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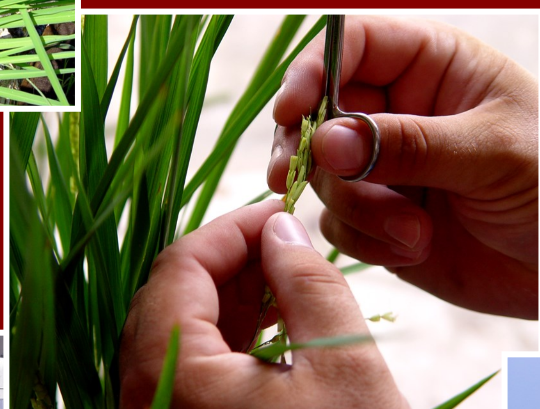
107th Annual Research Report

H. Rouse Caffey Rice Research Station



Crowley, Louisiana
2015

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Cover Photos

Student workers core samples of rice, wash roots, and record the number of rice water weevil larvae counted.

Emasculating rice florets prior to crossing.

Harvesting Agronomy Project plots.

Herbicide field trials harvested with a small plot combine.

Screening for herbicide resistance in rice using tissue culture.

Representation of crawfish size distribution obtained from final weights at end of grow-out study.

107^{th} Annual Research Report

H. ROUSE CAFFEY
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/H. Rouse Caffey Rice Research Station
Steven D. Linscombe, Regional Director/Resident Coordinator

T A B L E O F C O N T E N T S

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INTRODUCTION

Research at the H. Rouse Caffey Rice Research Station (RRS), Crowley, LA, is conducted by scientists with the LSU AgCenter's Louisiana Agricultural Experiment Station. The 2015 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 RRS also conducts research studies in improving species for coastal restoration. In addition, the statewide rice extension agronomist conducts numerous educational programs from the RRS. 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 RRS. Research accomplishments and general progress of the RRS during 2015 are presented in this report representing the 107th Annual Research Report of the H. Rouse Caffey 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 RRS faculty and cooperators, a large number of farmers, extension personnel, and others were trained and otherwise contacted during 2015. Approximately 500 people attended the annual RRS field day to view plots and participate in discussions of research findings. Field days also were conducted in Evangeline, Jefferson Davis, Richland, 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 RRS during 2015.

Projects at this station are conducted under the supervision of research scientists from the RRS and also by cooperating personnel from certain departments of the Louisiana Agricultural Experiment Station. Following the reports, station personnel and cooperators in 2015 are listed.

MONTHLY RAINFALL DATA
H. ROUSE CAFFEY RICE RESEARCH STATION - CROWLEY, LA
2015

DATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR TOTAL
1						2.32	.52		.03		3.88	.27	
2	.04	.20	.66				.90		.02		.45	.35	
3	.32		.50								.47		
4	1.64	.26											
5		.31	.15				.07		1.39				
6			.03	1.09									
7											2.66		
8					.02						1.76		
9			.03										
10	.08		1.70						.62				
11	.03		.16	.80		.05	.07		1.23				
12	1.00		.36	1.35	1.95			.94	.25		.19		
13			.28	1.02	.05	1.70					.05		
14			.03	.47		2.30						1.00	
15	.16			.84		.35		1.20					
16	.06				1.91	.21						1.06	
17		.82		1.90	.02	.11		1.58			.08		
18				.72							1.70		
19					.75			1.30					
20				.09	.12			1.66					
21					.02			.05			.37		
22		.05	.48		.06			.37			.76	.16	
23	1.71	.29										.77	
24		.10			1.10	.17		.05				.02	
25		.14		.07	.20	.05				1.65		.02	
26		.34		1.27	.91					2.52		.12	
27							.18			.18			
28				2.07	1.25	.94			.30			.27	
29						.14			.29				
30						.17	.12					.09	
31					.21		1.30			.06		.04	
2015 MONTH TOTAL	5.04	2.51	4.38	11.69	8.57	8.51	3.16	7.15	4.13	4.41	12.37	4.17	76.09
2014	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

RICE BREEDING

GENETIC IMPROVEMENT OF RICE FOR LOUISIANA PRODUCTION

S.D. Linscombe, A.N. Famoso, K.F. Bearb, B.W. Theunissen,
R.E. Zaunbrecher, B.J. Frey, and L.N. Pavich

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 2015 rice breeding nursery included more than 64,000 breeding rows, 206 F_1 transplant populations, and 112 space-planted F_2 populations. About 147 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 Yield Trial was conducted at the H. Rouse Caffey 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.

COMMERCIAL-ADVANCED YIELD TRIAL

The Commercial Advanced Yield 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 2015 included the H. Rouse Caffey Rice Research Station (RRS) in Crowley and five on-farm test sites in Jefferson Davis, Evangeline, Vermilion, Acadia, and St. Landry parishes.

Sixty entries were tested in a randomized complete block design with three replications. Varieties and hybrids were seeded at 90 lb/A and 38 lb/A, respectively. Planting dates were: RRS, March 23; Acadia, March 31; Evangeline, May 4; Jefferson Davis, March 20; St. Landry, March 30; and Vermilion, March 24. Harvest dates were: RRS, Aug. 10; Acadia, Aug. 6; Evangeline, Aug. 27; Jefferson Davis, Aug. 4; St. Landry, Aug. 14; and Vermilion, Aug. 5. Results from these trials are shown in Tables 1-7.

Table 1. Entry number, pedigree, grain type, and source information for entries in the Commercial-Advanced Yield Trial, 2015.

ENTRY	PEDIGREE	GRAIN TYPE†	SOURCE‡
201	CL111	L	LAES
202	CL151	L	LAES
203	CL152	L	LAES
204	CL161	L	LAES
205	CL163	L	LAES
206	CL172	L	LAES
207	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	L	LAES
208	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	L	LAES
209	CL261	M	LAES
210	CL271	M	LAES
211	NEPTUNE//BNGL/CL161	M	LAES
212	BNGL/CL161//CAFFEY	M	LAES
213	COCODRIE	L	LAES
214	CHENIERE	L	LAES
215	CATAHOULA	L	LAES
216	CYPRESS	L	LAES
217	MERMENTAU	L	LAES
218	LAKAST	L	AAES
219	ROY J	L	AAES
220	ANTONIO	L	TAES
221	STG03AC-37-042(FRAN AC LINE)/RU0801076	L	AAES
222	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	L	LAES
223	CCDR/JEFF//TRNS	L	LAES
224	REX	L	MAES
225	PRESIDIO	L	TAES
226	JAZZMAN	L(A)	LAES
227	JAZZMAN-2	L(A)	LAES
228	DELLA-2	L(A)	LAES

Continued.

Table 1. Continued.

ENTRY	PEDIGREE	GRAIN TYPE[†]	SOURCE[‡]
229	JUPITER	M	LAES
230	CAFFEY	M	LAES
231	M206/STG99F5-07-118//JPTR	M	AAES
232	CLH 161 (hybrid)	L	LAES
233	09A/R608 (hybrid)	L	LAES
234	LAH169 (hybrid)	L	LAES
235	CLXL729 (hybrid)	L	RiceTec
236	CLXL745 (hybrid)	L	RiceTec
237	XL 753 (hybrid)	L	RiceTec
238	XL 760 (hybrid)	L	RiceTec
239	CPRS/KBNT//WELLS CFX 18/3/MBLE	L	LAES
240	CL131/3/CPRS/KBNT//9502008-A	L	LAES
241	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	L	LAES
242	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	L	LAES
243	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	L	LAES
244	CCDR/3/CPRS/KBNT//WELLS CFX 18	L	LAES
245	CL111/4/CPRS/9502008-A//AR 1188/CCDR	L	LAES
246	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	L	LAES
247	9502008-A/DREW//CLR 20/3/CL111	L	LAES
248	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	L	LAES
249	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	L	LAES
250	CL111/3/CPRS/KBNT//WELLS CFX 18	L	LAES
251	CL111/CCDR	L	LAES
252	CL111/CHENIERE	L	LAES
253	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	L	LAES
254	TRNS/CPRS/KBNT//9502008-A	L	LAES
255	CPRS/KBNT//9502008-A /3/AC105	L	LAES
256	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	L	LAES
257	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	M	LAES
258	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	M	LAES
259	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	M	LAES
260	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	M	LAES

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

[‡] AAES – Rice Research and Extension Center, Arkansas Agricultural Experiment Station, Stuttgart, AR; LAES – H. Rouse Caffey Rice Research Station, Louisiana Agricultural Experiment Station, LSU Agricultural Center, Crowley, LA; MAFS – 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 2015 Commercial-Advanced Yield Trial. Acadia Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
238	XL 760	XL 760 (hybrid)	5	81	44	9,852	65.7	76.2
237	XL 753	XL 753 (hybrid)	3	77	40	9,400	54.7	76.6
236	CLXL745	CLXL745 (hybrid)	3	73	39	9,344	65.3	78.4
235	CLXL729	CLXL729 (hybrid)	5	78	41	9,244	64.8	76.9
233	OARD HY	09A/R608 (hybrid)	5	84	48	8,478	53.8	71.6
259	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	3	81	35	8,306	42.0	73.6
232	CLH 161	CLH 161 (hybrid)	5	77	41	8,305	70.5	77.1
218	LKST	LAKAST	3	77	37	8,135	61.9	76.5
234	LAH169	LAH169 (hybrid)	5	76	38	7,848	67.5	78.1
212	1402125	BNGL/CL161//CAFFEY	3	82	34	7,810	45.6	74.0
230	CFFY	CAFFEY	3	81	33	7,762	36.0	73.5
260	1502189	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	83	32	7,749	38.1	73.1
240	1402091	CL131/3/CPRS/KBNT//9502008-A	4	77	35	7,564	69.4	77.4
229	JPTR	JUPITER	5	82	33	7,508	64.8	72.3
201	CL111	CL111	3	73	34	7,316	65.2	79.1
231	AR 1021	AR 1021	5	77	34	7,315	49.5	73.5
210	CL271	CL271	3	81	35	7,313	38.3	73.6
254	1502165	TRNS/CPRS/KBNT//9502008-A	4	75	35	7,258	70.2	76.2
217	MRMT	MERMENTAU	4	77	36	7,216	73.8	78.6
219	ROY J	ROY J	3	83	40	7,189	55.3	75.4
222	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	5	78	36	7,184	61.2	75.2
241	1502045	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	75	37	7,177	67.7	77.7
211	1402008	NEPTUNE//BNGL/CL161	3	79	33	7,154	32.4	74.1
215	CTHL	CATAHOULA	5	79	38	7,147	45.1	76.1
249	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	3	80	39	7,096	45.9	75.5
246	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	78	41	7,044	69.7	77.4
243	1402051	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	79	35	6,953	71.2	77.9
247	1502082	9502008-A/DREW//CLR 20/3/CL111	4	76	37	6,935	69.4	77.0
202	CL151	CL151	4	77	35	6,927	39.9	74.5
207	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	78	35	6,872	71.4	77.8

Continued.

Table 2. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
255	1502168	CPRS/KBNT//9502008-A /3/AC105	3	77	36	6,834	57.1	77.3
256	1502171	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	5	78	39	6,829	63.0	79.1
250	1502097	CL111/3/CPRS/KBNT//WELLS CFX 18	5	78	34	6,825	69.7	77.5
214	CHNR	CHENIERE	5	79	35	6,815	60.6	78.0
221	AR 1084	AR 1084	5	77	36	6,751	41.1	73.5
252	1502106	CL111/CHENIERE	4	78	36	6,726	66.5	76.1
245	1502065	CL111/4/CPRS/9502008-A//AR 1188/CCDR	4	79	36	6,710	46.9	74.3
213	CCDR	COCODRIE	5	78	36	6,703	69.9	77.0
257	1502174	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	3	78	35	6,614	45.1	73.1
204	CL161	CL161	4	80	39	6,599	73.1	78.0
248	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	75	35	6,599	66.7	78.7
220	ANTO	ANTONIO	5	77	37	6,583	71.7	76.7
206	CL172	CL172	4	75	33	6,557	56.1	76.2
244	1502062	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	77	36	6,541	67.6	78.0
223	1402183	CCDR/JEFF//TRNS	4	75	37	6,328	57.1	75.8
253	1502162	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	4	81	37	6,305	71.7	76.9
228	DLLA2	DELLA-2	5	83	39	6,294	44.5	73.3
242	1502048	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	4	80	35	6,253	55.8	74.8
203	CL152	CL152	4	81	37	6,227	32.2	74.1
225	PSDO	PRESIDIO	4	79	36	6,198	67.8	76.9
216	CPRS	CYPRESS	5	80	36	6,167	69.7	75.4
239	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	5	79	38	6,148	48.4	75.7
251	1502103	CL111/CCDR	4	77	36	6,142	43.1	75.1
227	JZMN2	JAZZMAN-2	5	81	31	5,949	71.2	74.5
226	JZMN	JAZZMAN	4	83	35	5,742	54.5	75.3
258	1502031	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	3	79	34	5,586	71.9	76.0
224	REX	REX	3	80	38	5,584	65.6	75.0
205	CL163	CL163	5	80	38	5,301	46.7	72.4
209	CL261	CL261	3	77	33	4,167	39.0	72.3
208	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	75	36	4,115	58.9	74.8

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

Table 3. Grain and agronomic performance of entries in the 2015 Commercial-Advanced Yield Trial. Evangeline Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
232	CLH 161	CLH 161 (hybrid)	5	69	44	9,114
237	XL 753	XL 753 (hybrid)	5	70	42	9,043
236	CLXL745	CLXL745 (hybrid)	4	68	39	8,807
235	CLXL729	CLXL729 (hybrid)	4	70	41	8,634
238	XL 760	XL 760 (hybrid)	4	73	40	8,547
233	OARD HY	09A/R608 (hybrid)	5	73	46	8,264
234	LAH169	LAH169 (hybrid)	4	67	41	7,341
258	1502031	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	5	72	35	6,838
231	AR 1021	AR 1021	5	68	33	6,775
257	1502174	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	4	68	35	6,723
240	1402091	CL131/3/CPRS/KBNT//9502008-A	4	69	31	6,621
221	AR 1084	AR 1084	4	71	34	6,566
209	CL261	CL261	4	70	35	6,427
218	LKST	LAKAST	4	70	35	6,417
259	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	6	73	33	6,324
244	1502062	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	70	34	6,286
208	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	5	69	32	6,264
217	MRMT	MERMENTAU	4	68	33	6,202
249	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	4	74	33	6,114
202	CL151	CL151	4	70	34	6,073
247	1502082	9502008-A/DREW//CLR 20/3/CL111	4	69	35	6,060
229	JPTR	JUPITER	4	73	31	6,050
219	ROY J	ROY J	5	75	34	6,048
230	CFFY	CAFFEY	5	75	33	6,027
211	1402008	NEPTUNE//BNGL/CL161	4	72	31	5,970
210	CL271	CL271	5	74	31	5,938
248	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	68	34	5,936
246	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	72	33	5,915
241	1502045	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	67	32	5,904
224	REX	REX	3	73	34	5,822
243	1402051	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	5	73	32	5,777
239	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	73	32	5,757
254	1502165	TRNS/CPRS/KBNT//9502008-A	4	67	32	5,707
203	CL152	CL152	4	72	30	5,634
213	CCDR	COCODRIE	5	68	33	5,630
212	1402125	BNGL/CL161//CAFFEY	4	74	33	5,613
255	1502168	CPRS/KBNT//9502008-A /3/AC105	4	72	33	5,572
206	CL172	CL172	4	68	30	5,491
214	CHNR	CHENIERE	5	74	33	5,434
207	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	70	30	5,424

Continued.

Table 3. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
250	1502097	CL111/3/CPRS/KBNT//WELLS CFX 18	4	71	31	5,362
252	1502106	CL111/CHENIERE	4	72	32	5,350
201	CL111	CL111	4	63	32	5,299
204	CL161	CL161	4	73	31	5,296
215	CTHL	CATAHOULA	4	70	34	5,244
226	JZMN	JAZZMAN	5	73	32	5,238
220	ANTO	ANTONIO	4	71	32	5,237
242	1502048	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	5	73	33	5,234
223	1402183	CCDR/JEFF//TRNS	4	67	32	5,223
260	1502189	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	75	28	5,105
251	1502103	CL111/CCDR	4	71	30	4,962
256	1502171	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	4	72	35	4,939
216	CPRS	CYPRESS	4	73	34	4,889
228	DLLA2	DELLA-2	4	75	33	4,838
222	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	67	32	4,817
225	PSDO	PRESIDIO	4	70	32	4,750
245	1502065	CL111/4/CPRS/9502008-A//AR 1188/CCDR	4	73	31	4,666
253	1502162	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	5	73	32	4,602
227	JZMN2	JAZZMAN-2	4	74	29	4,223
205	CL163	CL163	4	75	31	4,168

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2015 Commercial-Advanced Yield Trial. Jefferson Davis Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
238	XL 760	XL 760 (hybrid)	4	76	44	11,065	52.2	72.3
237	XL 753	XL 753 (hybrid)	4	74	45	10,730	68.6	77.7
236	CLXL745	CLXL745 (hybrid)	4	72	42	10,138	69.6	78.0
232	CLH 161	CLH 161 (hybrid)	3	71	46	10,004	67.8	75.7
235	CLXL729	CLXL729 (hybrid)	4	74	43	9,658	66.5	75.5
233	OARD HY	09A/R608 (hybrid)	5	83	47	9,338	53.5	67.9
234	LAH169	LAH169 (hybrid)	4	70	41	9,175	70.9	77.7
231	AR 1021	AR 1021	4	74	39	9,156	55.1	70.9
243	1402051	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	3	76	36	8,781	70.9	77.9
245	1502065	CL111/4/CPRS/9502008-A//AR 1188/CCDR	4	75	38	8,729	49.8	72.3
240	1402091	CL131/3/CPRS/KBNT//9502008-A	4	73	35	8,683	52.6	73.9
214	CHNR	CHENIERE	4	75	36	8,577	62.2	75.2
217	MRMT	MERMENTAU	3	74	36	8,561	71.9	76.8
222	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	76	35	8,480	71.8	77.2
207	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	75	36	8,440	50.8	72.1
206	CL172	CL172	4	73	34	8,391	50.9	73.8
210	CL271	CL271	3	82	37	8,378	52.3	72.9
249	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	3	76	36	8,341	40.8	71.6
247	1502082	9502008-A/DREW//CLR 20/3/CL111	4	75	37	8,287	71.3	77.6
215	CTHL	CATAHOULA	3	76	36	8,203	71.1	77.6
218	LKST	LAKAST	3	73	41	8,191	66.3	77.5
244	1502062	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	74	37	8,187	70.2	77.4
242	1502048	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	4	76	38	8,184	60.5	75.1
239	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	3	75	36	8,175	72.1	78.1
255	1502168	CPRS/KBNT//9502008-A /3/AC105	4	74	38	8,157	73.8	78.6
212	1402125	BNGL/CL161//CAFFEY	3	81	37	8,119	47.3	70.6
226	JZMN	JAZZMAN	4	78	39	8,106	62.2	71.3
220	ANTO	ANTONIO	4	74	36	8,060	71.6	77.8
211	1402008	NEPTUNE//BNGL/CL161	3	80	38	8,057	42.0	71.9
256	1502171	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	4	74	38	8,028	70.3	78.9

Continued.

Table 4. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
241	1502045	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	3	72	34	7,959	71.3	78.2
213	CCDR	COCODRIE	5	74	35	7,940	67.7	75.2
250	1502097	CL111/3/CPRS/KBNT//WELLS CFX 18	4	75	35	7,903	34.9	71.7
254	1502165	TRNS/CPRS/KBNT//9502008-A	4	71	36	7,845	71.7	76.9
251	1502103	CL111/CCDR	4	74	35	7,832	68.4	76.8
225	PSDO	PRESIDIO	5	75	38	7,810	69.3	75.1
246	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	75	38	7,792	70.6	77.3
216	CPRS	CYPRESS	4	78	36	7,764	72.2	77.1
253	1502162	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	4	77	36	7,727	48.5	72.2
229	JPTR	JUPITER	5	80	37	7,650	54.8	69.8
248	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	72	35	7,623	71.8	79.4
252	1502106	CL111/CHENIERE	3	76	35	7,559	41.1	70.1
257	1502174	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	3	76	38	7,557	45.4	71.1
258	1502031	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	3	80	39	7,466	50.6	72.1
202	CL151	CL151	4	74	38	7,403	68.0	75.9
228	DLLA2	DELLA-2	4	77	39	7,385	56.5	73.3
259	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	3	79	37	7,343	36.5	69.5
230	CFFY	CAFFEY	3	79	37	7,311	44.1	70.1
219	ROY J	ROY J	3	78	39	7,267	47.3	69.8
204	CL161	CL161	3	76	36	7,196	73.4	78.3
227	JZMN2	JAZZMAN-2	4	75	34	7,098	73.9	76.5
203	CL152	CL152	4	76	38	7,065	54.5	71.3
201	CL111	CL111	3	71	37	6,584	73.1	78.3
224	REX	REX	4	76	40	6,034	59.9	73.3
221	AR 1084	AR 1084	3	75	38	5,638	28.4	64.1
205	CL163	CL163	4	74	39	5,518	58.4	74.4
208	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	3	73	38	5,049	57.8	75.4
223	1402183	CCDR/JEFF//TRNS	3	74	37	5,007	59.0	73.3
260	1502189	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	80	34	4,822	33.6	64.8
209	CL261	CL261	3	78	37	4,765	70.6	73.9

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2015 Commercial-Advanced Yield Trial. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
237	XL 753	XL 753 (hybrid)	3	84	45		10,822	63.6	73.4
235	CLXL729	CLXL729 (hybrid)	3	82	43	80	10,696	60.6	74.8
230	CFFY	CAFFEY	3	87	38		10,276	65.6	72.6
238	XL 760	XL 760 (hybrid)	3	89	45		9,937	63.4	74.0
233	OARD HY	09A/R608 (hybrid)	4	85	52	20	9,885	56.4	69.2
245	1502065	CL111/4/CPRS/9502008-A//AR 1188/CCDR	3	87	39		9,688	66.0	73.9
240	1402091	CL131/3/CPRS/KBNT//9502008-A	4	83	38		9,670	63.9	69.9
246	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	87	40		9,653	70.3	75.6
218	LKST	LAKAST	3	87	42		9,572	55.9	71.9
241	1502045	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	85	35		9,563	69.1	75.0
258	1502031	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	3	85	37	10	9,482	71.1	73.2
247	1502082	9502008-A/DREW//CLR 20/3/CL111	4	86	39		9,438	68.7	72.6
257	1502174	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	3	84	38		9,308	60.9	68.0
229	JPTR	JUPITER	5	88	37		9,302	68.2	70.5
259	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	3	88	143		9,265	64.4	72.3
222	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	90	37		9,263	68.1	74.0
254	1502165	TRNS/CPRS/KBNT//9502008-A	4	85	38		9,205	69.8	74.9
251	1502103	CL111/CCDR	4	86	38		9,176	68.4	74.8
248	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	84	38		9,168	67.8	75.9
250	1502097	CL111/3/CPRS/KBNT//WELLS CFX 18	4	86	38		9,151	68.4	72.7
202	CL151	CL151	4	87	38		9,103	64.0	70.7
207	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	88	39		9,088	68.6	73.5
243	1402051	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	87	38		9,064	70.7	76.4
252	1502106	CL111/CHENIERE	3	86	38		8,987	67.2	73.8
239	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	89	39		8,960	69.6	75.4
255	1502168	CPRS/KBNT//9502008-A /3/AC105	4	87	39		8,953	70.3	75.9

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
244	1502062	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	86	39		8,894	66.4	73.4
231	AR 1021	AR 1021	4	83	38		8,822	69.6	71.9
210	CL271	CL271	3	87	36		8,804	59.4	70.5
201	CL111	CL111	3	84	38		8,759	69.3	74.9
256	1502171	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	4	87	39		8,729	59.3	76.2
221	AR 1084	AR 1084	4	91	39		8,708	54.6	71.2
211	1402008	NEPTUNE//BNGL/CL161	3	85	39		8,704	52.3	72.6
234	LAH169	LAH169 (hybrid)	4	84	42	90	8,673	60.7	75.2
204	CL161	CL161	4	90	38		8,614	69.9	74.5
249	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	3	90	39		8,538	68.5	74.4
220	ANTO	ANTONIO	4	87	36		8,517	69.3	75.1
260	1502189	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	89	35		8,489	61.9	73.0
242	1502048	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	4	89	39		8,485	70.2	75.3
236	CLXL745	CLXL745 (hybrid)	3	80	44	90	8,474	62.9	73.6
212	1402125	BNGL/CL161//CAFFEY	3	88	36		8,459	52.3	72.3
206	CL172	CL172	4	87	36		8,418	66.6	74.8
208	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	87	41		8,390	61.1	71.4
253	1502162	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	4	90	39		8,356	70.5	75.5
217	MRMT	MERMENTAU	4	87	38		8,341	69.6	74.6
224	REX	REX	3	89	40		8,329	64.8	71.3
214	CHNR	CHENIERE	4	87	38		8,295	68.9	74.6
232	CLH 161	CLH 161 (hybrid)	4	86	47	80	8,242	68.1	73.2
219	ROY J	ROY J	4	95	41		8,237	56.3	71.9
205	CL163	CL163	4	92	39		8,135	62.7	73.2
203	CL152	CL152	4	91	39		8,126	69.6	74.5
213	CCDR	COCODRIE	4	88	37		8,078	64.6	73.3
215	CTHL	CATAHOULA	4	87	39		8,029	56.2	71.6

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
226	JZMN	JAZZMAN	4	92	41		7,881	68.2	74.7
228	DLLA2	DELLA-2	3	92	39		7,650	65.9	73.8
223	1402183	CCDR/JEFF//TRNS	4	84	40		7,519	64.3	74.2
216	CPRS	CYPRESS	4	92	39		7,407	69.3	75.0
209	CL261	CL261	3	85	38		7,253	68.4	69.9
227	JZMN2	JAZZMAN-2	4	91	35		6,656	72.1	74.7
225	PSDO	PRESIDIO	4	87	40		6,606	68.2	73.1

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

Table 6. Grain and milling yields and agronomic performance of entries in the 2015 Commercial-Advanced Yield Trial. Vermilion Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
237	XL 753	XL 753 (hybrid)	4	75	43	10,410
238	XL 760	XL 760 (hybrid)	4	80	46	10,210
236	CLXL745	CLXL745 (hybrid)	4	73	44	10,149
232	CLH 161	CLH 161 (hybrid)	4	74	46	9,860
235	CLXL729	CLXL729 (hybrid)	4	74	41	9,790
233	OARD HY	09A/R608 (hybrid)	5	88	48	9,409
234	LAH169	LAH169 (hybrid)	4	75	43	9,097
231	AR 1021	AR 1021	4	78	37	8,776
211	1402008	NEPTUNE//BNGL/CL161	4	83	37	8,548
259	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	4	81	38	8,524
230	CFFY	CAFFEY	4	82	37	8,350
218	LKST	LAKAST	4	75	40	8,333
210	CL271	CL271	5	84	37	8,327
215	CTHL	CATAHOULA	5	76	38	8,267
258	1502031	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	4	81	38	8,195
220	ANTO	ANTONIO	4	76	38	8,192
229	JPTR	JUPITER	5	81	36	8,159
212	1402125	BNGL/CL161//CAFFEY	4	84	38	7,917
251	1502103	CL111/CCDR	4	78	36	7,892
247	1502082	9502008-A/DREW//CLR 20/3/CL111	4	79	39	7,819
202	CL151	CL151	4	76	38	7,777
213	CCDR	COCODRIE	4	76	37	7,762
260	1502189	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	83	35	7,730
219	ROY J	ROY J	3	82	40	7,706
250	1502097	CL111/3/CPRS/KBNT//WELLS CFX 18	5	80	35	7,689
246	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	78	38	7,673
257	1502174	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	3	81	38	7,655
207	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	77	37	7,613
256	1502171	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	4	75	38	7,599
214	CHNR	CHENIERE	5	77	36	7,592
254	1502165	TRNS/CPRS/KBNT//9502008-A	5	72	38	7,587
248	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	76	37	7,505
221	AR 1084	AR 1084	4	76	40	7,375
252	1502106	CL111/CHENIERE	5	79	37	7,351
255	1502168	CPRS/KBNT//9502008-A /3/AC105	5	76	39	7,266
217	MRMT	MERMENTAU	4	75	36	7,184
208	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	77	40	7,075

Continued.

Table 6. Continued

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
241	1502045	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	72	36	7,062
224	REX	REX	4	78	39	7,054
244	1502062	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	77	40	6,856
209	CL261	CL261	4	82	37	6,843
240	1402091	CL131/3/CPRS/KBNT//9502008-A	4	74	36	6,824
201	CL111	CL111	4	72	38	6,764
249	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	4	81	39	6,738
203	CL152	CL152	4	75	38	6,701
242	1502048	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	4	81	39	6,634
205	CL163	CL163	4	78	36	6,554
225	PSDO	PRESIDIO	5	75	37	6,540
243	1402051	KATY/CPRS//NWBT/…/3/9502008/4/CLR9/5/KATY/CPRS//…	4	79	36	6,350
253	1502162	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	5	78	36	6,322
216	CPRS	CYPRESS	5	79	37	6,239
239	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	79	38	6,195
204	CL161	CL161	4	76	37	6,171
245	1502065	CL111/4/CPRS/9502008-A//AR 1188/CCDR	4	78	38	6,090
222	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	5	72	36	5,975
206	CL172	CL172	5	74	38	5,945
226	JZMN	JAZZMAN	5	86	37	5,754
228	DLLA2	DELLA-2	5	81	38	5,635
223	1402183	CCDR/JEFF//TRNS	5	74	36	5,429
227	JZMN2	JAZZMAN-2	4	77	32	4,073

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

Table 7. Grain and milling yields and agronomic performance of entries in the 2015 Commercial-Advanced Yield Trial. St. Landry Parish, LA.

ENT	SOURCE	PEDIGREE	HTE	LDG	YIELD
238	XL 760	XL 760 (hybrid)	39	63	10,872
235	CLXL729	CLXL729 (hybrid)	37	33	10,107
236	CLXL745	CLXL745 (hybrid)	35	63	9,691
237	XL 753	XL 753 (hybrid)	38	63	9,618
259	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	35	10	9,303
234	LAH169	LAH169 (hybrid)	39	53	9,074
244	1502062	CCDR/3/CPRS/KBNT//WELLS CFX 18	35		9,001
212	1402125	BNGL/CL161//CAFFEY	38		8,998
258	1502031	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	39		8,972
232	CLH 161	CLH 161 (hybrid)	47	87	8,830
211	1402008	NEPTUNE//BNGL/CL161	39		8,811
209	CL261	CL261	39	27	8,731
249	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	39		8,688
239	1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	36	37	8,617
216	CPRS	CYPRESS	37	13	8,614
218	LKST	LAKAST	37		8,600
256	1502171	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	36		8,591
210	CL271	CL271	38	3	8,528
224	REX	REX	36		8,489
254	1502165	TRNS/CPRS/KBNT//9502008-A	35		8,367
247	1502082	9502008-A/DREW//CLR 20/3/CL111	40	3	8,345
255	1502168	CPRS/KBNT//9502008-A /3/AC105	35		8,342
248	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	35		8,297
202	CL151	CL151	35	47	8,274
208	1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	36	67	8,230
204	CL161	CL161	36	20	8,199
206	CL172	CL172	33		8,179
242	1502048	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	39	37	8,175
251	1502103	CL111/CCDR	36		8,169
226	JZMN	JAZZMAN	40	7	8,167
203	CL152	CL152	36		8,159
207	1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	34		8,158
231	AR 1021	AR 1021	37	27	8,119
240	1402091	CL131/3/CPRS/KBNT//9502008-A	34		8,053
214	CHNR	CHENIERE	34	23	8,035
228	DLLA2	DELLA-2	40		8,030
213	CCDR	COCODRIE	34		7,971
230	CFFY	CAFFEY	35	33	7,881
221	AR 1084	AR 1084	35		7,843

Continued.

Table 7. Continued.

ENT	SOURCE	PEDIGREE	HTE	LDG	YIELD
222	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	32		7,770
245	1502065	CL111/4/CPRS/9502008-A//AR 1188/CCDR	36		7,736
219	ROY J	ROY J	37		7,724
250	1502097	CL111/3/CPRS/KBNT//WELLS CFX 18	34		7,694
205	CL163	CL163	39	17	7,641
225	PSDO	PRESIDIO	35		7,544
243	1402051	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	33		7,414
217	MRMT	MERMENTAU	34		7,408
257	1502174	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	39	53	7,407
252	1502106	CL111/CHENIERE	36		7,344
220	ANTO	ANTONIO	34	23	7,315
241	1502045	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	34		7,311
227	JZMN2	JAZZMAN-2	33		7,296
253	1502162	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	36	20	7,119
246	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	37	63	6,810
215	CTHL	CATAHOULA	36	7	6,317
229	JPTR	JUPITER	36	13	5,929
201	CL111	CL111	32		5,922
233	OARD HY	09A/R608 (hybrid)	51	70	5,843
223	1402183	CCDR/JEFF//TRNS	35		5,751
260	1502189	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	32		4,966

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 2015 included the H. Rouse Caffey Rice Research Station (RRS) in Crowley and two on-farm test sites in Evangeline and Vermilion parishes.

Forty entries were tested in a randomized complete block design with three replications. Varieties were seeded at 90 lb/A. Planting dates were: RRS, March 23; Evangeline, May 4; and Vermilion, March 24. Harvest dates were: RRS, Aug. 10; Evangeline, Aug. 27; and Vermilion, Aug. 5. Results from these trials are shown in Tables 1-3.

Table 1. Grain and agronomic performance of entries in the 2015 Clearfield Multi-Location Trial. Evangeline Parish, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD
036	CLXL745	3	67	43	9,712
035	CLXL729	4	70	38	9,099
037	CLH 161	3	67	46	9,044
032	9502008-A/DREW//CLR 20/3/CL111	3	69	34	7,492
034	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	3	62	31	7,334
033	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	5	65	33	7,229
002	CL131/3/CPRS/KBNT//9502008-A	5	70	33	7,096
003	NEPTUNE//BNGL/CL161	3	73	32	6,967
017	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	3	72	36	6,887
016	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	67	32	6,859
031	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	4	70	35	6,823
039	CL151	4	70	34	6,782
006	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	4	72	32	6,739
005	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	3	70	37	6,726
030	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	70	34	6,511
012	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	70	34	6,488
027	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	4	70	34	6,451
007	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	72	33	6,414
024	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	72	36	6,408
018	CL111/3/CPRS/KBNT//WELLS CFX 18	5	69	31	6,227
023	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	5	69	31	6,220
022	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	71	32	6,219
014	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	71	34	6,189
001	CPRS/KBNT//WELLS CFX 18/3/MBLE	5	74	33	6,146
009	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	65	32	6,143
040	CL152	4	74	34	6,131
015	9502008-A/DREW//CLR 20/3/CL111	4	71	33	6,061
026	9502008/3/CPRS//82CAY21/…/4/CFX18/5/9502008-A/DREW//CLR 20	4	63	31	6,018
025	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	61	32	5,978
008	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	70	33	5,978

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2015 Clearfield Multi-Location Trial. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
001	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	89	40		9,474	66.9	72.8
017	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	4	91	41		9,237	69.6	76.0
032	9502008-A/DREW//CLR 20/3/CL111	4	90	41		9,596	70.9	76.8
029	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	91	43		9,581	68.1	75.8
024	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	91	39		9,466	68.2	75.5
039	CL151	4	87	40	50	9,910	69.2	74.7
007	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	90	38		9,154	66.9	76.4
006	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	4	87	38		9,460	69.3	74.2
028	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	89	39		9,033	70.7	76.1
025	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	88	39		9,065	63.7	74.1
012	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	89	39		9,362	64.8	73.4
015	9502008-A/DREW//CLR 20/3/CL111	3	56	40		9,525	69.0	75.4
027	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	4	87	40		9,562	65.6	71.1
030	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	90	39		8,896	69.4	76.0
003	NEPTUNE//BNGL/CL161	4	88	39		8,721	60.7	70.8
011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	5	88	38		8,692	54.6	76.2
004	BNGL/CL161//CAFFEY	4	89	37		8,842	59.5	73.5
010	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	4	89	39		8,535	69.3	76.1
040	CL152	4	89	39		8,270	71.0	76.6
035	CLXL729	3	87	45	80	10,343	64.6	75.8
033	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	5	89	38		9,686	66.9	76.5
019	CL111/CCDR	4	86	39		8,835	64.3	71.5
013	CL111/4/CPRS/9502008-A//AR 1188/CCDR	4	89	38		8,872	63.2	73.8
026	9502008/3/CPRS//82CAY21/…/4/CFX18/5/9502008-A/DREW//CLR 20	4	89	40		8,702	69.7	74.3
022	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	90	40		8,745	70.7	76.1
020	CL111/CHENIERE	4	87	39		8,995	67.5	75.3
016	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	87	39		9,726	69.1	75.3
002	CL131/3/CPRS/KBNT//9502008-A	4	88	36		9,439	67.2	73.0
014	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	88	42		9,233	69.5	75.4
005	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	4	88	39		8,932	71.6	73.4

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

Table 3. Grain and agronomic performance of entries in the 2015 Clearfield Multi-Location Trial. Vermilion Parish, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD
036	CLXL745	4	74	45	10,207
035	CLXL729	5	75	42	9,123
037	CLH 161	4	75	47	8,756
007	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	76	37	7,585
023	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	4	78	36	7,270
039	CL151	5	76	35	7,160
009	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	73	37	7,135
025	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	73	35	7,092
004	BNGL/CL161//CAFFEY	4	84	36	7,055
012	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	79	36	7,029
015	9502008-A/DREW//CLR 20/3/CL111	3	78	39	7,029
024	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	79	37	7,001
006	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	4	83	37	6,903
003	NEPTUNE//BNGL/CL161	5	85	38	6,817
029	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	80	40	6,756
038	CL111	3	72	38	6,696
026	9502008/3/CPRS//82CAY21/…/4/CFX18/5/9502008-A/DREW//CLR 20	4	73	36	6,688
016	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	74	37	6,670
014	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	79	39	6,655
027	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	3	77	38	6,608
011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	81	36	6,583
030	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	76	38	6,534
031	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	4	78	36	6,532
019	CL111/CCDR	5	77	36	6,481
033	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	4	73	37	6,409
008	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	77	39	6,407
021	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/…	5	73	35	6,391
002	CL131/3/CPRS/KBNT//9502008-A	4	75	35	6,359
005	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	3	82	37	6,322
010	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…	4	78	38	6,261

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

CLEARFIELD PRELIMINARY YIELD TRIAL

The Clearfield Preliminary Yield Trial 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 H. Rouse Caffey Rice Research Station (RRS) in Crowley, LA. A randomized complete block design was applied to arrange test entries. The plot size was 4.66 x 16 feet. Seeding rate was 90 lb/A. This test was drill seeded on March 20 and harvested on Aug. 6. Data is presented in Table 1.

