.0	70.0
230	1402008	NEPTUNE//BNGL/CL161	3	85	40	10	10,841	66.9	70.2
224	CFFY	CAFFEY	4	85	38		10,819	63.3	68.7
231	1302192	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	4	84	41	7	10,755	65.2	69.0
214	ROY J	ROY J	4	84	45	10	10,691	64.6	71.5
213	WELLS	WELLS	3	82	42	27	10,557	61.1	72.4
229	CLXL745	CLXL745	4	77	46	90	10,532	66.1	73.1
247	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	5	82	43	87	10,460	62.9	71.9
228	CLXL729	CLXL729	5	79	44	80	10,426	65.4	72.7
251	1402125	BNGL/CL161//CAFFEY	4	85	41	20	10,413	62.7	66.8
249	1402091	CL131/3/CPRS/KBNT//9502008-A	5	81	37	37	10,376	62.4	70.0
246	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	82	38	40	10,356	64.3	71.1
219	JZMN	JAZZMAN	5	83	43	17	10,352	59.8	67.4
227	XL753	XL753	4	79	44	27	10,213	66.3	72.2
206	CL271	CL271	4	85	40		10,118	68.6	72.1
257	1301021	M206/STG99F5-07-118//JPTR	4	80	40	27	10,108	62.0	65.0
202	CL151	CL151	4	82	40	57	10,016	63.9	72.2
222	NPTN	NEPTUNE	5	86	36		10,005	64.5	69.8
241	1402094	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	4	81	41	43	9,957	65.9	73.0
232	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	81	39	13	9,860	63.9	71.8
244	1402109	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	4	79	41	53	9,854	65.9	72.2
215	ANTO	ANTONIO	4	81	41	30	9,740	64.6	72.3
250	1402103	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	80	41	10	9,729	64.7	71.4
248	1402082	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	82	39	30	9,683	64.6	73.5

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
243	1402106	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	78	38	80	9,644	62.8	72.7
212	MRMT	MERMENTAU	4	80	40		9,635	65.4	70.8
201	CL111	CL111	3	78	42	90	9,538	66.6	72.9
235	1402011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	5	84	38		9,508	63.3	71.3
255	1104122	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	5	83	43	30	9,450	65.1	71.5
211	CPRS	CYPRESS	4	84	39	73	9,448	64.3	70.0
238	1402042	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	83	40	77	9,437	63.9	72.2
226	1402146	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6	82	29	37	9,346	64.6	72.0
239	1402048	9502008-A/DREW//CLR 20/3/TAGGART	5	83	40	30	9,324	64.0	72.3
233	1402140	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	4	79	42	33	9,304	62.2	69.5
256	0101081	LGRU//KATY/STBN/3/LGRU	4	79	44	80	9,209	61.4	72.6
203	CL152	CL152	4	83	39	7	9,146	67.4	73.6
208	CCDR	COCODRIE	4	81	39	17	9,115	65.2	73.9
207	CLJZ	CL-JAZZMAN	6	86	43	10	9,052	60.8	68.9
217	REX	REX	5	80	43	10	8,990	63.9	71.0
210	CTHL	CATAHOULA	5	83	42	50	8,969	64.1	72.8
237	1402025	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	79	40	20	8,938	63.9	72.0
205	CL261	CL261	3	82	41	10	8,831	66.3	71.3
221	DLLA-2	DELLA-2	3	85	42		8,819	64.7	71.7
218	PSDO	PRESIDIO	4	78	39	10	8,812	67.8	73.0
252	1402195	JZMN/2/08CLR004	4	84	42	23	8,782	65.3	72.8
240	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	5	83	40	7	8,736	63.7	71.6
209	CHNR	CHENIERE	5	83	40	23	8,720	65.0	71.9
253	1402165	RU0802134/RU0902155	5	80	39	13	8,714	68.3	73.7
245	1402115	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	81	39	33	8,513	63.9	72.6

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
234	1302112	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	6	82	41		8,506	65.1	72.7
216	CLRD	COLORADO	4	78	40	90	8,505	63.7	72.6
242	1402097	CL 131/3/CPRS/KBNT//9502008-A	4	82	38		8,446	64.5	72.9
254	1104077	8603006//3/MARS/NWRX//TBNT	5	77	37	13	8,421	64.5	71.8
236	1402022	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	4	83	40	13	8,396	66.8	72.9
204	CL161	CL161	4	84	41	43	8,276	65.9	72.3
220	JZMN2	JAZZMAN-2	4	82	37		7,978	68.1	71.7

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 6. Grain and milling yields and agronomic performance of entries in the 2014 Commercial-Advanced Trial. Vermilion Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
202	CL151	CL151	6	89	38	10,570	68.2	74.2
229	CLXL745	CLXL745	6	85	44	9,810	65.8	73.9
247	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	6	87	38	9,541	64.1	73.6
231	1302192	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	5	87	40	9,502	66.0	70.5
250	1402103	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	6	86	39	9,385	65.7	73.1
251	1402125	BNGL/CL161//CAFFEY	5	92	39	9,337	63.3	70.0
232	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	6	88	36	9,309	65.8	73.5
255	1104122	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	6	91	41	9,249	67.6	74.9
230	1402008	NEPTUNE//BNGL/CL161	6	89	38	9,200	66.2	71.1
228	CLXL729	CLXL729	6	86	42	9,199	63.5	71.9
244	1402109	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	5	85	37	9,197	64.8	74.6
246	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6	88	35	9,080	67.2	74.3
243	1402106	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	84	35	9,040	65.0	74.6
201	CL111	CL111	5	85	39	8,939	66.5	73.6
205	CL261	CL261	5	89	39	8,923	67.5	72.2
257	1301021	M206/STG99F5-07-118//JPTR	7	89	39	8,863	65.8	70.7
206	CL271	CL271	5	90	37	8,773	69.1	72.8
227	XL753	XL753	6	89	40	8,757	64.8	72.9
236	1402022	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	5	89	39	8,740	68.0	74.4
204	CL161	CL161	5	92	37	8,725	69.2	73.9
203	CL152	CL152	6	92	39	8,630	69.2	73.8
241	1402094	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	5	87	37	8,606	62.9	73.4
238	1402042	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	90	38	8,555	64.9	73.2
233	1402140	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	5	86	38	8,552	66.1	74.5
237	1402025	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	6	85	39	8,499	63.3	73.1

Continued.

Table 6. Continued

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
234	1302112	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	6	89	41	8,442	65.4	72.6
252	1402195	JZMN/2/08CLR004	6	91	39	8,424	63.5	73.2
242	1402097	CL131/3/CPRS/KBNT//9502008-A	6	90	33	8,357	64.3	73.5
239	1402048	9502008-A/DREW//CLR 20/3/TAGGART	6	90	37	8,340	64.2	72.7
208	CCDR	COCODRIE	6	88	36	8,245	67.7	74.0
256	0101081	LGRU//KATY/STBN/3/LGRU	6	90	41	8,222	65.6	73.8
224	CFFY	CAFFEY	5	92	38	8,205	64.4	69.8
225	LAH10	LAH10	8	92	51	8,198	62.9	69.4
248	1402082	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	89	38	8,151	66.3	74.5
253	1402165	RU0802134/RU0902155	6	86	36	8,119	69.9	75.7
226	1402146	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6	88	37	8,013	67.6	73.9
217	REX	REX	6	90	42	7,975	63.1	70.8
240	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	6	88	36	7,949	68.2	74.2
223	JPTR	JUPITER	7	92	39	7,911	63.4	68.1
222	NPTN	NEPTUNE	7	92	37	7,866	63.2	69.6
235	1402011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	5	89	34	7,669	66.6	72.9
207	CLJZ	CL-JAZZMAN	7	92	42	7,617	63.4	72.4
249	1402091	CL131/3/CPRS/KBNT//9502008-A	6	88	34	7,584	66.7	73.9
245	1402115	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	88	35	7,564	64.9	73.1
213	WELLS	WELLS	5	91	41	7,553	64.3	73.4
210	CTHL	CATAHOULA	6	86	36	7,489	67.2	73.8
216	CLRD	COLORADO	6	83	36	7,136	65.4	73.9
221	DLLA-2	DELLA-2	6	92	39	7,122	63.9	72.1
254	1104077	8603006//3/MARS/NWRX//TBNT	7	92	39	6,999	61.6	72.3
212	MRMT	MERMENTAU	6	89	38	6,987	68.2	74.0
234	1302112	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	6	89	41	8,442	65.4	72.6
252	1402195	JZMN/2/08CLR004	6	91	39	8,424	63.5	73.2

Continued.

Table 6. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
214	ROY J	ROY J	5	93	43	6,729	65.9	74.5
215	ANTO	ANTONIO	6	89	35	6,692	69.8	74.5
211	CPRS	CYPRESS	5	92	40	6,678	66.1	72.7
209	CHNR	CHENIERE	7	90	37	6,661	70.6	75.5
218	PSDO	PRESIDIO	6	90	39	6,660	69.0	74.5
219	JZMN	JAZZMAN	6	93	42	6,365	66.0	74.9
220	JZMN2	JAZZMAN-2	6	91	35	5,493	69.4	74.1

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

CLEARFIELD EXPERIMENTAL LINES

Clearfield Multi-Location Trial

The Clearfield Multi-Location Trial is conducted by the Rice Breeding Project in the major rice growing regions in Louisiana. The objective of this trial is to evaluate the adaptation and stability of advanced experimental Clearfield lines for a number of important agronomic and yield characteristics.

Test locations in 2014 included the Rice Research Station (RRS) at Crowley and two on-farm test sites in Evangeline and Vermilion parishes.

Sixteen entries were tested in a randomized complete block design with three replications. Varieties were seeded at 90 lb/A. Planting dates were: RRS, March 19; Evangeline, March 27; and Vermilion, March 19. Harvest dates were: RRS, August 14; Evangeline, August 20; and Vermilion, August 11. Results from these trials are shown in Tables 1-3.

Table 1. Grain and agronomic performance of entries in the 2014 Clearfield Multi-Location Trial, Evangeline Parish, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD
009	CLXL745	4	87	48	11,358
008	CLXL729	4	90	47	11,213
015	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	92	40	10,186
012	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	3	89	39	10,074
002	CL151	4	89	41	9,879
006	CL271	3	90	38	9,400
010	NEPTUNE//BNGL/CL161	3	90	42	9,309
011	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	3	89	41	9,226
003	CL152	5	92	42	9,187
014	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	91	42	9,035
013	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	4	87	39	9,030
007	CL-JAZZMAN	4	92	41	8,710
004	CL161	4	93	40	8,700
001	CL111	3	88	40	8,627
016	JZMN/08CLR004//RU0802146/3/JZMN2	4	92	42	8,609
005	CL261	3	87	41	8,275

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 2. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Multi-Location Trial. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
008	CLXL729	5	80	42	60	11,161	70.0	76.3
010	NEPTUNE//BNGL/CL161	4	86	40		9,953	72.5	75.1
006	CL271	3	85	39		9,770	72.5	74.7
009	CLXL745	4	77	47	87	9,736	71.7	77.4
011	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	5	83	40	27	9,533	70.9	73.7
002	CL151	4	82	41	60	9,296	70.6	75.7
016	JZMN/08CLR004//RU0802146/3/JZMN2	5	83	41	20	9,073	68.8	75.6
005	CL261	3	83	42	27	8,924	72.6	75.1
003	CL152	4	84	40		8,900	71.6	74.3
014	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	5	83	41		8,872	70.6	77.5
015	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	83	41	27	8,833	71.4	77.0
012	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	6	83	38	30	8,797	70.1	76.4
013	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	4	81	41	57	8,556	70.2	76.5
001	CL111	3	78	41	80	8,382	72.0	77.3
004	CL161	4	84	39	30	8,283	71.2	76.6
007	CL-JAZZMAN	6	87	43		7,916	68.2	74.9

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 3. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Multi-Location Trial. Vermilion Parish, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
008	CLXL729	5	87	42	10,049	66.2	75.8
009	CLXL745	5	86	46	10,346	67.6	76.4
011	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	4	87	40	9,170	64.5	73.5
001	CL111	4	85	39	9,796	72.7	77.4
002	CL151	5	88	39	9,548	71.3	77.0
012	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	88	37	9,453	66.3	76.0
006	CL271	5	89	37	8,886	70.3	75.3
005	CL261	4	88	39	8,333	71.1	74.6
014	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	6	89	36	8,743	70.2	76.1
016	JZMN/08CLR004//RU0802146/3/JZMN2	5	89	39	9,080	66.4	75.6
003	CL152	5	92	39	8,830	73.4	77.8
004	CL161	5	91	40	8,912	72.7	76.9
015	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	89	38	8,594	70.2	76.7
010	NEPTUNE//BNGL/CL161	4	90	38	7,976	67.6	75.0
013	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	5	87	37	8,540	69.4	76.8
007	CL-JAZZMAN	6	92	43	7,335	66.8	75.3

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

CLEARFIELD PRELIMINARY YIELD TRIAL

The Clearfield Preliminary Yield Trials consist primarily of promising breeding nursery material that is ready to be tested in replicated yield trials. The material in these trials was screened for agronomic and grain characteristics in nurseries prior to this phase of testing. Promising experimental lines were evaluated for seedling vigor, maturity, plant height, lodging resistance, grain yield of main crop, and disease resistance.

Tests were conducted using standard agronomic practices (except that no fungicides were applied) at the Rice Research Station at Crowley, LA. A randomized complete block design was applied to arrange test entries. The plot size was 4.66 x 16 ft. Seeding rate was 90 lb/A. This test was drill-seeded on March 18 and harvested on August 7. Data are presented in Tables 1 to 15.

Table 1. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 1, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
022	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18	6	87	38	9,985	61.6	69.0
024	CCDR/3/CPRS/KBNT//WELLS CFX 18	5	83	37	9,735	62.9	71.4
023	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18	5	88	37	9,356	65.8	71.1
018	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	83	36	9,923	63.5	71.5
020	9502008/3/CPRS//82CAY21/…/4/CFX18/5/9502008-A/DREW//CLR 20	5	82	38	8,983	66.1	72.1
021	9502008/3/CPRS//82CAY21/…/4/CFX18/5/9502008-A/DREW//CLR 20	5	83	39	9,042	66.5	72.2
016	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	84	38	9,259	64.5	72.6
007	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	5	85	39	8,727	69.5	74.1
014	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	5	87	38	8,993	65.8	70.5
006	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	5	84	38	8,643	65.8	71.1
010	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	5	89	37	8,426	65.1	70.3
011	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	5	86	38	8,718	65.5	69.7
004	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	5	86	39	8,901	64.8	72.0
015	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	85	37	8,712	64.8	70.9
025	CL111	4	83	40	8,327	65.2	72.7
008	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	5	81	36	8,635	70.2	74.1
017	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	88	36	7,843	62.0	70.6
001	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	5	87	39	8,830	66.6	70.8
003	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	6	82	37	8,282	67.3	73.1
012	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	4	90	38	7,966	66.3	71.5
019	9502008/3/CPRS//82CAY21/…/4/CFX18/5/9502008-A/DREW//CLR 20	5	84	36	7,824	63.3	72.8
013	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	5	89	40	7,565	67.1	70.9
009	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	6	88	38	7,613	67.2	71.6
005	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	5	87	38	8,096	67.7	72.9
002	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	5	85	39	7,358	68.3	73.6

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 2. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 2, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
026	CCDR/3/CPRS/KBNT//WELLS CFX 18	5	85	39	9,571	58.0	69.0
030	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	5	85	40	9,199	60.7	67.2
027	CCDR/3/CPRS/KBNT//WELLS CFX 18	5	86	39	9,351	61.3	69.2
032	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	85	38	8,935	62.6	71.5
041	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	84	37	8,790	62.5	70.7
043	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	86	37	8,757	59.9	68.4
047	9502008-A/DREW//CLR 20/3/DREW	6	86	36	8,071	64.5	69.9
029	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	5	83	36	8,508	60.4	69.1
033	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	6	84	37	8,638	63.0	71.2
048	9502008-A/DREW//CLR 20/3/DREW	6	87	39	7,527	64.6	70.6
045	9502008-A//AR1188/CCDR/3/…/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	84	37	9,082	60.8	68.5
038	9502008-A/DREW//CLR 20/3/CL111	5	83	39	8,949	59.3	68.7
028	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	5	83	36	7,374	64.0	70.3
039	9502008-A/DREW//CLR 20/3/CL111	5	83	35	8,605	56.2	68.0
050	CL151	5	85	38	9,013	60.8	68.2
036	9502008-A/DREW//CLR 20/3/CL111	5	82	37	8,334	61.5	70.0
042	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	83	38	8,207	64.4	71.3
031	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	83	37	8,391	61.2	70.8
046	9502008-A/DREW//CLR 20/3/DREW	5	85	38	7,956	63.6	71.9
044	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	84	37	8,475	61.2	69.7
040	9502008-A/DREW//CLR 20/3/TAGGART	5	84	37	8,060	61.8	70.3
037	9502008-A/DREW//CLR 20/3/CL111	7	86	37	8,105	55.9	69.1
034	9502008-A/DREW//CLR 20/3/CL111	6	84	37	8,547	58.9	67.3
049	9502008-A/DREW//CLR 20/3/DREW	6	89	34	6,979	63.6	70.7
035	9502008-A/DREW//CLR 20/3/CL111	5	83	38	8,243	59.9	69.6

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 3. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 3, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
074	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	84	36	8,454	59.3	66.6
058	CATAHOULA/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	86	39	9,520	65.7	72.3
062	CPRS/9502008-A//CFX 26/WELLS/3/LMNT	5	83	35	9,473	60.3	68.2
066	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	87	38	9,064	63.0	69.5
075	CL152	4	88	38	9,141	66.8	71.3
064	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	86	36	8,812	65.5	71.8
070	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	4	87	36	8,756	64.3	70.1
072	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	83	38	8,546	63.1	68.8
063	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	6	85	35	8,359	62.7	71.3
068	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	87	36	8,402	64.1	70.4
067	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	86	38	8,342	64.6	70.9
071	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	87	37	8,473	63.6	69.3
051	9502008-A/DREW//CLR 20/3/DREW	4	84	36	8,202	66.4	71.1
059	CATAHOULA/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	86	38	9,076	60.4	70.1
056	CPRS/KBNT//WELLS CFX 18/3/TRNS//9502008-A/DREW	5	85	39	8,962	61.9	69.7
052	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	87	37	8,800	64.2	70.9
073	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	86	37	8,317	63.3	70.1
053	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	83	38	8,326	62.6	69.7
065	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	6	87	37	7,999	63.7	69.8
060	CPRS/9502008-A//CFX 26/WELLS/3/LMNT	5	85	36	8,104	59.7	68.9
057	CATAHOULA/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	86	37	8,243	62.5	71.6
054	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	86	37	8,120	63.5	70.1
061	CPRS/9502008-A//CFX 26/WELLS/3/LMNT	5	85	35	7,844	61.1	70.5
055	CPRS/KBNT//WELLS CFX 18/3/TRNS//9502008-A/DREW	5	82	38	8,484	63.7	71.2
069	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	86	38	7,323	64.3	69.5

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 4. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 4, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
083	CL111/4/CPRS/9502008-A//AR 1188/CCDR	5	85	37	9,841	59.9	68.4
089	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	83	39	9,635	66.0	73.0
091	9502008-A/TACAURI//CLR 5/3/TACAURI	5	87	36	8,644	68.0	73.1
088	9502008-A/TACAURI//CLR 5/3/LGRU/WELLS	5	88	38	9,248	68.7	73.3
092	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	85	38	9,472	65.4	71.8
084	CL111/3/CCDR//9502008/LGRU	5	83	41	9,677	60.8	68.0
093	DREW/CFX-18/3/9502008-A/DREW//CFX 26/WELLS	4	85	37	9,530	64.3	68.9
095	DREW/CFX-18/3/CPRS/KBNT//CFX 18	6	85	37	8,937	64.5	70.9
087	9502008-A/TACAURI//CLR 5/3/LGRU/WELLS	4	86	35	9,109	68.5	73.9
090	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	5	84	39	8,663	66.2	73.1
097	9502008-A/DREW//CFX 26/WELLS/3/CL161	5	86	35	8,582	64.2	71.4
099	CL131/3/CPRS/KBNT//9502008-A	6	84	34	7,719	64.8	72.5
086	9502008-A/TACAURI//CLR 5/3/LGRU/WELLS	4	84	35	8,881	68.9	73.6
079	CL151/REX	4	86	37	8,518	64.4	72.0
078	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	86	37	8,566	67.5	73.4
082	CL111//CCDR/0502085	5	83	37	8,564	61.5	70.2
081	CL151/REX	5	84	39	9,008	62.2	68.8
094	DREW/CFX-18/3/9502008-A/TACAURI//CLR 5	5	84	38	8,551	62.9	67.8
085	9502008-A/TACAURI//CLR 5/3/LGRU/WELLS	5	87	37	8,718	67.9	71.8
080	CL151/REX	5	83	36	8,538	64.5	70.7
098	9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/9502008-A/TACAURI//CFX-18	5	84	33	8,170	63.7	71.1
076	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	85	39	8,549	63.0	69.7
077	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	84	38	7,718	66.3	71.4
100	URN 062	6	83	36	7,911	63.2	70.5
096	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/AR 1179/3/CPRS//…/4/WELLS	5	86	38	8,371	65.7	73.8

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 5. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 5, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
114	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	86	41	9,873	63.6	70.8
109	CCDR/3/KATY/CPRS//JKSN/4/CFX-26/9702128	5	81	37	9,327	65.9	72.2
112	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/REX	6	84	38	9,654	63.3	70.7
113	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	85	38	9,269	64.4	70.7
122	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	5	84	37	8,728	65.2	72.2
101	CPRS/KBNT//9502008-A /3/CCDR/CFX-18	5	85	41	9,469	68.6	73.7
118	FRANCIS/CL142-AR	5	82	43	9,158	58.7	67.1
119	FRANCIS/CL142-AR	5	84	40	9,246	60.7	69.3
120	FRANCIS/CL142-AR	5	83	43	9,283	63.1	71.1
116	CL111//CCDR/0502085	5	82	39	9,074	58.0	67.8
121	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	6	81	38	8,705	62.2	71.1
111	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	5	84	39	10,021	62.9	70.5
125	CL271	4	83	38	9,065	66.1	68.7
106	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	84	37	8,815	65.9	72.7
124	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	5	85	37	7,795	64.6	72.5
115	CL151/REX	4	82	39	8,863	64.5	72.4
102	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	36	8,598	65.2	70.7
123	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	6	80	37	8,325	64.7	72.7
108	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	5	867	35	8,368	64.8	71.7
117	FRANCIS/CL142-AR	5	85	40	8,442	59.5	69.7
107	CL131/3/CPRS/KBNT//9502008-A	5	83	35	8,590	61.9	70.2
105	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	83	36	8,347	64.1	70.1
110	9502008-A/DREW//CLR 20/3/CL111	5	83	40	8,292	67.1	73.0
104	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	83	36	8,434	66.7	73.0
103	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	86	35	8,246	65.8	71.5

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 6. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 6, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
143	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	4	78	38	9,404	69.3	72.9
131	9502008-A/DREW//CLR 20/3/CL111	4	82	38	9,356	67.7	72.0
127	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	82	38	8,624	64.9	71.3
126	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	84	35	8,366	68.1	72.5
130	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	83	40	8,249	69.2	72.1
139	9502008-A/DREW//CLR 20/3/CL181-AR	5	84	37	9,353	68.8	72.3
135	9502008-A/DREW//CLR 20/3/CL111	5	84	34	8,785	66.9	71.5
132	9502008-A/DREW//CLR 20/3/CL111	5	81	37	8,241	68.5	71.7
150	CL151	5	84	39	9,149	65.0	68.8
144	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	79	36	8,292	67.8	71.9
137	9502008-A/DREW//CLR 20/3/CL181-AR	5	82	37	8,953	64.8	69.3
136	9502008-A/DREW//CLR 20/3/CL181-AR	5	83	34	9,033	66.9	70.2
145	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	4	79	36	8,385	68.5	72.1
138	9502008-A/DREW//CLR 20/3/CL181-AR	6	81	37	8,602	63.7	69.4
142	9502008-A/DREW//CLR 20/3/TAGGART	5	85	36	7,752	65.0	69.2
141	9502008-A/DREW//CLR 20/3/CL181-AR	5	84	35	8,840	67.0	70.7
140	9502008-A/DREW//CLR 20/3/CL181-AR	6	85	34	7,648	68.1	72.4
133	9502008-A/DREW//CLR 20/3/CL111	5	82	36	7,832	65.9	71.2
146	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	83	37	8,409	376.7	72.0
129	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	81	37	8,020	69.1	73.3
148	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	80	36	8,087	68.9	72.2
134	9502008-A/DREW//CLR 20/3/CL111	5	80	37	7,977	67.6	71.5
147	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	6	81	35	7,631	69.6	72.7
128	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	82	37	8,031	69.9	73.0
149	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	5	82	34	8,432	67.8	72.4

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 7. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 7, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
156	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	5	84	38	8,944	61.5	69.0
166	9502008-A/DREW//CLR 20/3/CL111	4	82	38	9,590	62.7	71.5
165	9502008-A/DREW//CLR 20/3/CL111	5	84	37	9,911	63.0	70.8
175	CL111	4	81	39	9,080	64.7	72.2
167	9502008-A/DREW//CLR 20/3/CL111	4	83	40	9,345	62.5	70.3
171	9502008-A/DREW//CLR 20/3/CL111	5	83	38	9,374	63.2	70.6
172	9502008-A/DREW//CLR 20/3/CL111	5	84	38	8,871	64.2	70.6
164	9502008-A//AR1188/CCDR/3/…/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	84	36	9,303	58.7	68.4
163	9502008-A//AR1188/CCDR/3/…/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	84	37	9,224	59.1	69.7
174	9502008-A/DREW//CLR 20/3/DREW	5	83	38	8,170	67.7	73.0
159	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	5	84	35	8,613	63.6	70.3
168	9502008-A/DREW//CLR 20/3/CL111	5	85	38	8,656	63.8	70.7
170	9502008-A/DREW//CLR 20/3/CL111	5	83	38	8,601	63.2	71.2
162	9502008-A//AR1188/CCDR/3/…/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	84	36	8,884	59.6	68.6
152	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	6	83	35	8,476	62.3	69.9
157	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	4	82	37	8,739	62.8	70.0
173	9502008-A/DREW//CLR 20/3/DREW	6	86	37	7,616	64.7	70.6
158	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	5	83	37	8,438	64.1	72.0
169	9502008-A/DREW//CLR 20/3/CL111	5	84	38	8,427	64.4	71.7
151	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	5	83	40	8,851	62.6	70.8
161	9502008-A//AR1188/CCDR/3/…/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	6	86	38	8,412	58.4	69.1
154	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	5	82	37	8,532	61.5	71.0
160	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	5	82	36	8,287	60.5	68.3
155	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	5	82	34	8,010	65.4	71.6
153	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	5	84	37	7,458	60.0	68.9

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 8. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 8, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
182	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	83	41	9,463	67.1	72.7
187	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	83	38	9,374	62.4	69.2
197	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	81	36	9,672	65.1	71.5
183	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	81	37	9,053	64.6	71.4
186	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	82	38	9,710	61.8	69.7
191	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	5	81	35	9,450	63.0	70.8
192	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	5	83	35	9,909	63.4	71.3
185	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	6	84	40	9,050	59.7	68.1
194	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	87	36	8,857	61.9	68.8
180	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	6	83	36	9,895	60.9	70.2
193	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	5	82	36	9,113	57.2	66.4
184	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	84	40	9,332	61.2	69.3
195	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	86	37	8,476	65.3	70.2
196	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	5	84	38	9,354	67.9	73.9
176	9502008-A/DREW//CLR 20/3/DREW	5	82	38	8,676	64.3	71.1
200	URN 062	5	82	37	9,462	63.1	70.2
190	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	5	83	35	8,889	60.2	69.8
198	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	83	39	8,230	64.5	71.8
179	9502008/3/MBLE//LMNT/20001-5/4/…/5/CL111	4	84	37	8,816	60.4	69.4
181	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	81	37	8,855	59.9	68.4
189	CATAHOULA/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	83	40	9,011	61.6	69.8
199	9502008-A/DREW//CLR 20/3/MBLE	5	82	36	8,808	62.6	69.7
188	CATAHOULA/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	84	38	8,698	63.5	70.0
177	9502008/3/MBLE//LMNT/20001-5/4/…/5/CL111	5	84	35	8,283	61.9	70.0
178	9502008/3/MBLE//LMNT/20001-5/4/…/5/CL111	5	84	36	7,718	63.3	70.4

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 9. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 9, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
205	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	84	36	9,022	62.4	68.4
218	CL111/4/CPRS/3/9502008-A//AR 1188/CCDR	5	82	39	9,441	57.8	65.9
212	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	86	40	9,814	64.3	70.6
215	CL111/CCDR	5	83	35	9,788	60.8	67.8
216	CL111//CCDR/0502085	5	84	35	8,892	58.8	66.6
220	CL111/CHENIERE	5	84	37	9,732	60.0	67.8
213	CL111/3/CPRS/KBNT//WELLS CFX 18	5	83	37	9,895	64.8	71.0
206	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	84	40	9,075	62.3	70.2
214	CL111/3/CPRS/KBNT//WELLS CFX 18	5	83	37	9,445	55.2	62.9
223	CL111/CHENIERE	4	82	37	9,366	61.5	68.5
217	CL111/4/CPRS/3/9502008-A//AR 1188/CCDR	5	82	37	8,676	59.1	66.9
208	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	6	85	34	8,276	59.3	69.6
219	CL111/CHENIERE	5	82	37	8,732	58.9	67.0
222	CL111/CHENIERE	6	85	35	9,151	63.0	68.5
204	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	85	37	8,126	60.3	66.6
224	CL111/CHENIERE	6	83	36	8,470	62.0	69.3
221	CL111/CHENIERE	5	84	36	8,805	60.4	67.4
209	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	6	84	35	8,025	58.8	70.1
211	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	83	40	7,948	60.7	68.8
207	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	6	85	37	8,011	58.5	67.7
210	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	5	83	37	8,130	58.0	66.2
225	URN 011	5	85	37	8,119	62.3	69.7
203	CL181 - AR/CL111	6	84	34	8,826	58.8	67.8
201	9502008-A/DREW//CLR 20/3/MBLE	6	84	37	8,012	64.3	70.4
202	CL181 - AR/CL111	5	84	33	7,723	57.4	66.1

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 10. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 10, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
238	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/TRNS//CCDR/JEFF	4	84	36	8,969	67.0	72.6
244	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	5	85	35	8,554	68.5	73.3
233	CFX-18//CPRS/KBNT/3/CFX-29/CCDR/4/CL152	5	85	38	8,182	67.3	72.3
227	CL111/3/CCDR//9502008/LGRU	6	84	38	8,977	58.8	66.2
241	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	84	34	8,248	68.5	73.9
245	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	5	83	35	8,147	66.2	71.0
226	CL111/3/CCDR//9502008/LGRU	6	84	38	8,829	59.4	68.7
228	CL111/3/CCDR//9502008/LGRU	5	84	38	8,655	64.9	70.6
242	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	6	79	36	9,307	61.1	70.2
248	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/9502008-A//AR 1188/CCDR/3/CCDR/JEFF	5	82	37	9,180	62.2	70.0
250	URN 028	5	82	38	9,186	56.4	66.0
236	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	5	84	39	8,796	64.2	69.8
229	CL111/3/CCDR//9502008/LGRU	5	85	39	9,031	60.9	68.7
234	CHENIERE/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	5	87	39	7,757	62.7	69.7
239	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/TRNS//CCDR/JEFF	4	85	35	7,943	68.3	73.1
247	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	6	82	35	8,558	63.2	71.3
246	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	6	79	37	8,936	65.0	71.2
230	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	5	86	36	9,302	63.8	71.4
240	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/TRNS//CCDR/JEFF	5	85	35	7,805	67.6	72.2
243	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	85	36	7,669	65.6	71.1
232	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	5	86	37	8,299	64.1	71.5
231	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	5	87	37	8,716	62.9	71.4
249	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CL131	5	83	37	8,057	55.7	69.3
237	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	6	85	38	8,321	62.6	70.3
235	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	6	83	36	8,133	64.5	70.8

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 11. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 11, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
251	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CL131	7	85	37	8,935	62.2	70.7
271	CPRS/KBNT//WELLS CFX 18/3/CPRS	6	86	36	8,618	66.0	70.9
255	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/CFX-26/9702128/5/CLPY 003 (CL 006)//…	6	82	39	9,578	61.5	68.2
272	CPRS/KBNT//WELLS CFX 18/3/CPRS	5	86	36	8,826	64.0	69.4
264	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/4/WELLS/CFX-18	5	84	38	9,246	67.5	72.6
262	CFX-26/9702128/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	83	37	8,953	67.7	72.7
266	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	6	85	35	8,785	61.0	67.6
256	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	5	82	36	9,128	67.7	72.4
260	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/	5	84	37	8,512	63.0	69.3
268	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	5	85	37	8,761	63.3	68.3
252	CATAHOULA/CL111	5	80	36	8,651	69.2	73.5
270	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…	5	85	35	8,380	65.2	70.4
254	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6	86	37	8,774	69.4	74.3
263	CFX-26/9702128/5/AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…	5	85	37	8,289	63.3	69.2
274	CPRS/KBNT//WELLS CFX 18/3/CPRS	7	87	34	8,745	63.2	69.4
275	URN 034	6	86	41	8,077	67.0	71.6
267	CCDR/CFX 18/3/CFX-18//CCDR/9770532 DH2	5	87	38	8,402	67.3	72.6
259	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	86	37	8,305	65.6	71.4
261	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/	5	85	39	7,761	61.5	68.2
257	CCDR/CFX-18/3/9502008-A/DREW//CLR 20	5	84	37	8,313	62.4	69.9
253	CATAHOULA/CL111	7	86	36	7,770	57.6	67.7
258	CCDR/CFX-18/3/9502008-A/DREW//CLR 20	6	84	36	8,280	64.1	71.4
269	902207x2/LGRU//CHENIERE/3/CHENIERE//CFX 29/CCDR	5	87	35	8,074	65.1	69.9
265	96INT/ARNT/3/9502008-A/DREW//CLR 20	6	85	36	7,714	64.8	67.6
273	CPRS/KBNT//WELLS CFX 18/3/CPRS	6	88	34	7,096	61.8	67.9

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 12. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 12, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
292	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/DREW	6	89	36	8,478	67.3	71.8
295	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/TRNS//CCDR/JEFF	5	86	35	8,703	69.6	73.6
283	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	7	85	42	8,352	65.4	72.1
298	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	6	85	38	8,927	68.2	72.8
294	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/TRNS//CCDR/JEFF	5	86	34	8,248	69.3	73.4
299	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	6	83	38	9,155	65.1	71.3
293	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/DREW	6	86	36	7,910	67.5	72.7
296	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	6	83	36	8,298	66.6	72.4
280	TAGGART/CL162	6	86	37	8,072	63.6	71.3
277	CPRS/KBNT//WELLS CFX 18/3/CPRS	6	87	34	8,381	62.1	68.5
284	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	6	88	39	8,841	67.3	71.9
300	URN 051	6	85	37	8,404	60.7	67.2
285	CFX-18//CPRS/KBNT/3/CFX-29/CCDR/4/CL152	5	89	39	7,843	67.4	72.5
291	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/DREW	6	86	38	7,676	68.3	72.5
279	9302065//DREW CLR 13/3/DREW/CLR 13	5	88	34	7,245	64.7	70.8
281	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	6	85	35	7,952	68.6	73.8
276	CPRS/KBNT//WELLS CFX 18/3/CPRS	6	87	33	7,610	61.1	68.1
282	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	7	85	37	7,477	65.7	72.0
286	CHENIERE/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	7	85	35	8,448	65.1	70.8
297	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	5	82	38	8,402	63.8	70.2
290	AR 1188/CCDR//9502008/LGRU/3/CL111	7	89	37	7,095	56.2	65.1
288	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	8	87	38	8,254	62.3	70.1
287	CHENIERE/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	7	85	39	8,117	60.5	69.1
289	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	6	86	35	7,810	66.0	71.1
278	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	5	88	35	7,652	66.4	72.6

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 13. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 13, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
317	9502008-A/DREW//CFX 26/WELLS/3/TRNS	5	81	40	9,659	62.4	68.8
312	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	6	81	37	9,355	60.2	68.8
321	CL152/CL162	5	83	37	9,192	58.0	67.6
320	CL152/CL162	5	86	37	8,408	61.2	66.7
310	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	6	81	35	8,668	60.4	67.5
304	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/AR 1188/CCDR//9502008/LGRU	6	83	38	9,228	60.3	67.3
313	CCDR/CLPY 003/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	5	82	39	8,736	64.0	71.4
311	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	6	80	35	8,444	60.7	67.6
308	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/CPRS/…	5	83	38	8,652	64.1	70.6
302	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6	86	37	8,295	63.9	70.2
307	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	6	84	38	9,028	63.5	70.0
315	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	5	85	37	9,155	62.0	68.6
305	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/AR 1188/CCDR//9502008/LGRU	6	85	38	8,785	60.2	66.8
323	CL152/3/TRNS//CCDR/JEFF	7	85	37	8,255	65.6	71.4
316	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	5	83	39	8,612	63.7	70.4
306	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	5	82	38	8,702	63.3	70.6
309	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/'CPRS//82CAY21/TBNT/3/CFX 29//…	7	82	37	8,326	60.2	68.9
325	URN 002	6	82	37	8,514	61.4	68.0
303	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CLPY 003 (CL 006)//CFX-26/9702128	5	85	38	8,444	64.6	70.2
318	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	6	84	37	8,674	65.1	71.3
301	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	6	84	38	8,351	62.2	68.0
314	CCDR/CLPY 003/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	6	82	36	8,263	65.3	71.8
324	11CLPR132/11CLPR117	6	84	36	7,500	60.9	66.5
319	CL111/CL152	6	85	33	8,048	54.5	70.4
322	CL152/3/TRNS//CCDR/JEFF	7	86	36	7,509	69.4	71.7

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 14. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 14, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
347	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18 (XC 065)	5	85	38	8,955	57.5	64.1
348	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CL161	5	86	37	8,344	60.5	64.6
349	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CFX18 (XC 065)	5	85	38	8,118	58.4	63.0
328	06CFP952/MBLE	6	85	39	8,202	34.8	63.8
331	JZMN/08CLR004//RU0802146/3/JZM2	5	84	38	7,931	61.0	66.1
342	RU1002146/3/JZM2//07PY824/08CLR003	6	82	37	8,424	57.0	67.4
327	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CPRS/KBNT//WELLS CFX 18	5	84	39	8,383	54.4	63.9
338	JZMN/08CLR004//RU1002146/3	7	84	34	7,915	58.4	67.7
341	JZMN/3/08CLR004	7	85	36	8,167	60.6	66.9
336	JZMN/08CLR004//RU1002146/3	6	83	37	7,864	58.7	65.6
340	JZMN/3/08CLR004	5	86	39	8,141	54.3	64.9
334	JZMN/4/08CLR004	5	87	37	8,253	63.5	68.5
333	JZMN/4/08CLR004	5	85	37	8,169	65.6	69.5
346	JZMN/2/08CLR004	5	87	39	7,781	47.9	63.8
339	JZMN/08CLR004//RU1002146/3	7	84	35	7,437	51.8	66.8
337	JZMN/08CLR004//RU1002146/3	5	82	37	7,560	56.4	65.3
330	CL111/CCDR	6	86	37	8,212	59.4	68.2
343	JZMN/08CLR004//07SP160/3/RU1002146	6	82	38	7,640	61.5	68.4
335	JZMN/08CLR004//RU1002146/3	6	84	38	7,721	58.6	68.7
345	JZMN/08CLR004//RU0802146/3/RU0802146	6	87	36	6,736	59.0	65.6
326	11CLPR132/11CLPR117	6	87	34	6,755	57.5	65.7
332	JZMN/08CLR004//RU1002146/2	7	82	37	7,033	54.2	62.4
350	CL-JZMN	8	88	42	6,946	53.5	66.0
344	JZMN/08CLR004//RU0802146/3/RU0802146	7	87	33	6,452	58.7	64.9
329	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	7	86	35	7,284	55.1	67.0

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 15. Grain and milling yields and agronomic performance of entries in the 2014 Clearfield Preliminary Yield Trial, Group 15, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
374	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	7	85	40	9,809	64.9	67.5
361	NEPTUNE//BNGL/CL161	6	86	37	9,735	60.6	65.0
362	BNGL/CL161/4/9502065/3/MERC//MERC/…	6	85	41	9,898	62.5	65.9
372	BNGL/CL161/4/BNGL//MERC/RICO/3/EARL	6	86	37	9,361	64.9	67.6
365	BNGL/CL161//CAFFEY	5	83	37	9,561	61.5	66.7
375	CL271	5	85	38	9,370	61.5	65.4
363	BNGL/CL161/4/9502065/3/MERC//MERC/…	5	83	38	9,329	55.5	62.5
364	NEPTUNE//BNGL/CL161	5	87	37	8,814	59.4	63.7
351	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CFX18 (XC 065)	5	86	39	8,931	59.6	64.2
360	NEPTUNE//BNGL/CL161	6	85	39	9,262	58.2	65.0
354	BNGL/CL161/4/9502065/3/MERC//MERC/…	6	85	38	9,611	62.1	65.7
359	RICO//PY 678/CL161	6	85	38	8,882	52.1	58.7
366	BNGL/CL161/4/9502065/3/MERC//MERC/…	6	85	38	8,940	58.3	63.5
368	BNGL/CL161/4/9502065/3/MERC//MERC/…	5	85	39	9,026	59.8	64.5
355	BNGL/CFX18 (XC 065)/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	84	40	8,445	58.0	63.6
369	BNGL/CL161/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	84	38	9,147	62.9	66.4
353	NEPTUNE//BNGL/CL161	5	85	35	8,278	60.4	65.0
357	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CFX18 (XC 065)	5	85	34	8,814	61.5	66.5
352	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CFX18 (XC 065)	5	84	37	8,635	58.2	63.4
356	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CFX18 (XC 065)	5	85	33	8,531	58.7	66.6
373	CL261/3/BNGL/SHORT RICO//MERC	6	84	39	7,888	55.2	62.5
370	BNGL/CL161/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	6	86	38	8,314	61.5	65.9
367	CL261/3/BNGL/SHORT RICO//MERC	5	84	39	7,725	56.8	62.3
358	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CFX18 (XC 065)	5	85	36	7,945	60.6	66.1
371	BNGL/CL161/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	85	38	8,327	62.3	65.9

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

PRELIMINARY YIELD TRIAL

Preliminary Yield Trials consist primarily of promising breeding nursery material that is ready to be tested in replicated yield trials. The material in these trials was screened for agronomic and grain characteristics in nurseries prior to this phase of testing. Promising experimental lines were evaluated for seedling vigor, maturity, plant height, lodging resistance, grain yield of main crop, and disease resistance.

Tests were conducted using standard agronomic practices (except that no fungicides were applied) at the Rice Research Station at Crowley, LA. A randomized complete block design was applied to arrange test entries. The plot size was 4.66 x 16 ft. Seeding rate was 90 lb/A. This test was drill-seeded on March 18 and harvested on August 8. Data are presented in Tables 1 to 15.

Table 1. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 1, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
524	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	4	87	37	9,169	63.8	69.6
516	TRNS/4/NWBT/KATY//9902207x2/3/9502008-A/DREW	5	81	34	8,990	55.7	65.4
517	TRNS/4/NWBT/KATY//9902207x2/3/9502008-A/DREW	4	79	36	8,844	58.7	68.5
512	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CPRS/KBNT//DREW	5	82	36	8,802	59.3	68.2
508	LGRU/DREW	3	82	36	8,740	58.1	68.6
518	9302065/4/NWBT/KATY//9902207x2/3/CPRS	5	77	36	8,535	55.9	66.7
515	TRNS/4/NWBT/KATY//9902207x2/3/9502008-A/DREW	5	82	33	8,349	57.5	67.7
510	LGRU/DREW	4	86	34	8,301	59.6	68.3
522	CPRS/KBNT//9502008-A /3/CCDR/JEFF	5	83	36	8,245	58.8	69.6
502	TRNS//CCDR/JEFF	4	83	33	8,206	60.0	68.3
525	MERMENTAU	3	81	36	8,173	58.2	68.3
513	TRNS/4/NWBT/KATY//9902207x2/3/9502008-A/DREW	4	83	38	7,910	60.5	73.0
506	CCDR/JEFF//TRNS	5	79	31	7,908	58.0	70.3
514	TRNS/4/NWBT/KATY//9902207x2/3/9502008-A/DREW	4	81	36	7,848	58.5	69.0
511	CCDR/JEFF//TRNS	3	80	36	7,845	53.6	61.8
521	CPRS/KBNT//9502008-A /3/CCDR/JEFF	4	80	36	7,787	57.5	69.7
503	TRNS/3/CPRS/KBNT//9502008-A	5	87	35	7,720	60.9	69.6
504	CPRS/KBNT//9502008-A/3/9502008-A//AR 1188/CCDR	4	82	35	7,666	59.1	69.0
519	9302065/4/NWBT/KATY//9902207x2/3/CPRS	4	81	33	7,622	60.2	70.2
509	LGRU/DREW	4	85	34	7,517	59.3	69.8
507	9502008-A//AR 1188/CCDR/3/SPRING	5	80	31	7,400	60.4	70.1
520	CCDR/CHENIERE	4	87	36	7,373	61.3	71.5
501	CHNR//9502008-A/DREW	5	82	35	6,988	60.8	68.1
505	CHENIERE/3/9502008-A//AR 1188/CCDR	5	81	34	6,903	57.8	69.1
523	CPRS/KBNT//9502008-A /3/CCDR/JEFF	4	83	35	6,726	62.3	73.0

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 2. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 2, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
544	TRNS/CPRS/KBNT//9502008-A	4	80	36	9,329	62.6	70.0
543	TRNS/CPRS/KBNT//9502008-A	6	80	34	8,857	56.5	67.1
541	LCSN/3/902207x2/LGRU//CHENIERE	4	86	37	8,792	60.9	68.9
536	LCSN/CCDR	4	86	36	8,776	64.7	71.7
534	DREW//CHENIERE/LMNT	4	89	38	8,718	59.7	67.0
550	CATAHOULA	3	82	37	8,335	60.4	70.8
533	LCSN/CCDR	5	82	34	8,288	57.1	66.3
549	CCDR/CHENIERE	5	87	37	8,198	62.6	71.1
545	TRNS/CPRS/KBNT//9502008-A	6	82	35	8,178	54.2	65.3
537	LCSN/CCDR	4	87	38	8,059	61.7	68.5
539	DREW//CHENIERE/LMNT	4	90	36	8,053	58.8	68.2
540	LCSN/3/902207x2/LGRU//CHENIERE	6	90	38	8,023	59.4	69.8
538	LCSN/CCDR	4	88	37	7,884	60.0	67.1
527	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CPRS	4	84	37	7,858	60.0	68.1
548	9302065/4/NWBT/KATY//9902207x2/3/CPRS	4	86	39	7,756	58.3	69.1
535	LCSN/CCDR	5	83	36	7,741	62.0	69.2
530	TRNS/3/CPRS/KBNT//9502008-A	4	83	37	7,730	54.3	66.6
546	TRNS/4/NWBT/KATY//9902207x2/3/9502008-A/DREW	6	83	35	7,654	54.9	66.5
542	LCSN/3/902207x2/LGRU//CHENIERE	5	87	36	7,651	59.7	69.7
532	LCSN/CCDR	4	86	36	7,642	61.4	69.5
531	LCSN/CCDR	5	83	35	7,630	58.2	66.9
547	9302065/4/NWBT/KATY//9902207x2/3/CPRS	4	88	35	7,507	63.1	71.6
529	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/LGRU/WELLS	5	88	35	7,476	63.1	70.9
528	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/NWBT/KATY//9902207x2/3/CPRS	5	84	37	7,439	60.0	67.9
526	CCDR/JEFF//TRNS	4	82	39	7,261	59.5	67.8

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 3. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 3, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
571	TAGGART/CHENIERE	4	88	42	10,005	57.2	70.4
570	TAGGART/DREW	4	88	45	9,020	58.7	74.1
569	FRANCIS/CATAHOULA	5	84	40	8,635	60.4	70.3
573	AR 1188/CCDR//9502008/LGRU/3/CATAHOULA	4	85	34	8,613	58.2	67.1
566	FRANCIS/CATAHOULA	4	76	37	8,497	59.0	69.8
574	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	83	38	8,337	58.6	69.0
562	MBLE/3/AR 1188/CCDR//9502008/LGRU	5	86	35	8,291	60.6	65.9
567	FRANCIS/CATAHOULA	4	78	39	8,108	54.0	68.3
557	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CPRS	4	83	37	8,009	63.6	72.1
552	LCSN/SPRING	4	79	35	7,939	62.9	70.1
575	COCODRIE	5	82	37	7,889	53.9	66.7
560	CCDR/9502008-A/3/CPRS/KBNT//DREW	4	89	39	7,831	62.0	69.6
556	CCDR/JEFF//TRNS	5	80	36	7,685	61.5	70.0
564	CCDR/TRNS	5	82	36	7,631	58.7	68.9
554	DREW//CCDR/9502008-A	4	83	38	7,596	59.4	68.6
568	FRANCIS/CATAHOULA	5	83	38	7,536	57.5	68.2
561	CPRS/KBNT//DREW/3/CPRS	4	88	39	7,517	64.1	71.3
565	CCDR/TRNS	6	84	38	7,372	58.6	67.3
559	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//9902207x2/3/…	5	82	36	7,359	61.0	69.7
558	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CPRS/KBNT//DREW	6	89	41	7,291	61.1	70.3
551	LCSN/SPRING	5	81	35	7,143	60.9	69.3
555	CCDR/JEFF//TRNS	6	80	37	7,049	63.1	71.2
553	DREW//CCDR/9502008-A	6	84	37	6,935	62.8	70.0
572	AR 1188/CCDR//9502008/LGRU/3/PRESIDO	5	83	35	6,478	58.2	68.1
563	TRNS/MBLE	6	87	38	6,463	56.3	67.3

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 4. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 4, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
600	CL111	4	80	39	9,097	64.4	72.5
590	RU0802031/RU0902137	4	81	37	9,084	60.3	70.4
577	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	85	39	8,723	63.6	70.6
583	CCDR/RU0902125	4	82	34	8,669	61.2	71.2
588	RU0802031/RU0902125	5	80	37	8,607	60.7	71.5
597	CCDR/AC625	6	84	34	8,565	62.7	73.2
591	RU0802031/RU0902137	4	80	37	8,484	63.5	72.3
595	RU0802134/RU0902155	5	85	38	8,446	59.2	70.5
582	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	4	83	38	8,404	59.2	69.2
581	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	4	85	37	8,380	62.6	69.7
592	RU0802031/RU0802134	5	81	34	8,372	57.1	68.9
587	RU0802031/RU0902125	4	82	35	8,302	61.1	71.2
594	RU0802134/RU0902155	4	83	36	8,251	59.1	69.5
578	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	87	38	8,164	62.2	70.8
585	RU0902125/RU0802134	5	84	36	8,130	61.7	71.1
576	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	5	84	36	8,101	57.3	67.1
596	RU0802134/RU0902134	5	81	38	7,984	55.2	69.8
593	RU0802031/RU0502094	5	80	37	7,921	59.8	69.5
589	RU0802031/RU0902125	4	81	36	7,878	59.9	70.3
599	CPRS/KBNT//9502008-A/4/NWBT/KATY//9902207x2/3/CCDR	5	84	37	7,794	61.7	71.3
580	CATAHOULA/CHENIERE	4	80	36	7,768	56.2	70.0
579	CATAHOULA/CHENIERE	5	81	39	7,747	60.1	70.5
598	CCDR/AC105	5	81	36	7,197	63.0	71.3
586	RU0902125/RU0802134	5	83	37	7,072	61.1	71.5
584	RU0902125/RU0802134	5	84	37	6,930	61.3	71.3

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 5. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 5, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
604	CCDR/JEFF/3/CPRS/KBNT//9502008-A	4	82	38	9,797	63.8	72.3
625	CL152	4	85	38	9,242	61.8	69.0
620	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	5	80	36	9,173	62.8	71.5
602	CPRS/KBNT//9502008-A /3/AC105	4	84	38	9,171	64.1	69.1
613	CCDR/JEFF//CCDR/0502085	4	82	37	8,888	63.4	71.9
612	CCDR/JEFF/3/9502008-A//AR1188/CCDR	4	83	37	8,869	62.4	71.4
624	CCDR/3/KATY/CPRS//JKSN/4/CCDR/JEFF	4	81	39	8,825	60.9	71.3
609	CCDR/JEFF//CCDR/9502008-A	4	80	38	8,727	60.3	70.0
615	9502008-A//AR1188/CCDR/4/9502008//KATY/9902207x2/3/9502008/CPRS	3	83	37	8,581	65.6	71.3
614	AR1188/CCDR//9502008/LGRU/3/AC1073	4	81	39	8,441	63.7	70.1
603	CPRS/KBNT//9502008-A /3/CBNT	5	84	37	8,416	62.4	70.0
616	CTHL//CCDR/JEFF	4	83	37	8,333	61.3	70.2
601	CPRS/KBNT//9502008-A /3/AC105	4	83	37	8,300	64.7	72.3
611	CCDR/JEFF/3/9502008-A//AR1188/CCDR	4	81	36	8,263	63.3	72.2
610	CCDR/JEFF/3/9502008-A//AR1188/CCDR	5	81	37	8,184	63.7	71.5
605	CCDR/JEFF/3/CPRS/KBNT//9502008-A	5	83	34	8,121	64.8	72.7
608	CCDR/JEFF//CCDR/9502008-A	4	81	38	8,115	64.1	72.6
606	CCDR/JEFF/3/CPRS/KBNT//9502008-A	4	82	35	8,063	61.0	70.6
618	CTHL//CCDR/JEFF	4	78	36	8,013	58.6	71.5
617	CTHL//CCDR/JEFF	4	79	35	7,968	61.8	70.7
619	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	5	82	38	7,950	61.0	70.4
621	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	5	84	35	7,857	58.5	69.7
623	CCDR/3/KATY/CPRS//JKSN/4/CCDR/JEFF	4	80	38	7,843	60.5	70.8
622	CTHL/4/CCDR/3/9502008//AR1188/CCDR	4	81	37	7,371	63.8	72.0
607	CCDR/JEFF//CCDR/9502008-A	4	83	37	7,187	62.9	72.1

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 6. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 6, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
650	CL151	4	83	39	9,824	61.8	70.0
629	CCDR/3/KATY/CPRS//JKSN/4/MILL//9502008/LGRU	3	81	38	9,423	67.6	73.5
633	9502008/CPRS/4/CPRS//82CAY21/TBNT/3/AR1121/5/CCDR//9502008//AR1188/CCDR	4	77	37	9,253	66.0	73.9
649	CCDR/0502085/3/MILL//9502008/LGRU	4	81	39	9,081	60.6	71.7
643	CCDR/0502085//CCDR/9502008-A	4	82	37	9,039	61.5	70.2
636	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	4	79	35	8,917	63.9	71.0
641	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	4	83	37	8,902	62.8	70.5
645	CCDR/0502085//CCDR/9502008-A	4	79	37	8,842	62.8	71.3
631	9502008/CPRS/4/CPRS//82CAY21/TBNT/3/AR1121/5/CCDR//9502008//AR1188/CCDR	4	77	38	8,657	66.1	73.0
647	CCDR/0502085//CCDR/9502008-A	4	79	35	8,521	63.2	70.6
644	CCDR/0502085//CCDR/9502008-A	5	78	37	8,496	61.6	69.5
626	CCDR/3/KATY/CPRS//JKSN/4/CCDR/JEFF	3	80	39	8,487	62.6	71.3
646	CCDR/0502085//CCDR/9502008-A	4	81	35	8,434	61.5	70.2
638	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	4	84	35	8,422	61.6	68.8
634	9502008//KATY/9902207x2/3/9502008/CPRS/4/MILL//9502008/LGRU	4	83	37	8,416	59.0	66.3
627	CCDR/3/KATY/CPRS//JKSN/4/CCDR/JEFF	4	82	38	8,416	62.1	71.4
639	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	4	85	37	8,395	61.5	69.4
642	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	5	80	36	8,370	64.4	70.9
648	CCDR/0502085//CCDR/9502008-A	4	80	36	8,293	61.1	70.0
640	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	4	81	38	8,264	62.1	72.1
630	CCDR/3/KATY/CPRS//JKSN/4/AC105	4	80	38	8,204	63.3	72.0
637	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	5	85	36	8,021	63.0	70.3
632	9502008/CPRS/4/CPRS//82CAY21/TBNT/3/AR1121/5/CCDR//9502008//AR1188/CCDR	3	81	39	7,867	61.2	71.0
635	9502008//KATY/9902207x2/3/9502008/CPRS/4/MILL//9502008/LGRU	5	81	35	6,993	65.8	74.2
628	CCDR/3/KATY/CPRS//JKSN/4/MILL//9502008/LGRU	4	81	40	6,941	60.9	69.3

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 7. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 7, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
675	URN 062	5	82	40	9,652	61.0	70.5
652	CCDR//9502008//AR1188/CCDR/3/CCDR	4	80	37	8,721	65.8	71.7
674	TGRT/RU0902028	4	81	36	8,553	64.6	70.1
663	AC105/4/CCDR/3/9502008//AR1188/CCDR	5	79	36	8,522	65.1	72.1
668	CBNT/4/CCDR/3/9502008//AR1188/CCDR	4	83	37	8,475	66.8	71.4
672	CCDR/RU0902125	5	79	36	8,436	62.4	72.8
659	AC630/TRNS	4	77	36	8,365	63.4	69.6
651	CCDR/0502085/3/MILL//9502008/LGRU	6	83	36	8,343	59.5	66.9
661	NWBT/KATY//9902207x2/3/CPRS/KBNT//9502008-A	5	81	37	8,322	65.2	72.5
664	AC105/3/CCDR//CCDR/JEFF	4	81	37	8,189	64.3	71.3
665	CBNT//CCDR/JEFF	4	83	35	8,104	64.3	71.4
653	CCDR//9502008//AR1188/CCDR/3/CCDR	5	82	37	8,087	64.0	71.3
669	CBNT/4/CCDR/3/9502008//AR1188/CCDR	4	80	37	8,026	62.8	68.3
662	DREW/CCDR//AC625	5	82	37	8,015	62.6	71.4
671	CCDR/RU0902125	4	83	36	8,009	61.4	71.8
667	CBNT/4/CCDR/3/9502008//AR1188/CCDR	5	82	37	7,950	66.7	71.7
654	CCDR//9502008//AR1188/CCDR/3/CCDR	4	82	35	7,941	62.9	72.2
666	CBNT/3/MILL//9502008/LGRU	5	83	38	7,934	64.5	71.6
673	TGRT/RU0902028	4	84	37	7,845	60.4	70.0
657	CCDR//9502008//AR1188/CCDR/3/AC105	5	81	37	7,578	63.7	70.6
656	CCDR//9502008//AR1188/CCDR/3/AC625	6	83	37	7,496	64.5	70.5
670	CBNT/AC105	4	83	34	7,469	68.0	72.7
655	CCDR//9502008//AR1188/CCDR/3/CCDR	5	83	35	7,358	61.9	71.9
658	CCDR//CCDR/JEFF/3/AC1019	5	80	37	7,227	64.5	70.6
660	AC105/CCDR	4	87	37	7,214	61.9	70.4

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 8. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 8, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
677	CHNR/LMNT	4	80	38	9,561	68.0	72.6
683	MRMT/RU0902125	4	35	40	9,376	66.9	71.4
690	RU0902034/RU0802031	4	83	40	8,850	64.3	69.7
689	RU0902034/RU0802031	5	82	39	8,844	64.2	70.4
699	RU0902137/RU0902155	4	80	38	8,829	66.7	71.3
682	CHNR/RU0802134	6	82	37	8,627	64.9	72.1
691	RU0902034/RU0803163	4	84	37	8,574	64.8	70.9
700	URN 152	5	84	38	8,539	62.1	68.0
698	RU0902137/MBLE	4	81	36	8,373	66.6	72.5
680	CHNR/RU0802134	5	83	37	8,319	63.0	72.0
685	MRMT/RU0902131	4	80	38	8,268	67.9	72.7
697	RU0902125/RU0802134	4	81	34	8,244	67.3	72.5
696	RU0902125/RU0802134	4	80	37	8,004	66.7	72.3
678	CHNR/RU0902152	6	87	39	8,001	60.9	70.6
695	RU0902125/RU0802134	5	81	35	7,916	63.7	71.2
687	RU0902034/RU0902140	5	81	37	7,892	67.1	71.6
693	RU0902125/RU0902152	4	81	36	7,888	65.8	71.3
681	CHNR/RU0802134	4	83	37	7,766	65.8	72.5
684	MRMT/RU0902131	5	85	39	7,484	67.7	72.1
679	CHNR/RU0902131	5	88	38	7,327	61.3	71.4
694	RU0902125/RU0802134	5	83	36	7,203	66.9	73.3
686	MRMT/RU0902131	4	82	36	7,097	67.3	72.7
688	RU0902034/RU0902140	4	83	35	7,096	66.5	72.5
676	LBLE/RU0902134	5	84	38	7,077	67.4	71.5
692	RU0902034/08PY755	5	80	37	7,071	67.8	71.4

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 9. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 9, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
706	RU0902137/RU0902134	5	82	37	8,728	63.5	71.2
704	RU0902137/RU0902028	5	78	38	8,453	62.9	72.8
714	RU0502094/RU0902131	4	83	40	8,402	63.8	70.6
718	RU0502068/RU0902140	5	81	35	8,348	66.9	73.5
725	URN 162	6	85	38	8,344	64.9	73.3
701	RU0902137/RU0902155	4	82	39	8,304	66.3	72.6
710	RU0902140/RU0502094	4	83	37	8,266	62.7	71.3
712	RU0802031/RU0902140	5	83	37	8,134	64.4	72.5
709	RU0902140/LMNT	4	83	37	8,102	64.6	72.7
703	RU0902137/RU0902028	4	79	38	8,053	64.7	72.5
724	RU0402097/RU0602051	4	82	36	7,967	62.4	70.0
702	RU0902137/09PY512	5	79	36	7,936	65.9	73.2
715	RU0502068/WELLS	4	83	36	7,931	63.7	71.5
705	RU0902137/RU0902131	4	82	36	7,812	63.4	72.2
720	RU0803163/RU0802031	5	80	37	7,777	63.9	72.1
711	RU0802031/RU0902134	5	83	37	7,732	64.3	72.0
716	RU0502068/RU0902125	5	82	37	7,698	66.2	72.7
719	RU0502068/08PY755	5	86	35	7,692	62.0	69.6
707	RU0902137/RU0403166	5	78	35	7,689	68.0	74.7
721	CYBT/RU0902137	6	86	37	7,642	64.8	70.9
717	RU0502068/RU0902125	6	82	34	7,559	63.8	71.8
713	RU0802134/RU0902125	5	83	36	7,487	62.5	71.6
722	CCDR/RU0502022	5	83	35	7,376	63.2	70.9
723	CCDR/RU0602183	5	83	36	7,211	66.3	74.0
708	RU0902137/RU0801093	5	82	38	6,727	61.7	70.9

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 10. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 10, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
740	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	4	86	39	9,309	66.8	72.3
732	RU1002128/RU1002192	4	83	39	9,206	65.2	71.9
745	CPRS/KBNT//9502008-A/3/TRNS/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	81	39	8,840	65.9	72.3
733	RU1002128/RU1002192	4	81	39	8,810	66.8	72.6
743	CPRS/KBNT//9502008-A/3/TRNS/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	6	82	37	8,779	65.2	71.7
738	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	4	85	41	8,768	64.3	71.1
736	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	5	83	39	8,650	63.8	71.6
726	RU0402097/RU0602051	4	79	39	8,621	66.3	73.2
750	URN 180	4	83	35	8,529	64.9	71.0
746	CPRS/KBNT//9502008-A/3/TRNS/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	83	38	8,360	65.9	73.1
728	MRMT/RU0902034	4	85	37	8,352	63.4	71.6
739	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	5	84	43	8,339	65.9	71.4
729	MRMT/RU0502068	4	82	35	8,330	68.3	73.8
742	CPRS/KBNT//9502008-A/3/TRNS/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	4	79	37	8,318	65.3	72.0
735	CPRS/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	5	83	37	8,296	65.9	71.9
749	CCDR/RU1002177	6	82	38	8,101	65.3	71.8
747	9502008/LGRU/3/CPRS//82CAY21/TBNT/4/TAGGART	5	85	36	8,010	64.3	71.3
737	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	4	84	37	7,993	63.7	71.4
730	MRMT/RU0502068	5	82	35	7,921	63.3	71.1
727	CYBT/RU0902028	4	79	36	7,739	64.7	70.3
731	RU0902174/RU0902134	5	88	37	7,542	64.7	72.8
734	CPRS/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	5	82	36	7,472	65.7	72.4
741	CPRS/KBNT//9502008-A/3/TRNS/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	83	37	7,457	67.1	73.4
744	CPRS/KBNT//9502008-A/3/TRNS/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	81	37	7,251	66.1	72.6
748	CCDR/RU1002177	5	82	37	6,869	64.2	70.7

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 11. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 11, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
772	MRMT/RU1002189	4	83	36	8,468	67.4	73.6
775	URN 168	5	85	37	8,281	66.5	72.4
765	RU0602025/RU0902155	5	85	38	8,271	64.4	71.1
773	MRMT/RU1002189	5	84	36	8,205	64.6	72.2
759	CTHL/RU0902137	5	80	37	8,178	64.0	72.4
761	RU0902155/RU0802031	4	83	36	8,093	66.6	72.9
770	CHNR/RU0902028	6	88	37	8,046	66.4	72.7
764	RU0602025/RU0902155	4	84	39	8,009	64.7	71.8
757	CTHL/RU0902137	6	82	36	7,969	65.3	74.5
774	RU0902174/RU0902134	4	86	37	7,863	66.2	72.7
752	CPRS/RU0802031	5	81	38	7,851	66.0	71.8
751	CPRS/RU0902134	5	86	39	7,838	63.5	70.9
762	RU0902155/RU0802031	4	83	35	7,782	67.6	71.7
768	CPRS/RU1002177	5	81	34	7,742	66.6	71.0
766	RU0902128/RU0902140	6	83	37	7,610	66.9	71.4
755	CTHL/RU0902125	5	82	35	7,592	65.7	73.4
754	CTHL/RU0902125	5	84	36	7,496	65.5	72.5
756	CTHL/RU0902125	5	83	37	7,495	63.6	72.0
760	CTHL/RU0902137	5	82	36	7,418	64.1	71.9
769	CHNR/RU0902028	5	87	36	7,345	65.9	72.5
767	CCDR/RU0801167	6	82	33	7,163	67.0	72.4
763	RU0902155/RU0802031	5	82	36	6,951	65.5	71.9
758	CTHL/RU0902137	6	84	37	6,855	65.2	72.2
753	CTHL/CHNR	5	85	35	6,733	64.8	71.7
771	MRMT/CPRS	5	82	36	6,632	67.2	71.7

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 12. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 12, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
794	BNGL/MERC/RICO/3/MERC/RICO//BNGL/4/JPTR	6	85	35	9,439	64.1	68.4
795	EARL/JPTR	6	86	37	9,099	62.9	67.7
792	MUTATED F2 MG	5	84	34	9,023	66.7	69.7
797	Earl/4/MERC//MERC/KOSH/3/MERC/RICO//BNGL	5	88	37	8,781	64.3	69.6
800	URN 177	5	82	37	8,773	63.6	71.1
789	RU0902155/RU0802031	4	80	38	8,744	65.6	72.0
793	BNGL//MERC/RICO/3/EARL/4/JPTR	6	85	37	8,711	64.4	67.8
798	BNGL/3/MERC/RICO//MERC/3/MERC/…	4	84	32	8,568	65.1	69.4
791	RU0802134/RU0902034	5	86	36	8,282	67.3	72.2
779	RU0401182/RU0902134	6	83	37	8,224	64.2	71.8
784	RU0802031/RU0902088	4	81	39	8,104	65.1	73.2
796	BNGL//MERC/RICO/3/MERC/…/4/EARL/CBNT	4	84	37	8,075	64.9	68.6
799	MEDARK/LFTE/3/BNGL//GP-2/LFTE	7	85	34	7,864	61.9	67.3
778	RU0902128/RU0902028	5	79	37	7,843	65.2	71.5
776	RU1002128/RU0802031	5	85	36	7,768	65.9	72.5
787	TRNS//CCDR/JEFF/3/CPRS	5	82	37	7,691	62.0	71.8
785	RU0801167/RU1002128	6	84	37	7,673	65.6	72.1
777	RU0902128/RU0902028	6	81	33	7,671	65.3	71.5
783	RU0802031/RU0902088	5	79	36	7,667	66.0	72.3
790	RU0902140/CTHL	5	83	38	7,581	64.3	72.0
780	RU0802134/RU0902125	6	87	35	7,212	66.0	73.0
786	RU0803026/CCDR	6	83	37	7,105	65.4	72.4
782	CCDR/FRNS	7	81	34	7,083	61.5	71.6
781	RU0802134/RU0902125	5	83	38	6,916	65.6	72.9
788	9502008-A//AR 1188/CCDR/3/CCDR/JEFF/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//…	6	85	37	6,882	66.5	71.9

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 13. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 13, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
820	NEPTUNE/JPTR	5	87	37	10,326	66.2	69.6
825	JUPITER	5	88	38	9,979	63.4	67.5
819	BNGL/MERC/RICO/3/MERC/RICO//BNGL/5/BNGL/SHORT RICO/4/ORIN//…	5	87	38	9,852	65.0	68.5
812	JPTR/5/BNGL/SHORT RICO/4/9502065/3/…	6	85	34	9,682	63.8	68.0
816	BNGL/MERC/RICO/3/MERC/RICO//BNGL/4/JPTR	5	86	37	9,680	65.0	68.9
803	BNGL/MERC/RICO/3/MERC/RICO//BNGL/4/JPTR	5	86	40	9,664	64.1	68.2
813	JPTR/5/BNGL/SHORT RICO/4/9502065/3/…	6	86	37	9,646	63.5	68.2
817	BNGL/MERC/RICO/3/MERC/RICO//BNGL/5/BNGL/SHORT RICO/4/ORIN//…	5	86	34	9,450	65.3	69.4
809	BNGL//MERC/RICO/3/..//BNGL/4/BNGL//MERC/RICO/3/MERC/…	5	87	37	9,398	65.7	69.4
823	NEPTUNE/5/BNGL/SHORT RICO/4/9502065/3/…	4	85	36	9,366	65.6	69.7
806	9502065/3/MERC//MERC/…/4/BNGL//../3/MERC/…	5	80	36	9,306	63.4	68.5
808	EARL/9902028//JPTR	5	87	39	9,305	61.6	66.3
818	BNGL/MERC/RICO/3/MERC/RICO//BNGL/5/BNGL/SHORT RICO/4/ORIN//…	4	84	36	9,182	64.9	68.6
804	NPTN/4/BNGL//../3/MERC/RICO//BNGL	5	83	39	9,099	65.7	69.3
821	NEPTUNE/4/9502065/3/MERC//MERC/…	5	87	37	9,094	64.3	69.5
801	JPTR/4/MERC/RICO//MERC/3/MERC/LMNT//…	4	85	38	9,062	63.4	67.9
815	BNGL/MERC/RICO/3/MERC/RICO//BNGL/4/JPTR	5	86	36	8,980	66.8	70.2
807	BNGL//../3/MERC/RICO//BNGL/4/BNGL//../3/MERC/RICO//BNGL	5	86	36	8,825	64.4	69.5
810	BNGL//MERC/RICO/3/EARL/4/BNGL//MERC/RICO/3/MERC/…	5	88	35	8,811	54.1	69.9
814	JPTR/EARL	5	85	35	8,803	62.8	70.0
822	NEPTUNE/4/9502065/3/MERC//MERC/…	5	86	35	8,801	62.9	68.9
811	JPTR/LFTE	6	87	39	8,590	60.7	68.0
802	JPTR/4/MERC/RICO//BNGL/3/SMARS/SMARS/…	5	88	39	8,540	63.4	67.3
805	9502065/3/MERC//MERC/…/4/BNGL//../3/MERC/…	5	84	38	8,522	65.7	69.5
824	NEPTUNE/KOKOHUROSE	4	85	36	8,407	65.8	69.7

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 14. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 14, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
850	CAFFEY	4	86	38	10,243	65.3	68.9
826	NEPTUNE/KOKOHUROSE	4	87	35	9,858	61.6	67.1
845	9502065/3/MERC//MERC/…/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	5	86	36	9,736	65.9	69.4
840	JPTR/4/9502065/3/MERC//MERC/…	6	88	38	9,564	64.2	67.7
833	BNGL/SHORT RICO/4/ORIN//…/5/JPTR	5	85	36	9,494	61.2	67.5
841	JPTR/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	6	87	33	9,296	66.3	69.6
835	BNGL/SHORT RICO//LFTE/3/MERC	5	82	37	9,259	63.8	68.7
848	JPTR/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	5	88	39	9,218	63.6	68.1
829	BNGL/SHORT RICO/4/ORIN//…/5/BNGL/SHORT RICO/4/9502065/3/…	5	88	36	9,081	63.6	67.8
844	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	83	36	8,949	66.5	69.8
828	BNGL/SHORT RICO/4/ORIN//…/5/BNGL	5	84	36	8,907	62.2	66.5
831	BNGL/SHORT RICO/4/ORIN//…/5/JPTR	5	86	36	8,899	63.7	67.9
847	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	5	86	34	8,772	66.1	68.9
839	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	6	88	38	8,720	65.7	68.8
834	BNGL/SHORT RICO/4/ORIN//…/5/BNGL/SHORT RICO/4/ORIN//…	5	85	35	8,695	61.1	65.6
827	9502065/3/MERC//MERC/…/4/BNGL	5	86	36	8,627	62.2	66.4
830	BNGL/SHORT RICO/4/ORIN//…/5/JPTR	6	87	36	8,470	60.4	66.5
849	MERC/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	83	40	8,457	66.2	69.9
837	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	5	86	37	8,351	66.2	69.3
846	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	4	85	36	8,334	66.0	69.0
843	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	6	84	33	8,167	66.7	69.5
842	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	6	86	37	8,135	67.1	70.5
838	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	5	86	35	8,101	65.7	69.2
836	BNGL/SHORT RICO//LFTE/3/MARS	6	86	38	8,064	59.3	66.8
832	BNGL/SHORT RICO/4/ORIN//…/5/JPTR	5	84	35	7,944	62.2	68.7

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 15. Grain and milling yields and agronomic performance of entries in the 2014 Preliminary Yield Trial, Group 15, Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
857	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	5	85	36	10849	65.3	69.4
865	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	88	34	10,820	65.6	70.1
871	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	4	86	37	10,781	64.5	68.6
868	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	87	35	10,386	63.3	68.2
863	NEPTUNE/4/9502065/3/MERC//MERC/…	5	87	33	10,147	65.8	69.7
873	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	86	36	10,097	64.4	68.6
874	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	87	36	9,913	65.9	69.3
872	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	5	84	38	9,749	67.4	70.3
870	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	85	37	9,727	66.9	70.0
869	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	86	36	9,628	66.4	68.7
856	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	5	85	37	9,560	65.1	68.8
855	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	5	86	37	9,555	64.2	67.3
864	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	87	35	9,458	65.3	67.5
866	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	89	36	9,446	62.5	67.2
852	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/LFTE	5	85	37	9,299	65.5	68.7
859	NEPTUNE/4/9502065/3/MERC//MERC/…	5	87	36	9,284	66.9	69.7
867	NEPTUNE/4/9502065/3/MERC//MERC/…	5	87	34	9,074	64.8	68.8
851	9502065/3/MERC//MERC/…/4/BNGL	5	84	39	8,983	66.4	69.1
860	9502065/3/MERC//MERC/…/4/LFTE	4	85	39	8,970	65.9	68.7
854	JPTR/5/BNGL/SHORT RICO/4/9502065/3/…/6/NEPTUNE	5	85	36	8,880	64.5	67.9
861	LFTE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	82	39	8,854	66.2	69.5
875	CL271	4	86	36	8,452	67.7	69.9
858	LFTE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	80	35	8,005	65.1	68.8
853	JPTR/5/BNGL/SHORT RICO/4/9502065/3/…/6/NEPTUNE	5	87	38	7,436	64.6	67.1
862	NEPTUNE/4/9502065/3/MERC//MERC/…	4	85	35	6,924	67.7	69.7

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

COOPERATIVE UNIFORM REGIONAL RICE NURSERY

The Uniform Regional Rice Nursery (URN) is a multi-state yield nursery conducted by public rice breeders at research locations in Arkansas, Louisiana, Mississippi, Texas, California, and Missouri to evaluate experimental lines and commercial varieties. Entries are exposed to different environments over a wide, diverse growing region and allow researchers to evaluate their adaptation in a single row.

The 2014 URN test included 200 experimental lines and varieties planted in six states. The randomized complete block design was applied, with three replications for groups 1-4 and two replications for groups 5-7. Seeding rates were 90 lb/A for varieties.

The 2014 URN results from the Rice Research Station will be reported. All plots were drill-seeded on March 19. The test was harvested on August 12. Tests were conducted using standard agronomic practices (except that no fungicides were applied). Tables 1-7 show grain and milling yield and agronomic performance (seedling vigor, days to 50% heading, and plant height) of entries in the 2014 URN at the Rice Research Station.

Table 1. Grain and milling yields and agronomic performance of entries in the 2014 Uniform Regional Rice Nursery, Group 1, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
008	RU 1402008	NEPTUNE//BNGL/CL161	5	86	39		11,010	66.2	68.6
020	MRMT	MERMENTAU	4	83	39		10,550	70.4	73.1
015	RU1204194	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	6	86	40	10	10,187	69.4	73.8
004	RU1301087	RU0801076/6/WLLS/5/LGRU//LMNT/RA73/3/LGRU/4/LGRU	5	87	43		10,181	65.9	70.4
018	CL151	CL151	5	84	38	13	10,178	64.1	69.3
016	RU1104122	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	6	85	40	23	10,140	70.2	73.4
010	RU1401010	248FRA16U-21/2/248DREW16C-1-2	6	86	37		9,767	63.7	69.4
007	RU1401007	STG05L-45-056/STG05IMI-02-055	4	86	46		9,280	67.5	72.6
013	RU1301102	RU0801076/FRNS ANTER CULTURE LINE	4	88	42		9,267	66.7	73.5
003	RU1403003	Francis/ 8_13(IR140//Katy/Jasmine-85)	6	86	42		9,264	69.0	72.5
017	CL111	CL111	4	79	38	40	9,245	68.8	72.3
011	RU 1402011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	5	84	36		9,125	66.1	72.0
006	RU0803190	CPRS/CCDR	7	87	36		9,076	61.8	67.8
001	RU1305001	RU9901096/ZHE733	6	85	37		8,920	65.6	68.4
002	RU 1402002	9502008-A/DREW//CFX 26/WELLS/4/CPRS/3/CFX 29//AR 1142/LA 2031	4	84	39		8,890	67.4	71.2
012	RU0803147	LCSN/LGRU	6	85	38		8,663	67.1	73.8
019	PSDO	PRESIDIO	5	84	39		8,642	68.2	72.9
009	RU0903141	CPRS/9901081	6	86	40		8,294	69.3	74.2
005	RU 1402005	CL131/CHENIERE	5	85	33		8,080	69.1	73.4
014	RU1204154	CPRS//NWBT/KATY	6	86	35		7,917	69.2	73.8

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 2. Grain and milling yields and agronomic performance of entries in the 2014 Uniform Regional Rice Nursery, Group 2, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
039	LCST	Lekaste	4	79	44	67	11,171	69.7	76.7
037	JPTR	JUPITER	5	87	38		10,795	68.1	72.7
024	RU1201024	RU0301041/STG01L-37-069	5	88	44	10	10,266	69.4	77.7
040	FRNS	FRANCIS	4	84	42		9,936	68.7	74.4
025	RU 1402025	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	5	81	39		9,860	67.8	75.6
021	RU1301021	M206/STG99F5-07-118//JPTR	4	80	40		9,778	69.2	72.3
028	RU 1402028	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5	82	40		9,506	68.4	76.1
027	RU1301130	M206/STG03AC-21-047//JPTR	7	88	41		9,456	69.6	73.2
038	WLLS	WELLS	4	84	40		9,404	66.1	75.8
034	RU 1402034	CFX-18//CCDR/9770532 DH2/5/9502008/3/CPRS//82CAY21/…/4/CFX-18	5	84	39	17	9,361	73.6	77.6
031	RU 1402031	CATAHOULA/CL111	5	84	41		9,302	65.6	75.1
022	RU 1402022	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	5	85	39		9,224	70.3	76.2
035	RU1104077	8603006//3/MARS/NWRX//TBNT	5	80	40		9,151	68.1	75.8
023	RU1403023	Francis/ 8_13(IR140//Katy/Jasmine-85)	6	88	41		9,134	84.8	75.2
033	RU1204196	LMNT//TBNT/LA110	7	86	42	50	9,011	69.4	77.0
026	RU1003098	CPRS/NWBT//KATY/3/CCDR	5	82	39		8,965	72.3	77.8
030	RU1401030	RU0902125/CL131	6	85	35		8,770	72.0	77.8
029	RU0803153	CPRS/CCDR	6	83	38		8,769	68.5	76.9
036	RU1304197	Cheniere/Presido	6	88	41		8,725	72.0	76.7
032	RU1303138	IR64/IR 1321-12	8	154	37		6,858	66.6	73.7

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 3. Grain and milling yields and agronomic performance of entries in the 2014 Uniform Regional Rice Nursery, Group 3, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
060	CL271	CL271	3	84	38		10,900	61.8	72.3
051	RU 1402051	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	5	85	35		10,244	63.9	71.8
042	RU 1402042	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	85	40	30	9,983	66.2	73.3
055	RU1304154	8804032/Katy	6	83	40		9,613	66.5	72.7
048	RU 1402048	9502008-A/DREW//CLR 20/3/TAGGART	5	85	39		9,550	64.1	72.3
058	CHNR	CHENIERE	4	85	38		9,549	71.4	75.5
041	RU1201102	STG05IMI-02-028/STG03L-10-047	5	83	36		9,468	67.7	73.2
045	RU 1402045	JZMN/08CLR004//RU0802146/3/JZM2	5	85	40	23	9,414	70.1	73.2
053	RU1204114	248CO13E-1	6	83	40	20	9,338	67.4	72.1
054	RU1204122	248CO13E-1	5	85	40	10	9,327	70.2	74.5
047	RU1201047	STG01L-64-105/SPRN	4	86	42		9,276	74.5	73.6
044	RU1401044	RU0902125/CL131	5	84	39		9,212	68.8	74.3
043	RU0803181	CPRS/CCDR	5	82	37		9,058	70.9	75.4
049	RU0903147	CCDR/L202	5	82	36		9,035	71.8	76.1
052	RU0703181	CPRS/CCDR	5	85	41	10	8,974	67.4	73.6
050	RU1401050	CYBT/LM1//CHNR/3/ADAR/JDON//JEFF	5	84	39		8,927	62.8	71.0
056	RU1305178	RU0001081/LEMONT	4	81	40	10	8,872	65.5	73.2
057	REX	Rex	4	82	40		8,702	63.6	71.1
059	CCDR	COCODRIE	4	83	38		8,328	69.2	75.5
046	RU1303153	IR64/IR 1321-12	7	186	37		7,657	64.5	71.1

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 4. Grain and milling yields and agronomic performance of entries in the 2014 Uniform Regional Rice Nursery, Group 4, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
071	LAH10	LAH10	7	89	49	12,446	87	64.8	70.9
080	CFFY	CAFFEY	4	85	39	11,020		65.1	70.5
067	RU1401067	19991516/19951094//RNS3/RU9101001	4	83	44	10,581	33	62.7	71.1
079	ROYJ	ROY J	4	85	43	10,210	10	65.4	73.0
070	RU1401070	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	4	86	42	10,110		65.2	73.0
065	RU 1402065	NEPTUNE//BNGL/CL161	5	87	40	10,013		66.3	70.5
062	RU 1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	82	38	9,934		66.0	73.3
072	RU1303181	043752/0047277/CHEN	5	88	40	9,851		70.4	74.5
068	RU 1402068	NEPTUNE//BNGL/CL161	5	87	41	9,721		68.0	71.2
073	RU1304157	8804032/Katy	4	82	40	9,554		66.7	73.4
075	RU0903190	CPRS/CCDR	6	88	41	9,450		65.4	72.8
077	RU1204197	RSMT//8203035/GCHW	5	83	40	9,363		65.8	73.3
064	JES	JES	6	88	38	9,320		63.7	69.6
076	RU1201136	RU0301041/STG01L-37-069	5	88	43	9,308	23	68.9	75.1
074	RU1304156	IR36/8603006	5	86	44	9,170	33	73.6	76.8
063	RU1003153	CPRS/CCDR	6	84	37	8,873	10	68.6	73.7
078	RU1203190	CPRS/NWBT//KATY/3/CCDR	5	83	39	8,662		68.9	74.9
069	RU1403069	Francis/ 8_13(IR140//Katy/Jasmine-85)	8	87	42	8,590		67.7	73.3
066	RU0903086	SABR/CCDR	5	88	43	8,167		68.2	73.4
061	RU1401061	248FRA16U-21/6/NWBT/3/LBNT/9902//LBLE/4/LGRU/5/19981441	6	87	37	7,849		65.0	71.9

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 5. Grain and milling yields and agronomic performance of entries in the 2014 Uniform Regional Rice Nursery, Group 5, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
090	RU1401090	IRGA409/RXMT/5/LGRU//LMNT/RA73/3/LGRU/4/LGRU/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS	4	85	44	80	11,329	65.2	70.3
091	RU 1402091	CL131/3/CPRS/KBNT//9502008-A	6	83	37		10,490	65.9	72.6
093	RU1301093	LGRU//IRGA409/RXMT/3/CYBT/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	5	86	47	20	10,419	65.2	73.2
088	RU 1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	5	84	40		10,263	67.7	73.2
101	RU1403101	CPRS/JSMN	5	83	38		10,096	68.3	74.1
087	RU1401087	248WE16i-5/2/TGRT	4	85	42	20	9,840	65.9	72.2
102	RU1401102	JASM85/DREW//UA99-167	4	86	42	30	9,748	66.6	72.7
118	CL142	CL 142 AR	4	82	46	40	9,694	63.8	73.1
112	RU 1302112	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	5	82	40		9,684	65.7	72.4
096	RU1401096	KATY/NWBT//L201/7402003/3/WLLS/4/FRNS/6/LBNT/9902//NWBT/3/KATY/NWBT/5/IR36M4/4/L201/3/TTEP/	5	86	43	40	9,600	65.5	72.5
094	RU 1402094	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	5	83	40	30	9,528	67.3	72.7
111	RU1401111	JPTR/RU1001102	6	87	39		9,353	59.7	67.0
115	RU 1402115	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	83	39		9,295	69.2	74.1
097	RU 1402097	CL131/3/CPRS/KBNT//9502008-A	4	84	37		9,282	67.1	72.7
114	RU1304114	CFX-18(CL 161)/0004054	6	89	41		9,246	67.3	73.0
105	RU1401105	JZMN/PI597046	4	86	43	40	9,223	65.4	72.0
089	RU1403089	CPRS/9901081	5	84	40	15	9,197	68.7	73.8
108	RU1401108	JASM85/DREW//UA99-167	4	85	41	10	9,178	67.6	73.0
100	RU1304100	248CO13E-1	6	82	41	20	9,054	67.5	72.3
084	RU1301084	STG03AC-37-042(FRAN AC LINE)/RU0801076 (LGRU//KATY/STBN/5/NWBT/…	4	83	42		8,960	64.6	70.7
109	RU 1402109	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	5	82	40		8,954	67.3	72.9
099	RU1401099	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/RU9201179/7/RU9201127/4/…	4	84	45	35	8,950	66.7	73.4
120	CLJZ	CL-JAZZMAN	7	87	42		8,942		
103	RU 1402103	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	5	82	40		8,823	66.8	72.9

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
082	RU 1402082	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5	82	38		8,807	66.7	73.0
086	RU1203086	CCDR/L202	5	83	37		8,776	71.1	74.8
110	RU1403110	Deltabelle//LGRU/LCSN/CF4-85	5	85	40		8,769	67.3	72.3
113	RU1003113	CPRS/CCDR	6	87	42	20	8,745	67.6	74.7
106	RU 1402106	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	79	38	35	8,734	68.3	73.6
098	RU1403098	((NWBT/RU8303181)87:15034/R	5	83	39		8,707	67.7	72.4
116	RU1303116	CCDR/L202	5	82	37	10	8,688	65.5	71.4
083	RU1304122	IR36/8603006	5	86	43	45	8,652	70.6	74.1
085	RU 1402085	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	84	38		8,540	68.9	73.8
081	RU1401081	STG05-IMI-02-055/STG05IMI-01-113	7	89	35		8,504	55.0	74.3
095	RU1403095	M202/4/Katy BC5F4	8	79	39	85	8,426	65.9	69.4
107	RU1403107	CF4-69/CCDR//Sierra	6	84	41		8,359	73.3	77.3
117	JZMN 2	JAZZMAN-2	5	83	37		8,108	72.7	74.9
119	M206	M206	5	72	40	90	8,055	68.7	71.4
092	RU1303092	LD 183-3/Jasmine 85	7	88	39		7,199	65.9	71.8
104	RU1403104	M202/4/Katy BC5F4	8	81	41		7,005	64.7	69.5

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 6. Grain and milling yields and agronomic performance of entries in the 2014 Uniform Regional Rice Nursery, Group 6, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
158	DLLA 2	DELLA-2	4	85	41		11,148	65.6	71.7
130	RU1401130	CFFY/STG07M-07-096	5	80	41		10,824	66.2	69.6
137	RU 1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	5	83	42	85	10,434	63.4	71.6
160	TGRT	TAGGART	4	86	46	50	10,289	66.2	73.2
145	RU1401145	RU0801076/2/KBNT/Q36194	4	83	44	15	10,252	65.5	71.5
134	RU 1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	84	39		10,217	67.3	73.5
122	RU1404122	CPRS/NWBT	5	86	41	50	10,191	69.2	74.2
125	RU 1402125	BNGL/CL161//CAFFEY	4	87	38		10,173	66.8	70.7
155	RU1405155	BOLIVAR/DREW	4	83	43	35	10,023	65.9	71.9
142	RU1401142	TGRT/2/GP13416/KATY//PI312777	4	88	47	40	10,010	63.2	70.2
128	RU 1402128	BNGL/CL161/4/BNGL//MERC/RICO/3/EARL	5	86	40	10	9,776	66.9	69.1
131	RU 1402131	BNGL/CL161/4/9502065/3/MERC//MERC/…	5	85	41		9,749	69.9	71.9
140	RU 1402140	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	5	82	41	20	9,651	64.5	70.7
157	RU1404157	CPRS/NWBT	6	87	43		9,639	67.1	71.5
143	RU 1402143	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//…	5	78	41	40	9,574	69.5	73.7
121	RU1401121	CCDR//CCDR/JEFF/3/CL131	6	84	40		9,565	65.2	73.1
139	RU1401139	IRGA409/RXMT/5/BRAZ/TBNT/3/164986-4/NV66//NTAI/4/BNGL/6/LGRU//…	4	84	44	65	9,416	67.3	73.7
146	RU 1402146	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	83	40		9,378	67.8	73.8
133	RU1401133	RU0902125/CL131	6	86	40		9,377	67.2	73.4
127	RU1401127	CYBT/LM1//CHNR/3/ADAR/JDON//JEFF	5	81	40		9,357	64.9	72.0
148	RU1401148	LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT/6/ROYJ	4	86	42	10	9,342	60.9	70.5
147	RU1203147	FRAN/WELLS	6	90	41		9,263	65.1	72.1
136	RU1401136	CYBT/LM1/4/WLLS/PI597049/3/RSMT//NWBT/KATY/5/9901133/JEFF	5	84	39	15	9,243	66.3	72.3
124	RU1401124	RU0902125/CL131	6	83	39		9,230	65.1	73.0

Continued.