Table 1. Grain and milling yields and agronomic performance of entries in the 2015 Clearfield Preliminary Yield Trial. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
374	CLXL729	4	87	43	15	10,518	71.1	76.4
372	CL172	4	86	40		9,862	71.5	75.7
039	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/DREW	4	89	35		9,618	71.5	77.1
273	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	88	41		9,580	68.4	73.6
101	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2033/4/TRNS	4	83	39		9,489	68.2	73.8
157	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/CPRS/…	4	84	41		9,226	71.6	77.3
288	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	5	88	39	10	9,146	71.1	76.2
254	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//CCDR/JEFF	4	86	36	25	9,079	69.0	75.6
252	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//CCDR/JEFF	4	88	38	10	8,971	71.6	76.7
043	CL152/DREW	5	88	39		8,945	72.0	76.3
275	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	88	39		8,933	69.7	75.7
087	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	4	86	40	15	8,888	71.0	75.9
086	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	3	88	37	20	8,876	72.6	77.5
174	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	5	84	37		8,852	67.6	73.8
040	CATAHOULA/CL111	4	87	39		8,848	68.9	72.7
232	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	5	84	37	10	8,790	69.6	73.2
080	TRNS/CL131	4	83	37		8,774	68.5	74.2
031	CL111/3/CCDR//9502008/LGRU	4	88	41		8,737	68.1	72.9
237	CHENIERE/3/CCDR//CFX-29/CCDR	4	84	38		8,702	68.5	74.1
281	9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/9502008-A/TACAURI//CFX-18	4	88	37		8,699	68.3	73.3
081	CL131/TRNS	3	79	34	55	8,699	66.2	73.4
208	CL152/3/TRNS//CCDR/JEFF	5	87	39		8,693	66.1	72.5
269	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	5	87	39		8,660	66.7	73.5
144	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	4	87	37	20	8,651	68.9	73.3
102	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2033/4/TRNS	4	85	39	30	8,640	68.9	74.6
293	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	86	39		8,637	68.9	75.3
142	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	4	86	37	5	8,569	68.2	72.5
116	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/CATAHOULA	4	88	37	5	8,566	72.7	76.2
239	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	86	38		8,553		

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
092	CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	86	38	30	8,547	70.4	76.1
130	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	4	83	38		8,545	70.9	75.8
316	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	4	87	38		8,540	70.4	74.8
353	BNGL/CL161//CAFFEY	4	85	38		8,535	67.0	72.6
065	CL152/3/TRNS//CCDR/JEFF	4	85	40		8,529	67.9	73.6
127	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	4	84	37		8,518	69.9	74.7
152	CATAHOULA/CL111	4	85	39	5	8,509	67.7	75.3
107	CHENIERE/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	4	85	38		8,502	67.8	71.9
115	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/TRNS//CCDR/JEFF	4	85	37		8,494	69.7	75.4
187	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	4	85	38	25	8,491	68.2	73.3
294	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	4	88	39		8,491	68.2	75.3
318	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	5	87	38		8,489	73.0	77.1
220	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	4	85	38		8,483	69.0	75.1
120	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	86	38	40	8,482	69.2	74.4
121	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	86	39		8,478	67.2	73.0
113	AR 1188/CCDR//9502008/LGRU/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	84	39		8,443	68.9	73.6
322	CATAHOULA/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	86	38	30	8,438	70.2	75.3
297	9502008-A/DREW//CLR 20/3/CL111	5	84	36	25	8,438	68.0	72.1
364	CAFFEY/CL261	5	85	38		8,438	72.4	74.9
023	CL111//CCDR/0502085	4	85	35		8,433	68.8	74.7
290	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	4	87	39		8,416	70.7	75.9
143	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CL131	4	84	38	5	8,405	69.2	74.5
119	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	85	37	45	8,399	71.4	76.8
285	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/9502008-A/DREW//CLR 20	4	87	41		8,378	70.7	74.7
058	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/'CPRS//82CAY21/TBNT/3/CFX 29//…	4	83	34		8,376	70.4	75.2
038	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	5	86	39	30	8,368	73.5	77.0
055	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/3/MBLE	5	86	34		8,368	69.4	77.4
164	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	4	84	36		8,361	66.0	75.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
203	CL111/3/'9502008-A/DREW//CLR 20	4	86	40	5	8,359	65.2	72.4
172	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	4	82	38		8,357	69.1	73.2
274	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	88	39	35	8,353	67.5	75.8
117	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	87	35		8,337	68.3	75.0
209	CL152/3/TRNS//CCDR/JEFF	5	86	38		8,319	68.2	73.5
310	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	4	85	39		8,317	70.3	74.8
170	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	4	83	36		8,300	68.6	73.2
240	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	88	37		8,277	72.8	77.2
270	CPRS/KBNT//WELLS CFX 18/3/TRNS//9502008-A/DREW	5	85	43	20	8,273	67.9	73.6
159	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/'CPRS//82CAY21/TBNT/3/CFX 29//…	4	85	37		8,261	68.9	72.5
082	CL131/TRNS	3	79	36	50	8,259	67.5	74.5
217	CL131/CPRS	4	85	37		8,250	71.7	76.7
177	CCDR/CLPY 003/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	3	82	38		8,235	70.4	76.3
319	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	86	40	15	8,201	68.7	75.9
292	TRNS/CL142-AR	5	83	38	30	8,189	63.6	73.8
122	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	5	85	38	50	8,188	68.4	72.7
005	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	88	37	15	8,187	71.4	76.3
166	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	4	82	38	10	8,180	65.4	70.1
002	CPRS/KBNT//WELLS CFX 18/3/FRANCIS	4	86	36		8,162	69.6	76.4
259	CCDR/JEFF/3/CFX-18//CPRS/KBNT/4/TRNS//CCDR/JEFF	4	84	41	45	8,159	64.5	73.8
140	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	4	84	38	15	8,158	68.4	73.1
012	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	4	89	36	35	8,156	68.4	75.0
260	CCDR/JEFF/3/CFX-18//CPRS/KBNT/4/TRNS//CCDR/JEFF	4	84	37	10	8,155	69.1	77.0
242	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	88	40		8,149	70.0	74.8
066	11CLPR132/11CLPR117	4	87	37		8,147	70.8	75.8
299	9502008-A/DREW//CLR 20/3/CL181-AR	4	90	37		8,146	64.8	71.7
060	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	4	82	37	35	8,143	65.4	75.3
207	TRNS//CCDR/JEFF/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	88	40	30	8,125	69.2	74.8
236	CHENIERE/3/CCDR//CFX-29/CCDR	4	85	37	20	8,124	71.0	76.1
323	CATAHOULA/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	87	39		8,121	67.9	76.5
158	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/'CPRS//82CAY21/TBNT/3/CFX 29//…	4	84	41		8,114	64.7	71.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
139	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CCDR	4	85	39		8,114	68.6	73.6
028	CL111/CHENIERE	3	87	38		8,097	67.5	74.5
021	CL111/CCDR	4	87	37		8,096	64.7	70.9
041	CATAHOULA/CL111	4	87	38		8,096	68.8	75.0
257	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//CCDR/JEFF	4	4	38	20	8,094	70.0	76.3
272	CPRS/KBNT//WELLS CFX 18/3/CATAHOULA	5	84	39		8,087	66.1	73.4
085	9302065/4/CFX-18//CCDR/9770532 DH2/3/9502008-A//…	5	90	36		8,079	71.1	76.6
200	9502008-A/DREW//CFX 26/WELLS/3/TRNS	4	83	36		8,079	65.0	74.1
091	CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	89	37	15	8,072	71.9	76.4
309	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	4	88	38	20	8,069	68.4	74.3
267	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	4	87	37		8,068	69.0	74.1
354	BNGL/CL161//CAFFEY	3	85	37		8,056	69.5	73.8
173	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	5	83	35		8,056	66.7	75.2
010	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	89	37	15	8,055	72.6	76.5
375	CLXL745	3	81	45	90	8,043	69.1	77.1
171	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	4	84	36	15	8,036	63.0	74.2
155	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	85	40	30	8,030	70.8	76.7
261	CCDR/JEFF/3/CFX-18//CPRS/KBNT/4/TRNS//CCDR/JEFF	4	85	38		8,023	70.6	75.8
064	CL111/CL152	4	85	37		8,012	69.7	75.1
190	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…/6/MBLE//TQNG/MBLE (MCR02YT-1534)	4	86	39		8,009	66.6	73.1
125	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	4	86	35	20	8,000	73.1	77.9
141	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	4	85	36	5	7,984	68.9	73.7
132	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	4	85	36		7,970	72.7	77.2
176	CCDR/CLPY 003/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	4	83	36		7,965	67.1	73.6
216	CL131/3/TRNS//CCDR/JEFF	4	85	36		7,955	71.1	77.0
149	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CLPY 003//CFX-26/9702128	5	85	37	15	7,946	66.8	73.0
241	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	87	38		7,932	72.6	77.6
321	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	83	37		7,927	67.0	74.1
192	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…/6/MBLE//TQNG/MBLE (MCR02YT-1534)	4	86	38		7,915	65.9	73.9

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
280	MBLE/ALAN/4/L201//…/5/MBLE/…/4/CCDR/…/6/CPRS/3/CFX 29//AR 1142/LA 2031	5	87	38		7,912	58.4	72.2
195	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	85	39	30	7,911		
151	CATAHOULA/CL111	4	82	36	40	7,910	63.1	70.4
128	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	4	85	38	20	7,908	71.9	75.5
276	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	86	41	35	7,902	70.5	76.4
072	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CL151	4	84	36		7,902	67.6	71.6
052	CFX-26/9702128//LGRU/WELLS	4	86	38	20	7,899	71.2	76.3
017	CL111/3/CPRS/KBNT//WELLS CFX 18	4	87	37	25	7,891	69.3	75.2
029	CL111/CHENIERE	4	84	39		7,883	68.0	72.5
198	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	85	37	10	7,872	67.3	71.6
165	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	4	84	38		7,866	63.2	73.2
271	CPRS/KBNT//WELLS CFX 18/3/CATAHOULA	4	87	39		7,861	65.6	72.3
078	CFX-18//CPRS/KBNT/3/CFX-29/CCDR/4/CPRS	4	89	40		7,854	71.2	76.1
112	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	84	40	50	7,847	70.7	75.8
300	9502008-A/DREW//CLR 20/3/CL181-AR	4	89	38		7,846	68.3	73.4
089	CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	88	39		7,843	70.3	75.5
150	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CFX-18//CPRS/KBNT/3/CFX-29/CCDR	4	81	39	25	7,836	69.8	73.5

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
168	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	4	83	37	15	7,835	65.8	70.0
044	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	4	84	41	35	7,816	69.0	75.2
363	CAFFEY/CL261	4	85	37	10	7,816	70.2	72.4
020	CL111/CCDR	4	85	41	15	7,810	67.3	76.1
133	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	4	85	38	35	7,808	68.7	74.7
123	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	4	84	38	25	7,805	69.7	75.0
367	CAFFEY/CL261	4	86	40	25	7,801	67.9	70.8
167	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	4	85	37		7,799	62.8	71.9
156	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	3	85	38	75	7,798	70.2	76.1
042	CL152/DREW	4	88	38		7,775	70.5	76.1
126	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	4	86	39	30	7,728	70.3	76.4
277	TAGGART/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 6	4	87	38		7,724	67.2	74.4
283	CL131/CHENIERE	5	87	34		7,720	70.7	75.7
053	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	81	38	50	7,713	67.8	75.0
034	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	4	87	36	5	7,710	70.0	74.7
006	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	86	37	45	7,704	66.1	75.2
186	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/9502008//KATY/9902207x2/3/9502008/CPRS	5	84	40	25	7,702	64.8	71.7
001	CPRS/KBNT//WELLS CFX 18/3/FRANCIS	4	87	38		7,702	69.0	74.4
219	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/TRNS//CCDR/JEFF	4	83	38		7,691	69.6	75.2
289	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	4	88	37		7,690	68.8	75.6
025	CL111/CHENIERE	4	86	36		7,677	66.6	74.5
197	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	3	83	37	60	7,673	64.9	69.5
256	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//CCDR/JEFF	4	83	39	90	7,673	68.5	75.1
111	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	81	38	35	7,668	70.6	78.2
287	CPRS/KBNT//WELLS CFX 18/3/TRNS//9502008-A/DREW	4	87	40	15	7,661	61.2	75.8
179	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/…	4	83	37		7,657	67.3	72.5
317	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	5	87	39		7,642	60.6	76.1
062	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	4	86	41	15	7,633	67.9	73.4
304	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	4	87	37	30	7,632	69.6	75.0

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
262	CATAHOULA/6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	4	86	38		7,631	70.2	76.7
181	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/…	4	84	41		7,630	67.4	73.3
194	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	84	39	15	7,626	66.0	72.8
090	CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	86	39	45	7,622	69.8	76.0
077	RU1002146/3/JZM2//07PY824/08CLR003	4	86	37		7,613	71.5	75.1
229	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF//CFX-26/9702128	4	90	38	80	7,610	71.0	76.7
009	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	88	37	45	7,604	69.1	73.1
059	CL162/CATAHOULA	4	86	37		7,602	67.2	73.7
305	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	4	84	38	20	7,596	68.8	75.0
196	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	85	41	20	7,591	66.9	73.6
154	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	87	40	55	7,588	69.7	76.7
163	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	5	84	38	30	7,585	68.1	72.8
024	CL111/4/CPRS/3/9502008-A//AR 1188/CCDR	4	85	36		7,583	64.2	72.8
079	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CCDR	4	85	37		7,580	69.8	76.5
147	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/AR 1188/CCDR//9502008/LGRU	4	84	37	70	7,571	66.8	72.8
124	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	3	84	34	15	7,570	71.5	76.0
324	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	5	86	36	25	7,556	66.6	74.3
370	CL152	4	90	39		7,544	69.3	74.6
131	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	4	84	38		7,542	72.9	77.7
070	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	87	37	40	7,540	69.5	75.6
222	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	4	86	40	35	7,533	71.5	76.5
129	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	4	86	37	20	7,511	69.1	73.6
371	CL163	4	88	40	20	7,508	64.4	73.5
301	9502008-A/DREW//CLR 20/3/CL181-AR	4	88	38	45	7,504	67.5	75.0
226	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	4	89	40		7,495	70.1	75.3
333	NEPTUNE//BNGL/CL161	3	85	35	15	7,482	70.6	72.5
136	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CLPY 003 (CL 006)//CFX-26/9702128	4	86	37	10	7,481	68.9	75.0
088	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	4	86	38	40	7,465	73.1	77.2
253	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/MBLE	4	85	40	45	7,461	64.7	72.8
067	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	4	87	37	45	7,457	67.6	76.3

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
306	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	4	88	36	5	7,435	67.6	73.9
057	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	85	40	80	7,435	70.6	75.6
032	9502008/LGRU/3/CPRS//82CAY21/TBNT/4/9502008-A/DREW//CLR 20	4	84	38		7,434	69.0	74.8
003	CPRS/KBNT//WELLS CFX 18/3/FRANCIS	4	86	37	10	7,422	66.6	74.1
278	CPRS/9502008-A//CFX 26/WELLS/3/LMNT	4	87	37	20	7,420	69.0	74.4
162	CL162/3/TRNS//CCDR/JEFF	4	85	37	90	7,414	69.1	75.4
073	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CL151	4	83	37	5	7,412	65.7	69.7
049	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	3	86	37	65	7,404	69.1	77.3
106	CHENIERE/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	4	84	37	10	7,378	70.4	76.8
291	CL151/REX	5	85	39	40	7,376	63.9	71.4
263	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	5	81	39	85	7,375	71.3	74.7
279	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	4	85	38	40	7,368	68.9	73.0
326	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	5	87	37		7,365	63.0	75.3
137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CLPY 003 (CL 006)//CFX-26/9702128	4	85	39		7,363	65.9	71.7
184	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	5	87	37		7,359	69.6	75.3
048	CFX-26/9702128/5/AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…	4	84	40	80	7,359	66.0	75.1
315	CHENIERE/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	88	35	15	7,352	70.2	74.8
138	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CCDR	4	83	41	10	7,349	70.9	76.3
218	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/TRNS//CCDR/JEFF	4	81	36	15	7,348	66.0	71.3
016	CL111/3/CPRS/KBNT//WELLS CFX 18	4	86	38	30	7,334	64.1	69.2
145	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	4	86	37	50	7,322	67.9	72.1
169	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	5	83	37	35	7,319	68.0	72.0
258	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//CCDR/JEFF	4	83	39	70	7,318	71.8	77.3
311	9502008-A//AR1188/CCDR/3/…/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	87	40	55	7,311	73.0	75.9
051	CL131/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	35	25	7,296	72.9	76.6
109	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	5	83	38	20	7,276	69.7	77.1
201	9502008-A/DREW//CFX 26/WELLS/3/TRNS	4	84	38	50	7,275	72.1	77.2
191	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…/6/MBLE//TQNG/MBLE (MCR02YT-1534)	4	86	38	30	7,272	67.6	74.1
214	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/…	5	84	37	10	7,270	70.0	76.6
146	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/TRNS//CCDR/JEFF	4	83	38	55	7,269	71.6	75.1

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
227	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	4	87	41	60	7,269	69.7	75.1
095	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	4	86	37	60	7,263	68.4	75.0
019	CL111/CCDR	3	85	38		7,259	67.2	74.3
193	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…/6/MBLE//TQNG/MBLE (MCR02YT-1534)	4	85	38		7,258	70.6	76.2
308	9502008/3/MBLE//LMNT/20001-5/4/…/5/'CPRS/KBNT//CFX 29/CCDR	5	83	33		7,229	65.4	71.7
074	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	4	87	35	5	7,216	67.2	74.0
312	9502008-A//AR1188/CCDR/3/…/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	87	37	55	7,216	70.7	75.8
084	9302065/4/CFX-18//CCDR/9770532 DH2/3/9502008-A//…	4	88	35		7,210	70.7	75.9
033	9502008/LGRU/3/CPRS//82CAY21/TBNT/4/9502008-A/DREW//CLR 20	4	84	39	30	7,185	67.6	72.7
161	CL162/3/TRNS//CCDR/JEFF	4	85	40	45	7,163	67.8	76.9
224	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	4	88	39	50	7,157	70.4	76.3
296	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	85	35	45	7,153	67.9	72.6
015	CL111/3/CPRS/KBNT//WELLS CFX 18	4	85	36	35	7,151	65.4	71.6
223	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	4	87	40	80	7,149	69.7	76.2
266	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	4	86	37	10	7,144	69.3	75.7
004	CPRS/KBNT//WELLS CFX 18/3/FRANCIS	4	85	34	15	7,130	71.8	77.0
244	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	4	86	39		7,126	67.8	75.4
071	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	88	37	55	7,126	68.3	74.4
243	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	4	87	40	40	7,114	71.2	76.6
075	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	4	87	37	45	7,100	67.5	74.1
339	NEPTUNE//BNGL/CL161	4	83	36		7,098	71.8	74.2
245	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	4	87	40	85	7,064	70.3	75.2
008	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	88	35	45	7,062	69.8	76.0
268	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	4	87	38		7,052	70.3	74.3
284	CL131/3/CPRS/KBNT//9502008-A	4	86	37	45	7,050	66.9	73.8
022	CL111//CCDR/0502085	4	80	32		7,049	71.3	76.1
103	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2035/4/TRNS	4	88	38	90	7,043	70.8	75.8
118	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	83	36	50	7,038	67.7	71.5
018	CL111/CCDR	4	86	37		7,035	66.7	74.7

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/…	5	85	39	30	7,033	65.5	72.0
205	CL111/3/'9502008-A/DREW//CLR 20	4	87	41	30	7,019	69.4	75.3
188	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/…	4	85	38	25	7,015	68.5	74.5
233	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	4	84	38	15	7,007	69.5	77.3
320	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	84	37		7,004	64.2	70.5
100	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2033/4/TRNS	4	84	40	85	7,003	65.2	76.2
135	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/…	5	86	38	10	6,994	70.6	76.4
108	CHENIERE/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	4	84	38	20	6,989	68.4	73.8
298	9502008-A/DREW//CLR 20/3/CL111	5	84	36		6,981	61.0	68.5
007	CPRS/KBNT//WELLS CFX 18/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	84	38	85	6,971	62.3	74.5
365	CAFFEY/CL261	4	84	36		6,968	66.4	70.8
238	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	86	39	55	6,958	73.3	77.6
068	9502008-A/DREW//CLR 20/4/9502008/LGRU/3/CPRS//82CAY21/TBNT	4	88	37	20	6,950	65.7	73.8
105	CFX-18//CPRS/KBNT/3/CFX-29/CCDR/4/CL152	4	86	38	85	6,916	72.8	77.6
282	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	88	38	30	6,911	68.3	75.1
182	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	4	84	37		6,902	66.0	70.4
286	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	4	83	37	10	6,899	69.7	73.5
210	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	4	84	40	30	6,873	63.6	71.7
255	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//CCDR/JEFF	4	85	40	70	6,864	64.4	75.4
046	9502008-A/TACAURI//CLR 5/3/TACAURI	5	85	35	30	6,858	69.0	75.8
035	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	85	41	85	6,856	69.1	75.8
248	CCDR//CFX-29/CCDR/3/CCDR	4	85	40	80	6,844	68.9	73.9
199	CLPY 003 (CL 006)//CFX-26/9702128/3/CL142	4	86	41	25	6,843	64.1	71.4
036	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	4	89	39	80	6,841	72.1	76.5
183	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	4	84	36	20	6,833	69.7	75.3
083	CL131/TRNS	4	83	37	75	6,821	69.2	76.7
368	CL111	4	83	40	40	6,821	68.9	76.3
246	CCDR//CFX-29/CCDR/3/CCDR	4	87	41	65	6,817	68.8	76.2
228	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF//CFX-26/9702128	4	88	38	85	6,816	71.6	76.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
211	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	5	84	38		6,807	59.4	69.7
373	CL271	4	84	37		6,804	71.2	73.9
093	LMNT/CL111	4	87	37	40	6,792	66.9	73.0
110	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	5	83	38	45	6,778	72.4	77.4
215	RU1002146*4//JZMN/08CLR004	4	83	40	90	6,778	71.0	75.4
295	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	87	38	15	6,771	68.2	71.6
369	CL151	4	86	38	75	6,755	67.9	74.8
160	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/'CPRS//82CAY21/TBNT/3/CFX 29//…	4	82	42	85	6,754	69.8	76.4
047	CFX-26/9702128/5/AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…	4	82	38	85	6,749	72.1	75.4
027	CL111/CHENIERE	4	84	36	10	6,734	67.8	73.3
030	CL111/CHENIERE	4	86	40		6,731	69.8	76.6
325	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/WELLS/CFX-18	4	88	37		6,723	61.4	74.2
247	CCDR//CFX-29/CCDR/3/CCDR	4	87	40	85	6,714	69.3	76.9
314	9502008-A/DREW//CLR 20/3/CL111	5	86	39	90	6,698	68.1	76.0
056	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	86	39	85	6,674	70.1	77.5
212	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	5	86	41	85	6,673	67.5	75.3
061	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/9502008//KATY/9902207x2/3/9502008/CPRS	4	87	40	30	6,645	68.1	74.0
094	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	84	39	55	6,643	68.5	74.1
178	CCDR/CLPY 003/3/AR 1188/CCDR//9502008/LGRU	4	82	37		6,637	66.3	73.5
234	CHENIERE/3/CCDR//CFX-29/CCDR	5	87	40	35	6,637	72.6	77.4
050	CCDR/CFX-18/3/CFX-18//CCDR/9770532 DH2	4	83	38	75	6,632	67.0	73.9
069	9502008/3/MBLE//LMNT/20001-5/4/…/5/CL111	4	84	36	10	6,626	67.7	74.4
026	CL111/CHENIERE	4	86	38		6,619	67.8	73.8
014	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	89	39	85	6,607	68.6	73.9
202	CL111/3/'9502008-A/DREW//CLR 20	4	88	39	15	6,595	69.4	75.1
264	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	4	83	37	45	6,594	71.7	75.1
302	9502008-A/DREW//CLR 20/3/TAGGART	4	87	39	90	6,594	65.2	75.9
045	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	87	37	80	6,585	68.6	75.3

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
175	CCDR/CLPY 003//CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CFX18/LM-1/3/…	4	82	33		6,578	65.6	70.5
303	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	4	85	40	75	6,575	68.7	74.6
153	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	83	38	90	6,555	71.8	78.1
265	CCDR/JEFF//CFX-26/9702128/3/WELLS/CFX-18//DREW/CFX-18	4	86	41	90	6,553	69.1	75.0
313	9502008-A/DREW//CLR 20/3/CL111	4	85	37	80	6,541	69.1	72.7
097	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	4	89	40	85	6,537	71.6	77.2
366	CAFFEY/CL261	3	85	38		6,528	63.9	67.8
076	CL111/CCDR	4	86	37	40	6,520	67.6	77.2
063	CL111/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	5	84	37		6,518	63.4	70.6
331	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18 (XC 065)	3	84	33		6,510	71.0	73.9
148	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	4	84	40	80	6,505	70.2	77.6
221	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	5	88	40	30	6,501	70.6	76.9
213	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/…	5	84	38	60	6,501	67.2	73.0
189	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	4	87	40	30	6,490	69.9	75.4
249	CCDR//CFX-29/CCDR/3/CCDR	4	88	40	75	6,475	70.0	76.8
328	BNGL/CL161/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	3	83	33	25	6,437	66.8	72.7
206	TRNS//CCDR/JEFF/5/KATY/CPRS//JKSN/3/AR 1188/CCDR/4/CFX-26/9702128	5	83	37	5	6,421	67.0	72.6
250	CCDR//CFX-29/CCDR/3/CCDR	4	86	41	45	6,418	70.4	77.0
307	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	4	87	36	45	6,391	66.3	74.5
096	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	4	89	39	75	6,387	70.3	76.0
332	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18 (XC 065)	4	86	40	75	6,290	71.5	73.4
342	BNGL/CL161/3/BNGL/SHORT RICO//MERC	3	84	36	45	6,290	75.4	76.5
334	NEPTUNE//BNGL/CL161	4	84	34		6,289	72.8	75.7
204	CL111/3/'9502008-A/DREW//CLR 20	4	88	38	40	6,285	66.8	74.2
098	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	3	87	41	90	6,279	71.8	77.5
185	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/9502008//KATY/9902207x2/3/…	4	84	39		6,278	64.9	70.6
104	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2035/4/TRNS	4	89	39	85	6,270	72.8	77.7
348	BNGL/CL161/4/9502065/3/MERC//MERC/…	4	84	37		6,269	72.5	75.8
357	BNGL/CL161/3/BNGL/SHORT RICO//MERC	4	85	36	25	6,253	74.9	76.5

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
114	AR 1188/CCDR//9502008/LGRU/3/CL111	4	76	38	10	6,226	63.8	69.7
225	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	4	89	41	85	6,221	70.6	75.8
235	CHENIERE/3/CCDR//CFX-29/CCDR	5	85	41	90	6,132	72.3	77.8
013	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	89	42	90	6,124	69.1	76.3
347	BNGL/CL161//CAFFEY	3	85	39		6,116	69.9	73.5
037	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	4	88	40	85	6,114	72.2	75.9
349	BNGL/CL161/4/9502065/3/MERC//MERC/…	4	84	37		6,091	69.5	72.7
360	CL261/3/BNGL/SHORT RICO//MERC	4	84	36		6,086	65.0	69.4
341	BNGL/CL161/3/BNGL/SHORT RICO//MERC	3	85	38	15	6,080	74.4	76.1
338	NEPTUNE//BNGL/CL161	4	84	36		6,047	64.6	70.2
361	CL261/3/BNGL/SHORT RICO//MERC	4	85	38		6,044	49.0	70.5
180	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/…	4	86	39		6,032	69.0	74.3
054	AR 1188/CCDR//9502008/LGRU/3/CL111	4	81	39	35	5,952	69.3	74.5
343	CL261/3/BNGL/SHORT RICO//MERC	3	84	37	70	5,940	72.8	74.9
099	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	4	87	39	85	5,892	70.1	76.9
251	CCDR//CFX-29/CCDR/3/CCDR	4	88	42	40	5,851	64.1	71.3
230	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF//CFX-26/9702128	4	89	39	45	5,840		
344	CL261/3/BNGL/SHORT RICO//MERC	3	86	37	45	5,833	68.1	73.9
335	NEPTUNE//BNGL/CL161	3	85	36		5,817	66.0	68.7
355	BNGL/CL161/3/BNGL/SHORT RICO//MERC	4	85	36	15	5,776	68.5	70.5
231	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	5	83	39	90	5,588	68.3	74.1
351	BNGL/CL161/4/BNGL//MERC/RICO/3/EARL	4	84	37		5,585	62.4	66.2
352	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	4	84	36	15	5,569	67.5	70.5
350	BNGL/CL161//CAFFEY	3	85	35	45	5,431	75.9	77.2
327	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18 (XC 065)	4	83	38		5,397	59.7	67.8
356	BNGL/CL161/3/BNGL/SHORT RICO//MERC	4	85	34	55	5,354	69.4	71.4
329	JPTR//BNGL/CFX18	4	82	36		5,324	66.3	69.2
358	BNGL/CL161/3/BNGL/SHORT RICO//MERC	4	84	36		5,318	66.3	69.1
340	BNGL/CL161/4/9502065/3/MERC//MERC/…	4	78	37		5,225	64.5	68.6
011	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	5	89	38	45	5,135	65.7	75.4

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
362	CL261/3/BNGL/SHORT RICO//MERC	4	85	36		5,096	68.8	71.7
330	JPTR//BNGL/CFX18	5	82	38	5	4,945	58.2	64.4
345	CL261/3/BNGL/SHORT RICO//MERC	3	84	35		4,945	65.6	70.9
346	NEPTUNE//BNGL/CL161	4	84	33		4,696	60.0	65.5
337	BNGL/CL161/4/9502065/3/MERC//MERC/…	4	84	36		4,684	60.9	63.8
359	CL261/3/BNGL/SHORT RICO//MERC	4	86	39		4,549	61.9	67.8
336	BNGL/CL161/4/9502065/3/MERC//MERC/…	3	84	38		3,346	57.5	62.8

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

PRELIMINARY YIELD TRIAL

The Preliminary Yield Trial consists 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 H. Rouse Caffey Rice Research Station (RRS) in Crowley, LA. A randomized complete block design was applied to arrange test entries. The plot size was 4.66 x 16 feet. Seeding rate was 90 lb/A. This test was drill seeded on March 20 and harvested on Aug. 8. Data is presented in Table 1.

Table 1. Grain and milling yields and agronomic performance of entries in the 2015 Preliminary Yield Trial. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
854	TRNS/CPRS/KBNT//9502008-A	4	82	38		9,509	69.8	76.6
664	MRMT/RU1002189	4	85	37		9,442	68.8	74.6
866	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4	85	39	10	9,420	71.5	77.1
870	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	84	37		9,134	67.3	74.4
606	CATAHOULA/3/TRNS//9502008-A/DREW	4	85	38		9,045	66.9	75.2
566	AR1188/CCDR//9502008/LGRU/3/AC1073	4	82	35		8,933	71.7	76.7
859	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/…	4	87	41		8,924	70.1	75.0
712	CCDR/FRNS	3	79	37		8,916	69.8	76.3
863	BNGL/CL161//CAFFEY	4	83	38	10	8,884	73.3	77.0
514	TRNS/CPRS/KBNT//9502008-A	5	82	39		8,807	67.5	72.8
616	TACAURI/3/CPRS//82CAY21/TBNT/…/4/CHENIERE	4	87	36		8,681	69.8	74.6
587	CHNR/RU0902152	4	87	39		8,613	71.2	75.5
851	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	5	88	37		8,591	69.3	75.2
604	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/6/TAGGART	4	87	38		8,589	69.5	75.1
838	LFTE/BNGL/3/BNGL/9502065//EARL	4	83	33		8,552	71.3	76.3
861	CL131/3/CPRS/KBNT//9502008-A	3	83	38		8,510	67.9	75.3
621	CCDR/CHNR	4	84	37		8,495	71.2	76.9
511	DREW//CHENIERE/LMNT	5	89	38		8,476	68.3	74.8
842	LFTE/BNGL/5/EARL/4/BNGL/3/SMARS/MARS//MARS	3	80	34		8,435	66.6	74.4
699	TRNS//CCDR/JEFF/4/LGRU//KATY/STBN/3/LGRU	5	80	38		8,419	68.3	77.7
622	CCDR/RU1002177	5	80	40		8,398	71.2	75.5
760	JPTR/S-102	5	87	34		8,362	66.3	68.7
858	9502008/CPRS/4/CPRS//82CAY21/TBNT/3/AR1121/5/CCDR//9502008//…	4	80	37		8,272	68.3	74.3
553	RU0902125/TGRT	4	86	34		8,245	69.9	76.8
728	CHNR/RU0802031	4	84	40		8,242	68.1	75.3
693	9502008-A//AR1188/CCDR/3/…/4/TAGGERT	4	85	37		8,220	68.0	73.6
651	RU0602025/RU0902155	4	85	40	20	8,168	66.3	75.9
583	CBNT/3/CPRS/KBNT//9502008-A	4	89	39		8,156	69.5	75.0
709	RU0401067/IRAT 13//STG03F5-04-062 /4/LGRU//KATY/STBN/3/LGRU	5	85	37		8,143	69.5	77.7

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
552	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	5	89	40		8,121	69.2	74.3
852	CCDR/JEFF//TRNS	4	78	38		8,115	67.4	74.3
750	CCDR/3/TRNS//CCDR/JEFF	5	84	37		8,115	68.6	75.9
740	RU0802134/RU0902034	5	83	39		8,111	61.3	73.9
749	CCDR/3/TRNS//CCDR/JEFF	4	84	36		8,075	66.2	75.0
601	9502008-A//AR1188/CCDR/3/…/4/AR 1188/CCDR//9502008/LGRU	4	84	37		8,032	69.5	74.4
751	CCDR/3/TRNS//CCDR/JEFF	4	83	38		8,019	62.8	72.3
613	CATAHOULA/CHENIERE	4	84	36		7,985	50.6	75.7
586	LBLE/RU0902134	4	85	37		7,980	69.8	75.6
847	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	4	84	35		7,979	69.2	74.9
735	RU0902155/RU0802031	4	86	37		7,960	68.9	77.6
611	CATAHOULA/TAGGART	4	86	36		7,946	60.2	75.9
763	JPTR/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	4	83	34		7,946	70.0	72.1
729	RU0702085/RU1002189	4	85	38		7,918	71.6	76.8
860	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	83	39		7,913	69.1	75.8
609	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	4	87	37		7,911	67.4	75.6
539	LGRU/TAGGART	4	88	38		7,881	56.0	75.3
694	CATAHOULA/3/TRNS//CCDR/JEFF	4	88	37		7,877	67.9	74.7
703	TRNS//CCDR/JEFF/3/CPRS	3	80	37		7,857	64.1	74.7
856	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	4	83	37		7,856	59.4	76.9
598	AR 1188/CCDR//9502008/LGRU/3/CATAHOULA	4	83	37		7,848	68.4	74.1
836	LFTE/BNGL/3/BNGL/9502065//EARL	3	81	34		7,831	65.3	73.6
540	CCDR/TRNS	4	82	38		7,788	64.5	73.6
615	CATAHOULA/CHENIERE	4	81	37		7,775	68.0	75.1
565	AR1188/CCDR//9502008/LGRU/3/CPRS/KBNT//9502008-A	4	83	37		7,763	67.5	76.5
607	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	4	81	36		7,761	68.2	76.4
605	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/6/TAGGART	5	87	37		7,753	72.6	76.5
672	MRMT/RU1002125	5	85	37		7,750	68.3	74.1
603	9502008-A//AR1188/CCDR/3/…/4/AR 1188/CCDR//9502008/LGRU	5	82	38	30	7,728	69.4	76.3

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
597	PRESIDO/TRNS	4	84	38		7,723	65.0	75.0
845	LFTE/BNGL//CAFFEY	4	80	34		7,713	67.5	74.4
602	9502008-A//AR1188/CCDR/3/…/4/AR 1188/CCDR//9502008/LGRU	4	84	39	40	7,691	68.9	73.1
575	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	4	84	37		7,677	70.1	75.5
687	RU1002128/RU1002192	5	85	36		7,670	66.1	72.6
509	CCDR/9502008-A/3/CPRS/KBNT//DREW	4	84	39		7,655	69.1	74.6
731	RU0702085/RU0502068	5	85	39		7,603	63.9	73.9
702	TRNS//CCDR/JEFF/3/CPRS	4	81	37		7,594	64.1	73.5
695	CATAHOULA/3/TRNS//CCDR/JEFF	4	83	35	20	7,584	67.7	76.3
645	CTHL/RU0902125	4	84	39		7,576	64.3	75.0
542	FRANCIS/CATAHOULA	4	83	35		7,556	71.4	77.5
559	CPRS/KBNT//9502008-A /3/CBNT	5	87	40		7,552	66.4	74.0
869	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18	4	85	39	20	7,550	71.3	76.7
650	RU0902155/RU0802031	4	83	37	30	7,527	67.4	76.4
610	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	4	84	38		7,520	66.5	76.1
759	ORIN/3/MERC/CAM9/MARS/4/BNGL/5 BNGL	4	82	34		7,519	70.7	73.9
550	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	4	85	36		7,505	66.9	74.1
580	NWBT/KATY//9902207x2/3/CPRS/KBNT//9502008-A	4	85	37		7,495	68.9	75.5
761	JPTR/4/9502065/3/MERC//MERC/…	4	82	34	40	7,475	71.3	74.9
673	RU0902174/RU0902134	4	85	37	30	7,474	68.9	74.6
855	CPRS/KBNT//9502008-A /3/AC105	5	86	39		7,466	67.4	73.8
707	TRNS//CCDR/JEFF/3/AR 1188/CCDR//9502008/LGRU	4	81	35		7,462	67.0	73.3
850	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	4	84	36		7,437	68.0	75.1
558	CPRS/KBNT//9502008-A /3/CBNT	4	87	36		7,419	69.5	75.4
529	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CPRS/KBNT//DREW	4	88	41		7,389	67.8	74.6
630	CCDR/RU0902137	4	82	35		7,377	66.8	74.6
724	CHNR/RU0902137	5	86	37		7,377	70.8	76.0
579	CCDR/0502085//CCDR/9502008-A	3	80	37	10	7,349	69.2	75.3
585	LBLE/RU0902134	4	84	36		7,339	68.7	74.9

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
642	CTHL/RU1002192	4	81	34		7,339	66.9	76.3
734	RU0902155/RU0802031	4	83	37		7,332	69.9	75.2
554	RU0802031/RU0802134	4	82	38		7,318	65.7	73.2
582	AC105/3/CCDR//CCDR/JEFF	4	83	37		7,313	65.5	73.5
588	CHNR/RU0902131	4	83	37		7,294	68.8	75.9
813	CAFFEY/3/BNGL/9502065//EARL	4	84	35		7,284	70.8	75.2
628	CCDR/RU0902137	4	83	38		7,283	65.8	74.2
742	MRMT/10AY027	4	85	37		7,266	68.6	75.8
808	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	4	86	35		7,265	69.4	73.8
816	9502008-A//AR1188/CCDR/3/…/4/AR 1188/CCDR//9502008/LGRU	4	86	37		7,257	67.0	72.4
591	RU0902034/RU0803163	4	84	37		7,230	66.2	75.1
807	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	4	86	36		7,226	69.9	74.6
726	CHNR/RU0802031	5	85	35		7,218	66.8	76.5
732	RU0702085/RU0502068	4	85	36		7,200	64.9	74.9
792	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	3	85	38		7,188	63.2	67.4
665	MRMT/RU0902034	4	86	40		7,181	67.1	76.3
516	LCSN/SPRING	4	89	35		7,180	70.1	75.8
547	AR 1188/CCDR//9502008/LGRU/3/CATAHOULA	4	83	38		7,176	66.5	76.1
700	TRNS//CCDR/JEFF/3/CPRS	4	81	36		7,170	66.6	72.5
663	MRMT/CPRS	4	89	37		7,169	67.4	73.4
644	CTHL/RU1002192	5	84	37		7,166	69.2	75.5
701	TRNS//CCDR/JEFF/3/CPRS	4	83	37	50	7,156	66.7	72.9
594	PRESIDO/CATAHOULA	3	84	38		7,155	64.5	74.1
544	PRESIDO/CATAHOULA	4	85	34		7,151	65.4	74.7
758	ORIN/3/MERC/CAM9/MARS/4/BNGL/5 BNGL	3	82	32		7,135	70.8	75.5
595	PRESIDO/CATAHOULA	4	85	36		7,116	67.6	74.0
696	CATAHOULA/3/TRNS//CCDR/JEFF	4	84	35		7,115	66.3	75.7
678	RU0401182/RU0902134	4	80	36		7,110	69.6	76.0
865	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	4	83	38	60	7,094	71.8	74.0

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
697	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	3	84	38		7,080	64.7	75.6
739	RU0902140/CTHL	5	84	36		7,072	64.2	73.9
632	CPRS/RU0902134	4	86	37		7,052	66.8	74.5
717	CCDR/CYBT	5	84	35		7,047	64.3	76.6
719	FRNS/RU0902137	4	85	37		7,036	68.8	76.0
526	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CCDR	5	88	35		7,034	66.1	75.7
608	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	4	84	36		7,019	68.4	76.9
805	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	3	84	35		7,013	69.0	73.5
548	AR 1188/CCDR//9502008/LGRU/3/CATAHOULA	4	83	37		7,010	57.7	76.5
592	RU0902137/MBLE	4	82	37		6,977	69.8	73.8
753	9502065/3/MERC//MERC/…/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	5	82	34		6,950	70.8	74.2
620	CCDR/CHNR	5	83	36		6,936	68.7	76.3
640	CTHL/CHNR	4	87	38		6,929	70.8	76.9
741	MRMT/CHNR	5	87	39		6,920	71.2	76.1
619	9502008/LGRU/3/CPRS//82CAY21/TBNT/4/TAGGART	4	85	37		6,911	66.6	74.8
571	CCDR/3/KATY/CPRS//JKSN/4/CCDR/JEFF	4	82	37		6,897	68.6	76.5
512	DREW//CHENIERE/LMNT	5	90	37		6,865	69.7	74.8
756	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	4	83	34		6,858	72.6	75.5
623	CCDR/RU1002183	5	83	36		6,856	65.4	72.9
773	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	81	33		6,852	67.2	73.2
581	DREW/CCDR//AC625	3	81	38		6,847	70.7	75.8
682	RU0802134/RU0802031	4	83	37		6,847	66.1	75.5
569	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	5	84	36		6,840	56.9	74.3
584	CBNT/AC105	4	84	39		6,828	70.1	75.3
536	CCDR/9502008-A/3/CPRS/KBNT//DREW	4	86	39		6,801	71.8	76.3
545	PRESIDO/CATAHOULA	4	83	34		6,801	57.1	74.4
688	RU1002128/RU1002192	5	85	35		6,786	68.5	75.8
528	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CPRS/KBNT//DREW	4	90	36		6,774	67.8	74.3
762	JPTR/4/9502065/3/MERC//MERC/…	5	83	34		6,771	71.2	74.1

Continued.

Table 1. Continued

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
570	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	4	84	37		6,744	70.1	75.3
600	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A//AR1188/CCDR/3/…	4	81	36		6,734	72.8	77.1
568	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	4	84	34		6,731	67.9	74.4
755	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	5	84	35		6,730	72.4	75.9
736	RU0902125/10AY027	4	85	35		6,659	68.1	74.9
720	CPRS/RU0802031	3	82	33		6,659	69.6	75.8
576	CCDR/0502085//CCDR/9502008-A	4	83	37		6,657	67.5	75.6
791	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	4	85	34		6,640	68.1	72.4
641	CTHL/RU1002192	4	84	39	40	6,629	66.1	74.8
572	CCDR/3/KATY/CPRS//JKSN/4/CCDR/JEFF	4	81	39		6,620	68.3	74.5
555	RU0802134/RU0902134	5	85	36		6,614	66.7	75.4
656	CPRS/RU0602025	5	84	39		6,614	66.9	75.0
733	CTHL/WELLS	4	85	35		6,611	60.3	77.9
793	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	4	84	36		6,608	69.7	74.1
537	CPRS/KBNT//DREW/3/CPRS	4	86	38		6,568	69.7	74.6
506	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/LGRU/WELLS	4	88	34		6,566	68.3	74.6
690	RU0502068/RU0902134	5	86	36		6,556	67.9	75.2
679	RU0802134/RU0902125	4	82	33		6,548	68.7	77.2
626	CCDR/RU0902134	5	83	34		6,539	70.0	76.8
629	CCDR/RU0902137	5	83	35		6,537	67.5	75.7
627	CCDR/RU0902134	4	83	38		6,536	67.0	74.3
625	CCDR/RU0902134	4	83	35		6,528	64.1	72.6
564	CCDR/JEFF//CCDR/0502085	4	85	37		6,519	67.6	75.5
515	CCDR/CHENIERE	5	83	38		6,514	68.3	75.2
744	RU0902140/CTHL	5	82	38		6,506	63.1	74.8
654	CCDR/RU0801167	4	83	35		6,496	67.3	74.9
730	RU0702085/RU0802134	5	84	36		6,490	66.6	75.8
578	CCDR/0502085//CCDR/9502008-A	4	81	36	10	6,481	65.9	74.0
614	CATAHOULA/CHENIERE	4	84	35		6,473	69.1	76.4

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
743	RU0902034/RU0502068	4	82	34		6,454	63.0	73.7
518	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	4	86	36		6,445	67.3	75.0
652	RU0902128/RU0902140	4	81	36		6,430	68.8	74.7
520	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CPRS	4	87	35		6,413	71.0	76.8
643	CTHL/RU1002192	4	85	34		6,408	63.2	74.4
747	08PY755/FRNS	4	85	35		6,408	60.1	74.6
677	RU0401182/RU0902134	4	85	34		6,399	72.3	75.1
636	CPRS/RU0802031	4	82	34		6,397	67.5	73.1
669	MRMT/RU0802134	4	86	35		6,374	63.0	73.8
714	CCDR/WELLS	4	85	33		6,338	64.4	77.3
788	NEPTUNE/4/9502065/3/MERC//MERC/…	4	83	18		6,330	67.5	74.7
590	RU0902034/RU0902140	4	84	35		6,324	71.3	77.0
635	CPRS/RU0802031	4	86	35		6,316	67.4	73.7
551	CATAHOULA/CHENIERE	4	84	37		6,305	67.2	76.7
710	JEFF/FRNS	4	85	38		6,300	54.5	72.9
691	RU0803026/CCDR	4	83	34		6,275	67.7	74.1
680	RU0802134/RU0902125	4	83	37		6,236	68.5	76.6
599	AR 1188/CCDR//9502008/LGRU/3/PRESIDO	4	85	39		6,174	69.5	76.4
716	CCDR/CYBT	4	81	34		6,161	71.4	75.9
809	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	4	85	35		6,140	70.9	74.7
671	MRMT/RU1002125	4	81	36		6,127	68.3	75.0
593	RU0902140/CCDR	5	87	33		6,125	67.5	75.6
521	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CPRS	5	89	38		6,090	65.7	73.8
532	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//9902207x2/3/…	4	83	35		6,073	67.4	75.6
727	CHNR/RU0802031	5	87	34		6,058	69.7	77.5
560	CCDR/JEFF/3/CPRS/KBNT//9502008-A	4	84	37		6,017	71.1	77.1
745	RU0802134/RU0902034	5	85	36		6,008	61.8	73.5
718	CCDR/CYBT	5	83	37		6,005	65.1	74.5
567	CTHL//CCDR/JEFF	4	84	37		5,984	69.8	77.4
648	CTHL/RU0902137	4	85	37		5,953	70.3	76.4
653	RU0902128/RU0902140	4	83	35		5,935	64.9	75.5
757	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	5	84	33		5,925	72.2	74.4

Continued.

Table 1. Continued.

ENT	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
785	JPTR/5/BNGL/SHORT RICO/4/9502065/3/…/6/NEPTUNE	5	86	36		5,913	67.4	73.5
507	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/SPRING	4	84	36		5,880	69.6	75.4
823	MARS/6/MARS//M201/MARS/5/STRN//MERC/…	4	83	39	40	5,878	71.1	73.7
685	RU0803026/RU1002183	4	87	36		5,716		
649	CTHL/RU0902137	5	86	40		5,680	68.2	75.0
618	9502008/LGRU/3/CPRS//82CAY21/TBNT/4/TAGGART	5	86	38		5,659	66.7	75.1
638	MRMT/RU0602025	5	84	37		5,562	65.2	73.8
517	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	4	86	35		5,536	68.7	74.8
657	CHNR/RU1002183	5	85	34		5,533	70.7	75.3
857	CCDR/3/KATY/CPRS//JKSN/4/MILL//9502008/LGRU	4	84	36		5,529	66.2	74.1
803	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	84	33		5,473	67.1	72.7
513	AR 1188/CCDR//9502008/LGRU/3/CPRS	4	88	36		5,409	65.9	72.8
596	PRESIDO/CATAHOULA	4	86	37		5,398	62.6	74.3
853	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	4	86	38		5,386	65.7	73.2
531	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/SPRING	4	85	37		5,306	67.9	73.5
795	NEPTUNE/4/9502065/3/MERC//MERC/…	4	85	32		5,176	66.8	73.0
655	CPRS/RU0602025	4	84	37		5,069	70.2	76.0
659	CHNR/RU1002183	4	84	34		5,043	69.0	75.2
577	CCDR/0502085//CCDR/9502008-A	4	81	35		4,931	68.9	74.6
796	NEPTUNE/4/9502065/3/MERC//MERC/…	4	85	34		4,786	67.2	72.8
764	NEPTUNE/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	4	84	36		4,730	61.4	73.5
772	NEPTUNE/4/9502065/3/MERC//MERC/…	4	84	34		4,556	60.6	71.2
527	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CPRS/KBNT//DREW	4	90	37		4,464	66.5	75.1
530	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/SPRING	5	83	35		4,418	68.6	74.5
786	LFTE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	83	31		4,380	64.6	69.6
780	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	5	84	32		4,376	69.9	74.4

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

COOPERATIVE UNIFORM REGIONAL RICE NURSERY

The Uniform Regional Rice Nursery (URRN) 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 2015 URRN 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 for varieties.

The 2015 URRN results from the H. Rouse Caffey Rice Research Station (RRS) will be reported. All plots were drill seeded on March 23. The test was harvested on Aug. 7. 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 percent heading, and plant height) of entries in the 2015 URRN at the RRS.

Table 1. Grain and milling yields and agronomic performance of entries in the 2015 Uniform Regional Rice Nursery, Group 1. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
008	RU 1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	90	36		9,790	66.4	71.9
018	CL151	CL151	4	87	36		9,634	65.7	72.6
017	CL111	CL111	3	86	38		9,517	68.7	74.1
020	MRMT	MERMENTAU	3	86	35		9,446	64.8	71.2
002	RU 1402088	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	91	37		9,351	66.0	71.1
007	RU1501007	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/LGRU/MILL/6/RU9201127/4/KATY/NWBT//...	4	90	40		9,312	61.9	72.5
005	RU 1402091	CL131/3/CPRS/KBNT//9502008-A	4	86	36	3	9,094	63.0	68.9
001	RU 1505001	BOLIVAR/DREW	4	90	40		8,777	57.6	68.4
013	RU1401136	CYBT/LM1/4/WLLS/PI597049/3/RSMT//NWBT/KATY/5/9901133/JEFF	4	88	37		8,498	62.0	70.5
012	RU 0803147	LCSN/LGRU	5	86	38		8,449	59.2	70.3
010	RU 1501010	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/RU9201179/7/BASMATI-370/…	4	93	38		8,233	56.3	72.1
004	RU 1301084	STG03AC-37-042(FRAN AC LINE)/RU0801076	4	90	39		8,158	56.7	71.4
009	RU 0903141	CPRS/9901081	5	89	39		8,109	62.6	72.0
015	RU 1204156	CFX-18(CL161)/0004054	5	94	36		7,804	68.0	73.1
006	RU 0803190	CPRS/CCDR	5	90	36		7,803	67.0	72.2
011	RU 1402183	CCDR/JEFF//TRNS	3	92	41		7,742	64.2	72.7
016	RU 1304154	8804032/KATY	5	89	38		7,654	63.2	72.3
014	RU 1104077	8603006//3/MARS/NWRX//TBNT	6	93	38		7,628	62.9	72.0
019	PSDO	PRESIDIO	3	89	37		7,471	66.5	71.6
003	RU 1503003	CF4-69/CCDR//Sierra	5	90	36		6,320	61.5	72.6

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2015 Uniform Regional Rice Nursery, Group 2. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
031	RU 1502031	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	3	85	37		9,947	70.6	72.1
037	JPTR	JUPITER	5	88	37		9,547	66.3	69.9
021	RU 1301021	M206/STG99F5-07-118//JPTR	5	83	39		9,490	63.0	68.7
034	RU 1402134	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	5	90	37		9,470	67.7	74.6
028	RU 1302192	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	3	84	39		9,451	69.9	71.4
039	LKST	LAKAST	4	88	42		9,353	55.0	73.2
022	RU 1402008	NEPTUNE//BNGL/CL161	4	86	37		9,351	60.4	68.2
030	RU 1501030	CPRS/KBNT//9502008-A	4	85	39		9,113	62.2	74.1
025	RU 1402125	BNGL/CL161//CAFFEY	4	88	37		9,105	57.9	71.6
040	FRNS	FRANCIS	4	89	39		8,794	58.3	69.3
024	RU1501024	CL111/3/CCDR//9502008/LGRU	5	89	39		8,748	65.3	73.8
032	RU 1303138	IR64/IR 1321-12	6	153	39		8,679	64.5	71.3
027	RU 1501027	NPTN//BNGL/CL161	4	86	37		8,352	62.4	68.1
026	RU 1003098	CPRS/NWBT//KATY/3/CCDR	5	88	37		8,322	67.3	72.7
029	RU 0803153	CPRS/CCDR	5	87	38		8,005	63.6	72.5
038	WLLS	WELLS	3	93	40		7,866	55.6	73.4
036	RU 1404122	CPRS/NWBT	6	92	39		7,859	64.1	73.3
033	RU 1304156	IR36/8603006	4	89	40		7,681	68.8	73.7
035	RU 1304122	IR36/8603006	5	88	40		7,532	67.4	73.8
023	RU 1503023	CF4-69/CCDR//Sierra	5	92	39		6,075	61.6	71.6

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2015 Uniform Regional Rice Nursery, Group 3. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
060	CL271	CL271	4	86	38		9,529	68.7	71.2
051	RU 1402051	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	88	37		9,251	65.2	72.0
045	RU 1502045	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	3	86	37		9,227	67.1	71.1
050	RU 1501050	RU0501136/RU0902162	5	85	37		9,058	63.3	71.5
058	CHNR	CHENIERE	4	85	37		9,047	71.3	76.3
044	RU 1401044	RU0902125/CL131	3	86	39		9,020	69.1	74.9
059	CCDR	COCODRIE	4	88	38		8,988	66.0	73.4
046	RU 1303153	IR64/IR 1321-12	6	83	40		8,873	58.7	72.3
048	RU 1502048	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18	4	90	38		8,776	68.7	74.1
056	RU 1505056	ALAN/BALDO	4	88	40		8,577	64.2	73.5
042	RU 1402137	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	4	86	39		8,391	65.7	72.5
054	RU 1404156	CPRS//NWBT/C4-63	5	93	39		8,159	61.6	73.9
052	RU 0703181	CPRS/CCDR	4	89	40		8,125	65.4	71.3
043	RU 0803181	CPRS/CCDR	5	85	36		8,115	67.7	74.7
041	RU 1401081	STG05-IMI-02-055/STG05IMI-01-113	4	93	35		8,066	69.0	73.3
049	RU 0903147	CCDR/L202	5	88	38		8,035	66.3	71.3
047	RU 1501047	IR-TGRT 30 RADS	4	94	43		7,947	52.9	73.0
057	Rex	Rex	4	93	40		7,765	66.3	72.3
053	RU 1404154	CPRS//NWBT/C4-63	4	92	37		7,641	60.9	71.9
055	RU 1404157	CPRS/NWBT	4	91	41		7,021	66.7	72.2

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2015 Uniform Regional Rice Nursery, Group 4. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
071	RU 1502071	LAH10	4	91	49		11,264	62.4	72.1
068	RU 1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	5	87	42		10,015	67.6	73.4
061	RU 1501061	CL111//CCDR/0502085	4	85	38		9,381	62.8	71.2
062	RU 1502062	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	85	38		9,380	65.0	71.8
080	MM14		4	85	36		9,255	67.1	70.8
065	RU 1502065	CL111/4/CPRS/9502008-A//AR 1188/CCDR	3	87	40		8,733	64.6	73.4
070	RU 1401070	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/ DREW	5	91	42		8,705	63.4	72.2
067	RU 1401067	19991516/19951094//RNS3/RU9101001	5	91	42		8,544	60.1	72.9
072	RU 1303181	043752/0047277/CHEN	5	90	38		8,476	67.0	73.6
079	ROYJ	ROY J	3	91	42		8,435	55.2	71.2
076	RU 1501076	STG05IMI-01-113/STG05L-40-137	4	92	44		8,362	65.8	73.8
064	RU 1401105	JZMN/PI597046	3	91	41		8,228	67.2	74.2
078	RU 1203190	CPRS/NWBT//KATY/3/CCDR	5	89	38		7,818	60.7	69.3
069	RU 1503069	CPRS/JSMN	5	91	39		7,811	66.7	73.2
075	RU 0903190	CPRS/CCDR	6	91	41		7,800	64.8	74.1
063	RU 1003153	CPRS/CCDR	6	89	38		7,793	67.5	73.7
074	RU 1404194	DXBL//NWBT/KATY	6	93	41		7,445	66.5	72.7
066	RU 0903086	SABR/CCDR	5	92	41		7,377	67.0	72.4
077	RU 1404198	RSMT/KATY	4	93	40		6,576	56.7	69.5
073	RU 1404191	CPRS//NWBT/C4-63	7	93	38		5,606	54.9	70.6

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2015 Uniform Regional Rice Nursery, Group 5. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
085	RU 1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	84	38		10,836	64.9	71.6
115	RU 1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	3	89	39		10,419	67.8	74.5
112	RU 1502112	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	4	88	38		10,000	67.1	74.0
094	RU 1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	4	89	42		9,850	68.1	74.0
082	RU 1502082	9502008-A/DREW//CLR 20/3/CL111	4	86	40		9,488	68.2	72.4
092	RU 1503092	CPRS/3/CPRS/NWBT/KATY	5	88	41		9,459	70.9	75.1
097	RU 1502097	CL111/3/CPRS/KBNT//WELLS CFX 18	4	86	38		9,438	69.7	74.6
106	RU 1502106	CL111/CHENIERE	3	87	38		9,361	67.8	73.3
109	RU 1502109	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	3	89	42		9,167	69.2	73.9
083	RU 1504083	CL131/PSCL	5	84	38		8,841	65.7	71.7
103	RU 1502103	CL111/CCDR	4	87	38		8,679	67.4	73.9
081	RU 1501081	248DREW16C-1-3/6/LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT	5	91	41		8,664	65.8	73.9
116	RU 1303116	CCDR/L202	5	82	38		8,596	62.5	71.3
118	CL172	CL172	4	89	39		8,565	67.2	74.0
087	RU 1501087	STG05IMI-04-091/STG05IMI-02-055	4	90	38		8,470	67.7	74.1
120	CL163	CL163	5	91	41		8,369	61.4	71.4
101	RU 1403101	CPRS/JSMN	6	88	39		8,339	62.8	70.5
088	RU 1502088	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/…	4	87	37		8,308	57.7	71.7
098	RU 1503098	CPRS/9901081	5	89	38		8,302	67.0	74.1
108	RU 1501108	JZMN/PI597046	4	92	43		8,290	68.0	74.0
111	RU 1501111	BNGL/CL161/4/9502065/3/MERC//MERC/…	4	85	39		8,277	61.1	73.5
090	RU 1501090	FRNS/CL.WLLS/7/LBNT/9902//NWBT/3/KATY/NWBT/5/IR36M4/4/L201/3/TTEP/IR-8//UNKN/6/...	5	91	43		8,102	60.7	74.4
096	RU 1501096	STG07IMI-01-129/JPTR	6	89	37		8,100	66.0	69.5
095	RU 1503095	M202*4/Katy BC5F4	5	83	39		8,065	68.7	71.0
089	RU 1403089	CPRS/9901081	5	89	40		8,062	65.7	73.4
113	RU 1003113	CPRS/CCDR	5	90	43		8,056	64.9	73.5
114	RU 1504114	Cheniere/Banks	5	93	45		8,015	66.0	72.8
093	RU 1501093	248DREW16C-1-3/248DREW16C-1-2	5	89	39		7,936	64.7	71.6

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
084	RU 1501084	LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT/7/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/…	5	92	40		7,778	62.8	72.6
099	RU 1501099	BNGL/CL161/4/9502065/3/MERC//MERC/…	5	83	39		7,722	61.3	69.8
086	RU 1203086	CCDR/L202	6	90	36		7,636	68.3	73.2
110	RU 1503110	Deltabelle//LGRU/LCSN/CF4-85	4	91	42		7,542	69.4	72.6
102	RU 1501102	JASM85/DREW//UA99-167	4	91	39		7,266	60.4	72.5
104	RU 1403104	M202*4/Katy BC5F4	4	81	40		7,220	64.2	71.7
091	RU 1502091	LAH169	5	83	45		7,196	63.7	72.5
100	RU 1504100	Cheniere/Banks	6	93	39		7,119	69.4	75.7
117	JZMN2	JAZZMAN-2	4	90	36		7,043	70.3	73.8
107	RU 1503107	Sierra/Cocodrie	5	85	41		6,719	61.8	73.7
105	RU 1501105	JZMN/PI560239//KDM/JSMN85	5	88	51		6,524	63.7	69.5
119	M206	M206	6	80	36		5,255	68.1	72.3

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

Table 6. Grain and milling yields and agronomic performance of entries in the 2015 Uniform Regional Rice Nursery, Group 6. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
131	RU 1502131	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	4	85	42		9,421	67.4	73.4
134	RU 1502134	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	89	37		9,337	68.7	74.4
140	RU 1502140	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	86	37		9,253	63.5	70.5
146	RU 1502146	9502008-A/DREW//CLR 20/3/CL111	4	87	39		9,139	68.1	74.5
122	RU 1504122	CL151//COLUMBIA2/BENGAL	6	87	40		9,116	64.9	73.3
155	RU 1505155	Mo0204044 / Kataki	4	84	40		9,053	67.0	71.7
125	RU 1502125	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	84	40		9,002	65.3	73.1
124	RU 1501124	KATY/CPRS//JKSN/3/AR1188/CCDR/4/CFX-29/CCDR	4	84	41		8,959	65.8	71.7
143	RU 1502143	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	4	86	39		8,923	64.7	72.1
152	RU 1502152	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	4	86	37		8,833	64.4	74.0
149	RU 1502149	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	4	86	37		8,747	66.6	72.3
137	RU 1502137	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4	89	44		8,682	64.1	73.5
159	RU 0703144	CPRS/CCDR	5	85	38		8,448	68.7	75.0
148	RU 1501148	FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW/7/GP13416/KATY//PI312777	5	90	39		8,363	60.4	74.1
121	RU 1501121	CL111/CCDR	5	84	42		8,355	65.4	71.2
130	RU 1501130	CPRS/KBNT//CFX29/CCDR/3/06CFP952	5	86	41		8,334	66.1	73.1
142	RU 1501142	KBNT/Q36194/6/LBNT/9902//NWBT/3/KATY/NWBT/5/IR36M4/4/L201/3/TTEP/	3	88	41		8,266	56.8	71.5
128	RU 1502128	9502008/3/CPRS//82CAY21/…/4/CFX18/5/9502008-A/DREW//CLR 20	4	86	39		8,139	70.1	73.4
133	RU 1501133	CPRS/KBNT//WLLS/CFX18/5/9502008/3/CPRS//82CAY21/TBNT/4/CPRS//…	6	88	39		7,976	64.9	73.4
129	RU 1403129	RU0302195/CHEN	5	87	39		7,959	67.5	74.5
160	TGRT	TAGGART	4	94	42		7,925	49.8	72.0
154	RU 1504154	RSMT//TXMT/IR36/3/(0115735)/CL131	5	88	44		7,902	63.4	72.7
151	RU 1501151	248FRA16U-21/2/248DREW16C-1-2	4	90	39		7,853	66.3	74.2
141	RU 1403141	AC110DH2/AC108DH2//CHEN	5	89	37		7,766	68.4	73.3
153	RU 1403153	L202/LQ39a//SABR	5	87	38		7,747	64.4	72.6
144	RU 1303144	CCDR/L202	5	86	36		7,744	66.6	75.3
127	RU 1501127	CCDR/RU0801167	4	86	40		7,737	66.6	73.4

Continued.

Table 6. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
139	RU 1501139	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/ RU9201179/7/IRGA409/RXMT/5/LGRU//LMNT/RA73/3/…	4	93	41		7,697	58.8	74.2
145	RU 1401145	RU0801076/2/KBNT/Q36194	4	91	39		7,572	58.0	72.7
138	RU 1403138	043752/0047277/CHEN	7	91	38		7,471	68.9	74.5
136	RU 1501136	RU0902174/RU0902134	5	90	39		7,437	66.9	72.2
123	RU 1003123	CPRS/CCDR	6	89	40		7,376	64.2	73.1
158	DLLA2	DELLA-2	4	90	41		7,368	64.8	73.2
135	RU 1303135	CCDR/L202	5	85	39		7,273	55.6	69.3
132	RU 1503132	CPRS/9901081	6	85	40		7,267	65.4	73.5
156	RU 1504156	Cocodrie/Priscilla	5	87	39		7,075	55.3	73.1
157	RU 1504157	CPRS/JACKSON//BANKS	5	91	44		6,744	50.3	72.6
147	RU 1503147	CPRS/3/CPRS/NWBT/KATY/4/SPRING	7	87	38		6,289	60.8	73.7
126	RU 1503126	CF4-69/CCDR//Sierra	5	91	40		6,055	64.3	75.0
150	RU 1503150	CF4-69/CCDR//Sierra	5	93	40		5,690	63.2	73.5

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

Table 7. Grain and milling yields and agronomic performance of entries in the 2015 Uniform Regional Rice Nursery, Group 7. H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
165	RU 1502165	TRNS/CPRS/KBNT//9502008-A	4	85	35		9,184	66.2	73.7
183	RU 1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	3	87	35		8,725	64.2	70.3
199	RONDO	RONDO	5	95	41		8,717	53.7	70.8
195	RU 1502195	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	3	88	35		8,681	63.3	71.4
180	RU 1502180	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/…	4	87	38		8,677	66.7	72.5
177	RU 1502177	9502008/CPRS/4/CPRS//82CAY21/TBNT/3/AR1121/5/CCDR//9502008//…	4	82	36		8,381	66.1	72.7
192	RU 1502192	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	89	36		8,372	54.5	70.8
197	RU 1504197	RSMT/3/MARS/NWRX//TBNT/4/CL151	5	88	38		8,337	64.0	72.9
168	RU 1502168	CPRS/KBNT//9502008-A /3/AC105	4	90	37		8,335	68.1	75.3
162	RU 1502162	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	4	90	37		8,116	66.3	72.4
188	RU 1501188	248FRA16U-21/2/248DREW16C-1-2	4	90	38		8,092	66.4	73.0
171	RU 1502171	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	5	85	37		8,075	45.7	73.9
200	CL152	CL152	4	91	37		8,055	67.3	74.6
167	RU 1501167	RU0902125/CL131	4	89	37		7,993	62.6	72.2
179	RU 1501179	FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW/7/NWBT/3/LBNT/9902//LBLE/4/…	5	90	40		7,991	62.2	74.8
174	RU 1502174	CCDR/3/KATY/CPRS//JKSN/4/MILL//9502008/LGRU	4	84	37		7,980	67.2	72.4
182	RU 1501182	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	4	92	38		7,742	59.3	72.0
173	RU 1501173	CPRS/KBNT//9502008-A/3/TRNS/4/CPRS/KBNT//WLLS/CFX18	4	87	39		7,716	59.5	73.4
161	RU 1401161	STG05-IMI-02-055/STG05IMI-01-113	4	93	34		7,670	66.1	72.2
187	RU 1505187	Banks / Wells	4	90	42		7,534	46.8	71.4
178	RU 1505178	05 Cross - Spring / RU0202008	4	86	36		7,523	62.0	74.6
191	RU 1504191	RSMT//TXMT/IR36/3/(0115735)/CL151(CL006)	5	89	37		7,521	63.9	74.2
164	RU 1501164	CPRS/KBNT//WLLS/CFX18/5/9502008/3/CPRS//82CAY21/TBNT/4/CPRS//…	5	85	37		7,512	68.1	74.6
163	RU 1303163	CPRS/SABR	5	86	39		7,424	62.6	71.9
185	RU 1501185	CPRS/KBNT//WLLS/CFX18/5/9502008/3/CPRS//82CAY21/TBNT/4/ CPRS//…	5	87	37		7,405	66.5	74.2
170	RU 1501170	CHNR/4/CPRS/9502008-A/3/CFX 29//AR1142/LA2031	5	92	38		7,375	68.0	74.7
198	RU 1504198	Rexmont/Banks	5	89	44		7,373	57.5	70.5
189	RU 1502189	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	5	87	35		7,357	56.1	70.2

Continued.

Table 7. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	LDG	YIELD	WHOLE	TOTAL
176	RU 1501176	KBNT/Q36194/7/RU9201176/4/LBNT/STBN//NWBT/3/MILL/5/ LGRU2/6/WLLS	4	91	37		7,272	60.9	72.1
190	RU 1403190	LCSN/LGRU	5	89	35		7,073	63.8	71.3
175	RU 1503175	L202/LQ39a//SABR	5	87	37		7,030	60.5	72.1
169	RU 1503169	Hayakogane/BALDO	5	89	37		6,980	65.8	75.1
196	RU 1504196	Rexmont/Banks	6	92	43		6,721	56.3	69.2
186	RU 1504186	GFMT/LBLE	5	93	37		6,699	64.0	71.4
181	RU 1403181	CPRS/3/CPRS/NWBT/KATY	6	88	37		6,693	66.0	73.7
172	RU 1303172	CPRS/NWBT//KATY/3/CCDR	5	91	35		6,645	68.7	75.6
184	RU 1303184	FRAN/LQ39a	5	91	36		6,517	68.4	73.9
193	RU 1504193	IR36/8603006	5	89	38		6,261	67.2	75.3
166	RU 1403166	AC110DH2/AC108DH2//CYBT	5	90	37		6,216	65.4	74.2
194	RU 1504194	DXBL//NWBT/KATY	5	96	42		5,505	61.6	72.3

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

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

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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 H. Rouse Caffey Rice Research Station (RRS) 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 2015 Commercial Advanced, Hybrid Yield, and Uniform Regional Rice Nursery evaluated four Louisiana candidate hybrids and seven commercial checks for agronomic and milling performance in Acadia (AP), Evangeline (EP), Jefferson Davis (JDP), Vermilion (VP), and St. Landry (SLP) parishes and at the H. Rouse Caffey Rice Research Station (RRS). Disease resistance levels for leaf blast, sheath blight, and bacterial panicle blight were determined for hybrids and checks in EP, JDP, and VP locations. Three yield trials with two candidate hybrids were carried out in Arkansas in cooperation with Dr. Xueyan Sha, rice breeder at the Rice Research Extension Center (RREC), Stuttgart, AR. The 2015 Observational Trial evaluated 600 new test-cross hybrid combinations for grain yield and agronomic and milling performance. Additional nurseries at the RRS included 3,500 rows for male sterile S line development and 2,200 rows for restorer R and maintainer B line development. DNA technology was used to identify and validate new candidate markers associated with low chalk lines adapted to Louisiana field conditions.

To complement the existing Clearfield herbicide technology, the RRS 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 2015.

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 2015. 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 RRS. DNA technology was used to identify and advance seven elite lines with moderate to high levels of resistance to sheath blight.

Commercial-Advanced Yield Trials

The objective of the 2015 Commercial-Advanced Yield Trials was to evaluate three candidate hybrids vs. seven commercial checks for grain yield and other traits at six Louisiana (LA) locations. Trials were planted March 23 to May 4, 2015, at the seeding rate of ~35 lb/A. As shown in Table 1, all hybrids in the Commercial-Advanced Yield Trials produced high yield potential across the six locations. For example, the combined LA and commercial hybrids produced an average 23% yield increase at 9,334 lb/A when compared to the combined average of 7,110 lb/A for the three inbred varieties CL151, CL152, and CL111. When considering only the LA hybrids, an 18% yield advantage vs. the inbreds was observed. Louisiana Clearfield hybrid CLH161 produced higher yields vs. one to three commercial hybrids at the EP, JDP, and VP locations. Across all trials, greater stability in grain yield was observed as measured by the coefficient of variation for hybrids as a group vs. inbreds. Greater or similar stability in yield was found for each of the LA hybrids vs. inbreds.