Table 6. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
156	RU1404156	CPRS//NWBT/C4-63	6	89	39		9,189	65.5	73.9
154	RU1404154	CPRS//NWBT/C4-63	5	89	40		9,007	64.1	70.3
152	RU 1402152	9502008-A//AR1188/CCDR/3/RU0602128	5	83	41	35	8,906	66.4	71.9
150	RU1403150	Deltabelle//LGRU/LCSN/CF4-85	5	85	39		8,807	65.7	70.6
129	RU1403129	RU0302195/CHEN	6	84	38	40	8,806	69.6	72.9
141	RU1403141	AC110DH2/AC108DH2//CHEN	6	83	36		8,613	70.6	74.0
153	RU1403153	L202/LQ39a//SABR	5	84	39		8,589	67.1	72.9
149	RU 1402149	JZMN/08CLR004//RU0802146/3/JZM2	5	84	39		8,560	67.2	71.0
144	RU1303144	CCDR/L202	5	81	38		8,531	69.9	74.5
159	RU0703144	CPRS/CCDR	4	83	39		8,488	66.6	72.7
151	RU1201151	STG05-IMI-02-055/CL142-AR	6	88	40		8,289	66.6	72.7
126	RU1403126	LGRU/LCSN/CF4-85//Sierra	6	85	41		8,174	69.1	74.2
138	RU1403138	043752/0047277/CHEN	7	90	39		8,169	65.0	72.5
135	RU1303135	CCDR/L202	5	82	39		8,023	64.2	71.4
123	RU1003123	CPRS/CCDR	6	85	42		7,969	66.7	74.1
132	RU1403132	SABR/CCDR	5	83	43	25	7,436	64.9	72.6

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 7. Grain and milling yields and agronomic performance of entries in the 2014 Uniform Regional Rice Nursery, Group 7, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
183	RU 1402183	CCDR/JEFF//TRNS	5	77	39		10,951	62.8	70.2
182	RU1401182	UAXH-6	7	87	49	85	10,882	48.8	66.5
173	RU1401173	UAXH-5	7	90	47	85	10,499	49.8	67.5
187	RU1405187	ALAN/BALDO	5	85	42	15	10,413	65.1	71.9
185	RU1401185	CYBT/LM1/4/WLLS/PI597049/3/RSMT//NWBT/KATY/5/9901133/JEFF	5	84	40		10,342	64.4	71.2
192	RU 1302192	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	5	83	40		10,272	65.9	69.7
174	RU 1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	5	85	38	10	10,141	64.5	72.2
178	RU1405178	BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	85	37		9,756	60.9	69.6
198	RU1404198	RSMT/KATY	6	88	40		9,750	62.1	71.2
188	RU1401188	RPG/WLLS/2/RU0801076	4	82	43		9,714	65.1	72.5
167	RU1401167	CYBT/LM1//CHNR/3/9901133/PI560239//CYBT	5	85	39		9,586	66.5	71.0
177	RU 1302177	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	79	40	35	9,572	65.5	72.3
170	RU1401170	CYBT/LM1//CHNR/3/9901133/PI560239//CYBT	4	83	41		9,525	68.8	72.8
164	RU1401164	CCDR//CCDR/JEFF/3/CL131	6	83	37		9,474	65.4	73.1
184	RU1303184	FRAN/LQ39a	6	86	39		9,449	71.5	74.5
161	RU1401161	STG05-IMI-02-055/STG05IMI-01-113	6	89	37		9,428	68.4	73.3
168	RU 1402168	CPRS/KBNT//9502008-A/3/RU0602180	4	84	41		9,309	66.7	73.3
180	RU 1402180	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	84	39	25	9,152	67.0	72.9
172	RU1303172	CPRS/NWBT//KATY/3/CCDR	5	86	38	15	9,110	72.2	75.3
190	RU1403190	LCSN/LGRU	6	83	38	20	9,051	66.6	72.3
162	RU 1402162	CCDR/AC622	5	82	39	25	8,968	65.7	72.7
195	RU 1402195	JZMN/2/08CLR004	5	84	41	15	8,907	62.3	69.9
200	CL152	CL152	5	85	40		8,855	69.2	73.3
193	RU1404193	Priscilla/Cheniere	6	84	37		8,851	66.4	73.4

Continued.

Table 7. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
175	RU1303175	AC110DH2/AC108DH2//CHEN	5	85	39		8,796	68.4	73.2
179	RU1401179	UAXH-53	7	86	41	15	8,658	52.3	66.8
171	RU 1402171	0702137/07SP160	5	67	38		8,643	67.7	71.3
181	RU1403181	CPRS/3/CPRS/NWBT/KATY	7	84	37	15	8,508	66.1	72.3
163	RU1303163	CPRS/SABR	5	82	40	35	8,270	68.5	73.8
194	RU1404194	DXBL//NWBT/KATY	4	85	43	35	8,210	71.1	75.0
165	RU 1402165	RU0802134/RU0902155	5	82	39	45	8,194	70.2	74.6
169	RU1203169	SABR/CCDR	5	90	44		8,193	64.5	70.7
197	RU1404197	CPRS/NWBT	7	90	40		8,130	63.7	70.8
196	RU1404196	CPRS//NWBT/C4-63	7	89	42		8,041	60.8	69.0
166	RU1403166	AC110DH2/AC108DH2//CYBT	5	89	40		8,022	66.5	70.4
191	RU1404191	CPRS//NWBT/C4-63	8	90	43		8,018	61.7	70.2
186	RU1404186	CPRS//NWBT/KATY	7	88	37		7,810	65.7	73.1
189	RU 1402189	JZMN//AC1027/97 KDM X2-1/3/0302125	5	85	40		7,151	60.7	70.3
176	RU1401176	UAXH-49	7	88	42	35	6,067	58.3	68.8
199	RONDO	RONDO	7	90	30		3,311	61.3	69.9

[1] Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

DATE OF PLANTING STUDIES

The purpose of these trials is to determine the grain yield, milling quality, and other agronomic characteristics of major rice varieties, experimental lines, and hybrids planted at various times. The choice of planting date can significantly impact growth, development, and yield, and the information generated from these trials is important for understanding the impact on the important economic and production characteristics associated with rice production.

Experiment: Date of Planting

Location: Rice Research Station, Crowley, Louisiana

Planting Method: Drill-seeded

Plot size: 4.66 x 16 ft

Planting Dates: March 14, March 27, April 11, May 1, May 13, May 27, June 9, and July 2

Entries: Caffey, Catahoula, Cheniere, CL111, CL151, CL152, CL271, CL-Jazzman, Jupiter, LAH10, Mermentau, and LA 2112

Experimental Design: Replicated complete block design with three replications.

Results: Results can be found in Tables 1-6, which are arranged across planting dates.

Table 1. Grain yields† of 12 rice varieties and experimental lines planted over eight planting dates, 2014. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 14	March 27	April 11	May 1	May 13	May 27	June 9	July 2	Mean
LAH10	11,911	11,475	10,146	6,859	10,063	7,279	7,281	5,465	8,810
CL151	9,569	9,811	8,539	8,115	8,074	6,345	5,969	4,841	7,658
CL152	9,401	8,451	8,238	9,073	7,963	6,301	5,216	4,331	7,372
CL271	9,494	10,051	8,952	8,680	7,008	5,952	4,555	4,073	7,346
LA 2112	9,352	9,365	8,728	7,704	7,777	6,348	4,732	4,290	7,287
JUPITER	9,284	9,336	8,103	10,009	8,119	5,042	3,728	3,697	7,165
CATAHOULA	8,665	7,992	7,932	9,968	7,808	5,805	3,841	4,320	7,041
CL111	9,420	9,299	7,793	7,028	7,675	5,688	4,809	4,405	7,014
CL-JAZZMAN	8,431	8,074	8,012	9,151	6,578	6,266	4,471	4,289	6,909
CAFFEY	8,640	8,117	8,498	9,367	7,238	4,968	2,968	3,619	6,677
CHENIERE	8,057	7,990	7,950	9,157	6,624	5,102	3,101	3,448	6,428
MERMENTAU	8,645	7,358	7,132	8,724	6,918	5,183	2,561	3,607	6,266
Mean	9,239	8,943	8,335	8,653	7,654	5,857	4,436	4,199	

† Yield is in pounds of rough rice per acre at 12% moisture.

Table 2. Seedling vigor† of 12 rice varieties and experimental lines planted over eight planting dates, 2014. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 14	March 27	April 11	May 1	May 13	May 27	June 9	July 2	Mean
CAFFEY	5	5	4	4	3	4	4	6	4
CATAHOULA	6	5	4	4	4	4	4	5	4
CHENIERE	6	5	5	4	4	5	4	5	5
CL111	5	4	4	3	3	3	3	3	4
CL151	5	4	4	4	3	4	3	3	4
CL152	5	5	4	4	4	4	3	4	4
CL271	4	4	3	3	3	3	3	3	3
CL-JAZZMAN	7	6	6	3	5	3	3	4	5
JUPITER	5	5	5	5	5	5	4	6	5
LAH10	6	7	5	4	5	4	4	4	5
MERMENTAU	5	5	5	4	3	5	4	6	5
LA 2112	5	4	4	3	3	3	3	3	4
Mean	5	5	4	4	4	4	4	4	

† Subjective rating of 1 to 9 where 1 is the highest seedling vigor and 9 is the lowest seedling vigor.

Table 3. Days to 50% heading of 12 rice varieties and experimental lines planted over eight planting dates, 2014. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 14	March 27	April 11	May 1	May 13	May 27	June 9	July 2	Mean
CAFFEY	89	83	85	77	73	74	68	69	77
CATAHOULA	89	82	81	76	73	75	69	65	76
CHENIERE	90	82	81	76	73	75	71	69	77
CL111	63	79	79	73	70	60	61	63	69
CL151	89	80	81	75	72	72	64	69	75
CL152	91	84	84	77	75	74	67	72	78
CL271	88	83	84	78	75	74	68	72	78
CL-JAZZMAN	92	85	84	77	76	73	67	73	78
JUPITER	90	85	82	78	73	74	70	71	78
LAH10	93	83	84	77	74	74	73	71	79
MERMENTAU	87	80	83	75	74	72	76	66	77
LA 2112	89	79	81	73	71	71	64	64	74
Mean	87	82	82	76	73	72	68	69	

Table 4. Plant height† of 12 rice varieties and experimental lines planted over eight planting dates, 2014. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 14	March 27	April 11	May 1	May 13	May 27	June 9	July 2	Mean
CAFFEY	37	36	37	41	40	35	34	34	37
CATAHOULA	38	40	36	41	41	40	36	37	39
CHENIERE	38	38	35	37	39	37	34	36	37
CL111	40	40	39	39	41	38	34	40	39
CL151	38	40	39	39	40	40	36	40	39
CL152	39	38	37	40	40	39	35	37	38
CL271	39	40	37	38	41	39	36	37	38
CL-JAZZMAN	42	42	41	42	42	42	37	37	41
JUPITER	38	38	37	38	39	36	33	33	37
LAH10	50	51	49	49	51	50	46	43	49
MERMENTAU	37	37	36	38	40	37	35	36	37
14 URN 112	40	42	40	41	41	40	36	39	40
Mean	40	40	39	40	41	39	36	37	

† Plant height in inches from the soil surface to the tip of the main panicle.

Table 5. Whole milling percentage† of 12 rice varieties and experimental lines planted over eight planting dates, 2014. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 14	March 27	April 11	May 1	May 13	May 27	June 9	July 2	Mean
CAFFEY	64.5	60.0	55.1	47.9	52.0	52.2	58.9	63.0	57
CATAHOULA	60.7	63.1	61.1	60.4	58.8	60.9	50.9	64.2	60
CHENIERE	69.9	67.3	66.8	64.9	65.0	63.7	66.3	65.4	66
CL111	64.1	63.2	63.4	64.4	62.2	61.2	54.1	65.4	62
CL151	64.3	63.8	49.0	58.4	62.7	60.1	61.2	62.1	60
CL152	67.7	67.1	60.2	64.9	64.2	65.0	59.7	65.4	64
CL271	68.0	67.9	62.5	61.5	62.4	65.1	52.9	58.6	62
CL-JAZZMAN	63.2	62.7	64.1	61.3	53.5	59.8	57.0	65.5	61
JUPITER	63.5	60.8	59.5	49.9	57.9	55.2	58.5	62.7	58
LAH10	63.0	63.9	60.2	60.4	60.9	62.6	62.1	57.7	61
MERMENTAU	65.9	66.0	63.9	64.0	59.9	65.8	59.4	64.3	64
14 URN 112	63.5	60.5	62.6	59.4	63.7	59.9	56.4	64.1	61
Mean	65	64	61	60	60	61	58	63	

† The percentage of unbroken grains after the removal of the hulls and broken grains.

Table 6. Total milling percentage† of 12 rice varieties and experimental lines planted over eight planting dates, 2014. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 14	March 27	April 11	May 1	May 13	May 27	June 9	July 2	Mean
CAFFEY	69.6	67.3	64.8	64.2	62.8	68.1	68.4	68.4	67
CATAHOULA	73.2	71.0	72.6	71.1	72.9	73.5	70.9	72.2	72
CHENIERE	75.0	73.3	75.0	74.2	74.6	75.3	74.5	71.2	74
CL111	69.2	69.2	73.4	73.7	72.5	73.2	70.5	71.7	72
CL151	71.5	70.4	67.2	69.6	72.1	72.8	72.1	70.4	71
CL152	72.4	72.1	70.7	73.6	73.7	75.3	71.0	71.4	73
CL271	71.0	70.5	69.3	69.0	69.1	72.0	67.7	69.4	70
CL-JAZZMAN	71.1	71.1	73.1	72.3	68.3	73.1	70.9	72.1	71
JUPITER	67.2	66.3	65.1	65.9	65.5	66.4	66.3	68.4	66
LAH10	69.5	69.2	68.0	69.0	68.9	71.5	70.6	68.4	69
MERMENTAU	71.0	72.7	72.0	72.5	71.2	75.2	70.1	70.8	72
14 URN 112	71.2	68.0	72.6	70.0	73.8	72.5	70.6	71.4	71
Mean	71	70	70	70	70	72	70	71	

† The cumulative percentage of broken and unbroken grains after the removal of the hulls.

DEVELOPMENT OF HYBRID RICE AND SHEATH BLIGHT-RESISTANT GERMPLASM FOR LOUISIANA

J.H. Oard, W. Li, S.D. Linscombe, D.L. Harrell, D.E. Groth, and T.C. Barrilleaux

INTRODUCTION

Hybrid rice, produced from the first generation (F_1) of seeds between a cross of two genetically dissimilar pure line (inbred) parents, represents a relatively new option for Louisiana farmers. Commercial hybrids typically yield 10-20% more than the best inbreds grown under similar conditions believed to be the result of hybrid vigor or heterosis from crossing the two parents. Research goals of the Hybrid Rice program at the Rice Research Station include: 1) development of male sterile lines (cytoplasmic A or environmental sensitive S), restorer (R) and maintainer (B) lines adapted to the southern U.S. environmental conditions; 2) identifying elite cross combinations through extensive test-crossing; and 3) exploring the feasibility of economical hybrid seed production.

The 2014 advanced hybrid, disease evaluation, uniform regional nursery, and seed treatment trials were carried out in Acadia and St. Landry parishes. The 2014 Observational Trial evaluated 1,200 new test-cross hybrid combinations for grain yield and agronomic and milling performance. Additional nurseries at the Rice Station included 3,500 rows for male sterile S line development and 2,200 rows for restorer R and maintainer B line development. Three 3-line male steriles were developed with Louisiana backgrounds, and 22 two-line male steriles were selected and advanced. Seed treatment experiments with the goal to maximize hybrid seed production were conducted with 11 Louisiana elite lines at the Rice Research Station. DNA technology was used to identify and validate more than 10 new candidate markers for low chalk percentage in hybrids and inbred varieties.

To complement the existing Clearfield herbicide technology, the Rice Research Station is currently developing inbred and hybrid varieties that are resistant to the quizalofop-p-butyl herbicide for control of grass weeds. Inheritance studies for resistance to quizalofop-p-butyl and advancement of elite breeding lines for hybrid development were carried out in 2014.

Sheath blight disease caused by the fungus *Rhizoctonia solani* is a major constraint for high grain and milling yields. Our goal is to develop sheath blight-resistant germplasm by traditional crossing and selection in conjunction with DNA marker technology. A total of 150 crosses for sheath blight resistance were made in 2014. In addition, 600 F_1 plants, 59 backcross (BC) populations, and 49 space-planted F_2 populations were evaluated. A total of 610 early and advanced lines were tested in inoculated field plots at the Rice Research Station. DNA technology was used to accelerate development of 29 BC populations for sheath blight resistance.

Advanced Hybrid Yield Trials

The objective of the Advanced Hybrid Yield Trials is to evaluate agronomic and milling performance of selected entries at multiple locations for grain yield and head rice yields, maturity, and height. The four trials were planted March 13 to March 25, 2014, at the seeding rate of ~35 lb/A. Results from these trials are shown in Tables 1 to 4. As shown in Tables 1, 3, and 4, the five hybrids 08A/12XB4, LAH10, LAH169, LAH25, and LAH28 showed high yield potential with good milling performance across the different locations versus the check XL723. The early-maturing, conventional long-grain LAH169 exhibited good yield potential and good grain appearance and uniformity with low endosperm chalk values. Six long-grain Clearfield hybrids exhibited high yield potential and excellent head rice yields in the Advanced Yield Trial II as shown in Table 2.

Table 1. 2014 Advanced Yield Trial I, hybrid entries, Rice Research Station, Crowley, LA.

Entry	Type†	50% Heading Date	Plant Height (inches)	Main Yield (lb/A)	Ratoon Yield (lb/A)	Total Yield (lb/A)	Main % Head/ Total
LAH10	M	101	49	11,590	2,493	14,083	63/72
XL723	L	95	43	11,352	2,589	13,941	57/73
08A/12XB4	L	102	47	11,019	2,881	13,899	59/72
LAH25	L	106	48	11,676	1,897	13,573	60/74
08A/12XB1	L	91	47	10,021	2,718	12,738	55/71
LAH169	L	94	45	10,131	2,506	12,637	64/73
08A/R608	M	99	46	10,473	2,108	12,581	62/73
LAH28	L	113	56	9,407	1,677	11,570	62/72
08A/CL131	L, CL	92	44	9,724	1,677	11,401	58/73

† L = long-grain, M = medium-grain, and CL = Clearfield.

Table 2. 2014 Advanced Yield Trial II, hybrid entries, Rice Research Station, Crowley, LA.

Entry	Type†	50% Heading Date	Plant Height (inches)	Main Yield (lb/A)	Main % Head/ Total
14PYH26	L, CL	89	45	12,516	74/77
CLXL729	L, CL	86	43	12,312	64/74
14PYH28	L, CL	88	45	12,114	70/75
14PYH22	L, CL	88	42	11,653	69/75
14PYH32	L, CL	89	44	11,344	69/74
14PYH21	L, CL	88	42	11,324	64/74
14PYH27	L, CL	89	46	11,074	67/74
CL152	L, CL	86	38	8,921	70/73

† L = long-grain and CL = Clearfield.

Table 3. 2014 Demonstration Yield Trial, LAH169, XL723, and CL111, Rice Research Station, Crowley, LA.

Entry	Type†	50% Heading Date	Plant Height (inches)	Main Yield (lb/A)	Main % Head/ Total
LAH169	L	82	40	13,466	66/75
XL723	L	85	41	11,138	59/74
CL111	L, CL	86	38	7,088	64/75

† L = long-grain and CL = Clearfield.

Table 4. 2014 Advanced Yield Trial, hybrid entries, St. Landry Parish, LA.

Entry	Type†	50% Heading Date	Plant Height (inches)	Main Yield (lb/A)	Main % Head/ Total
08A/12XB4	L	106	48	12,503	60/74
LAH25	L	95	43	12,471	57/73
LAH10	M	97	50	11,467	63/72
08A/CL131	L, CL	88	43	11,352	59/72
XL723	L	92	47	11,154	62/73
08A/R608	L	95	48	11,037	64/73
LAH28	L	109	58	10,821	55/71
08A/12XB1	L	92	44	10,186	58/73
LAH169	L	91	47	10,129	62/72

† L = long-grain, M = medium-grain, and CL = Clearfield.

Observational (Testcross) Trial

The objective of the Observational Trial is to identify new hybrid combinations with high grain yield, good milling performance, height, maturity, lodging percentage, and other agronomic characteristics. Planting date was March 25, 2014. The total number of single-row plots for this trial was 1,865. Testcrosses consisted of F_1 seeds derived from introduced Chinese male sterile lines mated with elite Louisiana long-grain or Chinese genotypes in 2012 and 2013. A total of 49 three-line and 21 two-line candidate hybrids produced >10% higher yields than the inbred check CL111. Thirty-five hybrid selections produced greater yields than the commercial check XL723. Results from seven selected hybrids and three check varieties are shown in Table 5. Five selected hybrids produced >20% grain yield vs. CL152. All selections produced higher yields than the commercial hybrid CLXL729, and five selections generated higher yields than XL723. Milling performance of selected lines was similar to that of the check CL152. From all testcross lines, five were identified with low chalk values similar to those of CL152 and CL111. In related studies, 63 southern long-grain varieties/lines were found to have either partial or full restoring ability to Chinese 3-line male steriles, and 28 southern long-grain varieties/lines were found to have either partial or full restoring ability to Chinese 2-line male steriles.

Table 5. Selected hybrids from the Observational (Testcross) Trial, Rice Research Station, 2014.

Hybrid/Variety	Pedigree	Days to 50% Heading	Height (inches)	Yield (lb/A)	Head Rice/ Total	Notes
14TC1536	18521/13GH23	88	43	16,422	65/73	M, 2-Line
14TC1517	16138/13GH26	93	46	13,511	64/73	L, 2-Line
14TC627	13S1025-1 /RU1302168	90	50	11,844	69/76	L, 2-Line
14TC1765	28A/2145	87	44	11,680	67/73	L, 3- line
14TC1514	16138/13GH19	92	46	11,648	70/72	L, 3-Line
XL723	?	86	48	11,352	59/74	L, ?-Line
14TC147	13S209-1 /URN094	90	48	10,025	72/75	M, CL, 2-Line
14TC209	13S210-2 /URN168	87	49	9,993	72/74	M, CL, 2-Line
CLXL729	?	83	46	9,879	68/74	L, CL, ?-Line
CL152	TACAURI/3/CYPRESS//L-202/….CL161	86	38	8,921	70/73	L, Pure Line

† L = long-grain, M = medium-grain, and CL = Clearfield.

Uniform Regional Rice Nursery

The Uniform Regional Rice Nursery (URN) is a multi-state, cooperative trial carried out each year in the southern U.S. to evaluate agronomic performance of advanced inbred and hybrid lines. Table 6 shows heading date, height, and grain yield for five hybrids and two inbred entries of the 2014 URN conducted at the Rice Research Station. High yield potential was observed for Louisiana hybrid LAH10 and moderately high to low yields for the four hybrids from Arkansas.

Table 6. 2014 Uniform Regional Rice Nursery, Rice Research Station, hybrid entries.

Hybrid/Variety	RU #	Days to 50% Heading	Height (inches)	Yield (lb/A)	Origin
LAH10	1402071	89	49	12,446	LA
UAXH-5	1401173	90	47	10,499	AR
UAXH-6	1401182	87	49	10,882	AR
CL151	CL151	84	38	10,178	LA
CL111	CL111	79	38	9,245	LA
UAXH-53	1401179	86	41	8,658	AR
UAXH-49	1401176	88	42	6,067	AR

Disease Evaluation Nursery

The purpose of the Disease Evaluation Nursery is to determine response of selected hybrids to infection by fungal pathogens that cause sheath blight, leaf blast, rotten neck blast, and bacterial panicle blight. Table 7 shows that all hybrids exhibited moderate to high levels of tolerance to the four diseases vs. the checks, CL111, CL151, CL152, and Mermentau.

Table 7. Disease ratings of LA and AR hybrids and varieties for sheath blight, leaf blast, rotten neck blast, and bacterial panicle blight, Rice Research Station, Crowley, LA, 2014.

Hybrid/Variety	Sheath Blight (0-9)†	Leaf Blast (0-9)	Rotten Neck Blast (0-9)	Bacterial Panicle Blight (0-9)	Origin
LAH10	4.5	2.0	0.0	0.5	LA
UAXH-5	3.0	1.5	1.0	1.0	AR
UAXH-6	4.0	0.0	0.0	2.0	AR
UAXH-53	4.5	0.0	0.0	1.0	AR
UAXH-49	4.0	0.0	0.0	2.0	AR
LAH169	4.4	0.6	1.0	2.1	LA
XL753	4.0	0.3	1.2	2.0	RiceTec
CL152	6.5	0.0	1.0	4.0	LA
CL151	6.8	0.6	0.0	3.8	LA
CL111	6.3	1.1	2.5	4.8	LA
Mermentau	5.8	0.0	0.0	2.3	LA

† 0-9 rating scale, where 0 = no disease and 9 = dead plant.

Genetic Studies of Resistance to quizalofop-p-butyl Herbicide

The Rice Research Station is currently developing inbred and hybrid varieties that are resistant to the quizalofop-p-butyl herbicide for control of grasses that will complement the existing Clearfield technology. It is important to determine the genetic control of resistance to quizalofop-p-butyl for optimal breeding strategies and outcomes. Tables 8 to 10 show segregation of resistance to quizalofop-p-butyl in 16 F_2 and backcross (BC) populations. All results indicate that resistance to quizalofop-p-butyl at the 2X field rate (30.1 oz/A) is controlled by a single, dominant gene that acts in a predictable Mendelian fashion. Reciprocal crosses as shown in Table 10 indicate that maternal factors had no impact on the segregation or level of resistance to quizalofop-p-butyl.

Table 8. Segregation of resistance to quizalofop-p-butyl in four F_2 populations, Rice Research Station, 2014.

F_2		Number of Plants		Percentage		Pr of	Interpre-
Population	Cross	Resistant	Susceptible	Resistant	Susceptible	ChiSq	tation
13BT029	Cypress/BASF 2-26	60	20	75%	25%	1.0000	Fit 3:1
13BT033	Cheniere/BASF 1-2	44	23	66%	34%	0.0778	Fit 3:1
13BT047	Catahoula/BASF 1-5	50	19	72%	28%	0.6266	Fit 3:1
13BT059	Cheniere//Cocodrie/Jefferson/ 3/BASF 2-26	56	27	67%	33%	0.1131	Fit 3:1

Table 9. Segregation of resistance to quizalofop-p-butyl in six BC_1F_1 populations, Rice Research Station, 2014.

BC_1F_1	Parents		Number of Plants		Percentage		Pr of	Interpre-
Population	Male	Female	Resistant	Susceptible	Resistant	Susceptible	ChiSq	tation
14HT1	13HT-5	Cocodrie	9	10	47%	53%	0.8185	Fit 1:1
14HT2	13HT-32	Cocodrie	10	10	50%	50%	1.0000	Fit 1:1
14HT6	13HT-16	Mermentau	14	20	41%	59%	0.3035	Fit 1:1
14HT7	13HT-23	Mermentau	10	17	37%	63%	0.1779	Fit 1:1
14HT5	13HT-13	Catahoula	12	14	46%	54%	0.6949	Fit 1:1
14HT8	13HT-31	R609	14	10	58%	42%	0.4142	Fit 1:1

Table 10. Seed germination segregation of resistance to quizalofop-p-butyl in six F_2 populations, Greenhouse.

F_2		Number of Plants		Percentage		Pr of	Interpre-
Population	Cross	Resistant	Susceptible	Resistant	Susceptible	ChiSq	tation
13HT1-2	Cocodrie/BASF 1-8	57	29	66%	34%	0.06	Fit 3:1
13HT21-6	BASF 1-8/Cocodrie	60	28	68%	32%	0.1396	Fit 3:1
13HT9-4	Cheniere/BASF 1-15	61	27	69%	31%	0.2184	Fit 3:1
13HT30-4	BASF 1-15/Cheniere	65	21	76%	24%	0.9009	Fit 3:1
13HT16-5	Mermentau/BASF 1-8	68	20	77%	23%	0.6225	Fit 3:1
13HT23-2	BASF 1-8/Mermentau	63	19	77%	23%	0.7021	Fit 3:1

Development of Sheath Blight-Resistant Germplasm

Table 11 shows disease ratings, plant height, and days to heading for 29 improved sheath blight-resistant lines developed by a combination of traditional crossing, DNA marker, and *in-vitro* cell (anther) culture technologies. Certain selected lines showed similar height, maturity, and grain type compared to the Cheniere, Cocodrie, and CL111 checks.

Table 11. Breeding lines resistant to sheath blight disease in 2014 field and greenhouse trials.

Line/Variety	SB Rating*	Plant Height (in)	Days to Heading
533-7-1	3.5	31	75
256-11-13	3.8	33	69
129-4-3-2	4.0	34	78
256-5-11-20	4.1	31	82
129-4-3-1	4.2	33	72
256-5-11-3	4.3	36	84
256-5-11-13	4.3	32	80
129-4-3-25	4.4	37	80
129-4-11	4.7	39	76
129-4-3-26	4.6	35	83
129-4-3-6	4.6	39	82
129-4-3-10	4.7	42	80
193-10-11-1	4.6	33	71
256-5-11-19	4.7	33	83
129-4-3-14	4.9	38	77
539-7-3	5.0	35	72
201	4.0	39	nd†
197	4.0	36	nd
194	4.0	35	nd
192	4.0	33	nd
191	4.0	35	nd
190	4.0	36	nd
189	4.0	37	nd
188	4.0	37	nd
187	4.0	36	nd
186	4.0	33	nd
168	4.0	40	nd
226	4.0	37	nd
228	4.0	38	nd
Resistant and susceptible checks			
OL5	3.0	46	82
MCR	3.5	37	70
CIAT 7	3.0	43	97
SB2-3	4.6	33	83
Cocodrie	7.1	35	68
CL111	7.0	36	65
Cheniere	7.0	99	66

*0-9 scale, where 0 = no disease, 9 = dead plant, mean of 1 field and 1 greenhouse trial.
†nd = no data collected.

Seed Treatment Studies for Hybrid Seed Production

Synchrony of flowering between parents is crucial for high hybrid rice seed yields. A BASF seed treatment compound was evaluated for delay of germination for 11 Louisiana inbred varieties and lines in a 2014 replicated trial at the Rice Research Station. Low rates of the compound were ineffective in delay of germination. However, higher concentrations delayed heading date seven to nine days for some varieties. Slight to moderate decreases in percentage of germination were observed at higher concentrations for some varieties. Heading dates for varieties CL152 and R608 treated with 0 to 21.8% BASF compound are shown in Figures 1 and 2.

Figure 1. Heading dates for CL152 treated with 0 to 21.8% BASF compound.

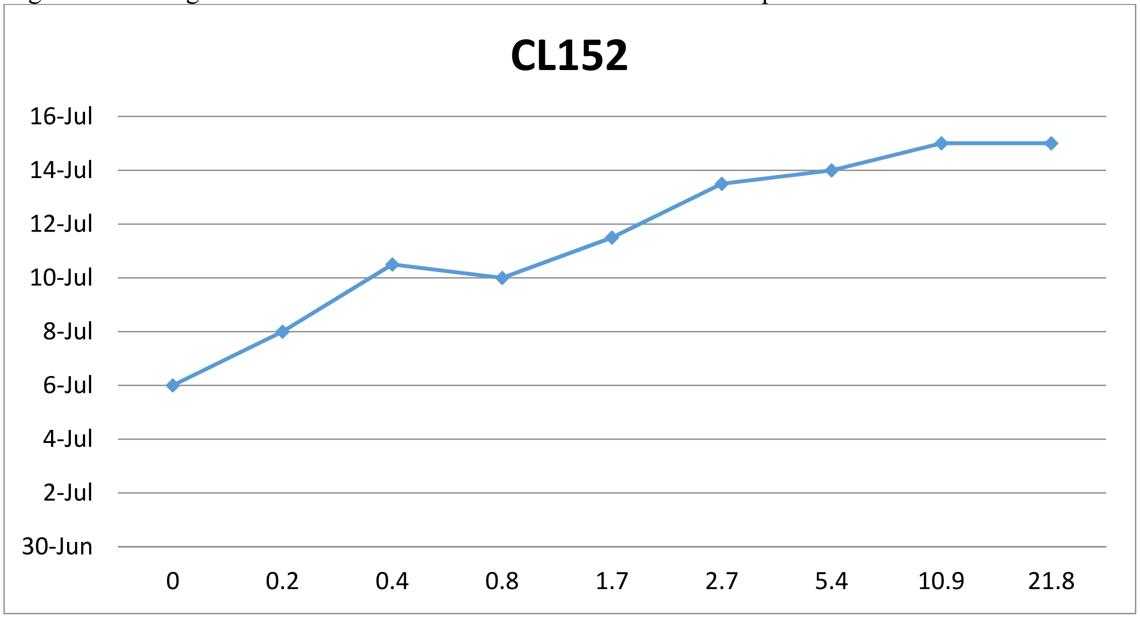
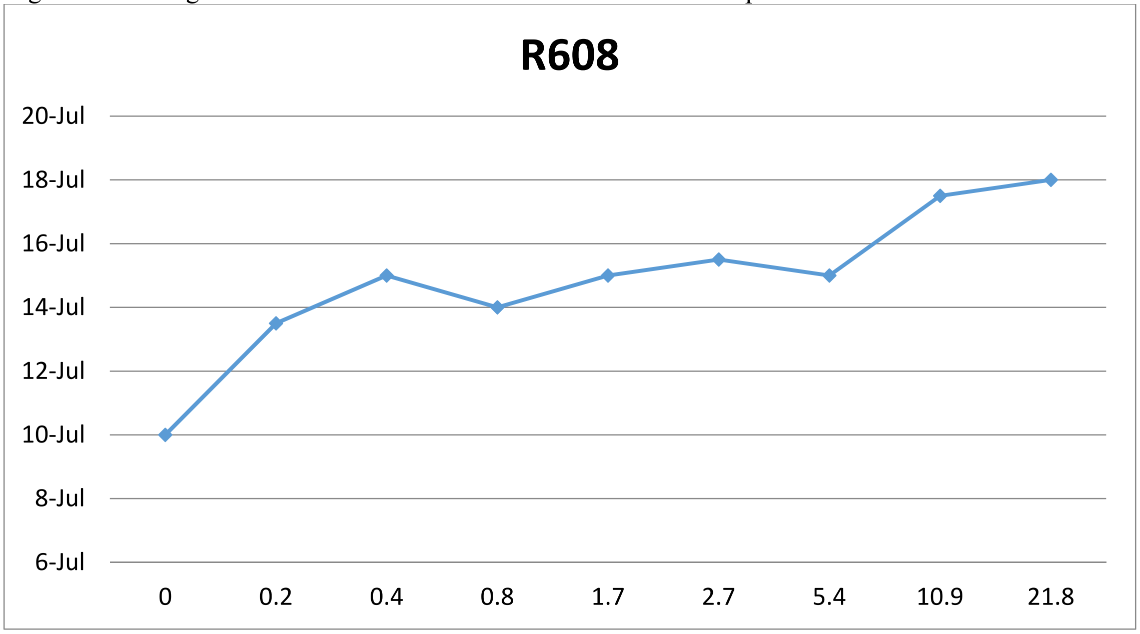


Figure 2. Heading dates for R608 treated with 0 to 21.8% BASF compound.



MARKER-ASSISTED BREEDING AND GENETIC IMPROVEMENT OF SOUTHERN U.S. RICE

H.S. Utomo and S.D. Linscombe

1. Multi-Location Trials

Multi-location trials were conducted to evaluate five advanced lines developed from marker-assisted selections in collaboration with Dr. Steve Linscombe for their performance under different environments and management practices. The testing locations were in Jefferson Davis and Vermilion parishes and the Rice Research Station near Crowley. The tests were conducted to evaluate their yield potential, milling performance, and other agronomic traits in addition to marker-based selection for disease-resistant traits (Tables 1-3).

Table 1. Agronomic performance of advanced marker-assisted breeding lines in the 2014 Multi-Location Commercial-Advanced (CA) trials, Lake Arthur, LA.

Entry	Line ID	VIG[1]	HDT	HTE	YIELD	DNA Marker Analysis for Amylose Cont.	DNA Marker Analysis for Amylose ALK
14HUV 001	01MB081	5	177	96	9793.5	High Amylose	High/Intermediate GT
14HUV 002	01MB376	5	183	105	9343.1	High Amylose	High/Intermediate GT
14HUV 003	00MB248	5	178	91	8935.7	High Amylose	High/Intermediate GT
14HUV 004	02MB188	5	180	99	8379.5	High Amylose	High/Intermediate GT
14HUV 005	02MB211	5	183	96	8636.7	High Amylose	High/Intermediate GT
	CCDR	5	185	94	8179.1		

[1]Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 2. Agronomic performance of advanced marker-assisted breeding lines in the 2014 Multi-Location CA trials, Evangeline, LA.

Entry	Line ID	VIG[1]	HDT	HTE	YIELD	DNA Marker Analysis for Amylose Cont.	DNA Marker Analysis for Amylose ALK
14HUV 001	01MB081	5.3	187.0	39.7	8994.7	High Amylose	High/Intermediate GT
14HUV 002	01MB376	4.7	186.3	41.7	9445.6	High Amylose	High/Intermediate GT
14HUV 003	00MB248	4.3	185.3	41.0	9444.4	High Amylose	High/Intermediate GT
14HUV 004	02MB188	4.7	185.7	42.0	9980.5	High Amylose	High/Intermediate GT
14HUV 005	02MB211	4.7	185.3	40.3	9314.5	High Amylose	High/Intermediate GT
	CCDR	5.3	188.7	40.3	8429.2		

[1]Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

Table 3. Agronomic performance of advanced marker-assisted breeding lines in the 2014 Multi-Location CA trials, Rice Research Station, LA.

Entry	Line ID	VIG[1]	HDT	LDG	YIELD (main crop)	YIELD (total)	DNA Marker Analysis for Amylose Cont.	DNA Marker Analysis for Amylose ALK
14HUV 001	01MB081	4.7	175.7	43.3	7457.9	10418.3	High Amylose	High/Intermediate GT
14HUV 002	01MB376	4.7	177.7	66.7	8058.8	10736.2	High Amylose	High/Intermediate GT
14HUV 003	00MB248	5.0	178.0	20.0	7222.1	9388.1	High Amylose	High/Intermediate GT
14HUV 004	02MB188	4.7	177.0	40.0	8448.3	10981.0	High Amylose	High/Intermediate GT
14HUV 005	02MB211	4.0	176.3	23.3	7680.4	10173.4	High Amylose	High/Intermediate GT
	CCDR	4.3	177.3	46.7	8113.5	10060.8		

2. Headrow Selections

Selections for high yielding lines with good growth characteristics and disease resistance were conducted in headrow trials. Performance of some selected lines is presented in Table 4. In addition, marker-assisted breeding efforts continued including introgression of important genes, such as drought-tolerant, cold-tolerant (at seedling stage), salt-tolerant, aroma (Jasmine), grain weight, and panicle blight-resistant genes from outside the U.S. genetic pool into adapted Louisiana cultivars and breeding lines. The resulting progeny lines were advanced through the breeding process.

Table 4. Agronomic performance of new selected lines from marker-assisted breeding in the 2014 field trials, Rice Research Station, LA.

No.	Plant ID	Blast Genes	Grain Type§	Vigor¶	Plant Height (cm)	Heading Date	Row Yield (g)	Amylose Content	Gel Temp	Row Yield (g)
1	10F123	Pi-ta^2,Pi-b	L	1	84	89	801	Int Am	Int Gel	751
2	101234	Pi-ta^2,Pi-b	L	3	71	91	728	Int Am	Int Gel	828
3	10F243	Pi-ta^2,Pi-b	L	2	81	83	694	Int Am	Int Gel	691
4	10F246	Pi-ta^2,Pi-b	L	2	79	96	629	Int Am	Int Gel	529
5	10F247	Pi-ta^2,Pi-b	L	1	79	86	590	Int Am	Int Gel	580
6	10F264	Pi-ta^2,Pi-b	L	2	80	79	499	Int Am	Int Gel	599
7	10F285	Pi-ta^2,Pi-b	L	1	83	83	547	Int Am	Int Gel	577
8	10F286	Pi-ta^2,Pi-b	L	1	78	92	696	Int Am	Int Gel	698
9	10F291	Pi-ta^2,Pi-b	L	2	81	91	567	Int Am	Int Gel	557
10	10F292	Pi-ta^2,Pi-b	L	2	78	93	774	Int Am	Int Gel	674
11	10F299	Pi-ta^2,Pi-b	L	2	77	93	482	Int Am	Int Gel	581
12	10F425	Pi-ta^2,Pi-b	L	2	76	89	572	Int Am	Int Gel	570
13	10F726	Pi-ta^2,Pi-b	L	2	81	85	569	Int Am	Int Gel	469
14	10F738	Pi-ta^2,Pi-b	L	2	81	90	607	Int Am	Int Gel	666
15	10F793	Pi-ta^2,Pi-b	L	1	81	79	788	Int Am	Int Gel	587
16	10F822	Pi-ta^2,Pi-b	L	2	83	81	560	Int Am	Int Gel	660
17	10F823	Pi-ta^2,Pi-b	L	4	84	87	674	Int Am	Int Gel	677
18	10F826	Pi-ta^2,Pi-b	L	2	79	82	576	Int Am	Int Gel	588
19	10F904	Pi-ta^2,Pi-b	L	2	81	84	666	Int Am	Int Gel	600
20	10F905	Pi-ta^2,Pi-b	L	1	79	71	590	Int Am	Int Gel	580
21	10F991	Pi-ta^2,Pi-b	L	1	75	79	667	Int Am	Int Gel	668
22	10F934	Pi-ta^2,Pi-b	L	1	73	89	590	Int Am	Int Gel	580
23	10F954	Pi-ta^2,Pi-b	L	1	88	82	623	Int Am	Int Gel	523
24	10F959	Pi-ta^2,Pi-b	L	1	85	69	567	Int Am	Int Gel	763
25	10F967	Pi-ta^2,Pi-b	L	2	87	84	589	Int Am	Int Gel	688
26	10F980	Pi-ta^2,Pi-b	L	1	79	91	695	Int Am	Int Gel	685
27	10F981	Pi-ta^2,Pi-b	L	1	84	89	777	Int Am	Int Gel	577
28	10F985	Pi-ta^2,Pi-b	L	1	87	88	580	Int Am	Int Gel	486
29	10F1001	Pi-ta^2,Pi-b	L	3	82	85	667	Int Am	Int Gel	671
30	10F1076	Pi-ta^2,Pi-b	L	3	81	81	458	Int Am	Int Gel	555
31	10F1145	Pi-ta^2,Pi-b	L	1	80	81	677	Int Am	Int Gel	636
32	10F1146	Pi-ta^2,Pi-b	L	2	79	91	667	Int Am	Int Gel	661
33	10F1148	Pi-ta^2,Pi-b	L	1	79	78	434	Int Am	Int Gel	554
34	10F1209	Pi-ta^2,Pi-b	L	2	77	72	555	Int Am	Int Gel	515
35	10F1210	Pi-ta^2,Pi-b	L	2	80	79	790	Int Am	Int Gel	750
36	10F1244	Pi-ta^2,Pi-b	L	2	80	82	487	Int Am	Int Gel	486
37	10F1265	Pi-ta^2,Pi-b	L	1	82	82	577	Int Am	Int Gel	599
38	10F1268	Pi-ta^2,Pi-b	L	1	82	79	767	Int Am	Int Gel	677
39	10F1269	Pi-ta^2,Pi-b	L	1	81	87	533	Int Am	Int Gel	537
40	10F1298	Pi-ta^2,Pi-b	L	1	82	82	789	Int Am	Int Gel	689

Continued.

Table 4. Continued.

No.	Plant ID	Blast Genes	Grain Type§	Vigor¶	Plant Height (cm)	Heading Date	Row Yield (g)	Amylose Content	Gel Temp	Row Yield (g)
41	10F1299	Pi-ta^2,Pi-b	L	2	79	82	569	Int Am	Int Gel	769
42	10F1301	Pi-ta^2,Pi-b	L	2	78	78	779	Int Am	Int Gel	789
43	10F1344	Pi-ta^2,Pi-b	L	1	86	81	671	Int Am	Int Gel	670
44	10F1355	Pi-ta^2,Pi-b	L	2	81	79	649	Int Am	Int Gel	669
45	10F1367	Pi-ta^2,Pi-b	L	2	80	92	705	Int Am	Int Gel	765
46	10F1369	Pi-ta^2,Pi-b	L	2	88	87	576	Int Am	Int Gel	556
47	10F1391	Pi-ta^2,Pi-b	L	1	90	80	453	Int Am	Int Gel	653
48	10F1403	Pi-ta^2,Pi-b	L	2	82	82	659	Int Am	Int Gel	659
49	10F1433	Pi-ta^2,Pi-b	L	1	83	89	789	Int Am	Int Gel	789
50	10F1466	Pi-ta^2,Pi-b	L	1	89	88	556	Int Am	Int Gel	556

§L= Long grain; ¶Subjective rating 0 to 9, where 0 = excellent, 9 = poor.

3. Selections to Improve Grain Quality

Efforts are being carried out to select for the consistency and homogeneity of grain size and appearance. In addition, selections were also conducted to reduce the percent of chalk among progeny lines. Potential lines that were selected and will be advanced in next growing season are listed in Table 5.

Table 5. 2014 Agronomic performance of lines selected for yield, grain homogeneity, and percent chalk, Rice Research Station, LA.

Lines	Grain Type§	Yield (row)	Grain Homogeneity¶	% Chalk	Amylose Content	Gel Temp	Blast
09R-1567	L	801	7.5	15	High	Intermediate	Pita, Pib
09R-1678	L	728	8.0	10	High	Intermediate	Pita, Pib
09R-2445	L	694	8.5	5	Intermediate	Low	Pib
09R-2562	L	629	8.0	11	High	Intermediate	Pita
09R-2566	L	590	8.5	5	High	Intermediate	Pita, Pib
09R-2765	L	499	8.0	12	High	Intermediate	Pita
09R-5677	L	547	8.5	7	Intermediate	Low	Pita, Pib
09R-5788	L	696	8.0	10	High	Low	Pita, Pi-z
09R-5898	L	567	8.0	7.5	High	Intermediate	Pita, Pib
09R-6077	L	774	8.5	7.5	Intermediate	Intermediate	Pita
09R-6078	L	482	9.0	5	High	Intermediate	Pita
10R-124	L	572	8.5	2	High	Intermediate	Pib, Piz
10R-128	L	569	9.0	1	Intermediate	Intermediate	Pita, Pib
10R-188	L	607	9.0	3	High	Intermediate	Pita
10R-198	L	545	9.0	9	High	Intermediate	Pita
10R-356	L	643	9.0	6	High	Intermediate	Pita
10R-366	L	599	9.0	10	High	Intermediate	Pita, Pib
10R-424	L	754	8.5	11	High	Low	Pita, Pib
10R-566	L	765	8.5	4	High	Intermediate	Pita, Pib
10R-767	L	775	9.0	3	Intermediate	Intermediate	Pita, Pi-z

RICE NUTRITION ENHANCEMENT PROJECT:
HIGH-PROTEIN LINE DEVELOPMENT AND GRAIN NUTRITIONAL QUALITY

I. Wenefrida, H.S. Utomo, and S.D. Linscombe

1. Multi-Location Trials.

Advanced high-protein lines were evaluated in the multi-location trials to determine their performance under different growing conditions in southwest Louisiana. Important phenotypic data including grain yield (main crop and in some occasions ratoon crop) were collected. Tables 1 to 3 are the summaries of mean performance of five high-protein rice lines together with three conventional cultivar checks evaluated in Evangeline, Lake Arthur, and Rice Research Station sites. The protein content of each line tested was measured using the N Combustion Analyzer with the sample digestion temperature of 850 to 1200°C.

Table 1. Field performance of high-protein rice lines and their cultivar controls in Multi-Location Commercial-Advanced (CA) trials, Evangeline, LA.

Entry	Pedigree	VIG	HDT	HTE	Yield (lb/A)	Protein Content (%, w/w)
14IDE 001	06P200055	5.0	183.0	38.3	7950.1	10.88
14IDE 002	06P200497	5.3	191.7	39.3	7519.5	10.64
14IDE 003	07P201570	5.0	191.0	40.3	8569.2	10.45
14IDE 004	08P210027	4.3	191.3	40.3	8187.7	11.06
14IDE 005	09P212009	5.0	190.7	38.7	8677.1	11.38
14IDE 006	CPRS	4.0	191.3	40.3	8058.4	7.25
14IDE 007	CCDR	9.0	193.0	39.0	4505.8	7.13
14IDE 008	FRNS	5.3	192.0	39.0	8182.9	8.06

Table 2. Field performance of high-protein rice lines and their cultivar controls in Multi-Location CA trials, Rice Research Station, LA.

Entry	Pedigree	EDT	VIG	HDT	HTE	LDG	Yield (lb/A)	Ratoon Yield (lb/A)
14ID 001	06P200055	98.3	4.7	179.0	98.3	0.0	9212.7	2269.9
14ID 002	06P200497	99.0	5.3	183.0	99.3	43.3	8030.4	2095.9
14ID 003	07P201570	97.3	4.3	179.0	98.0	13.3	8531.5	2284.2
14ID 004	08P210027	99.0	5.3	180.3	103.7	53.3	10195.8	1434.5
14ID 005	09P212009	96.0	4.7	179.7	97.7	73.3	8534.0	1737.8
14ID 006	CPRS	99.0	5.3	181.7	100.7	36.7	8931.6	2395.8
14ID 007	CCDR	97.3	5.0	179.3	102.0	13.3	8690.6	2477.5
14ID 008	FRNS	98.7	4.7	182.0	106.7	73.3	9161.5	1933.7

Table 3. Field performance of high-protein rice lines and their cultivar controls in Multi-Location CA trials, Lake Arthur, LA.

Entry	Pedigree	EDT	VIG	HDT	HTE	Yield (lb/A)	Ratoon (lb/A)
14IDV 001	06P200055	95.00	5.67	185.67	92.33	6501.89	1548.04
14IDV 002	06P200497	95.00	6.00	187.00	98.33	5770.96	1557.31
14IDV 003	07P201570	95.00	5.67	185.67	91.67	5948.47	1630.29
14IDV 004	08P210027	94.67	5.67	185.33	91.67	5712.78	2013.36
14IDV 005	09P212009	95.00	5.67	186.67	101.67	7974.22	1746.95
14IDV 006	CPRS	95.33	5.67	184.00	95.67	7996.17	1730.19
14IDV 007	CCDR	95.00	5.67	184.00	96.33	6179.80	1606.69
14IDV 008	FRNS	94.67	5.67	184.00	93.33	6052.67	2245.52

2. Grain Quality of High-Protein Rice Lines.

Milling quality, percent chalk, grain appearance, grain shape, and homogeneity of the grain size and dimension are important components of rice grain quality. Because of the importance of the grain quality components in the market, advanced promising high-protein rice lines were evaluated for their grain quality as well as their cooking quality. Alkali rating for these high-protein rice lines are presented in Table 4 and their grain quality index are in Table 5.

Table 4. Alkali Rating to estimate the gelling temperature of high-protein rice lines compared with medium-grain Bengal and long-grain Chenier, Cypress, HDLG, and Dixiebelle.

Cell	Sample #	Seed # (Alkali Ratings)						Average	Gel Temp
		1	2	3	4	5	6		
A1	BNGL	6	6	6	6	6	6	6.0	Low
A2	CHNR	4	4	3	3	3	3	3.3	Intermediate-high
A3	HDLG	2	2	2	2	2	2	2.0	High
A4	DXBL	3	3	3	3	3	3	3.0	Intermediate-high
A5	CPRS	4	4	4	3	3	3	3.5	Intermediate-high
B1	14-IL-HP-01	5	5	5	5	7	7	5.7	Low
B2	14-IL-HP-01	5	5	5	7	7	7	6.0	Low
B3	14-ID-005	3	3	3	3	3	3	3.0	Intermediate-high
B4	14-ID-006	3	3	3	3	3	3	3.0	Intermediate-high

The degree of spreading was determined by incubating six grains of milled rice in 10 ml of 1.7% KOH for 24 hr at 30°C using a seven-point score (7=completely spread, and 1=no reaction). The gelatinization temperature of starch was estimated based on spreading value and determined as Low (6-7); Intermediate (4-5); Intermediate-high (3); and High (1-2).

Table 5. Grain quality index among advanced promising high-protein rice lines.

Entry	Pedigree	Whole	Total	Grain Shape Homogeneity	% Chalk	Gel Temp	Amylose Content
14IDV 001	06P200055	60.2	70.1	8.5	8	Intermediate-high	25.10
14IDV 002	06P200497	58.3	68.5	8.0	10	Intermediate	21.86
14IDV 003	07P201570	59.1	68.9	8.5	7	Intermediate-high	24.74
14IDV 004	08P210027	57.5	69.1	8.5	9	Intermediate	20.50
14IDV 005	09P212009	57.9	69.0	9	10	Intermediate-high	20.62
14IDV 006	CPRS	61.1	71.1	8.5	9	Intermediate-high	20.92
14IDV 007	CCDR	59.5	70.4	8.5	9	Intermediate-high	23.22

3. Replicated Headrow Trials to Determine the Performance of Selected High-Protein Rice Lines, Rice Research Station, LA.

Prior to Preliminary Yield trials, promising lines were tested in replicated headrow trials to determine their yield potential and other important traits. Data collected from these tests were used to select lines that will be advanced to Preliminary Yield trials in a bigger plot size. The data listed in Table 6 below shows the results from the replicated headrow trials.

Table 6. Performance of 100 high-protein lines in replicated headrow trials at the Rice Research Station, LA.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
1	11R-5115pan3	0.111	1.68	10.5	**21**	11R-5619-PAN3	0.117	1.7	10.6
2	11R5202pan1	0.118	1.68	10.5	**22**	11R5084pan8	0.121	1.71	10.7
3	11R5242pan6	0.113	1.68	10.5	**23**	11R-5188-PAN7	0.111	1.71	10.7
4	11R-5621-PAN3	0.113	1.68	10.5	**24**	11R5198pan4	0.117	1.71	10.7
5	11R-5022pan2	0.112	1.69	10.6	**25**	11R5243pan7	0.114	1.71	10.7
6	11R5070pan1	0.120	1.69	10.6	**26**	11R5245pan11	0.116	1.71	10.7
7	11R-5113pan1	0.116	1.69	10.6	**27**	11R5249pan5	0.117	1.71	10.7
8	11R-5162-PAN6	0.116	1.69	10.6	**28**	11R5603pan11	0.112	1.71	10.7
9	11R5183pan9	0.114	1.69	10.6	**29**	11R5614pan2	0.124	1.71	10.7
10	11R5193pan4	0.117	1.69	10.6	**30**	11R5616pan3	0.119	1.71	10.7
11	11R5196pan3	0.108	1.69	10.6	**31**	11R5638pan14	0.116	1.71	10.7
12	11R5551pan13	0.112	1.69	10.6	**32**	11R5264pan1	0.114	1.72	10.8
13	11R-5024pan5	0.115	1.7	10.6	**33**	11R-5326pan3	0.118	1.72	10.8
14	11R5088pan3	0.120	1.7	10.6	**34**	11R5641pan7	0.118	1.72	10.8
15	11R5195pan5	0.117	1.7	10.6	**35**	11R5237pan7	0.119	1.73	10.8
16	11R5197pan1	0.120	1.7	10.6	**36**	11R-5026pan7	0.110	1.74	10.9
17	11R5218pan13	0.115	1.7	10.6	**37**	11R5202pan3	0.114	1.74	10.9
18	11R5218pan6	0.114	1.7	10.6	**38**	11R5506pan7	0.123	1.74	10.9
19	11R5222pan6	0.115	1.7	10.6	**39**	11R5638pan13	0.113	1.74	10.9
20	11R5568pan1	0.133	1.7	10.6	**40**	11R-5009pan5	0.112	1.75	10.9

Continued.

Table 6. Continued.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
41	11R-5403pan2	0.118	1.75	10.9	**71**	11R5087pan2	0.121	1.82	11.4
42	11R-5609-PAN2	0.113	1.75	10.9	**72**	11R-5161-PAN1	0.114	1.82	11.4
43	11R5611pan3	0.116	1.75	10.9	**73**	11R5180pan1	0.118	1.82	11.4
44	11R5203pan2	0.120	1.76	11.0	**74**	11R5298pan3	0.119	1.84	11.5
45	11R5242pan5	0.113	1.76	11.0	**75**	11R5298pan1	0.116	1.85	11.6
46	11R5243pan16	0.113	1.76	11.0	**76**	11R-5442pan3	0.115	1.85	11.6
47	11R5296pan6	0.115	1.76	11.0	**77**	11R5218pan11	0.115	1.86	11.6
48	11R-5328pan1	0.118	1.76	11.0	**78**	11R-5434pan2	0.117	1.86	11.6
49	11R-5444pan3	0.111	1.76	11.0	**79**	11R5558pan1	0.127	1.87	11.7
50	11R5566pan7	0.117	1.76	11.0	**80**	11R5577pan1	0.118	1.87	11.7
51	11R-5170	0.118	1.77	11.1	**81**	11R-5021pan4	0.115	1.88	11.8
52	11R5210pan6	0.120	1.77	11.1	**82**	11R5183pan7	0.116	1.88	11.8
53	11R5242pan9	0.113	1.77	11.1	**83**	11R5245pan12	0.095	1.89	11.8
54	11R-5427pan3	0.113	1.77	11.1	**84**	11R5222pan9	0.110	1.90	11.9
55	11R5571pan3	0.115	1.77	11.1	**85**	11R5203pan12	0.094	1.91	11.9
56	11R5182pan4	0.121	1.78	11.1	**86**	11R-5043pan7	0.112	1.92	12.0
57	11R5296pan7	0.114	1.78	11.1	**87**	11R5177pan10	0.107	1.92	12.0
58	11R5554pan1	0.115	1.78	11.1	**88**	11R5574pan2	0.112	1.92	12.0
59	11R-5135pan3	0.116	1.79	11.2	**89**	11R5069pan2	0.112	1.93	12.1
60	11R5577pan3	0.120	1.79	11.2	**90**	11R5181pan8	0.121	1.93	12.1
61	11R5151pan7	0.094	1.80	11.3	**91**	11R-5200-PAN9	0.117	1.93	12.1
62	11R5202pan6	0.120	1.80	11.3	**92**	11R5211pan10	0.128	1.94	12.1
63	11R5298pan2	0.117	1.80	11.3	**93**	11R5212pan1	0.124	1.94	12.1
64	11R-5548pan2	0.094	1.80	11.3	**94**	11R5232pan5	0.087	1.98	12.4
65	11R5581pan4	0.131	1.80	11.3	**95**	11R5554pan2	0.120	1.99	12.4
66	11R-5637-PAN1	0.115	1.80	11.3	**96**	11R5069pan10	0.120	2.00	12.5
67	11R5213pan2	0.110	1.81	11.3	**97**	11R5062pan1	0.120	2.02	12.6
68	11R5296pan10	0.115	1.81	11.3	**98**	11R-5417pan2	0.087	2.02	12.6
69	11R-5408pan4	0.100	1.81	11.3	**99**	11R5571pan2	0.112	2.02	12.6
70	11R-5623-PAN1	0.113	1.81	11.3	**100**	11R5193pan3	0.121	2.04	12.8

4. New High-Protein Rice Lines.

Mutational experiments continue to generate new lines. Last year, additional selections were carried out from 1,100 newly developed high-protein lines. In addition to high-protein content, selections were emphasized also on grain quality aspects. From single headrow trials, 200 promising new lines were selected based on their protein content, yield potential, and other important growth parameters (HDT, VIG, HTE). These selected lines will be advanced to the replicated headrow trials in the next growing season. Total crude protein content among 128 of 200 selected lines are presented in Table 7.

Table 7. Grain crude protein content (GCPC) of newly developed rice lines. The GCPC was determined using the N Combustion Analyzer through high temperature digestion of samples at 850 to 1200°C.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
1	11R-5009pan5	0.11	1.75	10.94	40	11R5180pan1	0.12	1.82	11.38
2	11R-5021pan4	0.11	1.88	11.75	41	11R5181pan8	0.12	1.93	12.06
3	11R-5022pan2	0.11	1.69	10.56	42	11R5182pan4	0.12	1.78	11.13
4	11R-5024pan5	0.11	1.70	10.63	43	11R5183pan7	0.12	1.88	11.75
5	11R-5026pan7	0.11	1.74	10.88	44	11R5183pan9	0.11	1.69	10.56
6	11R-5043pan7	0.11	1.92	12.00	45	11R-5188-PAN7	0.11	1.71	10.69
7	11R5061pan2	0.12	1.77	11.06	46	11R5193pan3	0.12	2.04	12.75
8	11R5062pan1	0.12	2.02	12.63	47	11R5193pan4	0.12	1.69	10.56
9	11R5068pan4	0.12	2.46	15.38	48	11R5195pan5	0.12	1.70	10.63
10	11R5068pan5	0.11	2.29	14.31	49	11R5196pan3	0.11	1.69	10.56
11	11R5068pan7	0.09	2.45	15.31	50	11R5197pan1	0.12	1.70	10.63
12	11R5069pan10	0.12	2.00	12.50	51	11R5198pan4	0.12	1.71	10.69
13	11R5069pan2	0.11	1.93	12.06	52	11R-5200-PAN9	0.12	1.93	12.06
14	11R5070pan1	0.12	1.69	10.56	53	11R5202pan1	0.12	1.68	10.50
15	11R5073pan3	0.09	2.95	18.44	54	11R5202pan3	0.11	1.74	10.88
16	11R5073pan4	0.10	4.11	25.69	55	11R5202pan6	0.12	1.8	11.25
17	11R5073pan5	0.09	2.56	16.00	56	11R5203pan12	0.09	1.91	11.94
18	11R5081pan5	0.11	2.16	13.50	57	11R5203pan2	0.12	1.76	11.00
19	11R5081pan6	0.11	2.09	13.06	58	11R5210pan6	0.12	1.77	11.06
20	11R5084pan8	0.12	1.71	10.69	59	11R5211pan10	0.13	1.94	12.13
21	11R5087pan2	0.12	1.82	11.38	60	11R5212pan1	0.12	1.94	12.13
22	11R5088pan3	0.12	1.70	10.63	61	11R5213pan2	0.11	1.81	11.31
23	11R5093pan3	0.08	2.22	13.88	62	11R5218pan11	0.12	1.86	11.63
24	11R5093pan7	0.08	2.12	13.25	63	11R5218pan13	0.11	1.70	10.63
25	11R5094pan3	0.10	2.08	13.00	64	11R5218pan6	0.11	1.70	10.63
26	11R5094pan7	0.11	2.29	14.31	65	11R5222pan6	0.11	1.70	10.63
27	11R5098pan10	0.11	2.23	13.94	66	11R5222pan9	0.11	1.90	11.88
27	11R5098pan9	0.09	2.13	13.31	67	11R5229pan15	0.09	3.02	18.88
29	11R-5109pan2	0.09	3.80	23.75	68	11R5231pan12	0.10	2.23	13.94
30	11R-5113pan1	0.12	1.69	10.56	69	11R5231pan2	0.07	2.31	14.44
31	11R-5115pan3	0.11	1.68	10.50	70	11R5231pan5	0.12	2.04	12.75
32	11R-5130pan2	0.09	3.62	22.63	71	11R5232pan11	0.07	2.34	14.63
33	11R-5135pan3	0.12	1.79	11.19	72	11R5232pan5	0.09	1.98	12.38
34	11R5151pan7	0.09	1.80	11.25	73	11R5232pan9	0.09	2.24	14.00
35	11R-5158-PAN5	0.11	2.07	12.94	74	11R5237pan7	0.12	1.73	10.81
36	11R-5161-PAN1	0.11	1.82	11.38	75	11R5242pan5	0.11	1.76	11.00
37	11R-5162-PAN6	0.12	1.69	10.56	76	11R5242pan6	0.11	1.68	10.50
38	11R-5170	0.12	1.77	11.06	77	11R5242pan9	0.11	1.77	11.06
39	11R5177pan10	0.11	1.92	12.00	78	11R5243pan16	0.11	1.76	11.00

Continued.

Table 7. Continued.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
79	11R5243pan7	0.11	1.71	10.69	**104**	11R5551pan13	0.11	1.69	10.56
80	11R5245pan11	0.12	1.71	10.69	**105**	11R5554pan1	0.11	1.78	11.13
81	11R5245pan12	0.09	1.89	11.81	**106**	11R5554pan2	0.12	1.99	12.44
82	11R5249pan5	0.12	1.71	10.69	**107**	11R5558pan1	0.13	1.87	11.69
83	11R5264pan1	0.11	1.72	10.75	**108**	11R5566pan7	0.12	1.76	11.00
84	11R5296pan10	0.12	1.81	11.31	**109**	11R5568pan1	0.13	1.70	10.63
85	11R5296pan6	0.12	1.76	11.00	**110**	11R5571pan2	0.11	2.02	12.63
86	11R5296pan7	0.11	1.78	11.13	**111**	11R5571pan3	0.12	1.77	11.06
87	11R5298pan1	0.12	1.85	11.56	**112**	11R5574pan2	0.11	1.92	12.00
88	11R5298pan2	0.12	1.80	11.25	**113**	11R5577pan1	0.12	1.87	11.69
89	11R5298pan3	0.12	1.84	11.50	**114**	11R5577pan3	0.12	1.79	11.19
90	11R-5326pan3	0.12	1.72	10.75	**115**	11R5581pan4	0.13	1.8	11.25
91	11R-5328pan1	0.12	1.76	11.00	**116**	11R5603pan11	0.11	1.71	10.69
92	11R-5403pan2	0.12	1.75	10.94	**117**	11R-5609-PAN2	0.11	1.75	10.94
93	11R-5408pan4	0.10	1.81	11.31	**118**	11R5611pan3	0.12	1.75	10.94
94	11R-5417pan2	0.09	2.02	12.63	**119**	11R5613pan10	0.12	2.20	13.75
95	11R-5427pan3	0.11	1.77	11.06	**120**	11R5614pan2	0.12	1.71	10.69
96	11R-5434pan2	0.12	1.86	11.63	**121**	11R5616pan3	0.12	1.71	10.69
97	11R-5436pan3	0.09	3.08	19.25	**122**	11R-5619-PAN3	0.12	1.70	10.63
98	11R-5442pan3	0.12	1.85	11.56	**123**	11R-5621-PAN3	0.11	1.68	10.50
99	11R-5444pan3	0.11	1.76	11.00	**124**	11R-5623-PAN1	0.11	1.81	11.31
100	11R5506pan7	0.12	1.74	10.88	**125**	11R-5637-PAN1	0.12	1.80	11.25
101	11R5514pan12	0.09	2.59	16.19	**126**	11R5638pan13	0.11	1.74	10.88
102	11R-5536pan1	0.09	2.29	14.31	**127**	11R5638pan14	0.12	1.71	10.69
103	11R-5548pan2	0.09	1.80	11.25	**128**	11R5641pan7	0.12	1.72	10.75

RICE AGRONOMY[1]

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INTRODUCTION

The following report documents research conducted in rice plant nutrition, cultural management, and rice rotational crops. Rice plant nutrition studies were conducted at the LSU AgCenter Rice Research Station as well as multiple off station locations in an effort to generate agronomic production information representative of all Louisiana rice production areas. Rice nutrition studies were conducted in Acadia at the Rice Research Station, Vermilion, St. Landry, Franklin, Richland, and Evangeline parishes. Cultural management studies were conducted at the Rice Research Station north and south units.

We would like to express our sincere appreciation to the following off-station cooperators for their assistance in conducting this research. Our efforts would not be successful without their support:

Lounsberry Farm – Vermilion Parish
Charlie Fontenot – St. Landry Parish
John Owen – Franklin Parish
Woodsland Plantation – Richland Parish
LaHaye Farm – Evangeline Parish

Throughout this section, multiple abbreviations are used to represent common units of measure and agricultural chemicals; these abbreviations are explained below in Tables 1 and 2, respectively.

[1] This research was supported in part by funds provided by rice producers through the Louisiana Rice Research Board.

Table 1. Common abbreviations used in agronomic research at the Rice Research Station.

Abbreviation	Explanation
A	Acre
ANOVA	Analysis of variance
bushel/A	Bushels per acre
Ca	Calcium
COC	Crop oil concentrate
DAT	Days after treatment
DPF	Days preflood
DPP	Days prior to planting
Fe	Iron
ft	Feet
ft^2	Square feet
gal/A	Gallons product per acre
Head Rice	Percent unbroken kernels left after milling
in	Inches
lb	Pounds
lb/A	Pounds product per acre
lb ai/A	Pounds active ingredient per acre
Ldg-Rate	Lodging rate in percent
Ldg-Type	Lodging type on a scale from 0 to 5; where 0 = no lodging, 1 = slightly lodged (approximately 1 - 23^o angle) and 5 = lodged to ground (90^o angle)
K	Potassium
Main	First rice crop; crop growth stage prior to first harvest
Mg	Magnesium
Mn	Manganese
Mo	Molybdenum
N	Nitrogen
Na	Sodium
NA	Information not available/applicable
NUE	Nitrogen use efficiency
oz/A	Ounces product per acre
P	Phosphorus
PD	Panicle differentiation
PI	Panicle initiation
pl/m^2	Plant densities measures 14 days after seeding emergence by counting the main-stem numbers in a randomly selected area of 1 m^2 in each plot
Postharvest	Application applied immediately following main crop harvest
ppm	Parts per million
PRE	Application prior to crop emergence
Preflood	Preflood application applied 1 to 2 days prior to permanent flood establishment
Preplant	Preplanting application prior to flooding and seeding
pt/A	Pints product per acre
Ratoon	Second rice crop growth, after harvest of first (main) crop
RRS	Rice Research Station, Crowley, LA
RYG	Relative grain yield
S	Sulfur
SB Severity	Sheath blight infestation on a scale from 1 to 9; where 1 = no sheath blight and 9 = severe sheath blight infestation
Total Mill	Percent of rice kernels left after milling
Zn	Zinc
10% Heading(HD)	Crop growth stage where 10% of plants within a plot have visible panicles
50% Heading(HD)	Number of days from effective seeding date to 50% panicle exertion

Table 2. Common crop protection chemicals and formulations used in agronomic research at the Rice Research Station.

	Trade Name	Common Name	Formulation	Company
Herbicides				
	Aim	Carfentrazone	EC2	FMC Corp.
	Arrosolo	Propanil + molinate	3 lb + 3 lb	RiceCo
	Basagran	Bentazon	4 lb	BASF
	Clincher	Cyhalofop	2.38 lb	Dow Agro Science LLC
	Command	Clomazone	3ME	FMC Corp.
	Duet	Propanil + bensulfuron	4 lb + 0.48 oz	Rice Co.
	Grandstand R	Triclopyr	3 lb	Dow Agro Science LLC
	Grasp	Penoxsulam	SC2	Dow Agro Science LLC
	Honcho Plus	Glyphosate	4 lb	Monsanto
	Liberty	Glufosinate ammonium	18.19%	Bayer CropScience
	Londax	Bensulfuron	60% DF	DuPont
	Newpath	Imazethapyr	2 lb	BASF
	Permit	Halosulfuron	75% WSG	Monsanto
	Prowl	Pendimethalin	EL 3.3	BASF
	Regiment	Bispyribac-sodium	80% DF	Valent USA
	RiceBeaux	Propanil + Thiobencarb	3 lb + 3 lb	Rice Co LLC
	Roundup Weatherman	Glyphosate	4 lb	Monsanto
	Stam M4	Propanil	4 lb	Dow Agro Science LLC
	Weedar 64	2,4-D	3.8 lb	Aventis
Insecticides				
	Dermacor	Rynaxypyr	5.21 lb a.i./gal	DuPont
	Karate Z	Cyhalothrin	2.08 lb	Syngenta
	Mustang Max	Zeta-cypermethrin	0.8 lb	FMC Corp.
	Methyl Parathion	Methyl Parathion	4 lb	Cheminova
Fungicides				
	Dithane DF	Mancozeb	75% DF	Dow Agro Science LLC
	Stratego	Propiconazole + Trifloxystrobin	1.04 lb + 1.04 lb	Bayer Crop Science LLC
	Quadris	Azoxystrobin	2.08 lb	Syngenta
	Quilt	Azoxystrobin + Propiconazole	1.04 lb + 0.62 lb	Syngenta

RICE FERTILITY AND CULTURAL PRACTICE RESEARCH

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Variety by Nitrogen Rate and Application Timing Experiments

Variety by nitrogen (N) experiments are conducted yearly throughout Louisiana in order to establish N requirements for new commercial varieties and advanced experimental lines. Rice varieties vary in their response to N rates and timing of application. These varietal N response differences can be attributed to several factors including such traits as lodging, disease susceptibility, and N use efficiency. Environmental influences also impact the N rate needed to produce optimum yields. These include such factors as soil type, weather, disease, and insect pressure. For this reason, trials are conducted not only at the Rice Research Station (RRS) but also at cooperator sites in Vermilion (VP), Franklin (FP), St. Landry (SLP), and Richland (RP) parishes. The soils at RRS, VP, FP, SLP, and RP are classified as Crowley silt loam, Kaplan silt loam, Sharkey clay, Tensas-Sharkey complex, and Hebert silty clay, respectively. Eight single preflood N rates (0, 30, 60, 90, 120, 150, 180, and 210 lb/A), four split rates applied at the 4- to 5-leaf stage, and at panicle differentiation (45/45, 75/45, 105/45, and 135/45 lb N/A) were evaluated. The N requirement, days to 50% heading, lodging susceptibility, and plant height were all determined. Ratoon data is also determined for trials in Southwest Louisiana. A minimum of 3 years of data for each variety are needed before final recommendations are established. These recommendations can be found in Rice Varieties and Management Tips 2015, LAES publication number 2270. Electronic copies of this publication can be accessed from the LSU AgCenter Website: (http://www.lsuagcenter.com).

Two advanced experimental rice lines and four recently released rice varieties were evaluated for their response to N application rate and time of application in 2014. Complete results for each variety by N trials at each location are presented in Tables 1 – 25.

The RRS location was drill-seeded into a stale seedbed on March 13. Statistically, optimum grain yields at the RRS were obtained after applying 150 lb N/A for varieties CL-Jazzman and Lakast and 120 lb N/A for CL271 and Antonio.

Variety by N trials at FP were drill-seeded to a spring stale seedbed on May 6. Optimal rice yields for CL-Jazzman, CL271, Antonio, and the experimental line RU1201102 were obtained at an N rate of 90 lb/A. The optimal N rate for LaKast and the experimental line CLX4122 was obtained at 60 lb/A. Lodging occurred in both the LaKast and CLX4122 variety by N trials. Lodging for CLX4122 began at an N rate of 120 lb/A, while lodging for LaKast began at an N rate of 90 lb/A.

Rice was drill-seeded to a fall stale seedbed at the RP location on May 13. Rice grain yields at the RP location were optimized at an N rate of 90 lb/A for RU1201102 and CL271, and at a rate of 120 lb/A for CL-Jazzman, Antonio, LaKast, and CLX4122.

Rice at the SLP location was drill-seeded to a conventionally tilled seedbed on March 24. Optimal rice yields for CL-Jazzman, CL271, and the advanced experimental line RU1201102 were obtained at an N rate of 120 lb/A. The advanced experimental line CLX4122 was optimized at an N rate of 150 lb/A. In addition, CLX4122 began to lodge with an N rate of 90 lb/A when applied as a single preflood application, and at an N rate of 120 lb/A when applied as a 90/30 lb/A split. Rice yields for Antonio and LaKast were obtained at an N rate of 180 lb/A. LaKast began to lodge at an N rate of 150 lb/A when applied as a sing preflood application.

Rice was drill-seeded into a conventionally tilled seedbed on March 19 at the VP location. In Vermilion Parish, yields for CL-Jazzman, CL271, and Antonio were optimized at N rates of 60, 30, and 0 lb N/A.

Other Rice Fertility Research

A trial was established at the RRS to evaluate the rate and amount of ammonia volatilization from six N fertilizer sources when surface broadcast onto dry soil 10-days prior to permanent flood establishment in a drill-seeded, delayed flood rice production system. Semi-open volatilization chambers were used to estimate ammonia volatilization loss in a rice field. Fertilizer was applied by hand into a volatilization chamber containing two rice plants on a dry soil at

a rate of 120 lb N/A. Phosphoric acid-treated sponges were used to trap the ammonia gas released. The sponges were removed for analysis and replaced 9, 7, 5, 3, and 1 day(s) before the permanent flood was established and 1 and 5 days post flooding. The six N fertilizer sources evaluated included:

1) Urea
2) Limus (0.05% NBPT)-urea
3) Limus (0.071% NBPT)-urea
4) Limus (0.085% NBPT)-urea
5) Limus (0.12% NBPT)-urea
6) Agrotain Ultra (0.088% NBPT)-urea

All NBPT treated urea fertilizer sources were obtained from BASF and were treated prior to arriving at the RRS. In addition to the six fertilizer sources, an additional untreated control (UTC), where N was not applied, was also included. The experiment was conducted on a Crowley silt loam soil with a pH of 7.4 and 1.4% organic matter. CL152 rice was drill-seeded on March 13. Fertilizer treatments were applied on a dry soil on May 2 when the rice was at the 3- to 4-leaf stage of development. A flood was established 10 days later on May 12. Nitrogen (N) volatilization loss at each of the seven sampling times and cumulative N volatilization loss over the 15-day period of the experiment are presented in Tables 27 and 28, respectively. In addition, the cumulative N loss as a percent of the total N applied is presented graphically in Figure 1. Cumulative background ammonia from the UTC was 26 ppm or approximately 1.6%. The volatility results from the six N fertilizer treatments were not adjusted for this background. Accumulative N loss over the 15-day period of time was 13.6, 3.6, 3.1, 3.0, 2.7, and 2.4% from urea, Limus-urea (0.05% NBPT), Limus-urea (0.085% NBPT), Agrotain Ultra (0.088% NBPT)-urea, Limus-urea (0.12% NBPT), and Limus-urea (0.071% NBPT), respectively. Cumulative volatilization losses from Limus-urea (all rates) and Agrotain Ultra treated urea were significantly lower ($P \leq 0.0001$; LSD = 0.64) than untreated urea (Table 28). Cumulative volatilization losses from all Limus treated urea fertilizers (all concentrations tested) were not significantly different from Agrotain Ultra treated urea.

A trial was conducted at the RRS to evaluate the yield response of rice to 14 nitrogen fertilizer treatments. Fertilizer sources included: 1) UTC, 2) urea, 3) Factor-urea (3.25 qt/A), 4) Function-urea (2 pt/A), 5) Factor+Function-urea, 6) Function-urea (3 pt/A), 7) Factor+Function urea (3.25 qt/ton urea and 3 pt/A, respectively), 8) Instinct II-urea, 9) Instinct II+Factor-urea, 10) Instinct II+Factor+Function-urea (2 pt/A Function), 11) Instinct II+Factor+Function-urea (3 pt/A Function), 12) Urea (1 day preflood), 13) Function-urea (2 pt/A; 1 day preflood), and 14) Function-urea (3 pt/A; 1 day preflood). All treatments, with the exception of treatments 12 through 14, were applied 14 days prior to permanent flood establishment (DPF). A rainfall event did occur 1 DPF which caused the 1 DPF fertilizer applications to be applied on wet ground. Results of the trial are presented in Table 30. Rice yields of all N sources were greater than the UTC (treatment 1). Mean plot yields from urea fertilizer treatments (3 – 11) were not significantly greater than untreated urea when applied 14 days prior to flood establishment.

A trial was established in 2014 at the RRS to evaluate the amount and rate of ammonia volatilization loss from seven N fertilizer sources over a 15-day period of time. Fertilizer N sources evaluated included:

1) Urea (46% N)
2) Agrotain Ultra treated urea (Agrotain-urea; at 3 qt/ton urea; 46% N)
3) Amidis (40% N)
4) Agrotain Ultra treated Amidas (AgrotainUltra-Amidas; 2.31 qt Agrotain Ultra/ton Amidas)
5) A 3:1 urea to ammonium sulfate blend (urea-AMS; 39.75% N)
6) A 3:1 Agrotain Ultra treated urea and ammonium sulfate blend (Agrotain Ultra-urea/AMS; 3 qt/ton urea)
7) Agrotain Ultra treated Amidas two weeks prior to application (Agrotain Ultra-Amidas (2 wk old); 2.31 qt Agrotain Ultra/ton Amidas)

Semi-open volatilization chambers were used to estimate ammonia volatilization loss. Fertilizer was applied by hand into a volatilization chamber containing two rice plants on a dry soil at a rate of 130 lb N/A. Phosphoric acid-treated sponges were used to trap the ammonia gas released. The sponges were removed for analysis and replaced 9, 7, 5, 3, and 1 day(s) before the permanent flood was established and 1 and 5 days post flooding. Volatilization losses from each sampling time and the cumulative N loss over the 15-day period after fertilizer N application are presented in Table 31. Cumulative N loss is also presented graphically in Figure 2. Accumulative N loss over the 15-day period

of time was 20.6, 19.9, 16.6, 13.1, 11.5, 3.0, and 2.1% from Amidas, urea, 3:1 urea-AMS, AgrotainUltra-Amidas (2 weeks old), AgrotainUltra-Amidas, AgrotainUltra-urea/AMS, and AgrotainUltra-urea, respectively. Cumulative volatilization losses from urea and Amidas were significantly higher ($P \leq 0.0001$; LSD = 5.2%) than all other N sources in the trial (Table 31 and Fig. 2), while cumulative N losses from AgrotainUltra-urea and AgrotainUltra-urea/AMS were significantly lower than all other N sources.

A rice yield trial was conducted as a companion to the proceeding trial above in order to evaluate the corresponding rice grain yield loss and fertilizer efficiency associated with six N sources (not including treatment seven from the volatilization trial) when applied 10 days before permanent flood establishment. The trial was set up as a randomized complete block design. Fertilizer N sources included urea, Agrotain Ultra treated urea, Amidas, Agrotain Ultra treated Amidas, 3:1 urea to ammonium sulfate blend, and a 3:1 Agrotain Ultra treated urea and ammonium sulfate blend. Treatments were replicated four times. A check plot which did not receive N fertilizer was also included as a reference and to help estimate N use efficiency (NUE). N use efficiency (NUE) was calculated as:

NUE (%) = [(total N uptake with N/total N uptake without N)/N application rate]*100

The trial was conducted at the RRS on a Crowley silt loam soil. The trial was drill-seeded with the rice variety CL152 on March 13 into a fall-stale seedbed. Rice emerged on March 30. The first N fertilizer application occurred when the rice was at the 3- to 4-leaf stage of development. It should be noted that one significant rainfall event did occur during the first 10 days of the trial. The rainfall event occurred on the ninth day of the trial and had an approximate total of 0.61 inches. Analysis of variance (ANOVA) results of the trial are presented in Table 32. Rice grain yield was significantly higher ($P=0.0001$; LSD=980) for all plots receiving N fertilization as compared with the check plot which did not receive N fertilizer. Yields for all N fertilized plots ranged from 9296 to 9747 lb/A, and were not significantly different from each other regardless of N source. This suggests that all treatments, with exception of the check treatment, were not limiting in N when applied 10 days prior to permanent flood establishment at a rate of 130 lb N/A. Total N uptake in the above ground biomass at 50% heading for plots fertilized with N ranged from 119 to 141 lb N/A. A significantly higher ($P=0.0001$; LSD=25) amount of N was taken up in the fertilized plots as compared with the untreated check (48 lb N/A); however, the fertilized plots were not significantly different between N sources. Nitrogen use efficiency (NUE) ranged from 54 to 71% between fertilizer N sources; however, they were not significantly different from each other ($P=0.0001$; LSD=19.3).

A trial was established in 2014 at the RRS to evaluate the total and rate of ammonia volatilization from the surface application of six N fertilizer sources when surface broadcast onto dry soil 10 days prior to permanent flood establishment in a drill-seeded, delayed flood rice production system. Semi-open volatilization chambers were used to estimate ammonia volatilization loss. Fertilizer was applied by hand into a volatilization chamber containing two rice plants on a dry soil at a rate of 120 lb N/A. Phosphoric acid-treated sponges were used to trap the ammonia gas released. The sponges were removed for analysis and replaced 9, 7, 5, 3, and 1 day(s) before the permanent flood was established and 1 and 5 days post flooding. Nitrogen (N) volatilization loss at each of the seven sampling times and cumulative N volatilization loss are presented in Tables 33 and 34, respectively. The accumulative N loss, as a percent of the total N applied, is presented graphically in Figure 3. Cumulative N loss over the 15-day period of time was 12.6, 12.7, 14.8, 21.2, 21.6, and 21.9% from ATU, SuperU, AIU, urea, NZone Max, and Nutrisphere-N, respectively. Cumulative volatilization losses from ATU, SuperU, and AIU were significantly lower ($P \leq 0.0001$; LSD = 3.0) than urea, NZone Max, and Nutrisphere-N (Table 1 and Fig. 1). Volatilization losses from ATU, AIU, and SuperU were not significantly different from each other.

A second trial was conducted as a companion trial to the trial above in order to evaluate the corresponding rice grain yield loss and fertilizer efficiency associated with the six N sources when applied 10 , 5, and 1 day(s) before permanent flood establishment. The trial was set up as a randomized complete block design with six N sources [urea, Agrotain Ultra treated urea (at a rate of 3 qt/ton urea; ATU; 26.7% NBPT), Agrotain Ultra incorporated urea (AIU; 26.7% NBPT), SuperU (NBPT + DCD incorporated urea), Nutrisphere treated urea (Nutrisphere-N; 2 qt/ton urea), and NZone Max treated urea (NZone Max; 3 qt/ton urea)] and three application timings (10, 3, and 1 day(s) prior to flood establishment, DPF). Treatments were replicated four times. A check plot, which did not receive N fertilizer, was also included as a reference and to help estimate NUE. Nitrogen Use Efficiency (NUE) was calculated as:

NUE (%) = [(total N uptake with N/total N uptake without N)/N application rate]*100

The trial was conducted at the RRS on a Crowley silt loam soil. The trial was drill-seeded with the rice variety CL152 on April 30 into a fall-stale seedbed. Rice emerged on May 9. The first N fertilizer application occurred when the rice was at the 3- to 4-leaf stage of development. Rice grain yield was adjusted to 12% moisture. Analysis of variance (ANOVA) results from the factorial arrangement of treatments (not including the check treatment) are presented in Tables 35 and 36 for the main effects and the 2-way interaction, respectively. Results from the ANOVA using the randomized complete block design, including the check treatment, are presented in Table 37. It should be noted that four significant rainfall events occurred during this field trial that altered the efficiency and thus interpretation of this trial. Significant rainfall events occurred on June 10 (1.50", 1 day after 10 DPF treatment), June 11 (1.59", 2 days after 10 DPF treatment), June 13 (0.24", 4 days after 10 DPF treatment and 1 day before 5 DPF treatment), and June 15 (0.07", 1 day after 5 DPF treatment). A significant interaction between N source and time of application was not observed for grain yield when the check plot was left out of the analysis (Table 36, $P = 0.492$). The main effects of N source (Table 35, $P = 0.8157$) and time of application (Table 35, $P = 0.1198$) were not significant for rice grain yield. Similarly, NUE was not significantly affected by the main effects (Table 35; N source, $P = 0.9029$; time of application, $P = 0.3463$) or their interaction (Table 36, $P = 0.9211$). The rainfall events which occurred at multiple times during the 10-day application window had a dramatic effect on the efficiency and results of this trial. In the case of the 10 DPF application timing, the first two rainfall events, which totaled over 3-inches of rain, occurred on consecutive days after the fertilizer was applied. This assuredly helped incorporate the surface applied N and increased the efficiency of all N fertilizers regardless of the source. This would explain why similar grain yield and NUE estimates of fertilizer N applied 10 days prior to establishing the permanent flood were not significantly different than when fertilizer N was applied one day before the permanent flood was established.

A trial was established at the RRS to evaluate the hybrid ratoon crop response to post-harvest N application rates. Three hybrids (CLXL745, CLXL729, and XL753) and six rates of N (0, 30, 60, 90, 120, and 150 lb N/A) were evaluated. Results of the trial are presented in Table 48. The optimal ratoon N rate for CLXL729, CLXL745, and XL753 was 120 lb N/A.

A trial was established at the RRS to evaluate variety ratoon crop response to post-harvest N application rates. Three varieties (CL111, CL152, and Mermentau) and six rates of N (0, 30, 60, 90, 120, and 150 lb N/A) were evaluated. Results of the trial are presented in Table 49. The optimal ratoon N rate for CL111 and CL152 was 120 lb N/A, while Mermentau was optimized at 150 lb N/A.

A trial was established at the RRS to evaluate the optimum seeding rate and stand needed to achieve maximum grain yield in the Clearfield experimental variety RU1201102. Six seeding rates of 15, 20, 25, 30, 35, and 40 seed/ft^2 were evaluated and corresponded with an approximate seed rate weight of 34.9, 46.6, 58.2, 69.9, 81.5, and 93.1 lb of seed/A. Results of the trial are presented in Table 52. Mean rice yield ranged from 7,578 to 8,240 lb/A. Maximum rice yield was obtained at a seeding rate of 25 seed/ft^2 (approximately 58.2 lb/A). The plant population at the 2-leaf stage of development needed to achieve maximum grain yield was 23 plants/ft^2.