Table 1. Commercial-Advanced Yield Trials in Acadia (AP), Evangeline (EP), Jefferson Davis (JDP), Vermilion (VP), H. Rouse Caffey Rice Research Station (RRS), and St. Landry (SLP) locations, 2015.

	Yield (lb/A) - Main Crop							
Hybrid /Inbred	AP	EP	JDP	VP	RRS	SLP	Mean	Stability (C.V.)*
XL760	9,852	8,547	11,065	10,210	9,937	10,872	10,080	0.089
XL753	9,400	9,043	10,730	10,410	10,822	9,618	10,004	0.075
CLXL729	9,244	8,634	9,658	9,790	10,696	10,107	9,688	0.073
CLXL745	9,344	8,807	10,138	10,149	8,474	9,691	9,434	0.073
CLH161	8,305	9,114	10,004	9,860	8,242	8,830	9,059	0.083
09A/R608	8,478	8,264	9,338	9,409	9,885	5,843	8,536	0.170
LAH169	7,848	7,341	9,175	9,097	8,673	9,074	8,535	0.090
CL151	6,927	6,073	7,403	7,777	9,103	8,274	7,593	0.139
CL152	6,277	5,634	7,065	6,701	8,126	8,159	6,994	0.144
CL111	7,316	5,299	6,584	6,764	8,759	5,922	6,744	0.178

*Coefficient of variation. The smallest value corresponds to the greatest level of stability across locations.

Hybrid Advanced Yield Trials

The objective of the Hybrid Advanced Yield Trials was to evaluate agronomic and milling performance of selected entries at multiple locations for grain yield and head rice yields, maturity, and height (Tables 2 and 3). The four trials were planted during March 2015 at the seeding rate of ~25 lb/A. Table 2 shows that all hybrids produced high yield potential at the RRS, VP, and SLP locations. For example, LA and commercial hybrids as a group produced an average 27% yield increase at 9,695 lb/A when compared to the combined average of 7,094 lb/A for Clearfield inbred varieties CL111 and CL152. When considering only the LA hybrids, a 24% yield advantage vs. the inbreds was observed. Louisiana conventional hybrid 09A/R608 produced higher mean yields vs. the commercial hybrids XL753 and CLXL745. Similar or greater stability in yield was found for each of the hybrids vs. inbreds. Table 3 shows that yield and stability for head rice was high for all hybrids that were virtually identical to those of inbreds CL111 and CL152.

Table 2. Hybrid Advanced Yield Trials at the H. Rouse Caffey Rice Research Station (RRS), Vermilion (VP), and St. Landry (SLP) locations, 2015.

	Yield (lb/A) - Main Crop				
Hybrid /Inbred	RRS	VP	SLP	Mean	Stability (C.V.)*
CLXL729	10,851	9,739	11,149	10,580	0.07
XL760	9,918	10,493	10,707	10,372	0.04
09A/R608	9,068	11,437	8,910	9,805	0.14
XL753	9,750	9,801	9,627	9,726	0.01
CLXL745	8,480	10,660	9,010	9,383	0.12
LAH169	9,495	9,090	9,105	9,230	0.02
CLH161	8,646	9,651	8,020	8,772	0.09
CL152	7,786	6,620	7,789	7,398	0.09
CL111	7,836	6,710	5,830	6,792	0.15

*Coefficient of variation. The smallest value corresponds to the greatest level of stability across locations.

Table 3. Head rice and total rice percentage at the H. Rouse Caffey Rice Research Station (RRS), Vermilion (VP), and St. Landry (SLP) locations, 2015.

	Head Rice % / Total Rice % – Main Crop				
Hybrid /Inbred	RRS	VP	SLP	Mean	Stability (C.V.)*
CL111	66/73	66/74	62/70	65/72	0.01
CL152	68/76	67/74	67/71	67/74	0.03
LAH169	67/74	67/75	66/71	67/73	0.02
CLH161	66/74	63/65	66/71	65/70	0.04
09A/R608	63/72	66/72	62/67	64/70	0.03
CLXL729	67/73	67/72	68/71	67/72	0.02
CLXL745	60/64	66/75	67/71	64/70	0.04
XL753	67/74	66/74	65/70	66/72	0.02
XL760	67/73	69/73	66/70	67/72	0.02

*Coefficient of Variation. The smallest value corresponds to the greatest level of stability across locations.

Uniform Regional Rice Nursery

The Uniform Regional Rice Nursery (URRN) is a multi-state, cooperative trial carried out each year in the southern United States to evaluate agronomic performance of advanced inbred and hybrid lines. Table 4 shows vigor rating, heading date, height, and grain yield for conventional, medium-grain hybrid LAH10 and seven commercial inbred varieties in the 2015 URRN conducted at the RRS. LAH10 was the top entry for yield in the 2015 URRN. LAH10 yield was 18% higher vs. mean yield of all inbreds and 15% higher than CL151. Seedling vigor of LAH10 was similar to the four inbreds tested. Heading date of LAH10 was identical to CL152. Height of LAH10 was 12 inches taller vs. mean of all commercial varieties.

Table 4. Uniform Regional Rice Nursery (URRN), H. Rouse Caffey Rice Research Station (RRS), 2015.

Hybrid/Inbred	Vigor*	Heading Date (days)	Height (inches)	Main Crop Yield (lb/A)
LAH10	4	91	49	11,264
CL151	4	87	36	9,634
Jupiter	5	88	37	9,547
CL271	4	86	38	9,529
CL111	3	86	38	9,517
Mermentau	3	86	35	9,446
Cheniere	4	85	37	9,047
CL152	4	91	37	8,055

* Vigor rating; where 1 = dense stand, 5 = thin stand.

Table 5a shows results of the 2015 URRN conducted by Dr. Xueyan Sha, rice breeder at RREC, Stuttgart, AR. Hybrid LAH169 was the top entry for yield that showed a 10% yield advantage over the mean of the five commercial inbreds. Heading date of LAH169 was 3 to 9 days earlier and 6 inches taller than the mean of the varieties. Vigor ratings of LAH169 were identical to Jupiter, CL151, and CL152. Head rice yield of LAH169 was high and similar to those of the five commercial inbreds.

Table 5a. Arkansas Uniform Regional Rice Nursery (URRN) at Stuttgart, 2015.*

Hybrid/Inbred	Heading Date (days)	Height (inches)	Vigor†	Head Rice (%)	Total Rice (%)	Mean Yield (lb/A)
LAH169	92	48	5	61.6	69.6	10,706
Lakast	95	46	4	61.5	68.8	10,437
Jupiter	97	37	5	67.1	68.0	9,949
CL111	97	44	4	66.8	69.8	9,911
CL151	96	41	5	66.5	69.5	9,035
CL152	101	40	5	70.5	74.1	8,659

*Trial conducted by Dr. Xueyan Sha, rice breeder at RREC, Stuttgart, AR.
†Vigor rating; where 1 = dense stand, 5 = thin stand.

Dr. Xueyan Sha also evaluated hybrids CLH161, 09A/R608, and eight inbreds at three Arkansas locations in 2015 as shown in Table 5b. CLH161 was the top entry for yield across locations and was 15% higher than the mean of the eight inbreds in this trial. Heading date of CLH161 was 0 to 4 days earlier than the inbreds and 10 inches taller than the mean of inbreds.

Table 5b. Arkansas Advanced Yield Trial at Colt, Stuttgart, and Keiser locations, 2015.*

Hybrid/Inbred	Heading Date (days)	Height (inches)	Yield (lb/A) – Main Crop			
			Colt	Stuttgart	Keiser	Mean
CLH161	79	50	9,746	10,857	10,744	10,449
Lakast	80	44	9,415	9,813	10,109	9,779
CL111	82	38	8,006	8,517	9,657	8,727
09A/R608	87	51	7,155	9,377	9,987	8,840
CL151	82	41	7,636	9,092	9,655	8,794
Jupiter	82	38	8,006	8,517	9,657	8,727
CL152	83	104	7,661	8,885	7,734	8,093
CHNR/4/CPRS/9502008-A/3/…	83	104	9,152	9,404	8,332	8,962
NPTN//BNGL/CL161	82	100	7,748	8,996	9,972	8,905
CYBT/LM1//CHNR/3/RU0901102	79	111	8,738	8,547	9,388	8,891

*Trial conducted by Dr. Xueyan Sha, rice breeder at RREC, Stuttgart, AR.

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, 2015. The total number of single-row plots for this trial was 2,510. Testcrosses consisted of F_1 seeds derived from introduced Chinese male sterile lines mated with elite LA long-grain or Chinese genotypes in 2014. A total of 78 candidate hybrids produced >10% higher yields than the inbred check CL111. Fourteen hybrid selections produced greater yields than the commercial check XL753. Results from two selected hybrids and four check varieties are shown in Table 6a. The two new Clearfield, long-grain hybrids showed high yield potential with good height, intermediate maturity, minimal lodging, high head rice yields, and stable grain dimensions. Specifically, hybrids 15TC150 and 15TC147 produced grain yields that were 34 and 31% higher than the mean yield of CL111 and CL152, respectively. 15TC150 produced a similar yield to XL753 and 2,052 lb/A greater yield than XL745

while 15TC147 showed a 1,580 lb/A yield advantage over XL745. Heading dates of 15TC147 and 15TC150 were zero to six days later than the two Clearfield varieties and 2 to 11 days later than XL745 and XL753. Plant heights of the two LA hybrids were 2 to 6 inches taller than the Clearfield varieties and 0 to 2 inches shorter than the two commercial hybrids. Lodging of all hybrids was minimal except for XL745 that was moderate. Table 6b shows high head rice yields of all hybrids that were similar to CL111 and CL152 and stable seed dimensions for all hybrids and inbred varieties. Chalk percentage of milled rice as measured by Winseedle measurements was relatively high. This may have been due to high temperatures in July during the grain filling period.

Table 6a. 2015 Observational (Testcross) Trial, H. Rouse Caffey Rice Research Station (RRS), 2015.

Hybrid/Inbred	Pedigree	Days to 50% Heading	Height (inches)	Yield (lb/A)	Lodge (0-5)*
15TC150	14S401/14XB072	97	44	10,995	0
XL753	?	92	47	10,888	1.1
15TC147	14S401/14XB042	94	45	10,523	0
XL745	?	86	45	8,943	2.5
CL111	CL111	91	42	7,693	1.6
CL152	CL152	94	39	6,881	0

*Lodge rating; where 0 = no lodging, 5 = all plants lodged.

Table 6b. Observational (Testcross) Trial, H. Rouse Caffey Rice Research Station (RRS), 2015.

Hybrid/ Inbred	Pedigree	Head Rice /Total	Chalk (%)*	Seed Length (mm)	Length Stability (C.V.)†	Seed Width (mm)	Width Stability (C.V.)†
15TC150	14S401/14XB072	70/76	13.7	6.7	0.049	2.2	0.047
XL753	?	63/77	20.0	6.9	0.049	2.2	0.042
15TC147	14S401/14XB042	66/69	14.5	6.6	0.068	2.1	0.043
XL745	?	69/79	15.4	7.0	0.063	2.2	0.057
CL111	CL111	70/77	14.8	6.9	0.063	2.2	0.051
CL152	CL152	70/77	12.0	6.6	0.054	2.0	0.049

*Chalk percentage by area determined by Winseedle.
†Coefficient of Variation. The smallest value corresponds to the greatest level of stability across locations.

In general, hybrids showed high levels of resistance against leaf blast and sheath blight in EP, JDP, and VP locations (Table 7). As a group, hybrids showed relatively high levels of leaf blast resistance with a mean disease rating of 1.3 across locations compared to a mean of 4.3 for inbreds CL111, CL151, and CL152. The hybrids showed somewhat higher levels of sheath blight resistance at JDP and VP locations with a mean rating of 2.3 vs. 3.8 for the three Clearfield varieties. Ratings for bacterial panicle blight reflected high levels of tolerance for all except CL151 that was considered moderately susceptible.

Table 7. Ratings for leaf blast, sheath blight, and bacterial panicle blight at Evangeline (EP), Jefferson Davis (JDP), and Vermilion Parish (VP) locations, Commercial-Advanced Yield Trial, 2015.

	---------------Leaf Blast*---------------			----Sheath Blight*----		Bacterial Panicle Blight*
Hybrid/Inbred	EP	JDP	VP	JDP	VP	EV
LAH169	1	0	2	5	1	1
CLH161	1	1	2	5	2	1
09A/R608	0	0	1	2	1	0
CLXL729	2	0	3	4	1	2
CLXL745	2	1	2	3	1	1
XL753	1	1	2	4	0	1
XL760	2	1	2	3	0	1
CL151	4	6	4	5	3	4
CL111	6	4	4	7	7	1
CL152	3	5	3	6	3	2

*Disease ratings; where 1 = most resistant, 9 = most susceptible.

Genetic Studies of Resistance to Quizalofop-p-Butyl Herbicide

The RRS is currently developing inbred and hybrid varieties that are resistant to the quizalofop-p-butyl (Provisia) 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 and 9 show segregation of resistance to quizalofop-p-butyl in the greenhouse and field for seven F_2 populations from single and reciprocal crosses. Results across all populations 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. All reciprocal crosses indicate that maternal factors had no impact on the segregation or level of resistance to quizalofop-p-butyl.

Table 8. Segregation and chi-square analyses of seedling resistance in the greenhouse to quizalofop-p-butyl in seven F_2 populations from single and reciprocal crosses.

F_2 Population	Cross	Plant Number		Percentage		Pr of Chi-Sq	Interpretation
		R	S	R	S		
13HT1-2	Cocodrie/BASF 1-8	175	65	73	27	0.456	Fit 3:1
13HT21-6	BASF 1-8/Cocodrie	191	79	71	29	0.106	Fit 3:1
13HT9-4	Cheniere/BASF 1-15	195	75	72	28	0.291	Fit 3:1
13HT30-4	BASF 1-15/Cheniere	195	75	72	28	0.291	Fit 3:1
13HT16-5	Mermentau/BASF 1-8	202	68	75	25	0.944	Fit 3:1
13HT23-2	BASF 1-8/Mermentau	204	66	76	24	0.833	Fit 3:1
13HT13-2	Catahoula/BASF 1-14	197	73	73	27	0.439	Fit 3:1

Table 9. Segregation and chi-square analyses of seedling resistance at H. Rouse Caffey Rice Research Station (RRS) location to quizalofop-p-butyl in seven F_2 populations from single and reciprocal crosses, 2015.

F_2 Population	Cross	Plant Number		Percentage		Pr of Chi-Sq	Interpretation
		R	S	R	S		
13HT1-2	Cocodrie/BASF 1-8	88	40	69	31	0.102	Fit 3:1
13HT21-6	BASF 1-8/Cocodrie	57	27	68	32	0.130	Fit 3:1
13HT9-4	Cheniere/BASF 1-15	60	29	67	33	0.098	Fit 3:1
13HT30-4	BASF 1-15/Cheniere	108	44	71	29	0.261	Fit 3:1
13HT16-5	Mermentau/BASF 1-8	59	16	79	21	0.463	Fit 3:1
13HT23-2	BASF 1-8/Mermentau	96	42	70	30	0.140	Fit 3:1
13HT13-2	Catahoula/BASF 1-14	115	43	73	27	0.520	Fit 3:1

DNA marker technology was developed in 2014 and 2015 for rapid development of elite material resistant to quizalofop-p-butyl. Tables 10 and 11 show segregation of DNA markers and correspondence to quizalofop-p-butyl plant resistance in the greenhouse in nine F_2 populations under greenhouse and field conditions.

Table 10. Segregation and chi-square analyses of DNA markers and correspondence to quizalofop-p-butyl plant resistance in the greenhouse in four F_2 populations, 2015.

F_2 Population	Cross	Plant Number			Percentage			Pr of Chi-Sq	Interpretation	DNA Marker/ Herbicide Resistance Correspondence
		R	Het	S	R	Het	S			
13TC624	13S-210-2/HT-4	11	12	5	39	43	18	0.207	Fit 1:2:1	90%
13TC663	13S-615-2/HT-3	7	13	9	24	45	31	0.745	Fit 1:2:1	100%
13TC665	13S-633-2/HT-1	6	14	10	20	47	33	0.548	Fit 1:2:1	93%
13HT31	BASF 1-15/R609	9	11	10	30	37	33	0.332	Fit 1:2:1	97%

Table 11. Segregation and chi-squared analyses of DNA markers and correspondence to quizalofop-p-butyl plant resistance at H. Rouse Caffey Rice Research (RRS) location for five F_2 populations from single crosses, 2015.

F_2 Population	Cross	Plant Number		Percentage		Pr of Chi-Sq	Interpretation	DNA Marker/ Herbicide Resistance Correspondence
		Het	Hom	Het	Hom			
13BT029	CPRS/BASF 2-26	17	12	59	41	0.337	Fit 2:1	97%
13BT 033	CHNR/BASF 1-2	18	7	72	28	0.595	Fit 2:1	87%
13BT047	CHNR/BASF 1-5	17	11	61	39	0.479	Fit 2:1	93%
13BT057	CHNR/3/NWBT/KATY// 9902207X2/4/BASF2-21	23	6	79	21	0.158	Fit 2:1	97%
13BT059	CHNR//CCDR/JEFF/3/ BASF 2-26	21	7	75	25	0.368	Fit 2:1	93%

Table 12 shows segregation of DNA markers and correspondence to quizalofop-p-butyl plant resistance in six BC_1F_1 and reciprocal crosses. DNA markers fit expected 1:1 ratio in backcross population for a single gene with high correspondence between markers and resistance to quizalofop-p-butyl.

Table 12. Segregation and chi-square analyses of DNA markers and correspondence to quizalofop-p-butyl plant resistance in six BC_1F_1 and reciprocal crosses.

BC_1F_1 Population	Cross	Plant Number		Percentage		Pr of Chi-Sq	Interpretation	DNA Marker/ Herbicide Resistance Correspondence
		Het	Hom	Het	Hom			
14HT1	CCDR/BASF2-31//CCDR	5	9	36	64	0.285	Fit 1:1	93%
14HT2	BASF2-31/CCDR//CCDR	5	8	38	62	0.405	Fit 1:1	100%
14HT5	CTHL/BASF1-14//CTHL	9	4	69	31	0.165	Fit 1:1	86%
14HT6	MRMT/BASF1-8//MRMT	7	7	50	50	1.000	Fit 1:1	100%
14HT7	BASF18/MRMT//MRMT	9	5	64	36	0.285	Fit 1:1	86%
14HT8	BASF1-15/R609//R609	5	9	36	64	0.285	Fit 1:1	79%

DNA Marker Technology for Grain Chalk and Hybrid Seed Fertility

High incidence of grain chalk will reduce U.S. rice quality for farmers, millers, and traders resulting in significant export decline and revenue loss. Chalky grain is considered a complex trait controlled by numerous genes that interact strongly with different environmental factors, such as high temperature during the grain filling period. Numerous DNA markers and genes have been reported in literature to be associated with chalky grain. During the last three years, we have conducted genetic studies in Louisiana and Arkansas to identify several candidate DNA markers associated with low chalk in breeding lines and varieties adapted to the southern U.S. growing conditions. These markers have shown good predictive ability in a large breeding population and several elite U.S. varieties. Additional evaluation of the selected markers across a wide range of lines and varieties are planned for 2016.

Seed fertility is clearly an important characteristic that determines grain yield potential of hybrids. Multiple studies by various researchers over the years have identified specific genetic factors that may influence seed fertility in hybrids. During studies in 2014 and 2015, we evaluated the potential of the S5 locus to affect seed fertility in hybrids. To date, we have found in 30 plus hybrids that the S5i/S5n genotype produced the highest mean spikelet fertility. Whereas, genotypes that were homozygous for S5n or S5i alleles showed substantial reduction in seed fertility. Additional hybrid combinations will be evaluated in 2016 to determine the potential utility of the S5 locus to assist in selection of hybrids with high yield potential.

Development of Sheath Blight-Resistant Lines

Rice sheath blight disease is a major constraint to high grain yields and good milling quality with no commercial inbred varieties showing high levels of resistance. The objective of our research is to develop sheath blight-resistant rice with desirable height and maturity from multiple sources by leveraging DNA marker technology with inoculated field trials at the RRS. A total of 870 early generation and advanced lines were tested in inoculated field plots in 2015. Using a combination of 30 DNA markers, field disease ratings, and selection of appropriate height and maturity, a total of seven advanced sheath blight-resistant lines were selected for future crosses and evaluation. A total of 541 crosses for sheath blight resistance were made in 2015, and 45 backcross (BC) populations were advanced.

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

H.S. Utomo and S.D. Linscombe

1. Yield Trials

Yield trials were conducted to evaluate advanced lines developed from marker-assisted selections at the H. Rouse Caffey Rice Research Station, Crowley, LA. 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 (Table 1).

Table 1. Agronomic performance of advanced marker-assisted breeding lines in the 2015 field trials. H. Rouse Caffey Rice Research Station, Crowley, LA, 2015.

Entry	Line ID	VIG[1]	HDT	HTE	YIELD	DNA Marker Analysis for Amylose Content	DNA Marker Analysis for Amylose ALK
15HUV 001	05MB081	5.8	180.5	109.4	9,891.4	High Amylose	High/Intermediate GT
15HUV 002	05MB172	6.0	186.7	110.0	6,903.0	High Amylose	High/Intermediate GT
15HUV 003	05MB240	6.2	181.6	103.7	9,829.3	High Amylose	High/Intermediate GT
15HUV 004	05MB383	5.2	178.2	112.9	9,217.5	High Amylose	High/Intermediate GT
15HUV 005	05MB410	6.0	186.7	109.4	9,500.4	High Amylose	High/Intermediate GT
15HUV 006	05MB483	5.2	177.1	99.0	10,772.9	High Amylose	High/Intermediate GT
15HUV 007	05MB476	6.2	180.7	101.0	9,091.4	High Amylose	High/Intermediate GT
15HUV 008	05MB648	7.2	181.2	103.7	9,025.1	High Amylose	High/Intermediate GT
15HUV 009	05MB888	6.2	181.6	107.0	8,304.0	High Amylose	High/Intermediate GT
15HUV 010	06MB011	6.4	179.2	99.0	8,723.1	High Amylose	High/Intermediate GT
15HUV 011	06MB071	5.5	180.5	109.4	9,012.0	High Amylose	High/Intermediate GT
15HUV 012	06MB076	6.0	179.2	96.6	9,436.5	High Amylose	High/Intermediate GT
15HUV 013	06MB148	6.2	180.2	83.7	9,025.1	High Amylose	High/Intermediate GT
15HUV 014	07MB183	4.1	183.6	91.1	8,463.3	High Amylose	High/Intermediate GT
15HUV 015	07MB214	6.2	176.3	88.3	8,464.0	High Amylose	High/Intermediate GT
15HUV 016	07MB281	6.2	180.5	88.3	7,598.0	High Amylose	High/Intermediate GT
15HUV 017	07MB374	6.2	186.7	96.6	9,156.2	High Amylose	High/Intermediate GT
15HUV 018	07MB289	5.5	177.3	89.0	8,757.0	High Amylose	High/Intermediate GT
15HUV 019	08MB188	4.1	183.6	96.8	8,211.9	High Amylose	High/Intermediate GT
15HUV 020	09MB211	5.2	185.0	93.9	8,003.0	High Amylose	High/Intermediate GT
15HUV 021	09MB281	6.0	180.2	98.0	9,597.6	High Amylose	High/Intermediate GT
15HUV 022	09MB375	6.2	186.0	102.7	9,102.0	High Amylose	High/Intermediate GT
15HUV 023	09MB648	6.2	181.6	83.7	9,650.6	High Amylose	High/Intermediate GT
15HUV 024	09MB488	7.2	180.0	91.1	9,049.9	High Amylose	High/Intermediate GT

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

2. Head-row Selections

Selections for high yielding lines with good growth characteristics and disease resistance were conducted in head-row trials. Performance of some selected lines is presented in Table 2. In addition, marker-assisted breeding efforts continue 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 2. Agronomic performance of new selected lines from marker-assisted breeding in the 2015 field trials. H. Rouse Caffey Rice Research Station, Crowley, LA, 2015.

No.	Plant ID	Blast genes	Grain type§	Vigor¶	Plant height (cm)	Heading date	Row yield (g)	Amylose Content	Gel Temp
1	11F103	Pi-ta^2,Pi-b	L	2	87	92	825	Int Am	Int Gel
2	11F148	Pi-ta^2,Pi-b	L	3	73	94	750	Int Am	Int Gel
3	11F156	Pi-ta^2,Pi-b	L	2	83	85	715	Int Am	Int Gel
4	11F157	Pi-ta^2,Pi-b	L	4	81	99	648	Int Am	Int Gel
5	11F166	Pi-ta^2,Pi-b	L	1	80	89	608	Int Am	Int Gel
6	11F167	Pi-ta^2,Pi-b	L	3	82	81	514	Int Am	Int Gel
7	11F169	Pi-ta^2,Pi-b	L	1	85	85	563	Int Am	Int Gel
8	11F176	Pi-ta^2,Pi-b	L	1	79	95	717	Int Am	Int Gel
9	11F179	Pi-ta^2,Pi-b	L	2	83	94	584	Int Am	Int Gel
10	11F180	Pi-ta^2,Pi-b	L	4	80	96	797	Int Am	Int Gel
11	11F235	Pi-ta^2,Pi-b	L	1	74	89	863	Int Am	Int Gel
12	11F237	Pi-ta^2,Pi-b	L	2	73	85	849	Int Am	Int Gel
13	11F238	Pi-ta^2,Pi-b	L	1	76	82	546	Int Am	Int Gel
14	11F240	Pi-ta^2,Pi-b	L	2	78	86	583	Int Am	Int Gel
15	11F245	Pi-ta^2,Pi-b	L	1	78	76	756	Int Am	Int Gel
16	11F247	Pi-ta^2,Pi-b	L	1	80	78	538	Int Am	Int Gel
17	11F252	Pi-ta^2,Pi-b	L	3	81	84	647	Int Am	Int Gel
18	11F256	Pi-ta^2,Pi-b	L	2	76	79	553	Int Am	Int Gel
19	11F259	Pi-ta^2,Pi-b	L	2	78	81	639	Int Am	Int Gel
20	11F270	Pi-ta^2,Pi-b	L	2	76	68	566	Int Am	Int Gel
21	11F277	Pi-ta^2,Pi-b	L	1	77	81	687	Int Am	Int Gel
22	11F278	Pi-ta^2,Pi-b	L	1	75	92	608	Int Am	Int Gel
23	11F279	Pi-ta^2,Pi-b	L	2	91	84	642	Int Am	Int Gel
24	11F413	Pi-ta^2,Pi-b	L	1	88	71	584	Int Am	Int Gel
25	11F425	Pi-ta^2,Pi-b	L	2	90	87	607	Int Am	Int Gel
26	11F476	Pi-ta^2,Pi-b	L	1	81	94	716	Int Am	Int Gel
27	11F488	Pi-ta^2,Pi-b	L	3	85	92	800	Int Am	Int Gel
28	11F499	Pi-ta^2,Pi-b	L	1	90	91	597	Int Am	Int Gel
29	11F675	Pi-ta^2,Pi-b	L	3	84	88	687	Int Am	Int Gel
30	11R487	Pi-ta^2,Pi-b	L	3	83	83	872	Int Am	Int Gel
31	11F235	Pi-ta^2,Pi-b	L	1	82	83	697	Int Am	Int Gel
32	11F831	Pi-ta^2,Pi-b	L	1	82	94	687	Int Am	Int Gel
33	11F837	Pi-ta^2,Pi-b	L	1	81	80	447	Int Am	Int Gel
34	11F839	Pi-ta^2,Pi-b	L	4	79	74	572	Int Am	Int Gel
35	11F840	Pi-ta^2,Pi-b	L	2	82	81	814	Int Am	Int Gel
36	11F845	Pi-ta^2,Pi-b	L	2	78	80	477	Int Am	Int Gel
37	11F846	Pi-ta^2,Pi-b	L	1	80	82	565	Int Am	Int Gel
38	11F853	Pi-ta^2,Pi-b	L	2	80	77	752	Int Am	Int Gel
39	11F856	Pi-ta^2,Pi-b	L	1	79	85	722	Int Am	Int Gel
40	11F859	Pi-ta^2,Pi-b	L	3	80	80	773	Int Am	Int Gel
41	11F871	Pi-ta^2,Pi-b	L	2	77	80	558	Int Am	Int Gel
42	11F877	Pi-ta^2,Pi-b	L	2	76	76	763	Int Am	Int Gel
43	11F878	Pi-ta^2,Pi-b	L	1	84	79	658	Int Am	Int Gel
44	11F879	Pi-ta^2,Pi-b	L	2	79	77	736	Int Am	Int Gel
45	11F814	Pi-ta^2,Pi-b	L	4	78	90	691	Int Am	Int Gel
46	11F825	Pi-ta^2,Pi-b	L	2	86	85	564	Int Am	Int Gel
47	11F977	Pi-ta^2,Pi-b	L	1	88	78	444	Int Am	Int Gel
48	11F988	Pi-ta^2,Pi-b	L	1	80	81	646	Int Am	Int Gel
49	11F999	Pi-ta^2,Pi-b	L	2	81	87	773	Int Am	Int Gel
50	11F975	Pi-ta^2,Pi-b	L	1	87	86	645	Int Am	Int Gel

§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 the next growing season are listed in Table 3.

Table 3. Agronomic performance of lines selected for yield, grain homogeneity, and percentage of chalk. H. Rouse Caffey Rice Research Station, Crowley, LA, 2015.

Lines	**Grain type**[§]	**Yield (row)**	**Grain homogeneity**[¶]	**% Chalk**	**Amylose Content**	**Gel Temp**	**Blast**
10R-0964	L	825	8.5	11	High	Intermediate	Pita, Pib
10R-0978	L	750	8.2	10	High	Intermediate	Pita, Pib
10R-1241	L	715	8.5	5	Intermediate	Low	Pib
10R-1262	L	648	8.2	11	High	Intermediate	Pita
10R-1366	L	608	8.5	5	High	Intermediate	Pita, Pib
10R-1465	L	514	8.1	4	High	Intermediate	Pita
10R-1477	L	563	8.9	4	Intermediate	Low	Pita, Pib
10R-1588	L	717	8.0	10	High	Low	Pita, Pi-z
10R-1798	L	584	8.2	7.5	High	Intermediate	Pita, Pib
10R-1877	L	797	9.5	5.5	Intermediate	Intermediate	Pita
10R-2178	L	463	9.0	5	High	Intermediate	Pita
11R-100	L	549	8.9	1	High	Intermediate	Pib, Piz
11R-129	L	546	9.3	1	Intermediate	Intermediate	Pita, Pib
11R-139	L	583	9.0	3	High	Intermediate	Pita
11R-192	L	523	9.5	9	High	Intermediate	Pita
11R-256	L	617	9.0	5	High	Intermediate	Pita
11R-364	L	575	9.0	12	High	Intermediate	Pita, Pib
11R-444	L	724	8.2	8	High	Low	Pita, Pib
11R-468	L	734	8.5	4	High	Intermediate	Pita, Pib
11R-500	L	549	8.9	1	High	Intermediate	Pib, Piz
11R-529	L	562	9.3	1	Intermediate	Intermediate	Pita, Pib
11R-539	L	610	9.0	2	High	Intermediate	Pita
11R-592	L	539	9.5	9	High	Intermediate	Pita
11R-656	L	636	9.0	5	High	Intermediate	Pita
11R-664	L	592	9.0	12	High	Intermediate	Pita, Pib
11R-744	L	746	8.2	8	High	Low	Pita, Pib
11R-768	L	756	8.5	4	High	Intermediate	Pita, Pib
11R-800	L	565	8.9	1	High	Intermediate	Pib, Piz
11R-829	L	562	9.3	1	Intermediate	Intermediate	Pita, Pib
11R-139	L	500	9.0	2	High	Intermediate	Pita
11R-892	L	502	9.5	9	High	Intermediate	Pita
11R-856	L	592	9.0	5	High	Intermediate	Pita
11R-864	L	552	9.0	2	High	Intermediate	Pita, Pib
11R-944	L	695	8.2	8	High	Low	Pita, Pib
11R-968	L	705	8.5	4	High	Intermediate	Pita, Pib
11R-1029	L	524	9.3	1	Intermediate	Intermediate	Pita, Pib
11R-1039	L	560	9.0	2	High	Intermediate	Pita
11R-1092	L	502	9.5	9	High	Intermediate	Pita
11R-1256	L	592	9.0	5	High	Intermediate	Pita
11R-1295	L	524	9.3	1	Intermediate	Intermediate	Pita, Pib
11R-1391	L	583	9.0	2	High	Intermediate	Pita
11R-1921	L	523	9.5	2	High	Intermediate	Pita
11R-2561	L	617	9.0	5	High	Intermediate	Pita
11R-2864	L	575	9.0	11	High	Intermediate	Pita, Pib

[§] L= Long grain; [¶] Subjective rating 0 to 10, where 0 = poor, 10 = excellent.

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

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

1. Yield Trials.

Advanced high protein lines were evaluated at the H. Rouse Caffey Rice Research Station plots. Important phenotypic data, including grain yield (main crop and in some occasions ratoon crop), were collected. Table 1 is the summary of mean performance of five high-protein rice lines together with three conventional cultivar checks evaluated. The protein content of each line tested was measured using the N Combustion Analyzer with the sample digestion temperature of 850 to 1,200°C.

Table 1. Field performance of high-protein rice lines and their cultivar controls tested at the H. Rouse Caffey Rice Research Station, Crowley, LA.

Entry	Pedigree	EDT	VIG[1]	HDT	HTE	LDG	Yield (lb/A)
15IDE 001	07P360051	97.4	4.9	177.2	97.4	0.8	9,617.1
15IDE 002	07P112074	98.2	5.2	178.0	98.8	24.1	9,057.2
15IDE 003	07P201571	94.6	5.6	169.3	100.9	33.6	8,901.9
15IDE 004	08P230027	98.3	7.3	183.2	102.5	23.6	10,399.0
15IDE 005	09P112009	97.6	6.4	172.9	98.3	18.5	9,564.1
15IDE 006	CPRS	98.0	5.4	184.4	104.5	25.3	8,999.7
15IDE 007	CCDR	98.6	5.2	181.1	101.2	19.6	8,906.5
15ID 008	FRNS	97.9	5.7	189.8	108.9	43.6	9,500.3

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

2. Grain Quality of High-Protein Rice Lines.

Important rice grain quality components including milling quality, percent chalk, grain appearance, grain shape, and homogeneity of the grain size and dimension were evaluated among advanced high-protein rice lines. In addition, advanced promising high-protein rice lines were evaluated for their grain quality as well as their cooking quality (Tables 2 and 3).

Table 2. Alkali rating to estimate the gelling temperature of high-protein rice lines compared with medium-grain Bengal, and long grains Cheniere, Cypress, HDLG, and Dixiebelle.

Cell	Sample #	Seed # (Alkali Ratings)[1]						Average	Gel Temp[2]
		1	2	3	4	5	6		
A1	BNGL	6	6	6	6	6	6	6.0	Low
A2	CHNR	4	3	3	4	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	4	3	3	3.6	Intermediate-high
B1	14-IL-HP-01	6	5	5	7	5	7	5.8	Low
B2	14-IL-HP-01	5	1	5	7	7	7	5.3	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

[1] The degree of spreading was determined by incubating six grains of milled rice in 10 ml of 1.7% KOH for 24 hours at 30°C using a seven-point score (7=completely spread, and 1=no reaction).

[2] 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 3. Grain quality index among advanced promising high-protein rice lines.

Entry	Pedigree	Whole	Total	Grain Shape Homogeneity	% Chalk	Gel Temp	Amylose Content
15IDE 001	07P360051	66.2	71.2	8.6	7	Intermediate-high	24.70
15IDE 002	07P112074	61.2	70.5	8.4	5	Intermediate	20.87
15IDE 003	07P201571	59.7	65.1	8.0	9	Intermediate-high	23.52
15IDE 004	08P230027	59.4	68.5	8.2	8	Intermediate	20.09
15IDE 005	09P112009	58.1	68.1	9.3	12	Intermediate-high	20.13
15IDE 006	CPRS	66.1	71.7	8.0	10	Intermediate-high	21.02
15IDE 007	CCDR	61.5	70.0	8.1	9	Intermediate-high	24.29

3. Performance of Selected High-Protein Rice Lines in Replicated Head Row Trials at the H. Rouse Caffey Rice Research Station, Crowley, LA.

Prior to Preliminary Yield trials, promising lines were tested in replicated head row trials to determine their yield potential and other important traits. Combined 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 below in Table 4 shows the results from the replicated head row trials.

Table 4. Performance of 100 high-protein lines in replicated head row trials at the H. Rouse Caffey Rice Research Station, Crowley, 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	22	11R5084pan8	0.121	1.71	10.7
2	11R5202pan1	0.118	1.68	10.5	23	11R-5188-pan7	0.111	1.71	10.7
3	11R5242pan6	0.113	1.68	10.5	24	11R5198pan4	0.117	1.71	10.7
4	11R-5621-pan3	0.113	1.68	10.5	25	11R5243pan7	0.114	1.71	10.7
5	11R-5022pan2	0.112	1.69	10.6	26	11R5245pan11	0.116	1.71	10.7
6	11R5070pan1	0.120	1.69	10.6	27	11R5249pan5	0.117	1.71	10.7
7	11R-5113pan1	0.116	1.69	10.6	28	11R5603pan11	0.112	1.71	10.7
8	11R-5162-pan6	0.116	1.69	10.6	29	11R5614pan2	0.124	1.71	10.7
9	11R5183pan9	0.114	1.69	10.6	30	11R5616pan3	0.119	1.71	10.7
10	11R5193pan4	0.117	1.69	10.6	31	11R5638pan14	0.116	1.71	10.7
11	11R5196pan3	0.108	1.69	10.6	32	11R5264pan1	0.114	1.72	10.8
12	11R5551pan13	0.112	1.69	10.6	33	11R-5326pan3	0.118	1.72	10.8
13	11R-5024pan5	0.115	1.7	10.6	34	11R5641pan7	0.118	1.72	10.8
14	11R5088pan3	0.120	1.7	10.6	35	11R5237pan7	0.119	1.73	10.8
15	11R5195pan5	0.117	1.7	10.6	36	11R-5026pan7	0.110	1.74	10.9
16	11R5197pan1	0.120	1.7	10.6	37	11R5202pan3	0.114	1.74	10.9
17	11R5218pan13	0.115	1.7	10.6	38	11R5506pan7	0.123	1.74	10.9
18	11R5218pan6	0.114	1.7	10.6	39	11R5638pan13	0.113	1.74	10.9
19	11R5222pan6	0.115	1.7	10.6	40	11R-5009pan5	0.112	1.75	10.9
20	11R5568pan1	0.133	1.7	10.6	41	11R-5403pan2	0.118	1.75	10.9
21	11R-5619-pan3	0.117	1.7	10.6	42	11R-5609-PAN2	0.113	1.75	10.9

Continued.

Table 4. Continued.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
43	11R5611pan3	0.116	1.75	10.9	72	11R-5161-pan1	0.114	1.82	11.4
44	11R5203pan2	0.120	1.76	11.0	73	11R5180pan1	0.118	1.82	11.4
45	11R5242pan5	0.113	1.76	11.0	74	11R5298pan3	0.119	1.84	11.5
46	11R5243pan16	0.113	1.76	11.0	75	11R5298pan1	0.116	1.85	11.6
47	11R5296pan6	0.115	1.76	11.0	76	11R-5442pan3	0.115	1.85	11.6
48	11R-5328pan1	0.118	1.76	11.0	77	11R5218pan11	0.115	1.86	11.6
49	11R-5444pan3	0.111	1.76	11.0	78	11R-5434pan2	0.117	1.86	11.6
50	11R5566pan7	0.117	1.76	11.0	79	11R5558pan1	0.127	1.87	11.7
51	11R-5170	0.118	1.77	11.1	80	11R5577pan1	0.118	1.87	11.7
52	11R5210pan6	0.120	1.77	11.1	81	11R-5021pan4	0.115	1.88	11.8
53	11R5242pan9	0.113	1.77	11.1	82	11R5183pan7	0.116	1.88	11.8
54	11R-5427pan3	0.113	1.77	11.1	83	11R5245pan12	0.095	1.89	11.8
55	11R5571pan3	0.115	1.77	11.1	84	11R5222pan9	0.110	1.90	11.9
56	11R5182pan4	0.121	1.78	11.1	85	11R5203pan12	0.094	1.91	11.9
57	11R5296pan7	0.114	1.78	11.1	86	11R-5043pan7	0.112	1.92	12.0
58	11R5554pan1	0.115	1.78	11.1	87	11R5177pan10	0.107	1.92	12.0
59	11R-5135pan3	0.116	1.79	11.2	88	11R5574pan2	0.112	1.92	12.0
60	11R5577pan3	0.120	1.79	11.2	89	11R5069pan2	0.112	1.93	12.1
61	11R5151pan7	0.094	1.80	11.3	90	11R5181pan8	0.121	1.93	12.1
62	11R5202pan6	0.120	1.80	11.3	91	11R-5200pan9	0.117	1.93	12.1
63	11R5298pan2	0.117	1.80	11.3	92	11R5211pan10	0.128	1.94	12.1
64	11R-5548pan2	0.094	1.80	11.3	93	11R5212pan1	0.124	1.94	12.1
65	11R5581pan4	0.131	1.80	11.3	94	11R5232pan5	0.087	1.98	12.4
66	11R-5637-pan1	0.115	1.80	11.3	95	11R5554pan2	0.120	1.99	12.4
67	11R5213pan2	0.110	1.81	11.3	96	11R5069pan10	0.120	2.00	12.5
68	11R5296pan10	0.115	1.81	11.3	97	11R5062pan1	0.120	2.02	12.6
69	11R-5408pan4	0.100	1.81	11.3	98	11R-5417pan2	0.087	2.02	12.6
70	11R-5623pan1	0.113	1.81	11.3	99	11R5571pan2	0.112	2.02	12.6
71	11R5087pan2	0.121	1.82	11.4	100	11R5193pan3	0.121	2.04	12.8

4. New High-Protein Rice Lines.

A set of 128 newly developed high-protein lines was evaluated for their protein content. In addition to high-protein content, selections were emphasized also on grain quality aspects. From single head row trials, 200 promising new lines were selected based on their protein content, yield potential, and other important growth parameters (HDT, VIG, HTE) (Table 5).

Table 5. 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 1,200°C.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
1	11R-5009pan5	0.11	1.7	10.6	40	11R5180pan1	0.12	1.8	11.4
2	11R-5021pan4	0.11	1.8	11.4	41	11R5181pan8	0.12	1.9	11.7
3	11R-5022pan2	0.11	1.6	10.2	42	11R5182pan4	0.12	1.7	10.8
4	11R-5024pan5	0.11	1.6	10.3	43	11R5183pan7	0.12	1.8	11.4
5	11R-5026pan7	0.11	1.7	10.6	44	11R5183pan9	0.11	1.6	10.2
6	11R-5043pan7	0.11	1.9	11.6	45	11R-5188pan 7	0.11	1.7	10.4
7	11R5061pan2	0.12	1.7	10.7	46	11R5193pan3	0.12	2.0	12.4
8	11R5062pan1	0.12	2.0	12.3	47	11R5193pan4	0.12	1.6	10.2
9	11R5068pan4	0.12	2.4	14.9	48	11R5195pan5	0.12	1.6	10.3
10	11R5068pan5	0.11	2.2	13.9	49	11R5196pan3	0.11	1.6	10.2
11	11R5068pan7	0.09	2.4	14.9	50	11R5197pan1	0.12	1.6	10.3
12	11R5069pan10	0.12	1.9	12.1	51	11R5198pan4	0.12	1.7	10.4
13	11R5069pan2	0.11	1.9	11.7	52	11R-5200pan 9	0.12	1.9	11.7
14	11R5070pan1	0.12	1.6	10.2	53	11R5202pan1	0.12	1.6	10.2
15	11R5073pan3	0.09	2.9	17.9	54	11R5202pan3	0.11	1.7	10.6
16	11R5073pan4	0.10	4.0	24.9	55	11R5202pan6	0.12	1.7	10.9
17	11R5073pan5	0.09	2.5	15.5	56	11R5203pan12	0.09	1.9	11.6
18	11R5081pan5	0.11	2.1	13.1	57	11R5203pan2	0.12	1.7	10.7
19	11R5081pan6	0.11	2.0	12.7	58	11R5210pan6	0.12	1.7	10.7
20	11R5084pan8	0.12	1.7	10.4	59	11R5211pan10	0.13	1.9	11.8
21	11R5087pan2	0.12	1.8	11.0	60	11R5212pan1	0.12	1.9	11.8
22	11R5088pan3	0.12	1.6	10.3	61	11R5213pan2	0.11	1.8	11.0
23	11R5093pan3	0.08	2.2	13.5	62	11R5218pan11	0.12	1.8	11.3
24	11R5093pan7	0.08	2.1	12.9	63	11R5218pan13	0.11	1.6	10.3
25	11R5094pan3	0.10	2.0	12.6	64	11R5218pan6	0.11	1.6	10.3
26	11R5094pan7	0.11	2.2	13.9	65	11R5222pan6	0.11	1.6	10.3
27	11R5098pan10	0.11	2.2	13.5	66	11R5222pan9	0.11	1.8	11.5
27	11R5098pan9	0.09	2.1	12.9	67	11R5229pan15	0.09	2.9	18.3
29	11R-5109pan2	0.09	3.7	23.0	68	11R5231pan12	0.10	2.2	13.5
30	11R-5113pan1	0.12	1.6	10.2	69	11R5231pan2	0.07	2.2	14.0
31	11R-5115pan3	0.11	1.6	10.2	70	11R5231pan5	0.12	2.0	12.4
32	11R-5130pan2	0.09	3.5	22.0	71	11R5232pan11	0.07	2.3	14.2
33	11R-5135pan3	0.12	1.7	10.9	72	11R5232pan5	0.09	1.9	12.0
34	11R5151pan7	0.09	1.7	10.9	73	11R5232pan9	0.09	2.2	13.6
35	11R-5158pan 5	0.11	2.0	12.6	74	11R5237pan7	0.12	1.7	10.5
36	11R-5161 pan1	0.11	1.8	11.0	75	11R5242pan5	0.11	1.7	10.7
37	11R-5162 pan6	0.12	1.6	10.2	76	11R5242pan6	0.11	1.6	10.2
38	11R-5170	0.12	1.7	10.7	77	11R5242pan9	0.11	1.7	10.7
39	11R5177pan10	0.11	1.9	11.6	78	11R5243pan16	0.11	1.7	10.7

Continued.

Table 5. Continued.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
79	11R5243pan7	0.11	1.7	10.4	104	11R5551pan13	0.11	1.6	10.2
80	11R5245pan11	0.12	1.7	10.4	105	11R5554pan1	0.11	1.7	11.1
81	11R5245pan12	0.09	1.8	11.5	106	11R5554pan2	0.12	1.9	12.4
82	11R5249pan5	0.12	1.7	10.4	107	11R5558pan1	0.13	1.8	11.3
83	11R5264pan1	0.11	1.7	10.4	108	11R5566pan7	0.12	1.7	10.7
84	11R5296pan10	0.12	1.8	11.0	109	11R5568pan1	0.13	1.6	10.3
85	11R5296pan6	0.12	1.7	10.7	110	11R5571pan2	0.11	2.0	12.3
86	11R5296pan7	0.11	1.7	10.8	111	11R5571pan3	0.12	1.7	10.7
87	11R5298pan1	0.12	1.8	11.2	112	11R5574pan2	0.11	1.9	11.6
88	11R5298pan2	0.12	1.7	10.9	113	11R5577pan1	0.12	1.8	11.3
89	11R5298pan3	0.12	1.8	11.2	114	11R5577pan3	0.12	1.7	10.9
90	11R-5326pan3	0.12	1.7	10.4	115	11R5581pan4	0.13	1.7	10.9
91	11R-5328pan1	0.12	1.7	10.7	116	11R5603pan11	0.11	1.7	10.4
92	11R-5403pan2	0.12	1.7	10.6	117	11R-5609pan2	0.11	1.7	10.6
93	11R-5408pan4	0.10	1.8	11.0	118	11R5611pan3	0.12	1.7	10.6
94	11R-5417pan2	0.09	2.0	12.3	119	11R5613pan10	0.12	2.1	13.3
95	11R-5427pan3	0.11	1.7	10.7	120	11R5614pan2	0.12	1.7	10.4
96	11R-5434pan2	0.12	1.8	11.3	121	11R5616pan3	0.12	1.7	10.4
97	11R-5436pan3	0.09	3.0	18.7	122	11R-5619pan 3	0.12	1.6	10.3
98	11R-5442pan3	0.12	1.8	11.2	123	11R-5621pan 3	0.11	1.6	10.2
99	11R-5444pan3	0.11	1.7	10.7	124	11R-5623pan 1	0.11	1.8	11.0
100	11R5506pan7	0.12	1.7	10.6	125	11R-5637pan1	0.12	1.7	10.9
101	11R5514pan12	0.09	2.5	15.7	126	11R5638pan13	0.11	1.7	10.6
102	11R-5536pan1	0.09	2.2	13.9	127	11R5638pan14	0.12	1.7	10.4
103	11R-5548pan2	0.09	1.7	10.9	128	11R5641pan7	0.12	1.7	10.4

RICE AGRONOMY

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

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 H. Rouse Caffey Rice Research Station (RRS) and at 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 Parish at the RRS, Vermilion, St. Landry, Franklin, Richland, and Evangeline parishes. Cultural management studies were conducted at the RRS 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 in Tables 1 and 2, respectively.

Table 1. Common abbreviations used in agronomic research at the H. Rouse Caffey Rice Research Station (RRS).

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 - 23º angle) and 5 = lodged to ground (90º 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	H. Rouse Caffey Rice Research Station, Crowley, LA
RGY	Relative grain yield
S	Sulfur
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 H. Rouse Caffey Rice Research Station (RRS).

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 Weathermax	glyphosate	4 lb	Monsanto
Stam M4	propanil	4 lb	Dow Agro Science LLC
Weedar 64	2,4-D	3.8 lb	Aventis
Insecticides			
Dermacor X-100	rynaxypyr	5.21 lb/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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INTRODUCTION

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 (NUE). 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 H. Rouse Caffey 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) and 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 three years of data for each variety are needed before final recommendations are established. These recommendations can be found in the Rice Varieties and Management Tips 2016, LAES publication number 2270. Electronic copies of this publication can be accessed from the LSU AgCenter Website: http://www.lsuagcenter.com.

Four advanced experimental rice lines and six recently released rice varieties were evaluated for their response to N application rate and time of application in 2015. Complete results for each variety by N trials at each location are presented in Tables 1–36.

The RRS location was drill seeded into a stale seedbed on March 19. Statistically, optimum grain yields at the RRS were obtained after applying 180 lb N/A for varieties 13AR1021 and 4077; 150 lb N/A for CL172 and LaKast; and 120 lb N/A for LA2134, LA2008, CL163, CL172, and Antonio.

Variety by N trials at FP were drill seeded to a spring stale seedbed on May 12. Optimal rice yields at FP were obtained at 30 lb N/A for CL172 (which also began to lodge at a rate of 150 lb N/A); 90 lb N/A for 4077; 120 lb N/A for LA2134 (lodging began at 150 lb N/A); 150 lb N/A for 13AR1021 (lodging began at 120 lb N/A); and 180 lb N/A for LA2008.

Rice was drill seeded to a fall stale seedbed at the RP location on May 5. Rice grain yields at the RP location were optimized at an N rate of 60 lb/A for CL163 and CL172, 120 lb/A for LA2134, and 150 lb N/A for CL271.

Rice at the SLP location was drill seeded to a conventionally tilled seedbed on March 30. Optimal rice yields for LA2008, CL271, 13AR1021, LA4077, and LA2134 were achieved when no N fertilizer was applied. Yield for CL163 was optimized with the application of 30 lb N/A. CL172 was optimized at 60 lb N/A. Antonio and LaKast yields were optimized at 120 and 150 lb N/A, respectively.

Rice was drill seeded into a conventionally tilled seedbed on March 24 at the VP location. In VP, yields for CL163, 13AR1021, Antonio, and LaKast were optimized at N rates of 90 lb N/A, while CL172 and CL163 were optimized at rates of 30 and 90 lb N/A, respectively.

Other Rice Fertility Research

A trial was established at the RRS to evaluate the optimum N rate for the ratoon crop when CL111, CL152, and Mermentau are the varieties grown. Nitrogen rates ranged from 0 to 150 lb N/A applied to the ratoon crop after the

main crop harvest, and the flood was then established the following day. The N rate in the main crop was 150 lb N/A across all plots. Results of the trial are presented in Table 37. A significant yield response was not observed between the N treatments in the main crop. Ratoon crop yield was significantly different between the main effects of variety and N rate but not the variety by N rate interaction. CL152, CL111, and Mermentau mean ratoon yields were 3,500, 3,005, and 2,278 lb/A, respectively when pooled over all ratoon N rates. The optimum ratoon N rate across all three varieties was 90 lb N/A.

A trial was established at the RRS to evaluate the optimum N rate for the ratoon crop when the medium-grain rice varieties Caffey, Jupiter, and CL271 were grown. Nitrogen rates ranged from 0 to 150 lb N/A applied to the ratoon crop after the main crop harvest, and the flood was then established the following day. The N rate in the main crop was 150 lb N/A across all plots. Results of the trial are presented in Table 38. A significant yield response was not observed between the N treatments in the main crop. Ratoon crop yield was significantly different between the main effects of variety and N rate but not the variety by N rate interaction. The mean ratoon yields of varieties Caffey and CL271 when pooled over all N rates were 3,358 and 3,507 lb/A, respectively, and were not significantly different from each other. However, mean ratoon yields of Jupiter when pooled over all N rates were significantly lower, yielding 3,058 lb/A. The optimum ratoon N rate across all three varieties was 60 lb N/A.

A trial was established at the RRS to evaluate the optimum N rate for the ratoon crop of the hybrid long-grain rice cultivars CLXL745, CLXL729, and XL753. Nitrogen rates ranged from 0 to 150 lb N/A applied to the ratoon crop after the main crop harvest, and the flood was then established the following day. The N rate in the main crop was 150 lb N/A across all plots applied as a two-way split between pre-flood (120 lb N/A) and heading (30 lb N/A). Results of the trial are presented in Table 39. A significant yield response was not observed between the N treatments in the main crop. Ratoon crop yield was significantly different for the interaction of variety and N rate (P=0.034). The optimum ratoon N rate for CLXL745 was 150 lb N/A with a yield of 2,364 lb/A. CLXL729 was optimized at an N rate of 90 lb/A with a yield of 4,985 lb/A. XL753 was optimized at an N rate of 150 lb/A and a rice ratoon yield of 4,573 lb/A.

Ammonia volatilization potential from urea fertilizers treated with multiple unknown chemicals was evaluated using semi-open volatilization chambers in a drill-seeded, delayed flood rice production system. The actual chemical treatments were given experimental numbers by the Helena Chemical Co., and the rate of application was provided. The actual trade name, NBPT content, or other content of other active ingredients were not supplied to AgCenter scientists. The chemicals and their application rates evaluated in the field volatilization trial included:

1. HM-1002 (3 qt/ton urea)
2. HM-1152C (3 qt/ton urea)
3. HM-1536 (2 qt/ton urea)
4. HM-1556 (2 qt/ton urea)
5. HM-1152C (2 qt/ton urea) + HM1354A (2 qt/ton urea)
6. HM-1536 (2 qt/ton urea) + HM1354A (2 qt/ton urea)
7. Urea (untreated)

A trial was established in 2015 in Crowley, LA, to evaluate the total, and rate of ammonia volatilization from the surface application of the seven 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 volatilization loss at each of the seven sampling times and cumulative N volatilization loss are presented in Tables 40 and 41, respectively. The cumulative N loss, as a percent of the total N applied, is presented graphically in Figure 1. Cumulative N loss over the 15-day period of time was 3.2, 3.4, 4.3, 4.9, 5.5, 3.8, and 20.8 from HM-1002 (3 qt/ton urea), HM-1152C (3 qt/ton urea), HM-1536 (2 qt/ton urea), HM-1556 (2 qt/ton urea), HM-1152C (2 qt/ton urea) + HM1354A (2 qt/ton urea), HM-1536 (2 qt/ton urea) + HM1354A (2 qt/ton urea), and untreated urea, respectively. Cumulative volatilization losses from all treated ureas were significantly less than untreated urea. Statistical differences were not observed between treated urea fertilizers. The addition of HM1354A to HM-1152C

and HM-1536 (treatments 5 and 6) did not statistically increase or decrease the volatility potential of urea treated with HM-1152C or HM-1536 (treatments 2 and 3, respectively).

A second trial was conducted as a companion trial to the trial above in order to evaluate the corresponding rice grain yield differences and fertilizer efficiency associated with the seven N sources. The trial was set up as a randomized complete block design with seven N sources:

1. HM-1002 (3 qt/ton urea)
2. HM-1152C (3 qt/ton urea)
3. HM-1536 (2 qt/ton urea)
4. HM-1556 (2 qt/ton urea)
5. HM-1152C (2 qt/ton urea) + HM1354A (2 qt/ton urea)
6. HM-1536 (2 qt/ton urea) + HM1354A (2 qt/ton urea)
7. Urea (untreated)

Treatments were replicated four times. Fertilizer N was surface broadcast on a dry soil surface 10 days prior to permanent flood establishment at a rate of 120 lb N/A. A check plot which did not receive N fertilizer was also included as a reference and to help estimate Nitrogen use efficiency, calculated as:

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

The trial was conducted at the RRS in Crowley, LA, on a Crowley silt loam soil. The trial was drill seeded with the rice variety CL111 on March 19 into a fall stale seedbed. Rice emerged on March 29. The first N fertilizer application occurred when the rice was at the 3- to 4-leaf stage of development. No rainfall events occurred between the 10 days between fertilizer application and permanent flood establishment. Rice grain yield was adjusted to 12% moisture.

Analysis of variance (ANOVA) of the agronomic data from the trial (including the check treatment) is presented in Table 42. Rice grain yield when no N was applied was 3,697 lb/A. When N treatments were applied at a rate of 120 lb N/A, rice grain yields were 7,307, 9,404, 9,390, 9,331, 9,822, 9,581, and 7,915 when urea HM-1002 (3 qt/ton urea), HM-1152C (3 qt/ton urea), HM-1536 (2 qt/ton urea), HM-1556 (2 qt/ton urea), HM-1152C (2 qt/ton urea) + HM1354A (2 qt/ton urea), and HM-1536 (2 qt/ton urea) + HM1354A (2 qt/ton urea) were the fertilizer sources, respectively. Rice grain yield was significantly affected by N source (P = 0.0001; LSD = 580). Grain yield of all plots receiving N out yielded the check plot where no N was applied. Grain yield of untreated urea was higher than the check plot but significantly lower than all other treated urea fertilizers. Rice grain yields from plots receiving treated urea fertilizers (treatments 3 – 8 in Table 42) were not significantly different from each other.

Rice biomass samples were taken from the middle drill row from a 3-foot section when the rice reached 50% heading. Samples were then dried, ground, and analyzed for the total N concentration of the above ground biomass by combustion. Variability can often be introduced in biomass tissue sampling in rice due to the inherent variability in plant population in rice, tillering differences, and because the samples are taken when there is a standing flood in the field. Results from the biomass sampling, tissue N concentration, and estimate of NUE can also be found in Table 42. Rice biomass ranged from a low of 4,153 lb/A when no N was applied to a high of 9,581 lb/A when HM-1536 was the N fertilizer source. Tissue N concentration of the above ground biomass was significantly affected by N source (P = 0.0001; LSD = 0.13). Tissue N concentration was increased from 0.74% when no N was applied to 0.95% when urea was the fertilizer source. Treated urea fertilizers produced rice plants whose tissue concentration ranged from 1.20 – 1.31% N, all of which were significantly higher than the untreated urea. Treated urea fertilizers (treatments 3 – 8 in Table 1) were not significantly different from each other. Rice fertilizer efficiency and estimate of NUE ranged from 43 to 63% when treated urea fertilizers were used as the N fertilizer source. Untreated urea produced a NUE of 24%, which was 19% less than all other fertilizer sources.

A trial was conducted to evaluate the response of the rice hybrid USH14001 to N fertilization rate and timing. Four fertilization treatments were evaluated. All treatments received 42 lb N/A from a 42-52-60 blend at planting. Treatment 1 received an additional 23 lb N/A from urea preflood. Treatment 2 received 46 lb N/A as urea preflood. Treatment 3 received 69 lb N/A as urea preflood. Treatment 4 received 92 lb N/A preflood. All treatments received 92 lb N/A as urea for the ratoon crop post-harvest. Results of the study are presented in Table 43. Main crop yields

were 4,353, 5,888, 6,920, and 7,690 lb/A for treatments 1, 2, 3, and 4, respectively. Rice lodging occurred in all treatments and ranged from 65 to 78% of the plot. Mean ratoon rice yields ranged from 2,823 – 2,965 lb/A and were not significantly different across treatments.

A trial was conducted to evaluate the response of the rice hybrid USH14001 to N fertilization rate and timing. Four fertilization treatments were evaluated. All treatments received 42 lb N/A from a 42-52-60 blend at planting. Treatment 1 received an additional 23 lb N/A from urea preflood. Treatment 2 received 46 lb N/A as urea preflood. Treatment 3 received 69 lb N/A as urea preflood. Treatment 4 received 92 lb N/A preflood. All treatments received 46 lb N/A at 50% heading and 46 lb N/A for the ratoon crop post-harvest. Results of the study are presented in Table 44. Main crop yields were 4,633, 6,279, 7,536, and 7,133 lb/A for treatments 1, 2, 3, and 4, respectively. Rice lodging occurred in all treatments and ranged from 88 to 98% of each plot lodged. Mean ratoon rice yields were 2,158, 2,288, 2,179, and 2,365 lb/A for treatments 1, 2, 3, and 4, respectively.

A trial was established March 20, 2015, in Crowley, LA, to evaluate the total and rate of ammonia volatilization from the surface application of four N fertilizer sources when surface broadcast onto one of three soil moisture treatments (dry, moist, or flooded soil) in a drill-seeded, delayed flood rice production system. Fertilizer N treatments included urea, Agrotain Ultra-treated urea (at a rate of 3 qt/ton urea; AU-U; 26.7% NBPT), Agrotain incorporated urea (AIU; NBPT concentration unknown), and SuperU (NBPT + DCD incorporated urea). Permanent flood was established 10 days after application for the dry and moist soil. The flood was maintained for the flooded soil treatment. Semi-open volatilization chambers were used to estimate ammonia volatilization loss. Fertilizer N was applied by hand into a volatilization chamber containing two rice plants on a dry, moist, or flooded 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 volatilization loss at each of the seven sampling times as well as total N loss is presented in Table 51. The accumulative N loss, as a percent of the total N applied, is presented in Table 52 and graphically in Figure 2. When urea was the fertilizer source, cumulative volatilization losses over the 15-day period of the study were 23.6, 25.2, and 5.9% when applied on a dry, moist, or flooded soil, respectively. Significantly higher volatile N losses ($P=0.0001$; LSD=2.66%) were observed from urea when N was applied on a dry or moist soil as compared to the application into a standing flood. When the fertilizer source was AU-U, AIU, or SuperU, applications on a dry or moist soil ranged from 3.7 to 7.2% and were significantly reduced as compared to untreated urea. Statistically, significant differences in volatility control between AU-U, AIU, and Super-U were not observed in this trial over the 15-day trial period. Applications of urea, AU-U, AIU, and Super-U into the standing water of the chamber yielded ammonia-N losses of 5.9, 3.5, 2.4, and 3.5%, respectively. The application of urea into the standing flood (5.9%) yielded reduced ammonia-N losses as compared to applications of urea on a dry (23.6%) or a moist soil (25.2%). Applications of AU-U, AIU, and Super-U into standing water resulted in ammonia-N losses which were similar to applications onto a dry or moist soil over the 15-day period of the trial.

A second trial was conducted as a companion trial to the trial described above in order to evaluate the corresponding rice grain yield loss and fertilizer efficiency associated with the four N sources when applied onto a dry or moist soil or into a standing flood. The trial was set up as a split plot design with soil moisture (dry, moist, or flooded) as the whole plot and N fertilizer source (urea, AU-U, AIU, and SuperU) as the sub plot. Treatments were replicated four times. Check plots, which did not receive N fertilizer, were also included within each soil moisture regime and were used as a reference to help estimate NUE. Nitrogen use efficiency was calculated as:

NUE (%) = [(total N uptake with N/total N uptake without N in the corresponding soil moisture treatment)/N application rate] x 100

The trial was conducted at the RRS in Crowley, LA, on a Crowley silt loam soil. The trial was drill seeded with the rice variety CL111 on March 20 into a fall-stale seedbed. Rice emerged on March 29. 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, including the check treatment from each initial soil moisture treatment, are presented in Tables 53a and 53b for the main effects and the 2-way interaction, respectively. Rice grain yields ranged from a high of 8,294 lb/A to a low of 1,820 lb/A when no N was applied. Rice yield was significantly affected by the interaction of initial soil moisture at the time of N application and N fertilizer source ($P = 0.0001$; LSD 1051). This relationship can be observed in Figure 3. When urea was the

fertilizer N source, rice yield was highest when applied on a dry soil (7,136 lb/A) and was reduced when applied on a moist soil (3,887 lb/A). It was reduced even further when applied onto a soil with a standing flood (2,212 lb/A). When AU was the fertilizer source, rice yields were not significantly different when applied on a dry or a moist soil. Likewise, rice yields were similar when applications were made on a dry or moist soil when AIU and SuperU were the fertilizer sources. However, AU applied onto dry ground did result in higher rice yields as compared to AIU or SuperU when applied onto a moist soil. Rice grain yields, when enhanced efficiency fertilizer sources were used, were superior to urea when applied onto dry or moist soil. Rice yields were significantly less when N fertilizer was applied into a standing flood as compared to applications onto dry ground regardless of N source. In addition, rice yields were significantly less when N was applied into a standing flood as compared to applications on moist soil for urea, AIU, and SuperU; however, grain yields were similar when AU was the fertilizer source.

Nitrogen use efficiency of the applied N was significantly affected by the interaction of N fertilizer source and soil condition at the time of application (Table 53b; P = 0.0001; LSD 19.2). The NUE ranged from a high of 74% to a low of 4% when 120 lb N/A was applied. The interaction between N source and soil moisture at the time of application on NUE is presented graphically in Figure 2. When urea was the fertilizer source, NUE was greatest when applied onto a dry soil (53%) and was significantly reduced when applied onto a moist soil (10%) or into a standing flood (6%). Applications of urea onto a moist soil or into a standing flood were not significantly different from each other. Nitrogen use efficiency was numerically higher when AU (63%) and SuperU (62%) were the fertilizer sources and significantly higher when AIU (74%) was the fertilizer source as compared to urea (53%) when applied onto a dry soil. The NUE of AU, AIU, and SuperU fertilizer sources were superior to urea when applied onto a moist soil. The NUE of AU, AIU, and SuperU was not significantly different from each other when applied onto dry ground or onto a moist soil. The NUE of rice, when fertilizer N was applied into a standing flood, was 6% or less regardless of N fertilizer source used, highlighting the inefficiency of N applications into standing water when rice is at the 4- to 5-leaf stage of development.

A trial was established in 2015 in Crowley, Louisiana, to evaluate the agronomic response of rice to the surface application of three N fertilizer sources and five N rates when surface broadcast onto dry soil 10 days prior to permanent flood establishment in a drill-seeded, delayed flood rice production system. Fertilizer N sources included:

1. N Zone Maxx-treated urea (NZone Max urea) at a rate of 2 qt/ton of urea
2. Urea
3. ContaiN-treated urea (ContaiN urea) at a rate of 3 qt/ton of urea

Fertilizer N rates included:
1. 45 lb N/A
2. 90 lb N/A
3. 135 lb N/A
4. 180 lb N/A
5. 225 lb N/A

A check plot, which did not receive N fertilizer, was also included as a reference and to help estimate NUE, calculated as:

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

The trial was set up as a randomized complete block design. The soil at the research site was a Crowley silt loam soil. The trial was drill seeded with the rice variety CL111 on March 20 into a fall-stale seedbed. Rice emerged on March 29. The first N fertilizer application occurred when the rice was at the 3- to 4-leaf stage of development. Analysis of variance (ANOVA) results from the factorial arrangement of treatments (not including the check treatment) are presented in Table 55 for the main effects and the 2-way interaction. Results from the ANOVA using the randomized complete block design, including the check treatment, are presented in Table 56. Rice yield was significantly greater for ContaiN urea (8,075 lb/A) as compared to urea (5,657 lb/A) and NZone Max-treated urea (5,779 lb/A) when pooled over N rates. The optimum N rate was 180 lb N/A for urea and NZone Max-treated urea, while the optimum N rate for ContaiN-treated urea was 135 lb N/A.

A trial was established at the RRS to evaluate the optimum seeding rate and stand needed to achieve maximum grain yield for CL163. 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/A. Results of the trial are presented in Table 57. Mean rice yields ranged from 7,970 to 8,467 lb/A. Optimum rice yield was obtained at a seeding rate of 15 seeds/ft^2 (approximately 34.9 lb/A). The plant population at the 2-leaf stage of development needed to achieve maximum grain yield was 11 plants/ft^2.

A trial was established at the RRS to evaluate the optimum seeding rate and stand needed to achieve maximum grain yield for CL172. Six seeding rates of 15, 20, 25, 30, 35, and 40 seeds/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 /A. Results of the trial are presented in Table 58. Mean rice yields ranged from 8,243 to 8,754 lb/A. Optimum rice yield was obtained at a seeding rate of 15 seeds/ft^2 (approximately 34.9 lb/A). The plant population at the 2-leaf stage of development needed to achieve maximum grain yield was 11 plants/ft^2.

A trial was established at the RRS to evaluate the optimum seeding rate and stand needed to achieve maximum grain yield for LA2134. Six seeding rates of 15, 20, 25, 30, 35, and 40 seeds/ft^2 were evaluated and corresponded with approximate seed rate weights of 34.9, 46.6, 58.2, 69.9, 81.5, and 93.1 lb/A. Results of the trial are presented in Table 59. Mean rice yields ranged from 8,486 to 9,011 lb/A. Optimum rice yield was obtained at a seeding rate of 15 seeds/ft^2 (approximately 34.9 lb/A). The plant population at the 2-leaf stage of development needed to achieve maximum grain yield was 7 plants/ft^2.

A trial was established at the RRS to evaluate the optimum seeding rate and stand needed to achieve maximum grain yield for LA2008. Six seeding rates of 15, 20, 25, 30, 35, and 40 seeds/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/A. Results of the trial are presented in Table 60. Mean rice yields ranged from 8,427 to 9,017 lb/A. Maximum rice yield was obtained at a seeding rate of 15 seeds/ft^2 (approximately 34.9 lb/A). The plant population at the 2-leaf stage of development needed to achieve maximum grain yield was 7 plants/ft^2.