Rice Variety by Nitrogen Experiments at the Rice Research Station

Experiment number	Rice Research Station VxN Studies
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.53
pH	7.4
Extractable nutrients ppm	Ca-1550; Cu-1.4; Mg-253; P-4.2; K-52.4; Na-51.9; S-9.4; Zn-3.5
Crop/Variety	Rice / See data sheet
Planting method/date	Drill-seeded / March 13
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	March 30
Harvest date	August 12
Ratoon harvest date	November 14
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	90 lb N/A 46-0-0, August 15
Water management	
Flush	April 24, May 2
Flood	May 8
Drain	July 28
Ratoon flood	August 18
Ratoon drain	October 24
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit + 2 qt/A RiceBeaux, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4 1 pt/A 2,4-D + 3 pt/A Basagran + 2 pt/A COC, August 22
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	22 oz/A Quilt Xcel, June 20

Table 1. Determine the agronomic response of drill-seeded CL-Jazzman to nitrogen fertilizer rate and time of application (RRS.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top					
Rating Date							7/30/2014	8/12/2014	8/12/2014	11/14/2014	11/14/2014	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	115 de	98 de	37 d	47.3 a	6264 g	44.2 ab	1674 cd	7938 e
2	UREA	30	lb ai/A	4-5 leaf	114 e	97 e	38 cd	47.2 ab	6769 fg	44.2 ab	1984 abc	8753 de
3	UREA	60	lb ai/A	4-5 leaf	115 de	98 de	39 cd	47.3 ab	7221 def	44.6 a	2132 a	9353 bcd
4	UREA	90	lb ai/A	4-5 leaf	116 d	99 d	40 bc	47.1 b	7890 bcd	44.6 a	2045 abc	9934 abc
5	UREA	120	lb ai/A	4-5 leaf	118 c	101 c	40 bc	47.1 b	8289 abc	44.4 a	2105 ab	10394 a
6	UREA	150	lb ai/A	4-5 leaf	120 b	103 b	42 ab	46.7 c	8573 ab	44.2 ab	1731 bcd	10304 a
7	UREA	180	lb ai/A	4-5 leaf	122 a	105 a	41 abc	46.7 c	8753 a	43.4 bc	1492 de	10245 a
8	UREA	210	lb ai/A	4-5 leaf	122 a	105 a	43 a	46.3 d	8772 a	42.9 c	1280 e	10052 ab
9	UREA	45	lb ai/A	4-5 leaf	115 de	98 de	39 cd	47.2 ab	7164 ef	44.4 a	1915 abc	9079 cd
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	116 d	99 d	40 cd	47.1 b	7803 cde	44.5 a	1920 abc	9723 abc
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	119 bc	102 bc	39 cd	46.5 c	7784 cde	44.7 a	1934 abc	9717 abc
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	121 b	104 b	40 bc	46.6 c	8556 ab	44.2 ab	1692 cd	10249 a
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.50	1.50	2.32	0.21	717.20	0.90	382.70	887.60
Standard Deviation					1.00	1.00	1.60	0.15	496.70	0.62	265.00	614.70
CV					0.87	1.01	4.04	0.31	6.35	1.41	14.52	6.37
Treatment F					31.76	31.76	3.49	22.66	10.95	2.81	3.79	5.87
Treatment Prob(F)					0.0001	0.0001	0.0026	0.0001	0.0001	0.0106	0.0014	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 2. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application (RRS.2). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top					
Rating Date							7/30/2014	8/12/2014	8/12/2014	11/14/2014	11/14/2014	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	111 ef	94 ef	32 de	48.8 a	6807 h	45.5 a	1397 a	8204 h
2	UREA	30	lb ai/A	4-5 leaf	111 ef	94 ef	31 e	48.7 a	7172 h	44.9 a	1383 a	8555 h
3	UREA	60	lb ai/A	4-5 leaf	112 ef	95 ef	34 cd	48.6 ab	7970 g	45.8 a	1472 a	9442 g
4	UREA	90	lb ai/A	4-5 leaf	111 f	94 f	34 de	48.4 bc	8881 ef	45.4 a	1562 a	10442 ef
5	UREA	120	lb ai/A	4-5 leaf	114 cd	97 cd	34 cd	48.2 cd	9366 cde	44.9 a	1612 a	10979 cde
6	UREA	150	lb ai/A	4-5 leaf	114 bc	97 bc	35 bcd	47.9 de	9984 abc	45.8 a	1647 a	11631 abc
7	UREA	180	lb ai/A	4-5 leaf	116 a	99 a	37 abc	47.6 ef	10364 a	45.9 a	1862 a	12226 a
8	UREA	210	lb ai/A	4-5 leaf	116 a	99 a	38 ab	47.5 f	10392 a	45.7 a	1747 a	12139 a
9	UREA	45	lb ai/A	4-5 leaf	112 ef	95 ef	33 de	48.7 a	8346 fg	45.7 a	1648 a	9994 fg
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	113 de	96 de	33 de	48.5 ab	9090 de	45.6 a	1414 a	10504 def
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	114 bc	97 bc	37 abc	48.4 bc	9647 bcd	45.2 a	1561 a	11209 bcd
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	115 ab	98 ab	39 a	48.0 d	10071 ab	45.9 a	1659 a	11729 ab
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.40	1.40	2.99	0.30	654.80	0.72	309.40	726.40
Standard Deviation					1.00	1.00	2.07	0.21	453.50	0.50	214.20	503.10
CV					0.85	1.01	5.96	0.43	5.03	1.10	13.56	4.75
Treatment F					14.70	14.70	5.35	17.43	28.52	2.05	1.87	28.06
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0549	0.0816	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 3. Determine the agronomic response of drill-seeded Antonio to nitrogen fertilizer rate and time of application (RRS.2). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top					
Rating Date							7/30/2014	8/12/2014	8/12/2014	11/14/2014	11/14/2014	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	108 ef	91 ef	33 f	48.1 a	5127 fg	45.5 a	933 ab	6060 fg
2	UREA	30	lb ai/A	4-5 leaf	109 ef	92 ef	35 def	48.1 a	4734 g	45.4 ab	1007 a	5741 g
3	UREA	60	lb ai/A	4-5 leaf	110 def	93 def	37 bcd	47.8 ab	5563 fg	45.1 abc	755 bc	6318 fg
4	UREA	90	lb ai/A	4-5 leaf	113 bcd	96 bcd	36 cde	47.6 bc	6834 d	44.8 a-d	776 abc	7610 d
5	UREA	120	lb ai/A	4-5 leaf	114 abc	97 abc	38 ab	47.4 c	7224 cd	44.7 a-d	777 abc	8001 cd
6	UREA	150	lb ai/A	4-5 leaf	116 ab	99 ab	38 abc	47.0 d	8396 ab	44.4 b-e	565 cd	8961 ab
7	UREA	180	lb ai/A	4-5 leaf	118 a	101 a	39 ab	46.8 d	8936 a	43.8 de	596 cd	9532 a
8	UREA	210	lb ai/A	4-5 leaf	117 a	100 a	40 a	46.6 d	8600 ab	43.6 e	631 cd	9231 a
9	UREA	45	lb ai/A	4-5 leaf	107 f	90 f	34 ef	47.9 ab	5946 ef	45.6 a	757 bc	6703 ef
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	110 de	93 de	36 cde	47.6 bc	6776 de	45.4 a	765 bc	7541 de
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	113 cd	96 cd	36 cde	47.4 c	7841 bc	44.2 cde	516 d	8357 bcd
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	115 abc	98 abc	39 ab	46.8 d	8222 ab	45.2 abc	503 d	8725 abc
	UREA	45	lb ai/A	PD								
LSD (P=.05)					3.50	3.50	2.38	0.38	883.40	1.00	236.80	842.90
Standard Deviation					2.40	2.40	1.65	0.26	611.80	0.69	164.00	583.80
CV					2.14	2.52	4.53	0.56	8.72	1.55	22.93	7.55
Treatment F					9.33	9.33	6.51	15.83	21.76	3.75	3.71	19.55
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0017	0.0018	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 4. Determine the agronomic response of drill-seeded LaKast to nitrogen fertilizer rate and time of application (RRS.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top					
Rating Date							7/30/2014	8/12/2014	8/12/2014	11/14/2014	11/14/2014	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	111 f	94 f	32 f	49.0 a	5099 f	42.6 a	1049 a	6148 f
2	UREA	30	lb ai/A	4-5 leaf	112 ef	95 ef	33 f	49.0 a	6177 e	43.3 a	658 a	6834 ef
3	UREA	60	lb ai/A	4-5 leaf	112 ef	95 ef	35 ef	48.9 ab	6716 de	42.5 a	728 a	7444 de
4	UREA	90	lb ai/A	4-5 leaf	113 ef	96 ef	37 cde	48.0 de	7573 cd	42.3 a	908 a	8481 c
5	UREA	120	lb ai/A	4-5 leaf	115 cd	98 cd	39 a-d	48.1 de	8748 ab	42.4 a	670 a	9418 ab
6	UREA	150	lb ai/A	4-5 leaf	117 ab	100 ab	39 abc	47.5 fg	8689 ab	42.6 a	780 a	9470 ab
7	UREA	180	lb ai/A	4-5 leaf	118 a	101 a	41 a	47.4 gh	8790 ab	42.3 a	699 a	9489 ab
8	UREA	210	lb ai/A	4-5 leaf	118 a	101 a	40 ab	47.0 h	9262 a	42.2 a	797 a	10059 a
9	UREA	45	lb ai/A	4-5 leaf	112 ef	95 ef	36 de	48.7 abc	6322 e	42.2 a	862 a	7184 de
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	113 de	96 de	37 cde	48.4 bcd	7421 cd	42.5 a	548 a	7969 cd
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	114 cde	97 cde	39 a-d	48.4 cd	8141 bc	42.2 a	709 a	8850 bc
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	116 bc	99 bc	38 bcd	47.9 ef	8029 bc	42.3 a	768 a	8797 bc
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.90	1.90	2.57	0.47	953.30	0.75	366.30	920.90
Standard Deviation					1.30	1.30	1.78	0.33	660.20	0.52	253.70	637.80
CV					1.17	1.38	4.81	0.68	8.71	1.22	33.18	7.64
Treatment F					11.52	11.52	8.26	15.19	14.92	1.37	1.06	14.80
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.2312	0.4177	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rice Variety by Nitrogen Experiments in Franklin Parish

Experiment number ....: Franklin Parish VxN Studies

Site and design ....:
- **Location/Cooperator** ....: Franklin Parish / John Owen
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Sharkey clay
- **% organic matter** ....: 1.87
- **pH** ....: 6.8
- **Extractable nutrients** ppm..........: Ca-4971; Cu-5.47; Mg-1013; P-78; K-408; Na-71; S-10.6; Zn-4.9

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill-seeded / May 6
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .5 in
- **Emergence date** ....: May 13
- **Harvest date** ....: September 16

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization ....: No blanket applications

Water management ....:
- **Flush** ....: Data not available
- **Flood** ....: June 21
- **Drain** ....: September 5

Pest management ....:
- **Herbicides** ....: 3 qt/A Propanil + .5 oz/A Permit + 2 pt/A Prowl H_2O + 1 oz/A Londax + 42 oz/A Facet L + 4 oz/A Interlock, May 20
1.5 qt/A Propanil + 1.5 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax, June 19
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: None

Table 5. Determine the agronomic response of drill-seeded CL-Jazzman to nitrogen fertilizer rate and time of application (FP.1). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							9/15/2014	9/15/2014		9/16/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	93 c	86 c	27 e	0 a	0 a	46.9 a	4388 d
2	UREA	30	lb ai/A	4-5 leaf	94 bc	87 bc	29 de	0 a	0 a	45.8 bcd	5102 cd
3	UREA	60	lb ai/A	4-5 leaf	92 c	85 c	32 cd	0 a	0 a	47.2 a	5840 c
4	UREA	90	lb ai/A	4-5 leaf	94 c	87 c	34 bc	0 a	0 a	46.8 ab	7321 ab
5	UREA	120	lb ai/A	4-5 leaf	94 c	87 c	36 ab	0 a	0 a	46.4 abc	7409 ab
6	UREA	150	lb ai/A	4-5 leaf	94 c	87 c	39 a	0 a	0 a	45.3 de	8292 a
7	UREA	180	lb ai/A	4-5 leaf	98 ab	91 ab	39 a	0 a	0 a	45.6 cde	7840 ab
8	UREA	210	lb ai/A	4-5 leaf	98 a	91 a	38 a	8 a	1 a	44.7 e	7020 b
9	UREA	45	lb ai/A	4-5 leaf	91 c	84 c	32 cd	0 a	0 a	47.0 a	5971 c
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	92 c	85 c	36 ab	0 a	0 a	46.5 abc	7298 ab
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	94 c	87 c	36 ab	0 a	0 a	46.6 abc	7083 b
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	93 c	86 c	36 ab	0 a	0 a	45.8 b-e	7510 ab
	UREA	45	lb ai/A	PD							
LSD (P=.05)					3.60	3.60	3.10	6.25	0.83	1.06	1028.90
Standard Deviation					2.10	2.10	2.20	4.33	0.58	0.74	712.60
CV					2.28	2.46	6.27	692.82	692.82	1.59	10.55
Treatment F					2.98	2.98	12.88	1.00	1.00	4.38	10.83
Treatment Prob(F)					0.0140	0.0140	0.0001	0.4671	0.4671	0.0005	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 6. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application (FP.2). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							9/15/2014	9/15/2014		9/16/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	147 b	130 b	26 d	0 a	0 a	46.7 ab	5556 d
2	UREA	30	lb ai/A	4-5 leaf	146 b	129 b	29 cd	0 a	0 a	47.5 a	6609 c
3	UREA	60	lb ai/A	4-5 leaf	147 b	130 b	31 bc	0 a	0 a	47.2 a	7932 b
4	UREA	90	lb ai/A	4-5 leaf	147 b	130 b	32 abc	0 a	0 a	46.6 abc	9255 a
5	UREA	120	lb ai/A	4-5 leaf	147 b	130 b	34 ab	0 a	0 a	46.1 bcd	9182 a
6	UREA	150	lb ai/A	4-5 leaf	147 b	130 b	36 a	0 a	0 a	45.4 def	9644 a
7	UREA	180	lb ai/A	4-5 leaf	148 b	131 b	35 a	0 a	0 a	45.7 de	9594 a
8	UREA	210	lb ai/A	4-5 leaf	150 a	133 a	35 a	10 a	1 a	44.7 f	8721 ab
9	UREA	45	lb ai/A	4-5 leaf	146 b	129 b	30 bc	0 a	0 a	46.9 ab	7995 b
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	147 b	130 b	33 abc	0 a	0 a	46.0 b-e	9164 a
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	147 b	130 b	34 ab	0 a	0 a	45.9 cde	9356 a
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	147 b	130 b	36 a	0 a	0 a	45.3 ef	9332 a
	UREA	45	lb ai/A	PD							
LSD (P=.05)					1.50	1.50	3.50	8.30	0.80	0.84	923.40
Standard Deviation					1.10	1.10	2.40	5.80	0.60	0.58	639.50
CV					0.72	0.81	7.52	692.82	692.82	1.26	7.50
Treatment F					3.65	3.65	5.69	1.00	1.00	8.33	16.24
Treatment Prob(F)					0.0019	0.0019	0.0001	0.4671	0.4671	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 7. Determine the agronomic response of drill-seeded Antonio to nitrogen fertilizer rate and time of application (FP.2). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							9/15/2014	9/16/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	88 cd	81 cd	31 c	47.4 bc	5230 d
2	UREA	30	lb ai/A	4-5 leaf	87 d	80 d	31 c	47.2 bc	5984 d
3	UREA	60	lb ai/A	4-5 leaf	89 cd	82 cd	32 c	47.4 abc	6896 c
4	UREA	90	lb ai/A	4-5 leaf	89 bc	82 bc	34 bc	47.6 ab	8187 b
5	UREA	120	lb ai/A	4-5 leaf	91 ab	84 ab	37 a	47.3 bc	8803 ab
6	UREA	150	lb ai/A	4-5 leaf	92 a	85 a	36 ab	45.9 d	8783 ab
7	UREA	180	lb ai/A	4-5 leaf	92 a	85 a	36 ab	46.3 cd	9144 a
8	UREA	210	lb ai/A	4-5 leaf	92 a	85 a	36 ab	45.9 d	8492 ab
9	UREA	45	lb ai/A	4-5 leaf	87 d	80 d	32 c	48.5 a	7203 c
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	88 cd	81 cd	36 ab	47.2 bc	8755 ab
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	89 bc	82 bc	36 ab	47.3 bc	8607 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	91 ab	84 ab	36 ab	46.3 cd	8794 ab
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.60	1.60	3.00	1.12	878.60
Standard Deviation					1.10	1.10	2.10	0.77	608.50
CV					1.22	1.32	6.10	1.64	7.70
Treatment F					11.74	11.74	4.37	3.96	17.58
Treatment Prob(F)					0.0001	0.0001	0.0005	0.0010	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 8. Determine the agronomic response of drill-seeded LaKast to nitrogen fertilizer rate and time of application (FP.1). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							9/15/2014	9/15/2014		9/16/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	88 de	81 de	28 f	0 c	0 a	48.2 a	5981 e
2	UREA	30	lb ai/A	4-5 leaf	87 e	80 e	31 f	0 c	0 a	47.3 a	6970 de
3	UREA	60	lb ai/A	4-5 leaf	89 de	82 de	34 e	0 c	0 a	47.3 a	8182 cd
4	UREA	90	lb ai/A	4-5 leaf	89 cde	82 cde	38 cd	3 c	0 a	46.4 a	9491 abc
5	UREA	120	lb ai/A	4-5 leaf	90 bcd	83 bcd	41 ab	5 c	1 a	46.7 a	9422 abc
6	UREA	150	lb ai/A	4-5 leaf	91 abc	84 abc	42 ab	8 bc	1 a	44.8 a	9846 ab
7	UREA	180	lb ai/A	4-5 leaf	91 abc	84 abc	43 a	33 a	3 a	46.3 a	8883 bc
8	UREA	210	lb ai/A	4-5 leaf	92 a	85 a	40 abc	25 ab	3 a	45.3 a	9123 abc
9	UREA	45	lb ai/A	4-5 leaf	88 de	81 de	36 de	0 c	0 a	48.0 a	8866 bc
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	88 de	81 de	37 cde	0 c	0 a	46.6 a	9635 abc
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	90 bcd	83 bcd	39 bc	3 c	1 a	46.4 a	9914 ab
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	91 ab	84 ab	42 ab	8 bc	1 a	46.3 a	10490 a
	UREA	45	lb ai/A	PD							
LSD (P=.05)					2.00	2.00	3.10	19.79	2.06	2.05	1504.90
Standard Deviation					1.40	1.40	2.20	13.71	1.42	1.42	1042.30
CV					1.57	1.71	5.74	199.41	170.99	3.05	11.71
Treatment F					5.32	5.32	18.21	2.45	1.78	1.89	6.17
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0233	0.0994	0.0781	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 9. Determine the agronomic response of drill-seeded RU1201102 (AR variety) to nitrogen fertilizer rate and time of application (FP.1). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							9/15/2014	9/16/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	87 e	80 e	28 f	47.5 a	6131 e
2	UREA	30	lb ai/A	4-5 leaf	87 de	80 de	31 ef	46.6 abc	7116 d
3	UREA	60	lb ai/A	4-5 leaf	88 cd	81 cd	33 cde	47.0 ab	7827 cd
4	UREA	90	lb ai/A	4-5 leaf	90 c	83 c	33 cd	46.2 bcd	8748 ab
5	UREA	120	lb ai/A	4-5 leaf	92 b	85 b	35 bc	45.9 cd	8883 ab
6	UREA	150	lb ai/A	4-5 leaf	92 b	85 b	37 ab	44.7 e	8825 ab
7	UREA	180	lb ai/A	4-5 leaf	92 b	85 b	36 ab	45.2 de	8950 ab
8	UREA	210	lb ai/A	4-5 leaf	94 a	87 a	38 a	44.6 e	8160 bc
9	UREA	45	lb ai/A	4-5 leaf	88 de	81 de	32 de	47.0 ab	8218 bc
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	91 b	84 b	33 cde	46.7 abc	9368 a
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	92 b	85 b	35 bc	45.9 cd	8711 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	92 b	85 b	35 bc	45.4 de	8852 ab
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.40	1.40	2.30	1.06	856.80
Standard Deviation					1.00	1.00	1.60	0.73	593.40
CV					1.07	1.16	4.79	1.59	7.14
Treatment F					25.65	25.65	11.78	6.48	9.51
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 10. Determine the agronomic response of drill-seeded CLX4122 (MS variety) to nitrogen fertilizer rate and time of application (FP.1). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							9/15/2014	9/15/2014		9/16/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	94 e	87 e	34 c	0 a	0 a	47.2 a	6934 c
2	UREA	30	lb ai/A	4-5 leaf	94 e	87 e	34 c	0 a	0 a	46.4 ab	7469 c
3	UREA	60	lb ai/A	4-5 leaf	94 de	87 de	35 bc	0 a	0 a	45.6 bcd	8795 ab
4	UREA	90	lb ai/A	4-5 leaf	94 cde	87 cde	38 a	0 a	0 a	45.7 bcd	9454 a
5	UREA	120	lb ai/A	4-5 leaf	95 bc	88 bc	38 a	3 a	1 a	46.1 abc	9027 ab
6	UREA	150	lb ai/A	4-5 leaf	96 ab	89 ab	39 a	0 a	0 a	44.6 d	8775 ab
7	UREA	180	lb ai/A	4-5 leaf	97 a	90 a	39 a	8 a	1 a	45.0 cd	8518 b
8	UREA	210	lb ai/A	4-5 leaf	97 a	90 a	37 ab	5 a	1 a	44.7 d	8550 b
9	UREA	45	lb ai/A	4-5 leaf	94 e	87 e	38 a	0 a	0 a	46.4 ab	8830 ab
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	94 e	87 e	38 a	0 a	0 a	45.9 bc	9051 ab
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	95 bcd	88 bcd	39 a	3 a	1 a	45.2 cd	9117 ab
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	95 bc	88 bc	38 a	0 a	0 a	45.5 bcd	8810 ab
	UREA	45	lb ai/A	PD							
LSD (P=.05)					1.20	1.20	2.70	7.19	1.21	1.11	828.70
Standard Deviation					0.80	0.80	1.90	4.98	0.84	0.77	573.90
CV					0.87	0.94	5.02	341.56	309.51	1.68	6.66
Treatment F					7.23	7.23	4.07	1.00	1.00	3.80	6.20
Treatment Prob(F)					0.0001	0.0001	0.0008	0.4671	0.4671	0.0014	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rice Variety by Nitrogen Experiments in Richland Parish

Experiment number	: Richland Parish VxN Studies
Site and design	:
Location/Cooperator	: Richland Parish / Ashley Dixon
Tillage type.................................	: Fall Stale
Experimental design...................	: Randomized complete block
Number of reps	: 4
Plot size..	: 4.67 x 16 ft
Row width/rows per plot............	: 8 in / 7
Soil type	: Hebert silty clay
% organic matter.........................	: 1.79
pH..	: 7.2
Extractable nutrients ppm..........	: Ca-3121; Cu-3.02; Mg-638; P-20; K-166; Na-173; S-29.9; Zn-1.28
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill-seeded / May 6
Seeding rate/depth......................	: 40 seeds/ft^2 / .5 in
Emergence date...........................	: May 13
Harvest date	: September 15
Seed treatment/cwt	: Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization..	: No blanket applications
Water management	:
Flush	: Data not available
Flood	: June 20
Drain..	: September 5
Pest management...............................	:
Herbicides....................................	: 3 qt/A Propanil + .75 oz/A Permit + 2 pt/A Prowl H_2O + 1 oz/A Londax + 42 oz/A Facet L + 4 oz/A Interlock, May 19 24 oz/A Ricestar, May 29 1.5 qt/A Propanil + 1.5 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax, June 18
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: None

Table 11. Determine the agronomic response of drill-seeded CL-Jazzman to nitrogen fertilizer rate and time of application (RP.1). Richland Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							9/15/2014	9/15/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	92 g	85 g	31 h	45.2 a	4971 f
2	UREA	30	lb ai/A	4-5 leaf	93 g	86 g	33 fg	44.8 ab	5586 e
3	UREA	60	lb ai/A	4-5 leaf	93 fg	86 fg	34 ef	44.9 ab	6466 d
4	UREA	90	lb ai/A	4-5 leaf	95 de	88 de	35 def	44.0 cd	6917 cd
5	UREA	120	lb ai/A	4-5 leaf	97 c	90 c	36 cd	43.7 de	7664 ab
6	UREA	150	lb ai/A	4-5 leaf	98 bc	91 bc	37 bc	43.1 ef	7687 a
7	UREA	180	lb ai/A	4-5 leaf	99 ab	92 ab	39 ab	42.9 f	7790 a
8	UREA	210	lb ai/A	4-5 leaf	99 a	92 a	39 a	42.8 f	7492 ab
9	UREA	45	lb ai/A	4-5 leaf	94 fg	87 fg	32 gh	45.1 a	6536 d
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	95 ef	88 ef	35 de	44.4 bc	7221 bc
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	97 cd	90 cd	37 c	43.3 ef	7527 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	98 abc	91 abc	37 c	43.2 ef	7748 a
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.60	1.60	1.70	0.60	452.60
Standard Deviation					1.10	1.10	1.20	0.42	313.40
CV					1.16	1.25	3.41	0.95	4.50
Treatment F					19.57	19.57	17.61	18.45	34.33
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 12. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application (RP.2). Richland Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							9/15/2014	9/15/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	93 fg	86 fg	29 f	44.5 abc	5762 e
2	UREA	30	lb ai/A	4-5 leaf	93 fg	86 fg	32 e	44.6 ab	6589 d
3	UREA	60	lb ai/A	4-5 leaf	93 fg	86 fg	33 de	45.0 a	7879 c
4	UREA	90	lb ai/A	4-5 leaf	94 de	87 de	34 cde	43.8 bcd	8260 bc
5	UREA	120	lb ai/A	4-5 leaf	95 c	88 c	35 bcd	43.5 def	8485 ab
6	UREA	150	lb ai/A	4-5 leaf	97 b	90 b	36 bc	43.7 b-e	8098 bc
7	UREA	180	lb ai/A	4-5 leaf	98 b	91 b	37 ab	42.7 f	8401 b
8	UREA	210	lb ai/A	4-5 leaf	99 a	92 a	38 a	42.7 ef	8262 bc
9	UREA	45	lb ai/A	4-5 leaf	92 g	85 g	32 e	45.0 a	7879 c
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	94 ef	87 ef	34 cde	44.2 a-d	8317 bc
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	95 cd	88 cd	35 bcd	43.6 c-f	8873 a
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	95 cd	88 cd	36 ab	43.4 def	8389 b
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.10	1.10	2.40	1.01	458.60
Standard Deviation					0.70	0.70	1.70	0.70	317.60
CV					0.79	0.86	4.96	1.60	4.00
Treatment F					33.16	33.16	9.33	5.00	30.74
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0002	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 13. Determine the agronomic response of drill-seeded Antonio to nitrogen fertilizer rate and time of application (RP.2). Richland Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							9/15/2014	9/15/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	90 d	83 d	33 c	45.2 a	4948 g
2	UREA	30	lb ai/A	4-5 leaf	91 cd	84 cd	33 c	44.9 ab	6321 f
3	UREA	60	lb ai/A	4-5 leaf	91 cd	84 cd	35 bc	45.0 a	7287 e
4	UREA	90	lb ai/A	4-5 leaf	92 bc	85 bc	37 ab	44.4 bcd	7459 de
5	UREA	120	lb ai/A	4-5 leaf	92 bc	85 bc	36 ab	44.2 de	8133 abc
6	UREA	150	lb ai/A	4-5 leaf	93 b	86 b	38 a	43.8 e	8480 abc
7	UREA	180	lb ai/A	4-5 leaf	97 a	90 a	37 a	42.8 f	7895 cde
8	UREA	210	lb ai/A	4-5 leaf	97 a	90 a	38 a	42.9 f	8615 ab
9	UREA	45	lb ai/A	4-5 leaf	91 cd	84 cd	34 c	45.0 a	7340 e
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	91 cd	84 cd	37 ab	44.8 abc	8064 bcd
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	92 c	85 c	37 ab	44.2 cde	8640 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	92 c	85 c	37 ab	44.0 de	8746 a
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.40	1.40	2.10	0.56	613.10
Standard Deviation					1.00	1.00	1.50	0.39	424.60
CV					1.05	1.13	4.17	0.88	5.54
Treatment F					18.98	18.98	5.60	17.80	27.42
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 14. Determine the agronomic response of drill-seeded LaKast to nitrogen fertilizer rate and time of application (RP.1). Richland Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							9/15/2014	9/15/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	91 e	84 e	30 g	45.2 cde	4450 g
2	UREA	30	lb ai/A	4-5 leaf	91 e	84 e	35 f	46.1 a	6198 f
3	UREA	60	lb ai/A	4-5 leaf	91 e	84 e	37 ef	46.1 a	7662 e
4	UREA	90	lb ai/A	4-5 leaf	91 e	84 e	41 bcd	45.2 cde	8219 d
5	UREA	120	lb ai/A	4-5 leaf	93 cd	86 cd	43 ab	45.4 cd	8809 bc
6	UREA	150	lb ai/A	4-5 leaf	94 bc	87 bc	43 ab	44.7 ef	8928 ab
7	UREA	180	lb ai/A	4-5 leaf	95 a	88 a	45 a	44.2 fg	8902 b
8	UREA	210	lb ai/A	4-5 leaf	95 a	88 a	45 a	43.7 g	9469 a
9	UREA	45	lb ai/A	4-5 leaf	91 e	84 e	38 de	46.1 ab	7990 de
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	92 d	85 d	40 cde	45.7 abc	8346 cd
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	93 cd	86 cd	42 bc	45.4 bcd	9160 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	94 ab	87 ab	43 ab	44.9 de	9235 ab
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.20	1.20	2.80	0.65	548.70
Standard Deviation					0.80	0.80	1.90	0.45	380.00
CV					0.88	0.95	4.85	0.99	4.68
Treatment F					16.17	16.17	21.14	11.56	58.75
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 15. Determine the agronomic response of drill-seeded RU1201102 (AR variety) to nitrogen fertilizer rate and time of application (RP.1). Richland Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							9/15/2014	9/15/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	91 f	84 f	28 e	45.1 ab	4089 f
2	UREA	30	lb ai/A	4-5 leaf	91 ef	84 ef	30 d	45.8 a	5552 e
3	UREA	60	lb ai/A	4-5 leaf	93 de	86 de	32 cd	44.9 bc	6349 d
4	UREA	90	lb ai/A	4-5 leaf	93 d	86 d	33 cd	44.8 bcd	7098 bc
5	UREA	120	lb ai/A	4-5 leaf	95 c	88 c	35 ab	44.1 de	7674 ab
6	UREA	150	lb ai/A	4-5 leaf	97 b	90 b	34 bc	43.9 e	7817 a
7	UREA	180	lb ai/A	4-5 leaf	98 a	91 a	37 a	43.1 f	7200 abc
8	UREA	210	lb ai/A	4-5 leaf	98 a	91 a	37 a	42.8 f	7638 ab
9	UREA	45	lb ai/A	4-5 leaf	92 def	85 def	31 d	45.5 ab	6729 cd
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	93 d	86 d	34 bc	45.2 ab	7535 ab
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	95 c	88 c	35 ab	44.3 cde	7634 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	96 b	89 b	36 ab	43.8 e	7880 a
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.50	1.50	2.50	0.72	719.30
Standard Deviation					1.00	1.00	1.70	0.50	498.10
CV					1.10	1.18	5.11	1.12	7.18
Treatment F					24.19	24.19	11.95	14.65	20.60
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 16. Determine the agronomic response of drill-seeded CLX4122 (MS variety) to nitrogen fertilizer rate and time of application (RP.1). Richland Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							9/15/2014	9/15/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	95 ef	88 ef	32 f	44.0 d	4748 h
2	UREA	30	lb ai/A	4-5 leaf	94 g	87 g	34 e	45.6 a	5840 g
3	UREA	60	lb ai/A	4-5 leaf	94 g	87 g	36 cde	45.2 ab	7133 ef
4	UREA	90	lb ai/A	4-5 leaf	96 def	89 def	37 bcd	44.4 bcd	7805 cd
5	UREA	120	lb ai/A	4-5 leaf	98 c	91 c	39 ab	44.3 cd	7879 cd
6	UREA	150	lb ai/A	4-5 leaf	98 bc	91 bc	39 ab	43.9 d	8261 abc
7	UREA	180	lb ai/A	4-5 leaf	99 ab	92 ab	40 a	42.7 e	7892 cd
8	UREA	210	lb ai/A	4-5 leaf	100 a	93 a	40 a	42.4 e	8677 a
9	UREA	45	lb ai/A	4-5 leaf	95 fg	88 fg	35 de	45.6 a	7061 f
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	96 de	89 de	37 cd	45.1 abc	7669 de
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	97 d	90 d	38 abc	44.3 d	8559 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	99 abc	92 abc	38 abc	43.9 d	8100 bcd
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.10	1.10	2.00	0.84	539.30
Standard Deviation					0.80	0.80	1.40	0.58	373.50
CV					0.81	0.87	3.74	1.31	5.00
Treatment F					27.99	27.99	12.19	12.12	37.83
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rice Variety by Nitrogen Experiments in St. Landry Parish

Experiment number	: St. Landry Parish VxN Studies
Site and design	:
Location/Cooperator	: St. Landry Parish / Charlie Fontenot
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Tensas-Sharkey complex
% organic matter	: 2.59
pH	: 7.1
Extractable nutrients ppm	: Ca-3770; Cu-2.8; Mg-681; P-78; K-228; Na-92; S-6.3; Zn-2.8
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill-seeded / March 24
Seeding rate/depth	: 40 seeds/ft^2 / .75 in
Emergence date	: April 5
Harvest date	: August 19
Seed treatment/cwt	: Dithane (fungicide) – 114 g
	Release (gibberellic acid) – 10 g
	Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
Fertilization	: No blanket applications
Water management	:
Flush	: April 30
Flood	: May 9
Drain	: August 4
Pest management	:
Herbicides	: 24 oz/A Glyphosate + 2 oz/A Sharpen + 13 oz/A Command, March 25
	1 qt/A Basagran + 1% COC, July 11
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: none

Table 17. Determine the agronomic response of drill-seeded CL-Jazzman to nitrogen fertilizer rate and time of application (SLP.1). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							8/6/2014	8/19/2014	8/19/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	108 c	96 c	35 i	45.0 b	4879 e
2	UREA	30	lb ai/A	4-5 leaf	106 d	94 d	38 hi	45.9 a	7003 d
3	UREA	60	lb ai/A	4-5 leaf	107 cd	95 cd	40 gh	45.6 ab	8001 c
4	UREA	90	lb ai/A	4-5 leaf	108 c	96 c	43 ef	45.4 ab	8460 c
5	UREA	120	lb ai/A	4-5 leaf	108 c	96 c	45 de	45.0 b	9654 ab
6	UREA	150	lb ai/A	4-5 leaf	110 ab	98 ab	46 cd	44.2 c	9450 b
7	UREA	180	lb ai/A	4-5 leaf	111 a	99 a	49 ab	43.8 c	9764 ab
8	UREA	210	lb ai/A	4-5 leaf	111 a	99 a	51 a	43.0 d	10132 a
9	UREA	45	lb ai/A	4-5 leaf	108 c	96 c	41 fg	45.4 ab	8323 c
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	108 c	96 c	43 ef	45.3 ab	9231 b
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	109 b	97 b	45 de	44.1 c	9490 b
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	110 ab	98 ab	48 bc	43.8 c	9554 ab
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.10	1.10	2.70	0.67	631.30
Standard Deviation					0.80	0.80	1.80	0.47	437.20
CV					0.71	0.80	4.24	1.04	5.05
Treatment F					16.07	16.07	25.12	14.30	46.49
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 18. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application (SLP.2). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top	animal		
Rating Date							8/6/2014	8/19/2014	8/19/2014	8/19/2014
Rating Type					50% HD	50% HD	Height	Damage	Test Wt.	Yield
Rating Unit					days	days	in	% plot	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage						
1	UREA	0	lb ai/A	4-5 leaf	104 cd	92 cd	31 f	0 a	44.7 ab	5451 d
2	UREA	30	lb ai/A	4-5 leaf	103 de	91 de	35 ef	6 a	45.0 a	6749 c
3	UREA	60	lb ai/A	4-5 leaf	103 de	91 de	40 bcd	0 a	44.6 abc	8895 b
4	UREA	90	lb ai/A	4-5 leaf	104 cd	92 cd	38 cde	4 a	43.6 b-e	9188 b
5	UREA	120	lb ai/A	4-5 leaf	105 bc	93 bc	42 abc	0 a	44.5 a-d	10697 a
6	UREA	150	lb ai/A	4-5 leaf	108 a	96 a	43 ab	0 a	43.4 de	10183 a
7	UREA	180	lb ai/A	4-5 leaf	107 ab	95 ab	43 ab	0 a	44.0 a-d	10566 a
8	UREA	210	lb ai/A	4-5 leaf	108 a	96 a	44 a	0 a	42.7 e	10612 a
9	UREA	45	lb ai/A	4-5 leaf	102 e	90 e	38 de	0 a	43.5 cde	9120 b
	UREA	45	lb ai/A	PD						
10	UREA	75	lb ai/A	4-5 leaf	104 cd	92 cd	40 a-d	0 a	44.3 a-d	10334 a
	UREA	45	lb ai/A	PD						
11	UREA	105	lb ai/A	4-5 leaf	105 cd	93 cd	40 a-d	0 a	42.8 e	10728 a
	UREA	45	lb ai/A	PD						
12	UREA	135	lb ai/A	4-5 leaf	107 ab	95 ab	43 ab	0 a	43.4 de	10633 a
	UREA	45	lb ai/A	PD						
LSD (P=.05)					1.80	1.80	3.80	5.80	1.18	960.50
Standard Deviation					1.30	1.30	2.60	4.00	0.82	665.20
CV					1.21	1.37	6.64	484.30	1.87	7.05
Treatment F					9.63	9.63	8.73	1.00	3.46	26.52
Treatment Prob(F)					0.0001	0.0001	0.0001	0.4671	0.0028	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 19. Determine the agronomic response of drill-seeded Antonio to nitrogen fertilizer rate and time of application (SLP.2). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							8/6/2014	8/19/2014	8/19/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	103 cd	91 cd	33 d	44.4 bcd	4273 h
2	UREA	30	lb ai/A	4-5 leaf	103 cd	91 cd	36 cd	44.9 a	5448 g
3	UREA	60	lb ai/A	4-5 leaf	103 cd	91 cd	36 cd	44.8 a	6624 f
4	UREA	90	lb ai/A	4-5 leaf	103 cd	91 cd	38 c	44.7 ab	7351 e
5	UREA	120	lb ai/A	4-5 leaf	103 cd	91 cd	39 bc	44.4 abc	8825 cd
6	UREA	150	lb ai/A	4-5 leaf	105 ab	93 ab	38 bc	44.0 cde	8875 cd
7	UREA	180	lb ai/A	4-5 leaf	106 a	94 a	41 ab	43.9 de	9769 ab
8	UREA	210	lb ai/A	4-5 leaf	106 a	94 a	41 ab	43.9 e	10043 a
9	UREA	45	lb ai/A	4-5 leaf	102 d	90 d	38 c	44.8 ab	7454 e
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	103 cd	91 cd	39 bc	44.6 ab	8321 d
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	104 bc	92 bc	41 ab	44.4 bcd	9092 bc
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	105 ab	93 ab	43 a	44.0 cde	9697 ab
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.70	1.70	3.50	0.45	688.00
Standard Deviation					1.20	1.20	2.40	0.31	476.50
CV					1.16	1.31	6.21	0.70	5.97
Treatment F					5.92	5.92	5.60	5.46	57.55
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 20. Determine the agronomic response of drill-seeded LaKast to nitrogen fertilizer rate and time of application (SLP.1). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							8/6/2014	8/19/2014		8/19/2014	8/19/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	101 de	89 de	35 f	0 a	0 a	44.7 a	5061 h
2	UREA	30	lb ai/A	4-5 leaf	101 e	89 e	36 f	0 a	0 a	45.9 a	6433 g
3	UREA	60	lb ai/A	4-5 leaf	102 cde	90 cde	41 e	0 a	0 a	45.6 a	7839 f
4	UREA	90	lb ai/A	4-5 leaf	103 a-e	91 a-e	42 de	0 a	0 a	44.7 a	8844 e
5	UREA	120	lb ai/A	4-5 leaf	103 abc	91 abc	47 abc	0 a	0 a	45.0 a	10269 cd
6	UREA	150	lb ai/A	4-5 leaf	105 a	93 a	47 ab	0 a	0 a	44.8 a	10470 bcd
7	UREA	180	lb ai/A	4-5 leaf	104 ab	92 ab	48 a	3 a	1 a	44.9 a	10707 abc
8	UREA	210	lb ai/A	4-5 leaf	104 ab	92 ab	46 abc	0 a	0 a	45.0 a	11337 a
9	UREA	45	lb ai/A	4-5 leaf	101 e	89 e	42 de	0 a	0 a	45.1 a	8706 e
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	103 b-e	91 b-e	44 cd	0 a	0 a	45.1 a	9934 d
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	103 a-d	91 a-d	44 bcd	20 a	1 a	44.2 a	10284 cd
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	103 a-d	91 a-d	47 abc	10 a	1 a	44.7 a	10998 ab
	UREA	45	lb ai/A	PD							
LSD (P=.05)					1.80	1.80	2.90	17.40	1.10	1.15	650.10
Standard Deviation					1.20	1.20	2.00	12.00	0.80	0.79	450.30
CV					1.19	1.35	4.67	444.63	329.83	1.77	4.87
Treatment F					3.57	3.57	18.29	1.05	1.39	1.24	74.50
Treatment Prob(F)					0.0022	0.0022	0.0001	0.4292	0.2240	0.3032	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 21. Determine the agronomic response of drill-seeded RU1201102 (AR variety) to nitrogen fertilizer rate and time of application (SLP.1). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							8/6/2014	8/19/2014	8/19/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	101 f	89 f	32 e	44.5 abc	6344 f
2	UREA	30	lb ai/A	4-5 leaf	101 f	89 f	33 e	45.2 a	7258 e
3	UREA	60	lb ai/A	4-5 leaf	102 ef	90 ef	36 d	45.1 ab	8735 d
4	UREA	90	lb ai/A	4-5 leaf	103 e	91 e	36 d	44.1 a-d	9433 c
5	UREA	120	lb ai/A	4-5 leaf	105 cd	93 cd	40 abc	43.9 bcd	10493 ab
6	UREA	150	lb ai/A	4-5 leaf	105 cd	93 cd	38 bcd	43.5 cd	10493 ab
7	UREA	180	lb ai/A	4-5 leaf	107 a	95 a	41 ab	44.0 a-d	11026 a
8	UREA	210	lb ai/A	4-5 leaf	106 ab	94 ab	41 a	43.2 d	10315 b
9	UREA	45	lb ai/A	4-5 leaf	101 f	89 f	37 cd	45.1 ab	9488 c
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	102 ef	90 ef	40 ab	45.0 ab	10492 ab
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	104 d	92 d	40 abc	44.3 a-d	10733 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	106 bc	94 bc	42 a	43.9 bcd	10964 ab
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.10	1.10	3.00	1.24	696.40
Standard Deviation					0.70	0.70	2.10	0.86	482.30
CV					0.72	0.81	5.47	1.94	5.00
Treatment F					29.34	29.34	10.00	2.39	38.97
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0265	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 22. Determine the agronomic response of drill-seeded CLX4122 (MS variety) to nitrogen fertilizer rate and time of application (SLP.1). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							8/6/2014	8/19/2014		8/19/2014	8/19/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	101 b	89 b	34 d	0 a	0 a	44.7 a	6740 h
2	UREA	30	lb ai/A	4-5 leaf	100 b	88 b	36 cd	0 a	0 a	44.2 a	8728 g
3	UREA	60	lb ai/A	4-5 leaf	100 b	88 b	40 ab	0 a	0 a	45.0 a	9144 fg
4	UREA	90	lb ai/A	4-5 leaf	101 b	89 b	39 ab	10 a	1 a	43.3 a	9723 ef
5	UREA	120	lb ai/A	4-5 leaf	101 b	89 b	40 ab	0 a	0 a	44.6 a	10793 bcd
6	UREA	150	lb ai/A	4-5 leaf	103 a	91 a	42 ab	5 a	1 a	43.7 a	10930 abc
7	UREA	180	lb ai/A	4-5 leaf	104 a	92 a	40 ab	5 a	1 a	43.6 a	10901 abc
8	UREA	210	lb ai/A	4-5 leaf	103 a	91 a	43 a	5 a	0 a	43.6 a	11376 abc
9	UREA	45	lb ai/A	4-5 leaf	100 b	88 b	39 bc	5 a	1 a	44.4 a	10072 de
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	100 b	88 b	41 ab	13 a	1 a	45.2 a	10750 cd
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	100 b	88 b	41 ab	15 a	1 a	43.8 a	11554 a
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	101 b	89 b	43 a	15 a	1 a	44.7 a	11527 ab
	UREA	45	lb ai/A	PD							
LSD (P=.05)					1.30	1.30	3.70	19.80	1.40	1.79	735.50
Standard Deviation					0.90	0.90	2.60	13.70	1.00	1.24	509.40
CV					0.89	1.01	6.45	227.22	228.19	2.80	5.00
Treatment F					9.08	9.08	4.49	0.71	0.62	0.98	31.05
Treatment Prob(F)					0.0001	0.0001	0.0004	0.7199	0.7984	0.4810	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rice Variety by Nitrogen Experiments in Vermilion Parish

Experiment number	Vermilion Parish VxN Studies
Site and design	
Location/Cooperator	Vermilion Parish / Kent Lounsberry
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Kaplan silt loam
% organic matter	1.47
pH	4.81
Extractable nutrients ppm	Ca-792; Cu-1.1; Mg-156; P-4.5; K-101; Na-31; S-12.8; Zn-4.9
Crop/Variety	Rice / See data sheet
Planting method/date	Drill-seeded / March 19
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	April 1
Harvest date	August 11
Ratoon Harvest date	November 10
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
Fertilization	250 lb/A 9-24-30, applied late March 90 lb N/A 46-0-0, August 20
Water management	
Flush	April 1, April 28
Flood	May 8
Drain	July 23
Ratoon flood	August 20
Ratoon drain	October 21
Pest management	
Herbicides	10 oz/A Command, applied late March (fertilizer incorporated) 1.5 qt/A Propanil + 1.5 qt/A RiceBeaux + 1 oz/A Londax + 1 oz Permit, May 6
Insecticides	None
Fungicides	22 oz/A Quilt Xcel, June 20

Table 23. Determine the agronomic response of drill-seeded CL-Jazzman to nitrogen fertilizer rate and time of application (VP.1). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top					
Rating Date							8/1/2014	8/11/2014	8/11/2014	11/10/2014	11/10/2014	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	108 f	95 f	38 g	48.4 ab	8037 a	41.7 a	1523 ab	9560 a
2	UREA	30	lb ai/A	4-5 leaf	108 f	95 f	39 fg	48.5 a	7850 a	41.3 a	1899 a	9750 a
3	UREA	60	lb ai/A	4-5 leaf	109 f	96 f	40 efg	47.9 cd	8403 a	41.3 a	1468 abc	9870 a
4	UREA	90	lb ai/A	4-5 leaf	111 e	98 e	41 d-g	47.4 ef	8438 a	41.1 a	1289 bcd	9727 a
5	UREA	120	lb ai/A	4-5 leaf	112 de	99 de	43 cde	47.1 fg	8976 a	41.3 a	1180 bcd	10155 a
6	UREA	150	lb ai/A	4-5 leaf	113 bc	100 bc	43 bcd	46.7 h	8885 a	41.5 a	896 d	9781 a
7	UREA	180	lb ai/A	4-5 leaf	115 ab	102 ab	46 ab	46.9 gh	8656 a	41.4 a	1085 cd	9741 a
8	UREA	210	lb ai/A	4-5 leaf	115 a	102 a	47 a	46.6 h	8380 a	41.0 a	1055 cd	9436 a
9	UREA	45	lb ai/A	4-5 leaf	108 f	95 f	41 def	48.0 bc	8587 a	41.4 a	1537 ab	10123 a
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	111 e	98 e	43 b-e	47.6 de	8665 a	41.2 a	1439 bc	10104 a
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	112 cde	99 cde	42 def	47.4 ef	8796 a	41.6 a	1223 bcd	10019 a
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	113 cd	100 cd	45 abc	46.8 gh	8501 a	41.4 a	1118 bcd	9619 a
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.40	1.40	2.97	0.42	730.80	0.58	433.20	709.00
Standard Deviation					0.90	0.90	2.06	0.29	506.10	0.40	300.00	491.00
CV					0.85	0.96	4.86	0.61	5.94	0.98	22.92	5.00
Treatment F					26.94	26.94	6.54	20.64	1.68	0.89	3.37	0.91
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.1226	0.5622	0.0033	0.5413

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 24. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application (VP.2). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top					
Rating Date							8/1/2014	8/11/2014	8/11/2014	11/10/2014	11/10/2014	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	105 e	92 e	34 e	48.7 a	8253 b-f	44.3 a	2282 de	10535 a
2	UREA	30	lb ai/A	4-5 leaf	106 e	93 e	37 d	48.6 ab	8784 ab	43.7 a	2207 e	10991 a
3	UREA	60	lb ai/A	4-5 leaf	108 d	95 d	37 cd	48.4 ab	8707 ab	43.9 a	2450 cde	11156 a
4	UREA	90	lb ai/A	4-5 leaf	110 c	97 c	38 bcd	48.1 bc	8519 a-d	44.2 a	2364 de	10883 a
5	UREA	120	lb ai/A	4-5 leaf	110 c	97 c	39 ab	47.7 cd	8419 a-e	44.1 a	2773 abc	11233 a
6	UREA	150	lb ai/A	4-5 leaf	112 ab	99 ab	40 a	47.3 d	7805 ef	44.7 a	2788 abc	10592 a
7	UREA	180	lb ai/A	4-5 leaf	113 a	100 a	39 abc	47.6 cd	7880 def	44.0 a	2646 bcd	10526 a
8	UREA	210	lb ai/A	4-5 leaf	113 a	100 a	39 ab	46.8 e	7642 f	44.0 a	3093 a	10736 a
9	UREA	45	lb ai/A	4-5 leaf	108 d	95 d	37 cd	48.5 ab	8900 a	44.1 a	2611 bcd	11511 a
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	110 c	97 c	38 a-d	47.8 cd	8532 abc	44.1 a	2584 bcd	11115 a
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	112 b	99 b	39 abc	47.8 cd	7866 ef	44.3 a	2861 ab	10727 a
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	112 ab	99 ab	38 a-d	47.5 d	7924 c-f	44.4 a	3020 a	11039 a
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.20	1.20	1.94	0.53	639.10	0.79	369.60	760.80
Standard Deviation					0.80	0.80	1.34	0.36	442.60	0.54	256.00	526.90
CV					0.77	0.88	3.55	0.76	5.35	1.23	9.70	4.82
Treatment F					43.39	43.39	5.27	9.81	3.81	0.90	4.83	1.37
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0014	0.5504	0.0003	0.2374

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 25. Determine the agronomic response of drill-seeded Antonio to nitrogen fertilizer rate and time of application (VP.2). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top					
Rating Date							8/1/2014	8/11/2014	8/11/2014	11/10/2014	11/10/2014	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	105 f	92 f	35 a	48.6 a	6874 a	44.0 a	2239 a	9113 a
2	UREA	30	lb ai/A	4-5 leaf	106 ef	93 ef	36 a	48.2 a	6987 a	43.7 a	2021 a	9008 a
3	UREA	60	lb ai/A	4-5 leaf	108 bcd	95 bcd	37 a	47.2 bc	7259 a	43.9 a	2442 a	9701 a
4	UREA	90	lb ai/A	4-5 leaf	108 abc	95 abc	37 a	47.0 cd	7320 a	44.0 a	2276 a	9596 a
5	UREA	120	lb ai/A	4-5 leaf	109 abc	96 abc	38 a	46.7 de	6793 a	43.2 a	2530 a	9324 a
6	UREA	150	lb ai/A	4-5 leaf	108 abc	95 abc	38 a	46.5 e	6989 a	43.2 a	2410 a	9399 a
7	UREA	180	lb ai/A	4-5 leaf	109 ab	96 ab	40 a	46.7 de	6977 a	43.9 a	2555 a	9531 a
8	UREA	210	lb ai/A	4-5 leaf	110 a	97 a	40 a	46.0 f	7159 a	43.6 a	2653 a	9812 a
9	UREA	45	lb ai/A	4-5 leaf	106 def	93 def	38 a	47.6 b	7263 a	44.3 a	2570 a	9833 a
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	107 cde	94 cde	38 a	47.1 cd	7175 a	43.9 a	2513 a	9688 a
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	109 abc	96 abc	37 a	46.6 de	7193 a	44.0 a	2751 a	9944 a
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	109 ab	96 ab	38 a	46.3 ef	6964 a	44.0 a	2709 a	9672 a
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.50	1.50	3.08	0.44	671.40	1.20	469.10	943.00
Standard Deviation					1.10	1.10	2.14	0.30	465.00	0.83	324.90	653.10
CV					0.99	1.13	5.70	0.64	6.57	1.89	13.14	6.84
Treatment F					6.72	6.72	1.66	24.84	0.53	0.60	1.69	0.79
Treatment Prob(F)					0.0001	0.0001	0.1287	0.0001	0.8667	0.8191	0.1206	0.6515

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Nitrogen Use Efficiency Response to Variety or Hybrid Selection and Nitrogen Time of Application
Ratoon Response to First Crop N Application Timing

Experiment number	14-CM-06
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.74
pH	7.4
Extractable nutrients ppm	Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9
Crop/Variety	Rice / See data sheet
Planting method/date	Drill-seeded / March 13
Seeding rate/depth	Conv-33, Hyb-14 seeds/ft^2 / .5 in
Emergence date	March 30
Harvest date	August 12
Ratoon harvest date	November 14
Seed treatment/cwt	Conv - Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz Hyb – Maxim 4FS Apron XL Gibberellic Acid Zinc Dynasty AV-1011 (bird repellant) – 18.3 oz
Fertilization	90 lb N/A 46-0-0, August 15
Water management	
Flush	April 24, April 30
Flood	May 9
Drain	July 28
Ratoon flood	August 18
Ratoon drain	October 24
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4 1 pt/A 2,4-D + 3 pt/A Basagran + 2 pt/A COC, August 22
Insecticides	Conventional - 0.137 lb ai/cwt Dermacor seed treatment Hybrids - 0.06 lb ai/cwt Dermacor seed treatment
Fungicides	22 oz/A Quilt Xcel, June 20

Table 26. Nitrogen use efficiency response to variety or hybrid selection and nitrogen (N) time of application (RRS.2). Ratoon response to first crop N application timing. XL723 changed to XL753. Rice Research Station.

Crop Name					Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		top											
Rating Date									7/30/2014		8/12/2014		8/12/2014		11/14/2014		11/14/2014			
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield		Test Wt.		Yield		Total Yield	
Rating Unit					days		days		in		lb/bu		lb/A		lb/bu		lb/A		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main		Ratoon		Ratoon		MC+RC	
Trt. No.	Tr. Name	Rate	Rate Unit	Growth Stage																
1	CLXL729				113	cde	96	cde	42	a-e	47.1	d-h	12980	a	46.3	ab	3075	a	16055	a
	SPF	150	lb ai/A	PF																
2	CLXL729				112	def	95	def	42	a-d	46.7	e-h	12646	ab	46.6	a	2924	a	15569	a
	120 PF/30 GR	120	lb ai/A	PF																
	120 PF/30 GR	30	lb ai/A	GR																
3	CLXL729				112	def	95	def	44	ab	47.9	c-f	12992	a	46.3	a	3101	a	16093	a
	120 PF/30 HD	120	lb ai/A	PF																
	120 PF/30 HD	30	lb ai/A	50% HD																
4	CLXL729				105	m	88	m	37	h	49.9	ab	8128	j	46.4	a	2356	b	10485	g
	0 lb N/A	0	lb ai/A	PF																
5	CLXL745				110	hij	93	hij	45	a	47.7	c-g	12387	ab	45.3	c-g	2161	b-e	14547	b
	SPF	150	lb ai/A	PF																
6	CLXL745				109	k	92	k	43	abc	48.0	cde	12077	bc	45.6	bcd	2168	b-e	14245	b
	120 PF/30 GR	120	lb ai/A	PF																
	120 PF/30 GR	30	lb ai/A	GR																
7	CLXL745				109	ijk	92	ijk	41	b-g	47.3	c-h	12171	b	45.4	c-f	1998	c-f	14169	b
	120 PF/30 HD	120	lb ai/A	PF																
	120 PF/30 HD	30	lb ai/A	50% HD																
8	CLXL745				103	n	86	n	38	fgh	48.7	a-d	7377	k	45.8	abc	1264	ijk	8640	h
	0 lb N/A	0	lb ai/A	PF																
9	XL753				114	bc	97	bc	42	b-e	46.5	e-h	12103	b	44.3	hij	2095	b-e	14198	b
	SPF	150	lb ai/A	PF																
10	XL753				113	cd	96	cd	42	a-d	46.2	gh	12482	ab	44.7	e-i	2200	bcd	14682	b
	120 PF/30 GR	120	lb ai/A	PF																
	120 PF/30 GR	30	lb ai/A	GR																
11	XL753				115	b	98	b	42	b-e	47.3	c-h	12202	b	44.9	d-h	2166	b-e	14368	b
	120 PF/30 HD	120	lb ai/A	PF																
	120 PF/30 HD	30	lb ai/A	50% HD																
12	XL753				107	l	90	l	38	gh	48.5	bcd	8620	ij	45.4	cde	1524	ghi	10144	g
	0 lb N/A	0	lb ai/A	PF																
13	CL111				112	efg	95	efg	42	b-e	47.5	c-g	11410	cd	44.6	f-i	1838	efg	13248	c
	SPF	150	lb ai/A	PF																
14	CL111				111	ghi	94	ghi	39	d-h	47.8	c-g	10587	ef	44.7	e-i	1725	fgh	12312	de
	120 PF/30 GR	120	lb ai/A	PF																
	120 PF/30 GR	30	lb ai/A	GR																
15	CL111				111	fgh	94	fgh	40	c-h	46.4	e-h	10917	de	45.1	c-g	1945	c-f	12862	cd
	120 PF/30 HD	120	lb ai/A	PF																
	120 PF/30 HD	30	lb ai/A	50% HD																
16	CL111				102	n	85	n	34	i	50.2	a	6043	l	45.3	c-f	1824	efg	7868	h
	0 lb N/A	0	lb ai/A	PF																

Continued.

Table 26. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top					
Rating Date							7/30/2014	8/12/2014	8/12/2014	11/14/2014	11/14/2014	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Tr. Name	Rate	Rate Unit	Growth Stage								
17	CL152				119 a	102 a	41 b-f	45.8 h	9389 gh	43.8 j	2032 b-f	11421 f
	SPF	150	lb ai/A	PF								
18	CL152				119 a	102 a	41 b-g	46.5 e-h	9928 fg	44.0 ij	2132 b-e	12060 ef
	120 PF/30 GR	120	lb ai/A	PF								
	120 PF/30 GR	30	lb ai/A	GR								
19	CL152				119 a	102 a	39 d-h	46.2 gh	9373 gh	44.2 hij	2283 bc	11656 ef
	120 PF/30 HD	120	lb ai/A	PF								
	120 PF/30 HD	30	lb ai/A	50% HD								
20	CL152				109 jk	92 jk	32 i	48.7 abc	6041 l	44.9 d-h	1932 def	7973 h
	0 lb N/A	0	lb ai/A	PF								
21	Mermentau				113 cd	96 cd	39 d-h	46.3 fgh	9363 gh	44.5 g-j	1269 ijk	10633 g
	SPF	150	lb ai/A	PF								
22	Mermentau				113 cde	96 cde	38 gh	47.1 d-h	8919 hi	44.9 d-h	1008 k	9927 g
	120 PF/30 GR	120	lb ai/A	PF								
	120 PF/30 GR	30	lb ai/A	GR								
23	Mermentau				113 cde	96 cde	39 e-h	46.6 e-h	9379 gh	44.8 d-h	1171 jk	10550 g
	120 PF/30 HD	120	lb ai/A	PF								
	120 PF/30 HD	30	lb ai/A	50% HD								
24	Mermentau				106 lm	89 lm	33 i	48.6 a-d	4415 m	45.3 c-f	1470 hij	5885 i
	0 lb N/A	0	lb ai/A	PF								
LSD P=.05					1.49	1.49	3.32	1.59	683.00	0.77	345.90	779.30
Standard Deviation					1.06	1.06	2.35	1.13	484.20	0.55	245.20	552.50
CV					0.95	1.12	5.93	2.37	4.80	1.21	12.35	4.58
Treatment F					69.70	69.70	7.91	4.25	100.55	7.94	20.16	101.73
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Continued.

Table 26. Continued.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				Tissue		Grain		Straw		Tissue N		Grain N		N Uptake		N Uptake		N Uptake		N Fert. Eff.		N Fert. Eff.	
Part Rated				Abvgrd		Abvgrd		Abvgrd		Abvgrd		Abvgrd		Straw		Grain		Total					
Rating Date				8/7/2014		8/7/2014		8/7/2014		8/7/2014		8/7/2014											
Rating Type				Biomass-dry		Biomass-dry		Biomass-dry															
Rating Unit				lb/A		lb/A		lb/A		% N		%N		lb/A		lb/A		lb/A		%		%	
Crop Stage Majority				Main		Main		Main		Straw		Grain		Straw		Grain		Str+Grn		by block		by mean	
Crop Stage Scale				Maturity		Maturity		Maturity		Maturity		Maturity		Maturity		Maturity		Maturity		Maturity		Maturity	
Trt. No.	Tr. Name	Rate	Rate Unit																				
1	CLXL729			18956	bc	10421	ab	8535	a-e	0.836	ab	1.275	a	159	a	166	a	324	a	100	a	99	abc
	SPF	150	lb ai/A																				
2	CLXL729			19404	ab	10388	b	9124	a-d	0.644	fgh	1.163	c-f	125	bc	149	bcd	279	bc	99	a	97	abc
	120 PF/30 GR	120	lb ai/A																				
	120 PF/30 GR	30	lb ai/A																				
3	CLXL729			17914	bcd	9796	bcd	8118	b-e	0.664	efg	1.208	a-e	121	bc	157	ab	278	bc	94	ab	90	a-e
	120 PF/30 HD	120	lb ai/A																				
	120 PF/30 HD	30	lb ai/A																				
4	CLXL729			10794	e	6502	ghi	4291	f	0.480	jkl	0.816	hi	52	f	66	k	118	g	0	e	0	g
	0 lb N/A	0	lb ai/A																				
5	CLXL745			19104	abc	9380	b-e	9724	ab	0.730	c-f	1.263	ab	140	ab	156	abc	296	ab	100	a	100	a
	SPF	150	lb ai/A																				
6	CLXL745			22424	a	12071	a	10354	a	0.542	ijk	1.153	def	122	bc	139	d-g	261	bcd	98	ab	95	a-d
	120 PF/30 GR	120	lb ai/A																				
	120 PF/30 GR	30	lb ai/A																				
7	CLXL745			18664	bc	10083	bc	8581	a-e	0.564	hij	1.220	a-e	106	cde	149	b-e	254	cde	97	ab	99	ab
	120 PF/30 HD	120	lb ai/A																				
	120 PF/30 HD	30	lb ai/A																				
8	CLXL745			8345	e	4952	ijk	3394	f	0.453	kl	0.826	hi	38	f	61	kl	99	g	0	e	0	g
	0 lb N/A	0	lb ai/A																				
9	XL753			17029	bcd	8629	c-f	8399	b-e	0.697	d-g	1.173	b-f	119	bcd	142	c-f	261	bcd	95	ab	97	abc
	SPF	150	lb ai/A																				
10	XL753			15183	d	8300	def	6884	e	0.567	hij	1.048	g	86	e	131	fgh	217	f	74	d	74	f
	120 PF/30 GR	120	lb ai/A																				
	120 PF/30 GR	30	lb ai/A																				
11	XL753			15823	cd	8791	b-f	7033	e	0.558	hij	1.210	a-e	89	de	147	b-e	236	def	81	cd	82	ef
	120 PF/30 HD	120	lb ai/A																				
	120 PF/30 HD	30	lb ai/A																				
12	XL753			9076	e	5812	hij	3264	f	0.411	l	0.788	i	37	f	68	k	105	g	0	e	0	g
	0 lb N/A	0	lb ai/A																				
13	CL111			14939	d	8399	def	7649	cde	0.752	b-e	1.165	c-f	121	bc	135	efg	269	bcd	100	a	100	a
	SPF	150	lb ai/A																				
14	CL111			16710	bcd	8496	c-f	8214	b-e	0.718	c-g	1.183	a-e	120	bc	125	ghi	245	c-f	94	ab	95	a-d
	120 PF/30 GR	120	lb ai/A																				
	120 PF/30 GR	30	lb ai/A																				
15	CL111			16099	bcd	8137	d-g	7962	b-e	0.763	a-d	1.218	a-e	123	bc	133	fg	256	cde	96	ab	97	abc
	120 PF/30 HD	120	lb ai/A																				
	120 PF/30 HD	30	lb ai/A																				
16	CL111			8803	e	4786	jk	4018	f	0.516	jk	0.851	hi	45	f	51	lm	97	g	0	e	0	g
	0 lb N/A	0	lb ai/A																				

Continued.

Table 26. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Tissue	Grain	Straw	Tissue N	Grain N	N Uptake	N Uptake	N Uptake	N Fert. Eff.	N Fert. Eff.
Part Rated				Abvgrd	Abvgrd	Abvgrd	Abvgrd	Abvgrd	Straw	Grain	Total		
Rating Date				8/7/2014	8/7/2014	8/7/2014	8/7/2014	8/7/2014					
Rating Type				Biomass-dry	Biomass-dry	Biomass-dry							
Rating Unit				lb/A	lb/A	lb/A	% N	%N	lb/A	lb/A	lb/A	%	%
Crop Stage Majority				Main	Main	Main	Straw	Grain	Straw	Grain	Str+Grn	by block	by mean
Crop Stage Scale				Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	Maturity
Trt. No.	Tr. Name	Rate	Rate Unit										
17	CL152			16556 bcd	7312 fgh	9244 abc	0.842 ab	1.200 a-e	140 ab	113 ij	252 c-f	97 ab	95 a-d
	SPF	150	lb ai/A										
18	CL152			16205 bcd	7667 fg	8538 a-e	0.695 d-g	1.081 fg	113 b-e	107 j	221 ef	86 bcd	83 def
	120 PF/30 GR	120	lb ai/A										
	120 PF/30 GR	30	lb ai/A										
19	CL152			17143 bcd	7793 efg	9349 abc	0.783 a-d	1.128 efg	136 abc	106 j	241 def	89 abc	87 b-f
	120 PF/30 HD	120	lb ai/A										
	120 PF/30 HD	30	lb ai/A										
20	CL152			7927 e	4231 jk	3696 f	0.512 jk	0.840 hi	41 f	51 lm	91 g	0 e	0 g
	0 lb N/A	0	lb ai/A										
21	Mermentau			16351 bcd	8173 d-g	8179 b-e	0.849 a	1.243 a-d	138 ab	116 ij	255 cde	100 a	100 a
	SPF	150	lb ai/A										
22	Mermentau			14914 d	7842 efg	7184 de	0.788 a-d	1.173 b-f	117 bcd	105 j	218 f	88 abc	86 c-f
	120 PF/30 GR	120	lb ai/A										
	120 PF/30 GR	30	lb ai/A										
23	Mermentau			15007 d	7647 fg	7267 de	0.798 abc	1.250 abc	121 bc	118 hij	237 def	90 abc	92 a-e
	120 PF/30 HD	120	lb ai/A										
	120 PF/30 HD	30	lb ai/A										
24	Mermentau			7718 e	4120 k	3598 f	0.624 ghi	0.887 h	48 f	39 m	87 g	0 e	0 g
	0 lb N/A	0	lb ai/A										
LSD P=.05				3386.30	1672.50	1951.80	0.09	0.10	30.60	14.00	36.40	12.90	12.70
Standard Deviation				2400.50	1184.30	1382.10	0.07	0.07	21.70	9.90	25.80	9.10	9.00
CV				15.96	14.98	19.22	10.15	6.14	21.19	8.71	11.91	13.06	12.95
Treatment F				11.67	11.86	10.32	15.79	23.81	12.24	59.16	32.11	83.55	84.97
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Volatilization Control of Limus-Treated Urea

Experiment number ....: 14-CM-10

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.66 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.44
- **pH** ....: 7.4
- **Extractable nutrients** ppm..........: Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety ....: Rice / CL152
- **Planting method/date** ....: Drill-seeded / March 13
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 in
- **Emergence date** ....: March 30
- **Harvest date** ....: Did not Harvest

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization ....: No Blanket Applications

Water management ....:
- **Flush** ....: April 21
- **Flood** ....: May 12
- **Drain** ....: July 25

Pest management ....:
- **Herbicides** ....: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: None

Comments: Rainfall was 0.61 inch on May 11 – this did not affect volatilization trial due to the fact that the chambers were covered to protect them from rainfall events.

Figure 1. Cumulative N loss due to ammonia volatilization over a 15-day period of time for multiple N fertilizers and one untreated control (UTC) on a Crowley silt loam soil. Rice Research Station.

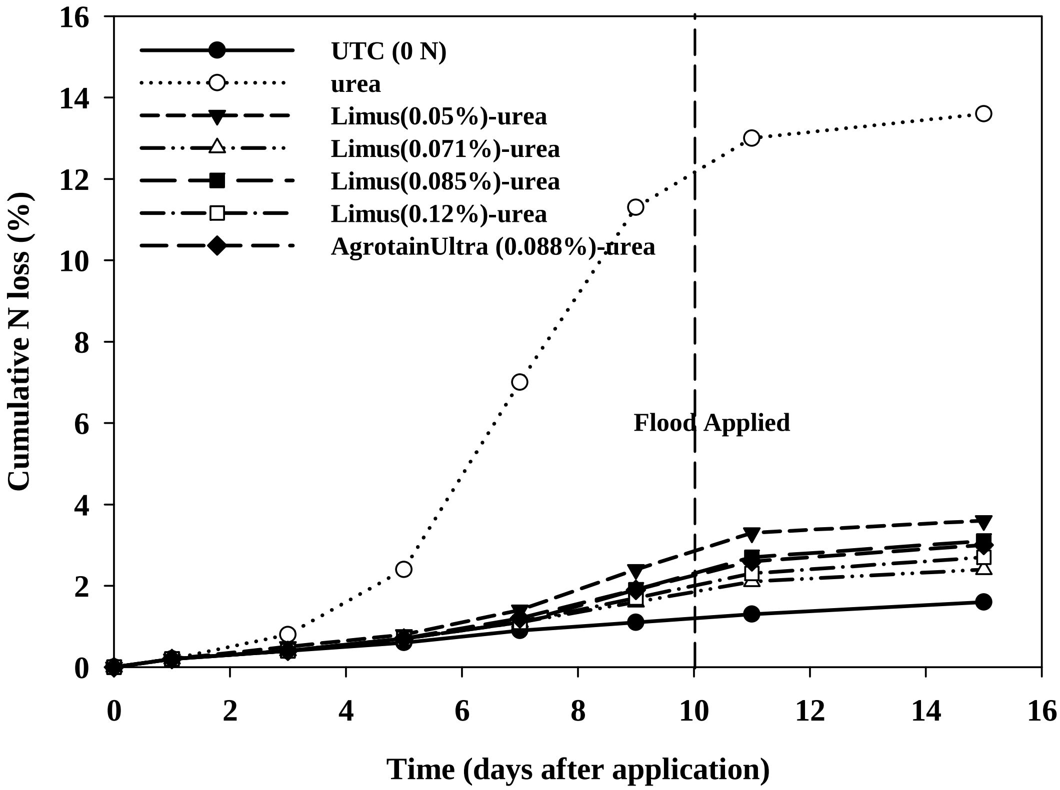


Table 27. Ammonia loss for six N fertilizer sources at each sampling time over a 15-day period of time after fertilizer application. Rice Research Station.

Crop Name					NH4	NH4	NH4	NH4	NH4	NH4	NH4	TOTAL N
Description (Days Preflood; DPF)					9 DPF	7 DPF	5 DPF	3 DPF	1 DPF	1 DPostF	5 DPostF	sum
Rating Type (Days Post Application; DPA)					1 DPA	3 DPA	5 DPA	7 DPA	9 DPA	11 DPA	15 DPA	sum
Rating Unit												ppm
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	UTC (0 N)	0	lb ai/A	10 DPF	3.4 a	3.5 c	3.6 b	4.0 c	3.4 d	4.1 e	3.7 c	26 e
2	urea	120	lb ai/A	10 DPF	3.1 a	10.5 a	26.2 a	74.7 a	71.2 a	28.4 a	8.7 a	223 a
3	Limus(0.05%)-urea	120	lb ai/A	10 DPF	3.2 a	4.4 b	6.0 b	9.6 b	16.4 b	14.4 b	4.7 c	59 b
4	Limus(0.071%)-urea	120	lb ai/A	10 DPF	2.9 a	3.9 bc	5.0 b	6.1 bc	9.1 cd	7.2 de	5.1 bc	39 d
5	Limus(0.085%)-urea	120	lb ai/A	10 DPF	3.2 a	4.0 bc	4.4 b	6.6 bc	12.9 bc	12.7 bc	7.0 ab	51 bc
6	Limus(0.12%)-urea	120	lb ai/A	10 DPF	3.0 a	3.9 bc	4.6 b	6.2 bc	10.3 c	10.0 cd	5.6 bc	44 cd
7	AgrotainUltra (0.088%)-urea	120	lb ai/A	10 DPF	2.9 a	4.1 bc	4.5 b	7.6 bc	12.4 bc	11.5 bc	5.5 bc	49 bcd
LSD (P=.05)					0.66	0.79	4.68	4.58	5.91	3.90	2.14	10.5
Standard Deviation					0.44	0.53	3.13	3.07	3.96	2.62	1.43	7.0
CV					14.28	10.87	40.41	18.72	20.46	20.73	24.88	10.08
Replicate F					3.948	0.444	0.829	1.659	2.402	3.607	1.453	5.312
Replicate Prob(F)					0.0263	0.7247	0.4958	0.2134	0.1034	0.0350	0.2627	0.0091
Treatment F					0.707	86.511	27.222	281.696	137.118	35.413	5.258	375.411
Treatment Prob(F)					0.6487	0.0001	0.0001	0.0001	0.0001	0.0001	0.0032	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Table 28. Cumulative ammonia loss for six N fertilizer sources over a 15-day period of time after fertilizer application. Rice Research Station.

				Cumulative	Cumulative	Cumulative	Cumulative	Cumulative	Cumulative	Cumulative
Crop Name				N	N	N	N	N	N	N
Crop Variety				loss	loss	loss	loss	loss	loss	loss
Rating Type: (Days After Application; DAA)				1 DAA	3 DAA	5 DAA	7 DAA	9 DAA	11 DAA	15 DAA
Rating Unit				%	%	%	%	%	%	%
Trt No.	Treatment Name	Rate	Rate Unit							
1	UTC (0 N)	0	lb ai/A	0.2 a	0.4 b	0.6 b	0.9 c	1.1 d	1.3 d	1.6 e
2	urea	120	lb ai/A	0.2 a	0.8 a	2.4 a	7.0 a	11.3 a	13.0 a	13.6 a
3	Limus(0.05%)-urea	120	lb ai/A	0.2 a	0.5 b	0.8 b	1.4 b	2.4 b	3.3 b	3.6 b
4	Limus(0.071%)-urea	120	lb ai/A	0.2 a	0.4 b	0.7 b	1.1 bc	1.6 c	2.1 c	2.4 d
5	Limus(0.085%)-urea	120	lb ai/A	0.2 a	0.4 b	0.7 b	1.1 bc	1.9 c	2.7 bc	3.1 bc
6	Limus(0.12%)-urea	120	lb ai/A	0.2 a	0.4 b	0.7 b	1.1 bc	1.7 c	2.3 c	2.7 cd
7	AgrotainUltra (0.088%)-urea	120	lb ai/A	0.2 a	0.4 b	0.7 b	1.2 bc	1.9 c	2.6 c	3.0 bcd
LSD (P=.05)				0.04	0.63	0.29	0.44	0.48	0.66	0.64
Standard Deviation				0.03	0.42	0.20	0.29	0.32	0.44	0.43
CV				14.28	8.72	20.36	14.93	10.35	11.38	10.08
Replicate F				3.95	1.02	0.78	1.54	3.62	4.16	5.31
Replicate Prob(F)				0.03	0.41	0.52	0.24	0.03	0.02	0.01
Treatment F				0.71	50.51	44.11	230.04	498.41	335.93	375.41
Treatment Prob(F)				0.6488	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Rice Yield Response to Limus-Treated Urea at Three Rates (0.05%, 0.071%, and 0.085%), Agrotain Ultra-Treated Urea, and Urea Surface Broadcast 10 Days Prior to Flooding

Experiment number ....: 14-CM-11

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.66 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.44
- **pH** ....: 7.4
- **Extractable nutrients** ppm..........: Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety ....: Rice / CL152
- **Planting method/date** ....: Drill-seeded / March 13
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 in
- **Emergence date** ....: March 30
- **Harvest date** ....: August 6

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization ....: No Blanket Applications

Water management ....:
- **Flush** ....: April 21
- **Flood** ....: May 12
- **Drain** ....: July 25

Pest management ....:
- **Herbicides** ....: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6
8.5 oz/A Benzobicyclon + 1% COC, June 4
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 22 oz/A Quilt Xcel, June 20

Comments:	**Rainfall**	**Date**	**Amount**
		May 9	0.08 in
		May 10	0.55 in
		May 12	0.06 in
		May 13	0.15 in

Table 29. Rice yield response to Limus-treated urea at three rates (0.05%, 0.071%, and 0.085%), Agrotain Ultra-treated urea, and urea surface broadcast 10 days prior to flooding. Rice Research Station.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		top					
Rating Date								7/31/2014		8/6/2014		8/6/2014	
Rating Type				50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit				days		days		in		lb/bu		lb/A	
Crop Stage Majority				Main		Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit										
1	Urea 60% rate (72 lb N/A)	72	lb ai/A	112	de	95	de	35	bcd	47.5	b	9407	a-d
2	Urea 80% rate (96 lb N/A)	96	lb ai/A	114	bc	97	bc	36	a	46.9	def	9690	ab
3	Limus (0.05%) - urea 60% rate (72 lb N/A)	72	lb ai/A	112	e	95	e	33	e	47.4	bc	9023	cd
4	Limus (0.05%) - urea 80% rate (96 lb N/A)	96	lb ai/A	114	ab	97	ab	35	a-d	47.1	b-e	9640	ab
5	Limus (0.071%) - urea 60% rate (72 lb N/A)	72	lb ai/A	113	bcd	96	bcd	34	cde	47.5	b	9002	d
6	Limus (0.071%) - urea 80% rate (96 lb N/A)	96	lb ai/A	114	ab	97	ab	35	abc	46.9	c-f	9345	a-d
7	Limus (0.085%) - urea 60% rate (72 lb N/A)	72	lb ai/A	113	cde	96	cde	34	de	47.4	bcd	8991	d
8	Limus (0.085%) - urea 80% rate (96 lb N/A)	96	lb ai/A	114	bc	97	bc	35	abc	47.0	c-f	9349	a-d
9	AgrotainUltra(0.088%) - urea 60% rate (72 lb N/A)	72	lb ai/A	113	cde	96	cde	35	abc	47.5	b	9120	bcd
10	AgrotainUltra(0.088%) - urea 80% rate (96 lb N/A)	96	lb ai/A	114	bc	97	bc	35	a-d	46.7	ef	9579	abc
11	UTC (0 lb N/A)	0	lb ai/A	110	f	93	f	31	f	48.4	a	6824	e
12	Urea (120 lb N/A)	120	lb ai/A	115	a	98	a	36	ab	46.5	f	9729	a
LSD P=.05				1.30		1.30		1.70		0.48		572.10	
Standard Deviation				0.90		0.90		1.10		0.33		397.60	
CV				0.79		0.93		3.34		0.70		4.35	
Replicate F				15.57		15.57		6.38		3.86		0.71	
Replicate Prob(F)				0.00		0.00		0.00		0.02		0.55	
Treatment F				10.26		10.26		6.94		8.88		15.34	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001		0.0001	

Continued.

Table 29. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice
Description				Tissue	Tissue N	Tissue C	N Uptake	N Fert. Eff.	N Fert. Eff.
Part Rated				Abvgrd	Abvgrd	Abvgrd	Total		
Rating Date				7/7/2014	7/7/2014	7/7/2014	7/8/2014	7/8/2014	7/8/2014
Rating Type				Biomass-dry					
Rating Unit				lb/A	% N	% C	lb/A	%	%
Crop Stage Majority				Main	Main	Main	Main	by block	by mean
Crop Stage Scale				50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate	Rate Unit						
1	Urea 60% rate (72 lb N/A)	72	lb ai/A	8083 bcd	1.03 d	43.2 a	84 bc	56 abc	55 abc
2	Urea 80% rate (96 lb N/A)	96	lb ai/A	9835 ab	1.14 ab	42.8 a	112 a	71 a	71 a
3	Limus (0.05%) - urea 60% rate (72 lb N/A)	72	lb ai/A	7733 cd	1.01 d	43.5 a	78 bc	48 abc	48 abc
4	Limus (0.05%) - urea 80% rate (96 lb N/A)	96	lb ai/A	9917 a	1.13 bc	43.2 a	112 a	71 a	71 a
5	Limus (0.071%) - urea 60% rate (72 lb N/A)	72	lb ai/A	8782 abc	1.06 bcd	43.4 a	93 ab	68 a	68 a
6	Limus (0.071%) - urea 80% rate (96 lb N/A)	96	lb ai/A	7663 cd	1.12 bc	43.1 a	86 bc	44 bc	44 bc
7	Limus (0.085%) - urea 60% rate (72 lb N/A)	72	lb ai/A	6857 d	1.04 cd	43.2 a	71 c	39 c	39 c
8	Limus (0.085%) - urea 80% rate (96 lb N/A)	96	lb ai/A	8564 a-d	1.10 bcd	43.5 a	94 ab	53 abc	53 abc
9	AgrotainUltra(0.088%) - urea 60% rate (72 lb N/A)	72	lb ai/A	8518 a-d	1.06 bcd	43.4 a	90 bc	65 ab	65 ab
10	AgrotainUltra(0.088%) - urea 80% rate (96 lb N/A)	96	lb ai/A	8460 a-d	1.15 ab	43.0 a	97 ab	56 abc	56 abc
11	UTC (0 lb N/A)	0	lb ai/A	5077 e	0.85 e	43.4 a	44 d	0 d	0 d
12	Urea (120 lb N/A)	120	lb ai/A	8869 abc	1.23 a	42.7 a	109 a	55 abc	55 abc
LSD P=.05				1757.00	0.09	0.78	19.50	23.10	23.50
Standard Deviation				1221.30	0.07	0.55	13.50	16.10	16.30
CV				14.90	6.04	1.26	15.17	30.84	31.28
Replicate F				2.11	2.14	4.36	3.48	2.17	3.16
Replicate Prob(F)				0.12	0.11	0.01	0.03	0.11	0.04
Treatment F				4.58	8.32	0.91	8.14	5.84	5.68
Treatment Prob(F)				0.0003	0.0001	0.5391	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Urea, Factor, Function, and Instinct II in Rice Production

Experiment number ....: 14-CM-13

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (Crowley Main)
- **Tillage type**..................................: Fall Stale
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.66 x 16 ft
- **Row width/rows per plot**............: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.44
- **pH**...: 7.4
- **Extractable nutrients** ppm..........: Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety ....: Rice / CL152
- **Planting method/date** ....: Drill-seeded / March 13
- **Seeding rate/depth**......................: 33 seeds/ft^2 / .5 in
- **Emergence date**...........................: March 30
- **Harvest date** ....: August 6

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization..: No Blanket Applications

Water management ....:
- **Flush** ....: April 21
- **Flood** ....: May 12
- **Drain**..: July 25

Pest management...............................:
- **Herbicides**...................................: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6
8.5 oz/A Benzobicyclon + 1% COC, June 4
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 22 oz/A Quilt Xcel, June 20

Comments:

Rainfall	Date	Amount
	May 9	0.08 in
	May 10	0.55 in
	May 12	0.06 in
	May 13	0.15 in

Table 30. Evaluation of urea, Factor, Function, and Instinct II in rice production. Rosen's funded project 2014. Rice Research Station.

Crop Name							Rice	Rice	Rice	Rice	Rice	Rice
Description							plant-hd	emer-hd	top			
Rating Date									7/31/2014	8/6/2014	8/6/2014	8/6/2014
Rating Type							50% HD	50% HD	Height	Moist	Test Wt.	Yield
Rating Unit							days	days	in	%	lb/bu	lb/A
Crop Stage Majority							Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage						
1	UTC (0 lb N/A)						110 b	93 b	31 d	17.5 c	48.1 a	6411 e
2	Urea	100	lb ai/A			14 DPF	114 a	97 a	35 bc	20.8 b	47.2 b	9233 a-d
3	Factor-Urea	100	lb ai/A	3.25	qt/ton urea	14 DPF	114 a	97 a	37 ab	22.5 ab	46.8 bc	9334 a-d
4	Function-Urea	100	lb ai/A	2	pt/A	14 DPF	114 a	97 a	36 abc	21.3 ab	47.0 bc	9530 ab
5	Factor+Function-Urea	100	lb ai/A			14 DPF	114 a	97 a	37 abc	22.0 ab	46.8 bc	9559 a
	Factor			3.25	qt/ton urea							
	Function (2 pt/A)			2	pt/A							
6	Function-Urea	100	lb ai/A	3	pt/A	14 DPF	114 a	97 a	36 abc	21.0 b	47.1 bc	8904 cd
7	Factor+Function-Urea	100	lb ai/A			14 DPF	115 a	98 a	37 abc	22.2 ab	46.8 bc	9495 abc
	Factor			3.25	qt/ton urea							
	Function (3 pt/A)			3	pt/A							
8	Instinct II-Urea	100	lb ai/A	37	oz/A	14 DPF	115 a	98 a	37 abc	21.6 ab	46.9 bc	9212 a-d
9	Instinct II+Factor-Urea	100	lb ai/A			14 DPF	115 a	98 a	36 abc	22.1 ab	46.8 bc	9244 a-d
	Instinct II			37	oz/A							
	Factor			3.25	qt/ton urea							
10	Instinct2+Factor+Function-Urea	100	lb ai/A			14 DPF	114 a	97 a	37 abc	23.4 a	46.6 c	9245 a-d
	Instinct II			37	oz/A							
	Factor			3.25	qt/ton urea							
	Function (2 pt/A)			2	pt/A							
11	Instinct2+Factor+Function-Urea	100	lb ai/A			14 DPF	115 a	98 a	37 abc	22.2 ab	46.8 bc	9349 a-d
	Instinct II			37	oz/A							
	Factor			3.25	qt/ton urea							
	Function (3 pt/A)			3	pt/A							
12	Urea	100	lb ai/A			1 DPF	114 a	97 a	37 abc	22.0 ab	46.8 bc	8857 d
13	Function-Urea	100	lb ai/A	2	pt/A	1 DPF	115 a	98 a	37 a	22.9 ab	46.7 bc	9090 a-d
14	Function-Urea	100	lb ai/A	3	pt/A	1 DPF	114 a	97 a	35 c	22.6 ab	46.7 bc	8922 bcd
LSD (P=.05)							1.00	1.00	2.00	2.17	0.56	619.60
Standard Deviation							0.70	0.70	1.40	1.52	0.39	433.60
CV							0.62	0.73	3.83	7.00	0.84	4.80
Replicate F							9.35	9.35	2.17	4.51	4.27	1.35
Replicate Prob(F)							0.00	0.00	0.11	0.01	0.01	0.27
Treatment F							9.89	9.89	5.13	3.47	3.53	13.14
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0013	0.0011	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Evaluation of Volatilization from Multiple N Sources Applied at 130 lb ai/A When Surface Applied 10 Days Preflood

Experiment number .... : 14-CM-18 – Volatilization Trial

Site and design .... :
- **Location/Cooperator** .... : Rice Research Station (Crowley Main)
- **Tillage type** .... : Fall Stale
- **Experimental design** .... : Randomized complete block
- **Number of reps** .... : 4
- **Plot size** .... : 4.66 x 16 ft
- **Row width/rows per plot** .... : 8 in / 7

Soil type .... : Crowley silt loam
- **% organic matter** .... : 1.44
- **pH** .... : 7.4
- **Extractable nutrients** ppm .... : Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety .... : Rice / CL152
- **Planting method/date** .... : Drill-seeded / March 13
- **Seeding rate/depth** .... : 33 seeds/ft^2 / .5 in
- **Emergence date** .... : March 30
- **Harvest date** .... : Did not Harvest

Seed treatment/cwt .... : Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization .... : No Blanket Applications

Water management .... :
- **Flush** .... : April 21
- **Flood** .... : May 12
- **Drain** .... : July 25

Pest management .... :
- **Herbicides** .... : 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6
- **Insecticides** .... : 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** .... : None

Comments: Rainfall was 0.61 inch on May 11 – this did not affect the volatilization trial due to the fact that the chambers were covered to protect them from rainfall events.

Figure 2. Volatilization loss from multiple N sources over a 15-day period of time after application on a Crowley silt loam soil. Flood applied on day 10. Rice Research Station.

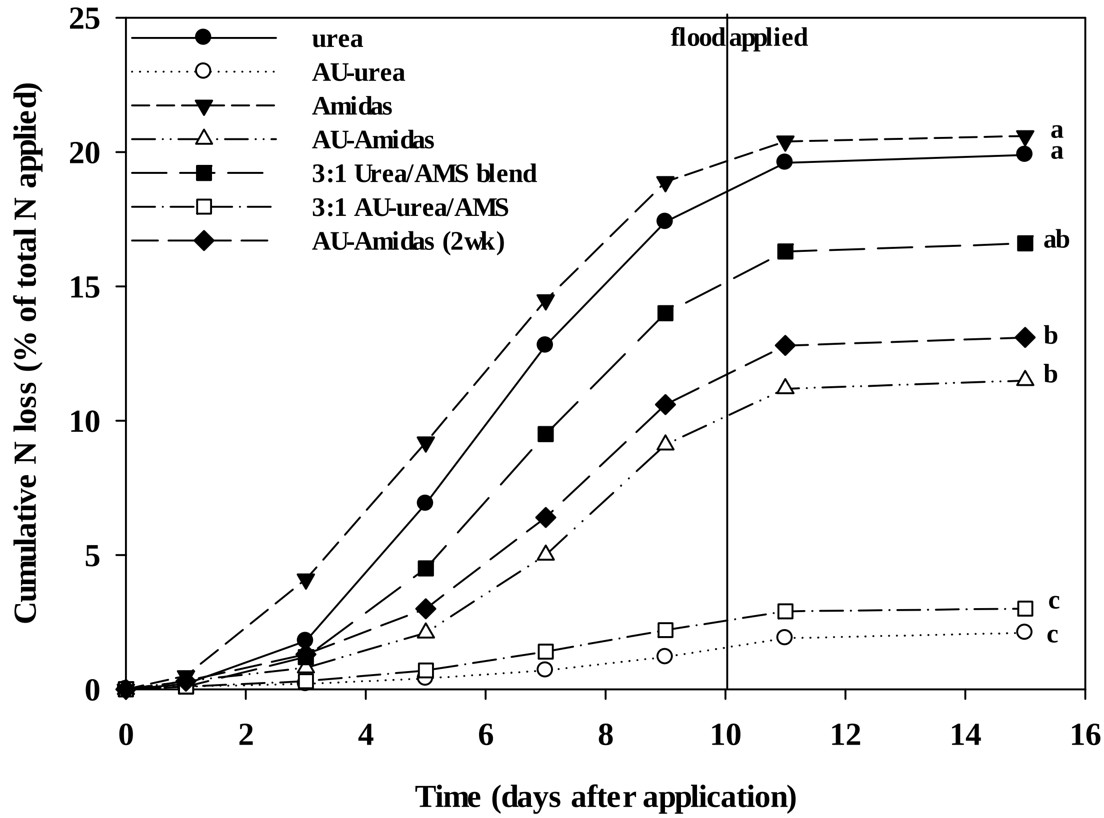


Table 31. Evaluation of volatilization from multiple N sources applied at 130 lb ai/A when surface applied 10 days preflood. Rice Research Station.

Crop Name			NH4	NH4	NH4	NH4	NH4	NH4	NH4	TOTAL N
Description			9 DPF	7 DPF	5 DPF	3 DPF	1 DPF	1 DPostF	5 DPostF	sum
Rating Type			1 DPA	3 DPA	5 DPA	7 DPA	9 DPA	11 DPA	15 DPA	sum
Rating Unit			ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Trt. No.	Trt. Name	Comment								
1	urea		2.7 bcd	30.2 b	90.0 a	105.5 a	81.8 a	37.5 ab	6.4 a	354 a
2	Ag.Ultra-urea	3 qt/ton urea	1.0 d	2.6 c	2.7 c	5.8 d	9.8 b	11.6 c	3.9 abc	38 c
3	Amidas		8.8 a	64.8 a	89.1 a	96.0 a	76.5 a	28.0 b	2.8 bc	366 a
4	Ag.Ultra-Amidas	2.31 qt AU/ton Amidas	4.6 bc	9.6 bc	22.4 c	52.9 c	71.9 a	37.9 ab	4.6 abc	204 b
5	3:1 Urea/AMS blend		1.9 cd	18.7 bc	59.6 ab	88.4 ab	80.5 a	41.0 a	5.9 a	296 ab
6	3:1 Ag.Ultra-urea/AMS	3 qt/ton urea	1.8 cd	3.8 c	6.8 c	12.3 d	14.0 b	12.1 c	2.4 c	53 c
7	Ag.Ultra-Amidas (2wk old)	2.31 qt AU/ton Amidas	5.5 b	16.7 bc	30.9 bc	60.1 bc	74.6 a	40.2 a	5.5 ab	234 b
LSD (P=.05)			3.16	24.28	33.92	31.39	23.00	12.11	3.10	92.40
Standard Deviation			2.13	16.35	22.83	21.13	15.48	8.15	2.09	62.20
CV			56.60	78.15	53.02	35.13	26.50	27.38	46.40	28.20
Replicate F			1.17	1.31	0.94	0.47	0.55	1.26	1.43	0.54
Replicate Prob(F)			0.35	0.30	0.44	0.71	0.66	0.32	0.27	0.66
Treatment F			6.55	6.97	10.38	14.08	17.08	10.11	2.26	18.37
Treatment Prob(F)			0.0008	0.0006	0.0001	0.0001	0.0001	0.0001	0.0840	0.0001

Continued.

Table 31. Continued.

			Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N
Crop Name									
Description			9 DPF	7 DPF	5 DPF	3 DPF	1 DPF	1 DPostF	5 DPostF
Rating Type			1 DPA	3 DPA	5 DPA	7 DPA	9 DPA	11 DPA	15 DPA
Rating Unit			%	%	%	%	%	%	%
Trt. No.	Trt. Name	Comment							
1	urea		0.2 bcd	1.8 b	6.9 ab	12.8 ab	17.4 a	19.6 a	19.9 a
2	Ag.Ultra-urea	3 qt/ton urea	0.1 d	0.2 c	0.4 d	0.7 d	1.2 c	1.9 c	2.1 c
3	Amidas		0.5 a	4.1 a	9.2 a	14.5 a	18.9 a	20.4 a	20.6 a
4	Ag.Ultra-Amidas	2.31 qt AU/ton Amidas	0.3 bc	0.8 bc	2.1 cd	5.0 cd	9.1 b	11.2 b	11.5 b
5	3:1 Urea/AMS blend		0.1 cd	1.2 bc	4.5 bc	9.5 bc	14.0 ab	16.3 ab	16.6 ab
6	3:1 Ag.Ultra-urea/AMS	3 qt/ton urea	0.1 cd	0.3 c	0.7 d	1.4 d	2.2 c	2.9 c	3.0 c
7	Ag.Ultra-Amidas (2wk old)	2.31 qt AU/ton Amidas	0.3 b	1.3 bc	3.0 cd	6.4 c	10.6 b	12.8 b	13.1 b
LSD (P=.05)			0.18	1.50	3.34	4.80	5.26	5.16	5.20
Standard Deviation			0.12	1.01	2.25	3.23	3.54	3.47	3.50
CV			56.60	72.93	58.97	44.92	33.80	28.58	28.20
Replicate F			1.17	1.30	1.13	0.56	0.46	0.60	0.54
Replicate Prob(F)			0.35	0.31	0.36	0.65	0.72	0.62	0.66
Treatment F			6.55	6.99	8.45	11.03	15.28	18.45	18.38
Treatment Prob(F)			0.0008	0.0006	0.0002	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Evaluation of Volatilization from Multiple N Sources Applied at 130 lb ai/A When Surface Applied 10 Days Preflood

Experiment number .... : 14-CM-19 – Yield Trial

Site and design .... :
- **Location/Cooperator** .... : Rice Research Station (Crowley Main)
- **Tillage type** .... : Fall Stale
- **Experimental design** .... : Randomized complete block
- **Number of reps** .... : 4
- **Plot size** .... : 4.66 x 16 ft
- **Row width/rows per plot** .... : 8 in / 7

Soil type .... : Crowley silt loam
- **% organic matter** .... : 1.44
- **pH** .... : 7.4
- **Extractable nutrients** ppm .... : Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety .... : Rice / CL152
- **Planting method/date** .... : Drill-seeded / March 13
- **Seeding rate/depth** .... : 33 seeds/ft^2 / .5 in
- **Emergence date** .... : March 30
- **Harvest date** .... : August 6

Seed treatment/cwt .... : Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization .... : No Blanket Applications

Water management .... :
- **Flush** .... : April 21
- **Flood** .... : May 12
- **Drain** .... : July 25

Pest management .... :
- **Herbicides** .... : 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6
8.5 oz/A Benzobicyclon + 1% COC, June 4
- **Insecticides** .... : 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** .... : 22 oz/A Quilt Xcel, June 20

Comments: **Rainfall**

Date	Amount
May 9	0.08 in
May 10	0.55 in
May 12	0.06 in
May 13	0.15 in

Table 32. Evaluation of volatilization from multiple N sources applied at 130 lb ai/A when surface applied 10 days prior to flooding. Rice Research Station.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice	
Description		plant-hd		emer-hd		top							
Rating Date						7/31/2014		8/6/2014		8/6/2014		8/6/2014	
Rating Type		50% HD		50% HD		Height		Moist		Test Wt.		Yield	
Rating Unit		days		days		in		%		lb/bu		lb/A	
Crop Stage Majority		Main		Main		Main		Main		Main		Main	
Trt. No.	Trt. Name												
1	UTC (0 N)	110	c	93	c	32	b	18.4	b	47.8	a	6630	b
2	urea	116	a	99	a	36	a	25.0	a	46.2	b	9296	a
3	AgrotainUltra-urea	115	ab	98	ab	38	a	24.1	a	46.4	b	9399	a
4	Amidas	115	ab	98	ab	36	a	23.6	a	46.5	b	9747	a
5	AgrotainUltra-Amidas	115	ab	98	ab	37	a	24.9	a	46.2	b	9382	a
6	3:1 Urea/AMS blend	115	ab	98	ab	36	a	23.8	a	46.4	b	9736	a
7	3:1 AgrotainUltra-urea/AMS	115	b	98	b	38	a	23.2	a	46.5	b	9730	a
LSD (P=.05)		0.80		0.80		2.20		2.29		0.54		980.80	
Standard Deviation		0.50		0.50		1.50		1.54		0.36		660.20	
CV		0.47		0.56		4.17		6.63		0.78		7.23	
Replicate F		3.37		3.37		0.62		0.31		0.31		1.42	
Replicate Prob(F)		0.04		0.04		0.61		0.82		0.82		0.27	
Treatment F		56.68		56.68		6.49		8.53		8.89		11.50	
Treatment Prob(F)		0.0001		0.0001		0.0009		0.0002		0.0001		0.0001	

Continued.

Table 32. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice
Description		Tissue	Tissue N	N Uptake	N Fert. Eff.	N Fert. Eff.
Part Rated		Abvgrd	Abvgrd	Total		
Rating Date		7/7/2014	7/7/2014			
Rating Type		Biomass-dry				
Rating Unit		lb/A	% N	lb/A	%	%
Crop Stage Majority		Main	Main	Main	by block	by mean
Crop Stage Scale		50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name					
1	UTC (0 N)	5571 c	0.86 b	48 b	0 b	0 b
2	urea	10343 ab	1.27 a	132 a	64 a	64 a
3	AgrotainUltra-urea	10020 ab	1.25 a	125 a	59 a	59 a
4	Amidas	10598 ab	1.17 a	124 a	58 a	58 a
5	AgrotainUltra-Amidas	9914 b	1.20 a	119 a	54 a	55 a
6	3:1 Urea/AMS blend	10105 ab	1.19 a	120 a	55 a	55 a
7	3:1 AgrotainUltra-urea/AMS	11140 a	1.26 a	141 a	71 a	71 a
LSD (P=.05)		1204.50	0.13	25.10	19.30	19.00
Standard Deviation		810.70	0.09	16.90	13.00	12.80
CV		8.38	7.65	14.63	25.06	24.61
Replicate F		0.63	0.30	0.06	1.32	0.11
Replicate Prob(F)		0.60	0.82	0.98	0.30	0.96
Treatment F		20.94	9.91	13.18	13.18	13.67
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Cumulative Volatilization Loss from Multiple N Sources Over a 15-Day Period of Time After Surface Broadcast Application on a Crowley Silt Loam Soil

Experiment number	14-CM-14
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.44
pH	7.4
Extractable nutrients ppm	Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6
Crop/Variety	Rice / CL152
Planting method/date	Drill-seeded / April 30
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	May 9
Harvest date	Did not Harvest
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No Blanket Applications
Water management	
Flush	May 2
Flood	June 19
Drain	August 25
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O + 4 oz/A Interlock, May 21
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	None

Figure 3. Cumulative volatilization loss from multiple N sources over a 15-day period of time after surface broadcast application on a Crowley silt loam soil. Flood applied on day 10. Rice Research Station.

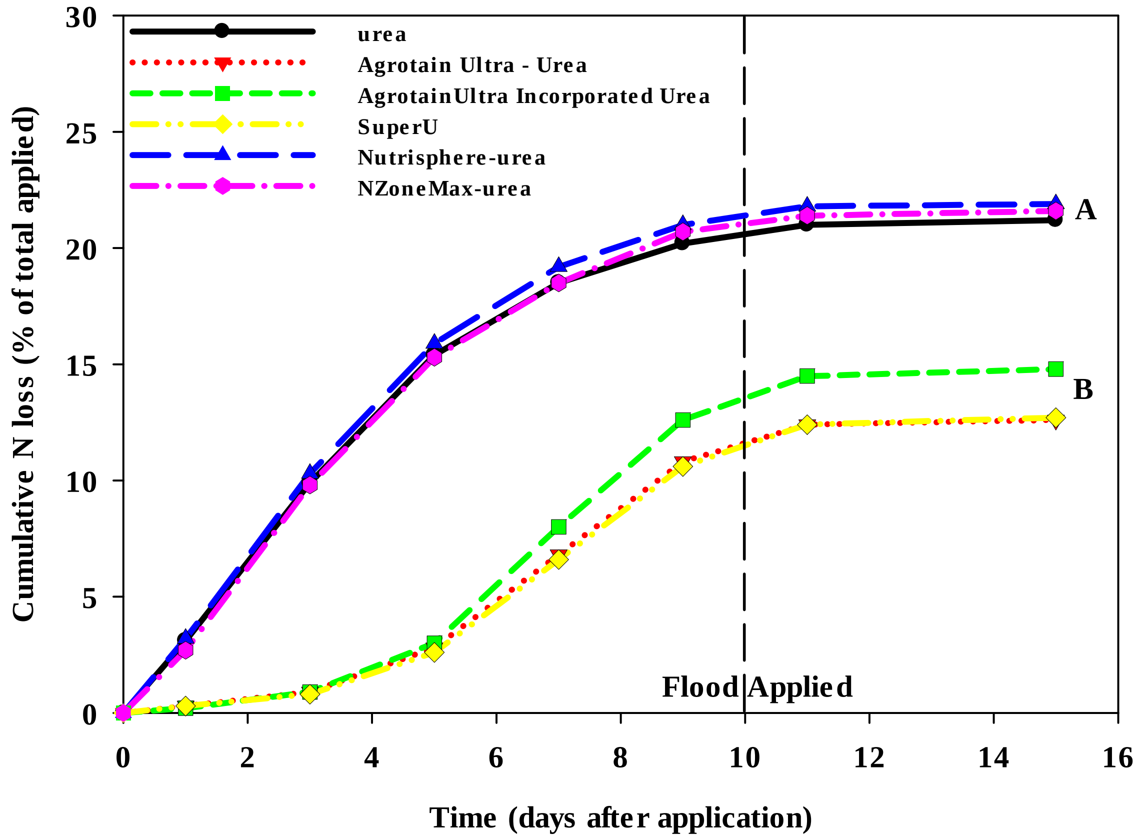


Table 33. Evaluation of N volitilization of multiple N sources when surface broadcast 10 days preflood. Rice Research Station.

	NH4		NH4		NH4		NH4		NH4		NH4		NH4		TOTAL N	
days preflood/post flood	9 DPF		7 DPF		5 DPF		3 DPF		1 DPF		1 DPostF		5 DPostF		sum	
days post application (DPA)	1 DPA		3 DPA		5 DPA		7 DPA		9 DPA		11 DPA		15 DPA			
	ppm		ppm		ppm		ppm		ppm		ppm		ppm		ppm	
1 Urea	51.35	a	110.98	a	90.08	a	50.78	b	28.90	b	12.50	b	3.00	ab	347.45	a
2 Agrotain Treated Urea (ATU)	4.20	b	10.13	b	32.35	b	64.40	ab	65.78	a	26.35	a	3.33	ab	206.40	b
3 Agrotain Incorp.Urea (AIU)	3.83	b	10.18	b	35.78	b	80.78	a	75.98	a	31.03	a	4.93	a	242.33	b
4 Super-U	4.38	b	9.28	b	29.08	b	64.98	ab	66.95	a	28.78	a	4.25	ab	207.58	b
5 Nutrisphere-N	51.90	a	117.03	a	92.23	a	54.13	b	29.63	b	12.23	b	1.53	b	358.55	a
6 NZone MAX	43.90	a	116.43	a	90.93	a	53.15	b	35.78	b	11.58	b	2.05	b	353.63	a
LSD (P=.05)	20.59		8.90		15.67		18.04		14.80		7.93		2.82		49.33	
Standard Deviation	13.66		5.91		10.40		11.98		9.82		5.26		1.87		32.73	
CV	51.37		9.48		16.85		19.51		19.45		25.78		58.78		11.45	
Replicate F	0.31		0.97		2.39		3.80		3.67		0.45		6.83		3.48	
Replicate Prob(F)	0.82		0.43		0.11		0.03		0.04		0.72		0.00		0.04	
Treatment F	13.14		379.36		38.37		3.52		18.85		12.30		1.89		20.91	
Treatment Prob(F)	0.0001		0.0001		0.0001		0.0264		0.0001		0.0001		0.1556		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD).

Table 34. Evaluation of N volitilization of multiple N sources when surface broadcast 10 days preflood. Rice Research Station.

	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N
days preflood/post flood	9 DPF	7 DPF	5 DPF	3 DPF	1 DPF	1 DPostF	5 DPostF
days post application (DPA)	1 DPA	3 DPA	5 DPA	7 DPA	9 DPA	11 DPA	15 DPA
Rating Unit	%	%	%	%	%	%	%
1 Urea	3.1 a	9.9 a	15.4 a	18.5 a	20.2 a	21.0 a	21.2 a
2 Agrotain Treated Urea (ATU)	0.3 b	0.9 b	2.8 b	6.8 b	10.8 b	12.4 b	12.6 b
3 Agrotain Incorp.Urea (AIU)	0.2 b	0.9 b	3.0 b	8.0 b	12.6 b	14.5 b	14.8 b
4 Super-U	0.3 b	0.8 b	2.6 b	6.6 b	10.6 b	12.4 b	12.7 b
5 Nutrisphere-N	3.2 a	10.3 a	15.9 a	19.2 a	21.0 a	21.8 a	21.9 a
6 NZone MAX	2.7 a	9.8 a	15.3 a	18.5 a	20.7 a	21.4 a	21.6 a
LSD (P=.05)	1.25	1.71	1.71	2.19	2.77	3.00	3.01
Standard Deviation	0.83	1.13	1.13	1.46	1.84	1.99	2.00
CV	51.37	20.93	12.36	11.27	11.47	11.54	11.45
Replicate F	0.31	0.46	0.98	2.47	3.19	3.05	3.47
Replicate Prob(F)	0.82	0.71	0.43	0.10	0.05	0.06	0.04
Treatment F	13.14	77.88	150.65	77.37	31.63	21.58	20.88
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Response of Rice Yield and NUE to Multiple N Sources and Three Application Timings

Experiment number ....: 14-CM-15

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (Crowley Main)
- **Tillage type**..................................: Fall Stale
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.66 x 16 ft
- **Row width/rows per plot**............: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.44
- **pH**...: 7.4
- **Extractable nutrients** ppm..........: Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety ....: Rice / CL152
- **Planting method/date** ....: Drill-seeded / April 30
- **Seeding rate/depth**......................: 33 seeds/ft^2 / .5 in
- **Emergence date**...........................: May 9
- **Harvest date** ....: September 8

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization..: No Blanket Applications

Water management ....:
- **Flush** ....: May 2
- **Flood** ....: June 19
- **Drain**..: August 25

Pest management...............................:
- **Herbicides**...................................: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O +
4 oz/A Interlock, May 21
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: None

Comments:

Rainfall	Date	Amount
	June 10	1.50 in
	June 11	1.59 in
	June 13	0.24 in
	June 15	0.07 in

Table 35. Treatment means for the main effects of N-source and time of N fertilizer application on rice grain yield, agronomics, and NUE. Evaluation of rice response to N fertilization from multiple N sources (urea, Agrotain Ultra-treated urea, ATU; Agrotain incorporated urea, AIU; SuperU, NZone Max-treated urea, and Nutrisphere-N-treated urea) and three application timings (10, 3, and 1 day(s) preflood). Untreated control was excluded from analysis. Rice Research Station.

	plant-hd	emer-hd	top			Tissue	Tissue N	N Uptake	N Fert. Eff.
Part Rated						Abvgrd	Abvgrd	Abvgrd	
Rating Date			9/8/2014			8/5/2014	7/7/2014		
Rating Type	50% HD	50% HD	Height	Moist	Yield	Biomass-dry			
Rating Unit	days	days	in	%	lb/A	lb/A	% N	lb/A	%
Crop Stage Scale						50% HD	50% HD	50% HD	50% HD
N Source Means									
1 Urea	94 c	85 c	36 c	18.7 a	8311 a	9585 a	1.34 a	128 a	41 a
2 ATU	95 ab	86 ab	37 abc	18.7 a	8333 a	8306 a	1.39 a	117 a	32 a
3 AIU	95 ab	86 ab	37 ab	18.5 a	8380 a	9721 a	1.34 a	129 a	41 a
4 Super-U	96 a	87 a	37 a	19.2 a	8506 a	8790 a	1.45 a	128 a	41 a
5 Nutrisphere-N	95 bc	86 bc	36 c	18.3 a	8264 a	9915 a	1.37 a	136 a	47 a
6 NZone MAX	95 bc	86 bc	36 bc	18.7 a	8375 a	9958 a	1.33 a	132 a	44 a
P	0.01	0.0099	0.0956	0.3142	0.8157	0.4607	0.3504	0.8635	0.9029
LSD (0.05)	1	1	1	0.8	377	2055	0.12	32	25
Time of Application Means									
1 10 DPF	94 c	85 c	36 b	17.9 b	8541 a	8981 a	1.32 b	119 a	34 a
2 5 DPF	95 b	86 b	36 b	18.3 b	8195 b	9790 a	1.34 b	131 a	43 a
3 1 DPF	96 a	87 a	38 a	19.7 a	8348 ab	9367 a	1.45 a	135 a	47 a
P	0.005	0.0048	0.0004	0.0023	0.1198	0.2326	0.0252	0.1887	0.3463
LSD (0.05)	1	1	0	0.7	341	1021	0.09	19	18

Table 36. Treatment means for the 2-way interaction of N-source and time of N fertilizer application on rice grain yield, agronomics, and NUE. Six N sources (urea, Agrotain Ultra-treated urea, ATU; Agrotain incorporated urea, AIU; SuperU, NZone Max-treated urea, and Nutrisphere-N-treated urea) and three application timings (10, 3, and 1 day(s) preflood) were evaluated. Untreated control was excluded from analysis. Rice Research Station.

Description		plant-hd		emer-hd		top						Tissue		Tissue N		N uptake		N fert Eff.	
Part Rated												Abvgrd		Abvgrd		Abvgrd			
Rating Date						9/8/2014						8/5/2014		7/7/2014					
Rating Type		50% HD		50% HD		Height		Moist		Yield		Biomass-dry							
Rating Unit		days		days		in		%		lb/A		lb/A		% N		lb/A		%	
Crop Stage Scale												50% HD		50% HD		50% HD		50% HD	
N Source x Time of Application Means																			
1 1	Urea 10 DPF	94	b	85	b	36	a	18.1	a	8666	a	9093	a	1.28	a	116	a	30	a
2 1	ATU 10 DPF	94	b	85	b	36	a	18.1	a	8442	a	7596	a	1.31	a	101	a	23	a
3 1	AIU 10 DPF	94	b	85	b	37	a	17.7	a	8461	a	9473	a	1.36	a	128	a	40	a
4 1	Super-U 10 DPF	95	b	86	b	37	a	18.3	a	8590	a	8460	a	1.31	a	113	a	34	a
5 1	Nutrisphere-N 10 DPF	94	b	85	b	36	a	17.3	a	8684	a	9657	a	1.39	a	136	a	47	a
6 1	NZone MAX 10 DPF	95	b	86	b	36	a	18.1	a	8403	a	9610	a	1.26	a	122	a	35	a
1 2	Urea 5 DPF	94	b	85	b	36	a	18.0	a	8113	a	10103	a	1.27	a	129	a	41	a
2 2	ATU 5 DPF	96	a	87	a	37	a	18.8	a	8290	a	8905	a	1.39	a	125	a	39	a
3 2	AIU 5 DPF	96	a	87	a	37	a	18.5	a	8190	a	9767	a	1.31	a	127	a	39	a
4 2	Super-U 5 DPF	96	a	87	a	37	a	19.4	a	8484	a	9600	a	1.52	a	144	a	52	a
5 2	Nutrisphere-N 5 DPF	94	b	85	b	35	a	17.0	a	7955	a	10134	a	1.24	a	125	a	38	a
6 2	NZone MAX 5 DPF	94	b	85	b	36	a	18.2	a	8140	a	10230	a	1.30	a	134	a	45	a
1 3	Urea 1 DPF	96	a	87	a	37	a	20.0	a	8155	a	9559	a	1.47	a	141	a	51	a
2 3	ATU 1 DPF	96	a	87	a	37	a	19.1	a	8268	a	8416	a	1.47	a	125	a	38	a
3 3	AIU 1 DPF	96	a	87	a	38	a	19.4	a	8489	a	9923	a	1.35	a	131	a	43	a
4 3	Super-U 1 DPF	96	a	87	a	38	a	19.8	a	8443	a	8312	a	1.52	a	127	a	38	a
5 3	Nutrisphere-N 1 DPF	97	a	88	a	37	a	20.5	a	8151	a	9955	a	1.49	a	148	a	57	a
6 3	NZone MAX 1 DPF	96	a	87	a	38	a	19.7	a	8582	a	10035	a	1.42	a	141	a	51	a
	P	0.0008		0.0008		0.4453		0.1759		0.4922		0.9990		0.6970		0.9110		0.9211	
	LSD (0.05)	1		1		1		1.5		507		2292		0.24		39		31	

Table 37. Analysis of variance for all treatment means including the untreated control which did not receive N fertilizer. Six N sources (urea, Agrotain Ultra-treated urea, ATU; Agrotain incorporated urea, AIU; SuperU, NZone Max-treated urea, and Nutrisphere-N-treated urea) and three application timings (10, 3, and 1 day(s) preflood) were evaluated. Untreated control was included in analysis. Rice Research Station.

	Description	plant-hd	emer-hd	top		Tissue	Tissue N	N uptake	N fert Eff.
	Part Rated					Abvgrd	Abvgrd	Abvgrd	
	Rating Date			9/8/2014		8/5/2014	7/7/2014		
	Rating Type	50% HD	50% HD	Height	Yield	Biomass-dry			
	Rating Unit	days	days	in	lb/A	lb/A	% N	lb/A	%
	Crop Stage Scale					50% HD	50% HD	50% HD	50% HD
1	Urea 10 DPF	94 c	85 c	36 de	8666 ab	9093 a	1.28 bcd	116 a	30 a
2	Urea 5 DPF	94 c	85 c	36 de	8113 bc	10103 a	1.27 bcd	129 a	41 a
3	Urea 1 DPF	96 ab	87 ab	37 abc	8155 abc	9559 a	1.47 abc	141 a	51 a
4	ATU 10 DPF	94 c	85 c	36 cde	8442 abc	7596 a	1.31 a-d	101 a	23 a
5	ATU 5 DPF	96 a	87 a	37 abc	8290 abc	8905 a	1.39 a-d	125 a	39 a
6	ATU 1 DPF	96 a	87 a	37 abc	8268 abc	8416 a	1.47 abc	125 a	38 a
7	AIU 10 DPF	94 c	85 c	37 b-e	8461 abc	9473 a	1.36 a-d	128 a	40 a
8	AIU 5 DPF	96 a	87 a	37 b-e	8190 abc	9767 a	1.31 a-d	127 a	39 a
9	AIU 1 DPF	96 a	87 a	38 a	8489 abc	9923 a	1.35 a-d	131 a	43 a
10	Super-U 10 DPF	95 bc	86 bc	37 a-d	8590 ab	8460 a	1.31 a-d	113 a	34 a
11	Super-U 5 DPF	96 a	87 a	37 abc	8484 abc	9600 a	1.52 a	144 a	52 a
12	Super-U 1 DPF	96 a	87 a	38 a	8443 abc	8312 a	1.52 a	127 a	38 a
13	Nutrisphere-N 10 DPF	94 c	85 c	36 cde	8684 a	9657 a	1.39 a-d	136 a	47 a
14	Nutrisphere-N 5 DPF	94 c	85 c	35 ef	7955 c	10134 a	1.24 d	125 a	38 a
15	Nutrisphere-N 1 DPF	97 a	88 a	37 abc	8151 abc	9955 a	1.49 ab	148 a	57 a
16	NZone MAX 10 DPF	95 bc	86 bc	36 de	8403 abc	9610 a	1.26 cd	122 a	35 a
17	NZone MAX 5 DPF	94 c	85 c	36 cde	8140 abc	10230 a	1.30 a-d	134 a	45 a
18	NZone MAX 1 DPF	96 a	87 a	38 ab	8582 ab	10035 a	1.42 a-d	141 a	51 a
19	0 lb N/A	90 d	81 d	34 f	7103 d	8738 a	0.91 e	80 a	0 a
	LSD (P=.05)	1.30	1.30	1.30	569.80	2546.60	0.22	42.10	33.80
	Standard Deviation	0.90	0.90	0.90	402.90	1800.70	0.16	29.70	23.90
	CV	0.95	1.05	2.47	4.86	19.27	11.67	23.63	61.16
	Replicate F	32.20	32.20	10.07	7.26	0.09	9.30	3.06	7.52
	Replicate Prob(F)	0.00	0.00	0.00	0.00	0.97	0.00	0.04	0.00
	Treatment F	12.79	12.79	5.35	3.09	0.69	3.11	1.13	1.10
	Treatment Prob(F)	0.0001	0.0001	0.0001	0.0007	0.8077	0.0006	0.3475	0.3813

Means followed by same letter do not significantly differ (P=.05, LSD).

Evaluation of Bayer Early Maturing Hybrid 'USH14001'

Experiment number	: 14-CM-05E (Early planting)
Site and design	:
Location/Cooperator	: Rice Research Station (Crowley Main)
Tillage type	: Fall Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley silt loam
% organic matter	: 1.53
pH	: 7.4
Extractable nutrients ppm	: Ca-1550; Cu-1.4; Mg-253; P-4.2; K-52.4; Na-51.9; S-9.4; Zn-3.5
Crop/Variety	: Rice / USH14001
Planting method/date	: Drill-seeded / March 13
Seeding rate/depth	: 14 seeds/ft^2 / .5 in
Emergence date	: March 30
Harvest date	: July 30
Ratoon Harvest date	: October 20
Seed treatment/cwt	: Trilex Zinc GA3 Dermacor AV-1011 (bird repellant) – 18.3 oz (added to seed by Research Station)
Fertilization	: 90 lb N/A 46-0-0, July 31
Water management	:
Flush	: April 24, May 2
Flood	: May 8
Drain	: July 14
Ratoon drain	: September 24
Pest management	:
Herbicides	: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4
Insecticides	: 5 oz/cwt Dermacor seed treatment
Fungicides	: 22 oz/A Quilt Xcel, June 20

Table 38. Evaluation of Bayer early maturing hybrid 'USH14001'. March planting. Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							7/28/2014	7/28/2014		7/30/2014	7/30/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Sample Size, Unit											
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	0 lb N/A	0	lb ai/A	preflood	93 c	76 c	33 c	0 c	0 d	48.5 a	4174 c
2	60 lb N/A	60	lb ai/A	preflood	95 b	78 b	36 bc	13 bc	1 c	48.3 ab	6219 b
3	75 lb N/A	75	lb ai/A	preflood	96 b	79 b	36 b	25 abc	1 c	48.2 ab	6886 b
4	90 lb N/A	90	lb ai/A	preflood	98 a	81 a	37 ab	25 abc	1 bc	47.6 ab	6916 b
5	105 lb N/A	105	lb ai/A	preflood	97 a	80 a	39 a	38 ab	2 ab	47.3 bc	8121 a
6	120 lb N/A	120	lb ai/A	preflood	98 a	81 a	39 a	48 a	2 a	46.5 c	8992 a
LSD (P=.05)					1.47	1.47	2.62	26.33	0.64	1.05	876.60
Standard Deviation					0.98	0.98	1.74	17.47	0.42	0.70	581.80
CV					1.02	1.23	4.75	71.07	36.14	1.46	8.45
Replicate F					1.560	1.560	1.209	2.234	0.625	2.815	5.517
Replicate Prob(F)					0.241	0.241	0.341	0.126	0.610	0.075	0.009
Treatment F					19.356	19.356	7.176	3.781	13.875	4.819	32.524
Treatment Prob(F)					0.0001	0.0001	0.0013	0.0205	0.0001	0.0079	0.0001

Continued.

Table 38. Continued.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Rating Date					10/20/2014		10/20/2014							
Rating Type					Test Wt.		Yield		Yield		Milling		Milling	
Rating Unit					lb/bu		lb/A		lb/A		head		total	
Sample Size, Unit											%		%	
Crop Stage Majority					Ratoon		Ratoon		MC + RC		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage										
1	0 lb N/A	0	lb ai/A	preflood	45.2	a	2789	a	6963	d	59.44	b	71.50	c
2	60 lb N/A	60	lb ai/A	preflood	45.1	a	2840	a	9060	c	62.31	ab	71.74	bc
3	75 lb N/A	75	lb ai/A	preflood	45.5	a	2924	a	9810	bc	62.19	ab	72.02	bc
4	90 lb N/A	90	lb ai/A	preflood	45.2	a	2779	a	9695	bc	63.86	a	72.26	b
5	105 lb N/A	105	lb ai/A	preflood	45.3	a	2862	a	10984	ab	63.88	a	72.30	b
6	120 lb N/A	120	lb ai/A	preflood	45.3	a	3291	a	12282	a	65.19	a	72.98	a
LSD (P=.05)					1.03		653.60		1393.50		3.14		0.62	
Standard Deviation					0.69		433.70		924.80		2.08		0.41	
CV					1.51		14.88		9.44		3.32		0.57	
Replicate F					0.857		0.252		2.495		1.156		6.918	
Replicate Prob(F)					0.485		0.859		0.100		0.359		0.004	
Treatment F					0.161		0.782		15.128		3.659		6.304	
Treatment Prob(F)					0.9732		0.5783		0.0001		0.0231		0.0024	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Bayer Early Maturing Hybrid 'USH14001'

Experiment number	14-CM-05L (Late planting)
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.74
pH	7.4
Extractable nutrients ppm	Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9
Crop/Variety	Rice / USH14001
Planting method/date	Drill-seeded / June 6
Seeding rate/depth	14 seeds/ft^2 / 1 in
Emergence date	June 12
Harvest date	September 12
Seed treatment/cwt	Trilex Zinc GA3 Dermacor AV-1011 (bird repellant) – 18.3 oz (added to seed by Research Station)
Fertilization	No blanket applications
Water management	
Flush	June 19
Flood	July 9
Drain	August 26
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 4 qt/A Propanil + 32 oz/A Facet + .25 oz/A Permit + 2 pt/A COC, June 9 3 qt/A Propanil + 24 oz/A Ricestar + 1 oz/A Londax + .5 oz/A Permit, July 8 8.5 oz/A Benzobicyclon + 1% COC, June 4
Insecticides	5 oz/cwt Dermacor seed treatment
Fungicides	None

Table 39. Evaluation of Bayer early maturing hybrid 'USH14001'. June planting (target June 15-25). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice	Rice	
Description					plant-hd	emer-hd	top						
Rating Date							9/12/2014	9/12/2014		9/12/2014	9/24/2014		
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Milling	
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A	head	total
Sample Size, Unit												%	%
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage									
1	0 lb N/A	0	lb ai/A	preflood	58 b	52 b	39 a	95 a	4 a	42.7 a	3732 b	64.66 a	72.92 a
2	60 lb N/A	60	lb ai/A	preflood	60 ab	54 ab	40 a	98 a	5 a	40.9 a	4774 a	65.02 a	73.07 a
3	75 lb N/A	75	lb ai/A	preflood	61 a	55 a	39 a	93 a	5 a	41.7 a	5192 a	65.60 a	73.48 a
4	90 lb N/A	90	lb ai/A	preflood	61 a	55 a	40 a	93 a	4 a	40.4 a	5035 a	65.90 a	73.29 a
5	105 lb N/A	105	lb ai/A	preflood	60 a	54 a	40 a	100 a	4 a	43.0 a	5069 a	66.61 a	73.63 a
6	120 lb N/A	120	lb ai/A	preflood	61 a	55 a	40 a	98 a	4 a	43.0 a	5260 a	65.83 a	73.46 a
LSD (P=.05)					1.60	1.60	1.04	8.25	0.89	3.79	561.20	1.61	0.62
Standard Deviation					1.00	1.00	0.69	5.48	0.59	2.51	372.40	1.07	0.41
CV					1.74	1.93	1.74	5.72	14.11	6.00	7.69	1.63	0.56
Treatment F					3.87	3.87	1.14	1.22	1.82	0.80	9.37	1.69	1.72
Treatment Prob(F)					0.0189	0.0189	0.3820	0.3464	0.1696	0.5642	0.0003	0.1981	0.1909

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

LSU Hybrid Rice Program Multi-Location Yield Trial 2014 – Rice Research Station

Experiment number ....: 14-CM-25

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (Crowley Main)
- **Tillage type**.................................: Fall Stale
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.66 x 16 ft
- **Row width/rows per plot**............: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.74
- **pH**...: 7.4
- **Extractable nutrients** ppm..........: Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9

Crop/Variety ....: Rice / Multiple
- **Planting method/date** ....: Drill-seeded / March 13
- **Seeding rate/depth**......................: See data sheet seeds/ft^2 / .5 in
- **Emergence date**...........................: March 30
- **Harvest date** ....: August 14
- **Ratoon harvest date**....................: November 14

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization.......................................: 120 lb N/A 46-0-0, May 8
90 lb N/A 46-0-0, August 15

Water management ....:
- **Flush** ....: April 24, April 30
- **Flood** ....: May 9
- **Drain**..: July 28
- **Ratoon flood**................................: August 18
- **Ratoon drain** ....: October 24

Pest management...............................:
- **Herbicides**...................................: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
  1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
  1.5 qt/A Glyphosate, March 10
  3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
  1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6
  8.5 oz/A Benzobicyclon + 1% COC, June 4
  1 pt/A 2,4-D + 3 pt/A Basagran + 2 pt/A COC, August 22
- **Insecticides** ....: CL111 - 0.137 lb ai/cwt Dermacor seed treatment
  CLXL745 - 0.06 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 22 oz/A Quilt Xcel, June 20

Table 40. LSU hybrid rice program multi-location yield trial 2014. Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							7/30/2014	8/14/2014			
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	LAH10	120	lb ai/A	preflood	118 d	101 d	49 b	48 b	2 ab	43.4 cd	11590 a
2	LAH25	120	lb ai/A	preflood	123 b	106 b	49 bc	65 a	1 bc	42.2 de	11676 a
3	LAH28	120	lb ai/A	preflood	130 a	113 a	56 a	0 d	0 d	42.2 de	9407 e
4	69S/10HHB20	120	lb ai/A	preflood	111 h	94 h	45 de	20 c	1 c	45.0 ab	10131 cde
5	08A/R608	120	lb ai/A	preflood	116 e	99 e	46 cd	73 a	2 a	41.8 e	10473 bcd
6	08A/12XB1	120	lb ai/A	preflood	108 i	91 i	48 bc	25 c	2 ab	45.3 ab	10021 cde
7	08A/12XB4	120	lb ai/A	preflood	119 c	102 c	48 bc	0 d	0 d	43.6 cd	11019 abc
8	08A/CL131	120	lb ai/A	preflood	109 i	92 i	44 def	0 d	0 d	45.6 ab	9724 de
9	XL723	120	lb ai/A	preflood	112 g	95 g	44 ef	0 d	0 d	46.3 a	11352 ab
10	Jupiter	120	lb ai/A	preflood	117 de	100 de	38 h	0 d	0 d	43.4 cd	10872 abc
11	CL111	120	lb ai/A	preflood	115 f	98 f	42 fg	0 d	0 d	46.3 a	10405 b-e
12	CL161	120	lb ai/A	preflood	115 f	98 f	40 g	0 d	0 d	44.2 bc	9614 de
LSD (P=.05)					1.10	1.10	2.45	14.20	0.60	1.45	1039.00
Standard Deviation					0.80	0.80	1.70	9.80	0.40	1.01	719.60
CV					0.68	0.80	3.72	51.38	67.70	2.28	6.84
Treatment F					246.41	246.41	31.80	31.33	15.34	9.96	4.67
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003

Continued.

Table 40. Continued.

Crop Name					Rice		Rice		Rice	
Rating Type					Test Wt.		Yield		Total Yield	
Rating Unit					lb/bu		lb/A		lb/A	
Crop Stage Majority					Ratoon		Ratoon		MC+RC	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage						
1	LAH10	120	lb ai/A	preflood	46.3	a	2493	ab	14083	a
2	LAH25	120	lb ai/A	preflood	45.3	bcd	1897	c	13573	abc
3	LAH28	120	lb ai/A	preflood	43.3	fg	2163	bc	11570	d
4	69S/10HHB20	120	lb ai/A	preflood	44.7	de	2506	ab	12637	bcd
5	08A/R608	120	lb ai/A	preflood	44.7	de	2108	bc	12581	bcd
6	08A/12XB1	120	lb ai/A	preflood	45.0	cde	2718	a	12738	a-d
7	08A/12XB4	120	lb ai/A	preflood	45.9	ab	2881	a	13899	ab
8	08A/CL131	120	lb ai/A	preflood	45.6	bc	1677	c	11401	d
9	XL723	120	lb ai/A	preflood	45.7	b	2589	ab	13941	ab
10	Jupiter	120	lb ai/A	preflood	42.8	g	1743	c	12615	bcd
11	CL111	120	lb ai/A	preflood	44.5	e	1803	c	12208	cd
12	CL161	120	lb ai/A	preflood	43.5	f	1881	c	11495	d
LSD (P=.05)					0.65		550.60		1388.10	
Standard Deviation					0.45		381.30		961.30	
CV					1.01		17.29		7.55	
Treatment F					24.03		4.77		4.07	
Treatment Prob(F)					0.0001		0.0002		0.0008	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

LSU Hybrid Rice Program Multi-Location Yield Trial 2014 - St. Landry Parish

Experiment number	: 14-SLP-25
Site and design	:
Location/Cooperator	: St. Landry Parish / Charlie Fontenot
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Tensas-Sharkey complex
% organic matter	: 2.59
pH	: 7.1
Extractable nutrients ppm	: Ca-3770; Cu-2.8; Mg-681; P-78; K-228; Na-92; S-6.3; Zn-2.8
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill-seeded / March 24
Seeding rate/depth	: (Multiple seeding rates) seeds/ft^2 / .75 in
Emergence date	: April 5
Harvest date	: August 19
Seed treatment/cwt	: Dithane (fungicide) – 114 g
	Release (gibberellic acid) – 10 g
	Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
Fertilization	: 120 lb N/A, May 8
Water management	:
Flush	: April 30
Flood	: May 9
Drain	: August 4
Pest management	:
Herbicides	: 24 oz/A Glyphosate + 2 oz/A Sharpen + 13 oz/A Command, March 25
	1 qt/A Basagran + 1% COC, July 11
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: none

Table 41. LSU hybrid rice program multi-location yield trial 2014. St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							8/6/2014	8/19/2014		8/19/2014	8/19/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	LAH10	120	lb ai/A	preflood	109 bc	97 bc	50 bc	23 bc	1 cd	47.7 a	11467 ab
2	LAH25	120	lb ai/A	preflood	111 b	99 b	51 b	45 ab	1 bcd	44.8 a	12471 a
3	LAH28	120	lb ai/A	preflood	121 a	109 a	58 a	25 bc	1 cd	46.1 a	10821 bcd
4	69S/10HHB20	120	lb ai/A	preflood	103 d	91 d	47 cd	63 ab	2 ab	48.1 a	10129 bcd
5	08A/R608	120	lb ai/A	preflood	107 c	95 c	48 bc	63 ab	1 abc	45.4 a	11037 bcd
6	08A/12XB1	120	lb ai/A	preflood	98 e	86 e	51 b	70 a	2 a	47.1 a	10186 bcd
7	08A/12XB4	120	lb ai/A	preflood	108 c	96 c	50 bc	45 ab	1 cd	48.1 a	12503 a
8	08A/CL131	120	lb ai/A	preflood	100 e	88 e	43 ef	0 c	0 d	47.2 a	11352 abc
9	XL723	120	lb ai/A	preflood	104 d	92 d	47 cde	0 c	0 d	47.3 a	11154 a-d
10	Jupiter	120	lb ai/A	preflood	108 c	96 c	42 f	0 c	0 d	47.0 a	10803 bcd
11	CL111	120	lb ai/A	preflood	107 c	95 c	44 def	0 c	0 d	48.4 a	9774 d
12	CL161	120	lb ai/A	preflood	108 c	96 c	42 f	0 c	0 d	47.6 a	10069 cd
LSD (P=.05)					3.00	3.00	3.40	41.40	1.10	2.72	1392.80
Standard Deviation					2.10	2.10	2.40	28.60	0.80	1.89	964.60
CV					1.93	2.17	4.94	103.40	108.75	4.01	8.78
Treatment F					31.27	31.27	14.70	3.85	4.28	1.40	3.38
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0013	0.0006	0.2176	0.0033

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

LSU Hybrid Rice Program Multi-Location Yield Trial 2014 - Vermilion Parish

Experiment number ....: 14-VP-25

Site and design ....:
- **Location/Cooperator** ....: Vermilion Parish / Kent Lounsberry
- **Tillage type**.................................: Conventional
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.66 x 16 ft
- **Row width/rows per plot**...........: 8 in / 7

Soil type ....: Kaplan silt loam
- **% organic matter**........................: 1.47
- **pH**..: 4.81
- **Extractable nutrients** ppm..........: Ca-792; Cu-1.1; Mg-156; P-4.5; K-101; Na-31; S-12.8; Zn-4.9

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill-seeded / March 19
- **Seeding rate/depth**......................: (Multiple seeding rates) seeds/ft^2 / .5 in
- **Emergence date**...........................: April 1
- **Harvest date** ....: August 11
- **Ratoon Harvest date**...................: November 10

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml

Fertilization..: 250 lb/A 9-24-30, applied late March
120 lb N/A 46-0-0, May 7
90 lb N/A 46-0-0, August 20

Water management ....:
- **Flush** ....: April 1, April 28
- **Flood** ....: May 8
- **Drain**..: July 23
- **Ratoon flood**................................: August 20
- **Ratoon drain** ....: October 21

Pest management...............................:
- **Herbicides**...................................: 10 oz/A Command, applied late March (fertilizer incorporated)
1.5 qt/A Propanil + 1.5 qt/A RiceBeaux + 1 oz/A Londax + 1 oz Permit, May 6
- **Insecticides** ....: None
- **Fungicides** ....: 22 oz/A Quilt Xcel, June 20

Table 42. LSU hybrid rice program multi-location yield trial 2014. Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							8/1/2014	8/11/2014		8/11/2014	8/11/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	LAH10	120	lb ai/A	preflood	111 d	98 d	50 b	30.0 b	2.0 a	45.3 de	8817 bcd
2	LAH25	120	lb ai/A	preflood	117 b	104 b	49 bc	0.0 c	0.0 b	45.2 de	8444 cd
3	LAH28	120	lb ai/A	preflood	125 a	112 a	58 a	0.0 c	0.0 b	45.0 e	5617 e
4	69S/10HHB20	120	lb ai/A	preflood	104 f	91 f	48 bcd	87.5 a	2.0 a	45.8 cde	8955 bc
5	08A/R608	120	lb ai/A	preflood	113 c	100 c	46 cde	0.0 c	0.0 b	45.5 de	8550 cd
6	08A/12XB1	120	lb ai/A	preflood	102 g	89 g	51 b	12.5 bc	0.8 b	47.3 ab	9188 bc
7	08A/12XB4	120	lb ai/A	preflood	114 c	101 c	49 bc	0.0 c	0.0 b	46.2 bcd	8516 cd
8	08A/CL131	120	lb ai/A	preflood	102 g	89 g	43 ef	0.0 c	0.0 b	47.7 a	9370 b
9	XL723	120	lb ai/A	preflood	104 f	91 f	44 ef	22.5 bc	0.3 b	46.2 b-e	10300 a
10	Jupiter	120	lb ai/A	preflood	114 c	101 c	43 ef	0.0 c	0.0 b	45.8 cde	9210 bc
11	CL111	120	lb ai/A	preflood	106 e	93 e	45 def	0.0 c	0.0 b	46.8 abc	9088 bc
12	CL161	120	lb ai/A	preflood	111 d	98 d	42 f	0.0 c	0.0 b	47.1 ab	8130 d
LSD (P=.05)					1.40	1.40	3.62	26.50	1.24	1.20	785.40
Standard Deviation					0.97	0.97	2.51	18.36	0.86	0.83	543.90
CV					0.88	1.00	5.31	144.44	206.09	1.80	6.27
Treatment F					211.19	211.19	13.43	7.86	3.23	4.57	16.82
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0045	0.0003	0.0001

Continued.

Table 42. Continued.

Crop Name					Rice		Rice		Rice	
Rating Date					11/10/2014		11/10/2014			
Rating Type					Test Wt.		Yield		Total Yield	
Rating Unit					lb/bu		lb/A		lb/A	
Crop Stage Majority					Ratoon		Ratoon		MC+RC	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage						
1	LAH10	120	lb ai/A	preflood	44.2	abc	3827	de	12644	cd
2	LAH25	120	lb ai/A	preflood	43.6	bcd	3385	ef	11829	d
3	LAH28	120	lb ai/A	preflood	43.0	def	4688	bc	10305	e
4	69S/10HHB20	120	lb ai/A	preflood	43.8	a-d	4259	bcd	13213	bc
5	08A/R608	120	lb ai/A	preflood	43.5	bcd	3753	de	12302	cd
6	08A/12XB1	120	lb ai/A	preflood	44.3	abc	4136	cd	13324	bc
7	08A/12XB4	120	lb ai/A	preflood	44.8	a	5457	a	13973	b
8	08A/CL131	120	lb ai/A	preflood	44.6	ab	2925	fg	12295	cd
9	XL723	120	lb ai/A	preflood	44.1	a-d	4878	ab	15178	a
10	Jupiter	120	lb ai/A	preflood	42.0	f	3659	de	12869	cd
11	CL111	120	lb ai/A	preflood	42.2	ef	2750	fg	11838	d
12	CL161	120	lb ai/A	preflood	43.3	cde	2357	g	10487	e
LSD (P=.05)					1.11		706.10		1103.60	
Standard Deviation					0.77		489.00		764.30	
CV					1.77		12.74		6.10	
Treatment F					5.06		13.91		12.77	
Treatment Prob(F)					0.0001		0.0001		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Rice Response to Calcium Silicate Slag Fertilization at the Rice Research Station

Experiment number	14-CM-27
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.44
pH	7.4
Extractable nutrients ppm	Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6
Crop/Variety	Rice / CL111
Planting method/date	Drill-seeded / March 13
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	March 30
Harvest date	August 6
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	120 lb N/A 46-0-0, May 8
Water management	
Flush	April 21
Flood	May 12
Drain	July 25
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	22 oz/A Quilt Xcel, June 20

Table 43. Evaluation of rice response to calcium silicate slag fertilization (RRS.2). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							7/31/2014	8/6/2014	8/6/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	Check (no slag, no lime)	0	ton/A	at plant	108 c	91 c	37 a	49.0 a	10933 a
2	Silicate slag	0.5	ton/A	at plant	109 abc	92 abc	37 a	49.4 a	11196 a
3	Silicate slag	1	ton/A	at plant	110 ab	93 ab	36 a	48.9 a	11122 a
4	Silicate slag	2	ton/A	at plant	109 bc	92 bc	36 a	49.3 a	10475 b
5	Silicate slag	3	ton/A	at plant	110 ab	93 ab	37 a	49.1 a	10886 a
6	Silicate slag	4	ton/A	at plant	110 a	93 a	37 a	49.1 a	10969 a
7	Ag lime	1	ton/A	at plant	109 bc	92 bc	36 a	49.2 a	10956 a
8	Ag lime	2	ton/A	at plant	110 ab	93 ab	38 a	49.1 a	10845 a
LSD (P=.05)					1.10	1.10	1.40	0.47	366.50
Standard Deviation					0.80	0.80	0.90	0.32	249.20
CV					0.70	0.82	2.55	0.66	2.28
Treatment F					3.08	3.08	2.35	1.04	3.00
Treatment Prob(F)					0.0215	0.0215	0.0613	0.4335	0.0239

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Rice Response to Calcium Silicate Slag Fertilization in Franklin Parish

Experiment number	14-FP-27
Site and design	
Location/Cooperator	Franklin Parish / John Owen
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Sharkey clay
% organic matter	1.87
pH	6.8
Extractable nutrients ppm	Ca-4971; Cu-5.47; Mg-1013; P-78; K-408; Na-71; S-10.6; Zn-4.9
Crop/Variety	Rice / CL111
Planting method/date	Drill-seeded / May 6
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	May 13
Harvest date	September 16
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	120 lb N/A 46-0-0, June 19
Water management	
Flush	Data not available
Flood	June 21
Drain	September 5
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 2 pt/A Prowl H_2O + 1 oz/A Londax + 42 oz/A Facet L + 4 oz/A Interlock, May 20 1.5 qt/A Propanil + 1.5 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax, June 19
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	None

Table 44. Evaluation of rice response to calcium silicate slag fertilization (FP.2). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							9/15/2014	9/15/2014		9/16/2014	9/22/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	Check (no slag, no lime)	0	ton/A	at plant	90 a	83 a	35 ab	0 a	0 a	47.7 bc	8028 a
2	Ca Silicate slag	0.5	ton/A	at plant	89 abc	82 abc	36 a	0 a	0 a	47.9 bc	8344 a
3	Ca Silicate slag	1	ton/A	at plant	89 ab	82 ab	36 a	0 a	0 a	48.0 abc	8205 a
4	Ca Silicate slag	2	ton/A	at plant	90 ab	83 ab	35 ab	3 a	1 a	47.3 c	7850 a
5	Ca Silicate slag	3	ton/A	at plant	88 cd	81 cd	34 abc	0 a	0 a	48.8 a	8440 a
6	Ca Silicate slag	4	ton/A	at plant	89 bcd	82 bcd	32 c	0 a	0 a	47.4 c	8121 a
7	Ag lime	1	ton/A	at plant	88 bcd	81 bcd	33 bc	0 a	0 a	48.4 ab	7695 a
8	Ag lime	2	ton/A	at plant	87 d	80 d	34 abc	0 a	0 a	48.3 ab	8117 a
LSD (P=.05)					1.70	1.70	2.30	2.60	0.78	0.84	775.90
Standard Deviation					1.20	1.20	1.50	1.77	0.53	0.57	527.50
CV					1.34	1.45	4.50	565.69	565.69	1.20	6.51
Treatment F					2.92	2.92	3.18	1.00	1.00	3.23	0.86
Treatment Prob(F)					0.0266	0.0266	0.0186	0.4586	0.4586	0.0174	0.5538

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Rice Response to Calcium Silicate Slag Fertilization in Evangeline Parish

Experiment number	: 14-KL-27
Site and design	:
Location/Cooperator	: Evangeline Parish
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley – Vidrine Complex
% organic matter	: 1.10
pH	: 5.3
Extractable nutrients ppm	: Ca-557; Cu-0.53; Mg-122; P-10.5; K-34.0; Na-69.6; S-1.4; Zn-2.4
Crop/Variety	: Rice / Jupiter
Planting method/date	: Drill-seeded / April 21
Seeding rate/depth	: 33 seeds/ft^2 / .75 in
Emergence date	: April 27
Harvest date	: September 11
Seed treatment/cwt	: Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	: 120 lb N/A 46-0-0, May 20
Water management	:
Flush	: May 6
Flood	: May 23
Drain	: August 19
Pest management	:
Herbicides	: 2.5 qt/A Propanil + 8 oz/A Command, May 3 1 qt/A Facet, May 23
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: 19 oz/A Stratego, June 11

Table 45. Evaluation of rice response to calcium silicate slag fertilization (KL.2). Evangeline Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top	0-10		
Rating Date							9/9/2014	9/9/2014	9/11/2014	9/12/2014
Rating Type					50% HD	50% HD	Height	SH Blight	Test Wt.	Yield
Rating Unit					days	days	in	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage						
1	Check (no slag, no lime)	0	ton/A	at plant	93 a	83 a	36 a	2.0 a	46.5 a	9216 a
2	Ca Silicate slag	0.5	ton/A	at plant	93 a	83 a	36 a	1.5 a	46.6 a	9799 a
3	Ca Silicate slag	1	ton/A	at plant	93 a	83 a	36 a	2.8 a	46.6 a	9684 a
4	Ca Silicate slag	2	ton/A	at plant	93 a	83 a	37 a	1.3 a	46.3 a	10237 a
5	Ca Silicate slag	3	ton/A	at plant	93 a	83 a	36 a	1.5 a	46.4 a	10236 a
6	Ca Silicate slag	4	ton/A	at plant	93 a	83 a	36 a	0.3 a	46.6 a	10207 a
7	Ag lime	1	ton/A	at plant	93 a	83 a	36 a	0.8 a	46.5 a	9943 a
8	Ag lime	2	ton/A	at plant	93 a	83 a	37 a	1.0 a	46.7 a	10096 a
LSD (P=.05)					0.00	0.00	1.51	1.56	0.38	771.50
Standard Deviation					0.00	0.00	1.03	1.06	0.26	524.50
CV					0.00	0.00	2.84	77.34	0.56	5.28
Treatment F					0.00	0.00	0.71	2.08	1.09	1.83
Treatment Prob(F)					1.0000	1.0000	0.6668	0.0912	0.4022	0.1348

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Rice Response to Calcium Silicate Slag Fertilization in St. Landry Parish

Experiment number	14-SLP-27
Site and design	
Location/Cooperator	St. Landry Parish / Charlie Fontenot
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Tensas-Sharkey complex
% organic matter	2.59
pH	7.1
Extractable nutrients ppm	Ca-3770; Cu-2.8; Mg-681; P-78; K-228; Na-92; S-6.3; Zn-2.8
Crop/Variety	Rice / CL111
Planting method/date	Drill-seeded / March 24
Seeding rate/depth	33 seeds/ft^2 / .75 in
Emergence date	April 5
Harvest date	August 19
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
Fertilization	120 lb N/A, May 8
Water management	
Flush	April 30
Flood	May 9
Drain	August 4
Pest management	
Herbicides	24 oz/A Glyphosate + 2 oz/A Sharpen + 13 oz/A Command, March 25 1 qt/A Basagran + 1% COC, July 11
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	none

Table 46. Evaluation of rice response to calcium silicate slag fertilization (SLP.2). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							8/6/2014	8/20/2014	9/23/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	Check (no slag, no lime)	0	ton/A	at plant	106 a	94 a	42 a	48.4 a	10683 a
2	Ca Silicate slag	0.5	ton/A	at plant	106 a	94 a	43 a	48.0 a	10618 a
3	Ca Silicate slag	1	ton/A	at plant	106 a	94 a	44 a	48.8 a	10871 a
4	Ca Silicate slag	2	ton/A	at plant	106 a	94 a	43 a	48.7 a	10135 a
5	Ca Silicate slag	3	ton/A	at plant	107 a	95 a	44 a	48.9 a	10398 a
6	Ca Silicate slag	4	ton/A	at plant	106 a	94 a	42 a	48.6 a	10236 a
7	Ag lime	1	ton/A	at plant	106 a	94 a	42 a	48.6 a	10808 a
8	Ag lime	2	ton/A	at plant	107 a	95 a	44 a	48.6 a	10675 a
LSD (P=.05)					1.50	1.50	2.67	0.91	742.90
Standard Deviation					1.02	1.02	1.81	0.62	505.10
CV					0.96	1.08	4.24	1.27	4.79
Treatment F					0.26	0.26	1.06	0.84	1.12
Treatment Prob(F)					0.9639	0.9639	0.4211	0.5708	0.3857

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Rice Response to Calcium Silicate Slag Fertilization in Vermilion Parish

Experiment number	14-VP-27
Site and design	
Location/Cooperator	Vermilion Parish / Kent Lounsberry
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Kaplan silt loam
% organic matter	1.47
pH	4.81
Extractable nutrients ppm	Ca-792; Cu-1.1; Mg-156; P-4.5; K-101; Na-31; S-12.8; Zn-4.9
Crop/Variety	Rice / See data sheet
Planting method/date	Drill-seeded / March 19
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	April 1
Harvest date	August 11
Ratoon Harvest date	
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
Fertilization	250 lb/A 9-24-30, applied late March 120 lb N/A 46-0-0, May 7 90 lb N/A 46-0-0, August 20
Water management	
Flush	April 1, April 28
Flood	May 8
Drain	July 23
Ratoon flood	August 20
Ratoon drain	
Pest management	
Herbicides	10 oz/A Command, applied late March (fertilizer incorporated) 1.5 qt/A Propanil + 1.5 qt/A RiceBeaux + 1 oz/A Londax + 1 oz Permit, May 6
Insecticides	None
Fungicides	22 oz/A Quilt Xcel, June 20

Table 47. Evaluation of rice response to calcium silicate slag fertilization applied at planting (VP.2). Vermilion Parish.

Crop Name				Rice	Rice	Rice	Rice		Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	top							
Rating Date						8/1/2014	8/11/2014		8/11/2014	9/23/2014	11/10/2014	11/10/2014	
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit				days	days	in	% plot	rate	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	Rate	Rate Unit										
1	Check	0	ton/A	103 b	90 b	40 a	8 a	1 a	47.6 a	9906 a	42.2 a	2516 a	12421 a
2	Ca Silicate slag	0.5	ton/A	103 b	90 b	40 a	0 a	0 a	47.5 a	9995 a	42.4 a	2788 a	12783 a
3	Ca Silicate slag	1	ton/A	103 b	90 b	41 a	3 a	1 a	47.6 a	9903 a	42.2 a	2913 a	12816 a
4	Ca Silicate slag	2	ton/A	103 b	90 b	40 a	3 a	1 a	47.7 a	9813 a	42.9 a	2751 a	12564 a
5	Ca Silicate slag	3	ton/A	104 a	91 a	41 a	5 a	2 a	47.6 a	9763 a	42.7 a	2970 a	12733 a
6	Ca Silicate slag	4	ton/A	104 a	91 a	41 a	10 a	1 a	47.5 a	10108 a	42.6 a	2723 a	12831 a
7	Ag lime	1	ton/A	103 b	90 b	41 a	6 a	2 a	47.6 a	9700 a	42.4 a	2811 a	12511 a
8	Ag lime	2	ton/A	103 b	90 b	40 a	14 a	2 a	47.8 a	9689 a	42.5 a	2612 a	12300 a
LSD (P=.05)				0.42	0.42	2.83	17.66	2.12	0.27	489.90	0.62	571.70	790.90
Standard Deviation				0.29	0.29	1.92	12.01	1.43	0.18	333.10	0.42	388.70	537.80
CV				0.28	0.32	4.77	202.24	145.18	0.39	3.38	1.00	14.08	4.26
Treatment F				2.57	2.57	0.26	0.55	0.82	1.07	0.77	1.16	0.58	0.55
Treatment Prob(F)				0.0442	0.0442	0.9630	0.7839	0.5805	0.4191	0.6153	0.3678	0.7625	0.7865

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rice Hybrid Ratoon Crop Response to Post Harvest N Application

Experiment number	: 14-CM-20
Site and design	:
Location/Cooperator	: Rice Research Station (Crowley Main)
Tillage type	: Fall Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley silt loam
% organic matter	: 1.74
pH	: 7.4
Extractable nutrients ppm..........	: Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9
Crop/Variety	: Rice / CLXL745, CLXL729, XL753
Planting method/date	: Drill-seeded / March 13
Seeding rate/depth	: 14 seeds/ft^2 / .5 in
Emergence date	: March 30
Harvest date	: August 13
Ratoon harvest date	: November 14
Seed treatment/cwt	: Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	: 120 lb N/A 46-0-0, May 8
Water management	:
Flush	: April 24, April 30
Flood	: May 9
Drain	: July 28
Ratoon flood	: August 18
Ratoon drain	: October 24
Pest management	:
Herbicides	: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4 1 pt/A 2,4-D + 3 pt/A Basagran + 2 pt/A COC, August 22
Insecticides	: 0.06 lb ai/cwt Dermacor seed treatment
Fungicides	: 22 oz/A Quilt Xcel, June 20

Table 48. Rice hybrid ratoon crop response to post harvest N application (RRS.2). XL723 replaced with XL753. Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice		Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	top							
Rating Date						7/30/2014	8/13/2014		8/13/2014	8/13/2014	11/14/2014	11/14/2014	
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit				days	days	in	% plot	rate	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	N Rate	Rate Unit										
1	CLXL745	0	lb ai/A	108 d	91 d	44 bcd	15 b	2 a	47.6 a	12153 a	46.2 abc	1056 i	13209 ef
2	CLXL745	30	lb ai/A	108 d	91 d	43 b-e	25 a	2 a	47.6 a	11784 a	46.0 abc	1624 ghi	13407 def
3	CLXL745	60	lb ai/A	107 d	90 d	46 a	23 ab	1 a	48.1 a	12290 a	46.1 abc	1918 fgh	14209 b-f
4	CLXL745	90	lb ai/A	107 d	90 d	44 abc	25 a	2 a	48.3 a	12220 a	45.3 de	2416 def	14637 b-e
5	CLXL745	120	lb ai/A	107 d	90 d	44 bcd	18 ab	1 a	47.7 a	11930 a	46.0 abc	3005 bc	14935 a-d
6	CLXL745	150	lb ai/A	108 d	91 d	43 b-e	15 b	1 a	47.7 a	12076 a	45.6 cd	3059 bc	15135 abc
7	CLXL729	0	lb ai/A	111 bc	94 bc	42 e	0 c	0 b	48.3 a	11216 a	46.0 abc	1673 gh	12889 f
8	CLXL729	30	lb ai/A	111 bc	94 bc	42 de	0 c	0 b	47.0 a	11962 a	46.4 ab	2478 c-f	14440 b-e
9	CLXL729	60	lb ai/A	111 abc	94 abc	42 de	0 c	0 b	47.4 a	11797 a	46.6 a	2839 bcd	14637 b-e
10	CLXL729	90	lb ai/A	110 c	93 c	42 cde	0 c	0 b	48.1 a	12417 a	46.2 abc	3240 b	15657 ab
11	CLXL729	120	lb ai/A	111 abc	94 abc	43 b-e	0 c	0 b	46.8 a	11625 a	45.8 bcd	4025 a	15650 ab
12	CLXL729	150	lb ai/A	111 bc	94 bc	45 ab	0 c	0 b	47.6 a	11962 a	46.2 abc	4253 a	16215 a
13	XL753	0	lb ai/A	111 ab	94 ab	43 b-e	0 c	0 b	46.5 a	12258 a	45.5 cd	1354 hi	13612 c-f
14	XL753	30	lb ai/A	111 bc	94 bc	41 e	0 c	0 b	47.1 a	11284 a	44.8 ef	1947 fg	13231 ef
15	XL753	60	lb ai/A	111 abc	94 abc	41 e	3 c	0 b	47.9 a	12336 a	44.6 fg	2113 efg	14449 b-e
16	XL753	90	lb ai/A	111 abc	94 abc	44 abc	0 c	0 b	47.7 a	12541 a	44.7 efg	2577 cde	15119 abc
17	XL753	120	lb ai/A	112 a	95 a	43 b-e	0 c	0 b	47.1 a	12500 a	44.2 fg	2933 bcd	15433 ab
18	XL753	150	lb ai/A	111 abc	94 abc	44 bcd	0 c	0 b	46.0 a	12058 a	44.1 g	2926 bcd	14984 abc
LSD (P=.05)				1.25	1.25	2.24	8.65	0.50	1.99	1404.50	0.70	585.30	1549.50
Standard Deviation				0.89	0.89	1.59	6.12	0.36	1.41	993.10	0.50	413.90	1095.70
CV				0.81	0.96	3.68	89.92	77.47	2.97	8.26	1.09	16.40	7.53
Treatment F				14.62	14.62	2.79	10.59	13.35	0.78	0.58	9.82	17.37	3.06
Treatment Prob(F)				0.0001	0.0001	0.0024	0.0001	0.0001	0.7038	0.8937	0.0001	0.0001	0.0010

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rice Variety Ratoon Crop Response to Post Harvest N Application Rate

Experiment number	14-CM-21
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.74
pH	7.4
Extractable nutrients ppm	Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9
Crop/Variety	Rice / CL111, CL152, Mermentau
Planting method/date	Drill-seeded / March 13
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	March 30
Harvest date	August 13
Ratoon harvest date	November 14
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	150 lb N/A 46-0-0, May 8
Water management	
Flush	April 24, April 30
Flood	May 9
Drain	July 28
Ratoon flood	August 18
Ratoon drain	October 24
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4 1 pt/A 2,4-D + 3 pt/A Basagran + 2 pt/A COC, August 22
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	22 oz/A Quilt Xcel, June 20

Table 49. Rice variety ratoon crop response to post harvest N application rate (RRS.2). Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice		Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	top							
Rating Date						7/30/2014	8/13/2014		8/13/2014	8/13/2014	11/14/2014	11/14/2014	
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit				days	days	in	% plot	rate	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name	N Rate	Rate Unit										
1	CL111	0	lb ai/A	110 de	93 de	41 a	0 a	0 a	48.6 a	10922 a	45.1 ab	939 lm	11861 abc
2	CL111	30	lb ai/A	110 e	93 e	41 ab	0 a	0 a	47.3 bc	10952 a	44.9 a-d	1253 ijk	12205 ab
3	CL111	60	lb ai/A	111 cde	94 cde	39 a-d	0 a	0 a	48.8 a	10901 a	44.0 d-h	1640 efg	12540 a
4	CL111	90	lb ai/A	111 cde	94 cde	39 a-d	3 a	1 a	48.3 ab	10686 a	44.3 b-f	1660 efg	12346 ab
5	CL111	120	lb ai/A	112 cde	95 cde	40 abc	3 a	0 a	48.1 ab	10555 a	43.6 fgh	2018 cd	12574 a
6	CL111	150	lb ai/A	111 cde	94 cde	39 a-d	5 a	1 a	48.4 a	10681 a	43.9 e-h	1806 def	12487 a
7	CL152	0	lb ai/A	119 ab	102 ab	38 cde	0 a	0 a	46.2 d	9752 bc	44.2 c-g	1137 jkl	10889 de
8	CL152	30	lb ai/A	118 b	101 b	41 ab	0 a	0 a	46.6 cd	9777 bc	43.3 h	1550 fgh	11327 cd
9	CL152	60	lb ai/A	120 a	103 a	39 a-d	0 a	0 a	46.3 cd	9852 bc	43.9 e-h	1849 de	11701 bc
10	CL152	90	lb ai/A	120 a	103 a	39 a-d	0 a	0 a	46.7 cd	9927 b	43.7 e-h	2152 bc	12079 ab
11	CL152	120	lb ai/A	120 a	103 a	40 a-d	0 a	0 a	46.2 cd	9806 bc	43.4 gh	2310 ab	12116 ab
12	CL152	150	lb ai/A	119 ab	102 ab	41 ab	0 a	0 a	46.0 d	9786 bc	43.2 h	2522 a	12308 ab
13	Mermentau	0	lb ai/A	112 cd	95 cd	38 de	0 a	0 a	46.8 cd	9469 bc	45.3 a	693 m	10162 f
14	Mermentau	30	lb ai/A	112 c	95 c	38 b-e	0 a	0 a	46.7 cd	9464 bc	45.0 abc	995 kl	10458 ef
15	Mermentau	60	lb ai/A	112 cd	95 cd	40 a-d	0 a	0 a	46.2 cd	9321 bc	44.6 a-e	1212 ijk	10533 ef
16	Mermentau	90	lb ai/A	112 cd	95 cd	36 e	0 a	0 a	46.9 cd	9536 bc	44.4 a-f	1313 hij	10849 def
17	Mermentau	120	lb ai/A	112 cd	95 cd	38 cde	0 a	0 a	46.7 cd	9293 c	44.1 d-h	1459 ghi	10752 def
18	Mermentau	150	lb ai/A	112 cde	95 cde	38 b-e	0 a	0 a	46.8 cd	9346 bc	44.5 a-f	1633 efg	10979 de
LSD (P=.05)				1.84	1.84	2.35	3.06	0.56	1.08	610.20	0.91	261.40	713.10
Standard Deviation				1.30	1.30	1.66	2.16	0.40	0.77	431.50	0.64	184.90	504.30
CV				1.14	1.34	4.26	389.57	475.27	1.63	4.31	1.45	11.83	4.36
Treatment F				35.70	35.70	2.21	1.61	1.13	5.73	7.84	3.88	28.49	10.51
Treatment Prob(F)				0.0001	0.0001	0.0153	0.0978	0.3579	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Stubble Management Practices and Desiccant Use 5d Preharvest on Ratoon Yield and Regrowth

Experiment number	14-CM-23
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.74
pH	7.4
Extractable nutrients ppm	Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9
Crop/Variety	Rice / CL111, CLXL745
Planting method/date	Drill-seeded / March 13
Seeding rate/depth	(Conv-33, Hyb-14) seeds/ft^2 / .5 in
Emergence date	March 30
Harvest date	August 13
Ratoon harvest date	November 18
Seed treatment/cwt	Conv - Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz Hyb – Maxim 4FS Apron XL Gibberellic Acid Zinc Dynasty AV-1011 (bird repellant) – 18.3 oz
Fertilization	150 lb N/A 46-0-0, May 8 90 lb N/A 46-0-0, August 15
Water management	
Flush	April 24, April 30
Flood	May 9
Drain	July 28
Ratoon flood	August 18
Ratoon drain	October 24
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4 1 pt/A 2,4-D + 3 pt/A Basagran + 2 pt/A COC, August 22
Insecticides	CL111 - 0.137 lb ai/cwt Dermacor seed treatment CLXL745 - 0.06 lb ai/cwt Dermacor seed treatment
Fungicides	22 oz/A Quilt Xcel, June 20

Table 50. Evaluation of stubble management practices and desiccant use 5d preharvest on CL111 and CLXL745 ratoon yield and regrowth (RRS.2). Rice Research Station.

Crop Name				Rice		Rice		Rice		Rice				
Description				plant-hd		emer-hd		top						
Rating Date								7/30/2014		8/13/2014				
Rating Type				50% HD		50% HD		Height		Lodge				
Rating Unit				days		days		in		% plot		rate		
Crop Stage Majority				Main		Main		Main		Main		Main		
Trt. No.	Trt. Name	Rate	Rate Unit											
1	with sodium chlorate CL111 Norm harv ht(16")	3	qt/A	112	a	95	a	39	cde	0	d	0	c	
2	with sodium chlorate CLXL745 Norm harv ht(16")	3	qt/A	108	c	91	c	44	a	13	ab	1	b	
3	with sodium chlorate CL111 Low harv ht (8")	3	qt/A	112	a	95	a	39	de	0	d	0	c	
4	with sodium chlorate CLXL745 Low harv ht (8")	3	qt/A	108	c	91	c	43	ab	3	cd	0	bc	
5	with sodium chlorate CL111 Flail mowed (=<8")	3	qt/A	111	ab	94	ab	38	e	3	cd	0	bc	
6	with sodium chlorate CLXL745 Flail mowed (=<8")	3	qt/A	108	c	91	c	44	a	8	bcd	1	bc	
7	with sodium chlorate CL111 Rolled (16")	3	qt/A	112	a	95	a	39	cde	5	bcd	1	bc	
8	with sodium chlorate CLXL745 Rolled (16")	3	qt/A	108	c	91	c	41	bc	13	ab	1	b	
9	without sodium chlorate CL111 Norm harv ht(16")	0	qt/A	112	a	95	a	40	cd	3	cd	0	bc	
10	without sodium chlorate CLXL745 Norm harv ht(16")	0	qt/A	109	bc	92	bc	43	ab	5	bcd	1	bc	
11	without sodium chlorate CL111 Low harv ht (8")	0	qt/A	111	a	94	a	40	cde	0	d	0	c	
12	without sodium chlorate CLXL745 Low harv ht (8")	0	qt/A	109	bc	92	bc	43	ab	3	cd	0	bc	
13	without sodium chlorate CL111 Flail mowed (=<8")	0	qt/A	111	a	94	a	40	cde	0	d	0	c	
14	without sodium chlorate CLXL745 Flail mowed (=<8")	0	qt/A	109	bc	92	bc	44	a	10	abc	1	b	
15	without sodium chlorate CL111 Rolled (16")	0	qt/A	111	a	94	a	39	cde	0	d	0	c	
16	without sodium chlorate CLXL745 Rolled (16")	0	qt/A	108	c	91	c	44	a	18	a	2	a	
LSD (P=.05)				2.23		2.23		2.34		9.79		0.74		
Standard Deviation				1.56		1.56		1.64		6.85		0.52		
CV				1.42		1.68		3.99		137.03		131.94		
Treatment F				4.94		4.94		7.84		2.56		2.51		
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0077		0.0089		

Continued.

Table 50. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	
Rating Date		8/13/2014	8/13/2014	11/18/2014	11/18/2014		8/13/2014	
Rating Type		Test Wt.	Yield	Test Wt.	Yield	Total Yield	Milling	
Rating Unit		lb/bu	lb/A	lb/bu	lb/A	lb/A	whole	total
Crop Stage Majority		Main	Main	Ratoon	Ratoon	MC+RC	Main	Main
Trt. No.	Trt. Name							
1	with sodium chlorate CL111 Norm harv ht(16")	48.2 cde	10680 ef	45.5 a	637 a	11317 ef	.	.
2	with sodium chlorate CLXL745 Norm harv ht(16")	47.6 e	10916 c-f	46.1 a	744 a	11660 c-f	.	.
3	with sodium chlorate CL111 Low harv ht (8")	48.7 a-d	10811 def	45.7 a	513 a	11324 ef	67.25 a	74.93 a
4	with sodium chlorate CLXL745 Low harv ht (8")	49.3 ab	12786 a	45.8 a	684 a	13470 a	63.68 b	75.52 a
5	with sodium chlorate CL111 Flail mowed (=<8")	48.9 abc	10846 c-f	44.5 a	760 a	11606 c-f	.	.
6	with sodium chlorate CLXL745 Flail mowed (=<8")	49.1 abc	11379 bc	45.4 a	727 a	12106 bc	.	.
7	with sodium chlorate CL111 Rolled (16")	48.8 abc	10523 f	44.6 a	544 a	11067 f	.	.
8	with sodium chlorate CLXL745 Rolled (16")	49.8 a	11323 bcd	45.4 a	693 a	12016 cd	.	.
9	without sodium chlorate CL111 Norm harv ht(16")	47.6 e	10647 ef	45.4 a	545 a	11192 ef	.	.
10	without sodium chlorate CLXL745 Norm harv ht(16")	47.2 e	10927 c-f	45.9 a	799 a	11726 cde	.	.
11	without sodium chlorate CL111 Low harv ht (8")	47.1 e	10453 f	44.8 a	665 a	11118 ef	68.91 a	75.19 a
12	without sodium chlorate CLXL745 Low harv ht (8")	48.1 cde	12973 a	45.7 a	1087 a	14060 a	65.25 b	74.51 a
13	without sodium chlorate CL111 Flail mowed (=<8")	47.7 de	10698 ef	46.3 a	748 a	11446 def	.	.
14	without sodium chlorate CLXL745 Flail mowed (=<8")	48.2 cde	11824 b	45.6 a	886 a	12710 b	.	.
15	without sodium chlorate CL111 Rolled (16")	48.2 b-e	10503 f	44.8 a	690 a	11193 ef	.	.
16	without sodium chlorate CLXL745 Rolled (16")	48.2 b-e	11182 cde	45.0 a	566 a	11488 c-f	.	.
LSD (P=.05)		1.09	549.60	1.15	342.00	647.80	1.81	1.51
Standard Deviation		0.76	384.60	0.80	239.30	453.30	1.13	0.95
CV		1.57	3.45	1.77	33.93	3.83	1.71	1.26
Treatment F		3.92	15.91	1.75	1.44	14.69	16.35	0.80
Treatment Prob(F)		0.0002	0.0001	0.0760	0.1719	0.0001	0.0006	0.5224

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Ratoon Response to First Crop N Application Timing, Ratoon N Rate, and Ratoon N Timing

Experiment number	14-CM-24
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.74
pH	7.4
Extractable nutrients ppm	Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9
Crop/Variety	Rice / CL111, CLXL745
Planting method/date	Drill-seeded / March 13
Seeding rate/depth	(Conv-33, Hyb-14) seeds/ft^2 / .5 in
Emergence date	March 30
Harvest date	August 13
Ratoon harvest date	November 18
Seed treatment/cwt	Conv - Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz Hyb – Maxim 4FS Apron XL Gibberellic Acid Zinc Dynasty AV-1011 (bird repellant) – 18.3 oz
Fertilization	120 lb N/A 46-0-0, May 8
Water management	
Flush	April 24, April 30
Flood	May 9
Drain	July 28
Ratoon flood	August 18
Ratoon drain	October 24
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4 1 pt/A 2,4-D + 3 pt/A Basagran + 2 pt/A COC, August 22
Insecticides	CL111 - 0.137 lb ai/cwt Dermacor seed treatment CLXL745 - 0.06 lb ai/cwt Dermacor seed treatment
Fungicides	22 oz/A Quilt Xcel, June 20

Table 51. CL111 and CLXL745 ratoon response to first crop N application timing, ratoon N rate, and ratoon N timing (RRS.2). Rice Research Station.

Crop Name					Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		top			
Rating Date									7/30/2014		8/13/2014	
Rating Type					50% HD		50% HD		Height		Test Wt.	
Rating Unit					days		days		in		lb/bu	
Crop Stage Majority					Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	CL111 Normal Harvest (16")				110	a	93	a	41	b-f	48.6	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	0 lb N/A	0	lb ai/A	post har								
2	CL111 Normal Harvest (16")				110	a	93	a	39	f	48.4	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	90 lb N/A	90	lb ai/A	post har								
3	CL111 Normal Harvest (16")				110	a	93	a	39	f	48.4	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	150 lb N/A	150	lb ai/A	post har								
4	CL111 Normal Harvest (16")				109	ab	92	ab	39	def	48.3	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	45/45 lb N/A	45	lb ai/A	post har								
		45	lb ai/A	2WPH								
5	CL111 Normal Harvest (16")				109	abc	92	abc	41	b-f	48.4	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	75/75 lb N/A	75	lb ai/A	post har								
		75	lb ai/A	2WPH								
6	CL111 Low Harvest Ht (8")				109	abc	92	abc	40	c-f	48.3	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	0 lb N/A	0	lb ai/A	post har								
7	CL111 Low Harvest Ht (8")				109	ab	92	ab	39	ef	47.8	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	90 lb N/A	90	lb ai/A	post har								
8	CL111 Low Harvest Ht (8")				109	a-d	92	a-d	38	f	46.8	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	150 lb N/A	150	lb ai/A	post har								
9	CL111 Low Harvest Ht (8")				109	ab	92	ab	39	ef	46.9	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	45/45 lb N/A	45	lb ai/A	post har								
		45	lb ai/A	2WPH								
10	CL111 Low Harvest Ht (8")				109	abc	92	abc	40	c-f	47.8	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	GR								
	75/75 lb N/A	75	lb ai/A	post har								
		75	lb ai/A	2WPH								

Continued.

Table 51. Continued.

Crop Name				Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		top			
Rating Date								7/30/2014		8/13/2014	
Rating Type				50% HD		50% HD		Height		Test Wt.	
Rating Unit				days		days		in		lb/bu	
Crop Stage Majority				Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
11	CLXL745 Normal Harvest (16")				108	c-f	91	c-f	43	ab	47.7 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	0 lb N/A	0	lb ai/A	post har							
12	CLXL745 Normal Harvest (16")				107	ef	90	ef	42	a-d	48.2 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	90 lb N/A	90	lb ai/A	post har							
13	CLXL745 Normal Harvest (16")				108	c-f	91	c-f	43	abc	48.0 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	150 lb N/A	150	lb ai/A	post har							
14	CLXL745 Normal Harvest (16")				108	c-f	91	c-f	43	abc	47.9 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	45/45 lb N/A	45	lb ai/A	post har							
		45	lb ai/A	2WPH							
15	CLXL745 Normal Harvest (16")				108	b-e	91	b-e	42	a-e	48.1 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	75/75 lb N/A	75	lb ai/A	post har							
		75	lb ai/A	2WPH							
16	CLXL745 Low Harvest Ht (8")				108	def	91	def	45	a	48.1 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	0 lb N/A	0	lb ai/A	post har							
17	CLXL745 Low Harvest Ht (8")				108	c-f	91	c-f	43	abc	47.2 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	90 lb N/A	90	lb ai/A	post har							
18	CLXL745 Low Harvest Ht (8")				108	def	91	def	43	abc	47.7 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	150 lb N/A	150	lb ai/A	post har							
19	CLXL745 Low Harvest Ht (8")				107	ef	90	ef	40	b-f	48.3 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	45/45 lb N/A	45	lb ai/A	post har							
		45	lb ai/A	2WPH							
20	CLXL745 Low Harvest Ht (8")				107	f	90	f	43	ab	47.1 a
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	50% HD							
	75/75 lb N/A	75	lb ai/A	post har							
		75	lb ai/A	2WPH							
LSD (P=.05)					1.15		1.15		3.15		1.64
Standard Deviation					0.81		0.81		2.23		1.16
CV					0.75		0.89		5.44		2.42
Treatment F					4.22		4.22		2.99		0.84
Treatment Prob(F)					0.0001		0.0001		0.0007		0.6588

Continued.

Table 51. Continued.

Crop Name				Rice		Rice		Rice		Rice	
Rating Date				8/13/2014		11/18/2014		11/18/2014			
Rating Type				Yield		Test Wt.		Yield		Total Yield	
Rating Unit				lb/A		lb/bu		lb/A		lb/A	
Crop Stage Majority				Main		Ratoon		Ratoon		MC+RC	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	CL111 Normal Harvest (16")				10735	b-e	44.7	cd	1096	ij	11831 fgh
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	0 lb N/A	0	lb ai/A	post har							
2	CL111 Normal Harvest (16")				10580	c-f	44.6	cd	1810	gh	12390 ef
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	90 lb N/A	90	lb ai/A	post har							
3	CL111 Normal Harvest (16")				10754	b-e	44.1	d	2046	fg	12800 de
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	150 lb N/A	150	lb ai/A	post har							
4	CL111 Normal Harvest (16")				10851	b-e	45.2	bc	1625	h	12476 e
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	45/45 lb N/A	45	lb ai/A	post har							
		45	lb ai/A	2WPH							
5	CL111 Normal Harvest (16")				10384	ef	44.6	cd	1945	g	12329 efg
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	75/75 lb N/A	75	lb ai/A	post har							
		75	lb ai/A	2WPH							
6	CL111 Low Harvest Ht (8")				10772	b-e	44.8	cd	973	j	11745 gh
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	0 lb N/A	0	lb ai/A	post har							
7	CL111 Low Harvest Ht (8")				10267	ef	44.1	d	1964	g	12231 e-h
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	90 lb N/A	90	lb ai/A	post har							
8	CL111 Low Harvest Ht (8")				10443	def	42.7	e	1959	g	12402 ef
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	150 lb N/A	150	lb ai/A	post har							
9	CL111 Low Harvest Ht (8")				9984	f	44.5	cd	1628	h	11612 h
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	45/45 lb N/A	45	lb ai/A	post har							
		45	lb ai/A	2WPH							
10	CL111 Low Harvest Ht (8")				10591	b-f	44.0	d	1981	g	12572 de
	120 lb N/A	120	lb ai/A	PF							
	30 lb N/A	30	lb ai/A	GR							
	75/75 lb N/A	75	lb ai/A	post har							
		75	lb ai/A	2WPH							

Continued.

Table 51. Continued.

Crop Name					Rice		Rice		Rice		Rice	
Rating Date					8/13/2014		11/18/2014		11/18/2014			
Rating Type					Yield		Test Wt.		Yield		Total Yield	
Rating Unit					lb/A		lb/bu		lb/A		lb/A	
Crop Stage Majority					Main		Ratoon		Ratoon		MC+RC	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
11	CLXL745 Normal Harvest (16")				11022	bcd	46.5	a	1198	ij	12220	e-h
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	0 lb N/A	0	lb ai/A	post har								
12	CLXL745 Normal Harvest (16")				11201	bc	46.3	a	2456	de	13656	bc
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	90 lb N/A	90	lb ai/A	post har								
13	CLXL745 Normal Harvest (16")				10783	b-e	45.8	ab	2830	bc	13613	bc
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	150 lb N/A	150	lb ai/A	post har								
14	CLXL745 Normal Harvest (16")				10888	b-e	46.4	a	2280	ef	13168	cd
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	45/45 lb N/A	45	lb ai/A	post har								
		45	lb ai/A	2WPH								
15	CLXL745 Normal Harvest (16")				11219	b	45.9	ab	2593	cd	13813	b
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	75/75 lb N/A	75	lb ai/A	post har								
		75	lb ai/A	2WPH								
16	CLXL745 Low Harvest Ht (8")				12677	a	46.2	a	1258	i	13935	b
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	0 lb N/A	0	lb ai/A	post har								
17	CLXL745 Low Harvest Ht (8")				12227	a	45.8	ab	2834	bc	15061	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	90 lb N/A	90	lb ai/A	post har								
18	CLXL745 Low Harvest Ht (8")				12401	a	44.4	cd	3214	a	15614	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	150 lb N/A	150	lb ai/A	post har								
19	CLXL745 Low Harvest Ht (8")				12774	a	45.9	ab	2451	de	15225	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	45/45 lb N/A	45	lb ai/A	post har								
		45	lb ai/A	2WPH								
20	CLXL745 Low Harvest Ht (8")				12481	a	45.7	ab	3019	ab	15501	a
	120 lb N/A	120	lb ai/A	PF								
	30 lb N/A	30	lb ai/A	50% HD								
	75/75 lb N/A	75	lb ai/A	post har								
		75	lb ai/A	2WPH								
LSD (P=.05)					631.50		0.84		246.90		643.30	
Standard Deviation					446.60		0.60		174.60		454.90	
CV					4.00		1.32		8.48		3.44	
Treatment F					14.90		11.63		55.67		32.07	
Treatment Prob(F)					0.0001		0.0001		0.0001		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System for RU1201102 Rice

Experiment number ....: 14-CM-34

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.66 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.44
- **pH** ....: 7.4
- **Extractable nutrients** ppm..........: Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety ....: Rice / RU1201102
- **Planting method/date** ....: Drill-seeded / April 30
- **Seeding rate/depth** ....: (see data sheet) seeds/ft^2 / .5 in
- **Emergence date** ....: May 9
- **Harvest date** ....: September 8

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization ....: 120 lb N/A 46-0-0, June 18

Water management ....:
- **Flush** ....: May 2, May 22
- **Flood** ....: June 19
- **Drain** ....: August 25

Pest management ....:
- **Herbicides** ....: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O + 4 oz/A Interlock, May 21
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: None

Comments: On September 8, two 1-meter rows were cut from all plots for yield components.

Table 52. Determination of optimum plant population and seeding rate in a stale seedbed tillage system for RU1201102 rice (RRS.1). Rice Research Station.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice
Description		Rice Density	plant-hd	emer-hd	top		
Rating Date		5/21/2014			9/8/2014	9/8/2014	9/8/2014
Rating Type		Stand Count	50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit		number	days	days	in	lb/bu	lb/A
Sample Size, Unit		1 sq ft					
Crop Stage Majority		Main	Main	Main	Main	Main	Main
Crop Stage Scale		2-3 leaf					
Trt. No.	Trt. Name						
1	15 seed/ft^2 (34.9 lb/A)	12 d	92 a	83 a	36 ab	42.6 a	7578 c
2	20 seed/ft^2 (46.6 lb/A)	17 c	91 ab	82 ab	37 a	43.0 a	7737 bc
3	25 seed/ft^2 (58.2 lb/A)	23 b	91 abc	82 abc	36 ab	43.0 a	8240 a
4	30 seed/ft^2 (69.9 lb/A)	26 ab	91 bc	82 bc	36 bc	43.0 a	8108 ab
5	35 seed/ft^2 (81.5 lb/A)	27 a	90 c	81 c	35 c	43.0 a	8177 a
6	40 seed/ft^2 (93.1 lb/A)	27 a	90 c	81 c	36 ab	43.0 a	8053 ab
LSD (P=.05)		3.50	0.90	0.90	1.00	0.54	415.50
Standard Deviation		2.30	0.60	0.60	0.66	0.36	275.80
CV		10.50	0.64	0.72	1.86	0.84	3.45
Treatment F		29.58	3.93	3.93	5.08	0.88	3.67
Treatment Prob(F)		0.0001	0.0178	0.0178	0.0064	0.5191	0.0229

Continued.

Table 52. Continued.

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	
Crop Variety			w/o 10 P gr. wt.		filled grain		
Description	Yield Comp.	Yield Comp.	Yield Comp.	Yield Comp.	Yield Comp.	Yield Comp.	
Rating Date	8/8/2012						
Rating Type	WP dry wt.	Panicle #	Grain wt.	10 P gr wt.	10 P seed	Milling	
Rating Unit	g	number	g	g	number	head	total
Sample Size, Unit	1 m	1 m	1 m	1 m	1 m	g	g
Collection Basis, Unit	2 rows	2 rows	2 rows	2 rows	2 rows	100 g	100 g
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main
Trt. No. / Trt. Name							
1 15 seed/ft^2 (34.9 lb/A)	677.6 a	154 a	266.94 a	23.86 a	1101 a	57.40 a	70.83 a
2 20 seed/ft^2 (46.6 lb/A)	693.1 a	167 a	259.82 a	24.57 a	1136 a	57.18 a	70.69 a
3 25 seed/ft^2 (58.2 lb/A)	666.7 a	174 a	259.61 a	24.13 a	1077 a	58.53 a	71.45 a
4 30 seed/ft^2 (69.9 lb/A)	692.7 a	181 a	285.15 a	21.88 a	970 a	57.63 a	70.92 a
5 35 seed/ft^2 (81.5 lb/A)	629.4 a	163 a	252.49 a	25.66 a	1174 a	56.93 a	70.64 a
6 40 seed/ft^2 (93.1 lb/A)	689.8 a	176 a	274.03 a	23.64 a	1053 a	58.43 a	71.33 a
LSD (P=.05)	61.35	21.79	43.94	3.30	154.21	4.53	1.79
Standard Deviation	40.72	14.46	29.16	2.19	102.34	3.01	1.19
CV	6.03	8.56	10.95	9.15	9.43	5.22	1.67
Treatment F	1.46	1.83	0.65	1.28	1.92	0.19	0.33
Treatment Prob(F)	0.2616	0.1683	0.6647	0.3223	0.1512	0.9605	0.8903

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Tillering Potential and Milling Quality of CLXL745 Hybrid Rice When Seeded at 23, 46, and 92 lb/A

Experiment number	14-CM-07
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.74
pH	7.4
Extractable nutrients ppm	Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9
Crop/Variety	Rice / CLXL745
Planting method/date	Drill-seeded / March 13
Seeding rate/depth	(See data sheet) seeds/ft^2 / .5 in
Emergence date	March 30
Harvest date	August 12
Ratoon harvest date	November 14
Seed treatment/cwt	Maxim 4FS Apron XL Gibberellic Acid Zinc Dynasty AV-1011 (bird repellant) – 18.3 oz
Fertilization	150 lb N/A 46-0-0, May 8 90 lb N/A 46-0-0, August 15
Water management	
Flush	April 24, April 30
Flood	May 9
Drain	July 28
Ratoon flood	August 18
Ratoon drain	October 24
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4 1 pt/A 2,4-D + 3 pt/A Basagran + 2 pt/A COC, August 22
Insecticides	0.06 lb ai/cwt Dermacor seed treatment
Fungicides	22 oz/A Quilt Xcel, June 20

Table 53. Evaluation of tillering potential and milling quality of CLXL745 hybrid rice when seeded at 23, 46, and 92 lb/A (RRS.1). Rice Research Station.

Crop Name		Rice	Rice	Rice	Rice	Rice		Rice	Rice	Rice	Rice	Rice
Description		Rice Density	plant-hd	emer-hd	top							
Rating Date		4/14/2014			7/30/2014	8/12/2014		8/12/2014	8/12/2014	11/14/2014	11/14/2014	
Rating Type		Stand Count	50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit		number	days	days	in	% plot	rate	lb/bu	lb/A	lb/bu	lb/A	lb/A
Sample Size, Unit		1 sq ft										
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Crop Stage Scale		3-leaf										
Trt. No.	Trt. Name											
1	23 lb/A (448155 seed/A)	7 c	107 a	90 a	44 a	18 a	1 a	48.0 a	11603 a	44.7 c	1684 b	13287 a
2	46 lb/A (448155 seed/A)	14 b	108 a	91 a	43 a	25 a	1 a	47.8 a	12099 a	45.4 b	2367 a	14466 a
3	92 lb/A (448155 seed/A)	23 a	106 a	89 a	44 a	33 a	1 a	46.8 a	11788 a	46.4 a	2722 a	14510 a
LSD (P=.05)		2.60	1.29	1.29	1.80	31.20	1.20	1.89	1280.10	0.64	359.00	1237.00
Standard Deviation		1.50	0.75	0.75	1.00	18.00	0.70	1.09	739.80	0.37	207.50	714.90
CV		10.19	0.70	0.83	2.40	72.11	88.89	2.29	6.25	0.81	9.19	5.07
Treatment F		115.42	4.20	4.20	1.00	0.69	0.00	1.38	0.46	23.54	25.83	3.77
Treatment Prob(F)		0.0001	0.0723	0.0723	0.4219	0.5364	1.0000	0.3212	0.6517	0.0014	0.0011	0.0871

Continued.