Determine the Agronomic Response of Drill-Seeded CL163 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number	15-CM-01
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 7
Soil type	Crowley silt loam
% organic matter	1.50
pH	7.61
Extractable nutrients ppm	Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0
Crop/Variety	Rice / CL163
Planting method/date	Drill seeded / March 19
Seeding rate/depth	40 seeds/ft^2 / .5 inch
Emergence date	March 29
Harvest date	Aug. 1
Ratoon harvest date	Nov. 4
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 repellent) - 18.3 oz
Fertilization	250 lb/A 0-24-24-2.7, March 25 90 lb N/A 46-0-0, Aug. 3
Water management	
Flush	April 1
Flood	May 11
Drain	July 22
Ratoon flood	Aug. 4
Ratoon drain	Oct. 20
Pest management	
Herbicides	1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7 3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 1. Determine the agronomic response of drill-seeded CL163 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top							
Rating Date						7/27/2015	7/27/2015		8/1/2015	8/1/2015	11/4/2015	11/4/2015	11/4/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit				days	days	inches	% 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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	101 b	91 b	29.5 g	0 a	0 a	46.8 cde	3,165 e	46.3 a	3,719 a	6,885 f
2	UREA	30	4-5 leaf	101 b	91 b	32.5 f	0 a	0 a	47.8 ab	5,873 d	46.2 ab	4,297 a	10,170 e
3	UREA	60	4-5 leaf	101 b	91 b	35.5 e	0 a	0 a	48.3 a	7,006 c	46.0 ab	3,778 a	10,784 de
4	UREA	90	4-5 leaf	102 b	92 b	38.0 cd	7.5 a	1 a	47.1 bcd	7,957 b	45.7 abc	3,726 a	11,683 c
5	UREA	120	4-5 leaf	105 a	95 a	40.8 a	5 a	0.8 a	46.7 c-f	8,706 a	45.6 bcd	4,249 a	12,955 a
6	UREA	150	4-5 leaf	105 a	95 a	39.3 bc	17.5 a	0.8 a	46.3 d-g	8,722 a	45.2 cd	3,493 a	12,215 abc
7	UREA	180	4-5 leaf	105 a	95 a	40.0 ab	5 a	0.8 a	45.9 fg	8,712 a	45.3 cd	3,971 a	12,683 ab
8	UREA	210	4-5 leaf	105 a	95 a	40.0 ab	17.5 a	0.8 a	45.6 g	8,728 a	45.1 d	3,441 a	12,169 abc
9	UREA	45	4-5 leaf	101 b	91 b	35.5 e	15 a	1 a	47.3 bc	6,634 c	46.0 ab	3,574 a	10,208 e
	UREA	45	PD										
10	UREA	75	4-5 leaf	102 b	92 b	37.5 d	15 a	1.8 a	47.4 bc	8,111 ab	45.6 bcd	3,441 a	11,552 cd
	UREA	45	PD										
11	UREA	105	4-5 leaf	104 a	94 a	39.3 bc	12.5 a	0.8 a	46.2 efg	8,252 ab	45.7 a-d	3,587 a	11,839 c
	UREA	45	PD										
12	UREA	135	4-5 leaf	105 a	95 a	39.3 bc	7.5 a	1.3 a	46.3 d-g	8,653 a	45.6 bcd	3,483 a	12,137 bc
	UREA	45	PD										
LSD P=.05				1.9	1.9	1.48	26.82	1.83	0.81	675.9	0.63	649	803.6
Standard Deviation				1.32	1.32	1.03	18.64	1.28	0.56	469.8	0.44	451.2	558.6
CV				1.28	1.42	2.76	218.25	174.93	1.2	6.23	0.96	12.1	4.95
Replicate F				6.546	6.546	2.2	2.404	2.779	3.022	0.672	5.049	37.803	18.547
Replicate Prob (F)				0.001	0.001	0.1066	0.0851	0.0565	0.0434	0.5755	0.0055	0.0001	0.0001
Treatment F				8.252	8.252	44.143	0.529	0.683	7.95	50.756	3.02	1.752	34.576
Treatment Prob (F)				0.0001	0.0001	0.0001	0.8693	0.744	0.0001	0.0001	0.0068	0.1048	0.0001

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

Determine the Agronomic Response of Drill-Seeded CL271 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number ....: 15-CM-02

Site and design ....:
Location/Cooperator ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
% organic matter ....: 1.50
pH ....: 7.61
Extractable nutrients ppm ....: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety ....: Rice / CL271
Planting method/date ....: Drill seeded / March 19
Seeding rate/depth ....: 40 seeds/ft^2 / .5 inch
Emergence date ....: March 29
Harvest date ....: Aug. 1
Ratoon harvest date ....: Nov. 4

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
90 lb N/A 46-0-0, Aug. 3

Water management ....:
Flush ....: April 1
Flood ....: May 11
Drain ....: July 22
Ratoon flood ....: Aug. 4
Ratoon drain ....: Oct. 20

Pest management ....:
Herbicides ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 2. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top							
Rating Date						7/27/2015	7/27/2015		8/1/2015	8/1/2015	11/4/2015	11/4/2015	11/4/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit				days	days	inches	% 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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	97 cd	87 cd	26.5 i	0 a	0 b	47.4 bcd	3,707 e	46.7 a	3,543 a	7,250 f
2	UREA	30	4-5 leaf	97 d	87 d	31.8 h	0 a	0 b	48.1 ab	5,404 d	46.6 a	3,686 a	9,090 e
3	UREA	60	4-5 leaf	99 bc	89 bc	35.0 g	0 a	0 b	48.5 a	7,241 c	46.5 a	3,642 a	10,882 d
4	UREA	90	4-5 leaf	99 bc	89 bc	37.3 def	0 a	0 b	47.4 bcd	8,314 b	46.3 a	3,484 a	11,798 c
5	UREA	120	4-5 leaf	101 a	91 a	38.8 a-d	0 a	0 b	47.3 cd	9,277 a	46.2 a	3,500 a	12,778 a
6	UREA	150	4-5 leaf	102 a	92 a	37.5 c-f	17.5 a	1.5 a	46.9 d	9,321 a	46.0 a	3,305 a	12,626 ab
7	UREA	180	4-5 leaf	103 a	93 a	40.3 ab	10 a	1 ab	47.2 d	9,645 a	46.3 a	3,459 a	13,105 a
8	UREA	210	4-5 leaf	103 a	93 a	40.5 a	20 a	1.5 a	46.8 d	9,426 a	46.5 a	3,415 a	12,840 a
9	UREA	45	4-5 leaf	98 bcd	88 bcd	36.3 efg	0 a	0 b	48.0 abc	7,232 c	46.5 a	3,402 a	10,634 d
	UREA	45	PD										
10	UREA	75	4-5 leaf	99 b	89 b	36.0 fg	0 a	0 b	48.0 abc	8,402 b	46.4 a	3,479 a	11,881 bc
	UREA	45	PD										
11	UREA	105	4-5 leaf	101 a	91 a	38.3 b-e	2.5 a	0.3 b	47.2 d	8,988 ab	46.4 a	3,504 a	12,493 abc
	UREA	45	PD										
12	UREA	135	4-5 leaf	102 a	92 a	39.5 abc	12.5 a	1.8 a	47.1 d	9,615 a	46.3 a	3,312 a	12,927 a
	UREA	45	PD										
LSD P=.05				1.76	1.76	2.17	15.27	1.17	0.73	711.6	0.44	361.6	784.1
Standard Deviation				1.23	1.23	1.51	10.62	0.81	0.51	494.7	0.3	251.3	545
CV				1.22	1.36	4.14	203.82	162.06	1.07	6.15	0.66	7.23	4.73
Replicate F				7.492	7.492	1.38	3.272	1.946	0.671	0.746	10.562	39.49	7.348
Replicate Prob(F)				0.0001	0.0001	0.2662	0.0333	0.1413	0.5756	0.5325	0.0001	0.0001	0.0007
Treatment F				13.07	13.07	27.786	2.076	3.115	4.517	56.874	1.32	0.823	43.489
Treatment Prob(F)				0.0001	0.0001	0.0001	0.052	0.0056	0.0004	0.0001	0.2573	0.6181	0.0001

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

Determine the Agronomic Response of Drill-Seeded Antonio to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number .... : 15-CM-03

Site and design .... :
- **Location/Cooperator** .... : H. Rouse Caffey 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 inches / 7

Soil type .... : Crowley silt loam
- **% organic matter** .... : 1.50
- **pH** .... : 7.61
- **Extractable nutrients** ppm .... : Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety .... : Rice / Antonio
- **Planting method/date** .... : Drill seeded / March 19
- **Seeding rate/depth** .... : 40 seeds/ft^2 / .5 inch
- **Emergence date** .... : March 29
- **Harvest date** .... : Aug. 1
- **Ratoon harvest date** .... : Nov. 4

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 repellent) - 18.3 oz

Fertilization .... : 250 lb/A 0-24-24-2.7, March 25
90 lb N/A 46-0-0, Aug. 3

Water management .... :
- **Flush** .... : April 1
- **Flood** .... : May 11
- **Drain** .... : July 22
- **Ratoon flood** .... : Aug. 4
- **Ratoon drain** .... : Oct. 20

Pest management .... :
- **Herbicides** .... : 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
  1 qt/A glyphosate, Feb. 11
  2 pt/A Prowl H_2O, March 31
  2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
  2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
  3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
- **Insecticides** .... : 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** .... : 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 3. Determine the agronomic response of drill-seeded Antonio to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top							
Rating Date						7/27/2015	7/27/2015		8/1/2015	8/1/2015	11/4/2015	11/4/2015	11/4/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit				days	days	inches	% 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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	97 ef	87 ef	27.5 h	0 a	0 a	47.6 a-d	2,604 f	46.0 a	2,347 a	4,952 f
2	UREA	30	4-5 leaf	97 f	87 f	31.8 g	0 a	0 a	47.8 abc	3,988 e	45.9 a	2,424 a	6,412 e
3	UREA	60	4-5 leaf	98 def	88 def	34.3 f	0 a	0 a	48.4 a	5,926 d	45.8 a	2,562 a	8,488 d
4	UREA	90	4-5 leaf	100 bcd	90 bcd	36.3 de	0 a	0 a	47.3 b-e	7,361 bc	45.7 a	2,492 a	9,853 bc
5	UREA	120	4-5 leaf	101 abc	91 abc	37.0 cd	0 a	0 a	47.4 b-e	7,783 ab	45.6 a	2,475 a	10,258 abc
6	UREA	150	4-5 leaf	102 a	92 a	38.3 abc	0 a	0 a	47.1 cde	8,117 a	45.6 a	2,423 a	10,540 ab
7	UREA	180	4-5 leaf	103 a	93 a	39.5 ab	0 a	0 a	46.8 e	8,517 a	45.8 a	2,570 a	11,087 a
8	UREA	210	4-5 leaf	103 a	93 a	39.8 a	0 a	0 a	46.7 e	8,436 a	45.8 a	2,281 a	10,717 ab
9	UREA	45	4-5 leaf	98 def	88 def	33.3 fg	0 a	0 a	47.7 a-d	5,619 d	46.0 a	2,538 a	8,158 d
	UREA	45	PD										
10	UREA	75	4-5 leaf	99 de	89 de	34.8 ef	5 a	0.3 a	48.0 ab	7,039 c	45.9 a	2,411 a	9,450 c
	UREA	45	PD										
11	UREA	105	4-5 leaf	100 cd	90 cd	37.3 cd	10 a	0.5 a	47.0 de	8,007 ab	45.7 a	2,513 a	10,520 ab
	UREA	45	PD										
12	UREA	135	4-5 leaf	102 ab	92 ab	38.0 bc	0 a	0 a	47.1 cde	8,098 ab	45.9 a	2,429 a	10,526 ab
	UREA	45	PD										
LSD P=.05				2.19	2.19	1.65	8.94	0.45	0.76	741	0.39	382.9	920.8
Standard Deviation				1.52	1.52	1.14	6.22	0.31	0.53	515.1	0.27	266.2	640
CV				1.52	1.69	3.21	497	497.27	1.12	7.58	0.59	10.84	6.92
Replicate F				10.65	10.65	0.699	1.94	1.941	2.156	2.529	5.351	29.472	5.397
Replicate Prob(F)				0.0001	0.0001	0.5591	0.14	0.1421	0.1119	0.0742	0.0041	0.0001	0.0039
Treatment F				8.948	8.948	38.514	1	1	3.582	54.146	0.95	0.428	35.646
Treatment Prob(F)				0.0001	0.0001	0.0001	0.47	0.4671	0.0022	0.0001	0.508	0.9323	0.0001

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

Determine the Agronomic Response of Drill-Seeded LaKast to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number	15-CM-04
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 7
Soil type	Crowley silt loam
% organic matter	1.50
pH	7.61
Extractable nutrients ppm	Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0
Crop/Variety	Rice / LaKast
Planting method/date	Drill seeded / March 19
Seeding rate/depth	40 seeds/ft^2 / .5 inch
Emergence date	March 29
Harvest date	Aug. 1
Ratoon harvest date	Nov. 4
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 repellent) - 18.3 oz
Fertilization	250 lb/A 0-24-24-2.7, March 25 90 lb N/A 46-0-0, Aug. 3
Water management	
Flush	April 1
Flood	May 11
Drain	July 22
Ratoon flood	Aug. 4
Ratoon drain	Oct. 20
Pest management	
Herbicides	1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7 3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 4. Determine the agronomic response of drill-seeded LaKast to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top							
Rating Date						7/27/2015	7/27/2015		8/1/2015	8/1/2015	11/4/2015	11/4/2015	11/4/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit				days	days	inches	% 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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	97 e	87 e	28.8 h	0.0 a	0.0 a	48.2 a-d	3,088 i	44.7 a	2,799 cd	5,887 g
2	UREA	30	4-5 leaf	99 cde	89 cde	33.3 g	27.5 a	0.8 a	48.6 abc	4,731 h	44.5 a	2,699 de	7,430 f
3	UREA	60	4-5 leaf	99 b-e	89 b-e	37.5 f	5.0 a	0.3 a	48.9 a	6,823 fg	44.1 a	2,618 de	9,441 de
4	UREA	90	4-5 leaf	99 a-e	89 a-e	40.5 de	25.0 a	1.8 a	47.8 b-e	7,993 de	44.2 a	3,039 bcd	11,033 c
5	UREA	120	4-5 leaf	101 abc	91 abc	41.3 cd	17.5 a	0.5 a	48.3 a-d	8,562 cd	45.0 a	3,300 bc	11,861 b
6	UREA	150	4-5 leaf	101 ab	91 ab	43.5 ab	7.5 a	0.8 a	47.4 de	9,007 abc	44.6 a	2,959 cd	11,966 b
7	UREA	180	4-5 leaf	101 abc	91 abc	43.8 ab	7.5 a	0.5 a	47.4 de	9,514 ab	44.8 a	3,500 ab	13,014 a
8	UREA	210	4-5 leaf	101 a	91 a	44.5 a	22.5 a	0.5 a	46.9 e	9,686 a	45.1 a	3,973 a	13,659 a
9	UREA	45	4-5 leaf	98 de	88 de	37.3 f	35.0 a	2.5 a	47.7 cde	6,504 g	44.1 a	2,277 e	8,781 e
	UREA	45	PD										
10	UREA	75	4-5 leaf	100 a-d	90 a-d	39.0 ef	12.5 a	1.3 a	48.8 ab	7,416 ef	44.6 a	2,667 de	10,084 d
	UREA	45	PD										
11	UREA	105	4-5 leaf	100 a-d	90 a-d	42.5 bc	25.0 a	1.3 a	47.7 cde	9,028 abc	44.3 a	3,072 bcd	12,100 b
	UREA	45	PD										
12	UREA	135	4-5 leaf	101 a	91 a	42.8 abc	7.5 a	0.5 a	48.0 a-d	8,890 bc	45.0 a	3,094 bcd	11,984 b
	UREA	45	PD										
LSD P=.05				2.35	2.35	1.8	33.6	1.4	1.04	723.5	0.8	512.9	797.3
Standard Deviation				1.64	1.64	1.25	23.4	0.97	0.72	502.9	0.55	356.5	554.2
CV				1.64	1.82	3.17	146	111.21	1.5	6.61	1.24	11.89	5.23
Replicate F				11.98	11.98	5.844	5.21	8.536	0.38	1.624	5.396	7.239	2.397
Replicate Prob(F)				0.0001	0.0001	0.0026	0.0047	0.0002	0.7683	0.2026	0.0039	0.0007	0.0858
Treatment F				2.723	2.723	57	0.87	2.088	2.948	64.994	1.738	6.337	71.249
Treatment Prob(F)				0.013	0.013	0.0001	0.58	0.0506	0.008	0.0001	0.1079	0.0001	0.0001

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

Determine the Agronomic Response of Drill-Seeded CL172 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number	15-CM-05
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 7
Soil type	Crowley silt loam
% organic matter	1.50
pH	7.61
Extractable nutrients ppm	Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0
Crop/Variety	Rice / CL172
Planting method/date	Drill seeded / March 19
Seeding rate/depth	40 seeds/ft^2 / .5 inch
Emergence date	March 29
Harvest date	Aug. 1
Ratoon harvest date	Nov. 4
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 repellent) - 18.3 oz
Fertilization	250 lb/A 0-24-24-2.7, March 25 90 lb N/A 46-0-0, Aug. 3
Water management	
Flush	April 1
Flood	May 11
Drain	July 22
Ratoon flood	Aug. 4
Ratoon drain	Oct. 20
Pest management	
Herbicides	1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7 3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 5. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	100 e	90 e	27.3 f	48.2 ab	3,300 h	45.3 a	2,998 f	6,298 f
2	UREA	30	4-5 leaf	100 de	90 de	29.0 f	48.0 a-d	5,143 g	45.5 a	2,984 f	8,127 e
3	UREA	60	4-5 leaf	102 cd	92 cd	33.0 e	48.3 a	6,910 e	45.7 a	3,306 b-f	10,215 c
4	UREA	90	4-5 leaf	102 bc	92 bc	34.5 de	47.4 c-f	7,593 d	45.7 a	3,274 c-f	10,867 c
5	UREA	120	4-5 leaf	104 ab	94 ab	37.0 abc	47.6 a-e	8,345 c	45.9 a	3,561 abc	11,906 b
6	UREA	150	4-5 leaf	104 a	94 a	36.8 abc	47.1 ef	8,603 bc	45.9 a	3,595 abc	12,197 b
7	UREA	180	4-5 leaf	105 a	95 a	38.3 a	47.0 ef	9,173 ab	45.7 a	3,527 a-d	12,700 ab
8	UREA	210	4-5 leaf	105 a	95 a	38.0 ab	46.9 f	9,369 a	46.1 a	3,678 a	13,047 a
9	UREA	45	4-5 leaf	101 cde	91 cde	33.8 e	47.5 b-f	6,150 f	45.8 a	3,172 def	9,322 d
	UREA	45	PD								
10	UREA	75	4-5 leaf	103 abc	93 abc	33.3 e	48.1 abc	7,560 de	45.5 a	3,143 ef	10,703 c
	UREA	45	PD								
11	UREA	105	4-5 leaf	104 ab	94 ab	36.3 bcd	47.2 ef	8,443 c	45.9 a	3,651 ab	12,095 b
	UREA	45	PD								
12	UREA	135	4-5 leaf	105 a	95 a	36.0 cd	47.3 def	8,751 abc	45.8 a	3,438 a-e	12,189 b
	UREA	45	PD								
LSD P=.05				1.81	1.81	1.82	0.71	656.8	0.68	358.9	794.3
Standard Deviation				1.26	1.26	1.27	0.49	456.6	0.47	249.5	552.1
CV				1.23	1.36	3.68	1.04	6.13	1.04	7.42	5.11
Replicate F				2.619	2.619	0.139	0.05	0.654	3.578	19.825	3.871
Replicate Prob(F)				0.067	0.067	0.9361	0.9849	0.5861	0.0241	0.0001	0.0178
Treatment F				7.543	7.543	29.536	3.817	62.84	0.805	3.976	54.147
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0014	0.0001	0.6345	0.001	0.0001

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

Determine the Agronomic Response of Drill-Seeded 13AR1021 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number	: 15-CM-06
Site and design	:
Location/Cooperator	: H. Rouse Caffey 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 inches / 7
Soil type	: Crowley silt loam
% organic matter	: 1.50
pH	: 7.61
Extractable nutrients ppm	: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0
Crop/Variety	: Rice / 13AR1021
Planting method/date	: Drill seeded / March 19
Seeding rate/depth	: 40 seeds/ft^2 / .5 inch
Emergence date	: March 29
Harvest date	: Aug. 1
Ratoon harvest date	: Nov. 4
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 repellent) - 18.3 oz
Fertilization	: 250 lb/A 0-24-24-2.7, March 25 90 lb N/A 46-0-0, Aug. 3
Water management	:
Flush	: April 1
Flood	: May 11
Drain	: July 22
Ratoon flood	: Aug. 4
Ratoon drain	: Oct. 20
Pest management	:
Herbicides	: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7 3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 6. Determine the agronomic response of drill-seeded 13AR1021 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	95 de	85 de	26.3 f	46.9 bc	2,634 g	46.2 a	2,275 a	4,909 g
2	UREA	30	4-5 leaf	95 e	85 e	32.3 e	47.3 ab	4,989 f	46.6 a	2,406 a	7,395 f
3	UREA	60	4-5 leaf	96 cd	86 cd	35.8 d	47.7 a	6,935 e	46.4 a	2,519 a	9,455 e
4	UREA	90	4-5 leaf	96 cd	86 cd	35.5 d	46.4 c	8,424 d	46.0 a	2,907 a	11,331 cd
5	UREA	120	4-5 leaf	97 bc	87 bc	40.5 a	47.3 ab	9,722 c	46.0 a	2,728 a	12,451 ab
6	UREA	150	4-5 leaf	98 ab	88 ab	40.0 ab	46.6 bc	10,000 bc	45.6 a	2,602 a	12,602 ab
7	UREA	180	4-5 leaf	99 a	89 a	39.8 ab	46.6 bc	10,982 a	45.8 a	2,271 a	13,254 a
8	UREA	210	4-5 leaf	99 a	89 a	40.8 a	46.2 c	10,612 ab	45.8 a	2,580 a	13,192 a
9	UREA	45	4-5 leaf	96 cde	86 cde	33.3 e	47.0 abc	6,417 e	46.4 a	2,507 a	8,924 e
	UREA	45	PD								
10	UREA	75	4-5 leaf	97 bc	87 bc	36.5 d	47.7 a	7,868 d	46.4 a	2,698 a	10,566 d
	UREA	45	PD								
11	UREA	105	4-5 leaf	97 bc	87 bc	37.0 cd	46.6 bc	9,554 c	46.0 a	2,613 a	12,167 bc
	UREA	45	PD								
12	UREA	135	4-5 leaf	98 ab	88 ab	38.5 bc	46.9 abc	10,173 bc	45.4 a	2,441 a	12,614 ab
	UREA	45	PD								
LSD P=.05				1.16	1.16	1.87	0.83	694.7	0.81	425.2	979.3
Standard Deviation				0.81	0.81	1.3	0.58	482.9	0.56	295.6	680.7
CV				0.83	0.93	3.57	1.23	5.89	1.22	11.61	6.34
Replicate F				2.302	2.302	3.766	0.815	4.269	8.783	3.293	4.304
Replicate Prob(F)				0.0952	0.0952	0.0198	0.4946	0.0118	0.0002	0.0325	0.0114
Treatment F				9.163	9.163	42.387	2.815	110.83	1.688	1.57	58.691
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0105	0.0001	0.1201	0.1541	0.0001

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

Determine the Agronomic Response of Drill-Seeded 4077 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number ....: 15-CM-07

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.50
- **pH** ....: 7.61
- **Extractable nutrients** ppm ....: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety ....: Rice / 4077
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: Aug. 1
- **Ratoon harvest date** ....: Nov. 4

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
90 lb N/A 46-0-0, Aug. 3

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 22
- **Ratoon flood** ....: Aug. 4
- **Ratoon drain** ....: Oct. 20

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 7. Determine the agronomic response of drill-seeded 4077 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	104 abc	94 abc	28.5 d	47.9 a	2,805 j	47.3 bc	3,155 cde	5,960 g
2	UREA	30	4-5 leaf	103 d	93 d	31.3 c	48.4 a	4,727 i	47.1 c	2,827 e	7,554 f
3	UREA	60	4-5 leaf	103 cd	93 cd	34.0 b	48.3 a	5,892 g	47.3 bc	2,986 de	8,878 de
4	UREA	90	4-5 leaf	104 cd	94 cd	37.0 a	47.7 a	7,163 e	47.6 ab	3,200 cde	10,363 c
5	UREA	120	4-5 leaf	104 bcd	94 bcd	37.3 a	48.6 a	7,673 d	48.0 a	3,111 de	10,784 c
6	UREA	150	4-5 leaf	104 bcd	94 bcd	37.8 a	47.7 a	8,054 c	47.9 a	3,624 bc	11,678 b
7	UREA	180	4-5 leaf	106 a	96 a	38.5 a	47.6 a	8,759 a	47.7 ab	3,830 b	12,589 a
8	UREA	210	4-5 leaf	105 ab	95 ab	38.0 a	47.5 a	8,625 ab	47.9 a	4,384 a	13,010 a
9	UREA	45	4-5 leaf	103 d	93 d	34.5 b	47.8 a	5,505 h	47.7 ab	2,787 e	8,292 e
	UREA	45	PD								
10	UREA	75	4-5 leaf	103 cd	93 cd	35.0 b	48.8 a	6,529 f	47.7 ab	3,024 de	9,554 d
	UREA	45	PD								
11	UREA	105	4-5 leaf	103 cd	93 cd	37.0 a	47.8 a	7,577 d	47.7 ab	3,274 cde	10,851 c
	UREA	45	PD								
12	UREA	135	4-5 leaf	104 cd	94 cd	38.0 a	48.2 a	8,328 bc	48.0 a	3,459 bcd	11,787 b
	UREA	45	PD								
LSD P=.05				1.3	1.3	1.85	0.85	379.6	0.52	497.9	679.6
Standard Deviation				0.9	0.9	1.29	0.59	263.9	0.36	346.1	472.4
CV				0.87	0.96	3.61	1.23	3.88	0.76	10.47	4.67
Replicate F				5.907	5.907	2.568	2.186	14.284	39.862	1.535	8.098
Replicate Prob(F)				0.0024	0.0024	0.0711	0.1083	0.0001	0.0001	0.2237	0.0004
Treatment F				3.944	3.944	23.031	2.056	184.92	2.591	7.03	81.122
Treatment Prob(F)				0.0011	0.0011	0.0001	0.0542	0.0001	0.017	0.0001	0.0001

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

Determine the Agronomic Response of Drill-Seeded LA2134 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number ....: 15-CM-40

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.50
- **pH** ....: 7.61
- **Extractable nutrients** ppm ....: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety ....: Rice / LA2134
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: July 30
- **Ratoon harvest date** ....: Nov. 4

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
90 lb N/A 46-0-0, Aug. 3

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 22
- **Ratoon flood** ....: Aug. 4
- **Ratoon drain** ....: Oct. 20

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 8. Determine the agronomic response of drill-seeded LA2134 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	100 e	90 e	29.3 f	49.1 cde	3,639 g	45.3 a	1,928 d	5,567 f
2	UREA	30	4-5 leaf	101 e	91 e	33.5 e	50.1 a	6,051 f	45.5 a	2,513 c	8,564 e
3	UREA	60	4-5 leaf	102 d	92 d	35.0 e	49.8 ab	7,384 e	45.4 a	2,802 abc	10,187 d
4	UREA	90	4-5 leaf	103 cd	93 cd	38.0 cd	48.8 def	8,643 cd	45.7 a	2,791 abc	11,434 bc
5	UREA	120	4-5 leaf	105 b	95 b	39.8 bc	48.7 ef	9,116 bc	45.5 a	2,810 ab	11,927 ab
6	UREA	150	4-5 leaf	106 a	96 a	39.8 bc	48.3 fg	9,114 bc	45.7 a	2,860 a	11,975 ab
7	UREA	180	4-5 leaf	107 a	97 a	42.3 a	48.3 fg	9,751 a	45.7 a	2,727 abc	12,478 a
8	UREA	210	4-5 leaf	107 a	97 a	41.8 a	48.0 g	9,527 ab	45.3 a	2,884 a	12,411 a
9	UREA	45	4-5 leaf	102 d	92 d	35.3 e	49.6 abc	7,061 e	45.6 a	2,557 bc	9,617 d
	UREA	45	PD								
10	UREA	75	4-5 leaf	103 cd	93 cd	37.3 d	49.4 bcd	8,354 d	45.7 a	2,675 abc	11,029 c
	UREA	45	PD								
11	UREA	105	4-5 leaf	104 c	94 c	38.8 bcd	48.6 ef	9,082 bc	45.7 a	2,908 a	11,990 ab
	UREA	45	PD								
12	UREA	135	4-5 leaf	106 a	96 a	40.5 ab	48.4 fg	9,186 abc	45.7 a	2,677 abc	11,863 ab
	UREA	45	PD								
LSD P=.05				1.04	1.04	1.85	0.66	615.2	0.41	297.1	739.7
Standard Deviation				0.72	0.72	1.29	0.46	427.6	0.28	206.5	514.2
CV				0.7	0.77	3.42	0.94	5.3	0.62	7.71	4.78
Replicate F				5.8	5.8	1.514	1.019	1.484	1.867	17.855	7.252
Replicate Prob(F)				0.0027	0.0027	0.2291	0.3966	0.2369	0.1544	0.0001	0.0007
Treatment F				39.575	39.575	34.55	8.681	69.628	1.217	6.66	62.163
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.3145	0.0001	0.0001

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

Determine the Agronomic Response of Drill-Seeded LA2008 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number ....: 15-CM-41

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.50
- **pH** ....: 7.61
- **Extractable nutrients** ppm ....: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety ....: Rice / LA2008
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: July 30
- **Ratoon harvest date** ....: Nov. 4

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
90 lb N/A 46-0-0, Aug. 3

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 22
- **Ratoon flood** ....: Aug. 4
- **Ratoon drain** ....: Oct. 20

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
  1 qt/A glyphosate, Feb. 11
  2 pt/A Prowl H_2O, March 31
  2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
  2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
  3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 9. Determine the agronomic response of drill-seeded LA2008 to nitrogen fertilizer rate and time of application. H. Roue Caffey Rice Research Station.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		Top											
Rating Date										8/5/2015		8/5/2015		10/29/2015		10/29/2015		10/29/2015	
Rating Type				50% HD		50% HD		Height		Test Wt.		Yield		Test Wt.		Yield		Yield	
Rating Unit				days		days		inches		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 (lb ai/A)	Growth Stage																
1	UREA	0	4-5 leaf	104	de	94	de	26.8	e	47.9	cde	3,707	f	45.2	a	2,004	g	5,712	g
2	UREA	30	4-5 leaf	104	f	94	f	32.5	de	48.8	ab	5,633	e	45.7	a	2,410	f	8,043	f
3	UREA	60	4-5 leaf	103	f	93	f	34.5	cd	48.9	a	6,865	d	45.8	a	2,662	cde	9,526	e
4	UREA	90	4-5 leaf	104	ef	94	ef	37.0	a-d	48.1	b-e	8,464	b	45.9	a	2,940	ab	11,404	c
5	UREA	120	4-5 leaf	105	cd	95	cd	38.8	abc	48.3	a-d	9,018	a	45.9	a	2,738	b-e	11,755	abc
6	UREA	150	4-5 leaf	105	abc	95	abc	40.0	abc	47.7	de	8,908	ab	45.7	a	2,681	cde	11,589	bc
7	UREA	180	4-5 leaf	106	a	96	a	41.0	ab	47.4	ef	9,325	a	46.0	a	2,830	a-d	12,155	ab
8	UREA	210	4-5 leaf	105	ab	95	ab	42.5	a	46.7	f	9,333	a	46.1	a	2,996	a	12,329	a
9	UREA	45	4-5 leaf	103	f	93	f	35.8	bcd	48.5	abc	6,614	d	46.1	a	2,694	cde	9,308	e
	UREA	45	PD																
10	UREA	75	4-5 leaf	104	ef	94	ef	37.3	a-d	48.7	ab	7,774	c	45.9	a	2,611	def	10,385	d
	UREA	45	PD																
11	UREA	105	4-5 leaf	105	bcd	95	bcd	39.8	abc	47.9	cde	9,028	a	45.7	a	2,884	abc	11,913	abc
	UREA	45	PD																
12	UREA	135	4-5 leaf	105	ab	95	ab	31.3	de	47.9	cde	9,040	a	46.1	a	2,583	ef	11,624	bc
	UREA	45	PD																
LSD P=.05				0.63		0.63		6.12		0.75		496.8		0.57		229.5		577.4	
Standard Deviation				0.44		0.44		4.26		0.52		345.3		0.39		159.6		401.3	
CV				0.42		0.46		11.68		1.08		4.42		0.86		5.98		3.83	
Replicate F				11.579		11.579		1.215		0.507		2.388		5.047		23.261		10.228	
Replicate Prob(F)				0.0001		0.0001		0.3196		0.6803		0.0866		0.0055		0.0001		0.0001	
Treatment F				14.053		14.053		4.58		5.997		105.51		1.611		11.113		99.938	
Treatment Prob(F)				0.0001		0.0001		0.0003		0.0001		0.0001		0.1413		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded Rice Varieties and Advanced Experimental Lines to Nitrogen Fertilizer Rate and Time of Application – Franklin Parish

Experiment number	15-FP-VxN
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 inches / 7
Soil type	Sharkey Clay (results from 2014 soil sample)
% 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 4
Seeding rate/depth	40 seeds/ft^2 / .5 inch
Emergence date	May 12
Harvest date	Sept. 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 repellent) - 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	June 10
Drain	Aug. 20
Pest management	
Herbicides	21 oz/A Command + 1.5 qt/A glyphosate, May 4 2 qt/A propanil + 3 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax, June 8 21 oz/A Clincher, July 23
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	None

Table 10. Determine the agronomic response of drill-seeded CL163 to nitrogen fertilizer rate and time of application. Franklin Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date						9/8/2015	9/8/2015		9/14/2015	9/14/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	95 a	87 a	42.3 a	0 e	0 c	45.6 a	9,929 a
2	UREA	30	4-5 leaf	95 a	87 a	42.5 a	40 d	2.3 b	46.1 a	10,476 a
3	UREA	60	4-5 leaf	95 a	87 a	43.0 a	62.5 cd	2.5 b	46.2 a	10,713 a
4	UREA	90	4-5 leaf	95 a	87 a	43.5 a	70.0 bc	3.5 a	45.2 a	9,547 a
5	UREA	120	4-5 leaf	95 a	87 a	43.3 a	90.0 ab	4.0 a	45.8 a	9,760 a
6	UREA	150	4-5 leaf	95 a	87 a	43.8 a	87.5 ab	4.0 a	45.7 a	8,964 a
7	UREA	180	4-5 leaf	96 a	88 a	43.3 a	97.5 a	4.0 a	44.7 a	8,276 a
8	UREA	210	4-5 leaf	96 a	88 a	43.5 a	95.0 a	4.0 a	43.7 a	10,651 a
9	UREA	45	4-5 leaf	95 a	87 a	43.5 a	85.0 abc	3.5 a	45.2 a	9,946 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	95 a	87 a	44.5 a	90.0 ab	3.8 a	45.0 a	10,055 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	96 a	88 a	43.5 a	97.5 a	4.0 a	43.9 a	9,038 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	95 a	87 a	43.3 a	97.5 a	4.0 a	44.8 a	8,548 a
	UREA	45	PD							
LSD P=.05				1.84	1.84	2.28	23.89	0.95	2.04	2,069.7
Standard Deviation				1.28	1.28	1.58	16.61	0.66	1.42	1,436.9
CV				1.34	1.47	3.65	21.84	20.08	3.14	14.88
Replicate F				0.306	0.306	2.004	7.339	6.168	2.413	0.899
Replicate Prob(F)				0.8212	0.8212	0.1326	0.0007	0.0019	0.0849	0.4523
Treatment F				0.509	0.509	0.528	12.713	13.197	1.276	1.253
Treatment Prob(F)				0.8832	0.8832	0.8699	0.0001	0.0001	0.2818	0.295

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

Table 11. Determine the agronomic response of drill-seeded LaKast to nitrogen fertilizer rate and time of application. Franklin Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		Top									
Rating Date								9/8/2015		9/8/2015				9/14/2015		9/14/2015	
Rating Type				50% HD		50% HD		Height		Lodge				Test Wt.		Yield	
Rating Unit				days		days		inches		% plot		rate		lb/bu		lb/A	
Crop Stage Majority				Main		Main		Main		Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage														
1	UREA	0	4-5 leaf	90	f	82	f	44.0	a	0	e	0	e	48.0	a	10,376	a
2	UREA	30	4-5 leaf	90	ef	82	ef	46.8	a	25	de	0.8	de	47.7	a	11,039	a
3	UREA	60	4-5 leaf	91	cd	83	cd	46.8	a	45	cd	1.5	cde	48.0	a	11,897	a
4	UREA	90	4-5 leaf	91	de	83	de	46.5	a	57.5	bcd	2.3	bcd	47.5	a	9,668	a
5	UREA	120	4-5 leaf	91	bc	83	bc	47.8	a	57.5	bcd	3	abc	47.8	a	11,094	a
6	UREA	150	4-5 leaf	92	ab	84	ab	47.8	a	95	a	4	a	47.0	a	9,540	a
7	UREA	180	4-5 leaf	91	bc	83	bc	47.8	a	97.5	a	3.8	ab	47.7	a	10,709	a
8	UREA	210	4-5 leaf	92	a	84	a	47.0	a	92.5	ab	4.3	a	47.4	a	10,222	a
9	UREA	45	4-5 leaf	91	de	83	de	45.8	a	45	cd	1.8	cd	47.9	a	11,489	a
	UREA	45	PD														
10	UREA	75	4-5 leaf	91	de	83	de	48.0	a	50	cd	2.3	bcd	47.5	a	11,316	a
	UREA	45	PD														
11	UREA	105	4-5 leaf	91	bc	83	bc	48.0	a	70	abc	3.5	ab	47.6	a	11,073	a
	UREA	45	PD														
12	UREA	135	4-5 leaf	91	cd	83	cd	48.3	a	95	a	4	a	47.4	a	10,554	a
	UREA	45	PD														
LSD P=.05				0.72		0.72		2.79		35.78		1.52		1.06		1,995.4	
Standard Deviation				0.5		0.5		1.94		24.87		1.06		0.74		1387	
CV				0.55		0.61		4.12		40.89		40.99		1.55		12.9	
Replicate F				10.78		10.78		4.653		12.167		7.581		2.732		2.236	
Replicate Prob(F)				0.0001		0.0001		0.0081		0.0001		0.0005		0.0595		0.1024	
Treatment F				7.98		7.98		1.568		6.108		6.905		0.626		1.056	
Treatment Prob(F)				0.0001		0.0001		0.1548		0.0001		0.0001		0.7939		0.424	

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

Table 12. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. Franklin Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date						9/8/2015	9/8/2015		9/14/2015	9/14/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	89 d	81 d	33.8 f	0 a	0 a	47.1 a	8,143 a
2	UREA	30	4-5 leaf	89 d	81 d	37.3 e	0 a	0 a	46.8 a	9,432 a
3	UREA	60	4-5 leaf	89 d	81 d	38.5 de	0 a	0 a	46.4 a	9,146 a
4	UREA	90	4-5 leaf	91 abc	83 abc	39.5 b-e	0 a	0 a	46.5 a	9,536 a
5	UREA	120	4-5 leaf	91 bcd	83 bcd	40.8 a-d	0 a	0 a	46.2 a	9,740 a
6	UREA	150	4-5 leaf	92 a	84 a	40.0 a-d	5 a	0.5 a	46.4 a	9,861 a
7	UREA	180	4-5 leaf	92 ab	84 ab	41.3 ab	0 a	0 a	46.1 a	10,306 a
8	UREA	210	4-5 leaf	92 a	84 a	42.0 a	10 a	0.5 a	46.1 a	10,049 a
9	UREA	45	4-5 leaf	90 cd	82 cd	38.8 cde	0 a	0 a	45.8 a	10,117 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	91 bcd	83 bcd	39.3 b-e	0 a	0 a	46.7 a	9,706 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	91 abc	83 abc	41.0 abc	0 a	0 a	46.3 a	10,128 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	91 ab	83 ab	42.0 a	0 a	0 a	46.6 a	9,932 a
	UREA	45	PD							
LSD P=.05				1.38	1.38	2.43	9.4	0.6	0.7	1,198.3
Standard Deviation				0.96	0.96	1.69	6.53	0.41	0.49	832.9
CV				1.06	1.16	4.27	522.62	497.27	1.05	8.61
Replicate F				8.552	8.552	2.867	0.716	0.647	4.401	9.109
Replicate Prob(F)				0.0002	0.0002	0.0513	0.5495	0.5904	0.0104	0.0002
Treatment F				4.872	4.872	7.58	0.905	0.882	1.995	1.965
Treatment Prob(F)				0.0002	0.0002	0.0001	0.5458	0.5658	0.0619	0.066