Table 53. Continued.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Crop Variety						w/o 10 P gr wt.				filled grain					
Description		Yield Comp.		Yield Comp.		Yield Comp.		Yield Comp.		Yield Comp.		Yield Comp.		Yield Comp.	
Rating Date		8/8/2012													
Rating Type		WP dry wt.		Panicle #		Grain wt.		10 P gr wt.		10 P seed		Milling		Milling	
Rating Unit		g		number		g		g		number		head		total	
Sample Size, Unit		1 m		1 m		1 m		1 m		1 m		g		g	
Collection Basis, Unit		2 rows		2 rows		2 rows		2 rows		2 rows		100 g		100 g	
Crop Stage Majority		Main		Main		Main		Main		Main		Main		Main	
Trt. No.	Trt. Name														
1	23 lb/A (448155 seed/A)	708.68	a	143.0	b	366.43	a	31.14	a	1134.0	a	60.00	a	74.11	a
2	46 lb/A (448155 seed/A)	710.32	a	153.0	b	354.06	a	26.43	a	991.5	a	60.86	a	73.53	a
3	92 lb/A (448155 seed/A)	736.43	a	193.5	a	371.52	a	27.18	a	1009.0	a	62.22	a	74.29	a
LSD (P=.05)		138.30		40.48		88.72		9.44		288.07		1.79		1.42	
Standard Deviation		79.93		23.39		51.28		5.46		166.49		1.04		0.82	
CV		11.12		14.34		14.09		19.31		15.93		1.70		1.11	
Treatment F		0.15		5.23		0.12		0.86		0.87		4.67		0.92	
Treatment Prob(F)		0.8624		0.0485		0.8867		0.4691		0.4653		0.0598		0.4484	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Three N Sources Applied at Three Preflood Timings

Experiment number	14-CM-08B
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.44
pH	7.4
Extractable nutrients ppm	Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6
Crop/Variety	Rice / CL111, CL152
Planting method/date	Drill-seeded / March 13
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	March 30
Harvest date	August 8
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	April 24
Flood	(7 day - May 8), (14 day - May 16), (21 day - May 22)
Drain	July 28
Pest management	
Herbicides	1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013 1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20 1.5 qt/A Glyphosate, March 10 3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14 1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6 8.5 oz/A Benzobicyclon + 1% COC, June 4
Insecticides	5 oz/cwt Dermacor seed treatment
Fungicides	22 oz/A Quilt Xcel, June 20

Table 54. Evaluation of three N sources applied at three preflood timings (RRS.1). Rice Research Station.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		top					
Rating Date									7/30/2014		8/8/2014		8/8/2014	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		in		lb/bu		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage										
1	Urea - 21d PF	120	lb ai/A	4-leaf	113	e	96	e	38	abc	48.6	bc	10193	bcd
	CL111			4-leaf										
2	Urea - 21d PF	120	lb ai/A	4-leaf	120	a	103	a	37	a-d	47.0	ghi	8977	gh
	CL152			4-leaf										
3	Urea - 14d PF	120	lb ai/A	4-leaf	111	ef	94	ef	37	bcd	48.5	bc	10803	ab
	CL111			4-leaf										
4	Urea - 14d PF	120	lb ai/A	4-leaf	118	bcd	101	bcd	37	a-d	46.8	hij	9548	efg
	CL152			4-leaf										
5	Urea - 7d PF	120	lb ai/A	4-leaf	109	g	92	g	38	abc	47.8	def	11243	a
	CL111			4-leaf										
6	Urea - 7d PF	120	lb ai/A	4-leaf	117	bcd	100	bcd	37	bcd	46.4	jk	10129	cde
	CL152			4-leaf										
7	Agrotain Ultra - 21d PF	120	lb ai/A	4-leaf	113	e	96	e	39	ab	48.3	cd	10709	abc
	CL111			4-leaf										
8	Agrotain Ultra - 21d PF	120	lb ai/A	4-leaf	120	a	103	a	38	ab	46.8	hij	9099	gh
	CL152			4-leaf										
9	Agrotain Ultra - 14d PF	120	lb ai/A	4-leaf	112	e	95	e	38	ab	47.5	fg	10663	abc
	CL111			4-leaf										
10	Agrotain Ultra - 14d PF	120	lb ai/A	4-leaf	118	bc	101	bc	39	ab	46.3	jk	9494	fgh
	CL152			4-leaf										
11	Agrotain Ultra - 7d PF	120	lb ai/A	4-leaf	110	fg	93	fg	39	ab	47.7	ef	11183	a
	CL111			4-leaf										
12	Agrotain Ultra - 7d PF	120	lb ai/A	4-leaf	117	cd	100	cd	38	ab	46.3	jk	9939	def
	CL152			4-leaf										
13	AIU - 21d PF	120	lb ai/A	4-leaf	112	e	95	e	37	bcd	48.2	cde	10928	a
	CL111			4-leaf										
14	AIU - 21d PF	120	lb ai/A	4-leaf	120	a	103	a	39	ab	46.8	hij	8871	h
	CL152			4-leaf										
15	AIU - 14d PF	120	lb ai/A	4-leaf	112	e	95	e	39	a	48.2	cde	11106	a
	CL111			4-leaf										
16	AIU - 14d PF	120	lb ai/A	4-leaf	119	ab	102	ab	38	abc	46.6	ijk	9498	e-h
	CL152			4-leaf										
17	AIU - 7d PF	120	lb ai/A	4-leaf	109	g	92	g	37	a-d	47.2	fgh	11095	a
	CL111			4-leaf										
18	AIU - 7d PF	120	lb ai/A	4-leaf	117	d	100	d	38	abc	46.1	k	9931	def
	CL152			4-leaf										
19	CL111 (no N)	0	lb ai/A	4-leaf	102	i	85	i	34	e	48.8	bc	7393	jk
20	CL152 (no N)	0	lb ai/A	4-leaf	109	g	92	g	34	e	47.5	fg	6913	k
21	CL111 (no N)#2	0	lb ai/A	4-leaf	105	h	88	h	37	a-d	49.1	b	7986	ij
22	CL152 (no N)#2	0	lb ai/A	4-leaf	112	e	95	e	33	e	48.2	cde	7352	k
23	CL111 (no N)#3	0	lb ai/A	4-leaf	108	g	91	g	35	de	49.8	a	8047	i
24	CL152 (no N)#3	0	lb ai/A	4-leaf	116	d	99	d	36	cde	47.7	def	7530	ijk
LSD (P=.05)					1.58		1.58		2.28		0.62		632.7	
Standard Deviation					1.11		1.11		1.61		0.54		553.5	
CV					0.99		1.16		4.36		1.13		5.81	
Treatment F					79.06		79.06		4.60		19.94		37.17	
Treatment Prob(F)					0.0001		0.0001		0.0001		0.0001		0.0001	

Continued.

Table 54. Continued.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					Tissue		Tissue N		N Uptake		N Fert Eff.		N Fert Eff.	
Part Rated					Abvgrd		Abvgrd		Total					
Rating Date					7/10/2014				7/8/2013		7/8/2013		7/8/2013	
Rating Type					Biomass-dry									
Rating Unit					lb/A		% N		lb/A		%		%	
Crop Stage Majority					Main		Main		Main		by block		by mean	
Crop Stage Scale					50% HD		50% HD		50% HD		50% HD		50% HD	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage										
1	Urea - 21d PF	120	lb ai/A	4-leaf	7781	c-g	1.25	c-g	96	d-h	23	fgh	20	ef
	CL111			4-leaf										
2	Urea - 21d PF	120	lb ai/A	4-leaf	9082	b-f	1.22	fg	111	b-f	49	b-f	49	bcd
	CL152			4-leaf										
3	Urea - 14d PF	120	lb ai/A	4-leaf	8754	b-f	1.15	g	101	c-g	19	gh	19	ef
	CL111			4-leaf										
4	Urea - 14d PF	120	lb ai/A	4-leaf	8859	b-f	1.31	b-f	116	b-e	36	c-g	36	cde
	CL152			4-leaf										
5	Urea - 7d PF	120	lb ai/A	4-leaf	10611	ab	1.37	b-e	145	ab	69	ab	69	ab
	CL111			4-leaf										
6	Urea - 7d PF	120	lb ai/A	4-leaf	10577	ab	1.31	b-f	138	ab	65	abc	65	ab
	CL152			4-leaf										
7	Agrotain Ultra - 21d PF	120	lb ai/A	4-leaf	8729	b-f	1.30	b-f	112	b-f	34	d-g	34	cde
	CL111			4-leaf										
8	Agrotain Ultra - 21d PF	120	lb ai/A	4-leaf	7250	efg	1.29	b-f	94	d-i	35	d-g	35	cde
	CL152			4-leaf										
9	Agrotain Ultra - 14d PF	120	lb ai/A	4-leaf	8857	b-f	1.31	b-f	116	b-e	32	d-g	32	de
	CL111			4-leaf										
10	Agrotain Ultra - 14d PF	120	lb ai/A	4-leaf	10003	a-d	1.39	abc	139	ab	55	a-e	55	bcd
	CL152			4-leaf										
11	Agrotain Ultra - 7d PF	120	lb ai/A	4-leaf	11718	a	1.40	ab	163	a	83	a	83	a
	CL111			4-leaf										
12	Agrotain Ultra - 7d PF	120	lb ai/A	4-leaf	9279	a-e	1.53	a	143	ab	65	abc	67	ab
	CL152			4-leaf										
13	AIU - 21d PF	120	lb ai/A	4-leaf	10385	ab	1.24	d-g	131	abc	54	a-e	50	bcd
	CL111			4-leaf										
14	AIU - 21d PF	120	lb ai/A	4-leaf	7048	efg	1.23	efg	88	e-i	30	efg	30	de
	CL152			4-leaf										
15	AIU - 14d PF	120	lb ai/A	4-leaf	10058	a-d	1.38	bcd	137	ab	48	b-g	47	bcd
	CL111			4-leaf										
16	AIU - 14d PF	120	lb ai/A	4-leaf	10058	a-d	1.36	b-f	137	ab	54	a-e	54	bcd
	CL152			4-leaf										
17	AIU - 7d PF	120	lb ai/A	4-leaf	10287	abc	1.31	b-f	135	abc	60	a-d	60	abc
	CL111			4-leaf										
18	AIU - 7d PF	120	lb ai/A	4-leaf	8977	b-f	1.40	ab	125	bcd	54	a-e	54	bcd
	CL152			4-leaf										
19	CL111 (no N)	0	lb ai/A	4-leaf	7503	d-g	0.85	i	63	hij	0	h	0	f
20	CL152 (no N)	0	lb ai/A	4-leaf	6628	fg	0.91	hi	60	ij	0	h	0	f
21	CL111 (no N)#2	0	lb ai/A	4-leaf	8538	b-f	0.91	hi	78	f-j	0	h	0	f
22	CL152 (no N)#2	0	lb ai/A	4-leaf	8062	b-f	0.91	hi	73	g-j	0	h	0	f
23	CL111 (no N)#3	0	lb ai/A	4-leaf	7184	efg	1.00	h	72	g-j	0	h	0	f
24	CL152 (no N)#3	0	lb ai/A	4-leaf	5386	g	0.96	hi	52	j	0	h	0	f
LSD (P=.05)					2587.4		0.14155		35.2		29.5		27.5	
Standard Deviation					1829.6		0.10009		24.9		20.8		19.5	
CV					20.75		8.21		22.8		57.91		54.45	
Treatment F					2.72		14.74		6.34		6.21		7.15	
Treatment Prob(F)					0.0007		0.0001		0.0001		0.0001		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Rice Yield and NUE Response to Four N Sources and Two N Rates
When Surface Broadcast 10 Days Preflood

Experiment number ....: 14-CM-09

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.66 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.44
- **pH** ....: 7.4
- **Extractable nutrients** ppm..........: Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety ....: Rice / CL111
- **Planting method/date** ....: Drill-seeded / March 13
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 in
- **Emergence date** ....: March 30
- **Harvest date** ....: August 6

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization ....: No Blanket Applications

Water management ....:
- **Flush** ....: April 21
- **Flood** ....: May 12
- **Drain** ....: July 25

Pest management ....:
- **Herbicides** ....: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6
8.5 oz/A Benzobicyclon + 1% COC, June 4
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 22 oz/A Quilt Xcel, June 20

Comments:	**Rainfall**	**Date**	**Amount**
		May 9	0.08 in
		May 10	0.55 in
		May 12	0.06 in
		May 13	0.15 in

Table 55. Rice yield and NUE response to four N sources and two N rates when surface broadcast 10 days prior to permanent flood establishment (RRS1). Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	top		
Rating Date						7/31/2014	8/6/2014	8/6/2014
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit				days	days	in	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit					
1	Urea	75	lb ai/A	107 b	90 b	36 ab	48.9 bc	9771 cd
2	Urea	120	lb ai/A	109 a	92 a	36 ab	48.4 de	10884 a
3	Arbor-Lock (1.5% tannin-urea)	75	lb ai/A	106 c	89 c	36 ab	49.2 b	9337 d
4	Arbor-Lock (1.5% tannin-urea)	120	lb ai/A	108 ab	91 ab	35 ab	48.8 bc	9939 bc
5	Agrotain Ultra-Urea	75	lb ai/A	108 ab	91 ab	36 ab	48.7 cd	9429 d
6	Agrotain Ultra-Urea	120	lb ai/A	109 a	92 a	37 a	48.1 e	11107 a
7	SuperU (NBPT+DCD-urea)	75	lb ai/A	107 b	90 b	35 ab	49.0 bc	9936 bc
8	SuperU (NBPT+DCD-urea)	120	lb ai/A	108 ab	91 ab	35 b	48.9 bc	10320 b
9	UTC (0 N)	0	lb ai/A	104 d	87 d	32 c	50.0 a	6786 e
LSD (P=.05)				1.10	1.10	2.10	0.39	454.30
Standard Deviation				0.80	0.80	1.40	0.27	311.20
CV				0.71	0.85	4.01	0.54	3.20
Treatment F				15.43	15.43	3.86	16.30	64.92
Treatment Prob(F)				0.0001	0.0001	0.0048	0.0001	0.0001

Continued.

Table 55. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice
Description				Tissue	Tissue N	N Uptake	N Fert. Eff.	N Fert. Eff.
Part Rated				Abvgrd -	Abvgrd -	Total -		
Rating Date				7/1/2014	7/1/2014			
Rating Type				Biomass-dry				
Rating Unit				lb/A	% N	lb/A	%	%
Crop Stage Majority				Main	Main	Main	by block	by mean
Crop Stage Scale				50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate	Rate Unit					
1	Urea	75	lb ai/A	8658 a	1.05 cd	91 cd	51 ab	51 abc
2	Urea	120	lb ai/A	8712 a	1.25 b	109 ab	47 ab	47 a-d
3	Arbor-Lock (1.5% tannin-urea)	75	lb ai/A	7892 a	0.97 d	77 d	32 b	32 d
4	Arbor-Lock (1.5% tannin-urea)	120	lb ai/A	8803 a	1.05 cd	93 bcd	34 b	34 cd
5	Agrotain Ultra-Urea	75	lb ai/A	7970 a	1.07 c	85 cd	44 ab	44 a-d
6	Agrotain Ultra-Urea	120	lb ai/A	8952 a	1.38 a	123 a	59 a	59 a
7	SuperU (NBPT+DCD-urea)	75	lb ai/A	8714 a	1.11 c	97 bc	59 a	59 ab
8	SuperU (NBPT+DCD-urea)	120	lb ai/A	9116 a	1.12 c	102 bc	41 ab	41 bcd
9	UTC (0 N)	0	lb ai/A	6335 b	0.82 e	53 e	0 c	0 e
LSD (P=.05)				1401.80	0.10	17.30	19.60	17.70
Standard Deviation				960.50	0.07	11.80	13.40	12.10
CV				11.50	6.46	12.87	33.07	29.84
Treatment F				3.21	20.54	11.51	7.16	8.80
Treatment Prob(F)				0.0126	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Agrotain Volatilization Control When Used in Flooded and Moist Soil Conditions - March Planting

Experiment number ....: 14-CM-28 plots

Site and design ....:
Location/Cooperator ....: Rice Research Station (Crowley Main)
Tillage type ....: Fall Stale
Experimental design ....: Randomized complete block
Number of reps ....: 4
Plot size ....: 4.66 x 16 ft
Row width/rows per plot ....: 8 in / 7

Soil type ....: Crowley silt loam
% organic matter ....: 1.74
pH ....: 7.4
Extractable nutrients ppm..........: Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9

Crop/Variety ....: Rice / CL111
Planting method/date ....: Drill-seeded / March 13
Seeding rate/depth ....: 33 seeds/ft^2 / .5 in
Emergence date ....: March 30
Harvest date ....: July 30
Ratoon harvest date ....: October 20

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization ....: 90 lb N/A 46-0-0, July 31

Water management ....:
Flush ....: April 21
Flood ....: Flood Bay – April 30, Moist and Dry Bay – May 12
Drain ....: Flood Bay – July 14, Moist and Dry Bay – July 17
Ratoon flood ....: August 1
Ratoon drain ....: October 10

Pest management ....:
Herbicides ....: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit + 4 oz/A Interlock, May 6
8.5 oz/A Benzobicyclon + 1% COC, June 4
Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides ....: 22 oz/A Quilt Xcel, June 20

Comments: Rainfall

Date	Amount
May 9	0.08 in
May 10	0.55 in
May 12	0.06 in
May 13	0.15 in

Table 56. Evaluation of Agrotain volatilization control when used in flooded and moist soil conditions. March planting (RRS.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top		
Rating Date							7/30/2014	7/30/2014	7/30/2014
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	Urea Dry	120	lb ai/A	10 DPF	110 ab	93 ab	38 a	46.1 c	9653 a
2	Urea Moist	120	lb ai/A	10 DPF	105 c	88 c	35 b	47.6 b	7388 cde
3	Urea Flooded (2" initial)	120	lb ai/A	10 DPF	101 de	84 de	35 b	48.9 a	6639 ef
4	Agrotain Ultra-Urea (3 qt/ton) Dry	120	lb ai/A	10 DPF	111 a	94 a	38 a	45.4 c	8748 ab
5	Agrotain Ultra-Urea (3 qt/ton) Moist	120	lb ai/A	10 DPF	110 ab	93 ab	39 a	45.8 c	8803 ab
6	Agrotain Ultra-Urea (3 qt/ton) Flooded (2" initial)	120	lb ai/A	10 DPF	101 de	84 de	35 b	49.0 a	6493 ef
7	AIU Dry	120	lb ai/A	10 DPF	111 a	94 a	38 a	45.6 c	9612 a
8	AIU Moist	120	lb ai/A	10 DPF	109 b	92 b	39 a	46.1 c	8417 bc
9	AIU Flooded (2" initial)	120	lb ai/A	10 DPF	101 de	84 de	35 b	48.9 a	6490 ef
10	SuperU Dry	120	lb ai/A	10 DPF	110 ab	93 ab	39 a	46.1 c	9170 ab
11	SuperU Moist	120	lb ai/A	10 DPF	110 ab	93 ab	38 a	45.8 c	8322 bcd
12	SuperU Flooded (2" initial)	120	lb ai/A	10 DPF	100 e	83 e	35 b	49.3 a	6737 ef
13	UTC (no N) Dry	0	lb ai/A	10 DPF	102 d	85 d	34 b	47.2 b	7221 de
14	UTC (no N) Moist	0	lb ai/A	10 DPF	102 d	85 d	35 b	47.6 b	6791 ef
15	UTC (no N) Flooded (2" initial)	0	lb ai/A	10 DPF	100 e	83 e	35 b	49.1 a	5761 f
LSD (P=.05)					1.51	1.51	2.24	0.92	1167.30
Standard Deviation					1.06	1.06	1.57	0.64	816.80
CV					1.00	1.19	4.31	1.36	10.54
Treatment F					80.80	80.80	5.30	21.11	9.72
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Continued.

Table 56. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue N	N Uptake	N Fert. Eff.	N Fert. Eff.
Part Rated					Abvgrd	Abvgrd	Total		
Rating Date					7/1/2014	7/1/2014	7/8/2013	7/8/2013	7/8/2013
Rating Type					Bbiomass-dry				
Rating Unit					lb/A	% N	lb/A	%	%
Crop Stage Majority					Main	Main	Main	by block	by mean
Crop Stage Scale					50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	Urea Dry	120	lb ai/A	10 DPF	9883 a	1.45 abc	144 a	63 a	63 a
2	Urea Moist	120	lb ai/A	10 DPF	6744 cd	0.96 d	65 c	9 b	7 b
3	Urea Flooded (2" initial)	120	lb ai/A	10 DPF	5141 e	0.96 d	50 c	2 b	5 b
4	Agrotain Ultra-Urea (3 qt/ton) Dry	120	lb ai/A	10 DPF	9129 a	1.54 a	141 a	61 a	61 a
5	Agrotain Ultra-Urea (3 qt/ton) Moist	120	lb ai/A	10 DPF	8640 ab	1.32 c	114 b	44 a	45 a
6	Agrotain Ultra-Urea (3 qt/ton) Flooded (2" initial)	120	lb ai/A	10 DPF	5158 e	0.97 d	50 c	4 b	4 b
7	AIU Dry	120	lb ai/A	10 DPF	9354 a	1.49 ab	139 a	59 a	59 a
8	AIU Moist	120	lb ai/A	10 DPF	8440 ab	1.32 c	114 b	46 a	45 a
9	AIU Flooded (2" initial)	120	lb ai/A	10 DPF	5329 de	0.96 d	51 c	4 b	4 b
10	SuperU Dry	120	lb ai/A	10 DPF	8952 a	1.56 a	139 a	59 a	59 a
11	SuperU Moist	120	lb ai/A	10 DPF	9146 a	1.39 bc	129 ab	58 a	57 a
12	SuperU Flooded (2" initial)	120	lb ai/A	10 DPF	5102 e	1.00 d	51 c	5 b	4 b
13	UTC (no N) Dry	0	lb ai/A	10 DPF	7120 bc	0.95 d	68 c	0 b	
14	UTC (no N) Moist	0	lb ai/A	10 DPF	6042 cde	1.00 d	60 c	0 b	
15	UTC (no N) Flooded (2" initial)	0	lb ai/A	10 DPF	4993 e	0.95 d	47 c	0 b	
LSD (P=.05)					1538.60	0.13	22.80	19.60	19.70
Standard Deviation					1076.70	0.09	16.00	13.70	13.60
CV					14.79	7.44	17.60	49.61	39.58
Treatment F					12.00	32.21	25.65	16.37	15.43
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Agrotain Volatilization Control When Used in Flooded and Moist Soil Conditions - April Planting

Experiment number .... : 14-CM-29 plots

Site and design .... :
- **Location/Cooperator** .... : Rice Research Station (Crowley Main)
- **Tillage type** .... : Fall Stale
- **Experimental design** .... : Randomized complete block
- **Number of reps** .... : 4
- **Plot size** .... : 4.66 x 16 ft
- **Row width/rows per plot** .... : 8 in / 7

Soil type .... : Crowley silt loam
- **% organic matter** .... : 1.53
- **pH** .... : 7.4
- **Extractable nutrients** ppm .... : Ca-1550; Cu-1.4; Mg-253; P-4.2; K-52.4; Na-51.9; S-9.4; Zn-3.5

Crop/Variety .... : Rice / CL111
- **Planting method/date** .... : Drill-seeded / April 30
- **Seeding rate/depth** .... : 33 seeds/ft^2 / .5 in
- **Emergence date** .... : May 9
- **Harvest date** .... : August 25

Seed treatment/cwt .... : Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization .... : No blanket applications

Water management .... :
- **Flush** .... : May 2, May 22
- **Flood** .... : Flood Bay – June 9, Moist and Dry Bay – June 24
- **Drain** .... : Flood Bay – August 8, Moist and Dry Bay – August 12

Pest management .... :
- **Herbicides** .... : 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
2 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit + 2 pt/A Prowl H_20 + 4 oz/A Interlock, May 6
8.5 oz/A Benzobicyclon + 1% COC, June 4
- **Insecticides** .... : 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** .... : None

Comments: Rainfall

Date	Amount
June 10	1.50 in
June 11	1.59 in
June 13	0.24 in
June 15	0.07 in

Table 57. Evaluation of Agrotain volatilization control when used in flooded and moist soil conditions. April planting (RRS.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd	top				
Rating Date							8/25/2014	8/25/2014		8/25/2014	8/25/2014
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	Urea Dry	120	lb ai/A	10 DPF	85 ab	76 ab	34 bc	8 c	2 a	43.8 f	7806 a
2	Urea Moist	120	lb ai/A	10 DPF	82 c	73 c	34 ab	13 c	2 a	44.9 cde	7963 a
3	Urea Flooded (2" initial)	120	lb ai/A	10 DPF	80 d	71 d	35 a	48 ab	2 a	45.7 ab	8029 a
4	Agrotain Ultra-Urea (3qt/ton) Dry	120	lb ai/A	10 DPF	85 ab	76 ab	34 ab	15 bc	1 a	43.0 h	7891 a
5	Agrotain Ultra-Urea (3qt/ton) Moist	120	lb ai/A	10 DPF	83 c	74 c	34 ab	25 bc	1 a	44.9 cde	8548 a
6	Agrotain Ultra-Urea (3qt/ton) Flooded (2" initial)	120	lb ai/A	10 DPF	80 d	71 d	35 ab	28 abc	2 a	45.8 a	8439 a
7	AIU Dry	120	lb ai/A	10 DPF	86 a	77 a	34 bc	10 c	1 a	43.2 gh	7958 a
8	AIU Moist	120	lb ai/A	10 DPF	83 c	74 c	34 ab	13 c	3 a	45.2 bcd	8439 a
9	AIU Flooded (2" initial)	120	lb ai/A	10 DPF	80 d	71 d	34 ab	30 abc	2 a	45.3 a-d	8488 a
10	SuperU Dry	120	lb ai/A	10 DPF	85 ab	76 ab	34 ab	8 c	2 a	43.7 fg	8365 a
11	SuperU Moist	120	lb ai/A	10 DPF	82 c	73 c	35 ab	15 bc	2 a	44.8 de	8710 a
12	SuperU Flooded (2" initial)	120	lb ai/A	10 DPF	80 d	71 d	35 a	60 a	2 a	45.6 ab	8581 a
13	UTC (no N) Dry	0	lb ai/A	10 DPF	85 b	76 b	33 c	8 c	1 a	44.3 ef	7495 a
14	UTC (no N) Moist	0	lb ai/A	10 DPF	80 d	71 d	34 ab	25 bc	3 a	45.5 abc	7950 a
15	UTC (no N) Flooded (2" initial)	0	lb ai/A	10 DPF	79 e	70 e	34 ab	60 a	2 a	45.7 ab	7940 a
LSD (P=.05)					1.00	1.00	1.02	33.09	2.38	0.64	823.50
Standard Deviation					0.70	0.70	0.71	23.16	1.66	0.45	576.20
CV					0.85	0.95	2.09	95.82	96.82	1.00	7.05
Treatment F					51.35	51.35	2.57	2.47	0.40	17.37	1.52
Treatment Prob(F)					0.0001	0.0001	0.0092	0.0120	0.9674	0.0001	0.1475

Continued.

Table 57. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue N	N Uptake	N Fert. Eff.	N Fert. Eff.
Part Rated					Abvgrd	Abvgrd	Total		
Rating Date					7/25/2014	7/25/2014	7/25/2014	7/25/2014	7/25/2014
Rating Type					Biomass-dry				
Rating Unit					lb/A	% N	lb/A	%	%
Crop Stage Majority					Main	Main	Main	by block	by mean
Crop Stage Scale					50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	Urea Dry	120	lb ai/A	10 DPF	6234 a	1.38 abc	86 a-d	19 a-d	19 bcd
2	Urea Moist	120	lb ai/A	10 DPF	5090 a	1.21 cd	62 e	2 e	1 e
3	Urea Flooded (2" initial)	120	lb ai/A	10 DPF	6011 a	1.14 d	69 cde	9 cde	7 de
4	Agrotain Ultra-Urea (3qt/ton) Dry	120	lb ai/A	10 DPF	5639 a	1.58 a	89 abc	23 abc	21 abc
5	Agrotain Ultra-Urea (3qt/ton) Moist	120	lb ai/A	10 DPF	5611 a	1.38 abc	78 b-e	13 b-e	11 cde
6	Agrotain Ultra-Urea (3qt/ton) Flooded (2" initial)	120	lb ai/A	10 DPF	6579 a	1.09 d	72 cde	5 de	7 de
7	AIU Dry	120	lb ai/A	10 DPF	6687 a	1.55 a	104 a	34 a	34 a
8	AIU Moist	120	lb ai/A	10 DPF	5187 a	1.37 abc	71 cde	6 cde	5 e
9	AIU Flooded (2" initial)	120	lb ai/A	10 DPF	5585 a	1.24 bcd	69 cde	6 cde	7 de
10	SuperU Dry	120	lb ai/A	10 DPF	6695 a	1.44 ab	97 ab	28 ab	28 ab
11	SuperU Moist	120	lb ai/A	10 DPF	5294 a	1.39 abc	73 cde	7 cde	8 cde
12	SuperU Flooded (2" initial)	120	lb ai/A	10 DPF	5638 a	1.14 d	65 e	9 cde	6 de
13	UTC (no N) Dry	0	lb ai/A	10 DPF	5638 a	1.13 d	63 e	0 e	0 e
14	UTC (no N) Moist	0	lb ai/A	10 DPF	4759 a	1.39 abc	65 e	0 e	0 e
15	UTC (no N) Flooded (2" initial)	0	lb ai/A	10 DPF	5983 a	1.10 d	66 de	0 e	0 e
LSD (P=.05)					1307.70	0.22	20.42	16.90	13.80
Standard Deviation					915.10	0.15	14.29	11.80	9.60
CV					15.84	11.62	19.03	111.46	94.53
Treatment F					1.65	4.62	3.25	3.18	4.73
Treatment Prob(F)					0.1054	0.0001	0.0015	0.0019	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Effect of Water Management on Rice Grain Yield and Grain Arsenic Concentration

Experiment number .... : 14-CM-30

Site and design .... :
- **Location/Cooperator** .... : Rice Research Station (Crowley Main)
- **Tillage type** .... : Fall Stale
- **Experimental design** .... : Randomized complete block
- **Number of reps** .... : 4
- **Plot size** .... : 4.66 x 16 ft
- **Row width/rows per plot** .... : 8 in / 7

Soil type .... : Crowley silt loam
- **% organic matter** .... : 1.74
- **pH** .... : 7.4
- **Extractable nutrients** ppm .... : Ca-1744; Cu-1.8; Mg-297; P-12.4; K-65.6; Na-61.7; S-10.5; Zn-5.9

Crop/Variety .... : Rice / See data sheet
- **Planting method/date** .... : Drill-seeded / March 13
- **Seeding rate/depth** .... : Conv-33, Hyb-14 seeds/ft^2 / .5 in
- **Emergence date** .... : March 30
- **Harvest date** .... : August 14
- **Ratoon harvest date** .... : November 18

Seed treatment/cwt .... : Conv - Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz
Hyb – Maxim 4FS
Apron XL
Gibberellic Acid
Zinc
Dynasty
AV-1011 (bird repellant) – 18.3 oz

Fertilization .... : 120 lb N/A 46-0-0, May 8
90 lb N/A 46-0-0, July 31

Water management .... :
- **Flush** .... : April 21, April 30
- **Flood** .... : May 9
- **Drain** .... : July 31
- **Ratoon flood** .... : August 18
- **Ratoon Drain** .... : October 24

Pest management .... :
- **Herbicides** .... : 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
1 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit + 2 qt/A RiceBeaux, May 6
2 pt/A Prowl H_2O, May 8
8.5 oz/A Benzobicyclon + 1% COC, June 4
3 pt/A Basagran + 1 pt/A 2,4-D + 2 pt COC, August 22
- **Insecticides** .... : Conventional - 0.137 lb ai/cwt Dermacor seed treatment
Hybrid - 0.06 lb ai/cwt Dermacor seed treatment
- **Fungicides** .... : 22 oz/A Quilt Xcel, June 20

Rainfall Accumulation (inches):

Date	Amount	Date	Amount
May 9	0.08	Sept. 2	0.16
May 10	0.55	Sept. 3	0.02
May 12	0.06	Sept. 6	1.54
May 13	0.15	Sept. 7	0.05
May 15	0.05	Sept. 8	0.40
May 28	7.44	Sept. 9	0.02
May 29	0.17	Sept. 10	0.02
May 30	0.18	Sept. 11	0.03
June 2	0.30	Sept. 13	0.14
June 3	0.64	Sept. 16	0.92
June 4	0.21	Sept. 17	0.16
June 10	1.50	Sept. 19	0.42
June 11	1.59	Sept. 29	0.43
June 13	0.24	Sept. 30	0.03
June 15	0.07	Oct. 2	0.38
June 25	0.93	Oct. 3	0.51
June 26	0.27	Oct. 7	0.92
June 27	0.75	Oct. 12	0.25
June 28	0.16	Oct. 14	1.28
July 9	0.36	Nov. 6	2.72
July 10	0.05	Nov.12	0.22
July 11	0.03	Nov. 13	0.12
July 16	0.24	Nov. 14	0.18
July 18	2.83	Nov. 17	2.15
July 19	1.53		
July 24	0.62		
July 25	0.28		
July 26	0.50		
July 27	0.02		
Aug. 1	0.92		
Aug. 2	1.00		
Aug. 4	0.12		
Aug. 6	0.03		
Aug. 10	2.95		
Aug. 12	0.19		
Aug. 18	0.47		
Aug. 20	0.15		
Aug. 21	0.05		
Aug. 22	2.20		
Aug. 26	1.12		
Aug. 30	0.60		
Aug. 31	2.01		

Comments: **Flush Bay** (dates of flushing) – May 9, 19, 23, 27, June 9, 19, 23, July 9, 16, 30, and August 18
Straighthead Bay was drained for straighthead on May 23 and reflooded on May 27
Intermittent Bay – water was added on May 23
50% HD tissue samples – a 3-ft row was cut from trt. 4, 6, 10, 12, 16, 18, 22, and 24
On August 8, four 1-meter rows were cut from all plots for milling and As analysis.

Table 58. Effect of water management on rice grain yield and grain arsenic concentration: A multi-state effort. Rice Research Station.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	top					
Rating Date				8/7/2014	8/7/2014	8/7/2014	11/18/2014	11/18/2014	11/18/2014
Rating Type		50% HD	50% HD	Height	Moist	Yield	Moist	Yield	Total Yield
Rating Unit		days	days	in	%	lb/A	%	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
No.	Treatment Name								
1	Continuous flood CL151	114.5 def	97.5 def	39.5 c-g	19.1 c	10270 cde	19.0 cd	1980 fg	12250 e
2	Continuous flood Cheniere	113.5 fgh	96.5 fgh	37.8 f-j	18.0 cd	9248 ghi	21.2 a	919 jk	10167 gh
3	Continuous flood Jupiter	118.0 b	101.0 b	36.5 h-k	24.6 a	9431 fgh	21.4 a	1696 gh	11126 f
4	Continuous flood Presidio	115.8 cde	98.8 cde	38.3 d-h	18.8 c	8141 k	15.5 ef	2724 cd	10865 fg
5	Continuous flood CLXL729	112.8 fgh	95.8 fgh	40.3 b-f	15.6 fg	11726 a	15.2 ef	3346 a	15072 a
6	Continuous flood CLXL745	109.5 i	92.5 i	41.8 abc	16.0 d-g	11148 ab	15.1 ef	2222 ef	13367 cd
7	Aerobic (flush only as needed) CL151	116.3 bcd	99.3 bcd	34.5 klm	16.1 d-g	8068 k	0.5 h	0 l	8068 k
8	Aerobic (flush only as needed) Cheniere	116.8 bc	99.8 bc	31.5 n	12.3 i	6738 l	0.1 h	0 l	6738 l
9	Aerobic (flush only as needed) Jupiter	123.0 a	106.0 a	33.0 lmn	23.5 ab	6744 l	0.1 h	0 l	6744 l
10	Aerobic (flush only as needed) Presidio	116.3 bcd	99.3 bcd	32.0 mn	13.0 hi	6577 l	16.1 e	638 k	7214 l
11	Aerobic (flush only as needed) CLXL729	116.5 bc	99.5 bc	36.5 h-k	14.4 gh	8480 jk	5.1 g	8 l	8488 jk
12	Aerobic (flush only as needed) CLXL745	113.5 fgh	96.5 fgh	35.8 h-k	14.2 ghi	8970 hij	0.7 h	0 l	8970 ij
13	Intermittent flood irrigation CL151	113.0 fgh	96.0 fgh	37.8 f-j	17.6 cde	10602 bcd	18.2 cd	1759 gh	12361 e

Continued.

Table 58. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	top					
Rating Date				8/7/2014	8/7/2014	8/7/2014	11/18/2014	11/18/2014	11/18/2014
Rating Type		50% HD	50% HD	Height	Moist	Yield	Moist	Yield	Total Yield
Rating Unit		days	days	in	%	lb/A	%	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
No.	Treatment Name								
14	Intermittent flood irrigation Cheniere	114.5 def	97.5 def	35.5 i-l	16.0 efg	8888 hij	19.8 abc	663 k	9551 hi
15	Intermittent flood irrigation Jupiter	118.0 b	101.0 b	37.0 g-k	24.1 ab	9986 def	20.7 ab	1246 i	11232 f
16	Intermittent flood irrigation Presidio	114.0 efg	97.0 efg	37.5 g-j	17.2 c-f	8982 hij	15.7 ef	2474 de	11456 f
17	Intermittent flood irrigation CLXL729	113.3 fgh	96.3 fgh	40.8 a-d	14.4 gh	11472 a	14.3 f	2933 bc	14405 ab
18	Intermittent flood irrigation CLXL745	108.5 i	91.5 i	42.5 ab	14.5 gh	11143 ab	15.6 ef	1684 gh	12827 de
19	Straighthead management CL151	112.0 h	95.0 h	40.5 a-e	17.3 c-f	10483 b-e	18.1 d	1879 gh	12362 e
20	Straighthead management Cheniere	114.3 efg	97.3 efg	35.3 jkl	15.8 efg	9062 hij	18.8 cd	1013 ij	10076 h
21	Straighthead management Jupiter	118.0 b	101.0 b	36.5 h-k	22.4 b	9841 efg	19.3 bcd	1620 h	11461 f
22	Straighthead management Presidio	114.0 efg	97.0 efg	38.0 e-i	15.4 fg	8579 ijk	14.5 ef	2638 cd	11216 f
23	Straighthead management CLXL729	112.5 gh	95.5 gh	43.0 a	15.4 fg	10783 bc	14.7 ef	3146 ab	13928 bc
24	Straighthead management CLXL745	109.3 i	92.3 i	42.5 ab	16.0 efg	10306 cde	15.3 ef	1975 fg	12281 e
LSD P=.05		1.76	1.76	2.70	1.96	685.7	1.66	300.5	768.4
Standard Deviation		1.25	1.25	1.91	1.39	486.0	1.18	213.0	544.6
CV		1.09	1.28	5.08	8.11	5.17	8.43	13.99	4.98
Treatment F		26.110	26.110	11.415	23.964	36.956	142.678	101.464	74.065
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 59. Treatment means for the main effect of water management and variety. Rice Research Station.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	top					
Rating Date				8/7/2014	8/7/2014	8/7/2014	11/18/2014	11/18/2014	11/18/2014
Rating Type		50% HD	50% HD	Height	Moist	Yield	Moist	Yield	Total Yield
Rating Unit		days	days	in	%	lb/A	%	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt. No.	Trt. Name								
Water Management Means									
1	Continuous flood	114.0 b	97.0 b	39.0 a	18.69 a	9994 ab	17.89 a	2148 a	12141 a
2	Aerobic (flush only as needed)	117.0 a	100.0 a	33.9 b	15.58 c	7596 c	3.78 c	108 c	7704 b
3	Intermittent flood irrigation	113.5 b	96.5 b	38.5 a	17.31 b	10179 a	17.38 ab	1793 b	11972 a
4	Straighthead management	113.3 b	96.3 b	39.3 a	17.03 b	9842 b	16.78 b	2045 a	11887 a
	P	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	LSD (0.05)	0.70	0.70	1.00	0.99	185	0.58	172	194
Variety Means									
1	CL151	113.9 cd	96.9 cd	38.1 b	17.55 b	9856 b	13.92 b	1405 c	11260 c
2	Cheniere	114.8 bc	97.8 bc	35.0 d	15.51 cd	8484 d	14.99 a	649 e	9133 e
3	Jupiter	119.3 a	102.3 a	35.8 cd	23.65 a	9000 c	15.38 a	1140 d	10141 d
4	Presidio	115.0 b	98.0 b	36.4 c	16.11 c	8070 e	15.45 a	2118 b	10188 d
5	CLXL729	113.8 d	96.8 d	40.1 a	14.93 d	10615 a	12.31 c	2358 a	12973 a
6	CLXL745	110.2 e	93.2 e	40.6 a	15.17 cd	10392 a	11.67 c	1470 c	11861 b
	P	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	LSD (0.05)	0.80	0.80	1.30	1.02	373	0.91	173	482

Table 60. Treatment means for the factorial analysis of 2-way interactions. Rice Research Station.

	Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
	Description	plant-hd	emer-hd	top					
	Rating Date			8/7/2014	8/7/2014	8/7/2014	11/18/2014	11/18/2014	11/18/2014
	Rating Type	50% HD	50% HD	Height	Moist	Yield	Moist	Yield	Total Yield
	Rating Unit	days	days	in	%	lb/A	%	lb/A	lb/A
	Crop Stage Majority	Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
No.	Treatment Name								
	Water Management x Variety Means								
1	Continuous flood	114.5 def	97.5 def	39.5 a	19.14 c	10270 cde	18.98 cd	1980 fg	12250 e
1	CL151								
2	Aerobic (flush only as needed)	116.3 bcd	99.3 bcd	34.5 a	16.14 d-g	8068 k	0.45 h	0 l	8068 k
1	CL151								
3	Intermittent flood irrigation	113.0 fgh	96.0 fgh	37.8 a	17.62 cde	10602 bcd	18.17 cd	1759 gh	12361 e
1	CL151								
4	Straighthead management	112.0 h	95.0 h	40.5 a	17.30 c-f	10483 b-e	18.06 d	1879 gh	12362 e
1	CL151								
1	Continuous flood	113.5 fgh	96.5 fgh	37.8 a	17.97 cd	9248 ghi	21.25 a	919 jk	10167 gh
2	Cheniere								
2	Aerobic (flush only as needed)	116.8 bc	99.8 bc	31.5 a	12.30 i	6738 l	0.12 h	0 l	6738 l
2	Cheniere								
3	Intermittent flood irrigation	114.5 def	97.5 def	35.5 a	16.00 efg	8888 hij	19.81 abc	663 k	9551 hi
2	Cheniere								
4	Straighthead management	114.3 efg	97.3 efg	35.3 a	15.77 efg	9062 hij	18.80 cd	1013 ij	10076 h
2	Cheniere								
1	Continuous flood	118.0 b	101.0 b	36.5 a	24.63 a	9431 fgh	21.36 a	1696 gh	11126 f
3	Jupiter								
2	Aerobic (flush only as needed)	123.0 a	106.0 a	33.0 a	23.50 ab	6744 l	0.14 h	0 l	6744 l
3	Jupiter								
3	Intermittent flood irrigation	118.0 b	101.0 b	37.0 a	24.11 ab	9986 def	20.74 ab	1246 i	11232 f
3	Jupiter								
4	Straighthead management	118.0 b	101.0 b	36.5 a	22.35 b	9841 efg	19.29 bcd	1620 h	11461 f
3	Jupiter								

Continued.

Table 60. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	top					
Rating Date				8/7/2014	8/7/2014	8/7/2014	11/18/2014	11/18/2014	11/18/2014
Rating Type		50% HD	50% HD	Height	Moist	Yield	Moist	Yield	Total Yield
Rating Unit		days	days	in	%	lb/A	%	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
No.	Treatment Name								
Water Management x Variety Means									
1 4	Continuous flood Presidio	115.8 cde	98.8 cde	38.3 a	18.80 c	8141 k	15.49 ef	2724 cd	10865 fg
2 4	Aerobic (flush only as needed) Presidio	116.3 bcd	99.3 bcd	32.0 a	12.99 hi	6577 l	16.09 e	638 k	7214 l
3 4	Intermittent flood irrigation Presidio	114.0 efg	97.0 efg	37.5 a	17.22 c-f	8982 hij	15.72 ef	2474 de	11456 f
4 4	Straighthead management Presidio	114.0 efg	97.0 efg	38.0 a	15.43 fg	8579 ijk	14.52 ef	2638 cd	11216 f
1 5	Continuous flood CLXL729	112.8 fgh	95.8 fgh	40.3 a	15.57 fg	11726 a	15.17 ef	3346 a	15072 a
2 5	Aerobic (flush only as needed) CLXL729	116.5 bc	99.5 bc	36.5 a	14.37 gh	8480 jk	5.15 g	8 l	8488 jk
3 5	Intermittent flood irrigation CLXL729	113.3 fgh	96.3 fgh	40.8 a	14.44 gh	11472 a	14.25 f	2933 bc	14405 ab
4 5	Straighthead management CLXL729	112.5 gh	95.5 gh	43.0 a	15.36 fg	10783 bc	14.68 ef	3146 ab	13928 bc
1 6	Continuous flood CLXL745	109.5 i	92.5 i	41.8 a	16.02 d-g	11148 ab	15.07 ef	2222 ef	13367 cd
2 6	Aerobic (flush only as needed) CLXL745	113.5 fgh	96.5 fgh	35.8 a	14.20 ghi	8970 hij	0.72 h	0 l	8970 ij
3 6	Intermittent flood irrigation CLXL745	108.5 i	91.5 i	42.5 a	14.50 gh	11143 ab	15.56 ef	1684 gh	12827 de
4 6	Straighthead management CLXL745	109.3 i	92.3 i	42.5 a	15.95 efg	10306 cde	15.34 ef	1975 fg	12281 e
	P	0.1121	0.1121	0.5138	0.0102	0.0372	0.0001	0.0001	0.0001
	LSD (0.05)	1.90	1.90	2.90	1.96	734	1.73	278	782

Evaluation of NZone Max-Urea and ContaiN-Urea in Rice Production When Applied 10 Days Preflood

Experiment number ....: 14-CM-35

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (Crowley Main)
- **Tillage type**.................................: Fall Stale
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.66 x 16 ft
- **Row width/rows per plot**............: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.44
- **pH**..: 7.4
- **Extractable nutrients** ppm..........: Ca-1595; Cu-1.4; Mg-265; P-6.7; K-55.2; Na-58.7; S-9.1; Zn-4.6

Crop/Variety ....: Rice / CL152
- **Planting method/date** ....: Drill-seeded / March 13
- **Seeding rate/depth**......................: 33 seeds/ft^2 / .5 in
- **Emergence date**...........................: March 30
- **Harvest date** ....: August 6

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization..: No Blanket Applications

Water management ....:
- **Flush** ....: April 21
- **Flood** ....: May 12
- **Drain**..: July 25

Pest management..............................:
- **Herbicides**...................................: 1 qt/A Glyphosate + 1 pt/A 2,4-D, October 11, 2013
1 qt/A Glyphosate + 1 pt/A 2,4-D + 3 oz/A Valor + .25% NIS, November 20
1.5 qt/A Glyphosate, March 10
3 qt/A Propanil + 1 oz/A Londax + .5 oz/A Permit, April 14
1 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + .5 oz/A Permit, May 6
8.5 oz/A Benzobicyclon + 1% COC, June 4
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 22 oz/A Quilt Xcel, June 20

Comments: <u>**Rainfall**</u>

Date	Amount
May 9	0.08 in
May 10	0.55 in
May 12	0.06 in
May 13	0.15 in

On July 10, a 3-ft row was cut from all plots for 50% heading tissue samples.

Table 61. Evaluation of NZone Max-Urea and ContaiN-Urea in rice production when applied 10 days preflood (RRS.1). Rice Research Station.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		top					
Rating Date						7/31/2014		7/31/2014		8/6/2014		8/6/2014	
Rating Type				50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit				days		days		in		lb/bu		lb/A	
Crop Stage Majority				Main		Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit										
1	NZone Max-Urea	45	lb ai/A	112	g	95	g	34	def	50.1	ab	8466	b
2	NZone Max-Urea	90	lb ai/A	114	ef	97	ef	36	bcd	49.0	abc	9447	ab
3	NZone Max-Urea	135	lb ai/A	115	d	98	d	36	abc	48.2	bc	9752	a
4	NZone Max-Urea	180	lb ai/A	118	ab	101	ab	38	ab	48.7	bc	10079	a
5	NZone Max-Urea	225	lb ai/A	118	ab	101	ab	38	a	46.6	c	9759	a
6	Urea	45	lb ai/A	112	fg	95	fg	33	efg	50.3	ab	8315	bc
7	Urea	90	lb ai/A	114	de	97	de	35	cde	48.1	bc	9731	a
8	Urea	135	lb ai/A	115	cd	98	cd	36	abc	49.1	abc	10426	a
9	Urea	180	lb ai/A	117	ab	100	ab	37	abc	46.8	c	10090	a
10	Urea	225	lb ai/A	118	ab	101	ab	38	ab	49.3	abc	9888	a
11	ContaiN-Urea	45	lb ai/A	111	g	94	g	32	fg	50.2	ab	8462	b
12	ContaiN-Urea	90	lb ai/A	114	ef	97	ef	35	cde	50.0	ab	9458	ab
13	ContaiN-Urea	135	lb ai/A	117	bc	100	bc	37	abc	48.0	bc	9457	ab
14	ContaiN-Urea	180	lb ai/A	118	ab	101	ab	37	abc	46.5	c	9719	a
15	ContaiN-Urea	225	lb ai/A	118	a	101	a	38	ab	47.9	bc	10186	a
16	Untreated Check	0	lb ai/A	110	h	93	h	31	g	51.5	a	7092	c
LSD (P=.05)				1.40		1.40		2.03		2.81		1229.70	
Standard Deviation				0.98		0.98		1.42		1.97		860.50	
CV				0.85		1.00		4.01		4.03		9.16	
Treatment F				30.61		30.61		7.90		2.16		4.17	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0237		0.0001	

Continued.

Table 61. Continued.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Tissue		Tissue N		N Uptake		N Fert. Eff.		N Fert. Eff.	
Part Rated				Abvgrd		Abvgrd		Total					
Rating Date				7/10/2014		7/10/2014							
Rating Type				Biomass-dry									
Rating Unit				lb/A		% N		lb/A		%		%	
Crop Stage Majority				Main		Main		Main		by block		by mean	
Crop Stage Scale				50% HD		50% HD		50% HD		50% HD		50% HD	
Trt. No.	Trt. Name	Rate	Rate Unit										
1	NZone Max-Urea	45	lb ai/A	10742	a-e	0.96	gh	104	fgh	81	a	77	a
2	NZone Max-Urea	90	lb ai/A	9396	def	1.07	fg	102	gh	44	bc	44	bcd
3	NZone Max-Urea	135	lb ai/A	10281	b-f	1.28	e	132	def	51	bc	51	bcd
4	NZone Max-Urea	180	lb ai/A	11585	abc	1.47	cd	170	bc	60	abc	60	abc
5	NZone Max-Urea	225	lb ai/A	11431	abc	1.62	b	185	ab	55	abc	55	a-d
6	Urea	45	lb ai/A	8897	efg	0.92	h	81	hi	41	bc	41	cd
7	Urea	90	lb ai/A	9810	c-f	1.08	fg	106	fgh	48	bc	48	bcd
8	Urea	135	lb ai/A	10282	b-f	1.33	e	137	de	55	abc	55	a-d
9	Urea	180	lb ai/A	11954	ab	1.40	de	168	bc	59	abc	59	a-d
10	Urea	225	lb ai/A	12613	a	1.52	bcd	191	ab	57	abc	57	a-d
11	ContaiN-Urea	45	lb ai/A	8525	fg	0.92	h	79	hi	35	c	36	d
12	ContaiN-Urea	90	lb ai/A	10655	b-e	1.10	f	118	efg	61	abc	61	abc
13	ContaiN-Urea	135	lb ai/A	11172	a-d	1.33	e	148	cd	63	ab	63	abc
14	ContaiN-Urea	180	lb ai/A	11809	ab	1.53	bc	181	ab	66	ab	66	ab
15	ContaiN-Urea	225	lb ai/A	11908	ab	1.77	a	208	a	65	ab	65	abc
16	Untreated Check	0	lb ai/A	7333	g	0.85	h	63	i	0	d	0	e
LSD (P=.05)				1935.50		0.13		27.60		27.60		23.80	
Standard Deviation				1354.40		0.09		19.30		19.30		16.70	
CV				12.87		7.20		14.24		36.75		31.92	
Treatment F				4.53		38.41		21.55		3.38		4.32	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0008		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Rice Response to K Rate

Experiment number ....: 14-KL-02

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish
- **Tillage type** ....: Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.66 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley – Vidrine Complex
- **% organic matter** ....: 1.10
- **pH** ....: 5.3
- **Extractable nutrients** ppm..........: Ca-557; Cu-0.53; Mg-122; P-10.5; K-34.0; Na-69.6; S-1.4; Zn-2.4

Crop/Variety ....: Rice / Jupiter
- **Planting method/date** ....: Drill-seeded / April 21
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .75 in
- **Emergence date** ....: April 27
- **Harvest date** ....: September 11

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization ....: 120 lb N/A 46-0-0, May 20

Water management ....:
- **Flush** ....: May 6
- **Flood** ....: May 23
- **Drain** ....: August 19

Pest management ....:
- **Herbicides** ....: 2.5 qt/A Propanil + 8 oz/A Command, May 3
  1 qt/A Facet, May 23
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 19 oz/A Stratego, June 11

Comments: Was not able to have a ratoon crop.

Table 62. Evaluation of rice response to K rate (KL.2). Evangeline Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd	top	0-10			Tissue	Tissue
Part Rated											Abvgrd	Abvgrd
Rating Date							9/9/2014	9/9/2014	9/10/2014	9/10/2014		
Rating Type					50% HD	50% HD	Height	SH Blight	Test Wt.	Yield	biomass-dry	biomass-dry
Rating Unit					days	days	in	rate	lb/bu	lb/A	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											Mid till	50% HD
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	0 lb K_2O	0	lb ai/A	ATPLAN	94 a	84 a	34 a	1.3 b	45.4 a	10106 a	771 c	11133 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN								
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN								
	100 lb ammonium sulfate	100	lb/A	ATPLAN								
2	30 lb K_2O	30	lb ai/A	ATPLAN	94 a	84 a	34 a	1.5 b	45.6 a	9201 a	1272 b	10979 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN								
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN								
	100 lb ammonium sulfate	100	lb/A	ATPLAN								
3	60 lb K_2O	60	lb ai/A	ATPLAN	94 a	84 a	35 a	3.5 a	45.5 a	9576 a	1449 ab	9797 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN								
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN								
	100 lb ammonium sulfate	100	lb/A	ATPLAN								
4	90 lb K_2O	90	lb ai/A	ATPLAN	94 a	84 a	35 a	2.0 b	45.5 a	9875 a	1530 a	10608 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN								
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN								
	100 lb ammonium sulfate	100	lb/A	ATPLAN								
5	120 lb K_2O	120	lb ai/A	ATPLAN	94 a	84 a	34 a	2.3 ab	45.8 a	9712 a	1469 ab	11850 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN								
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN								
	100 lb ammonium sulfate	100	lb/A	ATPLAN								
6	150 lb K_2O	150	lb ai/A	ATPLAN	94 a	84 a	36 a	2.3 ab	45.6 a	10179 a	1400 ab	10854 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN								
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN								
	100 lb ammonium sulfate	100	lb/A	ATPLAN								
LSD P=.05					1.00	1.00	1.70	1.39	0.38	724.00	234.20	3594.60
Standard Deviation					0.60	0.60	1.10	0.92	0.25	480.40	155.40	2353.10
CV					0.67	0.76	3.17	43.46	0.56	4.91	11.82	21.65
Treatment F					0.50	0.50	2.27	2.90	1.22	2.27	13.02	0.33
Treatment Prob(F)					0.7716	0.7716	0.1005	0.0499	0.3469	0.0999	0.0001	0.8879

Continued.

Table 62. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Part Rated					Al	B	Ca	Cu	Fe	Mg	Mn
Rating Type					Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Rating Unit					ppm	ppm	%	ppm	ppm	%	ppm
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale					Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	0 lb K_2O	0	lb ai/A	ATPLAN	194 a	6.64 a	0.24 a	7.16 a	453 a	0.17 d	998 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN							
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN							
	100 lb ammonium sulfate	100	lb/A	ATPLAN							
2	30 lb K_2O	30	lb ai/A	ATPLAN	187 a	6.06 a	0.26 a	7.07 a	291 a	0.25 a	913 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN							
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN							
	100 lb ammonium sulfate	100	lb/A	ATPLAN							
3	60 lb K_2O	60	lb ai/A	ATPLAN	177 a	6.02 a	0.24 a	6.79 a	276 a	0.22 bc	850 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN							
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN							
	100 lb ammonium sulfate	100	lb/A	ATPLAN							
4	90 lb K_2O	90	lb ai/A	ATPLAN	201 a	5.29 a	0.24 a	6.95 a	286 a	0.22 b	908 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN							
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN							
	100 lb ammonium sulfate	100	lb/A	ATPLAN							
5	120 lb K_2O	120	lb ai/A	ATPLAN	182 a	6.06 a	0.24 a	6.72 a	278 a	0.21 bc	868 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN							
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN							
	100 lb ammonium sulfate	100	lb/A	ATPLAN							
6	150 lb K_2O	150	lb ai/A	ATPLAN	213 a	5.97 a	0.24 a	7.20 a	297 a	0.20 c	855 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN							
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN							
	100 lb ammonium sulfate	100	lb/A	ATPLAN							
LSD P=.05					60.40	1.11	0.02	0.82	204.00	0.02	238.90
Standard Deviation					40.10	0.74	0.01	0.55	135.30	0.01	158.50
CV					20.86	12.25	5.56	7.81	43.16	6.70	17.64
Treatment F					0.42	1.36	1.28	0.52	1.03	13.14	0.49
Treatment Prob(F)					0.829	0.293	0.325	0.761	0.434	0.000	0.776

Continued.

Table 62. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Part Rated					Mo	P	K	Na	S	Zn
Rating Type					Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Rating Unit					ppm	%	%	ppm	%	ppm
Crop Stage Majority					Main	Main	Main	Main	Main	Main
Crop Stage Scale					Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage						
1	0 lb K_2O	0	lb ai/A	ATPLAN	1.67 ab	0.19 b	2.04 cd	2072 d	0.35 a	70.90 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN						
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN						
	100 lb ammonium sulfate	100	lb/A	ATPLAN						
2	30 lb K_2O	30	lb ai/A	ATPLAN	1.71 a	0.33 a	1.73 d	4260 a	0.37 a	69.15 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN						
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN						
	100 lb ammonium sulfate	100	lb/A	ATPLAN						
3	60 lb K_2O	60	lb ai/A	ATPLAN	1.46 c	0.32 a	1.97 cd	3117 b	0.35 a	68.76 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN						
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN						
	100 lb ammonium sulfate	100	lb/A	ATPLAN						
4	90 lb K_2O	90	lb ai/A	ATPLAN	1.50 bc	0.31 a	2.17 bc	2940 b	0.35 a	69.44 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN						
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN						
	100 lb ammonium sulfate	100	lb/A	ATPLAN						
5	120 lb K_2O	120	lb ai/A	ATPLAN	1.53 abc	0.33 a	2.45 ab	2844 bc	0.35 a	70.33 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN						
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN						
	100 lb ammonium sulfate	100	lb/A	ATPLAN						
6	150 lb K_2O	150	lb ai/A	ATPLAN	1.41 c	0.31 a	2.70 a	2288 cd	0.36 a	76.66 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN						
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN						
	100 lb ammonium sulfate	100	lb/A	ATPLAN						
LSD P=.05					0.19	0.03	0.40	589.40	0.02	14.40
Standard Deviation					0.13	0.02	0.26	391.10	0.01	9.55
CV					8.25	7.03	12.10	13.39	3.65	13.48
Treatment F					3.49	25.35	6.94	15.48	0.97	0.38
Treatment Prob(F)					0.027	0.000	0.002	0.000	0.468	0.855

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Rice Response to P Rates

Experiment number	14-KL-03
Site and design	
Location/Cooperator	Evangeline Parish
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley – Vidrine Complex
% organic matter	1.10
pH	5.3
Extractable nutrients ppm	Ca-557; Cu-0.53; Mg-122; P-10.5; K-34.0; Na-69.6; S-1.4; Zn-2.4
Crop/Variety	Rice / Jupiter
Planting method/date	Drill-seeded / April 21
Seeding rate/depth	33 seeds/ft^2 / .75 in
Emergence date	April 27
Harvest date	September 11
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	120 lb N/A 46-0-0, May 20
Water management	
Flush	May 6
Flood	May 23
Drain	August 19
Pest management	
Herbicides	2.5 qt/A Propanil + 8 oz/A Command, May 3 1 qt/A Facet, May 23
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	19 oz/A Stratego, June 11

Comments: Was not able to have a ratoon crop.

Table 63. Evaluation of rice response to P rates applied at planting (KL.2). Evangeline Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	top	0-10			Tissue	Tissue
Part Rated										Abvgrd	Abvgrd
Rating Date						9/9/2014	9/9/2014	9/10/2014	9/12/2014	6/4/2014	7/23/2014
Rating Type				50% HD	50% HD	Height	SH Blight	Test Wt.	Yield	Biomass-dry	Biomass-dry
Rating Unit				days	days	in	rate	lb/bu	lb/A	lb/A	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale										Mid till	50% HD
Trt. No.	Trt. Name	Rate	Rate Unit								
1	0 lb P_2O_5	0	lb ai/A	95 a	85 a	35 a	1.0 a	45.8 a	10167 a	896 b	10921 a
	60 lb K_2O	60	lb ai/A								
	15 lb Zn	15	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
2	30 lb P_2O_5	30	lb ai/A	95 a	85 a	35 a	1.3 a	45.7 a	10151 a	1100 b	11613 a
	15 lb Zn	15	lb ai/A								
	60 lb K_2O	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
3	60 lb P_2O_5	60	lb ai/A	95 a	85 a	35 a	2.5 a	45.8 a	9616 a	1166 b	9819 a
	15 lb Zn	15	lb ai/A								
	60 lb K_2O	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
4	90 lb P_2O_5	90	lb ai/A	95 a	85 a	34 a	2.5 a	45.7 a	9715 a	1618 a	12109 a
	15 lb Zn	15	lb ai/A								
	60 lb K_2O	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
5	120 lb P_2O_5	120	lb ai/A	95 a	85 a	35 a	0.8 a	45.7 a	9815 a	1632 a	11506 a
	15 lb Zn	15	lb ai/A								
	60 lb K_2O	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
6	150 lb P_2O_5	150	lb ai/A	95 a	85 a	35 a	2.5 a	45.9 a	9575 a	1799 a	11784 a
	15 lb Zn	15	lb ai/A								
	60 lb K_2O	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
LSD (P=.05)				0.78	0.78	1.33	1.95	0.49	548.50	433.60	4384.10
Standard Deviation				0.52	0.52	0.88	1.29	0.32	364.00	287.80	2909.40
CV				0.55	0.61	2.54	73.77	0.71	3.70	21.03	25.77
Treatment F				0.25	0.25	1.03	1.68	0.22	2.06	6.31	0.32
Treatment Prob(F)				0.9333	0.9333	0.4360	0.2000	0.9507	0.1284	0.0024	0.8944

Continued.

Table 63. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Part Rated				Al	B	Ca	Cu	Fe	Mg	Mn
Rating Type				Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Rating Unit				ppm	ppm	%	ppm	ppm	%	ppm
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale				Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till
Trt. No.	Trt. Name	Rate	Rate Unit							
1	0 lb P_2O_5	0	lb ai/A	413.39 a	25.20 a	20.75 a	25.52 a	432.13 a	0.16 c	911.27 a
	60 lb K_2O	60	lb ai/A							
	15 lb Zn	15	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
2	30 lb P_2O_5	30	lb ai/A	139.23 a	25.60 a	21.79 a	26.93 a	255.81 a	0.21 b	852.71 a
	15 lb Zn	15	lb ai/A							
	60 lb K_2O	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
3	60 lb P_2O_5	60	lb ai/A	216.13 a	24.88 a	21.43 a	26.01 a	350.74 a	0.21 b	915.83 a
	15 lb Zn	15	lb ai/A							
	60 lb K_2O	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
4	90 lb P_2O_5	90	lb ai/A	222.08 a	19.40 a	15.18 a	20.29 a	354.78 a	0.24 a	961.61 a
	15 lb Zn	15	lb ai/A							
	60 lb K_2O	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
5	120 lb P_2O_5	120	lb ai/A	200.35 a	22.49 a	18.21 a	23.20 a	350.89 a	0.24 a	919.02 a
	15 lb Zn	15	lb ai/A							
	60 lb K_2O	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
6	150 lb P_2O_5	150	lb ai/A	345.15 a	20.84 a	16.46 a	21.05 a	501.25 a	0.22 ab	770.09 a
	15 lb Zn	15	lb ai/A							
	60 lb K_2O	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
LSD (P=.05)				371.29	8.63	8.36	8.42	267.50	0.03	129.09
Standard Deviation				246.40	5.73	5.55	5.59	177.53	0.02	85.67
CV				96.23	24.82	29.27	23.45	47.43	8.84	9.64
Treatment F				0.69	0.81	1.00	0.97	0.89	9.09	2.49
Treatment Prob(F)				0.6402	0.5627	0.4531	0.4678	0.5131	0.0004	0.0783

Continued.

Table 63. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice
Part Rated				Mo	P	K	Na	S	Zn
Rating Type				Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Rating Unit				ppm	%	%	ppm	%	ppm
Crop Stage Majority				Main	Main	Main	Main	Main	Main
Crop Stage Scale				Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till
Trt. No.	Trt. Name	Rate	Rate Unit						
1	0 lb P_2O_5	0	lb ai/A	1.70 a	0.18 d	2.06 a	2087 a	0.32 a	69.71 a
	60 lb K_2O	60	lb ai/A						
	15 lb Zn	15	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
2	30 lb P_2O_5	30	lb ai/A	1.49 a	0.25 c	1.97 a	2627 a	0.35 a	80.13 a
	15 lb Zn	15	lb ai/A						
	60 lb K_2O	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
3	60 lb P_2O_5	60	lb ai/A	1.47 a	0.32 b	1.80 a	3188 a	0.34 a	85.03 a
	15 lb Zn	15	lb ai/A						
	60 lb K_2O	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
4	90 lb P_2O_5	90	lb ai/A	1.64 a	0.35 ab	2.03 a	3464 a	0.35 a	72.07 a
	15 lb Zn	15	lb ai/A						
	60 lb K_2O	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
5	120 lb P_2O_5	120	lb ai/A	1.59 a	0.37 a	2.02 a	3174 a	0.34 a	84.55 a
	15 lb Zn	15	lb ai/A						
	60 lb K_2O	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
6	150 lb P_2O_5	150	lb ai/A	1.47 a	0.38 a	1.72 a	3146 a	0.33 a	67.94 a
	15 lb Zn	15	lb ai/A						
	60 lb K_2O	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
LSD (P=.05)				0.34	0.03	0.35	932.27	0.03	13.83
Standard Deviation				0.22	0.02	0.23	618.69	0.02	9.18
CV				14.24	7.11	11.85	20.99	5.92	11.99
Treatment F				0.78	49.36	1.44	2.63	1.43	2.75
Treatment Prob(F)				0.5810	0.0001	0.2670	0.0672	0.2717	0.0587

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Zn Rates Applied At Planting

Experiment number ....: 14-KL-04

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish
- **Tillage type**................................: Conventional
- **Experimental design**..................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**.......................................: 4.66 x 16 ft
- **Row width/rows per plot**...........: 8 in / 7

Soil type ....: Crowley – Vidrine Complex
- **% organic matter**.......................: 1.10
- **pH**..: 5.3
- **Extractable nutrients** ppm.........: Ca-557; Cu-0.53; Mg-122; P-10.5; K-34.0; Na-69.6; S-1.4; Zn-2.4

Crop/Variety ....: Rice / Jupiter
- **Planting method/date** ....: Drill-seeded / April 21
- **Seeding rate/depth**......................: 33 seeds/ft^2 / .75 in
- **Emergence date**..........................: April 27
- **Harvest date** ....: September 11

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization......................................: 120 lb N/A 46-0-0, May 20

Water management ....:
- **Flush** ....: May 6
- **Flood** ....: May 23
- **Drain**...: August 19

Pest management..............................:
- **Herbicides**..................................: 2.5 qt/A Propanil + 8 oz/A Command, May 3
1 qt/A Facet, May 23
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 19 oz/A Stratego, June 11

Comments: Was not able to have a ratoon crop.

Table 64. Evaluation of Zn rates applied at planting (KL.2). Evangeline Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	top	0-10			Tissue	Tissue
Part Rated										Abvgrd	Abvgrd
Rating Date						9/9/2014	9/9/2014	9/11/2014	9/12/2014	6/4/2014	7/23/2014
Rating Type				50% HD	50% HD	Height	SH Blight	Test Wt.	Yield	Biomass-dry	Biomass-dry
Rating Unit				days	days	in	rate	lb/bu	lb/A	lb/A	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale										Mid till	50% HD
Trt. No.	Trt. Name	Rate	Rate Unit								
1	0 Zn			93 a	83 a	35 a	1.0 bc	44.2 a	9192 a	1457 a	14340 a
	60 lb K_2O	60	lb ai/A								
	60 lb P_2O_5	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
2	5 lb Zn/A	5	lb ai/A	93 a	83 a	36 a	1.8 abc	45.6 a	9414 a	1418 a	12687 a
	60 lb K_2O	60	lb ai/A								
	60 lb P_2O_5	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
3	7.5 lb Zn/A	7.5	lb ai/A	93 a	83 a	35 a	1.3 bc	45.8 a	9203 a	1386 a	13095 a
	60 lb K_2O	60	lb ai/A								
	60 lb P_2O_5	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
4	10 lb Zn/A	10	lb ai/A	93 a	83 a	35 a	0.8 c	45.7 a	9863 a	1301 a	13635 a
	60 lb K_2O	60	lb ai/A								
	60 lb P_2O_5	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
5	15lb Zn/A	15	lb ai/A	93 a	83 a	34 a	3.0 a	46.0 a	8827 a	1256 a	12142 a
	60 lb K_2O	60	lb ai/A								
	60 lb P_2O_5	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
6	20 lb Zn/A	20	lb ai/A	93 a	83 a	34 a	2.3 ab	45.6 a	9056 a	1406 a	12771 a
	60 lb K_2O	60	lb ai/A								
	60 lb P_2O_5	60	lb ai/A								
	100 lb ammonium sulfate	100	lb/A								
LSD (P=.05)				0.00	0.00	1.55	1.42	1.80	1015.00	328.30	2252.20
Standard Deviation				0.00	0.00	1.03	0.94	1.19	673.60	217.90	1494.60
CV				0.00	0.00	2.95	56.57	2.62	7.27	15.89	11.40
Treatment F				0.00	0.00	1.08	3.23	1.18	1.10	0.49	1.08
Treatment Prob(F)				1.0000	1.0000	0.4082	0.0356	0.3656	0.4003	0.7769	0.4099

Continued.

Table 64. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Part Rated				Al	B	Ca	Cu	Fe	Mg	Mn
Rating Type				Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Rating Unit				ppm	ppm	%	ppm	ppm	%	ppm
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale				Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till
Trt. No.	Trt. Name	Rate	Rate Unit							
1	0 Zn			177.32 a	5.97 a	0.24 a	7.22 a	260.35 a	0.23 a	953.03 a
	60 lb K_2O	60	lb ai/A							
	60 lb P_2O_5	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
2	5 lb Zn/A	5	lb ai/A	170.72 a	6.06 a	0.24 a	6.81 a	252.04 a	0.22 a	884.76 a
	60 lb K_2O	60	lb ai/A							
	60 lb P_2O_5	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
3	7.5 lb Zn/A	7.5	lb ai/A	164.01 a	6.47 a	0.24 a	7.58 a	245.68 a	0.23 a	931.39 a
	60 lb K_2O	60	lb ai/A							
	60 lb P_2O_5	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
4	10 lb Zn/A	10	lb ai/A	170.29 a	6.11 a	0.24 a	7.85 a	249.68 a	0.23 a	913.35 a
	60 lb K_2O	60	lb ai/A							
	60 lb P_2O_5	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
5	15lb Zn/A	15	lb ai/A	163.56 a	5.72 a	0.24 a	6.89 a	246.15 a	0.22 a	841.87 a
	60 lb K_2O	60	lb ai/A							
	60 lb P_2O_5	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
6	20 lb Zn/A	20	lb ai/A	178.83 a	6.16 a	0.24 a	7.23 a	278.12 a	0.22 a	873.32 a
	60 lb K_2O	60	lb ai/A							
	60 lb P_2O_5	60	lb ai/A							
	100 lb ammonium sulfate	100	lb/A							
LSD (P=.05)				50.73	1.33	0.02	0.79	42.74	0.02	119.45
Standard Deviation				33.67	0.88	0.01	0.52	28.37	0.01	79.27
CV				19.71	14.50	4.74	7.18	11.11	4.71	8.81
Treatment F				0.15	0.31	0.42	2.32	0.76	1.47	1.06
Treatment Prob(F)				0.9784	0.8995	0.8298	0.0944	0.5921	0.2579	0.4219

Continued.

Table 64. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice
Part Rated				Mo	P	K	Na	S	Zn
Rating Type				Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Rating Unit				ppm	%	%	ppm	%	ppm
Crop Stage Majority				Main	Main	Main	Main	Main	Main
Crop Stage Scale				Mid-till	Mid-till	Mid-till	Mid-till	Mid-till	Mid-till
Trt. No.	Trt. Name	Rate	Rate Unit						
1	0 Zn			1.99 a	0.34 a	2.02 a	2889 a	0.35 a	30.54 c
	60 lb K_2O	60	lb ai/A						
	60 lb P_2O_5	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
2	5 lb Zn/A	5	lb ai/A	1.87 a	0.34 a	2.10 a	2706 a	0.35 a	40.83 bc
	60 lb K_2O	60	lb ai/A						
	60 lb P_2O_5	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
3	7.5 lb Zn/A	7.5	lb ai/A	1.89 a	0.32 a	1.95 a	3274 a	0.36 a	45.07 abc
	60 lb K_2O	60	lb ai/A						
	60 lb P_2O_5	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
4	10 lb Zn/A	10	lb ai/A	1.79 a	0.31 a	1.96 a	3024 a	0.37 a	54.45 ab
	60 lb K_2O	60	lb ai/A						
	60 lb P_2O_5	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
5	15lb Zn/A	15	lb ai/A	1.87 a	0.29 a	1.97 a	2652 a	0.37 a	58.65 a
	60 lb K_2O	60	lb ai/A						
	60 lb P_2O_5	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
6	20 lb Zn/A	20	lb ai/A	1.95 a	0.33 a	1.97 a	2766 a	0.36 a	58.95 a
	60 lb K_2O	60	lb ai/A						
	60 lb P_2O_5	60	lb ai/A						
	100 lb ammonium sulfate	100	lb/A						
LSD (P=.05)				0.28	0.04	0.29	540.10	0.02	15.92
Standard Deviation				0.19	0.03	0.19	358.40	0.01	10.57
CV				9.76	7.88	9.60	12.42	3.14	21.97
Treatment F				0.53	2.21	0.36	1.69	1.67	4.59
Treatment Prob(F)				0.7494	0.1080	0.8690	0.1976	0.2027	0.0097

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of K Time of Application on Jupiter Main and Ratoon Rice Yields and Agronomics

Experiment number ....: 14-KL-33

Site and design ....:
Location/Cooperator ....: Evangeline Parish
Tillage type.................................: Conventional
Experimental design...................: Randomized complete block
Number of reps ....: 4
Plot size..: 4.66 x 16 ft
Row width/rows per plot............: 8 in / 7

Soil type ....: Crowley – Vidrine Complex
% organic matter........................: 1.10
pH..: 5.3
Extractable nutrients ppm..........: Ca-557; Cu-0.53; Mg-122; P-10.5; K-34.0; Na-69.6; S-1.4; Zn-2.4

Crop/Variety ....: Rice / Jupiter
Planting method/date ....: Drill-seeded / April 21
Seeding rate/depth......................: 33 seeds/ft^2 / .75 in
Emergence date...........................: April 27
Harvest date ....: September 11

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization..: 120 lb N/A 46-0-0, May 20

Water management ....:
Flush ....: May 6
Flood ....: May 23
Drain..: August 19

Pest management..............................:
Herbicides...................................: 2.5 qt/A Propanil + 8 oz/A Command, May 3
1 qt/A Facet, May 23
Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides ....: 19 oz/A Stratego, June 11

Comments: Was not able to have a ratoon crop.

Table 65. Evaluation of K time of application on Jupiter main and ratoon rice yields and agronomics (KL.3). Evangeline Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		top							
Rating Date								9/9/2014		9/9/2014		9/10/2014		9/10/2014	
Rating Type				50% HD		50% HD		Height		SH Blight		Test Wt.		Yield	
Rating Unit				days		days		in		rate 0-10		lb/bu		lb/A	
Crop Stage Majority				Main		Main		Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit / Growth Stage												
1	Untreated Check	0	lb ai/A	94	a	84	a	35	cd	2.0	a	45.4	a	9030	a
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
2	Muriate of Potash 0-0-60	120	lb ai/A ATPLAN	94	a	84	a	36	abc	1.8	a	45.4	a	10010	a
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
3	Muriate of Potash 0-0-60	120	lb ai/A PREFLD	94	a	84	a	37	a	3.0	a	45.4	a	9458	a
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
4	Muriate of Potash 0-0-60	120	lb ai/A MIDTILL	95	a	85	a	36	abc	2.3	a	45.3	a	9275	a
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
5	Muriate of Potash 0-0-60	120	lb ai/A GR	94	a	84	a	36	abc	3.3	a	44.5	a	9055	a
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
6	Muriate of Potash 0-0-60	120	lb ai/A 50%HD	94	a	84	a	34	d	3.3	a	45.3	a	9128	a
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
7	Muriate of Potash 0-0-60	120	lb ai/A ATHARV	94	a	84	a	36	a-d	2.5	a	45.8	a	8687	a
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
8	Muriate of Potash 0-0-60	60	lb ai/A ATPLAN	94	a	84	a	37	ab	2.5	a	45.8	a	9439	a
	Muriate of Potash 0-0-60	60	lb ai/A GR												
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
9	Muriate of Potash 0-0-60	60	lb ai/A ATPLAN	94	a	84	a	35	bcd	4.5	a	45.4	a	9062	a
	Muriate of Potash 0-0-60	60	lb ai/A ATHARV												
	60 lb P_2O_5/A	60	lb ai/A ATPLAN												
	15 lb Zn/A	15	lb ai/A ATPLAN												
	100 lb ammonium sulfate	100	lb/A ATPLAN												
LSD P=.05				1.35		1.35		1.78		2.22		0.99		990.70	
Standard Deviation				0.93		0.93		1.22		1.52		0.68		678.90	
CV				0.98		1.10		3.43		54.88		1.49		7.35	
Treatment F				0.30		0.30		2.65		1.20		1.16		1.21	
Treatment Prob(F)				0.9591		0.9591		0.0310		0.3427		0.3643		0.3374	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of P Time of Application on Jupiter Main and Ratoon Rice Yields and Agronomics

Experiment number ....: 14-KL-34

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish
- **Tillage type** ....: Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.66 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley – Vidrine Complex
- **% organic matter** ....: 1.10
- **pH** ....: 5.3
- **Extractable nutrients** ppm..........: Ca-557; Cu-0.53; Mg-122; P-10.5; K-34.0; Na-69.6; S-1.4; Zn-2.4

Crop/Variety ....: Rice / Jupiter
- **Planting method/date** ....: Drill-seeded / April 21
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .75 in
- **Emergence date** ....: April 27
- **Harvest date** ....: September 11

Seed treatment/cwt ....: Dithane (fungicide) – 114 g
Release (gibberellic acid) – 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
AV-1011 (bird repellant) – 18.3 oz

Fertilization ....: 120 lb N/A 46-0-0, May 20

Water management ....:
- **Flush** ....: May 6
- **Flood** ....: May 23
- **Drain** ....: August 19

Pest management ....:
- **Herbicides** ....: 2.5 qt/A Propanil + 8 oz/A Command, May 3
  1 qt/A Facet, May 23
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 19 oz/A Stratego, June 11

Comments: Was not able to have a ratoon crop.

Table 66. Evaluation of P time of application on Jupiter main and ratoon rice yields and agronomics (KL.3). Evangeline Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		top							
Rating Date									9/9/2014		9/9/2014		9/10/2014		9/12/2014	
Rating Type					50% HD		50% HD		Height		SH Blight		Test Wt.		Yield	
Rating Unit					days		days		in		Rate 0-10		lb/bu		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage												
1	Untreated Check	0	lb ai/A		95	a	85	a	36	a	1.3	ab	45.8	a	9918	a
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
2	TSP	120	lb ai/A	ATPLAN	96	a	86	a	36	a	3.0	a	45.9	a	9650	a
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
3	TSP	120	lb ai/A	PREFLD	95	a	85	a	35	a	2.5	ab	45.1	a	9082	a
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
4	TSP	120	lb ai/A	MIDTILL	96	a	86	a	34	a	0.8	b	45.8	a	9217	a
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
5	TSP	120	lb ai/A	GR	95	a	85	a	34	a	1.3	ab	45.9	a	9703	a
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
6	TSP	120	lb ai/A	50%HD	96	a	86	a	34	a	1.5	ab	45.5	a	9643	a
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
7	TSP	120	lb ai/A	ATHARV	96	a	86	a	35	a	0.8	b	45.5	a	9692	a
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
8	TSP	60	lb ai/A	ATPLAN	96	a	86	a	35	a	2.8	a	45.9	a	8933	a
	TSP	60	lb ai/A	GR												
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
9	TSP	60	lb ai/A	ATPLAN	96	a	86	a	35	a	3.0	a	45.7	a	9604	a
	TSP	60	lb ai/A	ATHARV												
	60 lb K_2O	60	lb ai/A	ATPLAN												
	15 lb Zn	15	lb ai/A	ATPLAN												
	100 lb ammonium sulfate	100	lb/A	ATPLAN												
LSD P=.05					0.70		0.70		1.32		1.75		0.92		645.50	
Standard Deviation					0.48		0.48		0.90		1.20		0.63		442.30	
CV					0.50		0.56		2.59		64.47		1.38		4.66	
Treatment F					1.04		1.04		1.65		2.48		0.78		2.26	
Treatment Prob(F)					0.4343		0.4343		0.1631		0.0407		0.6264		0.0590	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

ROTATIONAL CROP RESEARCH

D.L. Harrell, J.P. Leonards, R.P. Regan, J.S. Fluitt, and J. Li

Rotational Crop Research

A date of planting trial was conducted for the second year in 2014 at the Rice Research Station in Crowley, Louisiana (RRS). The trial evaluated eight late Group III and Group IV soybean varieties (Pioneer 93Y92, Terral REV 38R10, Dyna-Gro 39RY43, Asgrow 3931, Pioneer 94Y82, Terral REV47R53, Dyna-Gro 47R13, and Asgrow 4632) and four Group V soybean varieties (Terral REV 52A94, Dyna-Gro S56RY84, Asgrow 5332, and Dyna-Gro 32Y55). Actual dates of planting were April 3, April 23, May 15, June 6, and June 17. A significant soybean yield response ($P \leq 0.0001$; LSD = 3.3 bu/A) was observed for the main effect of date of planting when pooled over all soybean varieties. Soybean yields were 10.4, 26.4, 62.9, 54.7, and 57.0 bu/A, respectively. Yields were greatest at the May 15 planting and significantly reduced at later planting dates. However, June plantings were significantly higher than April plantings, which exhibited stunted and stacked internodes. Analysis of multiple years of data will be needed before inferences of the optimum date of planting window for Group IV and Group V soybeans in southwest Louisiana can be made.

Six small soybean plot field trials were conducted at the LaHaye farm near Mamou, Louisiana. The soil at the location was a Mowata silt loam. Soil test phosphorus (P) (7.3 ppm) and potassium (K) (37 ppm) were considered to be "very low," while soil test zinc (Zn) (1.1 ppm) was considered "low." Current LSU AgCenter soil test recommendations for P_2O_5, K_2O, and Zn were 80, 80, and 5 lb/A, respectively.

A trial was conducted to evaluate soybean response to K fertilization rate. Fertilizer K was surface broadcast as potash (0-0-60) immediately after seeding. Six rates of K were evaluated (0, 30, 60, 90, 120, and 150 lb K_2O/A). Results of the trial are presented in Table 2. Mean soybean yields ranged from 23.1 to 44.2 bu/A. A significant response to K rate was observed ($P = 0.0018$; LSD = 9.4). The K rate needed to optimize soybean yield was 90 lb K_2O/A.

A separate trial was conducted to evaluate time of K fertilization on soybean yield. A significant response to K fertilization was observed ($P = 0.0356$; LSD = 10). Soybean yields ranged from 30 to 49.8 bu/A. Soybean yields were significantly decreased with K fertilizer applications occurring after R5.

A trial was conducted to evaluate soybean response to P fertilizer application rate. Six rates of P were evaluated (0, 30, 60, 90, 120, and 150 lb P_2O_5/A). Fertilizer P was applied as a surface broadcast application immediately following seeding as triple-super phosphate (0-46-0). Agronomic results from the trial are presented in Table 4. Mean soybean yield ranged from 34.2 to 52.9 bu/A. A significant response to P fertilization was observed ($P = 0.008$; LSD = 9.5). The P rate needed to optimize yields was 60 lb P_2O_5/A.

A separate fertilizer P time of application trial was conducted at the same location. Eight fertilizer application timings (at planting, V1, V3, V5, R1, R3, R5, and R6) were evaluated. An unfertilized treatment was also included in the trial. Results of the trial are presented in Table 5. A significant response to P fertilization was observed in the time of application trial ($P < 0.0001$; LSD = 7.8). Soybean yield ranged from 29.1 to 46.4 bu/A. Soybean yields were significantly decreased with P fertilizer applications occurring after R5 and maximum yields were observed when P fertilizer applications occurred at V5 and prior to R1.

A trial was conducted to evaluate soybean response to Zn fertilization rate. Six Zn fertilizer rates (0, 5, 7.5, 10, 15, and 20 lb Zn/A) were evaluated. Fertilizer Zn was applied as a surface broadcast application immediately after seeding as zinc sulfate. Agronomic results are presented in Table 6. Soybean mean yield ranged from 38 to 45.5 bu/A. A significant yield response to Zn fertilization was not observed ($P = 0.5941$).

A trial was conducted that compared Avail® treated monoammonium phosphate (MAP; 11-53-0) with untreated MAP to determine if soybean yields could be improved with the use of the Avail® fertilizer treatment. Three fertilizer treatments were evaluated: 1) 0 P fertilizer, 2) untreated MAP without Avail, and 3) MAP treated with Avail. A significant yield response to Avail® treated MAP was not observed as compared with untreated MAP.

A multi-year trial was established in 2012 and continued in 2014 to evaluate the combined effects of tillage and fertilization on sweet sorghum yield, agronomics, and fermentable soils for a mono-crop system. Two tillage practices (conventional tillage (CT) and no-till (NT)) and two fertilization practices (no fertilization (NF) and maintenance fertilization (MF)). The MF treatment consisted of a surface broadcast application of 40 and 60 lb/A of P_2O_5 and K_2O, respectively. Potash (0-0-60) and triple-super phosphate (0-46-0) were the fertilizer sources used. Harvest was done by hand at the soft dough stage of grain development. At harvest, a sub-sample was taken for tissue analysis. Sweet sorghum was separated into the seed head, stalk, green leaves (upper 2/3 of the leaves), and brown leaves (senesced leaves, lower 1/3). 'Dura Sweet' sweet sorghum was drill-seeded into a conventionally tilled or no-till seedbed on April 29 at a seeding rate of 60,000 seeds/A. Sorghum was harvested at the soft dough stage of development on September 4. Plant samples were then dried, ground, and analyzed for total nutrient content. Agronomic and sugar analysis results are presented in Table 10. Harvestable stalks ranged from 41,382 to 59,242 stalks/A. Plant height ranged from 127 – 143 in. Total biomass at harvest ranged from 26.8 to 41.4 tons/A, while stalk diameter ranged from 15.7 – 19.4 cm at the stalk base. Fermentable solids ranged from 3.1 – 4.7 tons/A. Fermentable solids in the NT-MF treatment (4.7 tons/A) was significantly higher than the CT-NF treatment (3.1 tons/A) and the CT-MF treatment (3.2 tons/A). No other significant differences in fermentable solids were observed for the four treatments.

Separate variety trials were conducted for Group III and early Group IV, mid/late Group IV, and Group V soybeans. The data is not included in this text; however, it can be found online at www.lsuagcenter.com. Soybean variety trials are conducted annually to evaluate the maturity group (Groups III – VI) and varietal response to the environmental and soil conditions in southwest Louisiana. In 2014, the varieties with the highest yield at the RRS location included Dyna-Gro S43RY95 (early Group IV; 72.0 bu/A), 47-R13 (mid/late Group IV; 77.7 bu/A), and AG 5533 (Group V; 86.6 bu/A).

Wheat varietal and experimental lines are evaluated annually. The top three yielding commercially available varieties at the Crowley location in 2014 were USG 3120 (96.1 bu/A), AGS 2035 (94.8 bu/A), and Pioneer 26R94 (93.8 bu/A). The full data set for the Crowley location, as well as from other locations, can be found online at www.lsuagcenter.com.

Grain sorghum hybrids are evaluated annually for their yield response. Twenty-nine entries were evaluated in 2014. The highest yielding grain sorghum hybrids at the Crowley location in 2014 were Pioneer 83P17, Dyna-Gro 765B, and DEKALB DKS51-01 with yields of 5979, 5936, and 5892 lb/A, respectively. The complete Crowley dataset, as well as the data from all other locations, can be found online at www.lsuagcenter.com.