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

Table 13. Determine the agronomic response of drill-seeded 13AR1021 to nitrogen fertilizer rate and time of application. Franklin Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		Top									
Rating Date								9/8/2015		9/8/2015				9/15/2015		9/15/2015	
Rating Type				50% HD		50% HD		Height		Lodge				Test Wt.		Yield	
Rating Unit				days		days		inches		% plot		rate		lb/bu		lb/A	
Crop Stage Majority				Main		Main		Main		Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage														
1	UREA	0	4-5 leaf	90	cde	82	cde	32	e	0	a	0	a	45.7	a-d	6,855	f
2	UREA	30	4-5 leaf	89	e	81	e	35	d	0	a	0	a	45.8	ab	7,887	ef
3	UREA	60	4-5 leaf	90	cde	82	cde	35.5	cd	0	a	0	a	46.0	a	8,660	de
4	UREA	90	4-5 leaf	91	bc	83	bc	36.8	bcd	0	a	0	a	45.5	b-e	9,069	cde
5	UREA	120	4-5 leaf	90	bcd	82	bcd	37.8	abc	20	a	0.5	a	45.7	abc	9,714	bcd
6	UREA	150	4-5 leaf	91	ab	83	ab	38.5	ab	22.5	a	0.8	a	45.4	b-e	10,254	abc
7	UREA	180	4-5 leaf	91	bc	83	bc	39.8	a	25	a	0.8	a	45.2	de	10,428	ab
8	UREA	210	4-5 leaf	92	a	84	a	39.8	a	47.5	a	1.8	a	45.4	cde	11,094	a
9	UREA	45	4-5 leaf	90	de	82	de	35.5	cd	0	a	0	a	45.7	a-d	9,488	bcd
	UREA	45	PD														
10	UREA	75	4-5 leaf	91	bc	83	bc	37.3	a-d	0	a	0	a	45.5	bcd	9,950	abc
	UREA	45	PD														
11	UREA	105	4-5 leaf	91	bc	83	bc	38.3	ab	25	a	0.5	a	45.0	e	10,407	ab
	UREA	45	PD														
12	UREA	135	4-5 leaf	90	bcd	82	bcd	38.3	ab	22.5	a	0.8	a	45.2	de	10,581	ab
	UREA	45	PD														
LSD P=.05				0.99		0.99		2.59		38		1.24		0.47		1,234.4	
Standard Deviation				0.69		0.69		1.8		26.41		0.86		0.33		858	
CV				0.76		0.83		4.87		195.03		207.5		0.71		9.00	
Replicate F				14.337		14.337		7.703		8.605		6.392		7.759		26.635	
Replicate Prob(F)				0.0001		0.0001		0.0005		0.0002		0.0016		0.0005		0.0001	
Treatment F				3.717		3.717		6.122		1.417		1.541		3.201		8.242	
Treatment Prob(F)				0.0017		0.0017		0.0001		0.2116		0.1639		0.0047		0.0001	

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

Table 14. Determine the agronomic response of drill-seeded 4077 to nitrogen fertilizer rate and time of application. Franklin Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date						9/8/2015	9/8/2015		9/15/2015	9/15/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	94 c	86 c	37.0 cd	0 d	0 d	45.2 a	7,345 d
2	UREA	30	4-5 leaf	94 c	86 c	38.0 bcd	0 d	0 d	45.5 a	8,817 c
3	UREA	60	4-5 leaf	95 bc	87 bc	39.5 a-d	0 d	0 d	44.9 a	9,128 bc
4	UREA	90	4-5 leaf	95 bc	87 bc	39.5 a-d	12.5 cd	0.8 cd	45.5 a	9,805 abc
5	UREA	120	4-5 leaf	95 ab	87 ab	41.3 a	15 bcd	1 bcd	45.3 a	9,741 abc
6	UREA	150	4-5 leaf	95 ab	87 ab	40.8 ab	27.5 bc	1.5 bc	44.8 a	10,001 ab
7	UREA	180	4-5 leaf	96 a	88 a	36.5 d	37.5 b	2.3 ab	45.5 a	10,650 a
8	UREA	210	4-5 leaf	95 ab	87 ab	40.8 ab	80 a	3.3 a	45.1 a	10,682 a
9	UREA	45	4-5 leaf	94 c	86 c	38.8 a-d	0 d	0 d	45.5 a	9,742 abc
	UREA	45	PD							
10	UREA	75	4-5 leaf	94 bc	86 bc	40.0 abc	22.5 bcd	0.8 cd	45.4 a	10,070 ab
	UREA	45	PD							
11	UREA	105	4-5 leaf	94 c	86 c	40.5 ab	32.5 bc	2.3 ab	45.4 a	10,266 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	94 bc	86 bc	40.5 ab	27.5 bc	2 abc	45.2 a	10,366 a
	UREA	45	PD							
LSD P=.05				1.4	1.4	3.06	24.89	1.27	0.79	10,18.3
Standard Deviation				0.98	0.98	2.13	17.3	0.88	0.55	707.8
CV				1.03	1.13	5.39	81.41	77	1.21	7.28
Replicate F				17.536	17.536	0.651	6.544	8.163	6.773	1.211
Replicate Prob(F)				0.0001	0.0001	0.5877	0.0014	0.0003	0.0011	0.3211
Treatment F				3.286	3.286	2.125	7.101	6.217	0.764	6.912
Treatment Prob(F)				0.0039	0.0039	0.0466	0.0001	0.0001	0.6717	0.0001

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

Table 15. Determine the agronomic response of drill-seeded LA2134 to nitrogen fertilizer rate and time of application. Franklin Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date						9/8/2015	9/8/2015		9/15/2015	9/15/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	89.0 h	81.0 h	34.3 c	0 c	0 c	46.7 a	8,116 e
2	UREA	30	4-5 leaf	89.5 gh	81.5 gh	38.8 b	0 c	0 c	46.9 a	9,243 d
3	UREA	60	4-5 leaf	90.0 fg	82.0 fg	37.8 b	0 c	0 c	46.7 a	9,794 cd
4	UREA	90	4-5 leaf	90.3 efg	82.3 efg	38.8 b	0 c	0 c	46.9 a	10,038 bc
5	UREA	120	4-5 leaf	91.8 bc	83.8 bc	41.3 a	0 c	0 c	46.6 a	10,652 ab
6	UREA	150	4-5 leaf	91.3 cd	83.3 cd	42.3 a	17.5 bc	0.8 bc	46.7 a	10,732 a
7	UREA	180	4-5 leaf	92.5 b	84.5 b	41.8 a	12.5 bc	0.3 c	46.9 a	10,545 ab
8	UREA	210	4-5 leaf	93.5 a	85.5 a	41.8 a	55 a	2 a	45.9 a	10,722 a
9	UREA	45	4-5 leaf	90.3 efg	82.3 efg	39.0 b	0 c	0 c	46.9 a	10,566 ab
	UREA	45	PD							
10	UREA	75	4-5 leaf	90.8 def	82.8 def	41.3 a	0 c	0 c	46.8 a	10,834 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	91.8 bc	83.8 bc	41.8 a	32.5 ab	1.3 ab	47.1 a	10,860 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	91.0 cde	83.0 cde	41.3 a	12.5 bc	0.3 c	46.8 a	10,728 a
	UREA	45	PD							
LSD P=.05				0.96	0.96	2.03	26.52	0.89	0.85	635.7
Standard Deviation				0.67	0.67	1.41	18.44	0.62	0.59	441.9
CV				0.74	0.81	3.53	170.18	165.76	1.26	4.32
Replicate F				0.559	0.559	3.108	3.71	3.667	0.138	10.95
Replicate Prob(F)				0.6456	0.6456	0.0396	0.021	0.022	0.9367	0.0001
Treatment F				14.729	14.729	11.177	3.522	4.294	1.089	14.084
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0024	0.0005	0.3997	0.0001

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

Table 16. Determine the agronomic response of drill-seeded LA2008 to nitrogen fertilizer rate and time of application. Franklin Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date						9/8/2015	9/8/2015		9/15/2015	9/15/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	89 d	81 d	34.0 c	0 c	0 b	47.2 a	7,466 f
2	UREA	30	4-5 leaf	89 cd	81 cd	36.5 b	0 c	0 b	47.2 a	9,149 e
3	UREA	60	4-5 leaf	89 cd	81 cd	37.3 ab	0 c	0 b	47.1 a	9,519 de
4	UREA	90	4-5 leaf	90 bcd	82 bcd	36.3 b	0 c	0 b	47.2 a	9,686 de
5	UREA	120	4-5 leaf	90 bcd	82 bcd	37.8 ab	0 c	0 b	47.3 a	9,907 cde
6	UREA	150	4-5 leaf	90 bc	82 bc	37.3 ab	0 c	0 b	46.7 a	10,095 bcd
7	UREA	180	4-5 leaf	91 ab	83 ab	39.0 a	45 ab	1 ab	47.2 a	10,815 abc
8	UREA	210	4-5 leaf	91 a	83 a	39.3 a	67.5 a	2 a	47.2 a	10,975 ab
9	UREA	45	4-5 leaf	90 bc	82 bc	36.5 b	0 c	0 b	47.1 a	10,672 abc
	UREA	45	PD							
10	UREA	75	4-5 leaf	90 bc	82 bc	38.8 a	0 c	0 b	47.2 a	10,797 abc
	UREA	45	PD							
11	UREA	105	4-5 leaf	91 ab	83 ab	39.3 a	32.5 bc	1.5 a	47.2 a	11,032 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	91 ab	83 ab	38.3 ab	50 ab	1.8 a	47.3 a	11,315 a
	UREA	45	PD							
LSD P=.05				1.06	1.06	2.12	34.71	1.26	0.52	916.5
Standard Deviation				0.74	0.74	1.48	24.13	0.87	0.36	637.1
CV				0.82	0.90	3.93	148.47	167.74	0.77	6.30
Replicate F				6.244	6.244	1.863	2.887	3.739	1.054	16.928
Replicate Prob(F)				0.0018	0.0018	0.1551	0.0502	0.0204	0.3819	0.0001
Treatment F				4.034	4.034	4.427	4.354	3.362	0.819	11.485
Treatment Prob(F)				0.0009	0.0009	0.0004	0.0005	0.0034	0.6225	0.0001

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

Determine the Agronomic Response of Drill-Seeded Rice Varieties and Advanced Experimental Lines to Nitrogen Fertilizer Rate and Time of Application – Richland Parish

Experiment number	: 15-RP-VxN
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 inches / 7
Soil type	: Hebert silty clay (results from 2014 soil sample)
% 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 5
Seeding rate/depth	: 40 seeds/ft^2 / .5 inch
Emergence date	: May 16
Harvest date	: Sept. 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 repellent) – 18.3 oz
Fertilization	: No blanket applications
Water management	:
Flush	: Data not available
Flood	: June 23
Drain	: Aug. 27
Pest management	:
Herbicides	: 21 oz/A Command + 1.5 qt/A glyphosate, May 5 2 qt/A propanil + 2 qt/A RiceBeaux + .25 oz/A Permit + 1 oz/A Londax, June 22
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: None

Table 17. Determine the agronomic response of drill-seeded CL163 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		Top					
Rating Date									9/9/2015		9/16/2015		9/16/2015	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		inches		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	100	c	89	c	32.0	a	45.4	a	4,894	d
2	UREA	30	lb ai/A	4-5 leaf	101	c	90	c	34.7	a	44.4	ab	5,975	bcd
3	UREA	60	lb ai/A	4-5 leaf	101	bc	90	bc	36.0	a	44.2	b	6,679	ab
4	UREA	90	lb ai/A	4-5 leaf	103	ab	92	ab	37.0	a	43.5	bc	6,899	ab
5	UREA	120	lb ai/A	4-5 leaf	103	ab	92	ab	36.0	a	44.1	b	7,234	a
6	UREA	150	lb ai/A	4-5 leaf	104	a	93	a	33.7	a	43.5	bc	6,521	ab
7	UREA	180	lb ai/A	4-5 leaf	103	ab	92	ab	36.7	a	43.2	bc	6,065	bc
8	UREA	210	lb ai/A	4-5 leaf	104	a	93	a	35.3	a	42.5	c	5,330	cd
LSD P=.05					2.17		2.17		4.15		1.17		1,125.1	
Standard Deviation					1.24		1.24		2.37		0.67		642.5	
CV					1.21		1.36		6.74		1.53		10.36	
Replicate F					0.568		0.568		0.007		0.515		1.312	
Replicate Prob(F)					0.5794		0.5794		0.9926		0.6082		0.3005	
Treatment F					4.88		4.88		1.493		4.958		4.591	
Treatment Prob(F)					0.0057		0.0057		0.2475		0.0053		0.0074	

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

Table 18. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		Top					
Rating Date									9/9/2015		9/16/2015		9/16/2015	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		inches		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	a	82	a	26.7	d	43.7	c	1,702	d
2	UREA	30	lb ai/A	4-5 leaf	92	a	81	a	28.0	cd	45.1	ab	2,181	d
3	UREA	60	lb ai/A	4-5 leaf	92	a	81	a	28.7	bcd	44.5	bc	2,326	cd
4	UREA	90	lb ai/A	4-5 leaf	92	a	81	a	30.0	abc	44.9	ab	2,941	bcd
5	UREA	120	lb ai/A	4-5 leaf	93	a	82	a	28.3	bcd	44.6	bc	2,571	cd
6	UREA	150	lb ai/A	4-5 leaf	92	a	81	a	31.7	a	46.0	a	3,977	ab
7	UREA	180	lb ai/A	4-5 leaf	93	a	82	a	30.7	ab	44.9	ab	4,297	a
8	UREA	210	lb ai/A	4-5 leaf	94	a	83	a	31.7	a	45.8	a	3,533	abc
LSD P=.05					2.07		2.07		2.56		1.12		1,260.3	
Standard Deviation					1.18		1.18		1.46		0.64		719.7	
CV					1.28		1.45		4.96		1.42		24.47	
Replicate F					9.204		9.204		0.955		0.564		0.273	
Replicate Prob(F)					0.0028		0.0028		0.4084		0.5815		0.7654	
Treatment F					1.345		1.345		4.677		3.841		4.874	
Treatment Prob(F)					0.301		0.301		0.0069		0.0154		0.0058	

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

Table 19. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		Top					
Rating Date									9/9/2015		9/16/2015		9/16/2015	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		inches		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	98	d	87	d	28.3	c	45.9	a	4,392	a
2	UREA	30	lb ai/A	4-5 leaf	98	d	87	d	31.0	bc	45.4	ab	5,095	a
3	UREA	60	lb ai/A	4-5 leaf	99	cd	88	cd	33.7	ab	45.7	ab	6,821	a
4	UREA	90	lb ai/A	4-5 leaf	99	cd	88	cd	34.3	ab	43.3	d	5,668	a
5	UREA	120	lb ai/A	4-5 leaf	100	bc	89	bc	33.3	ab	45.3	abc	6,209	a
6	UREA	150	lb ai/A	4-5 leaf	102	a	91	a	33.7	ab	44.8	abc	6,226	a
7	UREA	180	lb ai/A	4-5 leaf	102	ab	91	ab	36.7	a	44.4	bcd	5,912	a
8	UREA	210	lb ai/A	4-5 leaf	103	a	92	a	32.3	b	44.0	cd	5,713	a
LSD P=.05					1.8		1.8		3.36		1.36		1,667.8	
Standard Deviation					1.03		1.03		1.92		0.77		945.5	
CV					1.03		1.15		5.83		1.72		16.43	
Replicate F					1.226		1.226		0.69		0.138		1.459	
Replicate Prob(F)					0.3231		0.3231		0.5179		0.8727		0.2682	
Treatment F					12		12		4.931		3.993		1.865	
Treatment Prob(F)					0.0001		0.0001		0.0055		0.0151		0.1575	

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

Table 20. Determine the agronomic response of drill-seeded LA2134 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		Top					
Rating Date									9/9/2015		9/16/2015		9/16/2015	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		inches		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	100	a	89	a	28.7	d	45.9	a	3,657	d
2	UREA	30	lb ai/A	4-5 leaf	100	a	89	a	33.0	bc	46.6	a	5,366	c
3	UREA	60	lb ai/A	4-5 leaf	100	a	89	a	32.3	c	46.3	a	6,014	b
4	UREA	90	lb ai/A	4-5 leaf	100	a	89	a	36.3	ab	45.9	a	6,330	b
5	UREA	120	lb ai/A	4-5 leaf	100	a	89	a	34.0	abc	46.2	a	7,091	a
6	UREA	150	lb ai/A	4-5 leaf	100	a	89	a	33.7	abc	46.0	a	7,394	a
7	UREA	180	lb ai/A	4-5 leaf	100	a	89	a	36.0	ab	45.4	a	6,941	a
8	UREA	210	lb ai/A	4-5 leaf	100	a	89	a	36.7	a	45.3	a	7,114	a
LSD P=.05					0		0		3.57		1.08		601	
Standard Deviation					0		0		2.04		0.62		343.2	
CV					0		0		6.03		1.35		5.50	
Replicate F					0		0		0.13		0.307		10.004	
Replicate Prob(F)					1		1		0.879		0.7402		0.002	
Treatment F					0		0		5.013		1.563		39.335	
Treatment Prob(F)					1		1		0.0051		0.2257		0.0001	

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

Table 21. Determine the agronomic response of drill-seeded LA2008 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd		Top					
Rating Date									9/9/2015		9/16/2015		9/16/2015	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		inches		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	d	81	d	25.7	c	44.9	cd	2,471	e
2	UREA	30	lb ai/A	4-5 leaf	93	bcd	82	bcd	29.7	b	45.2	bcd	3,513	d
3	UREA	60	lb ai/A	4-5 leaf	93	cd	82	cd	30.3	b	46.6	a	4,533	c
4	UREA	90	lb ai/A	4-5 leaf	93	cd	82	cd	31.0	b	46.2	ab	4,490	c
5	UREA	120	lb ai/A	4-5 leaf	94	bc	83	bc	31.3	ab	45.9	abc	5,529	b
6	UREA	150	lb ai/A	4-5 leaf	94	ab	83	ab	31.7	ab	45.5	a-d	6,315	ab
7	UREA	180	lb ai/A	4-5 leaf	94	ab	83	ab	32.7	ab	45.0	cd	6,307	ab
8	UREA	210	lb ai/A	4-5 leaf	95	a	84	a	34.7	a	44.5	d	6,634	a
LSD P=.05					1.49		1.49		3.39		1.09		805.2	
Standard Deviation					0.85		0.85		1.93		0.62		459.8	
CV					0.91		1.03		6.27		1.37		9.24	
Replicate F					19.843		19.843		0.3		0.962		4.19	
Replicate Prob(F)					0.0001		0.0001		0.7451		0.4061		0.0375	
Treatment F					5.017		5.017		5.417		3.888		31.354	
Treatment Prob(F)					0.0051		0.0051		0.0036		0.0147		0.0001	

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

Determine the Agronomic Response of Drill-Seeded Rice Varieties and Advanced Experimental Lines to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number	: 15-SLP-VxN
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 inches / 7
Soil type	: Dundee silty clay loam
% organic matter	: 1.51
pH	: 7.7
Extractable nutrients ppm	: Ca-3732; Cu-3.4; Mg-648; P-96.8; K-184; Na-15.9; S-2.2; Zn-1.2
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill seeded / March 30
Seeding rate/depth	: 40 seeds/ft^2 / .5 inch
Emergence date	: April 8
Harvest date	: Aug. 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 repellent) - 18.3 oz
Fertilization	: No blanket applications
Water management	:
Flush	: NA
Flood	: June 6
Drain	: July 27
Pest management	:
Herbicides	: 13 oz/A Command + 2 oz/A Sharpen, March 30 0.6 oz/A Regiment + .5 oz/A Permit, June 5
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: None

Table 22. Determine the agronomic response of drill-seeded CL163 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date							8/13/2015		8/13/2015	8/13/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	99 a	90 a	36.8 a	2.5 a	0.5 a	46.7 a	8,777 bc
2	UREA	30	4-5 leaf	98 a	89 a	37.8 a	20 a	1.3 a	45.8 a	9,510 ab
3	UREA	60	4-5 leaf	98 a	89 a	37.8 a	15 a	0.8 a	45.9 a	9,979 a
4	UREA	90	4-5 leaf	99 a	90 a	37.0 a	20 a	1.5 a	46.0 a	9,918 a
5	UREA	120	4-5 leaf	99 a	90 a	36.8 a	40 a	1.8 a	45.6 a	8,823 bc
6	UREA	150	4-5 leaf	99 a	90 a	36.0 a	35 a	2.0 a	46.3 a	8,767 bc
7	UREA	180	4-5 leaf	98 a	89 a	36.8 a	42.5 a	2.3 a	45.2 a	8,497 cd
8	UREA	210	4-5 leaf	98 a	89 a	36.3 a	25 a	1.5 a	45.4 a	7,884 d
9	UREA	45	4-5 leaf	98 a	89 a	37.3 a	10 a	0.8 a	45.3 a	10,110 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	98 a	89 a	38.0 a	2.5 a	0.8 a	45.9 a	9,548 ab
	UREA	45	PD							
11	UREA	105	4-5 leaf	98 a	89 a	37.0 a	25 a	1.5 a	45.9 a	9,050 bc
	UREA	45	PD							
12	UREA	135	4-5 leaf	99 a	90 a	37.5 a	52.5 a	2.5 a	46.1 a	8,796 bc
	UREA	45	PD							
LSD P=.05				1.42	1.42	2.21	35.71	1.67	0.87	851.9
Standard Deviation				0.99	0.99	1.54	24.82	1.16	0.61	592.2
CV				1	1.11	4.15	102.71	81.97	1.33	6.48
Replicate F				14.375	14.375	0.878	8.53	16.562	8.463	3.8
Replicate Prob(F)				0.0001	0.0001	0.4623	0.0002	0.0001	0.0003	0.0191
Treatment F				0.674	0.674	0.637	1.633	1.225	2.018	5.229
Treatment Prob(F)				0.7524	0.7524	0.7843	0.135	0.31	0.0589	0.0001

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

Table 23. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date							8/13/2015		8/13/2015	8/13/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	102 d	93 d	37.5 a	0 b	0 d	44.8 a	10,185 a
2	UREA	30	4-5 leaf	104 c	95 c	37.0 a	0 b	0 d	42.8 cd	9,849 a
3	UREA	60	4-5 leaf	105 abc	96 abc	38.3 a	2.5 b	0.5 cd	43.9 abc	10,206 a
4	UREA	90	4-5 leaf	105 ab	96 ab	38.8 a	10 ab	0.8 bcd	44.1 abc	10,655 a
5	UREA	120	4-5 leaf	105 abc	96 abc	38.8 a	2.5 b	0.3 d	42.8 cd	10,356 a
6	UREA	150	4-5 leaf	106 a	97 a	37.0 a	30 a	2.3 a	44.5 ab	10,533 a
7	UREA	180	4-5 leaf	106 ab	97 ab	37.3 a	20 ab	2 ab	42.2 d	9,913 a
8	UREA	210	4-5 leaf	106 ab	97 ab	37.0 a	32.5 a	1.8 abc	43.7 a-d	10,234 a
9	UREA	45	4-5 leaf	102 d	93 d	39.0 a	0 b	0 d	42.8 cd	10,679 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	105 ab	96 ab	38.0 a	10 ab	0.8 bcd	43.1 bcd	10,301 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	104 bc	95 bc	36.3 a	0 b	0 d	44.4 ab	10,245 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	106 a	97 a	38.8 a	0 b	0 d	44.1 abc	10,948 a
	UREA	45	PD							
LSD P=.05				1.37	1.37	2.38	22.61	1.49	1.56	1,098
Standard Deviation				0.95	0.95	1.66	15.72	1.03	1.08	763.2
CV				0.91	1	4.38	175.45	150.2	2.48	7.38
Replicate F				3.443	3.443	3.997	2.527	1.114	3.145	0.619
Replicate Prob(F)				0.0278	0.0278	0.0156	0.0743	0.3575	0.0381	0.6077
Treatment F				7.82	7.82	1.206	2.364	2.691	2.333	0.692
Treatment Prob(F)				0.0001	0.0001	0.3213	0.0278	0.0137	0.0297	0.7364

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

Table 24. Determine the agronomic response of drill-seeded Antonio to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		Top									
Rating Date										8/13/2015				8/13/2015		8/13/2015	
Rating Type				50% HD		50% HD		Height		Lodge				Test Wt.		Yield	
Rating Unit				days		days		inches		% plot		rate		lb/bu		lb/A	
Crop Stage Majority				Main		Main		Main		Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage														
1	UREA	0	4-5 leaf	97	ef	87	ef	27.5	h	0.0	a	0.00	a	47.6	a-d	2,604	f
2	UREA	30	4-5 leaf	97	f	87	f	31.8	g	0.0	a	0.00	a	47.8	abc	3,988	e
3	UREA	60	4-5 leaf	98	def	88	def	34.3	f	0.0	a	0.00	a	48.4	a	5,926	d
4	UREA	90	4-5 leaf	100	bcd	90	bcd	36.3	de	0.0	a	0.00	a	47.3	b-e	7,361	bc
5	UREA	120	4-5 leaf	101	abc	91	abc	37.0	cd	0.0	a	0.00	a	47.4	b-e	7,783	ab
6	UREA	150	4-5 leaf	102	a	92	a	38.3	abc	0.0	a	0.00	a	47.1	cde	8,117	a
7	UREA	180	4-5 leaf	103	a	93	a	39.5	ab	0.0	a	0.00	a	46.8	e	8,517	a
8	UREA	210	4-5 leaf	103	a	93	a	39.8	a	0.0	a	0.00	a	46.7	e	8,436	a
9	UREA	45	4-5 leaf	98	def	88	def	33.3	fg	0.0	a	0.00	a	47.7	a-d	5,619	d
	UREA	45	PD														
10	UREA	75	4-5 leaf	99	de	89	de	34.8	ef	5	a	0.3	a	48.0	ab	7,039	c
	UREA	45	PD														
11	UREA	105	4-5 leaf	100	cd	90	cd	37.3	cd	10	a	0.5	a	47.0	de	8,007	ab
	UREA	45	PD														
12	UREA	135	4-5 leaf	102	ab	92	ab	38.0	bc	0	a	0	a	47.1	cde	8,098	ab
	UREA	45	PD														
LSD P=.05				2.19		2.19		1.65		8.94		0.45		0.76		741	
Standard Deviation				1.52		1.52		1.14		6.22		0.31		0.53		515.1	
CV				1.52		1.69		3.21		497.27		497.27		1.12		7.58	
Replicate F				10.646		10.646		0.699		1.941		1.941		2.156		2.529	
Replicate Prob(F)				0.0001		0.0001		0.5591		0.1421		0.1421		0.1119		0.0742	
Treatment F				8.948		8.948		38.514		1		1		3.582		54.146	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.4671		0.4671		0.0022		0.0001	

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

Table 25. Determine the agronomic response of drill-seeded LaKast to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date							8/13/2015		8/13/2015	8/13/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	97 e	87 e	28.8 h	0 a	0 a	48.2 a-d	3,088 i
2	UREA	30	4-5 leaf	99 cde	89 cde	33.3 g	27.5 a	0.8 a	48.6 abc	4,731 h
3	UREA	60	4-5 leaf	99 b-e	89 b-e	37.5 f	5 a	0.3 a	48.9 a	6,823 fg
4	UREA	90	4-5 leaf	99 a-e	89 a-e	40.5 de	25 a	1.8 a	47.8 b-e	7,993 de
5	UREA	120	4-5 leaf	101 abc	91 abc	41.3 cd	17.5 a	0.5 a	48.3 a-d	8,562 cd
6	UREA	150	4-5 leaf	101 ab	91 ab	43.5 ab	7.5 a	0.8 a	47.4 de	9,007 abc
7	UREA	180	4-5 leaf	101 abc	91 abc	43.8 ab	7.5 a	0.5 a	47.4 de	9,514 ab
8	UREA	210	4-5 leaf	101 a	91 a	44.5 a	22.5 a	0.5 a	46.9 e	9,686 a
9	UREA	45	4-5 leaf	98 de	88 de	37.3 f	35 a	2.5 a	47.7 cde	6,504 g
	UREA	45	PD							
10	UREA	75	4-5 leaf	100 a-d	90 a-d	39 ef	12.5 a	1.3 a	48.8 ab	7,416 ef
	UREA	45	PD							
11	UREA	105	4-5 leaf	100 a-d	90 a-d	42.5 bc	25 a	1.3 a	47.7 cde	9,028 abc
	UREA	45	PD							
12	UREA	135	4-5 leaf	101 a	91 a	42.8 abc	7.5 a	0.5 a	48.0 a-d	8,890 bc
	UREA	45	PD							
LSD P=.05				2.35	2.35	1.8	33.6	1.4	1.04	723.5
Standard Deviation				1.64	1.64	1.25	23.36	0.97	0.72	502.9
CV				1.64	1.82	3.17	145.6	111.21	1.5	6.61
Replicate F				11.975	11.975	5.844	5.208	8.536	0.38	1.624
Replicate Prob(F)				0.0001	0.0001	0.0026	0.0047	0.0002	0.7683	0.2026
Treatment F				2.723	2.723	57	0.87	2.088	2.948	64.994
Treatment Prob(F)				0.0128	0.0128	0.0001	0.5763	0.0506	0.008	0.0001

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

Table 26. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date							8/13/2015		8/13/2015	8/13/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	85 cd	76 cd	31.5 a	0 a	0 a	45.1 a	6,757 d
2	UREA	30	4-5 leaf	85 d	76 d	34.0 a	0 a	0 a	44.0 a	7,897 bc
3	UREA	60	4-5 leaf	86 a-d	77 a-d	35.8 a	0 a	0 a	44.9 a	8,292 abc
4	UREA	90	4-5 leaf	86 a-d	77 a-d	36.8 a	0 a	0 a	44.4 a	8,614 a
5	UREA	120	4-5 leaf	86 a-d	77 a-d	34.0 a	0 a	0 a	44.3 a	8,441 abc
6	UREA	150	4-5 leaf	86 ab	77 ab	33.8 a	0 a	0 a	44.2 a	8,286 abc
7	UREA	180	4-5 leaf	86 ab	77 ab	34.8 a	0 a	0 a	44.0 a	8,501 ab
8	UREA	210	4-5 leaf	86 abc	77 abc	33.0 a	2.5 a	1.3 a	44.0 a	8,212 abc
9	UREA	45	4-5 leaf	85 bcd	76 bcd	34.3 a	0 a	0 a	44.7 a	8,363 abc
	UREA	45	PD							
10	UREA	75	4-5 leaf	86 a-d	77 a-d	34.0 a	0 a	0 a	44.6 a	7,834 c
	UREA	45	PD							
11	UREA	105	4-5 leaf	86 ab	77 ab	34.3 a	0 a	0 a	44.6 a	8,014 abc
	UREA	45	PD							
12	UREA	135	4-5 leaf	87 a	78 a	34.3 a	0 a	0 a	44.6 a	8,072 abc
	UREA	45	PD							
LSD P=.05				1.04	1.04	2.59	2.08	1.04	0.86	632.7
Standard Deviation				0.72	0.72	1.8	1.44	0.72	0.6	439.8
CV				0.84	0.94	5.26	692.82	692.82	1.34	5.42
Replicate F				4.776	4.776	0.986	1	1	0.471	2.355
Replicate Prob(F)				0.0071	0.0071	0.4113	0.4051	0.4051	0.7049	0.0898
Treatment F				2.356	2.356	2.054	1	1	1.499	4.922
Treatment Prob(F)				0.0282	0.0282	0.0544	0.4671	0.4671	0.1786	0.0002

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

Table 27. Determine the agronomic response of drill-seeded 13AR1021 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date							8/13/2015		8/13/2015	8/13/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	97 a	88 a	35 a	27.5 a	1.5 a	44.0 a	8,384 a
2	UREA	30	4-5 leaf	100 a	91 a	36 a	0 a	0 a	43.1 a	8,453 a
3	UREA	60	4-5 leaf	98 a	89 a	35.5 a	0 a	0 a	43.8 a	9,085 a
4	UREA	90	4-5 leaf	100 a	91 a	35.3 a	35 a	1.3 a	43.7 a	9,354 a
5	UREA	120	4-5 leaf	100 a	91 a	36.8 a	22.5 a	1 a	43.6 a	9,156 a
6	UREA	150	4-5 leaf	101 a	92 a	36.5 a	40 a	1.8 a	43.9 a	10,007 a
7	UREA	180	4-5 leaf	100 a	91 a	36.8 a	65 a	3 a	44.4 a	8,895 a
8	UREA	210	4-5 leaf	100 a	91 a	36.8 a	90 a	4.3 a	45.2 a	8,657 a
9	UREA	45	4-5 leaf	98 a	89 a	36 a	42.5 a	2.3 a	44.4 a	8,658 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	100 a	91 a	37 a	22.5 a	1 a	43.7 a	9,243 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	99 a	90 a	36 a	50 a	3 a	44.4 a	9,591 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	100 a	91 a	36 a	47.5 a	2.5 a	44.5 a	9,757 a
	UREA	45	PD							
LSD P=.05				2.14	2.14	2.16	58.34	2.68	1.51	1,149.1
Standard Deviation				1.49	1.49	1.5	40.55	1.87	1.05	798.7
CV				1.5	1.65	4.15	109.97	104.15	2.38	8.77
Replicate F				2.245	2.245	0.704	0.386	0.582	0.293	0.712
Replicate Prob(F)				0.1014	0.1014	0.5566	0.7635	0.6308	0.83	0.552
Treatment F				1.857	1.857	0.737	1.584	1.851	1.132	1.68
Treatment Prob(F)				0.0834	0.0834	0.6958	0.1496	0.0845	0.3692	0.1221

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

Table 28. Determine the agronomic response of drill-seeded 4077 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date							8/13/2015		8/13/2015	8/13/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	97 d	88 d	33.8 e	0 a	0 a	45.9 a	7,621 a
2	UREA	30	4-5 leaf	98 bcd	89 bcd	35.3 cde	0 a	0 a	45.7 a	9,326 a
3	UREA	60	4-5 leaf	97 cd	88 cd	36.3 a-e	0 a	0 a	45.7 a	9,090 a
4	UREA	90	4-5 leaf	98 abc	89 abc	38.0 abc	0 a	0 a	45.3 a	9,079 a
5	UREA	120	4-5 leaf	98 abc	89 abc	34.8 de	0 a	0 a	45.6 a	8,936 a
6	UREA	150	4-5 leaf	99 a	90 a	39.0 a	2.5 a	0.5 a	45.8 a	8,802 a
7	UREA	180	4-5 leaf	97 cd	88 cd	36.5 a-e	0 a	0 a	45.6 a	9,138 a
8	UREA	210	4-5 leaf	99 ab	90 ab	36.0 b-e	0 a	0 a	45.6 a	8,784 a
9	UREA	45	4-5 leaf	98 bcd	89 bcd	35.0 de	0 a	0 a	45.4 a	8,641 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	98 abc	89 abc	36.5 a-e	0 a	0 a	45.4 a	8,824 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	98 abc	89 abc	37.5 a-d	0 a	0 a	45.7 a	9,258 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	98 abc	89 abc	38.5 ab	0 a	0 a	45.5 a	8,986 a
	UREA	45	PD							
LSD P=.05				1.15	1.15	2.78	2.08	0.42	0.81	1,215
Standard Deviation				0.8	0.8	1.94	1.44	0.29	0.56	844.5
CV				0.82	0.9	5.32	692.82	692.82	1.24	9.52
Replicate F				10.741	10.741	2.431	1	1	16.561	18.284
Replicate Prob(F)				0.0001	0.0001	0.0826	0.4051	0.4051	0.0001	0.0001
Treatment F				2.529	2.529	2.733	1	1	0.384	1.105
Treatment Prob(F)				0.0194	0.0194	0.0125	0.4671	0.4671	0.9529	0.3881

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

Table 29. Determine the agronomic response of drill-seeded LA2134 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date							8/13/2015		8/13/2015	8/13/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	88 a	79 a	33.3 a	0 a	0 a	46.3 a	8,282 a
2	UREA	30	4-5 leaf	89 a	80 a	34.5 a	0 a	0 a	45.8 a	9,517 a
3	UREA	60	4-5 leaf	90 a	81 a	35.5 a	0 a	0 a	45.9 a	9,751 a
4	UREA	90	4-5 leaf	89 a	80 a	35.3 a	0 a	0 a	46.0 a	9,616 a
5	UREA	120	4-5 leaf	89 a	80 a	35.0 a	2.5 a	1.3 a	45.5 a	9,120 a
6	UREA	150	4-5 leaf	89 a	80 a	35.8 a	0 a	0 a	45.8 a	9,404 a
7	UREA	180	4-5 leaf	89 a	80 a	34.8 a	2.5 a	1 a	45.4 a	8,488 a
8	UREA	210	4-5 leaf	89 a	80 a	34.5 a	0 a	0 a	45.5 a	9,129 a
9	UREA	45	4-5 leaf	88 a	79 a	35.0 a	0 a	0 a	46.0 a	9,770 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	89 a	80 a	35.3 a	0 a	0 a	45.7 a	9,264 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	89 a	80 a	34.3 a	0 a	0 a	45.7 a	9,114 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	89 a	80 a	37.0 a	0 a	0 a	45.7 a	8,631 a
	UREA	45	PD							
LSD P=.05				1.03	1.03	3.21	2.98	1.35	0.56	1,117.6
Standard Deviation				0.71	0.71	2.23	2.07	0.94	0.39	776.9
CV				0.80	0.89	6.38	497.27	500.15	0.85	8.47
Replicate F				7.297	7.297	0.078	0.647	0.655	2.482	1.656
Replicate Prob(F)				0.0007	0.0007	0.9714	0.5904	0.5853	0.0781	0.1954
Treatment F				1.366	1.366	0.666	0.882	0.885	1.619	1.585
Treatment Prob(F)				0.2345	0.2345	0.759	0.5658	0.5633	0.1389	0.1492