Evaluation of Date of Planting on Non-Irrigated Soybeans in Southwest Louisiana

Experiment number	: 2014 Soybean DOP1
Site and design	:
Location/Cooperator	: Rice Research Station (South Unit)
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5 x 20 ft
Row width/rows per plot	: 15 in / 4
Soil type	: Crowley silt loam
% organic matter	: 2.25
pH	: 6.1
Extractable nutrients ppm	: Ca-1833; Cu-1.6; Mg-223; P-26.4; K-85.8; Na-31.7; S-11.3; Zn-4.8
Crop/Variety	: Soybeans / See data sheet
Planting method/date	: Drill-seeded / April 3
Seeding rate/depth	: 135,000 seed/A / .5 in
Emergence date	: April 14
Harvest date	: October 8
Seed treatment/cwt	: NA
Fertilization	: 235 lb/A 0-24-24-2.8, May 12
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.5 pt/A Dual Magnum, April 10 1.5 pt/A Dual Magnum, May 12 1 qt/A Glyphosate, May 13 1.5 pt/A Charger Max, May 27 1 pt/A Gramaxone Inteon + .0025% NIS + 4 oz/A Interlock, September 22
Insecticides	: 4 oz/A Mustang Max, August 13 2 oz/A Belt + .75 lb ai/A Acephate, August 25
Fungicides	: None

Evaluation of Date of Planting on Non-Irrigated Soybeans in Southwest Louisiana

Experiment number	2014 Soybean DOP2
Site and design	
Location/Cooperator	Rice Research Station (South Unit)
Tillage type..................................	Spring stale
Experimental design...................	Randomized complete block
Number of reps	4
Plot size..	5.33 x 20 ft
Row width/rows per plot............	16 in / 4
Soil type	Crowley silt loam
% organic matter........................	2.25
pH..	6.1
Extractable nutrients ppm..........	Ca-1833; Cu-1.6; Mg-223; P-26.4; K-85.8; Na-31.7; S-11.3; Zn-4.8
Crop/Variety	Soybeans / See data sheet
Planting method/date	Drill-seeded / April 23
Seeding rate/depth......................	135,000 seed/A / 1.25 in
Emergence date...........................	April 29
Harvest date	October 8
Seed treatment/cwt	NA
Fertilization..	235 lb/A 0-24-24-2.8, May 12
Water management	
Flush	NA
Flood	NA
Drain...	NA
Pest management...............................	
Herbicides....................................	1.5 pt/A Dual Magnum, May 12 1 qt/A Glyphosate, May 13 1.5 pt/A Charger Max, May 27 1 pt/A Gramaxone Inteon + .0025% NIS + 4 oz/A Interlock, September 22
Insecticides	4 oz/A Mustang Max, August 13 2 oz/A Belt + .75 lb ai/A Acephate, August 25
Fungicides	None

Evaluation of Date of Planting on Non-Irrigated Soybeans in Southwest Louisiana

Experiment number	2014 Soybean DOP3
Site and design	
Location/Cooperator	Rice Research Station (South Unit)
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	5 x 20 ft
Row width/rows per plot	15 in / 4
Soil type	Crowley silt loam
% organic matter	2.25
pH	6.1
Extractable nutrients ppm	Ca-1833; Cu-1.6; Mg-223; P-26.4; K-85.8; Na-31.7; S-11.3; Zn-4.8
Crop/Variety	Soybeans / See data sheet
Planting method/date	Drill-seeded / May 15
Seeding rate/depth	135,000 seed/A / 2 in
Emergence date	May 23
Harvest date	October 8
Seed treatment/cwt	NA
Fertilization	235 lb/A 0-24-24-2.8, May 22
Water management	
Flush	NA
Flood	NA
Drain	NA
Pest management	
Herbicides	1.5 pt/A Charger Max, May 27 1 pt/A Gramaxone Inteon + .0025% NIS + 4 oz/A Interlock, September 22
Insecticides	4 oz/A Mustang Max, August 13 2 oz/A Belt + .75 lb ai/A Acephate, August 25
Fungicides	None

Evaluation of Date of Planting on Non-Irrigated Soybeans in Southwest Louisiana

Experiment number	: 2014 Soybean DOP4
Site and design	:
Location/Cooperator	: Rice Research Station (South Unit)
Tillage type	: Spring stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5 x 20 ft
Row width/rows per plot	: 15 in / 4
Soil type	: Crowley silt loam
% organic matter	: 2.25
pH	: 6.1
Extractable nutrients ppm	: Ca-1833; Cu-1.6; Mg-223; P-26.4; K-85.8; Na-31.7; S-11.3; Zn-4.8
Crop/Variety	: Soybeans / See data sheet
Planting method/date	: Drill-seeded / June 6
Seeding rate/depth	: 135,000 seed/A / 2 in
Emergence date	: June 12
Harvest date	: October 8
Seed treatment/cwt	: NA
Fertilization	: 235 lb/A 0-24-24-2.8, May 22
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.5 pt/A Charger Max, May 27
	1.5 qt/A Glyphosate, July 27
	1 pt/A Gramaxone Inteon + .0025% NIS + 4 oz/A Interlock, September 22
Insecticides	: 4 oz/A Mustang Max, August 13
	2 oz/A Belt + .75 lb ai/A Acephate, August 25
Fungicides	: None

Evaluation of Date of Planting on Non-Irrigated Soybeans in Southwest Louisiana

Experiment number ....: 2014 Soybean DOP5

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (South Unit)
- **Tillage type**..................................: Spring stale
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 5 x 20 ft
- **Row width/rows per plot**............: 15 in / 4

Soil type ....: Crowley silt loam
- **% organic matter**........................: 2.25
- **pH**...: 6.1
- **Extractable nutrients** ppm..........: Ca-1833; Cu-1.6; Mg-223; P-26.4; K-85.8; Na-31.7; S-11.3; Zn-4.8

Crop/Variety ....: Soybeans / See data sheet
- **Planting method/date** ....: Drill-seeded / June 17
- **Seeding rate/depth**......................: 135,000 seed/A / 1.25 in
- **Emergence date**...........................: June 22
- **Harvest date** ....: October 8

Seed treatment/cwt ....: NA

Fertilization..: 235 lb/A 0-24-24-2.8, May 22

Water management ....:
- **Flush** ....: NA
- **Flood** ....: NA
- **Drain**...: NA

Pest management...............................:
- **Herbicides**....................................: 1.5 pt/A Charger Max, May 27
  1.5 qt/A Glyphosate, July 27
  1 pt/A Gramaxone Inteon + .0025% NIS + 4 oz/A Interlock, September 22
- **Insecticides** ....: 4 oz/A Mustang Max, August 13
  2 oz/A Belt + .75 lb ai/A Acephate, August 25
- **Fungicides** ....: None

Table 1. Evaluation of date of planting on non-irrigated soybeans in southwest Louisiana (RRS.2). Rice Research Station.

Crop Name		Soybeans		Soybeans		Soybeans		Soybeans		Soybean	
Rating Date				10/2/2014		10/6/2014		10/6/2014		10/6/2014	
Rating Type		Maturity		Height		Moisture		Test Wt.		Yield	
Rating Unit		days		in		%		lb/bu		bu/A	
Trt. No.	Trt. Name										
TABLE OF R MEANS											
Replicate 1		115		24.9		16.9		47.2		39.5	
Replicate 2		113		23.0		15.7		46.6		42.3	
Replicate 3		113		24.0		15.2		48.6		44.8	
Replicate 4		113		25.0		16.5		49.3		42.5	
TABLE OF A (Date of Planting) MEANS											
1	DOP-1_April 3	.	d	16.1	d	15.6	b	43.5	b	10.4	d
2	DOP-2_April 23	.	d	24.2	c	20.6	a	47.1	ab	26.4	c
3	DOP-3_May 15	124	a	27.5	a	14.2	b	49.8	a	62.9	a
4	DOP-4_June 6	111	b	26.1	b	14.8	b	49.6	a	54.7	b
5	DOP-5_June 17	105	c	27.1	ab	15.1	b	49.7	a	57.0	b
TABLE OF B (Group/Variety) MEANS											
1	Pioneer 93Y92 (3.9)	108	g	22.6	de	16.1	bcd	49.6	a	31.0	e
2	Terral REV 38R10 (3.8)	110	f	22.5	de	16.6	abc	49.4	a	31.0	e
4	Asgrow 3931 (3.9)	109	fg	24.2	cd	16.0	b-e	49.8	a	32.1	e
3	Dyna-Gro 39RY43 (4.3)	113	cd	22.5	de	16.7	abc	46.5	ab	35.1	e
8	Asgrow 4632 (4.6)	114	c	28.0	a	17.1	abc	48.2	ab	43.2	d
6	Terral REV 47R53 (4.7)	112	e	25.7	bc	18.2	a	48.5	ab	44.6	cd
7	Dyna-Gro S47RY13 (4.7)	116	b	27.7	a	15.6	cde	48.8	ab	45.3	cd
5	Pioneer 94Y82 (4.8)	113	de	26.5	ab	17.5	ab	48.5	ab	45.9	cd
9	Terral REV 52A94 (5.2)	112	e	19.7	f	12.8	f	45.1	ab	46.8	bcd
11	Asgrow 5332 (5.3)	119	a	26.7	ab	17.3	abc	49.2	ab	49.1	abc
12	Dyna-Gro 32Y55	118	a	21.5	ef	14.3	ef	44.6	b	51.0	ab
10	Dyna-Gro S56RY84 (5.6)	118	a	23.0	de	14.6	def	46.8	ab	52.3	a

Continued.

Table 1. Continued.

Crop Name		Soybeans		Soybeans		Soybeans		Soybeans		Soybean	
Rating Date				10/2/2014		10/6/2014		10/6/2014		10/6/2014	
Rating Type		Maturity		Height		Moisture		Test Wt.		Yield	
Rating Unit		days		in		%		lb/bu		bu/A	
Trt. No.	Trt. Name										
TABLE OF A (DOP) B (Group/Variety) MEANS											
1 1	DOP-1_April 3 Pioneer 93Y92 (3.9)	.	s	15.0	uv	10.3	o-r	54.3	a	3.5	p
2 1	DOP-2_April 23 Pioneer 93Y92 (3.9)	.	s	22.8	m-p	24.4	b-e	45.8	abc	9.9	op
3 1	DOP-3_May 15 Pioneer 93Y92 (3.9)	121	ef	24.5	j-n	14.9	j-n	49.3	a	43.3	jk
4 1	DOP-4_June 6 Pioneer 93Y92 (3.9)	104	q	25.5	h-m	15.4	j-n	49.4	a	46.1	h-k
5 1	DOP-5_June 17 Pioneer 93Y92 (3.9)	100	r	25.3	h-m	15.5	i-n	49.3	a	52.4	g-j
1 2	DOP-1_April 3 Terral REV 38R10 (3.8)	.	s	15.5	tuv	12.4	m-q	52.5	a	4.5	p
2 2	DOP-2_April 23 Terral REV 38R10 (3.8)	.	s	20.8	pqr	23.3	c-f	45.9	abc	8.3	op
3 2	DOP-3_May 15 Terral REV 38R10 (3.8)	123	de	25.0	i-m	13.5	l-p	50.0	a	45.6	ijk
4 2	DOP-4_June 6 Terral REV 38R10 (3.8)	106	pq	26.0	g-l	14.6	k-o	49.7	a	52.6	f-j
5 2	DOP-5_June 17 Terral REV 38R10 (3.8)	100	r	25.0	i-m	19.2	f-j	48.8	a	43.9	ijk
1 3	DOP-1_April 3 Dyna-Gro 39RY43 (4.3)	.	s	13.5	v	11.6	n-q	38.2	bc	2.2	p
2 3	DOP-2_April 23 Dyna-Gro 39RY43 (4.3)	.	s	23.0	l-p	28.2	ab	45.8	abc	7.0	op
3 3	DOP-3_May 15 Dyna-Gro 39RY43 (4.3)	127	bc	25.3	h-m	14.8	j-n	49.2	a	55.4	e-j
4 3	DOP-4_June 6 Dyna-Gro 39RY43 (4.3)	108	no	24.3	j-n	14.4	k-p	49.8	a	56.0	e-i
5 3	DOP-5_June 17 Dyna-Gro 39RY43 (4.3)	105	pq	26.5	g-k	14.4	l-p	49.8	a	55.0	e-j
1 4	DOP-1_April 3 Asgrow 3931 (3.9)	.	s	13.8	v	10.0	pqr	54.3	a	3.2	p
2 4	DOP-2_April 23 Asgrow 3931 (3.9)	.	s	24.0	k-o	26.6	abc	45.7	abc	10.1	op
3 4	DOP-3_May 15 Asgrow 3931 (3.9)	122	def	26.8	f-k	14.1	l-p	49.6	a	51.2	g-j
4 4	DOP-4_June 6 Asgrow 3931 (3.9)	105	q	28.0	c-i	14.6	k-o	49.6	a	44.7	ijk
5 4	DOP-5_June 17 Asgrow 3931 (3.9)	100	r	28.3	b-h	14.4	k-o	49.7	a	51.4	g-j
1 5	DOP-1_April 3 Pioneer 94Y82 (4.8)	.	s	17.5	stu	25.4	a-d	45.9	abc	17.4	mno
2 5	DOP-2_April 23 Pioneer 94Y82 (4.8)	.	s	27.8	d-i	18.8	g-k	47.0	ab	27.7	lm
3 5	DOP-3_May 15 Pioneer 94Y82 (4.8)	123	de	31.0	abc	14.1	l-p	49.9	a	68.6	bcd
4 5	DOP-4_June 6 Pioneer 94Y82 (4.8)	110	klm	26.3	g-k	15.0	j-n	49.5	a	52.9	f-j
5 5	DOP-5_June 17 Pioneer 94Y82 (4.8)	105	pq	29.8	a-f	14.3	l-p	50.0	a	63.1	b-g

Continued.

Table 1. Continued.

Crop Name		Soybeans		Soybeans		Soybeans		Soybeans		Soybean	
Rating Date				10/2/2014		10/6/2014		10/6/2014		10/6/2014	
Rating Type		Maturity		Height		Moisture		Test Wt.		Yield	
Rating Unit		days		in		%		lb/bu		bu/A	
Trt. No.	Trt. Name										
TABLE OF A (DOP) B (Group/Variety) MEANS											
1 6	DOP-1_April 3 Terral REV 47R53 (4.7)	.	s	18.3	rst	29.2	a	45.4	abc	8.8	op
2 6	DOP-2_April 23 Terral REV 47R53 (4.7)	.	s	25.3	h-m	19.1	f-j	47.3	ab	30.3	l
3 6	DOP-3_May 15 Terral REV 47R53 (4.7)	121	fg	30.0	a-e	14.1	l-p	49.9	a	66.5	b-e
4 6	DOP-4_June 6 Terral REV 47R53 (4.7)	110	klm	26.8	f-k	14.5	k-o	49.8	a	55.7	e-i
5 6	DOP-5_June 17 Terral REV 47R53 (4.7)	105	pq	28.3	b-h	14.2	l-p	50.1	a	61.8	b-g
1 7	DOP-1_April 3 Dyna-Gro S47RY13 (4.7)	.	s	18.5	rst	15.2	j-n	46.9	ab	8.6	op
2 7	DOP-2_April 23 Dyna-Gro S47RY13 (4.7)	.	s	26.8	f-k	20.3	e-h	47.3	ab	27.8	lm
3 7	DOP-3_May 15 Dyna-Gro S47RY13 (4.7)	126	c	31.5	a	14.5	k-o	49.6	a	68.9	bcd
4 7	DOP-4_June 6 Dyna-Gro S47RY13 (4.7)	114	j	31.3	ab	14.2	l-p	49.9	a	59.1	c-g
5 7	DOP-5_June 17 Dyna-Gro S47RY13 (4.7)	107	op	30.3	a-e	13.8	l-p	50.3	a	61.8	b-g
1 8	DOP-1_April 3 Asgrow 4632 (4.6)	.	s	18.5	rst	19.9	f-i	46.0	abc	8.6	op
2 8	DOP-2_April 23 Asgrow 4632 (4.6)	.	s	28.0	c-i	21.1	d-g	46.7	ab	23.9	lmn
3 8	DOP-3_May 15 Asgrow 4632 (4.6)	124	d	30.5	a-d	14.5	k-o	49.5	a	64.7	b-f
4 8	DOP-4_June 6 Asgrow 4632 (4.6)	112	k	31.3	ab	15.8	i-n	49.0	a	59.7	c-g
5 8	DOP-5_June 17 Asgrow 4632 (4.6)	107	op	31.8	a	14.2	l-p	50.0	a	58.9	c-g
1 9	DOP-1_April 3 Terral REV 52A94 (5.2)	.	s	15.0	uv	6.1	r	26.9	d	14.2	nop
2 9	DOP-2_April 23 Terral REV 52A94 (5.2)	.	s	19.3	qrs	15.1	j-n	48.8	a	30.4	l
3 9	DOP-3_May 15 Terral REV 52A94 (5.2)	119	gh	22.5	m-p	14.0	l-p	50.0	a	73.0	ab
4 9	DOP-4_June 6 Terral REV 52A94 (5.2)	112	kl	19.3	qrs	14.3	l-p	49.9	a	58.1	c-h
5 9	DOP-5_June 17 Terral REV 52A94 (5.2)	105	pq	22.5	m-p	14.6	k-o	49.8	a	58.3	c-h
1 10	DOP-1_April 3 Dyna-Gro S56RY84 (5.6)	.	s	15.5	tuv	12.7	m-p	36.2	cd	23.1	lmn
2 10	DOP-2_April 23 Dyna-Gro S56RY84 (5.6)	.	s	24.0	k-o	16.2	h-m	48.8	a	53.5	f-j
3 10	DOP-3_May 15 Dyna-Gro S56RY84 (5.6)	129	ab	25.0	i-m	14.0	l-p	50.0	a	70.2	bc
4 10	DOP-4_June 6 Dyna-Gro S56RY84 (5.6)	117	i	24.5	j-n	15.0	j-n	49.5	a	54.1	f-j
5 10	DOP-5_June 17 Dyna-Gro S56RY84 (5.6)	109	mn	26.0	g-l	15.0	j-n	49.7	a	60.5	c-g

Continued.

Table 1. Continued.

Crop Name		Soybeans		Soybeans		Soybeans		Soybeans		Soybean	
Rating Date				10/2/2014		10/6/2014		10/6/2014		10/6/2014	
Rating Type		Maturity		Height		Moisture		Test Wt.		Yield	
Rating Unit		days		in		%		lb/bu		bu/A	
Trt. No.	Trt. Name										
TABLE OF A (DOP) B (Group/Variety) MEANS											
1	DOP-1_April 3	.	s	17.0	stu	26.3	abc	48.5	a	5.1	p
11	Asgrow 5332 (5.3)										
2	DOP-2_April 23	.	s	27.3	e-j	17.1	g-l	48.0	ab	34.9	kl
11	Asgrow 5332 (5.3)										
3	DOP-3_May 15	129	a	31.5	a	14.1	l-p	50.0	a	82.9	a
11	Asgrow 5332 (5.3)										
4	DOP-4_June 6	118	hi	28.8	a-g	14.3	l-p	49.9	a	64.7	b-f
11	Asgrow 5332 (5.3)										
5	DOP-5_June 17	110	lm	28.8	a-g	14.9	j-n	49.6	a	57.9	d-h
11	Asgrow 5332 (5.3)										
1	DOP-1_April 3	.	s	15.8	tuv	8.3	qr	26.7	d	25.5	lmn
12	Dyna-Gro 32Y55										
2	DOP-2_April 23	.	s	21.8	n-q	16.8	g-m	48.3	a	53.0	f-j
12	Dyna-Gro 32Y55										
3	DOP-3_May 15	128	abc	26.0	g-l	14.0	l-p	49.9	a	64.7	b-f
12	Dyna-Gro 32Y55										
4	DOP-4_June 6	117	i	21.0	o-r	15.8	i-n	49.3	a	52.3	g-j
12	Dyna-Gro 32Y55										
5	DOP-5_June 17	110	lm	22.8	m-p	16.5	h-m	48.9	a	59.4	c-g
12	Dyna-Gro 32Y55										

Figure 1. Main effect of date of planting on soybean yield pooled over all varieties. Rice Research Station, 2014.

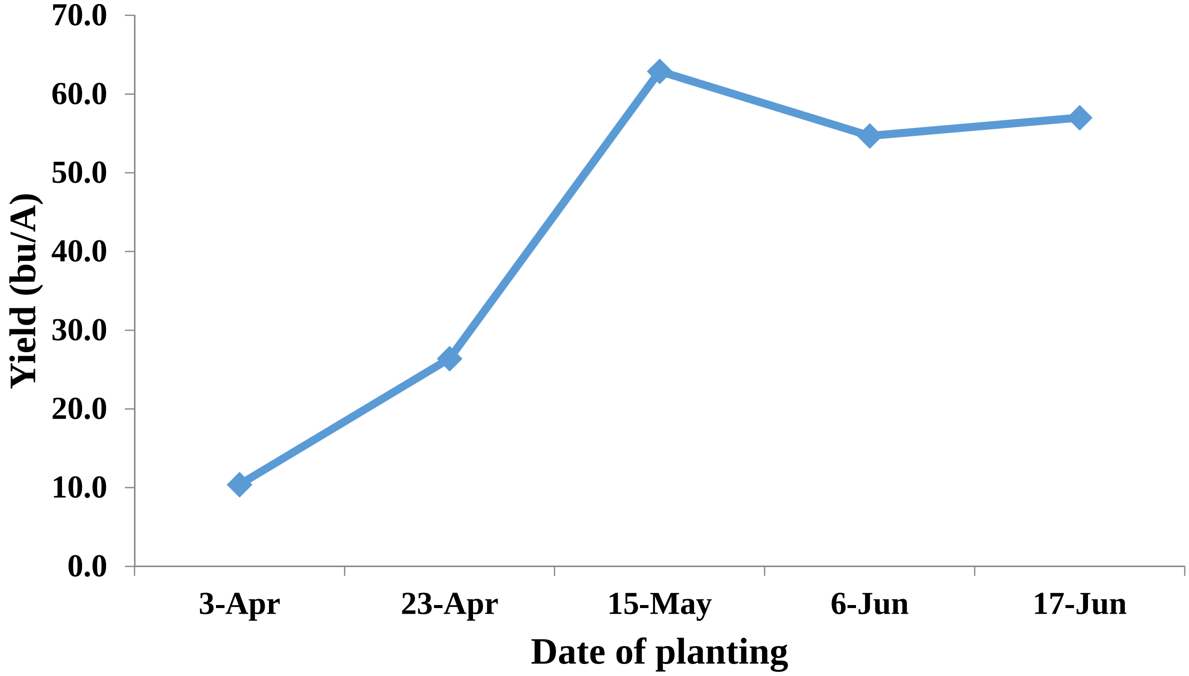
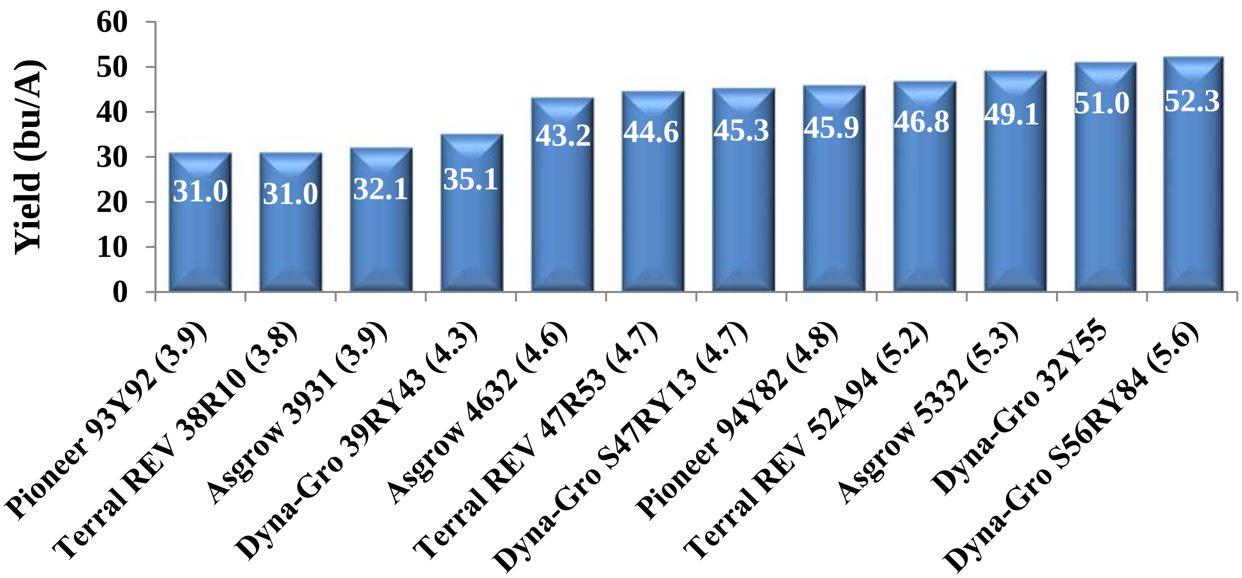


Figure 2. Main effect of variety on soybean yield when pooled over five dates of planting. Rice Research Station, 2014.



Evaluation of Soybean Response to K Rate

Experiment number	: 14-KL-Soy01
Site and design	:
Location/Cooperator	: Evangeline Parish
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5 x 20 ft
Row width/rows per plot	: 15 in / 4
Soil type	: Mowata silt loam
% organic matter	: CUT – 0.8 MID – 1.3 FILL – 1.5
pH	: CUT – 6.2 MID – 5.2 FILL – 5.7
Extractable nutrients ppm	: CUT – Ca-763; Cu-0.9; Mg-298; P-2.4; K-37; Na-80; S-12.6; Zn-1.0 MID – Ca-1270; Cu-1.5; Mg-417; P-7.3; K-58; Na-67; S-14; Zn-1.1 FILL – Ca-636; Cu-1.0; Mg-209; P-7.2; K-50; Na-50; S-15.1; Zn-0.8
Crop/Variety	: Soybean / TV REV 5153
Planting method/date	: Drill-seeded into CUT area/ May 19
Seeding rate/depth	: 135,000 seed/A / 1.5 in
Emergence date	: May 27
Harvest date	: October 8
Seed treatment/cwt	: NA
Fertilization	: See data sheet
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.5 qt/A Glyphosate + 1.5 pt/A Charger Max, June 5 1 pt/A Gramoxone Inteon + 0.25% NIS + 4 oz/A Interlock, September 24
Insecticides	: 1 lb ai/A Acephate, September 27
Fungicides	: None

Table 2. Evaluation of soybean response to K rate (KL.2). Evangeline Parish.

Crop Name					Soybeans	Soybeans	Soybeans	Soybeans	Soybeans
Description					Maturity	Maturity	Plant Height	Test Wt.	Yield
Rating Date							10/6/2014	10/8/2014	10/8/2014
Rating Type					plant-R8	Emerg-R8			
Rating Unit					days	days	in	lb/bu	bu/A
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	0 lb K_2O	0	lb ai/A	ATPLAN	149 b	143 b	24 a	49.2 a	22.8 b
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN					
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
2	30 lb K_2O	30	lb ai/A	ATPLAN	150 ab	144 ab	23 a	49.2 a	23.1 b
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN					
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
3	60 lb K_2O	60	lb ai/A	ATPLAN	150 a	144 a	24 a	49.1 a	29.6 b
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN					
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
4	90 lb K_2O	90	lb ai/A	ATPLAN	151 a	145 a	24 a	49.2 a	38.6 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN					
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
5	120 lb K_2O	120	lb ai/A	ATPLAN	151 a	145 a	24 a	49.2 a	40.2 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN					
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
6	150 lb K_2O	150	lb ai/A	ATPLAN	151 a	145 a	26 a	49.1 a	44.2 a
	TSP (60 lb P_2O_5)	60	lb ai/A	ATPLAN					
	$ZnSO_4$ (15 lb Zn/A)	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
LSD P=.05					1.50	1.50	2.60	0.25	7.86
Standard Deviation					1.00	1.00	1.70	0.16	5.10
CV					0.67	0.69	7.21	0.33	15.42
Replicate F					1.17	1.17	2.45	0.06	3.41
Replicate Prob(F)					0.36	0.36	0.10	0.98	0.05
Treatment F					3.47	3.47	1.18	0.65	13.05
Treatment Prob(F)					0.0279	0.0279	0.3656	0.6644	0.0002

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of K Time of Application on Soybean Yield

Experiment number ....: 14-KL-Soy02

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish
- **Tillage type** ....: Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 5 x 20 ft
- **Row width/rows per plot** ....: 15 in / 4

Soil type ....: Mowata silt loam
- **% organic matter** ....: CUT – 0.8
MID – 1.3
FILL – 1.5
- **pH** ....: CUT – 6.2
MID – 5.2
FILL – 5.7
- **Extractable nutrients** ppm..........: CUT – Ca-763; Cu-0.9; Mg-298; P-2.4; K-37; Na-80; S-12.6; Zn-1.0
MID – Ca-1270; Cu-1.5; Mg-417; P-7.3; K-58; Na-67; S-14; Zn-1.1
FILL – Ca-636; Cu-1.0; Mg-209; P-7.2; K-50; Na-50; S-15.1; Zn-0.8

Crop/Variety ....: Soybean / TV REV 5153
- **Planting method/date** ....: Drill-seeded into CUT area/ May 19
- **Seeding rate/depth** ....: 135,000 seed/A / 1.5 in
- **Emergence date** ....: May 27
- **Harvest date** ....: October 8

Seed treatment/cwt ....: NA

Fertilization ....: See data sheet

Water management ....:
- **Flush** ....: NA
- **Flood** ....: NA
- **Drain** ....: NA

Pest management ....:
- **Herbicides** ....: 1.5 qt/A Glyphosate + 1.5 pt/A Charger Max, June 5
1 pt/A Gramoxone Inteon + 0.25% NIS + 4 oz/A Interlock, September 24
- **Insecticides** ....: 1 lb ai/A Acephate, September 27
- **Fungicides** ....: None

Table 3. Evaluation of K time of application on soybean yield (KL.1). Evangeline Parish.

Crop Name					Soybeans		Soybeans		Soybeans		Soybeans		Soybeans	
Description					Maturity		Maturity		Plant Height		Test Wt.		Yield	
Rating Date									10/6/2014		10/8/2014		10/8/2014	
Rating Type					plant-R8		Emerg-R8							
Rating Unit					days		days		in		lb/bu		bu/A	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage										
1	Untreated Check	0	lb ai/A		148	a	142	a	24	a	49.2	a	30.0	c
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
2	Muriate of Potash 0-0-60	120	lb ai/A	ATPLAN	150	a	144	a	26	a	49.2	a	41.1	ab
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
3	Muriate of Potash 0-0-60	120	lb ai/A	V1	149	a	143	a	27	a	49.3	a	44.6	ab
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
4	Muriate of Potash 0-0-60	120	lb ai/A	V3	149	a	143	a	25	a	49.2	a	43.2	ab
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
5	Muriate of Potash 0-0-60	120	lb ai/A	V5	149	a	143	a	27	a	49.2	a	38.2	bc
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
6	Muriate of Potash 0-0-60	120	lb ai/A	R1	150	a	144	a	25	a	49.1	a	43.1	ab
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
7	Muriate of Potash 0-0-60	120	lb ai/A	R3	150	a	144	a	25	a	49.3	a	44.4	ab
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
8	Muriate of Potash 0-0-60	120	lb ai/A	R5	150	a	144	a	25	a	49.2	a	48.2	a
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
9	Muriate of Potash 0-0-60	120	lb ai/A	R6	150	a	144	a	24	a	49.1	a	38.8	bc
	60 lb P_2O_5/A	60	lb ai/A	ATPLAN										
	15 lb Zn/A	15	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
LSD P=.05					1.40		1.40		3.10		0.31		8.90	
Standard Deviation					0.90		0.90		2.10		0.21		6.06	
CV					0.63		0.66		8.40		0.43		14.66	
Replicate F					7.08		7.08		2.08		0.26		2.11	
Replicate Prob(F)					0.00		0.00		0.13		0.85		0.13	
Treatment F					1.59		1.59		1.08		0.52		2.98	
Treatment Prob(F)					0.1813		0.1813		0.4122		0.8270		0.0214	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Soybean Response to P Rate

Experiment number	: 14-KL-Soy03
Site and design	:
Location/Cooperator	: Evangeline Parish
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5 x 20 ft
Row width/rows per plot	: 15 in / 4
Soil type	: Mowata silt loam
% organic matter	: CUT – 0.8 MID – 1.3 FILL – 1.5
pH	: CUT – 6.2 MID – 5.2 FILL – 5.7
Extractable nutrients ppm..........	: CUT – Ca-763; Cu-0.9; Mg-298; P-2.4; K-37; Na-80; S-12.6; Zn-1.0 MID – Ca-1270; Cu-1.5; Mg-417; P-7.3; K-58; Na-67; S-14; Zn-1.1 FILL – Ca-636; Cu-1.0; Mg-209; P-7.2; K-50; Na-50; S-15.1; Zn-0.8
Crop/Variety	: Soybean / TV REV 5153
Planting method/date	: Drill-seeded into CUT area/ May 19
Seeding rate/depth	: 135,000 seed/A / 1.5 in
Emergence date	: May 27
Harvest date	: October 8
Seed treatment/cwt	: NA
Fertilization	: See data sheet
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.5 qt/A Glyphosate + 1.5 pt/A Charger Max, June 5 1 pt/A Gramoxone Inteon + 0.25% NIS + 4 oz/A Interlock, September 24
Insecticides	: 1 lb ai/A Acephate, September 27
Fungicides	: None

Table 4. Evaluation of soybean response to P rate applied at planting (KL.1). Evangeline Parish.

Crop Name				Soybeans		Soybeans		Soybeans		Soybeans		Soybeans	
Description				Maturity		Maturity		Plant Height		Test Wt.		Yield	
Rating Date								10/6/2014		10/8/2014		10/8/2014	
Rating Type				plant-R8		Emerg-R8							
Rating Unit				days		days		in		lb/bu		lb/bu	
Trt. No.	Trt. Name	Rate	Rate Unit										
1	0 lb P_2O_5	0	lb ai/A	149.8	a	143.8	a	24.0	b	49.1	a	34.2	c
	60 lb K_2O	60	lb ai/A										
	15 lb Zn	15	lb ai/A										
	100 lb ammonium sulfate	100	lb/A										
2	30 lb P_2O_5	30	lb ai/A	149.8	a	143.8	a	24.3	b	49.1	a	41.5	bc
	15 lb Zn	15	lb ai/A										
	60 lb K_2O	60	lb ai/A										
	100 lb ammonium sulfate	100	lb/A										
3	60 lb P_2O_5	60	lb ai/A	149.8	a	143.8	a	26.0	ab	49.4	a	48.0	ab
	15 lb Zn	15	lb ai/A										
	60 lb K_2O	60	lb ai/A										
	100 lb ammonium sulfate	100	lb/A										
4	90 lb P_2O_5	90	lb ai/A	150.0	a	144.0	a	27.3	a	49.3	a	49.4	ab
	15 lb Zn	15	lb ai/A										
	60 lb K_2O	60	lb ai/A										
	100 lb ammonium sulfate	100	lb/A										
5	120 lb P_2O_5	120	lb ai/A	150.0	a	144.0	a	27.3	a	48.6	a	49.9	ab
	15 lb Zn	15	lb ai/A										
	60 lb K_2O	60	lb ai/A										
	100 lb ammonium sulfate	100	lb/A										
6	150 lb P_2O_5	150	lb ai/A	150.0	a	144.0	a	26.8	a	49.3	a	52.9	a
	15 lb Zn	15	lb ai/A										
	60 lb K_2O	60	lb ai/A										
	100 lb ammonium sulfate	100	lb/A										
LSD P=.05				0.52		0.52		2.18		0.89		9.49	
Standard Deviation				0.35		0.35		1.45		0.59		6.30	
CV				0.23		0.24		5.59		1.20		13.69	
Replicate F				12.44		12.44		4.37		1.71		5.01	
Replicate Prob(F)				0.00		0.00		0.02		0.21		0.01	
Treatment F				0.63		0.63		4.08		0.96		4.79	
Treatment Prob(F)				0.6813		0.6813		0.0154		0.4738		0.0082	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of P Timing on Soybean Yield

Experiment number	: 14-KL-Soy04
Site and design	:
Location/Cooperator	: Evangeline Parish
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5 x 20 ft
Row width/rows per plot	: 15 in / 4
Soil type	: Mowata silt loam
% organic matter	: CUT – 0.8 MID – 1.3 FILL – 1.5
pH	: CUT – 6.2 MID – 5.2 FILL – 5.7
Extractable nutrients ppm	: CUT – Ca-763; Cu-0.9; Mg-298; P-2.4; K-37; Na-80; S-12.6; Zn-1.0 MID – Ca-1270; Cu-1.5; Mg-417; P-7.3; K-58; Na-67; S-14; Zn-1.1 FILL – Ca-636; Cu-1.0; Mg-209; P-7.2; K-50; Na-50; S-15.1; Zn-0.8
Crop/Variety	: Soybean / TV REV 5153
Planting method/date	: Drill-seeded into CUT area/ May 19
Seeding rate/depth	: 135,000 seed/A / 1.5 in
Emergence date	: May 27
Harvest date	: October 8
Seed treatment/cwt	: NA
Fertilization	: See data sheet
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.5 qt/A Glyphosate + 1.5 pt/A Charger Max, June 5 1 pt/A Gramoxone Inteon + 0.25% NIS + 4 oz/A Interlock, September 24
Insecticides	: 1 lb ai/A Acephate, September 27
Fungicides	: None

Table 5. Evaluation of P timing on soybean yield (KL.1). Evangeline Parish.

Crop Name					Soybeans	Soybeans	Soybeans	Soybeans	Soybeans
Description					Maturity	Maturity	Plant Height	Test Wt.	Yield
Rating Date							10/6/2014	10/8/2014	10/8/2014
Rating Type					plant-R8	Emerg-R8			
Rating Unit					days	days	in	lb/bu	bu/A
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage					
1	Untreated Check	0	lb ai/A		150 a	144 a	22 c	49.1 a	27.8 b
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
2	TSP	120	lb ai/A	ATPLAN	150 a	144 a	27 a	49.5 a	45.8 a
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
3	TSP	120	lb ai/A	V1	150 a	144 a	25 ab	49.3 a	42.6 a
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
4	TSP	120	lb ai/A	V3	150 a	144 a	25 ab	49.3 a	42.8 a
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
5	TSP	120	lb ai/A	V5	150 a	144 a	27 a	49.3 a	46.4 a
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
6	TSP	120	lb ai/A	R1	150 a	144 a	26 ab	49.3 a	41.4 a
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
7	TSP	120	lb ai/A	R3	150 a	144 a	23 bc	49.3 a	40.7 a
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
8	TSP	120	lb ai/A	R5	150 a	144 a	26 a	49.3 a	44.9 a
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
9	TSP	120	lb ai/A	R6	150 a	144 a	23 bc	49.2 a	30.4 b
	60 lb K_2O	60	lb ai/A	ATPLAN					
	15 lb Zn	15	lb ai/A	ATPLAN					
	100 lb ammonium sulfate	100	lb/A	ATPLAN					
LSD P=.05					0.60	0.60	2.70	0.19	7.90
Standard Deviation					0.40	0.40	1.90	0.13	5.40
CV					0.25	0.27	7.49	0.27	13.40
Replicate F					6.29	6.29	16.52	2.63	21.48
Replicate Prob(F)					0.00	0.00	0.00	0.07	0.00
Treatment F					1.19	1.19	3.74	2.24	6.10
Treatment Prob(F)					0.3453	0.3453	0.0057	0.0609	0.0003

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Soybean Response to Zn Rate

Experiment number	14-KL-Soy05
Site and design	
Location/Cooperator	Evangeline Parish
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	5 x 20 ft
Row width/rows per plot	15 in / 4
Soil type	Mowata silt loam
% organic matter	CUT – 0.8 MID – 1.3 FILL – 1.5
pH	CUT – 6.2 MID – 5.2 FILL – 5.7
Extractable nutrients ppm	CUT – Ca-763; Cu-0.9; Mg-298; P-2.4; K-37; Na-80; S-12.6; Zn-1.0 MID – Ca-1270; Cu-1.5; Mg-417; P-7.3; K-58; Na-67; S-14; Zn-1.1 FILL – Ca-636; Cu-1.0; Mg-209; P-7.2; K-50; Na-50; S-15.1; Zn-0.8
Crop/Variety	Soybean / TV REV 5153
Planting method/date	Drill-seeded into CUT area/ May 19
Seeding rate/depth	135,000 seed/A / 1.5 in
Emergence date	May 27
Harvest date	October 8
Seed treatment/cwt	NA
Fertilization	See data sheet
Water management	
Flush	NA
Flood	NA
Drain	NA
Pest management	
Herbicides	1.5 qt/A Glyphosate + 1.5 pt/A Charger Max, June 5 1 pt/A Gramoxone Inteon + 0.25% NIS + 4 oz/A Interlock, September 24
Insecticides	1 lb ai/A Acephate, September 27
Fungicides	None

Table 6. Evaluation of soybean response to Zn rate (KL.1). Evangeline Parish.

Crop Name					Soybeans		Soybeans		Soybeans		Soybeans		Soybeans	
Description					Maturity		Maturity		Plant Height		Test Wt.		Yield	
Rating Date									10/6/2014		10/8/2014		10/8/2014	
Rating Type					plant-R8		Emerg-R8							
Rating Unit					days		days		in		lb/bu		bu/A	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage										
1	0 Zn	0	lb ai/A		150	a	144	a	27	a	49.4	a	44.3	a
	60 lb K_2O	60	lb ai/A	ATPLAN										
	60 lb P_2O_5	60	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
2	5 lb Zn/A	5	lb ai/A	ATPLAN	149	a	143	a	26	a	49.4	a	43.1	a
	60 lb K_2O	60	lb ai/A	ATPLAN										
	60 lb P_2O_5	60	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
3	7.5 lb Zn/A	7.5	lb ai/A	ATPLAN	150	a	144	a	28	a	49.5	a	44.8	a
	60 lb K_2O	60	lb ai/A	ATPLAN										
	60 lb P_2O_5	60	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
4	10 lb Zn/A	10	lb ai/A	ATPLAN	149	a	143	a	26	a	49.2	a	45.5	a
	60 lb K_2O	60	lb ai/A	ATPLAN										
	60 lb P_2O_5	60	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
5	15lb Zn/A	15	lb ai/A	ATPLAN	150	a	144	a	26	a	49.4	a	38.0	a
	60 lb K_2O	60	lb ai/A	ATPLAN										
	60 lb P_2O_5	60	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
6	20 lb Zn/A	20	lb ai/A	ATPLAN	150	a	144	a	27	a	49.2	a	43.5	a
	60 lb K_2O	60	lb ai/A	ATPLAN										
	60 lb P_2O_5	60	lb ai/A	ATPLAN										
	100 lb ammonium sulfate	100	lb/A	ATPLAN										
LSD P=.05					0.70		0.70		3.30		0.31		9.32	
Standard Deviation					0.50		0.50		2.20		0.21		6.18	
CV					0.33		0.34		8.25		0.42		14.31	
Replicate F					0.46		0.46		2.40		0.97		6.48	
Replicate Prob(F)					0.72		0.72		0.11		0.43		0.01	
Treatment F					1.64		1.64		0.43		1.92		0.76	
Treatment Prob(F)					0.2107		0.2107		0.8210		0.1498		0.5941	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Soybean Response to Avail-Treated MAP

Experiment number	: 14-KL-Soy06
Site and design	:
Location/Cooperator	: Evangeline Parish
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5 x 20 ft
Row width/rows per plot	: 15 in / 4
Soil type	: Mowata silt loam
% organic matter	: CUT – 0.8
	MID – 1.3
	FILL – 1.5
pH	: CUT – 6.2
	MID – 5.2
	FILL – 5.7
Extractable nutrients ppm	: CUT – Ca-763; Cu-0.9; Mg-298; P-2.4; K-37; Na-80; S-12.6; Zn-1.0
	MID – Ca-1270; Cu-1.5; Mg-417; P-7.3; K-58; Na-67; S-14; Zn-1.1
	FILL – Ca-636; Cu-1.0; Mg-209; P-7.2; K-50; Na-50; S-15.1; Zn-0.8
Crop/Variety	: Soybean / TV REV 5153
Planting method/date	: Drill-seeded into Fill area/ May 19
Seeding rate/depth	: 135,000 seed/A / 1.5 in
Emergence date	: May 27
Harvest date	: October 8
Seed treatment/cwt	: NA
Fertilization	: See data sheet
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.5 qt/A Glyphosate + 1.5 pt/A Charger Max, June 5
	1 pt/A Gramoxone Inteon + 0.25% NIS + 4 oz/A Interlock, September 24
Insecticides	: 1 lb ai/A Acephate, September 27
Fungicides	: None

Table 7. Evaluation of soybean response to Avail-treated MAP (KL.1). Evangeline Parish.

Crop Name					Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans
Description					Maturity	Maturity		Plant Height	Moisture	Test Wt.	Yield
Rating Date								10/6/2014			
Rating Type					plant-R8	Emerg-R8					
Rating Unit					days	days	Pop/A	in	%	lb/bu	bu/A
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage							
1	0 P_2O_5	0	lb ai/A	AT PLAN	150 a	144 a	58806 a	23.3 a	14.7 a	49.6 a	39.3 a
	60 lb K_2O	60	lb ai/A	ATPLAN							
	15 lb Zn	15	lb ai/A	ATPLAN							
2	60 lb P_2O_5 (untreated-MAP)	60	lb ai/A	AT PLAN	150 a	144 a	61420 a	23.5 a	14.6 a	49.7 a	36.4 a
	60 lb K_2O	60	lb ai/A	ATPLAN							
	15 lb Zn	15	lb ai/A	ATPLAN							
3	60 lb P_2O_5 (Avail-MAP)	60	lb ai/A	AT PLAN	150 a	144 a	43560 a	24.3 a	16.2 a	49.0 a	39.0 a
	60 lb K_2O	60	lb ai/A	ATPLAN							
	15 lb Zn	15	lb ai/A	ATPLAN							
LSD P=.05					.	.	34858.32	4.27	3.62	1.57	14.31
Standard Deviation					0.00	0.00	20146.66	2.47	2.09	0.90	8.27
CV					0.00	0.00	36.90	10.42	13.80	1.83	21.64
Replicate F					0.00	0.00	0.56	2.96	0.86	1.01	0.94
Replicate Prob(F)					1.00	1.00	0.66	0.12	0.51	0.45	0.48
Treatment F					0.00	0.00	0.92	0.18	0.75	0.79	0.15
Treatment Prob(F)					1.0000	1.0000	0.4493	0.8411	0.5113	0.4943	0.8635

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

2014 Soybean Balanced Crop Nutrition - BCN Trial

Experiment number ....: 14-KL-SoybBCN14

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish
- **Tillage type** ....: Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 5 x 20 ft
- **Row width/rows per plot** ....: 15 in / 4

Soil type ....: Mowata silt loam
- **% organic matter** ....: CUT – 0.8
MID – 1.3
FILL – 1.5
- **pH** ....: CUT – 6.2
MID – 5.2
FILL – 5.7
- **Extractable nutrients** ppm..........: CUT – Ca-763; Cu-0.9; Mg-298; P-2.4; K-37; Na-80; S-12.6; Zn-1.0
MID – Ca-1270; Cu-1.5; Mg-417; P-7.3; K-58; Na-67; S-14; Zn-1.1
FILL – Ca-636; Cu-1.0; Mg-209; P-7.2; K-50; Na-50; S-15.1; Zn-0.8

Crop/Variety ....: Soybean / TV REV 5153
- **Planting method/date** ....: Drill-seeded into Fill area/ May 19
- **Seeding rate/depth** ....: 135,000 seed/A / 1.5 in
- **Emergence date** ....: May 27
- **Harvest date** ....: October 8

Seed treatment/cwt ....: NA

Fertilization ....: See data sheet

Water management ....:
- **Flush** ....: NA
- **Flood** ....: NA
- **Drain** ....: NA

Pest management ....:
- **Herbicides** ....: 1.5 qt/A Glyphosate + 1.5 pt/A Charger Max, June 5
1 pt/A Gramoxone Inteon + 0.25% NIS + 4 oz/A Interlock, September 24
- **Insecticides** ....: 1 lb ai/A Acephate, September 27
- **Fungicides** ....: None

Table 8. 2014 Soybean balanced crop nutrition (BCN) trial (KL.1). Evangeline Parish.

Crop Name				Soybean	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans
Description					Maturity	Maturity	Plant Height	Moisture	Test Wt.	Yield
Rating Date							10/6/2014			
Rating Type				pop	plant-R8	Emerg-R8				
Rating Unit				plants/A	days	days	in	%	lb/bu	bu/A
Trt. No.	Trt. Name	Rate	Rate Unit							
1	Check (no fertilizer)	0	lb ai/A	72019 a	150 a	144 a	28 a	14.8 a	49.7 a	42.6 a
2	MAP	40	lb ai/A	63307 a	150 a	144 a	27 a	15.1 a	49.6 a	56.9 a
	MOP	60	lb ai/A							
3	MAP	40	lb ai/A	70857 a	150 a	144 a	27 a	15.5 a	49.3 a	46.2 a
	Aspire	60	lb ai/A							
4	MES10	40	lb ai/A	62146 a	150 a	144 a	28 a	15.2 a	49.6 a	49.0 a
	Aspire	60	lb ai/A							
5	MESZ	40	lb ai/A	69696 a	150 a	144 a	29 a	16.0 a	49.1 a	54.5 a
	Aspire	60	lb ai/A							
6	MAP	40	lb ai/A	70277 a	150 a	144 a	29 a	14.7 a	49.7 a	49.5 a
	Aspire	30	lb ai/A							
	K-Mag	30	lb ai/A							
7	MES10	40	lb ai/A	72019 a	150 a	144 a	29 a	15.5 a	49.5 a	55.3 a
	Aspire	30	lb ai/A							
	K-Mag	30	lb ai/A							
8	MESZ	40	lb ai/A	70858 a	150 a	144 a	28 a	14.9 a	49.7 a	52.0 a
	Aspire	30	lb ai/A							
	K-Mag	30	lb ai/A							
9	MES10	40	lb ai/A	69115 a	150 a	144 a	28 a	15.7 a	49.3 a	51.1 a
	MOP	30	lb ai/A							
	K-Mag	30	lb ai/A							
10	MESZ	40	lb ai/A	63307 a	150 a	144 a	28 a	15.5 a	49.4 a	50.4 a
	MOP	30	lb ai/A							
	K-Mag	30	lb ai/A							
LSD P=.05				15167.40	1.00	1.00	2.80	1.31	0.69	12.57
Standard Deviation				8841.90	0.60	0.60	1.60	0.76	0.40	7.33
CV				12.93	0.40	0.41	5.77	4.98	0.81	14.44
Replicate F				0.83	2.37	2.37	0.47	1.04	0.84	0.25
Replicate Prob(F)				0.45	0.12	0.12	0.63	0.37	0.45	0.78
Treatment F				0.58	0.59	0.59	0.68	0.97	0.78	1.03
Treatment Prob(F)				0.8000	0.7892	0.7892	0.7172	0.4945	0.6366	0.4566

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

2014 Soybean K Rate Trial

Experiment number	: 14-KL-SoybKRT14
Site and design	:
Location/Cooperator	: Evangeline Parish
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5 x 20 ft
Row width/rows per plot	: 15 in / 4
Soil type	: Mowata silt loam
% organic matter	: CUT – 0.8 MID – 1.3 FILL – 1.5
pH	: CUT – 6.2 MID – 5.2 FILL – 5.7
Extractable nutrients ppm	: CUT – Ca-763; Cu-0.9; Mg-298; P-2.4; K-37; Na-80; S-12.6; Zn-1.0 MID – Ca-1270; Cu-1.5; Mg-417; P-7.3; K-58; Na-67; S-14; Zn-1.1 FILL – Ca-636; Cu-1.0; Mg-209; P-7.2; K-50; Na-50; S-15.1; Zn-0.8
Crop/Variety	: Soybean / TV REV 5153
Planting method/date	: Drill-seeded into Fill area/ May 19
Seeding rate/depth	: 135,000 seed/A / 1.5 in
Emergence date	: May 27
Harvest date	: October 8
Seed treatment/cwt	: NA
Fertilization	: See data sheet
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.5 qt/A Glyphosate + 1.5 pt/A Charger Max, June 5 1 pt/A Gramoxone Inteon + 0.25% NIS + 4 oz/A Interlock, September 24
Insecticides	: 1 lb ai/A Acephate, September 27
Fungicides	: None

Table 9. 2014 Soybean K rate trial (KL.1). Evangeline Parish.

Crop Name				Soybean		Soybeans		Soybeans		Soybeans		Soybeans		Soybeans		Soybeans	
Description						Maturity		Maturity		Plant Height		Moisture		Test Wt.		Yield	
Rating Date										10/6/2014							
Rating Type				pop		plant-R8		Emerg-R8									
Rating Unit				plants/A		days		days		in		%		lb/bu		bu/A	
Trt. No.	Trt. Name	Rate	Rate Unit														
1	Check (no fertilizer)			60113	abc	150	a	144	a	27	a	14.3	a	49.7	a	39.1	cd
2	K-Mag	30	lb ai/A	55757	bc	149	abc	143	abc	28	a	14.5	a	49.7	a	44.7	bc
3	K-Mag	60	lb ai/A	64905	ab	149	c	143	c	28	a	14.9	a	49.6	a	49.7	ab
4	K-Mag	30	lb ai/A	68390	ab	149	c	143	c	26	a	14.4	a	49.8	a	51.2	ab
	MOP	30	lb ai/A														
5	K-Mag	30	lb ai/A	44867	cd	149	abc	143	abc	26	a	14.7	a	49.7	a	45.2	abc
	Aspire	30	lb ai/A														
6	MOP	30	lb ai/A	38333	d	149	bc	143	bc	25	a	15.0	a	49.5	a	35.1	d
7	MOP	60	lb ai/A	62726	ab	150	ab	144	ab	27	a	14.8	a	49.6	a	50.3	ab
8	Aspire	30	lb ai/A	67954	ab	149	c	143	c	27	a	14.4	a	49.8	a	48.4	ab
9	Aspire	60	lb ai/A	67954	ab	149	c	143	c	27	a	14.8	a	49.6	a	51.3	ab
10	Aspire	90	lb ai/A	72310	a	149	abc	143	abc	27	a	15.0	a	49.5	a	52.5	a
11	Aspire	120	lb ai/A	58806	abc	149	bc	143	bc	27	a	15.0	a	49.6	a	50.4	ab
12	MOP	30	lb ai/A	57935	abc	149	abc	143	abc	29	a	15.0	a	49.5	a	50.9	ab
	Aspire	30	lb ai/A														
LSD P=.05				16189.40		0.84		0.84		2.39		0.73		0.31		7.37	
Standard Deviation				11253.40		0.58		0.58		1.66		0.51		0.22		5.12	
CV				18.75		0.39		0.41		6.14		3.43		0.44		10.80	
Replicate F				4.31		4.01		4.01		2.04		0.42		0.32		7.54	
Replicate Prob(F)				0.01		0.02		0.02		0.13		0.74		0.81		0.00	
Treatment F				3.17		2.15		2.15		1.56		1.16		1.01		4.47	
Treatment Prob(F)				0.0051		0.0454		0.0454		0.1583		0.3481		0.4619		0.0004	

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Evaluation of Tillage on Production Agronomics, Nutrient Uptake, and Soil Sustainability of Sweet Sorghum Production

Experiment number ....: SS-CAP-2014

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (South Unit)
- **Tillage type** ....: No Till vs. Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 10 x 30 ft
- **Row width/rows per plot** ....: 30 in / 4

Soil type ....: Crowley silt loam
- **% organic matter** ....: 2.20
- **pH** ....: 5.5
- **Extractable nutrients** ppm..........: Ca-1623; Cu-1.46; Mg-287; P-34.81; K-84.28; Na-23.47; S-8.88; Zn-5.24

Crop/Variety ....: Sweet Sorghum / Dura Sweet
- **Planting method/date** ....: Drill-seeded / April 23
- **Seeding rate/depth** ....: 60,000 seed/A / 1 in
- **Emergence date** ....: April 29
- **Harvest date** ....: September 4

Seed treatment/cwt ....: NA

Fertilization ....: 90 lb N/A 46-0-0, May 26

Water management ....:
- **Flush** ....: NA
- **Flood** ....: NA
- **Drain** ....: NA

Pest management ....:
- **Herbicides** ....: 1.5 qt/A Glyphosate, March 21
  1.5 pt/A Charger Max + 3.2 pt/A Atrazine 5L, May 12
  1.5 pt/A Charger Max, May 27
- **Insecticides** ....: 4 oz/A Belt, May 23
  1 oz/A Transform, July 1
  1.25 oz/A Transform, July 29
- **Fungicides** ....: None

Table 10. Evaluation of tillage on production agronomics, nutrient uptake, and soil sustainability of sweet sorghum production, (Year 3 - 2015). Hybrid is Durasweet, drilled at approximately 60,000 seed/A. Rice Research Station.

Description		50% HD	50% HD	Plant	Harvestable	Tillers	Height	Total	Stalk	Stalk diameter	Sol. Solids	Ferm. Solids
Part Rated				Pop	Stalk	at Harvest		Biomass	Biomass	@ base -	stalk -	stalk -
Rating Date				5/21/2014	9/4/2014	9/4/2014	9/4/2014	9/4/2014	9/4/2014	9/4/2014	9/4/2014	9/4/2014
Rating Type		plant-hd	emerg-hd				mean			mean	BRIX	
Rating Unit		days	days	plants/A	stalks/A	% Tiller	in	tons/A	tons/A	mm	w/w	ton/A
Sample Size, Unit							10 ft			10 ft		
Collection Basis, Unit							1 row			1 row		
Crop Stage Majority				3-leaf	soft dou		soft dou	soft dou	soft dou	soft dou		
Crop Stage Scale					harvest	harvest	harvest	harvest	harvest	harvest		
Trt. No.	Trt. Name											
1	Conventional Tillage No Fertilization	104 a	98 a	36590 b	42689 b	15 a	127 b	26.8 b	20.8 b	17.3 a	16.5 a	3.1 b
2	Conventional Tillage Maintenance Fert. 40 lb ai/A P_2O_5 60 lb ai/A K_2O	104 a	98 a	43124 ab	48787 ab	12 a	129 b	28.7 b	22.6 b	16.9 a	16.0 a	3.2 b
3	No-Till No Fertilization	107 a	101 a	47045 a	59242 a	21 a	132 b	34.8 ab	25.9 ab	15.7 a	16.7 a	3.9 ab
4	No-Till Maintenance Fert. 40 lb ai/A P_2O_5 60 lb ai/A K_2O	106 a	100 a	33977 b	41382 b	17 a	143 a	41.4 a	31.4 a	19.4 a	16.6 a	4.7 a
LSD P=.05		2.43	2.43	9200	10507	8.90	6.23	9.78	7.09	3.64	1.05	0.98
Standard Deviation		1.41	1.41	5317	6072	5.10	3.60	5.65	4.10	2.10	0.60	0.57
CV		1.34	1.42	13.23	12.64	32.02	2.71	17.15	16.28	12.12	3.68	15.23
Replicate F		17.21	17.21	1.56	0.99	3.85	9.69	0.96	0.88	0.46	7.88	0.94
Replicate Prob(F)		0.00	0.00	0.29	0.46	0.08	0.01	0.47	0.50	0.72	0.02	0.48
Treatment F		4.58	4.58	5.05	7.20	2.08	14.37	5.49	5.17	2.18	0.91	6.43
Treatment Prob(F)		0.0540	0.0540	0.0442	0.0206	0.2041	0.0038	0.0372	0.0422	0.1919	0.4904	0.0265

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean separations are based on the complete error term.

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

RICE DISEASE CONTROL RESEARCH

RICE DISEASE CONTROL STUDIES, 2014[1]

D.E. Groth, C.W. Dischler, L.L. Monte, and M.J. Frey

Rice diseases pose a major threat to rice production. Disease severity ranges from undetected damage to the complete destruction of a crop. Extensive systematic yield and quality loss estimates due to rice diseases have not been developed, but losses range from a trace to total crop loss, depending on the inoculum density, pathogen aggressiveness, environmental conditions, cultivar susceptibility, and interaction with other cultural parameters. Loss estimates also are difficult to estimate because of lack of data on the numerous diseases affecting rice, hidden underground damage associated with root diseases, and little qualitative information on distribution and severity in commercial fields. There is no doubt that rice diseases cause significant economic yield and quality reductions and cost farmers millions of dollars each year from reduced productivity and costs of control. Damages that can occur include thin stands, poor plant vigor, poor nutrient utilization, reduced yield, reduced quality, plant death, lodging, and harvest problems. Specific damages that can occur include necrosis of tissues, chlorosis, wilting, and deformation of plant parts. Rice diseases are caused by the interaction between a susceptible plant, a virulent pathogen, and a favorable environment. Understanding this relationship allows the development and selection of the best management program, which must be adjusted to current environmental conditions. Each disease has its own cycle, and control practices are only effective at certain stages when the pathogen is susceptible and before irrevocable damage occurs.

Although production has not been eliminated from any areas due to rice diseases, there have been shifts in acreage from one area to another. An excellent example of this was the shift of most of the medium-grain rice from Louisiana to Arkansas due to severe blast development on the cultivar Bengal in Louisiana that does not occur in the less favorable environment of Arkansas. Seed and seedling diseases often cause poor stands and at times, replant situations. Toxins have not been a major problem with rice grain quality, but fungal toxins have been detected in some rice grain.

Diseases occur in all rice growing regions of the world. In the United States, disease pressure is higher in the mid-south growing region than in the arid California production area, although California has had significantly more disease pressure recently with the introduction of blast in 1997 and the introduction of bakanae in 1999. The United States is fortunate that it does not have any of the devastating viral diseases that occur in most other production areas of the world. Also, the United States has a limited number of nematode and bacterial diseases compared with most of the world production areas. Unfortunately, there are enough fungal diseases that increase production costs and reduce yields and quality to limit the economic return U.S. farmers receive for their crop.

The objective of these studies is to develop effective economical rice disease management practices. These include disease resistance, cultural management, and chemical control.

Table 1. List of fungicides tested in 2014.

	Common Name	**Company**
Quadris 2.08 SC	Azoxystrobin	Syngenta
Stratego 2.08 EC	Trifloxystrobin/Propiconazole	Bayer
GEM 500 SC	Trifloxystrobin	Bayer
Quilt 1.66 SC	Azoxystrobin/Propiconazole	Syngenta
Sercadis	Xemium	BASF
Tilt 3.6 EC	Propiconazole	Syngenta
Quilt Xcel 2.2SC	Azoxystrobin/Propiconazole	Syngenta
Convoy	Flutolanil	Nichino
Equation	Azoxystrobin	Cheminova

[1] This research is supported in part by funds provided by rice producers through the Louisiana Rice Research Board and various agricultural chemical companies.

2014 Disease Nursery Trial (DN1 and DN2)

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: Various / ~80 lb/A

Plot Size: 1-3 rows X 6 ft long

Planting Method/Date: Drill seeded, March 21

Fertilization: Preplant 0-60-60+7 Zn, Sept. 17; Preflood 150-0-0, May 5; Topdressed 46-0-0, June 5

Experimental Design: Randomized complete block design with two to five replications

Water Management: Flushed, April 1, 11, 22, and 29; Flooded, May 6; Drained, July 24

Herbicides: Tank-Mix Propanil 3 qt/A and Basagran 1.5 pt/A, May 6
Tank-Mix Benzobicyclon 8.4 oz/A, Crop Oil 1%, and Insecticide, May 20
Tank-Mix Clincher 20 oz/A and Crop Oil 1 qt/A, June 4

Insecticides: Dermacor seed treatment
Tank-Mix Mustang Max 4 oz/A and Herbicide, May 20

Fungicides: None

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 29

Application Equipment: Inoculated by hand

Application Dates:

Growth Stage	Time	Temp	Wind	RH	Clouds	Dew

Disease Ratings: July 29

Drained: July 24

Harvest: N/A

Results: See Tables 2-9

Comments: Sheath blight severity was moderate. Other diseases were light.

2014 Disease Nursery Trial (DN3 and DN4)

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: Various / ~80 lb/A

Plot Size: 1 row X 6 ft long

Planting Method/Date: Drill seeded, May 16

Fertilization: Preplant 0-60-60+7 Zn, Sept. 17; Preflood 154-0-0, June 16

Experimental Design: Randomized complete block design with two to five replications

Water Management: Flushed, May 26; Flooded, June 17; Drained, Aug. 29

Herbicides: Tank-Mix Propanil 3 qt/A and Acumen EC 2.4 pt/A, June 4
Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, RiceBeaux 3 qt/A, and Basagran 1.7 pt/A, June 9
Tank-Mix Clincher 20 oz/A and Crop Oil 1 qt/A, July 10

Insecticides: Dermacor seed treatment

Fungicides: None

Inoculation Dates: Bacterial Panicle Blight (BPB) pathogen *Burkholderia glumae*, July 22, 25, 30, and Aug. 1, 5, 8, 13, 15, 20

Application Equipment: CO_2 backpack sprayer, one hollow tip hand wand

Application Dates:

Growth Stage	Time	Temp	Wind	RH	Clouds	Dew

Disease Ratings: Aug. 28

Drained: Aug. 29

Harvest: N/A

Results: See Tables 2-9

Comments: Blast and bacterial panicle blight severities were light. Other diseases were very light.

Table 2. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), leaf blast, rotten neck blast (RNB), bacterial panicle blight (BPB), and false smut at the Rice Research Station, Crowley, LA. 2014.

Character Rated	SB	Leaf Blast	RNB	BPB	False Smut
Rating Date	July 29	Aug. 11	Aug. 28	Aug. 28	Aug. 28
Rating Unit	0-9	0-9	0-9	0-9	0-1
Trt No. Treatment Name					
1 Antonio	6.4a-d	0.5k-n	3.0c	2.2ijk	0.0d
2 Caffey	4.4h-k	2.3c-f	3.4c	2.2ijk	0.2cd
3 Catahoula	6.8ab	1.6e-i	0.6fg	2.2ijk	0.4bcd
4 Cheniere	5.2e-i	3.3bcd	2.8cd	2.9f-i	0.4bcd
5 CL111	6.6abc	0.5j-n	2.4cde	4.3bc	0.4bcd
6 CL151	6.4a-d	1.0g-l	2.6cd	3.3c-g	0.4bcd
7 CL152	5.8b-f	1.4f-k	0.6fg	2.0jk	0.4bcd
8 CL161	6.6abc	2.0d-g	0.0g	2.6g-j	0.6abc
9 CL261	5.2e-i	5.0b	5.6b	6.6a	0.4bcd
10 CL271	5.4d-h	1.3f-k	0.0g	2.4h-k	0.4bcd
11 CLXL729	4.0jk	0.3lmn	0.2g	1.8jk	0.4bcd
12 CLXL745	5.8b-f	0.5k-n	0.0g	1.8jk	0.0d
13 Colorado	7.2a	1.5e-j	3.6c	4.0b-e	0.2cd
14 Della-2	5.6c-g	1.4f-k	1.6def	2.3h-k	0.0d
15 Jazzman	4.6g-k	2.2d-g	1.0fg	4.6b	0.2cd
16 Jazzman-2	6.0b-e	2.4c-f	1.2efg	4.1bcd	0.6abc
17 CL-Jazzman	4.8f-j	2.4c-f	0.6fg	4.3bc	0.0d
18 Jupiter	4.8f-j	3.8bc	1.6def	2.0jk	0.4bcd
19 Mermentau	5.6c-g	1.4f-k	1.2efg	2.1ijk	0.8ab
20 Neptune	5.2e-i	0.2mn	0.8fg	1.8jk	0.4bcd
21 Roy J	4.0jk	0.7h-n	2.8cd	3.7b-f	0.8ab
22 Taggart	3.8jk	2.5c-f	2.6cd	3.4c-g	0.8ab
23 Bengal	4.2ijk	0.8h-m	3.0c	3.5b-g	0.2cd
24 XL753	4.0jk	0.3lmn	1.2efg	2.0jk	0.0d
25 URN 2	6.0b-e	1.7e-h	0.0g	2.6g-j	0.2cd
26 URN 5	6.6abc	2.8cde	0.0g	3.4c-g	0.0d
27 URN 28	6.4a-d	0.8h-m	0.0g	2.0jk	0.2cd
28 URN 34	6.4a-d	1.6e-i	1.2efg	2.9e-i	0.0d
29 LAH10	4.0jk	0.5k-n	0.0g	1.6k	0.8ab
30 LAH7	3.6k	1.0g-l	0.0g	1.8jk	1.0a
31 LAH169	4.4h-k	0.6i-n	1.0fg	2.1ijk	0.2cd
32 M202	6.4a-d	7.4a	9.0a	3.4c-g	0.0d
33 Purple	1.0l	0.0n	0.0g	3.2d-h	0.0d
LSD (P=.05)	1.01	0.42t	1.32	0.26t	0.52
Standard Deviation	0.80	0.33t	1.05	0.21t	0.41
CV	15.31	23.73	64.91	11.44	125.7
Replicate F	1.605	2.314	1.194	5.330	2.274
Replicate Prob(F)	0.1770	0.0610	0.3167	0.0005	0.0648
Treatment F	12.777	9.409	16.504	9.167	2.424
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0003

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

Table 3. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), leaf blast, rotten neck blast (RNB), and bacterial panicle blight (BPB) at the Rice Research Station, Crowley, LA. 2014. (URN Group I).

Character Rated	SB	Leaf Blast	RNB	BPB
Rating Date	July 29	Aug. 11	Aug. 28	Aug. 28
Rating Unit	0-9	0-9	0-9	0-9
Trt Treatment No. Name				
1 RU9901096/ZHE733	4.8de	5.7a	3.0bcd	5.5ab
2 9502008-A/DREW//CFX 26/WELLS/4/CPRS/3/CFX 29//AR	5.8a-d	1.7efg	0.0g	2.3h
3 Francis/ 8_13(IR140//Katy/Jasmine-85)	4.3e	3.4bc	6.5a	3.5d-h
4 RU0801076/6/WLLS/5/LGRU//LMNT/RA73/3/LGRU/4/LGRU	4.5de	3.0cd	3.5b	2.5gh
5 CL131/CHENIERE	6.8ab	1.7efg	2.0e	4.3b-e
6 CPRS/CCDR	5.5b-e	1.7efg	0.0g	3.3e-h
7 STG05L-45-056/STG05IMI-02-055	4.8de	4.7ab	4.0b	4.0c-f
8 NEPTUNE//BNGL/CL161	4.5de	1.9def	2.2de	2.5gh
9 CPRS/9901081	5.0cde	1.1fgh	0.8f	4.3b-e
10 248FRA16U-21/2/248DREW16C-1-2	6.3abc	4.7ab	3.5b	5.3abc
11 KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	6.5ab	0.9gh	0.0g	3.5d-h
12 LCSN/LGRU	7.0a	1.4e-h	0.0g	2.8fgh
13 RU0801076/FRNS ANTER CULTURE LINE	4.5de	3.2bcd	3.5b	3.5d-h
14 CPRS//NWBT/KATY	5.8a-d	1.9def	0.0g	5.8a
15 CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	6.5ab	3.0cd	3.2bc	3.3e-h
16 CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	4.5de	2.2cde	0.0g	3.5d-h
17 CL111	6.3abc	1.1fgh	2.5cde	4.8a-d
18 CL151	6.8ab	0.6hi	0.0g	3.8d-g
19 PRESIDIO	5.5b-e	1.1fgh	0.0g	2.3h
20 MERMENTAU	5.8a-d	0.0i	0.0g	2.3h
LSD (P=.05)	1.41	0.38t	0.26t	1.44
Standard Deviation	1.00	0.27t	0.18t	1.02
CV	18.02	16.65	13.64	28.15
Replicate F	2.167	1.434	3.050	0.208
Replicate Prob(F)	0.1019	0.2422	0.0358	0.8904
Treatment F	3.279	11.295	50.695	4.486
Treatment Prob(F)	0.0003	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

Table 4. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), leaf blast, rotten neck blast (RNB), and bacterial panicle blight (BPB) at the Rice Research Station, Crowley, LA. 2014. (URN Group II).

Character Rated	SB	Leaf Blast	RNB	BPB
Rating Date	July 29	Aug. 11	Aug. 28	Aug. 28
Rating Unit	0-9	0-9	0-9	0-9
Trt No. Treatment Name				
21 M206/STG99F5-07-118//JPTR	5.3b-e	1.8cde	0.0f	3.0b-e
22 LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	5.0c-f	1.0def	2.0de	3.8abc
23 Francis/ 8_13(IR140//Katy/Jasmine-85)	4.5efg	3.8ab	6.3a	3.0b-e
24 RU0301041/STG01L-37-069	4.0fg	0.8def	1.3def	4.0ab
25 CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	6.8a	1.0def	0.0f	2.5de
26 CPRS/NWBT//KATY/3/CCDR	5.8a-d	1.0def	0.8ef	2.8cde
27 M206/STG03AC-21-047//JPTR	3.8g	2.0cd	0.0f	2.8cde
28 9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	5.8a-d	0.0f	0.0f	3.0b-e
29 CPRS/CCDR	6.3ab	0.5ef	0.0f	2.5de
30 RU0902125/CL131	6.3ab	1.5cde	0.0f	3.3a-d
31 CATAHOULA/CL111	5.8a-d	1.0def	0.0f	3.8abc
32 IR64/IR 1321-12	3.8g	2.5bc	0.0f	2.8cde
33 LMNT//TBNT/LA110	6.0abc	4.5a	4.8bc	2.8cde
34 CFX-18//CCDR/9770532 DH2/5/9502008/3/CPRS//82CAY21/…/4/CFX-18	6.8a	0.8def	0.0f	2.5de
35 8603006//3/MARS/NWRX//TBNT	6.3ab	5.0a	5.0abc	4.3a
36 Cheniere/Presidio	5.8a-d	1.0def	0.0f	2.0e
37 JUPITER	5.0c-f	4.8a	1.8de	3.3a-d
38 WELLS	4.8d-g	2.0cd	2.5d	3.8abc
39 LeCaste	5.3b-e	1.5cde	4.0c	3.3a-d
40 FRANCIS	4.8d-g	3.8ab	5.8ab	2.8cde
LSD (P=.05)	1.03	1.29	1.33	1.06
Standard Deviation	0.73	0.91	0.94	0.75
CV	13.58	45.6	55.42	24.42
Replicate F	7.570	1.643	1.840	1.093
Replicate Prob(F)	0.0002	0.1895	0.1502	0.3594
Treatment F	6.379	11.171	22.132	2.384
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0061

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

Table 5. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), leaf blast, rotten neck blast (RNB), and bacterial panicle blight (BPB) at the Rice Research Station, Crowley, LA. 2014. (URN Group III).

Character Rated	SB	Leaf Blast	RNB	BPB
Rating Date	July 29	Aug. 11	Aug. 28	Aug. 28
Rating Unit	0-9	0-9	0-9	0-9
Trt No. Treatment Name				
41 STG05IMI-02-028/STG03L-10-047	5.5a-e	0.5gh	0.0f	3.5bcd
42 9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5.0b-f	1.3d-g	0.0f	1.8e
43 CPRS/CCDR	5.5a-e	0.0h	0.8ef	2.0e
44 RU0902125/CL131	6.3ab	0.3gh	2.3cd	2.0e
45 JZMN/08CLR004//RU0802146/3/JZM2	5.5a-e	2.0cde	2.8c	2.5cde
46 IR64/IR 1321-12	3.8f	2.3cd	0.0f	3.5bcd
47 STG01L-64-105/SPRN	4.5def	2.5bc	0.3ef	5.3a
48 9502008-A/DREW//CLR 20/3/TAGGART	6.0abc	0.5gh	2.5c	4.3ab
49 CCDR/L202	6.5a	0.5gh	1.0ef	2.3de
50 CYBT/LM1//CHNR/3/ADAR/JDON//JEFF	4.8c-f	1.0e-h	1.3de	5.5a
51 KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	5.5a-e	1.8c-f	0.0f	3.8bc
52 CPRS/CCDR	4.8c-f	0.5gh	2.5c	3.5bcd
53 248CO13E-1	5.8a-d	0.8fgh	2.3cd	3.0b-e
54 248CO13E-1	5.8a-d	0.5gh	0.0f	2.8cde
55 8804032/Katy	6.3ab	0.0h	0.0f	3.0b-e
56 RU0001081/LEMONT	5.8a-d	0.5gh	2.8c	3.5bcd
57 Rex	5.3a-e	6.0a	5.8a	3.8bc
58 CHENIERE	5.5a-e	3.5b	4.0b	2.3de
59 COCODRIE	5.8a-d	0.0h	0.5ef	2.5cde
60 CL271	4.3ef	2.0cde	0.0f	2.5cde
LSD (P=.05)	1.35	1.14	1.21	1.30
Standard Deviation	0.96	0.80	0.85	0.92
CV	17.75	61.23	59.99	29.25
Replicate F	5.519	0.484	0.616	2.983
Replicate Prob(F)	0.0021	0.6948	0.6076	0.0387
Treatment F	2.172	13.319	14.301	4.971
Treatment Prob(F)	0.0127	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

Table 6. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), leaf blast, rotten neck blast (RNB), and bacterial panicle blight (BPB) at the Rice Research Station, Crowley, LA. 2014. (URN Group IV).

Character Rated	SB	Leaf blast	RNB	BPB
Rating Date	July 29	Aug. 11	Aug. 28	Aug. 28
Rating Unit	0-9	0-9	0-9	0-9
Trt No. Treatment Name				
61 248FRA16U-21/6/NWBT/3/LBNT/9902//LBLE/4/LGRU/5/19981441	6.0a	4.0ab	0.0h	5.5a
62 CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	6.0a	0.3fg	3.5cd	3.2b-e
63 CPRS/CCDR	5.5ab	1.3ef	0.0h	2.5c-f
64 JES	4.0cde	2.0de	0.0h	1.5fg
65 NEPTUNE//BNGL/CL161	3.3e	1.3ef	0.0h	5.3a
66 SABR/CCDR	5.3abc	0.0g	0.3gh	3.0b-f
67 19991516/19951094//RNS3/RU9101001	4.0cde	4.0ab	4.5bc	3.5bcd
68 NEPTUNE//BNGL/CL161	4.5b-e	1.3ef	1.3fg	2.8b-f
69 Francis/ 8_13(IR140//Katy/Jasmine-85)	4.8a-d	4.3ab	6.3a	4.3ab
70 FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	6.0a	3.8bc	5.5ab	5.3a
71 LAH10	4.5b-e	2.0de	0.0h	0.5g
72 043752/0047277/CHEN	5.3abc	0.3fg	0.0h	3.5bcd
73 8804032/Katy	5.5ab	0.0g	0.0h	3.5bcd
74 IR36/8603006	6.0a	1.3ef	2.3ef	3.3b-e
75 CPRS/CCDR	5.8ab	0.5fg	0.5gh	2.5c-f
76 RU0301041/STG01L-37-069	3.8de	1.0efg	0.8gh	4.0abc
77 RSMT//8203035/GCHW	5.5ab	0.0g	0.0h	1.8efg
78 CPRS/NWBT//KATY/3/CCDR	5.3abc	1.0efg	0.5gh	3.3b-e
79 ROY J	5.0a-d	2.8cd	3.3de	2.8b-f
80 CAFFEY	5.0a-d	5.0a	2.0f	2.3def
LSD (P=.05)	1.26	1.19	1.08	1.58
Standard Deviation	0.89	0.84	0.77	1.12
CV	17.62	47.05	50.23	34.91
Replicate F	3.950	2.563	1.164	1.594
Replicate Prob(F)	0.0125	0.0636	0.3313	0.2011
Treatment F	3.382	14.708	27.843	5.126
Treatment Prob(F)	0.0002	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

Table 7. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), leaf blast, rotten neck blast (RNB), and bacterial panicle blight (BPB) at the Rice Research Station, Crowley, LA. 2014. (URN Group V).

Character Rated		SB	Leaf Blast	RNB	BPB
Rating Date		July 29	Aug. 11	Aug. 28	Aug. 28
Rating Unit		0-9	0-9	0-9	0-9
Trt No.	Treatment Name				
81	STG05-IMI-02-055/STG05IMI-01-113	4.0e	1.5bc	0.0h	4.5a-d
82	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	5.5b-e	2.0bc	2.5efg	6.0a
83	IR36/8603006	5.0cde	2.5bc	4.0cde	4.5a-d
84	STG03AC-37-042(FRAN AC LINE)/RU0801076 (LGRU//KATY/STBN/5/NWBT...	4.5de	2.5bc	6.5ab	3.0c-f
85	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	6.0a-d	0.0c	0.0h	4.0a-e
86	CCDR/L202	6.0a-d	1.0bc	1.0gh	2.5def
87	248WE16i-5/2/TGRT	5.5b-e	1.5bc	2.5efg	5.5ab
88	CPRS/KBNT//WELLS CFX 18/3/MBLE	6.0a-d	0.0c	1.0gh	2.5def
89	CPRS/9901081	7.0ab	0.0c	2.5efg	2.0ef
90	IRGA409/RXMT/5/LGRU//LMNT/RA73/3/LGRU/4/LGRU/6/LBNT/9902/....	4.0e	1.0bc	4.5cd	3.5b-e
91	CL131/3/CPRS/KBNT//9502008-A	6.5abc	0.0c	1.5fgh	2.0ef
92	LD 183-3/Jasmine 85	4.5de	2.0bc	0.0h	1.0f
93	LGRU//IRGA409/RXMT/3/CYBT/7/FRNS/6/LBNT/9902/3/DAWN/....	4.5de	1.0bc	4.5cd	4.5a-d
94	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	6.5abc	1.0bc	0.0h	3.5b-e
95	M202/4/Katy BC5F4	5.5b-e	1.0bc	3.0def	3.0c-f
96	KATY/NWBT//L201/7402003/3/WLLS/4/FRNS/6/LBNT/....	6.0a-d	0.0c	3.5de	6.0a
97	CL131/3/CPRS/KBNT//9502008-A	6.5abc	1.0bc	0.0h	4.0a-e
98	((NWBT/RU8303181)87:15034/R	6.0a-d	0.0c	0.0h	3.0c-f
99	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/....	5.0cde	2.0bc	0.0h	2.0ef
100	248CO13E-1	5.0cde	1.0bc	0.0h	4.0a-e
101	CPRS/JSMN	5.5b-e	1.5bc	3.0def	2.0ef
102	JASM85/DREW//UA99-167	6.0a-d	1.0bc	0.0h	5.0abc
103	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	7.5a	1.0bc	0.0h	2.5def
104	M202/4/Katy BC5F4	4.5de	1.5bc	1.0gh	4.0a-e
105	JZMN/PI597046	5.0cde	1.0bc	0.0h	5.0abc
106	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	6.5abc	0.0c	4.0cde	3.5b-e
107	CF4-69/CCDR//Sierra	6.0a-d	1.0bc	3.5de	2.0ef
108	JASM85/DREW//UA99-167	4.0e	0.0c	0.0h	4.5a-d
109	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	6.0a-d	0.0c	0.0h	4.5a-d
110	Deltabelle//LGRU/LCSN/CF4-85	5.0cde	1.0bc	2.5efg	5.0abc
111	JPTR/RU1001102	6.0a-d	0.0c	0.0h	3.5b-e
112	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	6.5abc	0.0c	0.0h	4.0a-e
113	CPRS/CCDR	6.5abc	1.0bc	0.0h	2.0ef
114	CFX-18(CL161)/0004054	5.0cde	2.0bc	0.0h	4.0a-e
115	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	6.5abc	1.0bc	4.0cde	3.0c-f
116	CCDR/L202	6.5abc	1.0bc	1.0gh	3.5b-e
117	JAZZMAN-2	6.5abc	2.5bc	1.0gh	2.0ef
118	CL142 AR	5.0cde	2.0bc	5.5bc	5.0abc
119	M206	7.5a	7.5a	8.0a	3.0c-f
120	CL-JAZZMAN	6.0a-d	3.0b	1.5fgh	6.0a
LSD (P=.05)		1.75	2.88	1.74	2.30
Standard Deviation		0.87	1.43	0.86	1.14
CV		15.26	116.33	47.7	31.41
Replicate F		0.149	0.394	1.696	1.890
Replicate Prob(F)		0.7013	0.5339	0.2005	0.1770
Treatment F		2.235	1.717	11.993	2.527
Treatment Prob(F)		0.0069	0.0478	0.0001	0.0023

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

Table 8. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), leaf blast, rotten neck blast (RNB), and bacterial panicle blight (BPB) at the Rice Research Station, Crowley, LA. 2014. (URN Group VI).

Character Rated	SB	Leaf Blast	RNB	BPB
Rating Date	July 29	Aug. 11	Aug. 28	Aug. 28
Rating Unit	0-9	0-9	0-9	0-9
Trt No. Treatment Name				
121 CCDR//CCDR/JEFF/3/CL131	4.5a	1.0d	0.0j	2.0de
122 CPRS/NWBT	5.0a	4.0ab	7.5a	3.5a-d
123 CPRS/CCDR	5.5a	2.0bcd	1.0ij	3.5a-d
124 RU0902125/CL131	5.0a	1.5cd	0.0j	5.0a
125 BNGL/CL161//CAFFEY	4.5a	4.5a	4.0efg	5.0a
126 LGRU/LCSN/CF4-85//Sierra	7.0a	2.0bcd	3.0fgh	2.0de
127 CYBT/LM1//CHNR/3/ADAR/JDON//JEFF	4.5a	3.5abc	5.0cde	3.5a-d
128 BNGL/CL161/4/BNGL//MERC/RICO/3/EARL	5.0a	2.0bcd	0.0j	4.0abc
129 RU0302195/CHEN	6.5a	2.0bcd	0.0j	1.5e
130 CFFY/STG07M-07-096	3.5a	4.5a	5.0cde	2.5cde
131 BNGL/CL161/4/9502065/3/MERC//MERC/…	4.0a	1.0d	3.0fgh	5.0a
132 SABR/CCDR	7.0a	1.0d	0.0j	1.5e
133 RU0902125/CL131	6.0a	0.0d	0.0j	2.5cde
134 9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6.0a	0.5d	1.0ij	1.5e
135 CCDR/L202	5.0a	1.0d	1.0ij	3.0b-e
136 CYBT/LM1/4/WLLS/PI597049/3/RSMT//NWBT/KATY/5/9901133/JEFF	6.0a	0.5d	0.0j	3.5a-d
137 9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	5.5a	1.0d	2.5ghi	4.0abc
138 043752/0047277/CHEN	4.5a	0.0d	0.0j	5.0a
139 IRGA409/RXMT/5/BRAZ/TBNT/3/164986-4/NV66/.....	4.0a	5.0a	6.0a-d	3.0b-e
140 CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	6.0a	1.0d	5.5b-e	4.0abc
141 AC110DH2/AC108DH2//CHEN	6.5a	1.0d	1.0ij	1.5e
142 TGRT/2/GP13416/KATY//PI312777	4.0a	3.5abc	2.5ghi	3.5a-d
143 9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//…	7.0a	2.0bcd	1.5hij	3.5a-d
144 CCDR/L202	6.5a	0.0d	4.5def	2.0de
145 RU0801076/2/KBNT/Q36194	5.5a	1.5cd	6.0a-d	3.5a-d
146 9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	6.5a	0.5d	0.0j	3.5a-d
147 FRAN/WELLS	6.0a	1.0d	1.0ij	3.0b-e
148 LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT/6/ROYJ	4.0a	1.0d	4.5def	4.5ab
149 JZMN/08CLR004//RU0802146/3/JZM2	5.5a	2.0bcd	0.0j	1.5e
150 Deltabelle//LGRU/LCSN/CF4-85				
151 STG05-IMI-02-055/CL142-AR	5.5a	1.5cd	4.0efg	5.0a
152 9502008-A//AR1188/CCDR/3/RU0602128	7.0a	0.0d	4.0efg	2.5cde
153 L202/LQ39a//SABR	5.5a	0.0d	0.0j	3.0b-e
154 CPRS//NWBT/C4-63	5.5a	2.0bcd	2.5ghi	2.0de
155 BOLIVAR/DREW	4.5a	3.5abc	7.0ab	2.5cde
156 CPRS//NWBT/C4-63	6.0a	3.5abc	4.5def	4.5ab
157 CPRS/NWBT	5.5a	3.5abc	6.5abc	3.0b-e
158 DELLA-2	7.5a	0.5d	0.0j	4.0abc
159 CPRS/CCDR	5.0a	0.5d	0.0j	1.5e
160 TAGGART	5.0a	1.5cd	4.5def	4.5ab
LSD (P=.05)	2.31	2.30	1.81	1.69
Standard Deviation	1.14	1.14	0.90	0.83
CV	20.84	66.22	35.45	26.15
Replicate F	7.181	0.634	1.295	0.018
Replicate Prob(F)	0.0109	0.4308	0.2622	0.8928
Treatment F	1.536	3.046	14.705	3.761
Treatment Prob(F)	0.0973	0.0004	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

Table 9. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), leaf blast, rotten neck blast (RNB), and bacterial panicle blight (BPB) at the Rice Research Station, Crowley, LA. 2014. (URN Group VII).

Character Rated	SB	Leaf Blast	RNB	BPB
Rating Date	July 29	Aug. 11	Aug. 28	Aug. 28
Rating Unit	0-9	0-9	0-9	0-9
Trt No. Treatment Name				
161 STG05-IMI-02-055/STG05IMI-01-113	4.5d-g	1.0fg	0.0h	3.0b-e
162 CCDR/AC622	6.5abc	2.0def	3.5cd	3.0b-e
163 CPRS/SABR	7.0ab	1.0fg	3.0de	2.5cde
164 CCDR//CCDR/JEFF/3/CL131	6.5abc	1.0fg	1.0fgh	2.5cde
165 RU0802134/RU0902155	6.0a-d	0.0g	0.0h	4.5abc
166 AC110DH2/AC108DH2//CYBT	4.0efg	1.5efg	0.0h	2.0de
167 CYBT/LM1//CHNR/3/9901133/PI560239//CYBT	5.0c-f	1.5efg	0.0h	5.0ab
168 CPRS/KBNT//9502008-A/3/RU0602180	6.5abc	1.0fg	3.0de	2.0de
169 SABR/CCDR	5.0c-f	0.0g	0.0h	2.5cde
170 CYBT/LM1//CHNR/3/9901133/PI560239//CYBT	4.5d-g	0.0g	1.0fgh	3.0b-e
171 0702137/07SP160	7.0ab	2.0def	3.5cd	2.5cde
172 CPRS/NWBT//KATY/3/CCDR	6.5abc	2.0def	2.0d-g	2.5cde
173 UAXH-5	3.0g	1.5efg	1.0fgh	1.0e
174 9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	7.5a	1.0fg	0.0h	3.0b-e
175 AC110DH2/AC108DH2//CHEN	6.0a-d	3.0cde	5.0bc	3.0b-e
176 UAXH-49	4.0efg	0.0g	0.0h	2.0de
177 9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	6.5abc	1.0fg	0.0h	6.0a
178 BNGL//MERC/RICO/3/MERC/RICO//BNGL	4.5d-g	6.0a	3.5cd	6.0a
179 UAXH-53	4.5d-g	0.0g	0.0h	1.0e
180 9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	7.0ab	0.0g	0.0h	3.0b-e
181 CPRS/3/CPRS/NWBT/KATY	6.0a-d	1.0fg	2.5def	2.5cde
182 UAXH-6	4.0efg	0.0g	0.0h	2.0de
183 CCDR/JEFF//TRNS	7.5a	0.0g	0.5gh	5.0ab
184 FRAN/LQ39a	5.5b-e	0.0g	1.0fgh	4.0a-d
185 CYBT/LM1/4/WLLS/PI597049/3/RSMT//NWBT/KATY/5/9901133/JEFF	7.0ab	1.0fg	1.5e-h	3.0b-e
186 CPRS//NWBT/KATY	6.0a-d	2.0def	0.0h	4.5abc
187 ALAN/BALDO	5.5b-e	4.0bc	6.5ab	4.5abc
188 RPG/WLLS/2/RU0801076	5.0c-f	5.5ab	5.0bc	4.5abc
189 JZMN//AC1027/97 KDM X2-1/3/0302125	5.0c-f	3.5cd	0.0h	5.0ab
190 LCSN/LGRU	6.5abc	0.0g	3.0de	5.5a
191 CPRS//NWBT/C4-63	7.0ab	0.0g	2.5def	1.5e
192 BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	6.0a-d	2.0def	0.5gh	4.5abc
193 Priscilla/Cheniere	5.5b-e	0.0g	3.5cd	2.5cde
194 DXBL//NWBT/KATY	5.0c-f	3.0cde	3.0de	3.0b-e
195 JZMN/2/08CLR004	5.0c-f	2.0def	3.5cd	5.5a
196 CPRS//NWBT/C4-63	5.0c-f	2.5c-f	2.0d-g	1.0e
197 CPRS/NWBT	4.0efg	2.5c-f	3.5cd	2.0de
198 RSMT/KATY	3.5fg	5.5ab	7.5a	4.5abc
199 RONDO	5.5b-e	1.0fg	0.0h	1.0e
200 CL152	6.5abc	0.0g	1.0fgh	4.0a-d
LSD (P=.05)	1.83	1.95	1.65	2.05
Standard Deviation	0.91	0.96	0.81	1.01
CV	16.25	63.18	44.34	31.16
Replicate F	6.094	1.939	0.923	0.000
Replicate Prob(F)	0.0181	0.1716	0.3427	1.0000
Treatment F	3.267	5.634	11.681	4.025
Treatment Prob(F)	0.0002	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

2014 Lake Arthur Variety by Fungicide Trial

Location: Kent Lounsberry Farm, Lake Arthur, LA, Vermilion Parish

Soil Type: Crowley silt loam

Variety/Seed Rate: CL152 and CL161 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, March 19

Fertilization: Preplant 22-60-75; Preflood 120-0-0, May 7

Experimental Design: Randomized complete block design with four replications

Water Management: Flush, April 1 and 29; Flood, May 8; Drained, July 23

Herbicides: Command 10 oz/A, (on preplant fertilizer)
Tank-Mix Propanil 1.5 qt/A, RiceBeaux 1.5 qt/A, Londax 1 oz/A, and Permit 1 oz/A, May 6

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: All natural inoculums

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:

	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 18	Boot	09:00	85 F	5 mph	79%	60%	Mod.
June 27	Heading	09:00	83 F	5 mph	89%	35%	Mod.

Disease Ratings: July 28

Drained: July 23

Harvest: Aug. 11

Results: See Table 10

Comments: Sheath blight was light to moderate. Other diseases were very light.

Table 10. Effect of varietal resistance and fungicide application on sheath blight (SB) development and rice yield and milling, Kent Lounsberry Farm, Lake Arthur, LA, Vermilion Parish. 2014.

Character Rated								SB	SB	Yield	Milling head	Milling total
Rating Date								July 28	July 28	Aug. 11	Sept. 8	Sept. 8
Rating Unit								0-9	%	lb/A	%	%
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage					
1	CL161 Unsprayed							6.0ab	50ab	9518a	68.3a	73.6a
2	CL161 Quilt Xcel	2.2	lb/gal	SC	21	fl oz/A	B	4.8b-f	30cd	10157a	67.6a	73.6a
3	CL161 Sercadis	4	lb/gal	F	4.5	fl oz/A	B	6.3a	52a	9841a	67.8a	73.6a
4	CL161 Sercadis	4	lb/gal	F	4.5	fl oz/A	B & H	4.5c-f	34bcd	10666a	69.2a	74.4a
5	CL161 Quadris	4	lb/gal	SC	12	fl oz/A	B	5.5a-d	44abc	10757a	68.1a	73.9a
6	CL161 Stratego	2.08	lb/gal	EC	19	fl oz/A	B	4.8b-f	32cd	10477a	69.4a	74.3a
7	CL161 Tilt	3.6	lb/gal	EC	10	fl oz/A	B	5.5a-d	40a-d	9909a	68.7a	73.8a
8	CL161 Quadris	4	lb/gal	SC	12	fl oz/A	B & H	4.3def	27cd	9805a	68.1a	74.0a
9	CL152 Unsprayed							5.8abc	44abc	9783a	66.3a	73.1a
10	CL152 Quilt Xcel	2.2	lb/gal	SC	21	fl oz/A	B	4.0ef	24d	10262a	66.8a	73.2a
11	CL152 Sercadis	4	lb/gal	F	4.5	fl oz/A	B	5.3a-e	37a-d	10110a	67.4a	73.2a
12	CL152 Sercadis	4	lb/gal	F	4.5	fl oz/A	B & H	4.0ef	25d	10588a	67.4a	73.2a
13	CL152 Quadris	4	lb/gal	SC	12	fl oz/A	B	5.3a-e	35bcd	10392a	66.6a	73.1a
14	CL152 Stratego	2.08	lb/gal	EC	19	fl oz/A	B	4.3def	27cd	10453a	67.1a	72.9a
15	CL152 Tilt	3.6	lb/gal	EC	10	fl oz/A	B	5.5a-d	44abc	10458a	67.6a	73.0a
16	CL152 Quadris	4	lb/gal	SC	12	fl oz/A	B & H	3.8f	25d	10463a	66.9a	72.8a
LSD (P=.05)								1.47	17.2	1048.6	2.17	1.13
Standard Deviation								1.03	12.0	733.8	1.02	0.53
CV								20.79	33.86	7.17	1.5	0.72
Replicate F								4.103	8.271	4.499	13.998	3.690
Replicate Prob(F)								0.0117	0.0002	0.0076	0.0020	0.0740
Treatment F								2.271	2.263	0.991	1.535	1.648
Treatment Prob(F)								0.0173	0.0177	0.4798	0.2080	0.1718

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

2014 Variety by Fungicide Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: CL152 and CL161 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, March 21

Fertilization: Preplant 0-60-60+7 Zn, Sept. 17; Preflood 150-0-0, May 5; Topdressed 46-0-0, June 3

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 1, 11, 22, and 29; Flooded, May 6; Drained, July 24

Herbicides: Tank-Mix Propanil 3 qt/A and Basagran 1.5 pt/A, May 6
Tank-Mix Benzobicyclon 8.4 oz/A, Crop Oil 1%, and Insecticide, May 20
Tank-Mix Clincher 20 oz/A and Crop Oil 1 qt/A, June 4

Insecticides: Dermacor seed treatment
Tank-Mix Mustang Max 4 oz/A and Herbicide, May 20

Fungicides: Various (Sercadis, Stratego, Tilt, Quadris, Quilt Xcel, and untreated check)

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 30

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 13	Boot	13:00	83 F	3 mph	84%	85%	Slight
July 2	Heading	13:30	90 F	2 mph	65%	20%	None

Disease Ratings: July 23

Drained: July 24

Harvest: Aug. 11

Results: See Table 11

Comments: Sheath blight severity was light. Other diseases were very light.

Table 11. Effect of varietal resistance and fungicide application on sheath blight (SB) development and rice yield and milling. Rice Research Station, Crowley, LA. 2014.

Character Rated								SB	SB	Yield	Milling head	Milling total
Rating Date								July 25	July 25	Aug. 12	Sept. 22	Sept. 22
Rating Type								0-9	%	lb/A	%	%
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage					
1	CL161 Unsprayed							6.8a	70ab	8513f	64.9a-e	71.9abc
2	CL161 Quilt Xcel	2.2	lb/gal	SC	21	fl oz/A	B	4.4ef	23gh	9985ab	66.1a	72.5a
3	CL161 Sercadis	4	lb/gal	F	4.5	fl oz/A	B	5.6bcd	43de	9586abc	65.4ab	72.1abc
4	CL161 Sercadis	4	lb/gal	F	4.5	fl oz/A	B & H	4.0fg	24gh	9624ab	64.4b-f	71.6a-e
5	CL161 Quadris	4	lb/gal	SC	12	fl oz/A	B	3.2g	19h	9995ab	64.9a-d	72.3ab
6	CL161 Stratego	2.08	lb/gal	EC	19	fl oz/A	B	5.2cde	38ef	9648ab	65.1abc	71.6a-d
7	CL161 Tilt	3.6	lb/gal	EC	10	fl oz/A	B	6.6a	63bc	8933ef	64.3b-g	71.2b-e
8	CL161 Quadris	4	lb/gal	SC	12	fl oz/A	B & H	3.4g	18h	10034ab	64.6b-f	71.7a-d
9	CL152 Unsprayed							6.2ab	62bc	8545f	62.9g	71.0cde
10	CL152 Quilt Xcel	2.2	lb/gal	SC	21	fl ozA	B	3.2g	16h	10085a	64.5b-f	71.3b-e
11	CL152 Sercadis	4	lb/gal	F	4.5	fl oz/A	B	6.6a	76a	8998c-f	63.4efg	70.5e
12	CL152 Sercadis	4	lb/gal	F	4.5	fl oz/A	B & H	4.4ef	27fgh	9603abc	63.3fg	70.7de
13	CL152 Quadris	4	lb/gal	SC	12	fl oz/A	B	3.8fg	20h	9710ab	63.7d-g	71.4a-e
14	CL152 Stratego	2.08	lb/gal	EC	19	fl oz/A	B	5.0de	33efg	9557a-d	64.3b-g	71.3b-e
15	CL152 Tilt	3.6	lb/gal	EC	10	fl oz/A	B	6.0abc	51cd	8968def	63.9c-g	71.3b-e
16	CL152 Quadris	4	lb/gal	SC	12	fl oz/A	B & H	3.6fg	19h	9464b-e	63.7c-g	71.1cde
LSD (P=.05)								0.83	11.9	607.7	1.46	1.12
Standard Deviation								0.65	9.4	480.4	1.02	0.78
CV								13.43	25.17	5.08	1.58	1.09
Replicate F								2.043	0.220	6.817	9.027	1.532
Replicate Prob(F)								0.0997	0.9263	0.0001	0.0001	0.2192
Treatment F								19.541	23.701	5.659	2.753	1.937
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0044	0.0444

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

2014 Blast Management Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: CL151, CL152, CL261, Caffey, and Catahoula / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, May 16

Fertilization: Preplant 0-60-60+7 Zn, Sept. 17; Preflood 154-0-0, June 16

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, May 26; Flooded, June 17; Drained, Aug. 29

Herbicides: Tank-Mix Propanil 3 qt/A and Acumen EC 2.4 pt/A, June 4
Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, RiceBeaux 3 qt/A, and Basagran 1.7 pt/A, June 9
Tank-Mix Clincher 20 oz/A and Crop Oil 1 qt/A, July 10

Insecticides: Dermacor seed treatment

Fungicides: GEM

Inoculation Dates: Natural inoculum

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:		Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
All	July 21	Boot	09:00	84 F	1 mph	85%	25%	Heavy
CL151	Aug. 4	Heading	09:00	83 F	3 mph	79%	10%	Heavy
CL261 and Catahoula	Aug. 6	Heading	11:00	88 F	2 mph	74%	65%	Slight
CL152 and Caffey	Aug. 8	Heading	08:30	84 F	3 mph	83%	25%	Heavy

Disease Ratings: Aug. 27

Drained: Aug. 29

Harvest: Sept. 9

Results: See Table 12

Comments: Blast severity was light. Other diseases were very light.

Table 12. Effect of varietal resistance and fungicide application on rotten neck blast (RNB) development and rice yield and milling. Rice Research Station, Crowley, LA. 2014.

Character Rated Rating Date Rating Unit								RNB Aug. 27 %	Yield Sept. 12 lb/A	Milling head Sept. 26 %	Milling total Sept. 26 %
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage				
1	Catahoula Unsprayed							0d	8037cde	59.4abc	68.3a
2	Catahoula GEM	4.17	lb/gal	SC	4.7	fl oz/A	H	1d	8312c	60.4abc	68.1a
3	Catahoula GEM	4.17	lb/gal	SC	4.7	fl oz/A	B & H	1d	8398c	60.8a	68.4a
4	Caffey Unsprayed							1cd	8409c	58.8bcd	64.9b
5	Caffey GEM	4.17	lb/gal	SC	4.7	fl oz/A	H	1cd	8921ab	60.2abc	64.9b
6	Caffey GEM	4.17	lb/gal	SC	4.7	fl oz/A	B & H	0d	8502bc	58.7bcd	64.5b
7	CL152 Unsprayed							1cd	7616def	57.1def	66.0b
8	CL152 GEM	4.17	lb/gal	SC	4.7	fl oz/A	H	0d	7625def	58.5cde	66.1b
9	CL152 GEM	4.17	lb/gal	SC	4.7	fl oz/A	B & H	0d	8103cd	56.8def	65.1b
10	CL151 Unsprayed							4b	9049a	56.4f	65.6b
11	CL151 GEM	4.17	lb/gal	SC	4.7	fl oz/A	H	2bcd	8947ab	57.2def	65.8b
12	CL151 GEM	4.17	lb/gal	SC	4.7	fl oz/A	B & H	1cd	9063a	56.6ef	65.0b
13	CL261 Unsprayed							18a	7320f	59.3abc	65.2b
14	CL261 GEM	4.17	lb/gal	SC	4.7	fl oz/A	H	1cd	7540ef	61.0a	66.0b
15	CL261 GEM	4.17	lb/gal	SC	4.7	fl oz/A	B & H	3bc	7558ef	60.5ab	65.7b
LSD (P=.05)								2.4	507.6	1.99	1.64
Standard Deviation								1.7	355.2	1.40	1.15
CV								75.67	4.32	2.37	1.74
Replicate F								2.945	0.571	0.328	2.609
Replicate Prob(F)								0.0441	0.6374	0.8051	0.0640
Treatment F								29.703	11.438	5.454	4.982
Treatment Prob(F)								0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

2014 Sheath Blight Fungicide Trial (SB5)

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: CL111 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, April 10

Fertilization: Preplant 0-60-60+7 Zn, Sept. 17; Preflood 150-0-0, May 14; Topdressed 46-0-0, June 20

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 22; Flooded, May 15; Drained, Aug. 1

Herbicides: Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, Permit ½ oz/A, and Londax 1½ oz/A, May 13
Benzobicyclon 8.4 oz/A, May 20

Insecticides: Dermacor seed treatment; Mustang Max 4 oz/A, May 20

Fungicides: Various

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 30

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application/Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 12	PD + 7	09:00	84 F	5 mph	82%	70%	Mod.
June 18	Boot	11:30	89 F	5 mph	75%	60%	Slight
July 3	Late Boot	11:00	87 F	4 mph	75%	05%	Slight

Disease Ratings: Aug. 14

Drained: Aug. 1

Harvest: Aug. 18

Results: See Table 13

Comments: Sheath blight severity was severe. Other diseases were light.

Table 13. Effect of fungicide application on sheath blight (SB) development and rice yield and milling. Rice Research Station, Crowley, LA. 2014.

Character Rated								SB	SB	Yield	Milling head	Milling total
Rating Date								Aug. 14	Aug. 14	Aug. 18	Sept. 5	Sept. 5
Rating Unit								0-9	% Tiller	lb/A	%	%
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage					
1	Unsprayed							8.0a	85.8a	8487f	68.7a	74.5a
2	Convoy	3.8	lb/gal	SC	32	fl oz/A	B	6.0de	50.0bcd	10318b-e	68.5a	74.5a
	NIS				0.25	% v/v	B					
3	Convoy	3.8	lb/gal	SC	16	fl oz/A	B	4.5gh	25.5g	11009a-d	68.5a	74.3a
	NIS				0.25	% v/v	B					
	Convoy	3.8	lb/gal	SC	16	fl oz/A	LB					
	NIS				0.25	% v/v	LB					
5	Artisan			SC	20	fl oz/A	B	5.5ef	37.3d-g	10504a-d	70.2a	74.5a
	NIS				0.25	% v/v	B					
	Artisan			SC	20	fl oz/A	LB					
	NIS				0.25	% v/v	LB					
6	Sercadis			SC	6.8	fl oz/A	B	6.5cd	55.5bc	10487a-d	69.8a	74.8a
	NIS				0.25	% v/v	B					
7	Sercadis			SC	4.5	fl oz/A	B	4.3h	26.5g	11186abc	69.4a	74.7a
	NIS				0.25	% v/v	B					
	Sercadis			SC	4.5	fl oz/A	LB					
	NIS				0.25	% v/v	LB					
8	Quilt Xcel			SC	21	fl oz/A	B	4.8fgh	29.0fg	11485ab	69.1a	74.7a
	NIS				0.25	% v/v	B					
9	Convoy	3.8	lb/gal	SC	16	fl oz/A	PD+7	8.0a	92.0a	9532def	68.5a	74.5a
	NIS				0.25	% v/v	PD+7					
10	Convoy	3.8	lb/gal	SC	16	fl oz/A	PD+7	7.0bc	63.5b	10231b-e	68.4a	74.5a
	Quadris	2.08	lb/gal	SC	9	fl oz/A	PD+7					
	NIS				0.25	% v/v	PD+7					
11	Convoy	3.8	lb/gal	SC	16	fl oz/A	PD+7	5.3efg	40.0c-g	11960a	69.8a	74.8a
	Quadris	2.08	lb/gal	SC	12.5	fl oz/A	PD+7					
	NIS				0.25	% v/v	PD+7					
12	Convoy	3.8	lb/gal	SC	32	fl oz/A	PD+7	8.0a	90.0a	8825ef	70.9a	74.3a
	NIS				0.25	% v/v	PD+7					
13	Convoy	3.8	lb/gal	SC	32	fl oz/A	PD+7	6.5cd	49.0b-e	10553a-d	71.3a	74.6a
	Quadris	2.08	lb/gal	SC	9	fl oz/A	PD+7					
	NIS				0.25	% v/v	PD+7					
14	Convoy	3.8	lb/gal	SC	32	fl oz/A	PD+7	5.0fgh	44.5c-f	10572a-d	69.3a	74.5a
	Quadris	2.08	lb/gal	SC	12.5	fl oz/A	PD+7					
	NIS				0.25	% v/v	PD+7					
15	Quadris	2.08	lb/gal	SC	12.5	fl oz/A	PD+7	5.0fgh	32.5efg	11065abc	70.0a	74.6a
	NIS				0.25	% v/v	PD+7					
16	Tilt	3.6	lb/gal	EC	6	fl oz/A	B	8.0a	84.5a	9939c-f	69.0a	74.5a
17	Tilt	3.6	lb/gal	EC	9	fl oz/A	B	7.3abc	65.3b	9706c-f	70.7a	74.8a
18	Tilt	3.6	lb/gal	EC	12	fl oz/A	B	7.0bc	63.5b	9925c-f	70.9a	74.5a
19	Stratego	3.16	lb/gal	EC	19	fl oz/A	B	5.5ef	35.3d-g	9687c-f	69.9a	74.8a
20	Quadris	2.08	lb/gal	SC	9	fl oz/A	B	5.5ef	39.5c-g	10456bcd	69.2a	74.6a
LSD (P=.05)								0.96	17.38	1500.4	2.80	0.47
Standard Deviation								0.68	12.29	1061.0	1.98	0.33
CV								10.87	22.38	10.36	2.84	0.44
Replicate F								0.962	5.638	0.266	4.521	6.793
Replicate Prob(F)								0.4169	0.0019	0.8497	0.0065	0.0005
Treatment F								14.509	14.016	2.875	0.842	0.859
Treatment Prob(F)								0.0001	0.0001	0.0011	0.6503	0.6311

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

2014 Sheath Blight Fungicide Trial (SB6)

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: CL111 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, April 10

Fertilization: Preplant 0-60-60+7 Zn, Sept. 17; Preflood 150-0-0, May 14; Topdressed 46-0-0, June 5

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 22; Flooded, May 15; Drained, Aug. 1

Herbicides: Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, Permit ½ oz/A, and Londax 1½ oz/A, May 13
Benzobicyclon 8.4 oz/A and Insecticide, May 20

Insecticides: Dermacor seed treatment
Tank-Mix Mustang Max 4 oz/A and Herbicide, May 20

Fungicides: Various (Equation, Quadris, CHA-073, Quilt Xcel, Sercadis, and untreated checks)

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 30

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application/Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 20	Boot	08:30	81 F	1 mph	87%	20%	Mod.
July 7	Heading	13:00	90 F	2 mph	55%	50%	none

Disease Ratings: Aug. 14

Drained: Aug. 1

Harvest: Aug. 15

Results: See Table 14

Comments: Sheath blight severity was heavy. Other diseases were very light. No phtyotoxicity was detected.

Table 14. Effect of fungicide application on sheath blight (SB) development and rice yield and milling. Rice Research Station, Crowley, LA. 2014.

Character Rated							SB	SB	Yield	Milling head	Milling total
Rating Date							Aug. 14	Aug. 14	Aug. 18	Sept. 4	Sept. 4
Rating Unit							0-9	%	LB/A	%	%
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage					
1	Unsprayed check							8.0a	88a	8587c	67.8a	74.4a
2	Equation	2.08	lb/gal	SC	9	oz/A	B	4.8cd	31cd	10030ab	68.9a	74.5a
3	Equation	2.08	lb/gal	SC	12.5	oz/A	B	4.8cd	29cd	9728ab	68.4a	74.3a
4	Equation	2.08	lb/gal	SC	9	oz/A	B	4.0d	24cd	10251ab	70.0a	74.2a
	Equation	2.08	lb/gal	SC	9	oz/A	H					
5	Quadris	2.08	lb/gal	SC	12.5	oz/A	B	5.3bc	34c	10221ab	68.2a	74.6a
6	CHA-073	2.2	lb/gal	SC	10.5	oz/A	B	5.3bc	32cd	10442a	67.2a	74.5a
7	CHA-073	2.2	lb/gal	SC	21	oz/A	B	4.8cd	27cd	10136ab	67.2a	74.5a
8	CHA-073	2.2	lb/gal	SC	42	oz/A	B	4.3cd	25cd	9604b	67.5a	74.1a
9	Quilt Xcel	2.2	lb/gal	SC	21	oz/A	B	4.3cd	22d	10452a	67.7a	74.5a
10	Sercadis	2.5	lb/gal	SC	6.8	oz/A	B	6.0b	47b	10338ab	67.1a	74.5a
LSD (P=.05)								1.01	10.6	790.2	2.12	0.36
Standard Deviation								0.70	7.3	544.6	1.46	0.24
CV								13.63	20.49	5.46	2.15	0.33
Replicate F								0.051	0.194	2.592	14.041	3.058
Replicate Prob(F)								0.9844	0.8996	0.0734	0.0001	0.0452
Treatment F								11.186	28.515	4.298	1.547	1.774
Treatment Prob(F)								0.0001	0.0001	0.0015	0.1821	0.1204

Means followed by same letter do not significantly differ (P=.05, LSD).
Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

2014 Mamou Cercospora Trial

Location: Bieber Farms, Mamou, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: CL111 / 90 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, March 27

Fertilization: Unknown

Experimental Design: Randomized complete block design with four replications

Water Management: Flush, April 21; Flood, May 8; Drain, Aug. 1

Herbicides: Tank-Mix RiceShot 3 qt/A, Londax 1 oz/A, and Permit 1 oz/A, April 15
Tank-Mix Propanil 1.5 qt/A, RiceBeaux 1.5 qt/A, Londax 1 oz/A, and Permit 1 oz/A, May 6

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: All natural inoculum

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 16	Boot	09:00	81 F	5 mph	90%	95%	Moderate
June 23	Late Boot	13:30	86 F	5 mph	75%	100%	Slight

Disease Rating Date: Aug. 20

Drained: Aug. 1

Harvest: Aug. 21

Results: See Table 15

Comments: No disease developed in the plots. Fungicides did not increase yield nor delay maturity.

Table 15. Effect of fungicide application on rice maturity and yield. Bieber Farms, Mamou, LA. 2014.

Character Rated								Grain Moisture	Yield
Rating Date								Oct. 29	Oct. 29
Rating Type								%	LB/A
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage		
1	Unsprayed							21.500a	11191a
2	Tilt	3.6	lb/gal	EC	6	fl oz/A	B	21.058a	11670a
3	Tilt	3.6	lb/gal	EC	6	fl oz/A	B+LB	22.100a	11009a
4	Tilt	3.6	lb/gal	EC	9	fl oz/A	B	20.833a	11862a
5	Tilt	3.6	lb/gal	EC	12	fl oz/A	B	23.163a	10840a
6	Tilt	3.6	lb/gal	EC	15	fl oz/A	B	21.975a	11428a
7	Tilt	3.6	lb/gal	EC	3	fl oz/A	B	20.875a	11064a
	Stratego	2.08	lb/gal	EC	19	fl oz/A	B		
8	Stratego	2.08	lb/gal	EC	19	fl oz/A	B	20.350a	10964a
9	Tilt	3.6	lb/gal	EC	3	fl oz/A	B	21.698a	11347a
	Quilt Xcel	2.6	lb/gal	SC	21	fl oz/A	B		
10	Quilt Xcel	2.6	lb/gal	SC	21	fl oz/A	B	21.910a	11458a
LSD (P=.05)								3.6319	1102.3
Standard Deviation								2.5031	759.7
CV								11.62	6.73
Replicate F								0.467	1.364
Replicate Prob(F)								0.7077	0.2749
Treatment F								0.418	0.747
Treatment Prob(F)								0.9142	0.6635

Means followed by same letter do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P (F) is significant at mean comparison OSL.

GENETIC MAPPING, BREEDING, AND DEVELOPMENT OF NEW STRATEGIES TO IMPROVE RICE DISEASE MANAGEMENT FOR SHEATH BLIGHT AND BACTERIAL PANICLE BLIGHT

J.H. Ham, B.K. Shrestha, S. Osti, I. Barphagha, and D.E. Groth

Introduction

Sheath blight (SB) and bacterial panicle blight (BPB) cause recurring problems in rice production in Louisiana and other rice-growing states in the southeastern United States. There are few rice varieties showing strong resistance to these diseases along with other commercially valuable traits. Sheath blight control relies mainly on fungicide application but this approach is not cost-effective, and the recent development of the fungicide-resistant SB pathogen, *Rhizoctonia solani*, suggests potential limitation of fungicide usage for SB control. Bacterial panicle blight is caused by the bacterial pathogens *Burkholderia glumae* and *B. gladioli*. Despite occasional outbreaks resulting in severe yield reduction, there has been no effective control measure for this disease. To mitigate the problems in controlling these major rice diseases, we have made continuous efforts to develop new disease-resistant rice varieties/lines and to understand genetic traits determining disease resistance to SB and BPB as well as other major rice diseases. For breeding and genetic characterization of disease resistance to SB and BPB, the medium-grain variety, Jupiter, and the long-grain line, LM-1, have been used as major genetic sources of disease resistance. In addition, various chemical and biological treatments have been tested to develop new effective disease management strategies for SB and BPB.

Progress

Genetic characterization of disease resistance. Four mapping populations from the crosses between the disease-resistant rice (Jupiter and LM-1) and the disease-susceptible rice (Trenasse and Bengal) have been developed for genetic mapping of rice disease resistance to SB and BPB. Each mapping population contains 300 F_7 recombinant inbred lines (RILs). Individual RILs of the two mapping populations from Trenasse/Jupiter and LM-1/Bengal cross combinations have been characterized in terms of their phenotypes in 1) disease resistance to SB and BPB, 2) plant height, 3) days to heading, 4) flag leaf size, and 5) panicle length/shape for three years. In 2014, phenotypes of the F_7 RIL population from Trenasse and Jupiter (300 RILs) in SB resistance were measured in the field (Table 1 and Figure 1).

In addition, it was recently discovered that a rice gene encoding an NAC-family transcriptional factor, named as *BPR1*, is specifically expressed in the BPB-resistant variety Jupiter (but not in the BPB-susceptible variety Trenasse) upon inoculation of the BPB pathogen *B. glumae*. To figure out the inheritance pattern of *BPR1* and the involvement of this gene in BPB resistance, segregated F_2 plants from the cross between Trenasse and Jupiter were tested in terms of their phenotypes in *BPR1* induction upon *B. glumae* inoculation and disease resistance/susceptibility to BPB. Six out of 24 F_2 plants tested showed clear induction of *BPR1* upon pathogen inoculation, like Jupiter, indicating that this genetic trait is governed by a single recessive gene (Figure 2). All of the F_2 plants except one showing *BPR1* induction exhibited the BPB resistance comparable to or higher than the BPB-resistant parent Jupiter (Table 2), suggesting that this feature may contribute to the disease resistance of Jupiter to BPB. However, more comprehensive studies are required for a clearer understanding of the role of *BPR1* induction in rice disease resistance to BPB.

To date, genotyping of the mapping population from the Jupiter/Trenasse cross has been conducted with 46 polymorphic simple sequence repeat (SSR) markers, which were screened as usable polymorphic markers from more than 1,000 random SSR markers tested. To identify more polymorphic molecular markers in a more efficient way, the whole genomes of Trenasse and Jupiter were sequenced and analyzed using high-throughput DNA sequencing and bioinformatics techniques (Table 3). As a result, 250 single nucleotide polymorphism (SNP) markers and 750 SSR markers could be newly designed based on the genome sequence information of Trenasse and Jupiter for the continuation of genotyping and genetic mapping. A genetic linkage map for the partial resistance to BPB and SB is being developed with the genotypic and phenotypic data for the individual RILs of the Trenasse/Jupiter mapping population. Whole genome DNA sequence information of Bengal, LM-1, and Lemont (the parent of LM-1) was also obtained and is being analyzed to design new molecular markers and to investigate sequence variations associated with disease resistance and other agronomic traits (Table 3).

Breeding of new disease-resistant lines. More than 3,000 progeny lines and germplasms derived from various crosses and genetic sources have been evaluated for their disease resistance traits, and up to 30 lines showed good

disease resistance traits for SB and/or BPB in greenhouse and field tests. In 2014, nine SB-resistant lines (TJF7-019, LB33, 11PY730, TJF7-014, TJF7-041, TJF7-137, TJF7-221, TJF7-151, and INIAP12) were provided to Dr. James Oard for the breeding program at the Rice Research Station. In addition, 23 selected lines were tested again in field conditions to confirm their SB-resistant phenotypes. Thirteen of the 23 lines repeatedly showed high levels of SB resistance, which were comparable to or higher than Jupiter or LM-1 (Table 4). In collaboration with Dr. Steve Linscombe, LB-33, which showed a superior disease resistance trait to both SB and BPB as well as a high yield potential, was crossed with a series of commercial varieties (CL151, Cheniere, Mermentau, Bengal, Lemont, and Trenasse) to incorporate the superior traits of LB-33 into the commercial varieties. F_1 seeds obtained from these crosses will be used to develop more breeding populations through either generation advancement of segregated progenies or tissue culture of double haplotypes.

Development of new disease management strategies. Various chemical and biological agents have been identified as potential alternative measures for the management of BPB and SB. Ascorbic acid (ASA, vitamin C), hydrogen peroxide (H_2O_2), and jasmonic acid (JA) frequently showed significant suppression of BPB, if they were treated one day prior to pathogen inoculation. Effects of these chemical compounds on the suppression of BPB were tested again this year, along with the known plant-defense inducers 2,6-dichloroisonicotinic acid (INA) and salicylic acid (SA). In this year's tests, H_2O_2, JA, and ASA showed significant suppression of BPB development (Figure 3).

In addition, more than 20 bacterial strains isolated from rice plants and rice fields also showed significant disease suppression activities against BPB and/or SB. In 2014, new antagonistic bacteria were identified from the soil samples collected from the rice fields of the Rice Research Station (Figure 4 and Table 5). These newly identified antagonistic bacteria showed significant disease suppression activities for BPB in both greenhouse (Figure 5) and field (Figure 6) tests. It is thought that these new antagonistic soil bacteria are excellent candidates of new biological control agents for BPB and possibly other diseases, such as SB and blast. This will be tested during the next few years.

Table 1. Statistics of the F_7 recombinant inbred lines derived from Trenasse and Jupiter.

Variable	# of F_7 RILs	Mean	Standard deviation	Minimum	Maximum	Jupiter	Trenasse
Sheath blight disease score (0-9)	300	7	1.5	2.5	9	3	8
Plant height (cm)	300	101	7.7	81.7	122	98	94
Panicle length (cm)	300	20	1.8	14.7	27.7	17	21

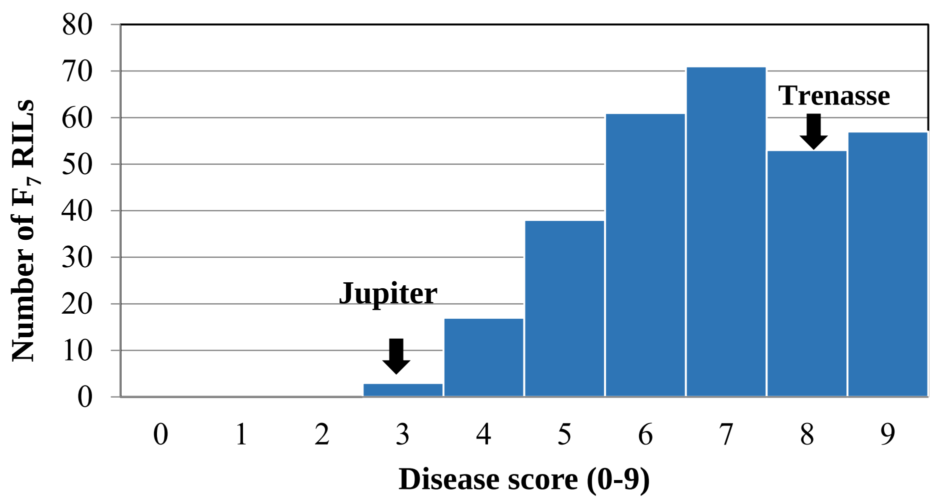


Figure 1. Distribution of the F_7 recombinant inbred lines derived from Trenasse and Jupiter.

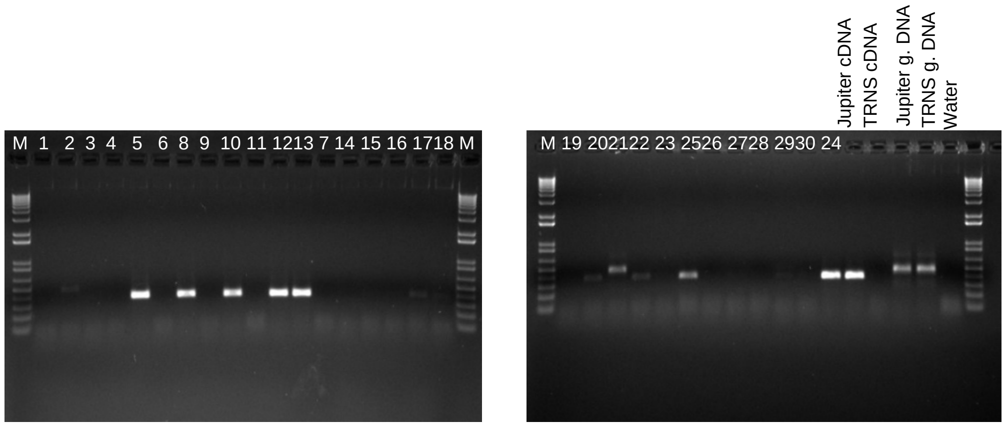


Figure 2. Expression of *BPR1* upon inoculation of the BPB pathogen, *Burkholderia glumae*, in segregated F_2 lines from the cross between Trennase and Jupiter. F_2 plants as well as Jupiter and Trenasse were inoculated at 30% heading stage with a toxoflavin deficient mutant derivative of *B. glumae* 336gr-1 (~1× 10^8 CFU/ml). Panicle samples were collected two days after inoculation and were flash frozen. Three µl of 300 ng/µl of total RNA was used to synthesize cDNA. Lane M is 1 kb plus DNA ladder; F_2 lines are labeled from 1 to 30. Genomic DNA (g. DNA) of Jupiter and Trenasse (TRNS) were used as controls.

Table 2. Disease scores and *BPR1* induction patters of F_2 plants from the Trenasse and Jupiter cross.

F_2 plant	**Induction of *BPR1****	**Disease score (0-9)**	**F_2 plant**	**Induction of *BPR1***	**Disease score (0-9)**
1	no	2	16	no	5
2	no	4	17	no	4
3	no	4	18	no	5
4	no	5	19	no	6
5	**yes**	**4**	20	no	5
6	no	8	21	no	6
7	no	7	22	no	6
8	**yes**	**5**	23	no	5
9	no	7	25	no	4
10	**yes**	**3**	26	no	5
11	no	3	27	no	6
12	**yes**	**3**	28	no	6
13	**yes**	**3**	29	no	5
14	no	5	30	no	6
15	no	4	24	**yes**	**4**
Jupiter	**yes**	**4**	**Trenasse**	**no**	**7**

*: Only strong induction (comparable level to Jupiter) was counted.

Table 3. Statistics of high-throughput sequencing with Illumina HiSeq X for five important rice genotypes.

Cultivars	Jupiter	Trenasse	Bengal	Lemont	LM-1
Insert size for library prep	644	552	755	761	704
# of single reads (100 bp / read)	39,431,318	42,170,825	24,990,122	65,579,443	37,871,792
Total paired-end reads (100 bp / read)	78,862,636	84,341,650	49,980,244	131,158,886	75,743,584
Coverage (~ 450,000 bp / rice genome)	~ 18X	~ 19X	~ 12X	~ 30X	~ 18X
Aligned percentage with the reference genome	95.78%	91.02%	96.33%	83.94%	94.81%

Table 4. Disease scores in the 2014 field test of the rice germplasm lines previously selected as SB-resistant lines.

Rice Lines	Disease score SB, 2014 (0-9)	Notes
TJF6003	6	Selected from the cross between Trenasse and Jupiter
TJF6019	4	
TJF6024	6.5	
TJF6070	6.5	
TJF6081	5	
TJF6266	5	
BLF6-007-013	6	Selected from the cross between Bengal and LM-1
BLF6-008-013	6.5	
BLF6-014-013	6.5	
BLF6-015-013	5	
BLF6-013-013	5	
LB-33	5	
11PY776	5	Rice germplasms (collected by Dr. Groth and Dr. Rush)
11PY789	6.5	
11SP175(LAH10)	5.5	
11PY725	7	
11PY730	3.5	
11PY734	4	
11PY740	5	
INIAP-12	3	
UA02-107	2.5	
PGC004	2	
PGC032	3.5	
Jupiter	5	Parental lines (Control)
Trenasse	7	
LM-1	3	
Bengal	5	

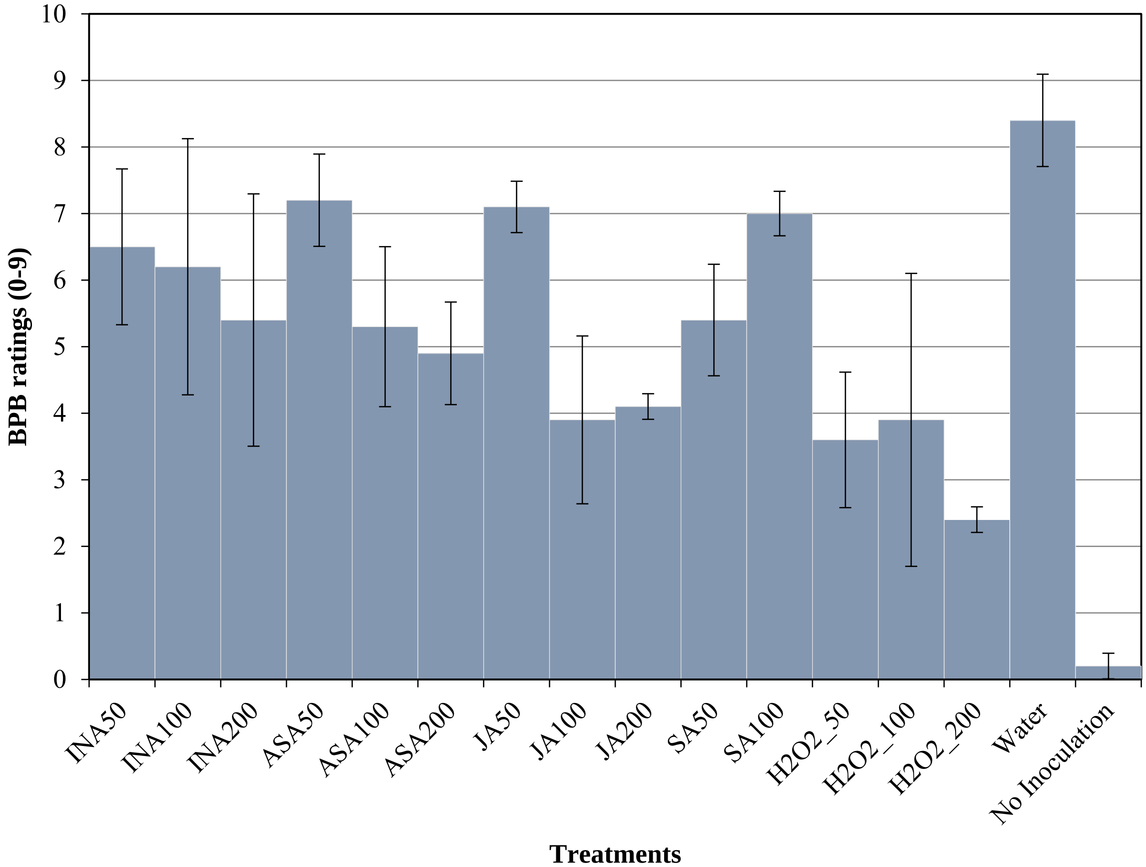


Figure 3. Scores of bacterial panicle blight resulted from treatments of various chemical compounds prior to the bacterial inoculation of the bacterial panicle blight pathogen *Burkholderia glumae*. INA: 2,6-dichloroisonicotinic acid. ASA: ascorbic acid. JA: jasmonic acid. SA: salicylic acid. H_2O_2: hydrogen peroxide. The numbers after chemical names indicate the concentrations (µM) of the corresponding chemical compounds.

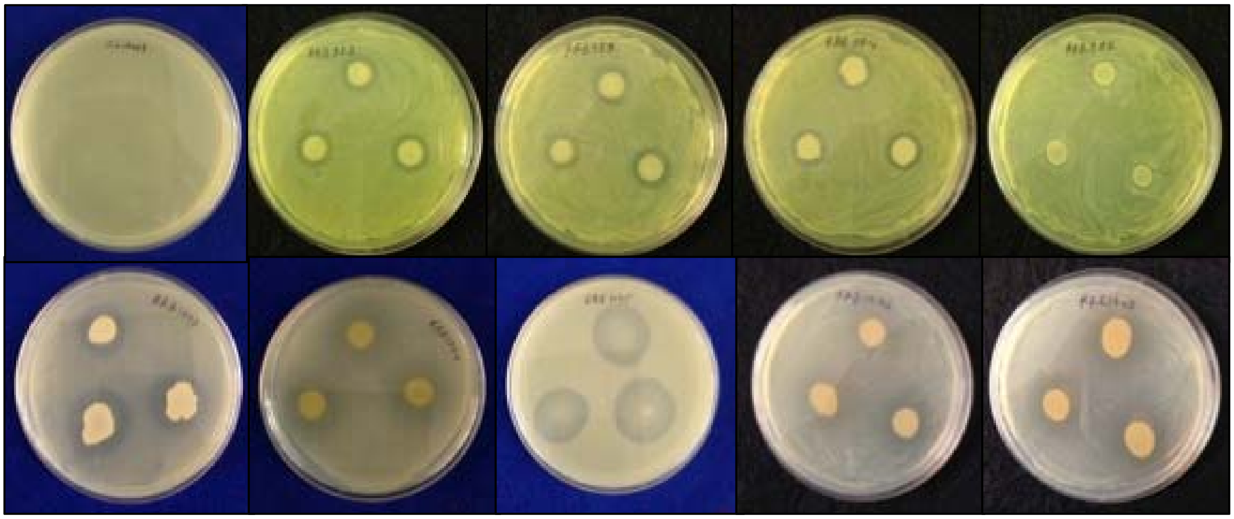


Figure 4. Antagonistic bacteria (three spots on each plate) showing growth inhibitory activities against the BPB pathogen, *Burkholderia glumae* (background bacterial lawn on each plate).

Table 5. The list of antagonistic bacteria newly isolated from the soil samples collected from the rice fields of the Rice Research Station.

Bacteria	**Gram +/-**	**Antagonism**	**Identity**
RRB982	Gram positive	Moderate	*Bacillus subtilis*.
RRB983	Gram positive	Moderate	*Bacillus* sp. (*amyloliquefaciens*)
RRB984	Gram positive	Moderate	*Bacillus amyloliquefaciens*
RRB985	Gram positive	Moderate	*Bacillus subtilis*
RRB1042	Gram positive	Moderate	*Bacillus* sp. (*amyloliquefaciens)*
RRB1043	Gram positive	Strong	*Bacillus subtilis*
RRB1044	Gram negative	Strong	*Pseudomonas* spp. (*plecoglossicida*)
RRB1045	Gram positive	Strong	*Paenibacillus* sp. (*alvei)*
RRB1046	Gram negative	Strong	*Pseudomonas putida*
RRB1047	Gram negative	Strong	*Pseudomonas* sp. (*putida*)

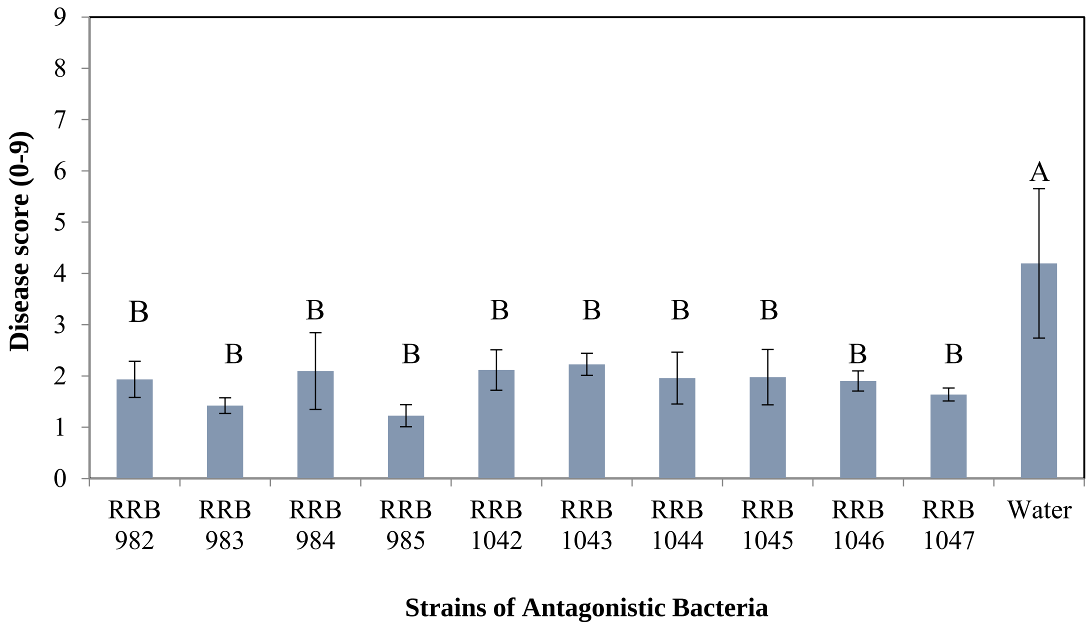


Figure 5. Suppression of BPB by rice rhizospheric bacteria in the greenhouse condition. Data were analyzed by using Tukey's honest significant difference (HSD) test at P value < 0.05. Means with the same letter are not significantly different.

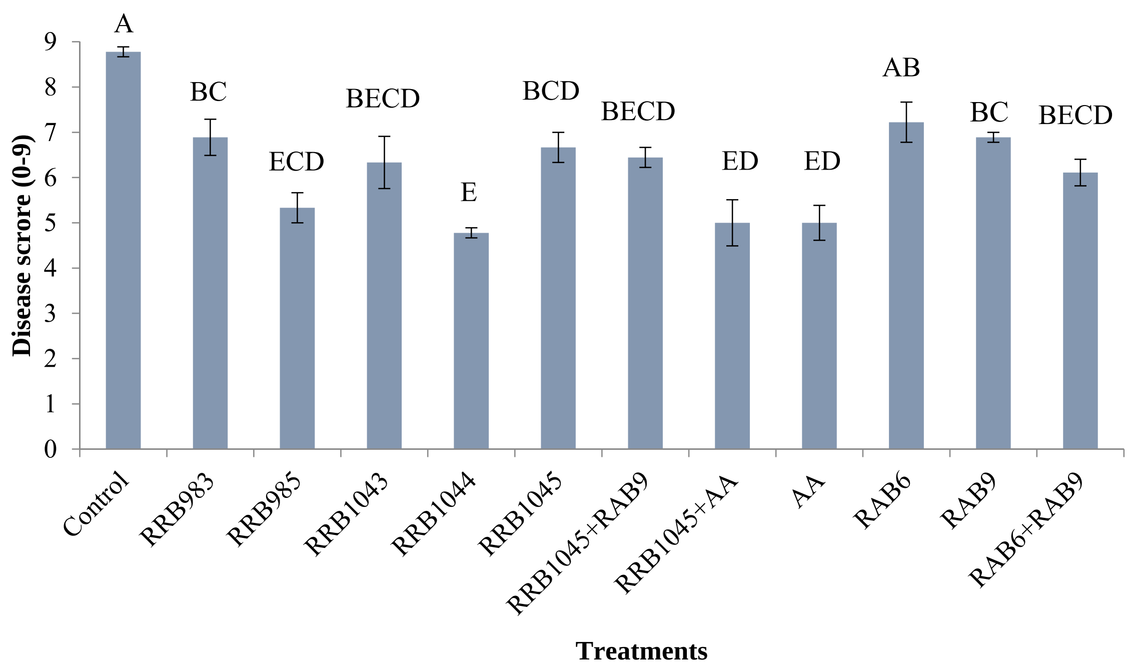


Figure 6. Suppression of BPB by rice rhizospheric bacteria in the field condition. Ascorbic Acid (AA) was treated with 100 μM concentration and, in co-treatment, mixed with the respective bacterium culture and sprayed onto the panicles of rice. Data were analyzed by using Tukey's honest significant difference (HSD) test at P value < 0.05. Means with the same letter are not significantly different.

RICE INSECTS RESEARCH

EFFECTS OF FEEDING BY THE RICE WATER WEEVIL ON RICE HEADING

M.J. Stout, S. Lanka, and M.J. Frey

Feeding by the rice water weevil on rice roots can have significant impacts on rice plant growth and yield. In experiments conducted at the Rice Research Station over the past 15 years, differences in the timing of heading in rice plots infested and not infested with weevils had been noticed, but the effect of weevil feeding on rice heading had not been quantified. In 2014, a test of the efficacy of Dermacor at a range of rates afforded an opportunity to quantify the effect of weevil presence/absence on rice heading.

Location: Rice Research Station, Crowley, LA

Variety/Seeding Rate: Cheniere/40 lb/A

Plot Size: 4.1 ft x 18 ft (7 rows at 7-in row spacing)

Planting Method/Date: Drill-seeded, April 10, 2014

Agronomic Practices: Standard for drill-seeded rice

Water Management: Permanent flood, May 20, 2014, plants at early tillering

Experimental Design: Randomized complete block, five treatments, five replications

Treatments:
1. Cheniere, 0 micrograms Dermacor X-100 per seed (untreated control)
2. Cheniere, 6 micrograms Dermacor X-100 per seed
3. Cheniere, 12 micrograms Dermacor X-100 per seed
4. Cheniere, 18 micrograms Dermacor X-100 per seed
5. Cheniere, 24 micrograms Dermacor X-100 per seed (approximately label rate)

All seed treatments were done manually in the laboratory by mixing appropriate amounts of formulated product with small batches of seed and a dye.

Sampling Dates: Three core samples were taken from each plot on June 10 (21 days after flooding) and June 16 (27 days after flooding) to estimate densities of rice water weevil larvae and pupae in plots (Table 1). Visual estimates of % heading were made on July 14 and 16. Estimates were made blind (without referring to plot map).

Data Analysis: Treatment effects on densities of rice water weevil larvae and pupae and on heading percent were analyzed by PROC MIXED in SAS with treatment as a fixed effect and block as a random effect, followed by LSD mean separation.

Results: Plots in which rice water weevil larvae had not been excluded (i.e., plots not treated with Dermacor X-100) headed earlier than plots in which weevils had been excluded—50% heading occurred approximately two days later in plots treated with Dermacor than in plots not treated with Dermacor (Table 1). Weevil densities in plots treated with high and low levels of Dermacor did not differ significantly, and timing of heading also did not differ significantly in plots treated with high and low rates of Dermacor. Thus, it seems more likely that the later heading in Dermacor-treated rice is a result of the suppression of larvae than a direct effect of Dermacor on rice plant physiology.

Table 1. Rice water weevil densities and heading data for plots treated with five rates of Dermacor X-100.

	Rice water weevil larvae/pupae (± S.E.) **per core sample on:**		**Percent rice headed on:**	
Treatment (micrograms [µg] ai/seed)	June 10, 2014	June 16, 2014	July 14, 2014	July 16, 2014
0 µg (control)	14.8 ± 3.2 a	17.6 ± 5.0a	50 ± 8.4 A	91 ± 2.9 A
6 µg	2.2 ± 0.4 b	1.3 ± 0.5 b	14 ± 4.8 B	61 ± 9.3 B
12 µg	0.9 ± 0.5 b	1.1 ± 0.5 b	17 ± 2.5 B	65 ± 10.5 AB
18 µg	0.5 ± 0.4 b	1.3 ± 0.7 b	18 ± 3.4 B	68 ± 9.7 AB
24 µg (label rate)	0.4 ± 0.2 b	0.5 ± 0.3 b	20 ± 4.2 B	59 ± 12.1 B

Means in a column accompanied by the same letter did not differ significantly ($P > 0.05$, LSD).

DETERMINATION OF LC_{50} VALUES FOR CLOTHIANIDIN AGAINST THE RICE WATER WEEVIL USING TWO FORMULATIONS OF CLOTHIANIDIN, BELAY, AND NIPSIT INSIDE

S.K. Lanka, M.J. Frey, and M.J. Stout

Belay and NipsIt INSIDE are foliar and seed treatment formulations, respectively, of a newly registered insecticide active ingredient in rice, clothianidin. Clothianidin is a neonicotinoid, similar in structure to thiamethoxam, the active ingredient in Cruiser. The purpose of these experiments was to determine estimates of LC_{50} values for the two clothianidin formulations against field populations of adult rice water weevils in rice. The LC_{50} values represent the concentrations that cause 50% mortality in insect populations. The Belay experiment was conducted using foliage from Belay-treated field plots, while the NipsIt experiment was conducted using foliage from NipsIt INSIDE-treated plants grown in the greenhouse.

Belay LC_{50} Study

Methods

Three independent trials involving Belay-treated rice were conducted. Small field plots of rice (cv. Cheniere) measuring approximately 4ft x 18ft were drill-seeded and cultivated following recommendations from the LSU AgCenter for drill-seeded rice. Plots were treated with Belay at approximately the mid-tillering stage of rice growth using a backpack sprayer calibrated to deliver 15 gallons of water (carrier) per acre. For each trial, separate plots were treated with different rates of Belay, as detailed below (Table 1). Approximately 1½ - 2 hours after spraying, leaf material from ca. 15 plants were removed from each plot with scissors and transported to the lab on ice. Some of this leaf material was used for feeding assays with rice water weevil adults, while the remaining leaf material was frozen and submitted for analysis of clothianidin residues by the LSU AgCenter Department of Agricultural Chemistry. Feeding assays were conducted by cutting leaf material into ca. 1 cm pieces and placing them in petri dishes lined with moist cotton batting, and 40-50 weevils were placed in each dish and allowed to feed on the leaf material. Mortality of weevils was assessed at 48 hours. Weevils exhibiting minimal movement of limbs and lacking the ability to right themselves after 1 minute of being placed on their backs were considered dead.

Table1. The concentrations of Belay/clothianidin used in the three trials of the Belay LC_{50} experiment.

Trial	**Date of Belay application**	**Clothianidin rates relative to label rate (x = 4.5 fl oz per acre)**	**Clothianidin rates (g/A)**
1	5/30/14	0, 0.25x, 0.5x, 1.0x, 2.0x, and 3.0x	0, 9.2, 18.4, 36.7, 73.4, and 110.1
2	6/2/14	0, 0.25x, 0.5x, 0.75x, 1.0x, and 3.0x	0, 9.2, 18.4, 27.5, 36.7, and 110.1
3	6/30/14	0, 0.25x, 0.5x, 0.75x, 1.0x, and 3.0x	0, 9.2, 18.4, 27.5, 36.7, and 110.1

In addition, in the 6/2/14 and 6/30/14 trials, a plot was treated with Karate at 0.03 lb ai/A. Clothianidin concentrations in foliage were analyzed by an LC/MS/MS method. The LC_{50} estimate was obtained by relating clothianidin concentrations with mortality data by using PROBIT analysis in SAS. The adult mortality data and foliar concentrations from three trials were pooled and analyzed.

Results

The 48-hr mortality of weevils placed on Karate-treated leaves (34.4%) was similar to the mortality of weevils treated at the 0.25x Belay rate (32.5%) and lower than the mortality at higher rates of Belay. The LC_{50} value for Belay determined by using the data was 725.3 ppb (95% confidence limits: 40.3-2394 ppb). The slope of the relationship was 0.75 (SE 0.17). The chi-square value was highly significant (P>0.001).

NipsIt LC_{50} Study

Methods

Three trials involving NipsIt-treated rice were conducted. For these experiments, rice seeds (cv. Cheniere) were treated with NipsIt INSIDE at rates of 0.9, 1.7, 4.3, 8.5, 17.0 (field rate), 25.5, and 34 µg ai/seed. Seeds were treated manually in the laboratory. Rice plants were grown in a greenhouse to the 2- to 3-leaf stage. Leaf tissue was excised from plants and transported to the lab on ice for use in feeding assays and for analysis of clothianidin residues in leaf tissue using the method described above. Feeding assays were also conducted as described for the Belay experiment above. The three feeding trials were done on three consecutive days using separate groups of weevils collected from unsprayed rice plots. Data was analyzed by PROBIT as described above. Mortality data were pooled for analysis.

Results

The LC_{50} value for NipsIt determined by using the data was 677.4 ppb (95% CI: 385-1077 ppb). The slope of the relationship was 1.01 (SE: +/- 0.11). The chi-square value for the model was significant ($P = 0.04$).

Conclusions

The relationships between clothianidin concentrations in/on leaves and mortality of weevils were similar for the two experiments using different formulations of clothianidin, as signified by LC_{50} values with overlapping confidence intervals. LC_{50} values were well below the concentrations found on/in leaves treated at the label rate.

The 48-hr mortality of weevils placed on leaves treated with Belay at rates higher than 0.25x the label rate was greater than the mortality of weevils treated with Karate at the label rate. This is consistent with the idea that Belay, when applied according to label specifications, has a greater residual activity than Karate. To test this hypothesis, mortality of weevils will need to be assessed on Karate- and Belay-treated leaves at several time points after treatment.

RICE WEED MANAGEMENT

WEED MANAGEMENT IN HERBICIDE-RESISTANT/TOLERANT AND CONVENTIONAL RICE

E.P. Webster, B.M. McKnight, E.A. Bergeron, and S.Y. Rustom, Jr.

RESULTS

Weed management studies were conducted at the Rice Research Station (RRS), Northeast Research Station (NERS) and producer fields in Louisiana in 2014. A total of 69 studies were established with a total of 711 treatments and 2,844 research plots. These studies indicate that weed control in rice will continue to be more effective as new technologies and new herbicides become available to the producers.

Impact of Provisia on Weed Control in Rice.
This was the first year the weed management project evaluated Provisia rice under research grade weed pressure. The active ingredient in Provisia is quizalofop, and the herbicide is only active on grasses. Five studies were conducted at the RRS and one study at the NERS. Two studies evaluated rates and timings. Preliminary data indicates that two applications will be need to achieve adequate control of red rice, weedy rice, and grass weeds. The initial application will need to be applied early to small actively growing grasses in the 1- to 3-leaf stage. It appears the target rate will be approximately 15 oz/A, and Provisia will need a crop oil concentrate added as the spray adjuvant. Provisia is only active on grass weeds, so herbicides with activity on broadleaf and sedge weeds will be needed in the Provisia production system. Research was conducted to evaluate potential mixture herbicides at the RRS and the NERS. Preliminary data indicated little to antagonism at the Crowley location, but antagonism was evident at the NERS. Provisia mixed with propanil containing herbicides, Permit, and Grasp were antagonistic to Provisia at the NERS.

Management and Competition of Nealley's Sprangletop.
The products evaluated were propanil at 2 and 4 qt/A, RiceBeaux at 2 and 4 qt/A, Clincher at 15 oz/A, Grasp at 2.3 oz/A, Assure at 24 oz/A, Arrow at 8 oz/A, Roundup at 1 qt/A, Liberty at 22 oz/A, Facet at 1 qt/A, Regiment at 0.5 oz/A, RiceStar HT at 24 oz/A, Newpath at 6 oz/A, Beyond at 5 oz/A, and Bolero at 2 qt/A.

At 14 days after treatment (DAT), Provisia, Arrow, and RiceStar HT controlled Nealley's sprangletop 91 to 98%. Roundup and Liberty applied to Nealley's sprangletop provided approximately 88% control. All other herbicides applied to Nealley's sprangletop were not effective, with 0 to 50% control. These data indicate the grass herbicides are more active on Nealley's sprangletop than the broad spectrum herbicides, Roundup and Liberty. In a rice production field, 24 oz/A of RiceStar HT should be applied for the control and management of this weed. In a competition study, Nealley's sprangletop was established at a density of 1, 3, 7, 13, and 26 plants/yd^2. Rough rice yield was reduced 0.4 to 1% for every Nealley's sprangletop plant/yd^2.

Managing Red Rice Outcrosses and Hybrid Rice Volunteers.
A long-term study was established on a grower location in 2013 to evaluate the management of red rice outcrosses and/or hybrid volunteers, often referred to as weedy rice. Five long-term rotations were established and will be evaluated on a yearly basis for four years. In 2014, the second year of the study, Provisia proved to be very active on weedy rice. The Provisia technology appears to help manage weedy rice and can help maintain the Clearfield technology.

Sharpen as a Rice Herbicide.
Sharpen received a full federal label for use as a postemergence application in rice in 2014. Sharpen was evaluated at 0.5, 0.75, and 1 oz/A with Stam, SuperWham, RiceBeaux, and Duet at 2 and 3 qt/A. Sharpen at 0.5 oz/A with either rate of the herbicides evaluated controlled hemp sesbania, Indian jointvetch, yellow nutsedge, and rice flatsedge. Hemp sesbania and Indian jointvetch were controlled with either rate of Sharpen applied without the addition of the propanil containing products. However, a propanil based product was needed to get additive activity on the sedges when Sharpen was applied alone. Sharpen at 1 oz/A resulted in injury of 10 to 20%; however, as the rate of Sharpen increased, injury increased. RiceBeaux mixed with Sharpen resulted in increased injury compared with the other propanil formulations evaluated.

New Pre-package Mixtures.

FMC received a full label for Obey in 2014. This mix contains Command and quinclorac. Each of these herbicides will be useful in our production system. Nichino purchased Isagro's Strada herbicide portfolio in 2014. Strada has a lot of potential as a herbicide in rice production. StradaPro, which contains Halomax, is an excellent herbicide for control of ducksalad and sedges. Results from this year indicate that StradaPro has an excellent fit in Louisiana rice production.

Evaluation of Experimental Herbicide – Benzobicyclon.

Benzobicyclon has excellent activity on many aquatic weeds found in rice. It is still one of the best ducksalad herbicides this project has evaluated. This herbicide needs water to be active and works best when rice is flooded prior to application. The herbicide has good activity on rice flatsedge, but provides only suppression of yellow nutsedge. The herbicide has been inconsistent on several other weeds, pickerelweed and cattails. Benzobicyclon has activity on small barnyardgrass at the 1- to 2-leaf stage, but it has excellent activity on large Amazon sprangletop, with one to three tillers. This herbicide is a couple of years away from a full federal label. This project will spend more time evaluating overall weed control programs including benzobicyclon to better evaluate how this product will fit into a rice production system. It is likely benzobicyclon will be marketed as a pre-package mixture with Permit. This project evaluated eight other experimental herbicides. Several of the products have potential in rice production. Three of the herbicides, including benzobicyclon, have a mode of action that is not currently label in rice. A totally new mode of action will help manage the development of weed resistance in rice.

This is a summary of the research that was conducted in 2014. To see the complete weed management annual report, please go to:

http://www.lsuagcenter.com/MCMS/RelatedFiles/%7B9CF8B5B7-6472-4816-A2E6-B5F272939C94%7D/2014-Annual-Report-%28Eric-Webster%29.pdf

AQUACULTURE RESEARCH

ANNUAL SUMMARY OF ENVIRONMENTAL CONDITIONS AND CRAWFISH PRODUCTION

W.R. McClain and J.J. Sonnier

Table 1 contains the average weekly data for environmental conditions and crawfish catch, 2013-2014 season, crawfish research project, Rice Research Station, Crowley, LA. The catch consisted exclusively of red swamp crawfish (*Procambarus clarkii*). The production summary is composed of cumulative yield from both experimental units (i.e., traps) and non-experimental trap lifts, but only from the pond located at the Rice Research Station.

Pond History: Pond was fallow for a period of 10 months following the previous crawfish season of 2012 - 2013.

Pond Area: 13.4 A

Soil Type: Midland silty clay loam

Water Source: Ground water

Forage Crops: Rice variety Caffey was drill-seeded on April 14, 2013, at 60 lb/A. Grain was harvested by a rice combine on Aug. 26, 2013, and a ratoon forage crop was managed for crawfish production.

Fertilizer: Main Crop: 8-24-24 at 250 lb/A post plant application, 46-0-0 at 200 lb/A (topdress) on May 16, 2013 and 46-0-0 at 100 lb/A on June 4; Ratoon Crop: No additional fertilization.

Herbicide: RiceBeaux at 1 gal/A + Permit Plus at 0.5 oz/A as tank mix on May 8, 2013; Grasp at 2 oz/A + Grandstand at 10 oz/A as tank mix on May 15, 2013.

Insecticide: None

Fungicide: Sercadis at 6.8 oz/A + Stratego at 19 oz/A as tank mix on July 2, 2013

Crawfish Stocking Rate: 45.9 lb/A from May 22 to June 19, 2013

Permanent Flood Date: Oct. 10, 2013

Feed: None

Trap Type and Density: 3-funnel pyramid trap: (0.75-inch square mesh); Density = 13 traps/A.

Bait Used: Manufactured bait: *Southern Pride*, *Early-On* (Purina Mills, Inc., Shreveport, LA) or fish baits that included gizzard shad or menhaden (pogy). Experimental formulated baits were used for a limited number of trap sets and catch totals also included incidental yields from a limited number of non-baited trap sets.

Crawfish Harvest: Feb. 4 - July 9, 2014 (923 total trap-sets/A)

Fields Drained: July 14, 2014

Support: This project was partially supported by USDA National Institute of Food and Agriculture.

Table 1. Annual environmental conditions and crawfish production (averaged or totaled weekly). Rice Research Station, Crowley, LA 2013-2014.

Weeks (2013 - 2014)	Soil Temp.[1] Min.	Soil Temp.[1] Max.	Air Temp. Min.	Air Temp. Max.	Water Temp. Min.	Water Temp. Max.	Total Rainfall	Crawfish Harvest	Total Trapsets
	--------------------------deg.F--------------------------						(inches)	(lb/A)	(#/A)
June 2-8	80.1	89.9	72.0	88.4			.86		
June 9-15	80.0	91.3	73.3	90.1			.28		
June 16-22	81.1	90.0	73.9	89.6			1.14		
June 23-29	83.6	95.0	74.7	92.1			.70		
June 30-July 6	83.0	95.0	69.4	90.7					
July 7-13	83.0	94.3	72.1	92.0			.73		
July 14-20	83.0[2]	93.0[2]	70.7	89.1			.65		
July 21-27	-	-	71.9	93.1			1.30		
July 28-Aug 3	-	-	74.0	93.0					
Aug 4-10	-	-	73.3	95.4					
Aug 11-17	-	-	82.4	91.7			3.17		
Aug 18-24	80.0[2]	90.8[2]	70.7	89.4			.50		
Aug 25-31	83.0	92.0	70.3	89.0			.28		
Sept 1-7	-	-	72.0	94.9			.86		
Sept 8-14	-	-	69.7	93.7					
Sept 15-21	-	-	72.0	92.3			.50		
Sept 22-28	-	-	65.1	87.6			3.15		
Sept 29-Oct 5	-	-	71.1	85.0			1.05		
Oct 6-12	-	-	58.1	79.4			.26		
Oct 13-19	-	-	63.4	81.1	71.3	79.2	.90		
Oct 20-26	-	-	51.3	75.7	62.3	72.3	.56		
Oct 27-Nov 2	-	-	59.0	77.6	65.7	72.2	2.33		
Nov 3-9	-	-	51.0	70.9	58.7	67.6	.15		
Nov 10-16	-	-	45.7	70.0	54.5	63.8			
Nov 17-23	-	-	55.9	74.4	60.5	67.5			
Nov 24-30	-	-	34.0	50.4	43.6	50.1	1.94		
Dec 1-7	-	-	51.9	71.3	54.6	63.4	.10		
Dec 8-14	45.7[2]	50.3[2]	35.9	48.1	44.1	49.9	2.26		
Dec 15-21	-	-	42.9	65.0	51.5	59.8			
Dec 22-28	50.1	57.3	40.3	56.9	47.0	53.6	.72		
Dec 29-Jan 4	46.6	52.4	38.3	57.0	44.9	52.5	.38		
Jan 5-11	42.0	51.0	35.1	54.7	44.1	51.5	.18		
Jan 12-18	48.3	57.0	39.1	64.0	49.5	57.7	.98		
Jan 19-25	45.1	53.9	33.0	57.1	45.6	53.6			
Jan 26-Feb 1	39.9	48.7	28.1	50.9	41.7	51.6	.45		
Feb 2-8	45.6	53.7	35.6	55.6	45.0	52.6	.94	1.4	26
Feb 9-15	43.7	50.6	35.6	54.7	43.9	53.9	1.93	3.6	26
Feb 16-22	55.1	61.7	51.9	71.9	60.3	70.5	.92	1.1	26
Feb 23-Mar 1	55.0	60.6	41.6	61.3	55.2	64.7	1.97	1.6	26
Mar 2-8	51.7	56.9	39.4	56.7	48.0	59.1	.98	1.8	26
Mar 9-15	56.6	61.9	47.7	68.9	59.4	70.1		2.8	26
Mar 16-22	57.7	63.3	47.1	68.0	57.2	70.7	.60	4.0	39
Mar 23-29	58.9	64.3	49.3	69.0	58.2	70.3	.97	6.6	39
Mar 30-Apr 5	63.7	70.0	57.0	76.0	65.5	78.6	.54	6.9	26
Apr 6-12	62.4	69.4	53.0	72.3	61.7	77.5	.17	11.3	39
Apr 13-19	62.1	69.4	51.6	72.1	.60.3	74.9	.47	21.2	52

Continued.

Table 1. Continued.

Weeks (2014)	Soil Temp.[1] Min.	Soil Temp.[1] Max.	Air Temp. Min.	Air Temp. Max.	Water Temp. Min.	Water Temp. Max.	Total Rainfall	Crawfish Harvest	Total Trapsets
	-------------------------deg.F					-------------------------	(inches)	(lb/A)	(#/A)
Apr 20-26	67.7	76.6	61.3	81.4	71.7	86.9		31.0	52
Apr 27-May 3	71.6	78.6	61.4	80.0	67.8	81.8		30.5	52
May 4-10	71.9	79.0	64.7	83.0	70.4	83.3	.52	25.7	39
May 11-17	70.3	77.7	63.0	79.3	68.1	81.6	.46	41.1	65
May 18-24	73.7	83.4	64.7	85.3	73.8	90.1		45.4	78
May 25-31	77.0[2]	84.7[2]	69.3	84.4	75.8	86.1	6.38	35.8	65
June 1-7	78.3[2]	85.7[2]	72.3	86.3	78.7	93.0	.52	30.4	52
June 8-14	77.3	87.0	71.6	87.9	79.2	93.3	3.90	24.0	39
June 15-21	80.1	89.6	72.9	89.7	80.7	96.0	.26	20.5	65
June 22-28	79.7	86.7	73.7	87.9	78.0	87.4	1.8		
June 29-July 5	80.0	89.3	72.6	89.7	79.9	98.8		11.3	26
July 6-9	83.0	95.0	70.3	91.0	76.5	89.8	.30	10.7	39
							43.23[3]	**368.7**	**923**

[1] Soil temperature was measured at a depth of 4 inches. The symbol "-" represents missing data.
[2] Weekly averages contained missing data points.
[3] Rainfall total is for one year only (June 1, 2013 - May 31, 2014) and does not include additional rainfall for the extended harvest period (June and July 2014).

INVESTIGATION OF PROPRIETARY INGREDIENTS AS POTENTIAL ATTRACTANTS FOR CRAWFISH IN COOL AND WARM WATER

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish are harvested in more than 185,000 acres of aquaculture ponds using baited wire-mesh traps that are lifted 3 to 6 days a week beginning as early as November and continuing through May to July of the following year. Traps are typically baited with manufactured formulated bait in warmer weather, but because formulated baits are inferior at cooler water temperatures (less than 70°F), fresh-frozen cut fish is used. Fish for crawfish bait has become expensive, often costing over twice that of commercially formulated bait, and fish baits are frequently in short supply. For many of these bait fish species, there is also an ecological concern with the potential for overfishing.

In some cases, half of the annual crawfish harvesting effort occurs during cool-water periods (December through late March), and with availability and price issues with fish, as well as the need to transport and store fish baits in a frozen state, fish baits have become problematic for the crawfish industry. Development of an effective, economical cool-water formulated crawfish bait would address not only some of the cost and handling/storage issues with fish baits but also will help conserve the fishery for many of these bait species.

Few studies have attempted to identify effective attractants for capturing crawfish. Some studies compared behavioral (feeding) responses of crawfish in the lab with various dietary items, chemical extracts, and other potential attractants. With the exception of one field study employing short trap-soak intervals (less than 80 minutes) at 64°F, all trials outside of this research unit were conducted at water temperatures greater than 70°F. Studies with marine crustaceans, such as lobsters, crabs, and shrimp, have observed that amino acids and related biochemical compounds tend to elicit chemo-attraction responses and may act as feeding stimulants. However, detection does not necessarily equal attraction, and an induced feeding response may not equate to attraction over some distance to elicit entry of crawfish into a baited trap. Moreover, a key role of an effective crawfish bait may be as much to help retain crawfish inside the trap as much as it is to provide the attractant to entice them to enter initially because the traps are relatively inefficient at holding crawfish.

All previous efforts in this lab to develop an effective protocol for testing potential attractants in the laboratory have failed. The response of crawfish to field-proven attractants in a controlled laboratory environment, even at optimum temperatures with acclimated and/or starved captive stock, proved inconsistent and unpredictable. Therefore, the best method for testing potential baits and attractants for their effectiveness in attracting crawfish to traps is to employ those baits in standard industry traps under conventional crawfish aquaculture environments.

While limited work has been devoted to testing various products and ingredients as attractants to crawfish under cool-water harvesting conditions, nothing totally satisfactory has emerged. Therefore, this study was undertaken to systematically evaluate various proprietary ingredients, both singularly and in limited mixtures, for their effectiveness to attract and hold crawfish under a 24-hr trap soak set in cool water as well as warm water. Ingredients were evaluated in a gelatin bait block.

Test Sites: *Cool-water tests*: A large commercial crawfish pond in Acadia Parish, located southeast of Crowley, LA. Crawfish population density was relatively high resulting in relatively small crawfish harvested. *Warm-water tests*: A simulated rice-crawfish field rotational pond at the Rice Research Station south of Crowley, LA. Crawfish population density was relatively low generally resulting in larger crawfish harvested.

Crawfish Production Scenario: *Cool-water tests*: Modified rice-crawfish field rotational practice with rice planted in August 2013 and not harvested. *Warm-water tests*: Rice-crawfish field rotational practice with rice planted in April 2013 and harvested in August 2013.

Trap Type: Industry standard 3-funnel pyramid traps (0.75-inch square mesh) that were equipped with bait retention wells constructed of 0.75-inch plastic hexagon mesh. Bait wells extended above the water line and were used to position the bait in the center of the trap.

Baits: Test baits consisted of ingredients or combinations of ingredients contained in gelatin matrix blocks. Ingredients used were proprietary and were not known to researchers at time of the tests. Cut pogy (menhaden, 1/4 lb per trap) was used as the industry standard (control treatment) during cool-water testing, and traps without bait were used as a negative control treatment in all trials. A commercially available manufactured bait (Southern Pride, Purina Mills, Shreveport, LA) was also used (1/4 lb per trap) in each cool-water trial for comparison and a second commercial bait (Purina's Early On, 1/4lb per trap) was used in one cool-water trial. For warm-water trials, residual experimental bait blocks retrieved from each cool-water trial after a 24-hr soak was bagged, labeled, and frozen for reuse as the experimental treatments in warm-water trials. Fresh Southern Pride bait cubes (1/4lb per trap) were used as the standard industry control during the warm-water trials and non-baited traps were also used as an experimental treatment.

Proprietary Baits: Identified by numerical I.D. only. Bait blocks consisted of 57 g of proprietary ingredient (test attractant), 21 g of commercial grade gelatin, and 87.5 ml of warm (104ºF) water. Ingredients were mixed and allowed to set for 24 hr under refrigeration before use. For cool-water testing, fresh baits were used daily. For warm-water testing, residual bait blocks from original cool-water testing that retaining at least 50% of the original mass were used and replaced daily. There was only one experimental treatment (bait #14) where residual biomass after a 24-hr soak during cool-water testing was less than 50%; therefore, this treatment was omitted during warm-water testing.

Cool-Water Testing: A total of 17 ingredients were tested for their potential application as an attractant in bait for crawfish. Sole ingredients were tested under two consecutive trials, nine ingredients in trial 1 and eight ingredients in trial 2. An equal mixture of three ingredients (totaling 57 g) from the first trial was also tested as an attractant in trial 2. Because these ingredients were tested in two separate trials, to facilitate a more appropriate form of comparison, crawfish catch results were also expressed as a percentage of that caught with cut pogy (control treatment). A third trial was also conducted, which included select mixtures (50/50%) of the original ingredients, with the exception of an amino acid premix that was included in two of the mixed treatments.

Warm-Water Testing: Residue of the experimental bait blocks after each 24-hr soak during cool-water testing was sufficient in all replications of each treatment except one (#14), which allowed further testing or residual bait pieces under warm-water conditions. Warm-water testing was carried out in two trials. Trial 1 consisted mainly of single ingredient bait blocks, whereas trial 2 was conducted with ingredient mixtures. As with cool-water testing, crawfish catch was expressed as a percentage of that caught with the control treatment. The control in warm-water trials consisted of Southern Pride bait cubes.

Trap Soak Duration: Approximately 24 hr.

Dates: *Cool-water tests*: Trial 1 = Jan. 31–Feb. 12, 2014; Trial 2 = Feb. 13–28, 2014; Trial 3 = March 7–19, 2014. *Warm-water tests*: Trial 1 = May 13-28, 2014; Trial 2 = May 29–June 12, 2014.

Experimental Design: For cool-water testing, traps were placed in a cordoned-off section of the commercial pond and were isolated from other ongoing harvesting activities. For warm-water testing, traps were placed in designated trapping lanes of the experimental pond. All traps were placed in a row and spaced at approximately 50-ft intervals. Bait order was randomly assigned for each trial with the exception that no replications of the same treatment were placed in successive order. Re-randomization occurred after every third harvest.

Replicates: A single trap-set or soak constituted a replicate for each bait treatment per trial, and 12 replications per trial were achieved over several days in each trial.

Parameters: Crawfish catch per unit effort, by numbers of crawfish and weight of crawfish per trap; average weight of individual crawfish.

Statistical Analysis: Analysis of variance with means separated by Duncan's multiple range test. Means were considered to be statistically significant at alpha = 0.05.

Support: Cargill, U.S. Aquaculture, Franklinton, LA

Comments: *Cool-water tests*: This study was conducted in a nearby commercial pond because it had a harvestable population of crawfish early in the season when tests could be conducted at water temperatures well below 70ºF. The population density of crawfish at the test site was relatively high, as indicated by high catch rates for the control treatment and the low average individual weight of harvested crawfish throughout the study. Average daily temperatures during the cool-water portion of the study remained below 70ºF. As with previous baiting trials of a similar nature, all test baits exhibited evidence of attractability to crawfish. Most of the baits caught significantly more crawfish than non-baited traps. However, no test bait equaled or exceeded the catch with cut pogy (experimental control).

Catch results for cool-water trials are presented in Tables 1 and 2. In each trial, cut pogy caught more crawfish (and more pounds of crawfish) than the commercial pelleted bait(s) and test baits. The commercially formulated and pelleted baits were associated with about 50 to 60% as many crawfish as cut pogy. Test baits yielded from 12 to 60% of the catch with cut pogy. Following trials 1 and 2, where mostly single ingredients were tested for their potential attractability, one of the most promising ingredients (#5) was used as the basis for testing selected mixtures of ingredients in a third trial. Two mixtures (5/14 and 5/9) were tested with and without a supplemental amino acid premix (at 0.5%) in trial 3. Baits with mixtures of ingredients provided no apparent advantage, yielding between about 37-50% of the catch with cut fish (Table 3). No significant differences in catch were detected among the various mixtures. Additions of the proprietary amino acid premix provided no significant advantage with regard to catch, although numerically, the catch was slightly greater for those mixtures with the amino acid addition.

In short, cut pogy caught substantially more crawfish in all cool-water trials than any of the test baits or commercial pelleted baits. Bait residue was present in all cases after each 24-hr soak, and in all but one treatment (#14, which congealed differently than the others), the residue amounted to well over 50% of the initial weight. Thus, differences in catch were not likely the result of insufficient quantities of attractant.

Warm-water tests: Because of the large quantity of bait residue remaining after each 24-hr soak during cool-water testing, those residues (with the exception of #14) were collected, labeled, frozen, and later used for warm-water trials. Harvest results for the warm-water trials are presented in Table 3. For those trials, the experimental control treatment consisted of Southern Pride bait cubes. As with the cool-water trials, some quantity of residual bait remained in all cases, suggesting that bait quantity was not a major limiting factor. Also, as with the cool-water trials, all experimental baits caught numerically more crawfish than non-baited traps and the control treatment resulted in a greater catch than the experimental baits, although not all comparisons were significantly different. In general, the single test ingredients resulted in 25 to 78% as many crawfish as Southern Pride, and the ingredient mixtures resulted in 45 to 87% as many crawfish. Weight wise, ingredients 9, 11, and 13, and mixtures containing 9, 10, 13, and 14 were not significantly different from that captured with the Purina controls.

Summary: Although there were some differences in crawfish catch between the experimental baits and controls, and differences among the experimental baits for both cool- and warm-water trials, lower catches associated with the experimental baits may not be totally related to the effectiveness of the attractants alone. The method of containment and delivery of the attractants in gelatin-based bait blocks in these studies may impose some limitations for measuring the quality of experimental attractants. In a subsequent set of trials (see report entitled "*COMPARATIVE EVALUATION OF THE EFFICACY OF THE GELATIN BAIT BLOCK*"), the efficacy of the gelatin bait block is brought into question. When comparing the same attractant (Purina's Southern Pride bait cubes) in ground and crushed form within gelatin bait blocks and in its original cube form, there were often some differences in crawfish catch, especially under cool-water conditions. This suggests that there may be some physical limitation with the bait blocks that prevent full efficacy of the attractants contained within. It is unknown whether the gelatin is trapping soluble components of the attractants, limiting their dispersion from the trap in the pond, or perhaps whether the associated finer particles of the attractants within bait blocks make it more difficult for the crawfish to consume, thus releasing fewer attractants as they feed. Further research will be needed to determine the nature and the extent to which product forms affect the mode of action and efficacy of attractants in bait. However, while results of these tests may be appropriate for comparing the relative attractant values of the dry test ingredients with one another, the use of gelatin-based bait blocks may or may not be suitable for testing the efficacy of a dry test ingredient with one of the traditional industry forms of bait.

Table 1. Average crawfish catch per trap (by number and by weight, lb/trap), average individual weight (g), and average catch expressed as a percentage of that caught with cut fish, both in number and in lb/trap for trials 1 and 2. Data represents mean of 12 replications per treatment. Average daily water temperature ranged from 42 to 51°F during testing of Batch 1 and 40 to 59°F during the testing of Batch 2 ingredients. Values within columns, by test batch, with the same superscript were not significantly different (P>0.05).

Ingredient	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)[1]	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
Trial 1 (Batch 1)					
No Bait	1.3^{F}	0.03^{E}	9.7	8.90	6.98
2	2.4^{EF}	0.06^{DE}	11.1	16.44	13.95
3	3.3^{EF}	0.08^{DE}	10.8	22.60	18.60
1	3.7^{EF}	0.09^{DE}	11.3	25.34	20.93
8	4.3^{EF}	0.11^{CDE}	11.5	29.45	25.58
7	4.7^{DEF}	0.13^{CDE}	11.8	32.19	30.23
9	6.0^{CDE}	0.16^{BCD}	11.4	41.10	37.21
6	8.3^{BCD}	0.23^{BC}	11.7	56.85	53.49
4	8.6^{BC}	0.25^{B}	12.7	58.90	58.14
S. Pride Cube	9.8^{BC}	0.27^{B}	12.1	67.12	62.79
5	10.2^{B}	0.27^{B}	11.9	69.86	62.79
Cut Pogy	14.6^{A}	0.43^{A}	12.3	-	-
Trial 2 (Batch 2)					
No Bait	2.7^{D}	0.07^{D}	11.8	8.36	7.45
12	4.0^{CD}	0.12^{CD}	13.2	12.38	12.77
17	6.8^{BCD}	0.20^{BCD}	12.5	21.05	21.28
11	9.3^{BCD}	0.28^{BCD}	12.4	28.79	29.79
16	9.4^{BCD}	0.30^{BCD}	12.8	29.10	31.91
10	9.6^{BCD}	0.26^{BCD}	11.6	29.72	27.66
15	10.2^{BCD}	0.31^{BCD}	12.0	31.58	32.98
13	10.9^{BCD}	0.32^{BCD}	12.0	33.75	34.04
4,5,6 mix	11.2^{BCD}	0.34^{BCD}	12.5	34.67	36.17
14	12.9^{BC}	0.39^{BC}	12.7	39.94	41.49
S. Pride Cube	14.8^{B}	0.43^{B}	12.3	45.82	45.74
Cut Pogy	32.3^{A}	0.94^{A}	12.8	-	-

[1] No significant differences were observed among treatments for average individual weight.

Table 2. Average crawfish catch per trap (by number and by weight, lb/trap), average individual weight (g), and average catch expressed as a percentage of that caught with cut fish, both in number and in lb/trap for trial 3. Data represents mean of 12 replications per treatment. Average daily water temperature ranged from 51.5 to 66°F. Values within columns with the same superscript were not significantly different (P>0.05).

Ingredients	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)[1]	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
No Bait	4.1^{D}	0.13^{C}	13.4	16.7	15.9
5,3 mix	9.4^{C}	0.30^{BC}	14.4	38.2	36.6
5,10 mix	9.6^{C}	0.31^{BC}	14.3	39.0	37.8
5,14 mix	10.4^{BC}	0.31^{BC}	13.1	42.3	37.8
5,9 mix	10.7^{BC}	0.33^{B}	13.2	43.5	40.2
5,15 mix	11.8^{BC}	0.35^{B}	13.5	48.0	42.7
5,14,AA mix	11.9^{BC}	0.38^{B}	13.3	48.4	46.3
5,9,AA mix	11.9^{BC}	0.39^{B}	14.9	48.4	47.6
5,13 mix	12.9^{BC}	0.39^{B}	13.7	52.4	47.6
Early-On Cube	15.3^{BC}	0.47^{B}	13.9	62.2	57.3
S. Pride Cube	16.1^{B}	0.49^{B}	13.7	65.4	59.8
Cut Pogy	24.6^{A}	0.82^{A}	14.4	-	-

[1] No significant differences were observed among treatments for average individual weight.

Table 3. Average crawfish catch per trap (by number and by weight, lb/trap), average individual weight (g), and average catch expressed as a percentage of that caught with cut fish, both in number and in lb/trap for warm-water trials 1 and 2. Data represents mean of 12 replications per treatment. Average daily water temperature ranged from 78 to 85°F during trial 1 and 66 to 81°F during trial 2. Values within columns with the same superscript were not significantly different (P>0.05).

Ingredients	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)	% of S. Pride Cube (by No.)	% of S. Pride Cube (by Wt.)
Warm-Water Trial 1					
No Bait	1.5^{F}	0.05^{F}	28.4^{C}	9.8	4.5
17	3.8^{EF}	0.25^{EF}	37.3^{A}	24.8	22.5
15	3.9^{EF}	0.25^{EF}	33.5^{ABC}	25.5	22.5
2	4.3^{EF}	0.30^{EF}	33.0^{ABC}	28.1	27.0
12	4.5^{EF}	0.30^{EF}	33.7^{ABC}	29.4	27.0
6	5.3^{DEF}	0.38^{DEF}	37.3^{A}	34.6	34.2
16	5.4^{DEF}	0.42^{DE}	37.6^{A}	35.3	37.8
7	5.4^{DEF}	0.41^{DE}	38.3^{A}	35.3	36.9
3	6.3^{DE}	0.36^{DEF}	29.5^{BC}	41.2	32.4
8	7.1^{CDE}	0.53^{CDE}	37.0^{A}	46.4	47.7
5	7.3^{CDE}	0.53^{CDE}	35.1^{AB}	47.7	47.7
1	7.4^{CDE}	0.52^{CDE}	33.9^{ABC}	48.4	46.8
4	7.7^{BCDE}	0.55^{CDE}	35.5^{A}	50.3	49.5
4,5,6 mix	8.3^{BCDE}	0.58^{CDE}	32.7^{ABC}	54.2	52.3
10	9.4^{BCD}	0.68^{BCD}	33.5^{ABC}	61.4	61.3
9	10.7^{BC}	0.82^{ABC}	37.4^{A}	69.9	73.9
11	11.4^{ABC}	0.92^{AB}	37.4^{A}	74.5	82.9
13	11.9^{AB}	0.92^{AB}	37.3^{A}	77.8	82.9
S. Pride Cube	15.3^{A}	1.11^{A}	33.4^{ABC}	-	-
Warm-Water Trial 2					
No Bait	1.8^{E}	0.12^{D}	28.8^{C}	18	16.0
5,3 mix	4.5^{DE}	0.34^{CD}	34.9^{B}	45	45.3
5,14,AA mix	5.3^{CD}	0.42^{BC}	36.7^{AB}	53	56.0
5,15 mix	5.4^{BCD}	0.42^{BC}	34.7^{BC}	54	56.0
5,14 mix	5.6^{BCD}	0.53^{ABC}	41.8^{A}	56	70.7
5,13 mix	6.9^{ABCD}	0.53^{ABC}	33.9^{BC}	69	70.7
5,9,AA mix	8.1^{ABC}	0.61^{ABC}	33.3^{BC}	81	81.3
5,10 mix	8.4^{ABC}	0.65^{AB}	34.4^{BC}	84	86.7
5,9 mix	8.7^{AB}	0.72^{A}	37.3^{AB}	87	96.0
S. Pride Cube	10^{A}	0.75^{A}	33.0^{BC}	-	-

Figure 1. Fresh experimental baits used in trial 1.

Figure 2. Fresh experimental baits used in trial 2.

Figure 3. Fresh experimental baits used in trial 3.

COMPARATIVE EVALUATION OF THE EFFICACY OF THE GELATIN BAIT BLOCK

W.R. McClain and J.J. Sonnier

INTRODUCTION

Harvest of crawfish in the southern U.S. occurs with wire mesh traps constructed of either 3/4-inch or 7/8-inch square mesh wire. Baits used are typically single pieces of cut fish or large commercial pelleted cubes (1-inch diameter) weighing approximately 1/4 to 1/3 lb each. This size and quantity of bait is necessary to ensure that baits remain in traps (i.e., cannot be pulled through the mesh openings) and provide attractant over much of a 24-hr or longer soak duration even though crawfish have access to and will consume some of the bait within the trap. The large mesh openings in traps and access by crawfish to the bait make it difficult to test many ingredients – most of which are available only in a dry meal form – for their effectiveness as a crawfish attractant. Commercial large-die pelleting of smaller quantities of test ingredients is usually not an option due to costs and minimal quantities needed. Therefore, one method developed in this lab to incorporate test ingredients in small batches without specialized equipment and to meet the physical size requirement for use in crawfish traps is to incorporate the ingredients in a gelatin matrix bait block. This is easily formed by mixing the dry ingredients (gelatin and attractants) with warm water and letting the mixture set. Size and shape of the bait blocks can be made to easily accommodate use in traps.

The effectiveness of the gelatin bait block was originally tested in cool water with fish flesh, a proven attractant. The fish flesh was incorporated by mincing either fresh fish (wet ingredient) or freeze-dried fish (dry ingredient). Crawfish catch was generally as good as cut fish controls in comparisons, initially verifying the effectiveness of the bait block as an appropriate test medium. Further tests with other meat sources (e.g., canned cat and dog food, canned fish) also yielded highly favorable results. However, in various subsequent trials where the test ingredients incorporated in the gelatin bait blocks were commercially available finely-ground dry high-protein meals (e.g., fish, shrimp, krill, poultry, meat and bone, soybean), the catch results were consistently less favorable. This raised the question as to whether the bait blocks were somehow limiting the potential of the dry, meal-type ingredients as attractants or whether the test ingredients were just not up to par with cut fish as a cool-water attractant.

Therefore, this study was undertaken in an attempt to provide some insight as to this question. While tests were conducted under both cool- and warm-water conditions, a proven warm-water formulation (Purina's Southern Pride crawfish bait) was used. To incorporate the crawfish bait cube into gelatin bait blocks, the cube was either first crushed (1/2-inch to 3/4-inch chunks) or ground to a meal-like consistency. These gelatin bait blocks were compared to whole cubes and/or cut fish in baited crawfish traps.

Test Sites: Two test sites were used. A large commercial crawfish pond in Acadia Parish, located south of Crowley, LA, was utilized for the cool-water testing because it contained a relatively high population density of crawfish and had harvest-size individuals early in the season. An experimental pond at the Rice Research Station, South Unit, Crowley, LA, was used for the warm-water testing later in the season.

Crawfish Production Scenarios: Cool-water trial: modified rice-crawfish field rotational practice with rice planted in August and not harvested. Warm-water trial: rice-crawfish field rotational scenario with rice planted in April and harvested in August prior to the crawfish season.

Trap Type: Industry standard 3-funnel pyramid traps (0.75-inch square mesh) that were equipped with bait retention wells constructed of 0.75-inch plastic hexagon mesh. Bait wells extended above the water line and were used to position the bait in the center of the trap.

Baits: Test baits consisted of cut pogy (cool-water trial only), Southern Pride commercial crawfish bait cubes (Purina Mills, Shreveport, LA), or gelatin bait blocks containing attractants. For trial 1, the gelatin bait blocks contained either crushed or finely ground Southern Pride cubes. For trial 2, the gelatin bait blocks contained finely ground Southern Pride cubes or some combination of finely ground meals.

Bait Block Formulation: For trial 1, 57 g of crushed or ground Southern Pride bait, 21 g of commercial grade gelatin, and 87.5 ml of warm (104°F) water. For trial 2, bait blocks consisted of 19 g ground Southern Pride, 19 g poultry waste meal, 19 g of a propriety ingredient (identified as #5), 21 g of gelatin, and 87.5 ml of warm water. Ingredients

were mixed and allowed to set for 24 hr under refrigeration before use in both trials. Fresh bait blocks were used for cool-water tests, and 24-hr old residual bait blocks (frozen and stored) were used for warm-water tests.

Trap Soak Duration: Approximately 24 hr

Dates: Cool-water trial: March 20-21, 2014; Warm-water trial: May 13-28, 2014

Experimental Design: Cool-water trial: Traps were placed in a cordoned-off section of the commercial pond and were isolated from other ongoing harvesting activities. Warm-water trial: Traps were randomly placed in a designated section of the Rice Research Station experimental pond. All traps were placed in a row within designated trapping lanes and spaced at approximately 50-ft intervals. Bait order was randomly assigned for each trial with the exception that no replications of the same treatment were placed in successive order.

Replicates: A single trap-set or soak constituted a replicate for each bait treatment per trial, with 12 replications per trial.

Parameters: Crawfish catch per unit effort, by numbers of crawfish and weight of crawfish per trap; average weight of individual crawfish.

Statistical Analysis: Analysis of variance with means separated by Duncan's multiple range test. Means were considered to be statistically significant at alpha = 0.05.

Comments: In trial 1, where bait blocks contained either crushed or ground Southern Pride, the crawfish catch with both bait blocks was significantly lower than with either the intact cube or cut pogy treatments during the cool-water test (Table 1). Although the trend of lower catches with the bait blocks in the warm-water test was similar, the differences were not statistically significant. There were little differences between the crushed and ground treatments. In trial 2, where the bait blocks contained a mixture of ground Southern Pride, poultry waste meal, and another ingredient that showed promise as a stand-alone ingredient, a similar trend was observed. The bait block captured significantly fewer crawfish in cool water than both intact cubes and cut pogy; whereas, differences were not significant in the warm-water test, although numerically, the bait block caught less than Southern Pride cubes (Table 2).

These data suggest that when a dry attractant is incorporated into the gelatin bait block, as formulated, the attractant characteristic may be compromised somehow, especially under cool-water conditions. Exactly why the attractant is compromised is not clear. Perhaps important soluble components of the attractant become released from the dry material when water is added initially to the mixture of dry ingredients, and becomes locked up with the setting of the gelatin; thus, rendering the bait block less effective during the soak duration. With an intact large bait pellet, dry material becomes exposed to pond water over time during the trap soak as the pellet dissolves and/or crawfish consume the outer most part of the pellet. Any soluble component that is released from the dry material upon exposure to water is not prevented from radiating from the trap, and soluble components radiate over time.

Another possible reason for the lower catches with the gelatin-based blocks may be that crawfish failed to consume the bait as readily, resulting in less attractant released during feeding, and thus, smaller catches result. However, in other trials with high densities of crawfish and warmer water temperatures, the bait blocks were often consumed to a greater degree, but resulted in lower catches nonetheless compared to the traditional baits. Further research is needed, however, to determine more precisely why the apparent attractant quality of the same bait used in different forms produces different results.

Table 1. Average crawfish catch per trap (by number and by weight, lb/trap), average individual crawfish weight (g), and average catch expressed as a percentage of that caught with cut fish, both in number and in pounds per trap for trial 1. Data represents mean of 12 replications per treatment. Values within columns, by trial, with the same superscript were not significantly different (*P*>0.05).

Ingredients	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
--------------- Cool-Water Test (Average daily water temperature ranged from 54 to 67 °F) ---------------					
No Bait	6.5^{C}	0.19^{D}	13.3^{B}	19.2	16.8
Ground S. Pride – Gel.	12.0^{B}	0.39^{C}	15.0^{A}	35.5	34.9
Crushed S. Pride – Gel.	15.6^{B}	0.47^{C}	13.8^{AB}	46.1	42.0
S. Pride Cube	29.7^{A}	0.90^{B}	13.7^{AB}	87.7	80.6
Cut Pogy	33.8^{A}	1.12^{A}	15.0^{A}	-	-
---------------Warm-Water Test (Average daily water temperature ranged from 66 to 81 °F) ---------------					
No Bait	1.8^{B}	0.12^{B}	28.8^{B}	18.0	16.0
Ground S. Pride – Gel.	7.6^{A}	0.63^{A}	37.5^{A}	76.0	84.0
Crushed S. Pride – Gel.	7.1^{A}	0.59^{A}	37.3^{A}	71.0	78.7
S. Pride Cube	10.0^{A}	0.75^{A}	33.0^{AB}	-	-

Table 2. Average crawfish catch per trap (by number and by weight, lb/trap), average individual crawfish weight (g), and average catch expressed as a percentage of that caught with cut fish, both in number and in pounds per trap for trial 2. Data represents mean of 12 replications per treatment. Values within columns, by trial, with the same superscript were not significantly different (*P*>0.05).

Ingredients	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)[2]	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
--------------- Cool-Water Test (Average daily water temperature ranged from 56 to 78 °F) ---------------					
No Bait	4.5^{D}	0.13^{D}	13.5	20.3	19.9
S. Pride/Mix[1] - Gelatin	12.7^{C}	0.40^{C}	14.4	57.1	58.4
S. Pride Cube	17.9^{B}	0.53^{B}	13.5	80.8	78.4
Cut Pogy	22.2^{A}	0.68^{A}	13.8	-	-
--------------- Warm-Water Test (Average daily water temperature ranged from 66 to 81 °F) ---------------					
No Bait	1.8^{B}	0.12^{B}	28.8	18.0	16.0
S. Pride/Mix[1] - Gelatin	7.7^{A}	0.61^{A}	34.8	77.0	81.3
S. Pride Cube	10.0^{A}	0.75^{A}	33.0	-	-

[1] Mixture consisted of 1/3 ground Southern Pride pellets, 1/3 poultry waste meal, and 1/3 propriety feed ingredient #5 meal contained in a gelatin bait block.

[2] No significant differences were observed among treatments for average individual weight for either trial.

Figure 1. Gelatin bait blocks with crushed Southern Pride (top) and ground Southern Pride (bottom). Images on the left were fresh (unused) baits and images on the right were bait residues after a 24-hr soak under cool-water conditions.

PRELIMINARY TESTING OF TWO POTENTIAL BAITS FOR HARVESTING CRAWFISH

W.R. McClain and J.J. Sonnier

INTRODUCTION

Over half of the production expense in crawfish aquaculture is associated with harvesting. Trap harvesting is labor intensive and occurs continuously for much of the 8 to 10 month production season. Trap harvesting is essential because (1) recruitment of crawfish to the marketable population is continual over much of the season, (2) ponds tend to be large, irregular shaped, and contain heavy vegetation that precludes the effectual use of seines, and (3) because trapping is the most effective means of segregating marketable hard-shell individuals from the ever present small or freshly molted individuals.

While labor is a major cost of harvesting, the expense of bait, fuel, equipment and repairs contribute significantly to overall harvesting costs. Because harvesting constitutes a major portion of the operating expense in farming crawfish, harvesting efficiency is paramount to farm profitability. Crawfish farmers are mindful of harvest efficiency and strive to maximize their catch per unit effort or catch per trap lift to the fullest extent possible. Bait manufacturing companies and other entrepreneurs are also aware of the possible business opportunities with products and practices that could increase catch per unit effort and/or decrease costs per pound of crawfish harvested. Therefore, efforts are underway to investigate various products and ingredients that could possibly increase catch efficiency and/or decrease costs.

This study involved the preliminary testing of such experimental baits. One product tested as a potential attractant to crawfish was shrimp hull meal, a waste product readily available in the South and with limited current market value. The other product tested was a proprietary fishing lure formulation, proven effective for both fresh- and salt-water finfish. The fishing lure was comprised of a soft plastic material formulated to contain attractants, and because crawfish would most definitely consume some of the plastic, which may not be acceptable by regulatory agencies, the efficacy of the lure was tested with and without access by crawfish in the trap.

Test Sites: *Cool-water tests*: A large commercial crawfish pond in Acadia Parish, located southeast of Crowley, LA. Crawfish population density was relatively high resulting in relatively small crawfish harvested. *Warm-water tests*: A simulated rice-crawfish field rotational pond at the Rice Research Station south of Crowley, LA. Crawfish population density was relatively low generally resulting in larger crawfish harvested.

Crawfish Production Scenario: *Cool-water tests*: Modified rice-crawfish field rotational practice with rice planted in August 2013 and not harvested. *Warm-water tests*: Rice-crawfish field rotational practice with rice planted in April 2013 and harvested in August 2013.

Trap Type: Industry standard 3-funnel pyramid traps (0.75-inch square mesh). Shrimp-Hull Meal Evaluation Trial: Traps were equipped with bait retention wells constructed of 0.75-inch plastic hexagon mesh. Bait wells extended above the water line and were used to position the bait in the center of the trap. Commercial Fish Lure Evaluation Trial and Bait Containment Evaluation Trial: Traps were without bait retention wells.

Experimental Baits: Shrimp-Hull Meal Trial: Dry shrimp-hull meal (Omega Protein Corporation, Houston, TX) contained in a gelatin bait block. Bait blocks consisted of 57 g of shrimp hull meal, 21 g of commercial grade gelatin, and 87.5 ml of warm (104ºF) water. Ingredients were mixed and allowed to set for 24 hr under refrigeration before use. For cool-water testing, fresh baits were used daily. For warm-water testing, residual bait blocks from cool-water trials retaining at least 50% of the original mass were used and replaced daily. Commercial Fish Lure Trial: A proprietary fishing lure formulation consisting of attractant(s) incorporated into small, soft latex blocks. Multiple blocks were used to total 115 g of bait per trap. Because the latex blocks were buoyant, they were strung on weighted wire loops (Figure 1) and fastened to the center of the trap in reps of the access treatment. For the non-access treatment, whereby crawfish inside traps could not have direct access to the bait, the latex blocks were used inside a 2-inch PVC cylinder fitted with 800 micron mesh screen coverings (Figure 2). Fresh lure baits were used daily for the cool-water trial, and residual baits from the original cool-water tests were collected, frozen, and used later for warm-water trials. Baits were replaced daily. Bait Containment Trial: Commercial pelleted crawfish bait (Southern Pride crawfish bait, Purina Mills, Shreveport, LA) was used in crawfish traps in several forms: as ground meal placed inside screened

PVC cylinders, intact pelleted cubes inside screened PVC cylinders, or intact pelleted cubes loose in traps without the cylinders. Approximately 115 g of bait was used in each treatment.

Control Baits: Cut pogy (menhaden, 1/4 lb per trap) was used as the industry standard (control treatment) during cool-water testing in Shrimp-Hull Meal and Fish Lure trials, and a commercially available manufactured bait (Southern Pride, Purina Mills, Shreveport, LA) was also used (1/4 lb per trap) in each cool-water trial for comparison. Southern Pride baits were also used as the industry standard control in lieu of cut pogy for the warm-water trials. Baits were replaced daily. Traps without bait were used as negative control treatments in each trial.

Trap Soak Duration: Approximately 24 hr

Experimental Design: For cool-water testing, traps were placed in a cordoned-off section of the commercial pond and were isolated from other ongoing harvesting activities. For warm-water testing, traps were placed in designated trapping lanes of the experimental pond. All traps were placed in a row and spaced at approximately 50-ft intervals. Bait order was randomly assigned for each trial with the exception that no replications of the same treatment were placed in successive order. Re-randomization occurred after every third harvest.

Replicates: A single trap-set or soak constituted a replicate for each bait treatment per trial, and 12 replications per trial were achieved over several days in each trial.

Parameters: Crawfish catch per unit effort, by numbers of crawfish, and weight of crawfish per trap; average weight of individual crawfish.

Statistical Analysis: Analysis of variance with means separated by Duncan's multiple range test was used when appropriate. Means were considered to be statistically significant at alpha = 0.05. Results with baits that were not formulated in this lab were not subjected to statistical analyses.

Comments: Catch results for the shrimp-hull meal trial are posted in Table 1. Average catch with the shrimp-hull meal bait was well below that with either cut pogy or Southern Pride crawfish bait, under both cool- and warm-water conditions. There is some preliminary evidence to suggest that the gelatin-based bait blocks, formulated under the conditions of this study, may not be conducive for testing the true effectiveness of attractants (see the previous summary "*COMPARATIVE EVALUATION OF THE EFFICACY OF THE GELATIN BAIT BLOCK*"). Nonetheless, the percentage reduction in catch with the shrimp-hull/gelatin bait block in this trial (50 to 60% reduction in catch) suggests that shrimp-hull meal alone may not be a potent attractant for crawfish in either cool- or warm-water conditions. More research is needed with different carriers/binders to verify this assumption.

Catch results of the proprietary fish lure trial are presented in Table 2. As with most attractants and baits tested in this project under similar protocols, the fish lure resulted in more crawfish captures than non-baited traps. This indicates the lure provides some degree of attractability and/or crawfish retention quality, since under the best catch scenarios a portion of the crawfish that enter a baited trap will exit before the trap is lifted. Consumption of the lure by crawfish that had access to the bait was apparent although not great. Much of the initial bait mass was present at retrieval. There was very little advantage associated with crawfish having access to the lure.

Under cool-water conditions of the trial, the commercial pelleted crawfish bait (Southern Pride) resulted in slightly (25%) more weight of harvested crawfish, while cut pogy resulted in over 300% greater catch. There seemed to be an advantage in catch where crawfish had no access to the fish; however, this may be due to the rapid and almost complete consumption of the fish in the access treatment. With the high population density of crawfish, little fish residue was present after 24 hr.

Crawfish catch with the fish lure was a little better under warm-water conditions. While the catch with lure increased nearly fourfold over traps with no bait, Southern Pride pellets resulted in an average catch of 225% more crawfish. In short, the proprietary lure formulation was no better than the commercial crawfish bait in cool water, yet captured far fewer crawfish than the cool-water control, cut fish. Under warm-water conditions, the fish lure was inferior to the warm-water control, Southern Pride bait.

Ancillary to the main objective of evaluating two potential attractants for crawfish, limited efforts were also extended to further evaluate two forms of bait (ground and intact), with and without access to the bait by crawfish. Those results are presented in Table 3. Obviously, the Southern Pride bait in ground form could not be used directly in the open mesh traps, but when placed in the exclusions designed to prevent direct access by crawfish, catch was slightly degraded (by 20%) when compared to intact bait placed in exclusions. However, intact Southern Pride with access by crawfish resulted in 84% more crawfish than the same bait placed in the exclusions. Thus, it can be surmised that when crawfish have access to bait inside a trap, catch can be increased, at least in some situations. Further research is necessary to determine why this occurs specifically.

Table 1. Shrimp-Hull Meal Trial: Average crawfish catch per trap (by number and by weight, lb/trap), average individual crawfish weight (g), and average catch expressed as a percentage of that caught with control treatment baits, both in number and in pounds per trap. The experimental control for the cool-water trial was cut pogy bait, while Southern Pride pellet was used as the warm-water control bait. Data represents mean of 12 replications per treatment.

	No. CF per Trap	**Wt. CF per Trap (lb)**	**Avg. Indiv. Wt. (g)**	**% of Cut Fish (by No.)**	**% of Cut Fish (by Wt.)**
----------------------- Cool-Water Trial (average daily water temperature 54 to 67°F) -----------------------					
No Bait	6.5^{B}	0.19^{C}	13.3^{B}	19.2	16.8
Shrimp Hull Meal - Gel	10.3^{B}	0.34^{C}	14.8^{A}	30.5	30.3
S. Pride Crawfish Bait	29.7^{A}	0.90^{B}	13.7^{B}	87.7	80.6
Cut-Pogy	33.8^{A}	1.12^{A}	15.0^{A}	-	-
----------------------- Warm-Water Trial (average daily water temperature 66 to 81°F) -----------------------					
No Bait	1.8^{B}	0.12^{B}	28.8^{A}	18.0	16.0
Shrimp Hull Meal - Gel	5.2^{B}	0.31^{B}	33.3^{A}	52.0	41.3
S. Pride Crawfish Bait	10.0^{A}	0.75^{A}	33.0^{A}	-	-

Table 2. Commercial Fish Lure Trial**:** Average crawfish catch per trap (by number and by weight, lb/trap), average individual crawfish weight (g), and average catch expressed as a percentage of that caught with control treatment baits, both in number and in pounds per trap. The experimental control for the cool-water trial was cut pogy, while Southern Pride pellet was used as the warm-water control. Data represents mean of 12 replications per treatment.

Bait Treatment	**No. CF per Trap**	**Wt. CF per Trap (lb)**	**Avg. Indiv. Wt. (g)**	**% of Cut Fish (by No.)**	**% of Cut Fish (by Wt.)**
----------------------- Cool-Water Trial (average daily water temperature 45 to 51°F) -----------------------					
No Bait	1.1	0.03	11.3	7.4	7.7
Lure w/no Access	3.7	0.10	11.3	25.0	25.6
Lure w/Access	4.8	0.12	10.9	32.4	30.8
S. Pride Crawfish Bait	5.8	0.15	11.0	39.2	38.5
Cut Fish w/Access	14.8	0.39	12.0	-	-
Cut Fish w/No Access	19.1	0.54	12.8	129.1	138.5
----------------------- Warm-Water Trial (average daily water temperature 87°F) -----------------------					
No Bait	1.2	0.11	30.7	11.1	13.8
Lure w/no Access	4.6	0.38	36.4	42.6	47.5
Lure w/Access	4.8	0.38	33.9	44.4	47.5
S. Pride Crawfish Bait	10.8	0.80	33.1	-	-

Table 3. Bait Containment Evaluation**:** Average crawfish catch per trap (by number and by weight, lb/trap), average individual crawfish weight (g), and average catch expressed as a percentage of that caught with cut fish, both in number and in pounds per trap. Data represents mean of 12 replications per treatment. Average daily water temperature ranged from 63 to 64°F.

Ingredients	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
No Bait	5.3	0.14	12.4	15.2	11.6
Contained Ground SP	15.1	0.52	15.6	43.4	43.0
Contained Intact SP	18.9	0.66	15.9	54.3	54.5
Intact SP	34.8	1.21	15.7	-	-

Figure 1. View inside of a crawfish trap from the top of the trap looking down on a weighted string of fishing lure being evaluated for its efficacy as a potential crawfish bait. Trapped crawfish have full access to the bait in this "access" treatment.

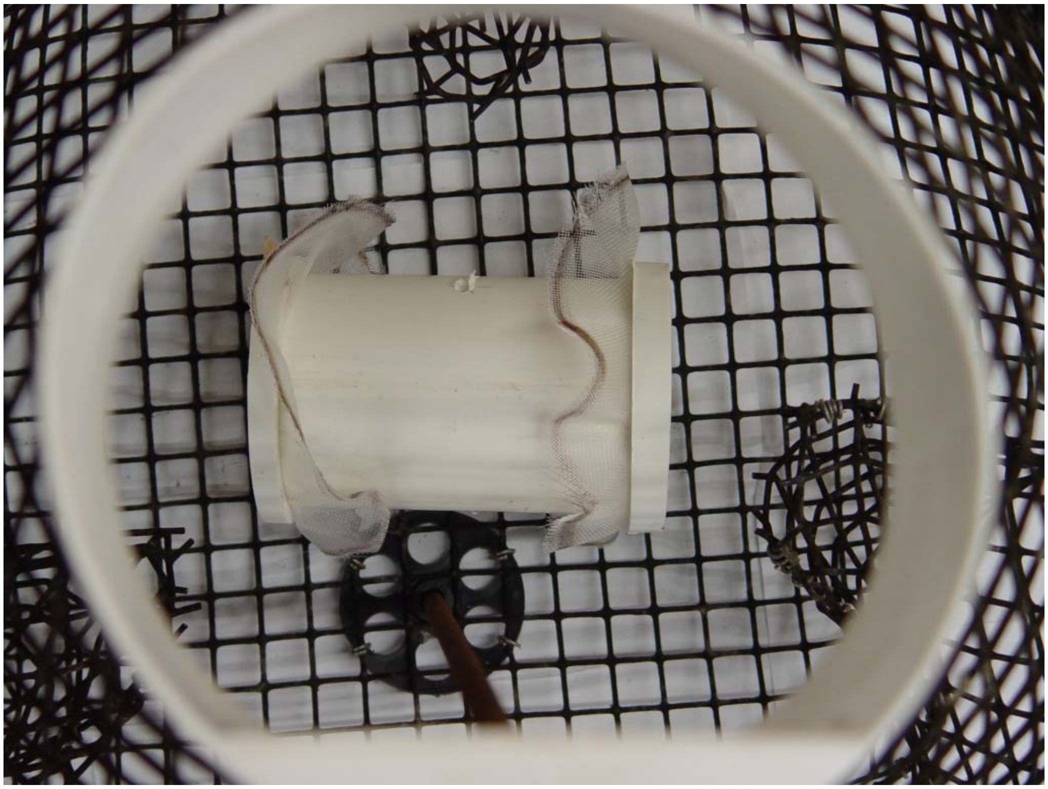


Figure 2. View inside of a crawfish trap from the top of the trap looking down on a PVC cylinder filled with 115 g of a latex-based fishing lure being evaluated for its efficacy as a potential crawfish bait. The 800 micron mesh coverings allow scent dissipation but prevent crawfish direct access to the bait in the "non-access" treatment.

RICE SEED CONSUMPTION BY CRAWFISH

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish has become a common and key rotational crop with rice in southern Louisiana. Of the over 180,000 acres devoted to crawfish production in the state, a large percentage occurs in a field rotational cropping system with rice. Rice is also planted as a crawfish forage crop in another large portion of the crawfish acreage where the rice grain is not harvest. It has been well documented that crawfish will eat small, tender rice seedlings as well as rice seeds that sit on the surface of flooded fields. Little is known, however, about how well adept crawfish are at locating and consuming seed that is buried beneath the soil surface. Therefore, an initial study was devised to obtain some preliminary data regarding the ability of crawfish to find and consume rice seeds below the soil surface.

Crawfish that were acclimated to laboratory conditions and accustomed to eating rice seed were individually placed in 10-gallon buckets with soil, water, and supplemental aeration (Figure 1). Prior to placement of water and crawfish into buckets, hull-on rice seed (six seeds per bucket) were randomly positioned in the buckets at various depths in the soil. Seed depth constituted the experimental treatments. In one of the treatments during trial 1, rice seed was planted about two weeks earlier, resulting in 1.5-inch seedlings at the start of the study. There were six replications of each treatment for each trial. Crawfish were allowed to forage undisturbed in the micro-habitats for two or three consecutive days, after which the crawfish were removed, water was drained, and soil was washed through a fine-mesh (1.7-mm mesh) screen to recover uneaten seeds.

Experimental Units: 10-gallon plastic containers (0.085 m^2 bottom surface area) containing 6 inches of soil and softened aerated well water that constituted a micro-habitat system (microcosms) for individual crawfish.

Soil: Tilled soil was obtained from a field at the Rice Research Station South Unit that had never been used for rice culture. For trial 1, the soil was in a loose, tilled-like state at the time of the study. For trial 2, the soil was packed, wetted several times, and allowed to dry to a firm, no-till-like state before the start of the trial.

Rice Seed: Dry hull-on rice seed (Variety CL111) was used to feed crawfish during the acclimation period and was also introduced into the dry soil of the microcosms before water was added. For the sprouted treatment in trial 1, dry rice seed was introduced two weeks in advance of inundation and stocking, and irrigated as needed for germination and seedling growth. Six seeds were introduced per container and placed at the desired depth by a marked wooden dowel rod. Then, the void was closed to conform to surrounding soil conditions.

Water: Softened well water was added to each container at the start of the trial and depth was maintained at approximately 12 inches. Supplemental aeration was supplied to each replicated unit.

Crawfish: Mature red swamp crawfish, (*Procambarus clarkii*), consisting of half males and half females per treatment were employed for each trial. Each microcosm contained a single individual, with the exception of the control treatment in trial 2 that contained no crawfish.

Acclimation Period: Field-harvested crawfish were placed in an aerated tank inside the lab at room temperature and fed dry rice seed daily for one week at approximately 5% of total body weight. Feed was withheld for two days prior to the start of the study.

Study Termination: Crawfish were allowed to forage in the microcosms for three days in trial 1 and two days in trial 2 without disturbances. At termination, crawfish were removed and wet soil was washed through a 1.7 mm mesh screen for collection of seed and seed particles.

Experimental Design: Completely randomized design with six replications per treatment per trial. *Trial 1*: Treatments consisted of: (1) non-sprouted seeds placed on surface of the soil only, (2) non-sprouted seeds buried 1/4 inch deep, (3) non-sprouted seeds buried 1/2 inch deep, (4) non-sprouted seeds buried 1 inch deep, (5) half of the non-sprouted seeds placed on the soil surface and half placed 1 inch deep, and (6) seeds were buried 1 inch deep and allowed to sprout, producing seedlings that average 1.5 inch tall prior to the start of the trial. *Trial 2*: Treatments

consisted of rice seed placed at the following depths in settled, no-till soil: (1) 1/4 inch deep in absence of crawfish or (2) 1/4 inch, (3) 1/2 inch, (4) 1 inch, (5) 2 inches, and (6) 3 inches deep with crawfish. In all treatments six rice seeds were positioned per container.

Parameter: Consumption of rice seed by crawfish.

Comments: Under the conditions of this study, whereby crawfish were accustomed to eating rice seed and forced to fast prior to the test, they were very adept at finding and consuming rice seed in micro-habitats with little else to feed upon. Although the condition of the soil in trial 1 resembled fresh tilled soil prior to inundation, the crawfish were able to find and consume most of the seeds when buried up to 1 inch deep. Though remnants of seed hulls were discovered at termination, few intact seeds were recovered and no recognizable endosperm was detected. Based on the number of intact seeds recovered after the test in trial 1, when seeds were placed on the soil surface or up to 1/4 inch deep, crawfish consumed 97% of the seeds on average. When buried 1/2 to 1 inch deep, crawfish found and consumed approximately 85% of the seeds placed in the microcosm. Even when rice seeds were placed 1 inch deep and allowed to sprout, producing 1.5 inch tall seedlings, crawfish consumed the sprouted seed along with most of the seedling. Consumption was also very high (94%) when half of the non-sprouted seeds were positioned on the soil surface and the other half positioned1 inch deep, although it was not possible to differentiate at recovery what level the intact seeds resided.

In trial 2 where packed and settled soil resembling no-till conditions was used, results were very similar to those in trial 1 with seeds buried up to 1 inch deep. On average, crawfish found and consumed 88.9% of the rice seeds planted 1 inch or less. With increased depth, however, crawfish became less effective in locating and consuming seed. At 2 inches deep, 47% of the seeds were consumed while only 31% were consumed at 3 inches deep. As in trial 1, no partially eaten seeds or seed remnants were recovered – only fragments of seed hulls.

Although the data represents findings under a limited set of conditions, the proficiency with which crawfish located and consumed rice seeds beneath the soil in this study may represent inferences on a couple of different levels. The potential for negative impact on stands of newly planted rice under flooded conditions where populations of crawfish are high may be significant, especially for flood durations lasting several days or more. However, the propensity for crawfish to find and consume rice seed below the soil surface may be somewhat beneficial for mitigating problems associated with red rice, a weed species, in rice culture systems. Crawfish produced in a field rotation with rice may provide some level of control of red rice by consumption of dormant red rice seed that lie beneath the soil surface. Further research is needed, however, to determine the effectiveness of crawfish at finding and consuming rice seed under varying field conditions.

Table 1. Description of the six treatments used in trial 1 of the rice seed consumption study.

Treatment	Seed Number - Seed Depth (inches)	Seed Status	Average Crawfish Wt. (g)
On Surface	6 – on surface	Non Sprouted	27.6
1/4 inch	6 – 1/4 inch	Non Sprouted	29.1
1/2 inch	6 – 1/2 inch	Non Sprouted	29.7
1 inch	6 – 1 inch	Non Sprouted	30.4
On Surface and 1 inch	3 – on surface; 3 – 1 inch	Non Sprouted	29.1
1 inch -Sprouted	6 – 1 inch	Sprouted	27.5

Table 2. Average percentage of rice seeds consumed by crawfish, by seed depth, in trial 1.

Treatment	Avg. Number of Intact Seeds Recovered	% Consumption
On Surface	0.3	94.4
1/4 inch	0.0	100.0
1/2 inch	1.0	83.3
1 inch	0.8	86.1
On Surface and 1 inch	0.3	94.4
1 inch -Sprouted	0.7	88.9
	Overall Average	**91.2**

Table 3. Description of the six treatments used in trial 2 of the rice seed consumption study.

Treatment	Seed Number - Seed Depth (inches)	Crawfish Present	Average Crawfish Wt. (g)
Control	6 – 1/4 inch	No	-
1/4 inch	6 – 1/4 inch	Yes	36.2
1/2 inch	6 – 1/2 inch	Yes	35.4
1 inch	6 – 1 inch	Yes	36.6
2 inches	6 – 2 inches	Yes	35.0
3 inches	6 – 3 inches	Yes	31.9

Table 4. Average percentage of rice seeds consumed by crawfish, by seed depth, in trial 2.

Treatment	Avg. Number of Intact Seeds Recovered	% Consumption
Control	6.0	-
1/4 inch	0.3	94.4
1/2 inch	1.5	75.0
1 inch	0.2	97.2
2 inches	3.2	47.2
3 inches	4.2	30.6
	Overall Average	**68.9**

Figure 1. Experimental system used for crawfish seed consumption study.

EFFECT OF CRAWFISH DENSITY ON SIZE DISTRIBUTION AT HARVEST: A PRELIMINARY STUDY

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish farming relies on the natural ability of crawfish to reproduce and populate the ponds on their own with little control by the farmer beyond ensuring that broodstock are present and pond conditions are favorable once crawfish enter the pond. Adult female crawfish usually spawn and hatch young while in their summer burrow and will emerge in the fall to deposit their young in open waters of the pond. Farmers actually have little influence over when and how well ponds are populated with young-of-the-year crawfish. In fact, it can be difficult to even judge whether the ponds are sufficiently populated until the young crawfish have grown to market size and harvest is well underway. Even then, it's impossible to get a handle on the exact population density.

The annual harvest yield of crawfish is derived mostly from young-of-the-year recruits that have reached harvest size within a season, although holdover adults and juveniles from a previous season may contribute to total yield under some circumstances. However, holdovers typically make up a fairly small percentage of the total annual harvest. Environmental conditions during the summer and fall often dictate the hold-over survival as well as reproductive and recruitment success. Dry summers often mean lower recruitment, while a wet summer and fall usually results in higher crawfish population density.

Ponds with a moderate or high initial population density of crawfish may achieve low yields in the end if the survival rate of the young-of-the-year is poor. Highly populated ponds may also achieve low yields for another reason – the inability of a portion of the crawfish population to reach desired harvest size. Research and anecdotal evidence has clearly established the relationship between crawfish population density and harvest size. At relatively high densities, crawfish growth is slowed, and the average size of harvested crawfish tends to be small, while faster growth and larger crawfish are generally associated with relatively low densities. When crawfish densities are really high and/or when food resources are in short supply, a significant portion of the population may fail to reach a size than can be effectively harvested.

While impact of population density on average harvest size has been well documented, the degree to which density influences size distribution in a population has not been well documented. Therefore, this study was undertaken to provide some preliminary data regarding growth responses of crawfish populations at two different initial population densities, a low density of approximately 4 crawfish/m^2 and a moderately high density of about 12 crawfish/m^2. A square meter is approximately equal to one square yard.

Logistics of ensuring known and controlled initial densities and for retrieving 100% of the population at termination dictated that the study be undertaken in large outdoor pools (mesocosms) rather than in larger earthen ponds. However, the outdoor pools are thought to simulate natural aquaculture conditions very well albeit with considerably more control over the critical factors.

Experimental Units: Twelve, 12-ft diameter x 5-ft tall (10.5 m^2 bottom surface area) outdoor fiberglass pools with 6 inches (15.2 cm) of soil and a planted rice crop served as simulated natural crawfish habitats (mesocosms) and were utilized as experimental units.

Forage Crop: The rice variety Jupiter was planted Aug. 22, 2013, at 120 lb/A. Fertilizer (8-24-24) was applied at 250 lb/A prior to planting and 45-0-0 was applied at 200 lb/A as a topdress on Oct. 14, 2013. A tank mix of herbicides (RiceBeaux, Basagran, Londax, and Permit Plus) was applied at recommended rates on Sept. 11, 2013, and Clincher was applied at 34.8 oz/A on Oct. 4 and 23, 2013. The insecticide Karate (at 10 ml/gal) was applied as a mist application for armyworm control on Aug. 28 and on Sept. 9, 2013. A permanent flood was established on Oct. 7, 2013.

Water Source: Municipal water was vigorously aerated and aged at least two days prior to use in pools. Water levels in pools were maintained at approximately 1-ft deep throughout the crawfish growth trials.

Crawfish: Stocker crawfish were red swamp (*Procambarus clarkii*) hatchlings, obtained from capturing females in berry. Broods from five berried females at each stocking were pooled, and hatchlings were randomly assigned to tanks at appropriate stocking density.

Experimental Design: A 2 by 2 factorial design with three replicated mesocosms per treatment combination.

Experimental Treatments: Stocking date was one treatment factor, with an early (Nov. 20, 2013) and late (March 12, 2014) stocking to represent early and late recruitment of hatchlings. Stocking density was the other treatment factor, with a low (4 crawfish/m^2) and high (12 crawfish/m^2) density to represent differences in initial recruitment density.

Crawfish Stocking Rate: 126 crawfish per tank (12/m^2) for the high stocking treatments and 42 (4/m^2) for the low stocking treatment.

Stocking Dates: Early stocking = Nov. 20, 2013. Late stocking = March 12, 2014.

Supplemental Aeration: A Sweetwater® regenerative blower provided supplemental aeration via four shop-built diffusers (3-inch PVC pipe, 1 ft long) per tank. Aeration was provided continuously when water temperature was greater than about 80ºF and was provided nocturnally when water temperature was between approximately 70 and 80ºF. Aeration was consistent across all treatments. Dissolved oxygen (DO) was monitored periodically with a YSI model 50B oxygen meter (Yellow Spring Instrument Corp., Yellow Springs, Ohio) to ensure early morning DO levels remained above 1.5 ppm.

Temperature Monitoring: Water temperature was recorded every four hours by temperature data-loggers (Hobo®, 104 Onset Computers, Pocasset, Massachusetts, USA, model TEMP) placed randomly in representative tanks at each stocking. Mean daily (24 hr) temperatures were used to calculate the cumulative Fahrenheit degree-days for the duration of each growth study based on 41°F as the thermal minimum for growth.

Crawfish Sampling: Crawfish populations in each tank were sampled periodically by means of baited traps to assess growth and maturity. Captured crawfish were immediately returned to the population with the exception of the final sampling events for each stocking date treatment. When 50% of the captured crawfish for each stocking date were mature, the trial relating to that stocking date was terminated and all crawfish were retrieved.

Study Termination: Early stocking = May 16, 2014. Late stocking = June 6, 2014. Three days before each trial termination, crawfish harvest commenced in earnest by baited trap with three traps per tank (equivalent of 1,156 trap sets per acre) per night. After three nights of retrieving crawfish by trap, the tanks were drained and residual crawfish were removed by hand.

Parameters: Individual crawfish weight at termination, survival, maturity, harvest efficiency, and cumulative degree-days of growth.

Comments: This study used multiple large outdoor pools or tanks that contained soil, planted rice, water, and supplemental aeration when necessary to provide a habitat resembling the natural environment of culture ponds. The primary difference between the tank habitat and earthen ponds was that natural reproduction was avoided in the tanks. Crawfish density was highly controlled by stocking the tanks with known numbers of hatchlings and observing the effect of density and month of recruitment on crawfish growth. Newly hatched crawfish were stocked either in November or March at either 4 or 12 crawfish/m^2 bottom surface area. These experimental treatments represented fall and spring recruitment periods and either relatively low or moderately high crawfish densities. When sampling revealed that 50% of the crawfish by date of stocking were mature, the pools in that trial were drained, and all surviving crawfish were recovered. The results are summarized in the following tables.

It should be noted that two replicate pools, both in the late stocking/low density treatment had extremely low crawfish survival. It is thought that this anomaly is unlikely related to treatment factors; but rather occurred as a result of low dissolved oxygen (hypoxic) conditions in these two tanks. On several occasions, storms caused the aeration blower to shut off, subjecting the tanks to hypoxic conditions for extended periods, especially when shutdowns occurred over a weekend. It is assumed these two tanks by chance experienced a greater degree of hypoxia, resulting

in higher crawfish mortalities. As a result, while the outcomes of those tanks are reported, the data are not included in the summary.

Due to cooler water temperatures, crawfish stocked in November grew more slowly than crawfish stocked in March, although the total number of cumulative degree-days to 50% maturity was similar for both groups. These results emphasize that temperature rather than time is the primary determinant of growth rate. What is also underscored by the data is the degree to which density affects growth rate and average size. Notice that at lower density, average crawfish weight was significantly greater than those reared at the higher initial density for both months of stocking. This corroborates the findings of many previous studies on the effect of density on crawfish size. Perhaps of equal significance is the observation that higher densities tend to result in a greater proportion of runts – that is, those individuals that lag way behind in growth rate. In this case, we defined runts as those individuals that did not meet the minimal size for market of 15 g or 30 count crawfish/lb. On average, 35% of the crawfish in the high density groups did not reach 15 g. Seventeen percent were below 10 g or 45 count/lb.

This phenomenon of extreme growth spread under high crawfish population densities is likely happening in crawfish ponds and affecting yields more than is realized by many producers. At extremely high densities, not only is the average size of crawfish harvested small, but it is likely that a sizable portion of the population remains well below the size that can be effectively retained by conventional traps due to the mesh size openings (0.75 – 0.875 inches) of commercial traps. This could explain some of the unusually low yields in commercial ponds that appeared to have had ample populations early on. Small crawfish, especially in high numbers, present near the end of the season when food resources are scarce will likely not obtain further substantial growth. So, more crawfish recruitment is not always better and may not always result in higher yields. In fact, in some cases, high recruitment and survival can have a negative effect on yield because gross overcrowding can result in lower average weight of harvested crawfish and a higher percentage of the population that never reaches minimal harvest size. Of note, it is estimated that some crawfish ponds may contain well over the initial population density of 12 crawfish/m^2 used in this study by perhaps 100-200%.

As an ancillary component of this study, it is interesting to make some observations about the harvest efficiency of bait traps under the conditions of this study. Albeit the conditions were not exactly comparable to field conditions in earthen ponds, commercial traps and baits were used to harvest crawfish via 24-hr soak durations as in commercial situations. While trap density varies from about 10 to 25 traps per acre in commercial crawfish ponds, the use of 3 traps per tank in this study equated to 1,156 traps per acre. After three consecutive days of harvests (3,468 total trap lifts per acre), it is interesting to learn that only 67 to 97% of the surviving populations was recovered by traps. Even though some residual crawfish were small enough to easily escape from the traps, a substantial portion was of sufficient size that prevented escape through mesh openings. This provides further substantiation of the inefficiency of trap harvesting crawfish with current gear and methods.

Table 1. Summary of treatment factor combinations for crawfish hatchlings reared in outdoor pools.

Treatment Indicators	Stocking Date	Stocking Rate (No. Hatchlings)	No. of Tanks (reps)	Termination, Days After Stocking	Cumulative Degree-Days (°F)
Early / Low	Nov. 20, 2013	42	3	174	2,647
Early / High	Nov. 20, 2013	126	3	174	2,647
Late / Low	March 12, 2014	42	3	84	2,490
Late / High	March 12, 2014	126	3	84	2,490

Table 2. Results of sampling efforts to determine maturity status by stocking date. Threshold for terminating growth trials was roughly 50% maturity of captured individuals.

Stocking Date	Sampling Date	Days After Stocking	Sampling Traps	Avg. Weight (g)	% Mature	Termination Began
Nov. 20, 2013	March 12, 2014	112	Small-mesh	3.2	0	May 14, 2014
	April 25, 2014	156	Large-mesh	22.4	10	
	May 13, 2014	174	Large-mesh	26.1	47	
March 12, 2014	May 27, 2014	76	Small-mesh	21.4	56	June 4, 2014
	May 30, 2014	79	Large-mesh	23.5	59	

Table 3. Growth response of crawfish by pool (replicate) at termination of each trial. Individual crawfish were designated as "runts" if they weighed less than the generally accepted minimum market size of 15 g.

Treatment	% Retrieved	Avg. Ind. Wt. (g)	Min. - Max Wt. (g)	% Mature	% Females	% Runts (< 15 g)
Early / Low	95.2	38.6	16.9 – 71.1	85.0	95.0	0
Early / Low	85.7	43.1	14.6 – 65.3	91.7	97.2	2.8
Early / Low	92.9	34.2	16.9 – 60.3	76.9	100	0
Avg.	***91.3***	***38.6***		***84.5***	***97.4***	***0.9***
Early / High	88.9	13.4	3.8 – 28.7	12.5	65.2	61.6
Early / High	70.6	20.4	5.9 – 36.0	25.8	98.9	31.5
Early / High	64.3	17.1	4.9 – 35.4	23.5	85.2	48.1
Avg.	***74.6***	***17.0***		***20.6***	***83.1***	***47.1***
Late / Low	11.9	36.0	26.3 – 52.2	20.0	60.0	0
Late / Low	2.4	43.3	-	-	-	0
Late / Low	73.8	36.3	19.3 – 66.0	74.2	51.6	0
Avg.[1]						
Late / High	45.2	23.0	12.8 – 40.0	57.9	50.9	10.5
Late / High	52.4	16.6	4.5 – 33.5	33.3	53.0	36.4
Late / High	61.1	21.5	9.1 – 37.1	55.8	40.3	22.1
Avg.	***52.9***	***20.4***		***49.0***	***48.1***	***23.0***

[1] Data for two tanks (reps) of the Late / Low treatment combination were not used to determine average response variables due to exceptional low survival rates.

Table 4. Harvest statistics for crawfish retrieved at termination of growth trials.

Treatment	Stocking Date	Stocking Rate	Total Retrieved	% Retrieved	% by Harvest
Early / Low	Nov. 20, 2013	42	40	95.2	92.8
Early / Low	Nov. 20, 2013	42	36	85.7	88.9
Early / Low	Nov. 20, 2013	42	39	92.9	92.3
Avg.			***38.3***	***91.3***	***91.3***
Early / High	Nov. 20, 2013	126	112	88.9	81.3
Early / High	Nov. 20, 2013	126	89	70.6	96.6
Early / High	Nov. 20, 2013	126	81	64.3	92.6
Avg.			***94.0***	***74.6***	***90.2***
Late / Low	March 12, 2014	42	5	11.9	60.0
Late / Low	March 12, 2014	42	1	2.4	-
Late / Low	March 12, 2014	42	31	73.8	83.9
Avg.[1]					
Late / High	March 12, 2014	126	57	45.2	66.7
Late / High	March 12, 2014	126	66	52.4	78.6
Late / High	March 12, 2014	126	77	61.6	88.3
Avg.			***66.7***	***53.1***	***77.9***

1 Data for two tanks (reps) of the Late / Low treatment combination were not used to determine average response variables due to exceptional low survival.

Table 5. Overall response summary by treatment combination for crawfish reared at different densities in outdoor pools.

Treatment	Stocking Density (m^2)	Final Density (m^2)	Days	Cumulative Degree-Days (°F)	% Survival	Avg. Ind. Wt. (g)	% Mature	% Runts (< 15 g)
Early / Low	4	3.6	174	2,647	91.3	38.6	84.5	0.9
Early / High	12	8.9	174	2,647	74.6	17.0	20.6	47.1
Late / Low[1]	4	2.9	84	2,490	73.8	36.3	74.2	0
Late / High	12	6.3	84	2,490	53.1	20.4	49.0	23.0

1 Includes a single rep (tank) only.

FOUNDATION SEED RICE PROGRAM

Lawrence M. White III

INTRODUCTION

Foundation seed rice has been produced by the LSU AgCenter's Rice Research Station for distribution to Louisiana farmers since 1949. The Rice Research Station's seed rice program was instituted in response to the critical shortage of pure planting stocks that existed during and after World War II. Since its inception, the program has made available to Louisiana growers more than 168,800 cwt. of pedigreed stock of 45 rice varieties.

Concurrent with the distribution of pure seed by the Rice Research Station, an industry was developed in Louisiana composed of independent seed dealers through whom farmers could conduct trade in registered and certified classes of pedigreed rice.

Foundation seed rice, the planting stock from which registered and certified seed are produced, is the farmer's link with the work of the plant breeder. It is the product of hybridization and successive generations of selection and testing to establish its value as crop seed and eventually as a commercial commodity. For this reason, foundation seed and the basic stocks from which it is produced must be grown and conditioned in a manner that will ensure that viability is maintained and that it be genetically pure and free from mechanical mixtures or contamination by noxious weeds.

Through the Rice Research Station's seed program, Louisiana farmers may obtain seed rice of improved varieties developed through the Rice Research Station's breeding program and of established commercial varieties originating either at Crowley or at research centers in neighboring states.

To fulfill the objectives of the seed program, the Rice Research Station uses the personnel, land, machinery, and other facilities needed to plant, harvest, condition, and store its annual seed rice crop. The production of breeder seed, planting stock for the foundation fields, and the maintenance of purity in commercial rice varieties are functions of the seed program. Breeder seed is sometimes grown within fields of foundation rice or in a special nursery set aside for propagating the Rice Research Station's seed stocks. The nursery also serves as a site for evaluating, purifying, and increasing selections from the Rice Research Station's breeding program that show promise as new varieties.

The distribution of pedigreed seed rice produced by the Rice Research Station is done according to a formula adopted by the Louisiana Seed Rice Growers Association. For each rice-producing parish, the amount of seed allotted is determined by the percentage of the state's total rice acreage grown in that parish during the previous crop year.

Personnel of the Louisiana Cooperative Extension Service, in cooperation with parish committees of the Seed Rice Growers Association, assist in the allocation of foundation seed rice. It is at the parish committee level that the allocation of seed to individual growers is decided. The county agents receive applications for seed rice from growers and handle information and publicity for the pure seed program.

In this state, the official seed-certifying agency for all crops is the Louisiana Department of Agriculture and Forestry. The rules and regulations pertaining to the certification of agricultural seeds are part of the Louisiana Seed Law. They are formulated by the Louisiana Seed Commission and enforced by the Agronomic Programs Division of the Louisiana Department of Agriculture and Forestry. Personnel of the Agronomic Programs Division, operating from district offices, conduct field inspections of growing rice and sampling of bagged rice for laboratory analyses, which consist of purity determinations and germination tests.

PRODUCTION PRACTICES

Each year, the Rice Research Station devotes approximately 80 acres of land to the production of foundation seed rice. To eliminate noxious weeds, especially red rice, that can disqualify rice from certification, the fields are fallowed for a 2-year period preceding planting. This also enables the fields to meet the crop history requirements specified in the seed rice regulations.

Seedbed preparation of foundation fields are performed in the fall. Burndown herbicides are applied prior to seeding. The foundation fields are planted into a stale seedbed by means of a 24-runner minimum tillage drill. The breeder stock is planted at rates that may vary from 10 to 100 lb/A. The rice receives a preflood application of urea in which the rate of N may vary from 45 to 90 lb/A, as well as basic fertilizer applications based on soil test recommendations. A midseason application of N in rates from 21 to 55 lb/A is also applied.

Seedling grasses and weeds are controlled by means of commercially available herbicides applied by airplane or ground rig. Similarly, aerial applications of insecticides are used to protect the fields from outbreaks of harmful insects.

Roguing of the rice fields for the removal of off-types, varietal mixtures, and noxious weeds begins at the onset of heading and continues until the rice is harvested. During this interval, the headed rice is inspected by personnel of the Agronomic Programs Division to determine whether it meets minimum field standards of the certifying agency.

The rice is harvested with a conventional combine and dried in the Rice Research Station's eight 21-foot diameter grain bins, equipped with vented drying floors and centrifugal fans with temperature-controlled heaters. The rice is dried to a moisture level of approximately 12%. During the storage period between drying and cleaning, the rice is treated with an insecticide to protect it from stored-grain insects.

Cleaning of foundation and breeder seed usually commences in late October and continues until late December. The rice first moves through an air-and-screen cleaner that removes chaff, straw, and other foreign material and grades the grain according to width and thickness.

It then flows through three length-grading machines that consist of rotating, indented metal cylinders. The first two remove small grains and broken or dehulled kernels of rice. The third one removes stemmy rice, grains that have very long awns that are attached to portions of the panicle. In the next phase of cleaning, the rice moves through a machine that performs precision grading of the grain by means of rotating perforated cylinders. This machine is designed to separate medium-grain and/or red rice from long-grain rice. It is also capable of removing shriveled and other slender kernels from medium-grain rice.

In the final phase of cleaning, the rice moves through a machine that aspirates the grain, removing any chaff, straw, and other foreign material from the conditioned product.

From the cleaning machines, foundation and breeder seed rice are bagged, assigned lot numbers, and placed in storage in the Rice Research Station's seed rice warehouse where they remain until they are distributed to Louisiana farmers.

The field and laboratory purity standards for foundation seed rice are very strict with regard to varietal mixtures and noxious weeds. In all phases of production, therefore, great care must be exercised to prevent these impurities from contaminating the seed stocks. It is routine procedure at the Rice Research Station to partially disassemble all planting and harvesting equipment and to clean it thoroughly with water and/or compressed air before using it in the field. The dryer and cleaning plant, including all elevators and other conveying equipment, are also subjected to meticulous cleaning and inspection before and after having been used in stubble fields. Therefore, tractors, plows, harrows, and land levelers are carefully washed before they enter land that is in a fallow cycle. These measures, together with the inspection and roguing, which are done during the growing season, help to ensure that foundation seed is genetically pure and free of mechanical mixtures and noxious weed seeds.

2014 ACTIVITIES

Of the 814 cwt. of foundation seed rice sold in 2014, the varieties and quantities were as follows: Mermentau, 198 cwt.; Cheniere, 342 cwt., Jazzman-2, 9 cwt.; Jupiter, 100 cwt.; Pirogue, 75 cwt.; and Catahoula, 90 cwt.

The Rice Research Station's foundation seed crop in 2014 consisted of 12 acres of Mermentau, 5 acres of Jupiter, 5 acres of Caffey, 1.5 acres of Cocodrie, 1.5 acres of Della-2, 1 acre of Pirogue, and 1 acre of Toro-2.

Headrows of Mermentau, Jupiter, Della-2, Toro-2, Cocodrie, Caffey, and Pirogue were grown for replenishment of breeder seed stock.

RICE PRODUCTION ECONOMICS RESEARCH IN 2014

Michael E. Salassi

Rice enterprise production cost budget projections for 2014 were developed in the fall of 2013 for alternative rice production systems in Louisiana. Summaries of the enterprise budgeting analysis for rice production systems in Southwest Louisiana are presented in Tables 1 and 2. Values presented represent rice breakeven prices to cover direct (variable) and total estimated rice production costs per hundredweight and per barrel of rough rice produced for selected yield levels. Direct production costs include expenses for seed, fertilizer, chemicals, fuel, labor, repairs, custom charges, and interest on operating capital. Total specified expenses include direct expenses plus fixed costs on machinery and equipment. These values can also be interpreted as the breakeven price or income per output unit required to cover total production costs. Tenant-operator situations shown in the tables were budgeted for each enterprise with a 70/30 share rent arrangement with the landlord/waterlord paying the irrigation pumping costs.

Rice production costs were estimated for the following types of rice production systems: water planted, drill planted, conventional variety, Clearfield variety, conventional tillage, stale seedbed, in rotation, and fallow land. Base yield level for Southwest Louisiana was 68.0 cwt/A (42.0 bbl/A) for water- and drill-planted rice. Variable production costs ranged from \$9.38 to \$10.65/cwt for water-planted rice and from \$8.53 to \$9.89/cwt for drill-planted rice at the base yield level of 68.0 cwt/A. Cost differences were influenced by use of conventional or herbicide-resistant variety, conventional versus stale seedbed tillage system, and rice production in rotation or on fallow land. Total projected rice production costs for 2014 ranged from \$10.31 to \$11.97/cwt for water-planted rice and from \$9.64 to \$10.91/cwt for drill-planted rice at the base yield level of 68.0 cwt/A.

The Projected 2014 Rice Farm Cash Flow Model was developed to assist producers in planning for the 2014 crop year. The model is an Excel spreadsheet that allows rice producers to enter projected acreage, yield, market price, and production cost data for 2014 to estimate net returns above variable production costs and to easily evaluate the impact of changing percent of base planted on net returns. The primary purpose of the model is to evaluate the impact on net returns above variable production costs for alternative rice rental arrangements and percent of base acreage planted. The model also includes entry cells for whole farm fixed expenses to estimate projected returns from rice production over all costs.

A considerable amount of work was conducted in 2014 evaluating the impact of 2014 farm bill provisions on rice farm management decisions. A spreadsheet based decision tool was developed to evaluate equitable net returns for tenants and landlords under the Price Loss Coverage (PLC) farm program for a range of alternative rice rental arrangements. Several farm program information reports were developed which discussed farm program topics relevant to rice production including the Price Loss Coverage (PLC) program option, the Agriculture Risk Coverage (ARC) program option, the Supplemental Coverage Option (SCO) crop insurance program, payment yield updates, and base acre reallocation. Two decision tools were developed which allowed producers to evaluate base acre reallocation decisions and PLC/ARC base acre enrollment decisions.

Table 1. Rice Breakeven Prices to Cover Variable Production Costs for Selected Yield Levels, Southwest Louisiana, 2014.

	Yield Level in Hundredweight per Acre				
	-10%	-5%	Base	+5%	+10%
Crop Description	61.2	64.6	68.0	71.4	74.8
	------------------------------Dollars per Hundredweight------------------------------				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:	10.54	10.05	9.61	9.21	8.85
(ii) Stale Seedbed:	10.28	9.81	9.38	9.00	8.64
(b) Clearfield Variety:					
(i) Conventional Tillage:	11.69	11.14	10.65	10.20	9.79
(ii) Stale Seedbed:	11.44	10.90	10.42	9.98	9.59
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:	9.34	8.91	8.53	8.18	7.87
(ii) Stale Seedbed:	9.59	9.15	8.76	8.40	8.08
(b) Clearfield Variety:					
(i) Conventional Tillage:	10.46	9.97	9.54	9.14	8.78
(ii) Stale Seedbed:	10.85	10.34	9.89	9.48	9.11
	Yield Level in Barrels per Acre				
	-10%	-5%	Base	+5%	+10%
	37.8	39.9	42.0	44.1	46.2
	---------------------------------Dollars per Barrel---------------------------------				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:	17.07	16.28	15.56	14.92	14.33
(ii) Stale Seedbed:	16.66	15.89	15.20	14.57	14.00
(b) Clearfield Variety:					
(i) Conventional Tillage:	18.94	18.05	17.25	16.52	15.87
(ii) Stale Seedbed:	18.53	17.66	16.88	16.18	15.53
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:	15.13	14.44	13.82	13.26	12.75
(ii) Stale Seedbed:	15.54	14.83	14.19	13.61	13.08
(b) Clearfield Variety:					
(i) Conventional Tillage:	16.94	16.16	15.45	14.81	14.23
(ii) Stale Seedbed:	17.58	16.76	16.02	15.36	14.75

Table 2. Rice Breakeven Prices to Cover Total Specified Production Costs for Selected Yield Levels, Southwest Louisiana, 2014.

	Yield Level in Hundredweight per Acre				
	-10%	-5%	Base	+5%	+10%
Crop Description	61.2	64.6	68.0	71.4	74.8
	---Dollars per Hundredweight---				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:	11.96	11.40	10.89	10.43	10.02
(ii) Stale Seedbed:	11.31	10.78	10.31	9.88	9.48
(b) Clearfield Variety:					
(i) Conventional Tillage:	13.16	12.53	11.97	11.46	11.00
(ii) Stale Seedbed:	12.47	11.88	11.35	10.87	10.43
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:	10.57	10.08	9.64	9.24	8.88
(ii) Stale Seedbed:	10.77	10.26	9.81	9.41	9.04
(b) Clearfield Variety:					
(i) Conventional Tillage:	11.55	11.00	10.52	10.08	9.68
(ii) Stale Seedbed:	11.99	11.42	10.91	10.45	10.04
	Yield Level in Barrels per Acre				
	-10%	-5%	Base	+5%	+10%
	37.8	39.9	42.0	44.1	46.2
	---Dollars per Barrel---				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:	19.38	18.47	17.65	16.90	16.23
(ii) Stale Seedbed:	18.33	17.47	16.70	16.00	15.36
(b) Clearfield Variety:					
(i) Conventional Tillage:	21.32	20.30	19.39	18.56	17.81
(ii) Stale Seedbed:	20.20	19.24	18.38	17.60	16.89
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:	17.13	16.33	15.62	14.97	14.39
(ii) Stale Seedbed:	17.44	16.63	15.90	15.24	14.64
(b) Clearfield Variety:					
(i) Conventional Tillage:	18.70	17.83	17.04	16.32	15.67
(ii) Stale Seedbed:	19.42	18.50	17.68	16.93	16.26

LOUISIANA RICE RESEARCH VERIFICATION PROGRAM - 2014[1]

J.K. Saichuk

Introduction

The Louisiana Rice Research Verification Program began in 1997 in Allen, Calcasieu, and Jefferson Davis parishes. In 1998, the program was funded and expanded to 10 parishes (Acadia, Avoyelles, Calcasieu, East Carroll, Evangeline, Jefferson Davis, Madison, Morehouse, St. Landry, and Vermilion). From 1999 to 2013, the number of fields in the verification program totaled 118. In 2014, the program included five fields (Figure 1).

Fields were visited at least weekly by a specialist or county agent from planting to harvest. These Recommendations by the specialist or county agent included practices involving fertilization, weed control, disease control, insect control, and water management to a limited degree.

Yield data were collected for each of the fields in 2014 (Table 1). Yields of the first crop averaged 8,225 lb/A (182.8 bu/A or 50.8 bbl/A) at 12% moisture. Second crop was harvested in Jefferson Davis and Vermilion parishes, adding another 1,881 lb/A to the total, for a final average of 10,079 lb/A (62.2 bbl/A or 224.0 bu/A). This is the highest overall yield of the verification program.

Economic data continue to reveal large production cost differences between growers. It also is clear that more needs to be done to help farmers reduce production costs (Table 2). Water costs remain one of the most elusive to capture and are often underestimated by the grower.

The program continues to provide an accurate evaluation of current recommendations and insight into other areas of research. The educational value of the program to all concerned (farmers, researchers, and extension personnel) increases each year.

This is a summary of the Louisiana Rice Research Verification Program in 2014. To see the complete Verification Program report, please go to:

http://www.lsuagcenter.com/en/crops_livestock/crops/rice/verification_program/

[1] This project is supported in part by funding provided by rice producers through their check-off contributions to the Louisiana Rice Research Board.

Figure 1. Verification Parishes in 2014.

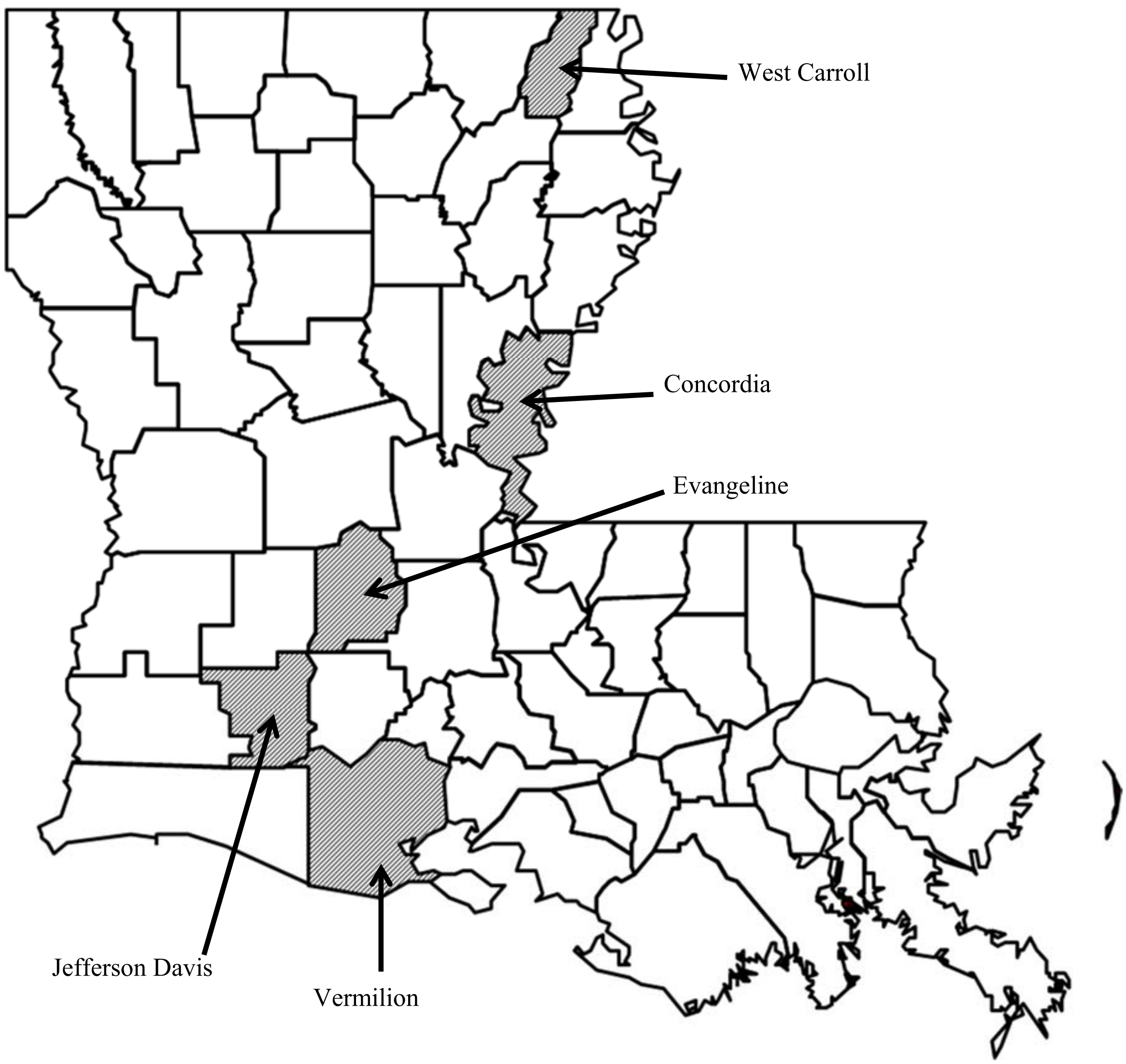


Table 1. Yields of Verification Fields in 2014.

Parish	Acres	Variety	Cwt/A green	Bbl/A green	Bu/A green	Cwt/A dry	Bbl/A dry	Bu/A dry
Concordia	23.0	CL111	83.80	51.7	186.2	78.65	48.5	174.8
Evangeline	20.7	CL111	81.10	50.1	180.2	74.83	46.2	166.3
Jefferson Davis	42.6	XP753	146.66[1]	90.5	325.9	135.74	83.8	301.6
Vermilion	41.0	Jupiter	111.62[1]	68.9	248.0	103.74	64.0	230.5
W. Carroll	32.2	CLXL756	90.94	56.1	202.1	83.29	51.4	185.1
Average	159.5		108.83	67.2	241.8	106.27	65.6	236.2

[1]Yield includes second crop.

Table 2. 2014 Louisiana Rice Research Verification Program Yield, Milling and Economic Summary.

Parish	Variety	Yield @ 12% Moisture (cwt/A)	Milling (% Whole / % Total)	Variable Costs ($/A)[2]	Cost of Production ($/cwt)[2]	Return on Variable Costs ($/A)[2,3]
Concordia[4]	CL111	78.65	55.49/72.53	$564.49	$7.18	$455.60
Evangeline	CL111	74.83	56.12/67.87	$580.62	$7.76	$389.93
Jefferson Davis[4]	XP753	135.74[1]	59.52/71.98	$799.33	$5.89	$961.21
Vermilion	Jupiter	76.58[1]	59.43/71.58	$540.10	$7.05	$587.16
W. Carroll	CLXL756	83.29	41.68/69.6	$535.30	$6.43	$544.97

[1]Figure includes ratoon crop yield.
[2]Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transporting, drying, storing, or fixed costs.
[3]This value was obtained using a selling price of $12.97 per cwt for long grain and $14.72 per cwt for medium grain.
[4]Economic data were not collected.

Table 3. Seventeen-Year Louisiana Rice Research Verification Summary.

1998 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	53.0	32.8	118.1	5,314
Avoyelles	32.5	42.9	154.4	6,950
Calcasieu*	60.0	34.1	122.8	5,524
East Carroll	33.9	41.1	148.0	6,658
Evangeline	33.0	42.9	154.4	6,950
Jefferson Davis*	61.8	37.3	134.3	6,043
Madison	36.6	39.0	140.4	6,318
Morehouse	63.0	33.8	121.7	5,476
St. Landry	37.1	38.2	137.5	6,188
Vermilion	16.7	29.4	105.8	4,763
TOTALS	**427.6**	**37.2**	**133.7**	**6,018**

*Yields include second crop.

1999 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	31.1	37.4	134.6	6,059
Avoyelles	32.5	46.6	167.8	7,549
Calcasieu	49.3	34.6	124.6	5,605
Catahoula	30.4	33.4	120.2	5,411
East Carroll	36.1	47.0	169.2	7,614
Evangeline	22.3	43.1	155.2	6,982
Jefferson Davis*	26.6	30.8	110.9	4,990
Madison	38.1	39.0	140.4	6,318
St. Landry	30.1	38.8	139.7	6,286
Vermilion	23.8	36.5	131.4	5,913
TOTALS	**320.3**	**38.7**	**139.4**	**6,273**

*Yields include second crop.

Table 3. Continued.

2000 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	53.3	39.4	141.8	6,383
Avoyelles	63.2	36.7	132.1	5,945
Calcasieu	22.1	25.1	90.4	4,066
Catahoula	39.6	36.4	131.0	5,897
East Carroll	45.1	49.1	176.8	7,956
Evangeline	19.9	38.2	137.5	6,188
Jefferson Davis	30.6	26.7	96.1	4,325
Morehouse	27.7	28.3	101.9	4,585
St. Landry	70.7	39.2	141.1	6,350
Vermilion*	21.6	37.7	135.7	6,107
TOTALS	**393.8**	**35.7**	**128.4**	**5,780**

*Yields include second crop.

2001 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	60.6	50.8	182.9	8,230
Allen	41.6	35.1	126.4	5,686
Avoyelles	63.2	38.1	137.2	6,172
Calcasieu*	61.9	39.4	142.0	6,388
Concordia	79.6	36.1	130.1	5,853
Evangeline*	20.8	52.7	189.7	8,538
Jefferson Davis*	21.6	57.3	206.4	9,289
Richland	65.9	46.0	165.5	7,447
St. Landry*	40.6	51.1	184.0	8,282
Vermilion*	33.3	52.4	188.7	8,493
TOTALS	**489.1**	**45.9**	**165.3**	**7,438**

*Yields include second crop.

Table 3. Continued.

2002 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	38.4	49.8	179.3	8,068
Allen*	25.1	46.0	165.6	7,452
Avoyelles	37.4	49.9	179.6	8,084
Beauregard*	49.5	53.1	191.2	8,602
Calcasieu*	41.4	42.4	152.6	6,869
Concordia	67.6	48.2	173.5	7,808
Evangeline	42.0	37.6	135.4	6,091
Jefferson Davis*	31.7	45.0	162.0	7,290
Richland	35.8	42.1	151.5	6,819
St. Landry	32.7	48.8	175.7	7,906
Vermilion*	32.0	49.8	179.4	8,072
TOTALS	**433.6**	**46.6**	**167.8**	**7,551**

*Yields include second crop.

2003 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	57.2	44.0	158.4	7,128
Allen*	35.7	46.1	166.0	7,469
Avoyelles	37.4	50.1	180.4	8,116
Beauregard*	45.7	48.7	175.2	7,884
Concordia	79.5	49.2	177.1	7,970
Evangeline*	48.4	44.5	160.2	7,209
Jefferson Davis*	52.9	28.7	103.3	4,649
Richland	40.2	44.7	160.8	7,234
St. Landry*	32.7	61.1	220.0	9,898
Vermilion*	33.0	40.0	144.0	6,480
TOTALS	**462.7**	**45.7**	**164.5**	**7,404**

*Yields include second crop.

Table 3. Continued.

2004 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen*	53.2	40.9	147.1	6,620
Avoyelles	33.3	32.8	118.0	5,307
Beauregard*	21.8	42.5	153.3	6,899
Concordia	82.3	36.0	130.0	5,843
East Carroll	54.8	45.8	165.0	7,427
Evangeline	30.7	34.8	125.2	5,638
Jefferson Davis*	42.3	38.5	138.6	6,237
Natchitoches	47.2	44.1	158.8	7,144
St. Landry*	60.1	65.1	234.3	10,543
Vermilion*	30.0	42.1	151.6	6,824
TOTALS	**455.7**	**42.3**	**152.2**	**6,848**

*Yields include second crop.

2005 Verification Acres and Yields*				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	28.9	39.6	143.8	6,427
Allen	76.7	25.6	92.0	4,140
Avoyelles	32.1	35.9	129.3	5,819
Calcasieu	49.0	51.0	184.0	8,282
Concordia	60.5	43.0	156.0	7,003
East Carroll	30.4	47.9	172.7	7,771
Evangeline	30.0	37.1	133.6	6,014
Jefferson Davis	39.2	32.5	117.0	5,264
Natchitoches	30.0	43.3	156.0	7,022
Richland	47.4	49.2	177.2	7,974
St. Landry	61.7	47.5	170.9	7,689
Vermilion	52.8	40.9	147.3	6,631
TOTALS	**538.7**	**41.1**	**148.3**	**6,670**

*No ratoon crop was harvested in the verification program in 2005.

Table 3. Continued.

2006 Verification Acres and Yields*				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	41.8	43.0	155.0	6,972
Concordia	54.7	50.8	183.0	8,237
East Carroll	60.4	44.5	150.0	7,210
Evangeline	29.4	32.3	116.0	5,227
Jefferson Davis	21.5	43.8	157.8	6,000
St. Landry	40.9	36.8	132.5	5,962
Vermilion	29.6	37.0	133.3	7,100
West Carroll	50.1	53.1	191.2	8,603
TOTALS	**328.4**	**43.4**	**156.4**	**7,040**

*No ratoon crop was harvested in the verification program in 2006.

2007 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	40.9	56.7	204	9,187
Concordia	53.8	53.6	193	8,680
East Carroll	23.0	49.0	176	7,917
Evangeline – St. Landry	33.9	50.1	180	8,122
Jefferson Davis*	38.9	55.8	201	9,046
Vermilion*	36.6	46.0	166	7,451
West Carroll	40.2	45.4	164	7,356
TOTALS	**267.3**	**51.2**	**184**	**8,293**

*Yields include second crop.

2008 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	40.9	47	170	7,657
Calcasieu*	55.1	51	183	8,247
Concordia	54.7	44	160	7,178
Evangeline	46.4	42	152	6,840
Madison	41.5	51	182	8,208
Jefferson Davis*	37.7	52	189	8,481
St. Landry	60.2	48	173	7,801
Vermilion*	51.1	70	252	11,359
TOTALS	**387.6**	**51**	**183**	**8,228**

*Yields include second crop.

Table 3. Continued.

2009 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	56.6	70.9	255.3	11,489
Avoyelles	28.6	50.7	182.5	8,214
Calcasieu*	41.7	58.1	209.3	9,418
Concordia	57.0	49.6	178.6	8,035
East Carroll	33.6	41.3	148.7	6,692
Evangeline*	22.5	61.7	222.2	9,999
Madison	29.0	50.4	181.5	8,168
St. Landry	49.4	49.3	177.5	7,987
Vermilion*	41.5	66.9	241.0	10,843
TOTALS	**359.9**	**56.0**	**201.7**	**9,078**

*Yields include second crop.

2010 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	41.8	49.7	179.0	8,057
Jefferson Davis*	35.8	67.5	243.1	10,941
St. Landry	31.3	44.3	159.4	7,171
TOTALS	**108.9**	**54.0**	**194.4**	**8,750**

*Yields include second crop.

2011 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen	23.2	48.1	173.3	7,799
Cameron[1]	17.6	57.6	207.4	9,332[1]
Madison	10.5[2]	57.9	208.5	9,382
St. Landry	45.7	42.5	153.1	6,890
Vermilion	24.0	54.0	194.5	8,754
TOTALS	**121.0**	**49.4**	**177.9**	**8,005**

[1]Yields include second crop.
[2]Yield calculated on 10.5 acres, total field acres 73.4.

Table 3. Continued.

2012 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen	30.7	45.6	164.2	7,391
Cameron[1]	35.7	42.3	152.4	6,858
Concordia	37.4	45.2	162.7	7,321
St. Landry[1]	44.1	64.9	233.6	10,510
Vermilion	16.5	44.1	158.6	7,137
TOTALS	**164.4**	**49.8**	**179.3**	**8,071**

[1]Yields include second crop.

2013 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Evangeline	38.0	51.7	186.0	8,368
Jeff Davis[1]	39.3	65.1	234.2	10,541
St. Landry[1]	52.4	75.2	270.7	12,183
Vermilion	17.3	36.4	131.1	5,898
W. Carroll	34.5	65.3	235.2	10,582
TOTALS	**181.5**	**62.5**	**225.0**	**10,125**

[1]Yields include second crop.

2014 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Concordia	23.0	48.5	174.8	7,865
Evangeline	20.7	46.2	166.3	7,483
Jefferson Davis[1]	42.6	83.8	301.6	13,574
Vermilion[1]	41.0			
W. Carroll	32.2	51.4	185.1	8,329
TOTALS	**159.5**			

[1]Yields include second crop.

1998 – 2014 Rice Research Verification Yield Summary

Verification Totals			Verification Parish Totals		
Year	**Acres**	**Pounds/A**	**Acres**	**Pounds/A**	**Difference**
1998	427.6	6,018	475,103	5,052	966
1999	320.3	6,273	444,015	5,502	771
2000	393.8	5,780	385,824	5,620	160
2001	489.1	7,438	412,286	5,794	1,644
2002	433.6	7,551	412,630	5,764	1,787
2003	462.7	7,404	327,843	5,843	1,561
2004	455.7	6,848	311,606	5,582	1,266
2005	538.7	6,670	402,759	6,165	505
2006	328.4	7,040	185,249	5,644	1,396
2007	267.3	8,293	183,357	6,501	1,792
2008	387.6	8,228	258,845	6,047	2,181
2009	359.9	9,078	246,793	6,715	2,363
2010	108.9	8,750	125,856	6,488	2,262
2011	121.0	8,005	110,236	6,175	1,830
2012	164.4	8,071	109,823	6,043	2,028
2013	181.5	10,125	202,366	7,524	2,602
2014	159.5	10,883	194,761	*	*
Totals	**5,600.0**		**4,7789,852**		

*Not available at press time.

EFFECTS OF SEEDING RATES, COATING, AND PELLETIZATION OF SMOOTH CORDGRASS SEED GROWTH AND SEED PRODUCTION

H.S. Utomo

Smooth cordgrass has an elongated seed that is chaffy, relatively light, and floats on the water. The chaff made of dry pericarp has a low specific gravity and, therefore, makes the smooth cordgrass seed float. When seeds fall into the water, the chaff absorbs water over time, causing seeds to sink. The majority of full seeds remain afloat for four to eight hours, while a small portion of full seeds remain floating for 18 hours. This floating property causes the seed to drift on the water, which could be part of a natural mechanism to spread and colonize new areas. As a planting tool, however, aerial seeding must be adequately precise in producing vegetation in the target areas. Therefore, the seed drift must be minimized. This can be done by modifying the physical property of the seed by means of coating or pelleting, which would increase the weight of the seed.

In addition to adding weight, various components with specific functions can be incorporated into the seed coating and pelletization. Water attracting materials, for example, can be added to the pellets to absorb moisture and help the seed that lands on the higher soil elevations, with less exposure to water during low tidal cycles, to survive and grow. Seed pelletization can be made by adding binder and carrier. A Tackifier can also be added to the pellets to help pelletized seed stick to the soil better. Even though smooth cordgrass seedlings can withstand more than 14 days under continuous inundation, oxygen-generating materials can be used to further prolong the seed's capability to withstand an extended period of inundation. Other seed enhancement materials, such as fungicides, insecticides, and micronutrients, can be placed directly in the seed pellet. Incorporation of pesticides into the seed coat can reduce disease susceptibility during its germination in the soil. Seed coating is generally effective in controlling mold. Smooth cordgrass seed is palatable to several birds native to the coastal marshes. The smooth cordgrass seed is not a hard coated seed and will not survive the bird's digestive process. Coating or pelletization can reduce its palatability. If needed, non-toxic bird repellents can be incorporated into the seed to further reduce its palatability.

Two basic models of smooth cordgrass seed treatments were evaluated. The first model was composed of individually coated seed, while the second one was composed of multiple seed pelletization. The performance of these seed treatments, together with seeding rates, was evaluated in two saltmarsh regions in direct seeding using aerial seeding applicators from an airboat or a conventional boat. Important growth parameter data were collected.

Table 1. Growth performance of coated PolyC15 seed for four seeding rates evaluated in the Belle Chasse marsh area.

Seeding Rate (lb/A)	Block	Plant Stand†	Stem Density†	Number of Panicles†	Yield lb/A
10	1	17.0	128.0	98.0	126.8
10	2	18.0	117.5	100.5	112.4
10	3	12.5	128.0	121.5	148.7
10	4	17.5	137.5	117.0	119.0
10	5	16.5	127.0	93.5	126.4
20	1	33.0	228.0	183.5	158.3
20	2	34.5	216.5	149.5	160.8
20	3	27.5	209.0	178.5	169.1
20	4	38.0	221.5	199.5	139.5
20	5	32.0	280.0	194.5	157.0
30	1	51.5	217.0	237.5	229.8

Continued.

Table 1. Continued.

Seeding Rate (lb/A)	Block	Plant Stand†	Stem Density†	Number of Panicles†	Yield lb/A
30	2	58.5	289.0	228.0	221.9
30	3	49.0	299.0	267.0	247.2
30	4	44.5	288.0	249.0	259.8
30	5	50.0	270.0	217.5	222.4
40	1	67.5	363.0	298.0	259.9
40	2	71.5	301.0	289.0	249.2
40	3	60.5	367.0	321.5	292.6
40	4	57.5	394.0	284.5	243.7
40	5	78.0	360.5	288.0	250.2

†Based on a sample size of 1.2 X 3 m^2.

Table 2. Growth performance of pelletized PolyC15 seed for four seeding rates evaluated in the Belle Chasse marsh area.

Seeding Rate (lb/A)	Block	Plant Stand†	Stem Density†	Number of Panicles†	Yield lb/A
10	1	20.0	199.0	182.0	169.2
10	2	17.5	188.5	150.5	152.5
10	3	18.5	217.5	226.5	162.1
10	4	21.5	213.0	177.0	187.1
10	5	21.5	189.0	175.5	150.2
20	1	40.5	329.0	261.5	279.2
20	2	42.0	338.5	274.5	277.2
20	3	38.0	299.0	233.5	307.3
20	4	32.5	335.5	251.0	278.4
20	5	44.5	325.5	270.0	271.7
30	1	62.5	373.0	322.0	240.7
30	2	61.5	343.5	337.5	321.5
30	3	78.5	395.5	299.0	280.2
30	4	51.0	384.0	328.5	267.3
30	5	55.5	372.5	317.0	268.5
40	1	83.0	361.5	338.0	265.8
40	2	77.0	339.0	321.5	243.6
40	3	72.5	399.5	305.5	280.4
40	4	83.5	361.5	343.5	284.4
40	5	88.0	334.0	327.0	255.4

†Based on a sample size of 1.2 X 3 m^2.

Table 3. Growth performance of coated PolyC15 seed for four seeding rates evaluated in Marsh Island.

Seeding Rate (lb/A)	Block	Plant Stand†	Stem Density†	Number of Panicles†	Yield lb/A
10	1	16.0	126.5	88.5	127.3
10	2	27.5	139.0	94.5	133.5
10	3	12.5	127.0	123.0	171.7
10	4	12.0	133.5	122.5	112.0
10	5	15.0	132.5	144.5	116.6
20	**1**	**33.5**	**216.5**	**177.0**	**161.8**
20	2	33.0	238.0	188.0	165.9
20	3	34.0	183.5	201.0	149.2
20	4	39.5	233.5	217.5	188.3
20	5	34.5	232.5	206.0	160.4
30	1	63.0	284.5	239.5	237.0
30	2	62.0	249.0	254.0	261.0
30	3	56.5	289.0	239.0	223.5
30	4	61.5	307.5	249.5	240.6
30	5	49.0	300.5	228.0	248.4
40	1	72.5	368.0	300.5	260.2
40	2	72.0	394.5	273.0	239.3
40	3	61.5	345.0	344.5	279.9
40	4	62.5	356.0	321.5	255.0
40	5	63.0	327.0	311.5	238.8

†Based on a sample size of 1.2 X 3 m^2.

Table 4. Growth performance of pelletized PolyC15 seed for four seeding rates evaluated in Marsh Island.

Seeding Rate (lb/A)	Block	Plant Stand†	Stem Density†	Number of Panicles†	Yield lb/A
10	1	23.0	199.0	182.0	169.1
10	2	27.5	223.0	193.5	149.2
10	3	21.0	197.5	202.0	197.4
10	4	20.0	188.0	171.5	176.8
10	5	22.5	220.5	201.5	149.5
20	1	44.5	339.0	213.0	299.1
20	2	41.0	299.0	272.0	290.7
20	3	45.0	347.0	251.5	252.6
20	4	51.0	328.5	272.5	282.1
20	5	43.0	339.5	331.0	304.0
30	1	67.5	372.5	322.5	277.8
30	2	60.0	384.0	302.5	284.5
30	3	73.0	349.5	282.5	317.3
30	4	73.5	384.0	349.5	259.5

Continued.

Table 4. Continued.

Seeding Rate (lb/A)	Block	Plant Stand†	Stem Density†	Number of Panicles†	Yield lb/A
30	5	69.5	390.5	360.5	280.4
40	1	84.0	378.0	334.5	268.5
40	2	89.5	382.5	339.0	263.8
40	3	92.5	388.5	293.5	300.0
40	4	82.5	349.0	350.0	276.3
40	5	87.0	394.0	327.0	280.3

†Based on a sample size of 1.2 X 3 m^2.

GENETIC EVALUATION OF POLYCROSS POPULATIONS OF SMOOTH CORDGRASS (*Spartina alterniflora*)

H.S. Utomo

Smooth cordgrass is predominantly a cross-pollinated coastal grass species. Just after the inflorescence emerges from the sheath of the uppermost leaves, white stigmas emerge from the flowers starting at the tip of the inflorescence and progressing toward the base. Anthers appear on each spikelet typically after the stigmas of the same flower have turned brown and are no longer receptive to the pollen. Some self-fertilization, however, can still happen for late-appearing stigmas that are pollinated by anthers of the same inflorescence. This type of anthesis phenology, therefore, causes smooth cordgrass inflorescence to be largely, but not entirely, open pollinated.

Through intensive evaluations based on adaptability to various coastal environments, superiority in important agronomic characteristics, and seed production, elite smooth cordgrass lines were selected. Using these selected lines, the Rice Research Station Coastal Plant Program developed polycross populations from separate crosses that are composed of combinations of three, four, and five parental lines. The resulting synthetic polycross populations were used as genetic base materials for varietal development to produce synthetic varietal populations that are fertile and highly adaptable to coastal conditions. Genetic tests that evaluate fertility and performance of the synthetic populations were conducted both at the Rice Research Station and in coastal areas.

Table 1. Field performance of synthetic polycross populations of smooth cordgrass evaluated in the Belle Chasse marsh area†.

Polycross Set	VIG§	Spread¶	Plant Height (cm)	Stem Density	Number of Panicles	% Seed Set	Germ. Rate	Yield (lb/A)
3 Parental Lines								
PolyC3-1	7.3	1.4	181.4	317.5	250.5	71.0	79.5	412.4
PolyC3-2	5.9	1.8	190.0	328.0	291.4	61.3	80.6	268.7
PolyC3-3	7.6	2.2	174.4	237.5	217.0	77.1	65.2	279.0
PolyC3-4	8.0	2.7	204.1	279.2	193.5	78.2	76.1	226.4
4 Parental Lines								
PolyC4-1	7.3	1.4	171.2	296.5	229.1	79.2	81.5	360.8
PolyC4-2	6.6	1.8	189.0	289.6	238.5	66.8	76.8	299.1
PolyC4-3	8.0	2.2	203.6	231.1	199.2	74.0	74.3	239.5
PolyC4-4	6.3	1.6	199.1	270.7	214.7	70.2	78.9	357.0
5 Parental Lines								
PolyC5-1	8.3	2.4	181.3	288.4	228.1	76.0	75.1	421.9
PolyC5-2	7.0	1.8	180.2	239.0	217.0	59.1	66.6	247.2
PolyC5-3	7.0	2.5	168.2	278.5	249.2	72.4	79.3	459.8
PolyC5-4	7.6	1.7	190.6	275.0	217.9	68.3	76.2	222.4
15 Parental Lines (control)								
PolyC-15	7.0	1.8	168.3	237.0	221.5	58.5	82.2	292.6

†Mean values are based on three replications; §Vigor (0 = dead, 10 = extremely vigorous, robust, and healthy); ¶Spread (linear growth of each plot onto two perpendicular axes).

Table 2. Field performance of synthetic polycross populations of smooth cordgrass evaluated at the Rice Research Station†.

Polycross Set	VIG†	Spread¶	Plant Height (cm)	Stem Density	Number of Panicles	% Seed Set	Germ. Rate	Yield lb/A
3 Parental Lines								
PolyC3-1	8.2	1.6	191.1	287.3	264.1	69.7	69.1	376.4
PolyC3-2	5.7	2.0	180.6	318.1	301.5	65.1	82.3	433.7
PolyC3-3	6.9	2.8	184.0	259.5	224.9	70.3	71.6	259.0
PolyC3-4	8.5	2.9	211.3	189.5	169.3	81.9	66.2	286.4
4 Parental Lines								
PolyC4-1	7.6	2.4	179.0	306.9	229.4	76.1	71.8	320.8
PolyC4-2	7.1	2.1	184.1	279.1	248.1	76.5	77.4	289.1
PolyC4-3	7.4	2.1	200.3	291.3	239.1	80.6	80.5	249.5
PolyC4-4	7.6	1.5	189.7	240.6	224.8	71.1	68.3	297.0
5 Parental Lines								
PolyC5-1	8.4	2.8	171.9	228.4	208.2	79.8	72.1	425.9
PolyC5-2	7.5	2.3	193.1	219.0	207.8	62.2	67.1	297.2
PolyC5-3	7.1	2.7	164.2	317.5	299.1	71.4	71.5	359.8
PolyC5-4	6.6	1.6	204.3	255.1	227.3	69.2	78.7	252.4
15 Parental Lines (control)								
PolyC-15	7.2	1.9	171.2	257.5	242.3	57.5	81.0	312.6

†Mean values are based on three replications; §Vigor (0 = dead, 10 = extremely vigorous, robust, and healthy); ¶Spread (linear growth of each plot onto two perpendicular axes).

STATION PERSONNEL

Steven D. Linscombe, Professor	**Regional Director/Resident Coordinator**
Valerie B. Dartez[1]	Administrative Coordinator III
Kimberly G. Guidry	Accounting Specialist I
Carol D. LeDoux	Administrative Program Specialist-A
Donna L. Sonnier	Custodian I
Donald E. Groth, Professor/Research Coordinator	**Rice Pathology**
Carl W. Dischler	Research Associate/Specialist
Marty J. Frey (25%)	Research Associate/Specialist
Laura L. Monte	Research Farm Assistant II
Dustin L. Harrell, Associate Professor	**Rice Agronomy/Rotational Crops**
Manoch Kongchum[2]	Instructor
Jacob S. Fluitt	Research Associate/Specialist
James P. Leonards	Research Associate/Specialist
Ronald P. Regan	Research Associate/Specialist
William J. Leonards, Jr., Research Associate/Coordinator/Manager	**Farm Management**
Nathan T. Breaux	Research Farm Assistant II
Brian D. Broussard	Research Farm Supervisor
Paul A. Miller	Research Farm Specialist I
Jimmy D. Pellerin	Research Farm Specialist II
Ronald J. Pellerin	Research Farm Manager I
Thomas J. Reed	Research Farm Specialist II
Steven D. Linscombe, Professor	**Rice Breeding**
Karen F. Bearb	Research Associate/Coordinator
Raymond R. Dilly, Jr.	Research Associate/Specialist
Brandon J. Frey	Research Farm Specialist I
Herman L. Hoffpauir[3]	Research Farm Specialist II
Brent W. Theunissen	Research Associate/Specialist
Mona M. Meche, Research Associate/Coordinator	**Rice Anther Culture/Tissue Culture**
Rebecca S. Beckham[4]	Research Farm Specialist I
Jennifer D. Dartez	Research Farm Specialist I
W. Ray McClain, Professor	**Aquaculture**
John J. Sonnier	Research Farm Specialist II

[1] Appointed 03/05/2014
[2] Appointed 09/01/2014
[3] Retired 01/03/2014
[4] Separated 02/14/2014

STATION PERSONNEL
(Continued)

James H. Oard, Professor --- Rice Hybrid Breeding

Troy C. Barrilleaux[5]	Research Associate/Specialist
Weike Li	Visiting Professor

John K. Saichuk, Professor ---Rice Agronomy/Extension

Glenn J. Schexnayder, Research Farm Maintenance Manager ----------------------- Maintenance Department

Ted R. Trahan	Maintenance Repairer II

Herry S. Utomo, Associate Professor --------------------------- Marker-Assisted Selection Breeding/Biotechnology

Lauren E. Ingalls	Research Farm Specialist I
Gretchen M. Zaunbrecher	Research Associate/Specialist

Ida Wenefrida, Assistant Professor/Research--- Biotechnology

Lawrence M. White, III, Research Associate/Coordinator-------------------------------------- Foundation Seed Rice

Richard E. Zaunbrecher	Research Associate/Specialist

LSU AGCENTER CAMPUS PERSONNEL

LSU AgCenter personnel conducting research at the Rice Research Station include the following:

Jong Hyun Ham -- Rice Diseases

Department of Plant Pathology and Crop Physiology

Michael E. Salassi ---Economics

Department of Agricultural Economics and Agribusiness

Michael J. Stout --- Rice Entomology

Department of Entomology

Marty J. Frey (75%) (Rice Research Station)	Research Associate/Specialist

Eric P. Webster -- Rice Weed Control

School of Plant, Environmental and Soil Sciences

Eric A. Bergeron[6]	Graduate Research Assistant
J. Caleb Fish[7]	Research Associate
Benjamin M. McKnight	Research Associate

[5] Appointed 03/01/2014
[6] Appointed 01/08/2014
[7] Separated 12/31/2014

COOPERATING PERSONNEL

Cooperating personnel on research projects at the Rice Research Station include the following:

Lucas Aviles --- Rice Breeding
University of Puerto Rico Research & Extension Center
Lajas, Puerto Rico

Niranjan Baisakh--- Rice Breeding
School of Plant, Environmental and Soil Sciences
Louisiana State University Agricultural Center

Steve A. Harrison-- Wheat, Oats, and Coastal Erosion Control
School of Plant, Environmental and Soil Sciences
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Clayton Hollier---Soybean and Rice Disease Control
Department of Plant Pathology and Crop Physiology
Louisiana State University Agricultural Center

Ronald J. Levy --- Soybeans
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