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

Table 30. Determine the agronomic response of drill-seeded LA2008 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top				
Rating Date							8/13/2015		8/13/2015	8/13/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	inches	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	100 f	91 f	36.8 d	0 a	0 a	45.5 a	9,908 a
2	UREA	30	4-5 leaf	101 ef	92 ef	38.3 a-d	0 a	0 a	44.9 a	10,780 a
3	UREA	60	4-5 leaf	102 de	93 de	37.5 cd	0 a	0 a	45.2 a	11,031 a
4	UREA	90	4-5 leaf	102 cd	93 cd	38.0 bcd	0 a	0 a	43.3 a	10,648 a
5	UREA	120	4-5 leaf	103 bc	94 bc	40.0 ab	0 a	0 a	44.5 a	11,433 a
6	UREA	150	4-5 leaf	105 a	96 a	40.5 a	0 a	0 a	43.7 a	10,456 a
7	UREA	180	4-5 leaf	104 ab	95 ab	40.5 a	0 a	0 a	44.3 a	10,574 a
8	UREA	210	4-5 leaf	104 ab	95 ab	39.5 abc	7.5 a	1.3 a	44.1 a	10,018 a
9	UREA	45	4-5 leaf	102 de	93 de	39.8 abc	0 a	0 a	43.6 a	11,060 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	103 bc	94 bc	40.0 ab	0 a	0 a	44.5 a	11,360 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	104 ab	95 ab	40.5 a	0 a	0 a	44.5 a	10,643 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	104 ab	95 ab	38.5 a-d	5 a	1.3 a	44.6 a	10,672 a
	UREA	45	PD							
LSD P=.05				1.13	1.13	2.34	7.17	1.4	1.26	1,246.8
Standard Deviation				0.78	0.78	1.63	4.98	0.97	0.88	866.7
CV				0.76	0.83	4.16	478.18	467.10	1.97	8.09
Replicate F				7.935	7.935	1.097	2.099	2.2	0.288	10.72
Replicate Prob(F)				0.0004	0.0004	0.3641	0.1192	0.1066	0.834	0.0001
Treatment F				13.755	13.755	2.527	1	1	2.093	1.158
Treatment Prob(F)				0.0001	0.0001	0.0195	0.4671	0.4671	0.0501	0.3521

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

Determine the Agronomic Response of Drill-Seeded Rice Varieties and Advanced Experimental Lines to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number ....: 15-VP-VxN

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 inches / 7

Soil type ....: Kaplan silt loam
- **% organic matter** ....: 1.29
- **pH** ....: 4.8
- **Extractable nutrients** ppm ....: Ca-1029; Cu-1.0; Mg-122; P-49.31; K-58.65; Na-15.4; S-6.8; Zn-3.2

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 24
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .5 inch
- **Emergence date** ....: April 5
- **Harvest date** ....: Aug. 5
- **Ratoon harvest date** ....: Oct. 29

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 8-24-24, April 8
90 lb N/A 46-0-0, Aug. 11

Water management ....:
- **Flush** ....: April 4
- **Flood** ....: May 12
- **Drain** ....: July 18
- **Ratoon flood** ....: Aug. 12
- **Ratoon drain** ....: Oct. 9

Pest management ....:
- **Herbicides** ....: 8 oz/A Command, April 8
  3 qt/A propanil + 1 oz/A Permit + 1 oz/A Londax, May 11
  25 oz/A Clincher + .5 oz/A Permit + 1 qt/A COC, May 14
- **Insecticides** ....: None
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 22

Table 31. Determine the agronomic response of drill-seeded CL163 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	90 f	78 f	35.3 d	46.0 a	5,391 f	47.8 a	3,934 e	9,325 e
2	UREA	30	4-5 leaf	91 ef	79 ef	37.8 c	45.1 a	6,343 e	47.4 abc	4,192 de	10,534 d
3	UREA	60	4-5 leaf	91 de	79 de	37.8 c	45.7 a	6,901 cd	47.4 abc	4,211 cde	11,112 cd
4	UREA	90	4-5 leaf	92 bc	80 bc	39.0 bc	45.6 a	7,524 ab	47.5 ab	4,259 b-e	11,783 abc
5	UREA	120	4-5 leaf	93 bc	81 bc	39.8 ab	45.4 a	7,762 a	47.1 bcd	4,605 abc	12,368 ab
6	UREA	150	4-5 leaf	93 ab	81 ab	40.3 ab	45.1 a	7,621 ab	46.9 cde	4,594 abc	12,215 ab
7	UREA	180	4-5 leaf	94 a	82 a	41.0 a	45.2 a	7,513 ab	46.7 de	4,511 a-d	12,023 ab
8	UREA	210	4-5 leaf	94 a	82 a	39.8 ab	44.7 a	7,442 ab	46.5 e	4,694 a	12,136 ab
9	UREA	45	4-5 leaf	91 ef	79 ef	37.8 c	44.4 a	6,421 de	47.7 ab	4,342 a-d	10,763 d
	UREA	45	PD								
10	UREA	75	4-5 leaf	92 cd	80 cd	40.3 ab	45.6 a	7,225 bc	47.4 abc	4,494 a-d	11,719 bc
	UREA	45	PD								
11	UREA	105	4-5 leaf	93 bc	81 bc	39.8 ab	45.4 a	7,858 a	47.2 a-d	4,625 ab	12,483 a
	UREA	45	PD								
12	UREA	135	4-5 leaf	93 bc	81 bc	39.8 ab	45.5 a	7,654 ab	47.2 a-d	4,609 abc	12,263 ab
	UREA	45	PD								
LSD P=.05				0.82	0.82	1.57	1.02	508.5	0.59	399	732.3
Standard Deviation				0.57	0.57	1.09	0.71	353.5	0.41	277.3	509.1
CV				0.62	0.71	2.81	1.56	4.95	0.86	6.27	4.4
Replicate F				4.231	4.231	3.899	0.955	3.311	3.154	9.042	6.781
Replicate Prob(F)				0.012	0.0123	0.0173	0.4253	0.0319	0.0377	0.0002	0.0011
Treatment F				15.97	15.969	8.544	1.554	17.61	3.731	2.814	13.937
Treatment Prob(F)				0.0001	0.0001	0.0001	0.1593	0.0001	0.0016	0.0106	0.0001

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

Table 32. Determine the agronomic response of drill-seeded CL271 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	95 b	83 b	33.8 f	45.6 a	5,047 g	47.7 a	4,868 e	9,915 e
2	UREA	30	4-5 leaf	95 b	83 b	36.0 e	44.8 bc	5,882 f	47.5 abc	5,025 e	10,907 d
3	UREA	60	4-5 leaf	95 b	83 b	37.3 de	45.1 ab	6,495 de	47.5 a-d	4,925 e	11,420 cd
4	UREA	90	4-5 leaf	98 a	86 a	38.8 bcd	44.9 b	7,460 ab	47.2 b-e	5,135 cde	12,595 ab
5	UREA	120	4-5 leaf	97 a	85 a	38.8 bcd	45.0 b	7,780 a	47.1 def	5,399 a-d	13,179 a
6	UREA	150	4-5 leaf	98 a	86 a	38.5 bcd	44.3 c	7,595 ab	47.0 ef	5,543 a	13,138 a
7	UREA	180	4-5 leaf	98 a	86 a	40.0 ab	44.5 bc	7,649 ab	46.7 f	5,448 abc	13,097 a
8	UREA	210	4-5 leaf	97 a	85 a	39.5 abc	44.6 bc	7,577 ab	47.0 ef	5,117 cde	12,694 a
9	UREA	45	4-5 leaf	96 b	84 b	36.0 e	45.0 b	6,177 ef	47.6 ab	5,095 de	11,272 d
	UREA	45	PD								
10	UREA	75	4-5 leaf	97 a	85 a	37.8 cde	44.9 bc	6,839 cd	47.3 a-e	5,181 b-e	12,020 bc
	UREA	45	PD								
11	UREA	105	4-5 leaf	98 a	86 a	38.8 bcd	44.9 b	7,306 bc	47.2 b-e	5,500 ab	12,806 a
	UREA	45	PD								
12	UREA	135	4-5 leaf	98 a	86 a	41.0 a	44.9 bc	7,281 bc	47.1 c-f	5,388 a-d	12,669 a
	UREA	45	PD								
LSD P=.05				1.24	1.24	1.89	0.6	468.3	0.45	339.4	620.7
Standard Deviation				0.86	0.86	1.31	0.41	325.5	0.31	235.9	431.4
CV				0.89	1.02	3.45	0.92	4.7	0.66	4.52	3.55
Replicate F				4.885	4.885	2.685	1.701	0.636	16.48	8.515	4.758
Replicate Prob(F)				0.0064	0.0064	0.0625	0.1858	0.5973	0.0001	0.0003	0.0073
Treatment F				7.861	7.861	9.291	2.344	27.647	3.688	3.784	23.419
Treatment Prob(F)				0.0001	0.0001	0.0001	0.029	0.0001	0.0018	0.0015	0.0001

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

Table 33. Determine the agronomic response of drill-seeded Antonio to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				plant-hd		emer-hd		Top											
Rating Date										8/5/2015		8/5/2015		10/29/2015		10/29/2015		10/29/2015	
Rating Type				50% HD		50% HD		Height		Test Wt.		Yield		Test Wt.		Yield		Yield	
Rating Unit				days		days		inches		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 (lb ai/A)	Growth Stage																
1	UREA	0	4-5 leaf	85	e	73	e	33.3	e	47.1	a	4,121	e	48.2	a	3,245	e	7366	e
2	UREA	30	4-5 leaf	87	d	75	d	34.5	de	46.8	a	5,561	d	48.0	a	3,468	de	9029	d
3	UREA	60	4-5 leaf	89	c	77	c	36.0	bcd	47.1	a	6,376	c	48.3	a	3,813	bcd	10189	c
4	UREA	90	4-5 leaf	91	b	79	b	38.3	ab	46.7	a	7,401	ab	48.4	a	4,288	a	11689	ab
5	UREA	120	4-5 leaf	92	ab	80	ab	37.3	abc	46.2	a	7,504	ab	47.9	a	4,593	a	12096	ab
6	UREA	150	4-5 leaf	92	a	80	a	38.8	a	46.6	a	7,899	a	48.1	a	4,490	a	12389	a
7	UREA	180	4-5 leaf	92	a	80	a	38.8	a	46.6	a	7,098	b	48.0	a	4,223	ab	11321	b
8	UREA	210	4-5 leaf	93	a	81	a	37.8	ab	46.8	a	7,244	b	48.1	a	4,162	abc	11406	b
9	UREA	45	4-5 leaf	89	c	77	c	34.8	cde	47.0	a	5,661	d	48.4	a	3,748	cd	9408	cd
	UREA	45	PD																
10	UREA	75	4-5 leaf	91	b	79	b	36.5	a-d	46.9	a	7,088	b	47.9	a	4435	a	11523	b
	UREA	45	PD																
11	UREA	105	4-5 leaf	92	a	80	a	36.8	a-d	46.8	a	7,479	ab	48.2	a	4576	a	12055	ab
	UREA	45	PD																
12	UREA	135	4-5 leaf	92	ab	80	ab	37.5	ab	46.7	a	7,473	ab	48.0	a	4368	a	11841	ab
	UREA	45	PD																
LSD P=.05				1.27		1.27		2.64		0.62		517.9		0.71		445.1		796.6	
Standard Deviation				0.89		0.89		1.83		0.43		360		0.5		309.4		553.8	
CV				0.98		1.13		5		0.92		5.34		1.03		7.51		5.1	
Replicate F				12.556		12.556		0.612		1.075		2.08		1.128		5.125		2.189	
Replicate Prob(F)				0.0001		0.0001		0.612		0.3731		0.1218		0.3521		0.0051		0.1079	
Treatment F				29.682		29.682		3.672		1.291		37.87		0.535		8.338		30.851	
Treatment Prob(F)				0.0001		0.0001		0.0018		0.2725		0.0001		0.8648		0.0001		0.0001	

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

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Table 34. Determine the agronomic response of drill-seeded LaKast to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	85 f	73 f	32.3 f	47.2 a	4,196 f	47.9 a	4,259 de	8,455 f
2	UREA	30	4-5 leaf	87 f	75 f	38.3 de	46.0 bcd	5,876 e	46.6 b	4,907 ab	10,782 e
3	UREA	60	4-5 leaf	90 de	78 de	37.8 e	46.4 b	7,520 c	46.1 c	4,638 bc	12,158 c
4	UREA	90	4-5 leaf	89 e	77 e	41.0 abc	46.2 bc	8,252 ab	45.9 c	4,784 abc	13,036 a
5	UREA	120	4-5 leaf	92 a-d	80 a-d	40.8 abc	46.0 bcd	8,366 ab	46.0 c	4,549 cd	12,914 ab
6	UREA	150	4-5 leaf	91 bcd	79 bcd	41.0 abc	45.6 de	8,468 ab	46.0 c	4,497 cd	12,966 a
7	UREA	180	4-5 leaf	93 ab	81 ab	41.8 ab	45.4 e	8,568 ab	45.9 c	4,266 de	12,834 ab
8	UREA	210	4-5 leaf	93 a	81 a	43.0 a	45.6 de	8,726 a	45.6 c	4,098 e	12,824 ab
9	UREA	45	4-5 leaf	89 e	77 e	39.0 cde	46.4 b	6,512 d	46.6 b	5,067 a	11,579 d
	UREA	45	PD								
10	UREA	75	4-5 leaf	91 cde	79 cde	41.3 abc	46.3 b	7,570 c	46.1 c	4,769 abc	12,339 bc
	UREA	45	PD								
11	UREA	105	4-5 leaf	92 abc	80 abc	40.3 bcd	45.8 cde	8,152 b	46.0 c	4,696 bc	12,848 ab
	UREA	45	PD								
12	UREA	135	4-5 leaf	93 abc	81 abc	42.8 a	46.0 bcd	8,688 ab	46.0 c	4,669 bc	13,357 a
	UREA	45	PD								
LSD P=.05				2.01	2.01	2.4	0.48	555.6	0.5	316.6	577.3
Standard Deviation				1.39	1.39	1.67	0.33	386.2	0.35	220.1	401.3
CV				1.55	1.78	4.18	0.72	5.10	0.76	4.78	3.30
Replicate F				8.922	8.922	0.739	0.339	0.809	3.645	2.879	0.295
Replicate Prob(F)				2E-04	0.0002	0.5366	0.7971	0.4978	0.0225	0.0507	0.8287
Treatment F				14.76	14.757	12.142	8.381	51.69	12.041	6.635	46.926
Treatment Prob(F)				1E-04	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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

Table 35. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	82 f	70 f	32.3 c	46.5 a	4,294 c	48.9 a	3,725 d	8,019 d
2	UREA	30	4-5 leaf	83 ef	71 ef	32.0 c	46.6 a	5,225 ab	49.1 a	3,881 cd	9,106 bc
3	UREA	60	4-5 leaf	84 de	72 de	33.5 bc	46.4 a	5,755 a	48.7 a	3,972 bcd	9,727 abc
4	UREA	90	4-5 leaf	84 cd	72 cd	36.0 ab	45.9 bc	5,750 a	49.0 a	3,977 bcd	9,727 abc
5	UREA	120	4-5 leaf	84 a-d	72 a-d	35.8 ab	45.4 def	5,736 a	48.5 a	4,300 ab	10,036 ab
6	UREA	150	4-5 leaf	85 ab	73 ab	37.0 a	45.3 ef	5,631 a	49.0 a	4,234 abc	9,865 abc
7	UREA	180	4-5 leaf	85 abc	73 abc	37.5 a	45.2 f	4,675 bc	48.9 a	4,209 abc	8,884 cd
8	UREA	210	4-5 leaf	85 a	73 a	36.8 ab	45.3 f	5,104 abc	48.9 a	4,348 a	9,452 abc
9	UREA	45	4-5 leaf	84 bcd	72 bcd	35.8 ab	46.2 ab	5,383 ab	49.4 a	4,089 abc	9,472 abc
	UREA	45	PD								
10	UREA	75	4-5 leaf	84 a-d	72 a-d	35.0 abc	45.8 cd	5,546 ab	49.1 a	4,054 a-d	9,601 abc
	UREA	45	PD								
11	UREA	105	4-5 leaf	85 abc	73 abc	35.3 abc	45.7 cde	5,836 a	48.8 a	4,363 a	10,199 a
	UREA	45	PD								
12	UREA	135	4-5 leaf	85 abc	73 abc	35.8 ab	45.5 def	5,909 a	48.7 a	4,200 abc	10,109 ab
	UREA	45	PD								
LSD P=.05				0.97	0.97	3.4	0.45	903.5	0.54	354.9	1,016.1
Standard Deviation				0.67	0.67	2.36	0.32	628	0.37	246.7	706.3
CV				0.8	0.94	6.71	0.69	11.62	0.76	6.00	7.42
Replicate F				16.65	16.645	0.493	1.837	11.289	15.41	10.521	16.518
Replicate Prob(F)				1E-04	0.0001	0.6899	0.1596	0.0001	0.0001	0.0001	0.0001
Treatment F				6.637	6.637	2.237	10.189	2.538	1.53	2.57	3.003
Treatment Prob(F)				1E-04	0.0001	0.0365	0.0001	0.019	0.1675	0.0178	0.0071

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

Table 36. Determine the agronomic response of drill-seeded 13AR1021 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date							8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	91 b	79 b	32.3 e	44.5 abc	4,743 e	48.9 a	5,161 d	9,904 e
2	UREA	30	4-5 leaf	91 b	79 b	33.5 de	44.7 a	5,333 e	48.8 a	5,201 d	10,534 de
3	UREA	60	4-5 leaf	91 b	79 b	34.5 cde	44.6 ab	6,545 d	48.6 abc	5,472 bcd	12,017 c
4	UREA	90	4-5 leaf	92 ab	80 ab	36.8 abc	44.1 cd	7,558 bc	48.3 cde	5,826 abc	13,384 b
5	UREA	120	4-5 leaf	93 a	81 a	38.8 a	43.9 def	8,076 ab	48.2 c-g	5,824 abc	13,900 ab
6	UREA	150	4-5 leaf	94 a	82 a	37.8 ab	43.7 ef	8,296 a	48.0 efg	5,851 abc	14,147 ab
7	UREA	180	4-5 leaf	93 a	81 a	37.8 ab	43.4 f	8,354 a	47.8 g	5,640 a-d	13,994 ab
8	UREA	210	4-5 leaf	93 a	81 a	37.8 ab	43.8 def	8,674 a	47.8 fg	5,800 abc	14,474 a
9	UREA	45	4-5 leaf	91 b	79 b	33.8 de	44.6 a	6,095 d	48.7 ab	5,389 cd	11,484 cd
	UREA	45	PD								
10	UREA	75	4-5 leaf	92 ab	80 ab	35.5 bcd	44.2 bcd	7,335 c	48.4 bcd	5,889 ab	13,224 b
	UREA	45	PD								
11	UREA	105	4-5 leaf	93 a	81 a	36.5 abc	44.2 bcd	7,968 abc	48.2 c-f	5,905 ab	13,873 ab
	UREA	45	PD								
12	UREA	135	4-5 leaf	93 a	81 a	37.0 abc	44 de	8,574 a	48.0 d-g	6,122 a	14,696 a
	UREA	45	PD								
LSD P=.05				1.52	1.52	2.6	0.43	730.4	0.4	500.2	965.8
Standard Deviation				1.06	1.06	1.81	0.3	507.7	0.28	347.7	671.4
CV				1.15	1.32	5.02	0.67	6.96	0.58	6.13	5.18
Replicate F				0.566	0.566	2.223	0.045	1.625	6.308	3.507	1.449
Replicate Prob(F)				0.641	0.6414	0.1039	0.9871	0.2023	0.0017	0.026	0.2463
Treatment F				3.79	3.79	5.182	7.3	27.032	6.902	3.019	22.628
Treatment Prob(F)				0.001	0.0014	0.0001	0.0001	0.0001	0.0001	0.0068	0.0001

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

Evaluation of Ratoon Crop Response to Post Harvest Nitrogen Application Rate – Long-Grain Varieties

Experiment number ....: 15-CM-21

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.57
- **pH** ....: 7.58
- **Extractable nutrients** ppm ....: Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2

Crop/Variety ....: Rice / CL111, CL152, and Mermentau
- **Planting method/date** ....: Drill seeded / March 20
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: Aug. 4
- **Ratoon harvest date** ....: Nov. 9

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
150 lb N/A 46-0-0, May 8

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 23
- **Ratoon flood** ....: Aug. 11
- **Ratoon drain** ....: Oct. 28

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 37. Two-way table of agronomic data for ratoon crop response to post harvest N application rate (RRS.3). Long-grain varieties.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top							
Rating Date						8/4/2015		8/4/2015	8/4/2015	11/9/2015	11/9/2015	
Rating Type			50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit			days	days	inches	% 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.	Treatment Name	Rate lb/A										
Variety Means												
1	CL111		96 c	86 c	40.5 a	45.8 a	3.4 a	45.2 a	8,892 a	46.7 a	3,005 b	11,897 b
2	CL152		105 a	95 a	39.2 b	0 b	0 b	44.1 c	9,156 a	46.1 b	3,511 a	12,667 a
3	Mermentau		98 b	88 b	38.1 c	0 b	0 b	44.8 b	8,939 a	46.6 a	2,278 c	11,217 c
	P		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	LSD P=.05		0.52	0.52	0.84	7.88	0.30	0.31	239.5	0.24	183.8	324.5
Ratoon N rate Means												
1	0 lb N/A	0	99 a	89 a	40.2 a	11.7 a	1.1 a	45.0 a	9,114 a	46.7 a	1,463 d	10,578 c
2	30 lb N/A	30	100 a	90 a	39.0 a	20 a	1.3 a	44.6 a	9,034 a	46.6 a	2,722 c	11,757 b
3	60 lb N/A	60	100 a	90 a	39.2 a	13.3 a	1.3 a	44.7 a	8,994 a	46.5 a	3,220 b	12,214 ab
4	90 lb N/A	90	100 a	90 a	39.3 a	16.7 a	1.3 a	44.5 a	8,911 a	46.4 a	3,284 ab	12,195 ab
5	120 lb N/A	120	100 a	90 a	39.3 a	16.7 a	0.8 a	44.7 a	8,971 a	46.3 a	3,482 a	12,453 a
6	150 lb N/A	150	100 a	90 a	38.8 a	13.3 a	1.2 a	44.5 a	8,949 a	46.3 a	3,417 ab	12,366 a
	P		0.6068	0.6068	0.3079	0.6984	0.141	0.2316	0.8755	0.0667	0.0001	0.0001
	LSD P=.05		0.74	0.74	1.19	11.14	0.42	0.43	338.7	0.34	259.9	458.9

Continued.

Table 37. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top							
Rating Date						8/4/2015		8/4/2015	8/4/2015	11/9/2015	11/9/2015	
Rating Type			50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit			days	days	inches	% 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.	Treatment Name	Rate lb/A										
Variety x Ratoon N rate Means												
1	CL111	0	96 a	86 a	42.0 a	35 a	3.3 a	45.4 a	8,914 a	47.1 a	1,241 a	10,155 a
2	CL152	0	104 a	94 a	39.5 a	0 a	0 a	44.4 a	9,294 a	46.5 a	1,964 a	11,258 a
3	Mermentau	0	98 a	88 a	39.0 a	0 a	0 a	45.1 a	9,134 a	46.6 a	1,185 a	10,320 a
1	CL111	30	96 a	86 a	40.5 a	60 a	3.8 a	45.1 a	9,111 a	46.7 a	2,732 a	11,843 a
2	CL152	30	105 a	95 a	39.3 a	0 a	0 a	44.1 a	9,025 a	46.3 a	3,240 a	12,265 a
3	Mermentau	30	98 a	88 a	37.3 a	0 a	0 a	44.7 a	8,966 a	46.9 a	2,195 a	11,161 a
1	CL111	60	97 a	87 a	40.0 a	40 a	3.8 a	44.9 a	8,947 a	46.8 a	3,333 a	12,280 a
2	CL152	60	105 a	95 a	38.8 a	0 a	0 a	44.4 a	9,120 a	46.2 a	3,850 a	12,970 a
3	Mermentau	60	97 a	87 a	38.8 a	0 a	0 a	44.9 a	8,916 a	46.6 a	2,477 a	11,393 a
1	CL111	90	96 a	86 a	40.5 a	50 a	3.8 a	45.1 a	8,886 a	46.6 a	3,431 a	12,317 a
2	CL152	90	105 a	95 a	39.0 a	0 a	0 a	43.6 a	9,046 a	46.0 a	3,870 a	12,917 a
3	Mermentau	90	98 a	88 a	38.3 a	0 a	0 a	44.7 a	8,802 a	46.7 a	2,550 a	11,352 a
1	CL111	120	97 a	87 a	40.3 a	50 a	2.3 a	45.2 a	8,771 a	46.5 a	3,706 a	12,477 a
2	CL152	120	105 a	95 a	40.3 a	0 a	0 a	44.2 a	9,199 a	45.9 a	4,000 a	13,199 a
3	Mermentau	120	98 a	88 a	37.3 a	0 a	0 a	44.6 a	8,942 a	46.4 a	2,741 a	11,683 a
1	CL111	150	97 a	87 a	40.0 a	40 a	3.5 a	45.2 a	8,725 a	46.5 a	3,585 a	12,310 a
2	CL152	150	104 a	94 a	38.3 a	0 a	0 a	43.6 a	9,252 a	46.0 a	4,141 a	13,394 a
3	Mermentau	150	98 a	88 a	38.3 a	0 a	0 a	44.6 a	8,871 a	46.5 a	2,524 a	11,395 a
	P		0.256	0.256	0.558	0.8005	0.095	0.6157	0.9684	0.893	0.1308	0.5867
	LSD P=.05		1.28	1.28	2.06	19.3	0.73	0.75	586.6	0.58	450.1	794.8

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

Evaluation of Ratoon Crop Response to Post Harvest Nitrogen Application Rate – Medium-Grain Varieties

Experiment number	: 15-CM-22
Site and design	:
Location/Cooperator	: H. Rouse Caffey 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 inches / 7
Soil type	: Crowley silt loam
% organic matter	: 1.57
pH	: 7.58
Extractable nutrients ppm	: Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2
Crop/Variety	: Rice / CL271, Jupiter, and Caffey
Planting method/date	: Drill seeded / March 20
Seeding rate/depth	: 33 seeds/ft^2 / .5 inch
Emergence date	: March 29
Harvest date	: Aug. 7
Ratoon harvest date	: Nov. 9
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 repellent) - 18.3 oz
Fertilization	: 250 lb/A 0-24-24-2.7, March 25
	150 lb N/A 46-0-0, May 8
Water management	:
Flush	: April 1
Flood	: May 11
Drain	: July 23
Ratoon flood	: Aug. 11
Ratoon drain	: Oct. 28
Pest management	:
Herbicides	: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
	1 qt/A glyphosate, Feb. 11
	2 pt/A Prowl H_2O, March 31
	2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
	2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
	3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 38. Two-way table of agronoic data for ratoon crop response to post harvest N application rate (RRS.1). Medium-grain varieties.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top					
Rating Date						8/7/2015	8/7/2015	11/9/2015	11/9/2015	11/9/2015
Rating Type			50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit			days	days	inches	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Treatment Name	Rate (lb/A)								
Variety Means										
1	Caffey		102 b	93 b	36.8 a	45.7 b	8,919 a	46.6 b	3,358 a	12,277 a
2	Jupiter		104 a	95 a	38.3 a	44.3 c	9,049 a	46.6 b	3,058 b	12,108 a
3	CL271		101 c	92 c	38.9 a	46.1 a	8,854 a	47.0 a	3,507 a	12,360 a
	P		0.0001	0.0001	0.2704	0.0001	0.266	0.0001	0.0011	0.4341
	LSD (0.05)		0.42	0.42	2.62	0.28	242.4	0.18	231.7	396.8
Ratoon N rate Means										
1	0 lb N/A	0	102 a	93 a	38.5 a	45.3 a	9,004 a	47.1 a	2,013 c	11,017 c
2	30 lb N/A	30	102 a	93 a	37.8 a	45.5 a	8,951 a	46.9 a	3,124 b	12,075 b
3	60 lb N/A	60	102 a	93 a	38.9 a	45.4 a	8,939 a	46.9 a	3,638 a	12,576 ab
4	90 lb N/A	90	102 a	93 a	38.7 a	45.4 a	8,964 a	46.6 b	3,701 a	12,665 a
5	120 lb N/A	120	102 a	93 a	39.0 a	45.0 a	8,869 a	46.5 b	3,802 a	12,671 a
6	150 lb N/A	150	102 a	93 a	35.2 a	45.4 a	8,919 a	46.5 b	3,568 a	12,487 ab
	P		1	1	0.3029	0.1854	0.982	0.0001	0.0001	0.0001
	LSD (0.05)		0.6	0.6	3.71	0.4	342.9	0.26	327.7	561.2
Variety x Ratoon N Rate Means										
1	Caffey	0	102 a	93 a	38.5 a	45.7 a	8,939 a	46.9 a	1,925 a	10,863 a
2	Jupiter	0	104 a	95 a	38.3 a	44.1 a	9,250 a	46.8 a	1,915 a	11,165 a
3	CL271	0	101 a	92 a	38.8 a	46.1 a	8,823 a	47.6 a	2,200 a	11,023 a
1	Caffey	30	102 a	93 a	38.3 a	45.9 a	8,931 a	46.9 a	3,045 a	11,976 a
2	Jupiter	30	104 a	95 a	38.3 a	44.4 a	9,076 a	46.9 a	2,971 a	12,048 a
3	CL271	30	101 a	92 a	37.0 a	46.1 a	8,846 a	46.9 a	3,356 a	12,202 a
1	Caffey	60	102 a	93 a	38.8 a	45.7 a	8,749 a	46.8 a	3,573 a	12,322 a
2	Jupiter	60	104 a	95 a	39.0 a	44.3 a	9,155 a	46.6 a	3,175 a	12,330 a
3	CL271	60	101 a	92 a	39.0 a	46.2 a	8,913 a	47.2 a	4,165 a	13,077 a
1	Caffey	90	102 a	93 a	37.8 a	45.5 a	9,022 a	46.5 a	3,841 a	12,863 a
2	Jupiter	90	104 a	95 a	38.3 a	44.3 a	9,070 a	46.3 a	3,517 a	12,587 a
3	CL271	90	101 a	92 a	40.0 a	46.3 a	8,799 a	46.9 a	3,746 a	12,545 a
1	Caffey	120	102 a	93 a	38.8 a	45.8 a	8,763 a	46.4 a	3,859 a	12,622 a
2	Jupiter	120	104 a	95 a	38.8 a	44.1 a	8,901 a	46.4 a	3,535 a	12,436 a
3	CL271	120	101 a	92 a	39.5 a	45.1 a	8,944 a	46.8 a	4,011 a	12,955 a
1	Caffey	150	102 a	93 a	29.0 a	45.3 a	9,113 a	46.4 a	3,903 a	13,017 a
2	Jupiter	150	104 a	95 a	37.3 a	44.3 a	8,844 a	46.4 a	3,238 a	12,083 a
3	CL271	150	101 a	92 a	39.3 a	46.5 a	8,798 a	46.7 a	3,563 a	12,361 a
	P		1	1	0.4784	0.0605	0.90	0.7271	0.4524	0.6528
	LSD (0.05)		1.03	1.03	6.42	0.68	593.8	0.45	567.5	972.1

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

Evaluation of Rice Hybrid Ratoon Crop Response to Post Harvest Nitrogen Application (RRS.3)

Experiment number ....: 15-CM-20

Site and design ....:
Location/Cooperator ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
% organic matter ....: 1.57
pH ....: 7.58
Extractable nutrients ppm ....: Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2

Crop/Variety ....: Rice / CLXL745, CLXL729, and XL753
Planting method/date ....: Drill seeded / March 20
Seeding rate/depth ....: 14 seeds/ft^2 / .5 inch
Emergence date ....: March 29
Harvest date ....: Aug. 3
Ratoon harvest date ....: Nov. 9

Seed treatment/cwt ....: Hyb – Maxim 4FS
Apron XL
Gibberellic acid
Zinc
Dynasty
AV-1011 (bird repellent) – 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
120 lb N/A 46-0-0, May 8
30 lb N/A 46-0-0, May 27

Water management ....:
Flush ....: April 1
Flood ....: May 11
Drain ....: July 23
Ratoon flood ....: Aug. 11
Ratoon drain ....: Oct. 28

Pest management ....:
Herbicides ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 39. Evaluation of rice hybrid ratoon crop response to post harvest N application. Hybrid rice.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top							
Rating Date						8/3/2015		8/3/2015	8/3/2015	11/9/2015	11/9/2015	11/9/2015
Rating Type			50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit			days	days	inches	% 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.	Treatment Name	Rate lb/A										
Variety Means												
1	CLXL745		95 b	85 b	43.5 a	92.5 a	3.0 a	44.6 a	9,916 b	48.3 a	1,583 c	11,499 b
2	CLXL729		98 a	88 a	43.1 a	49.6 b	1.6 b	44.4 a	10,871 a	48.8 a	3,994 a	14,865 a
3	XL753		98 a	88 a	41.1 b	5.4 c	0.5 c	43.9 a	11,403 a	47.2 b	2,731 b	14,134 a
	P		0	0	0.0001	0.0001	1E-04	0.6131	0.0001	0.0003	0.0001	0.0001
	LSD P=.05		0.46	0.46	1.00	8.57	0.36	1.41	558.9	0.76	511.4	850.4
Ratoon N Rate Means												
1	0 lb N/A	0	97 a	87 a	42.7 a	53.3 a	1.5 a	44.0 a	10,766 a	48.3 b	1,400 d	12,166 c
2	30 lb N/A	30	97 a	87 a	41.8 a	45.8 a	1.7 a	44.2 a	10,763 a	47.7 b	1,801 cd	12,563 c
3	60 lb N/A	60	97 a	87 a	41.9 a	52.5 a	1.8 a	44.6 a	10,427 a	48.1 b	2,464 c	12,890 bc
4	90 lb N/A	90	97 a	87 a	42.8 a	49.2 a	1.5 a	43.6 a	10,742 a	49.3 a	3,225 b	13,967 b
5	120 lb N/A	120	97 a	87 a	43.0 a	50.8 a	1.8 a	44.0 a	10,450 a	47.4 b	3,519 ab	13,969 b
6	150 lb N/A	150	98 a	88 a	43.2 a	43.3 a	1.8 a	45.5 a	11,232 a	47.9 b	4,208 a	15,440 a
	P		0	0	0.3	0.5292	0.705	0.4662	0.3741	0.0157	0.0001	0.0001
	LSD P=.05		0.64	0.64	1.41	12.12	0.51	2	790.5	1.07	723.2	1,202.7

Continued.

Table 39. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top							
Rating Date						8/3/2015		8/3/2015	8/3/2015	11/9/2015	11/9/2015	11/9/2015
Rating Type			50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit			days	days	inches	% 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.	Treatment Name	Rate lb/A										
Variety x Ratoon N Rate Means												
1	CLXL745	0	95 a	85 a	45.0 a	95 a	3 a	44.7 a	9,794 a	49.3 bc	502 i	10,296 h
2	CLXL729	0	98 a	88 a	42.5 a	62.5 a	1.3 a	42.8 a	11,100 a	47.9 bcd	2,705 efg	13,805 c-f
3	XL753	0	98 a	88 a	40.5 a	2.5 a	0.3 a	44.4 a	11,403 a	47.6 cd	993 hi	12,396 fg
1	CLXL745	30	95 a	85 a	43.0 a	87.5 a	3 a	45.8 a	10,917 a	48.6 bcd	1,780 gh	12,697 efg
2	CLXL729	30	98 a	88 a	42.0 a	45 a	1.5 a	43.7 a	10,307 a	47.4 d	2,146 fgh	12,453 fg
3	XL753	30	99 a	89 a	40.5 a	5 a	0.5 a	43.0 a	11,064 a	47.2 d	1,476 ghi	12,540 fg
1	CLXL745	60	95 a	85 a	43.0 a	90 a	3 a	43.9 a	8,720 a	47.8 bcd	1,482 ghi	10,202 h
2	CLXL729	60	98 a	88 a	42.8 a	60 a	1.5 a	44.6 a	11,097 a	49.4 b	3,719 cde	14,816 bcd
3	XL753	60	98 a	88 a	40.0 a	7.5 a	1 a	45.4 a	11,463 a	47.1 d	2,190 fgh	13,653 def
1	CLXL745	90	95 a	85 a	42.3 a	95 a	2.8 a	43.4 a	9,820 a	48.2 bcd	1,641 ghi	11,461 gh
2	CLXL729	90	99 a	89 a	44.3 a	42.5 a	1.5 a	45.2 a	11,187 a	51.7 a	4,985 ab	16,172 ab
3	XL753	90	98 a	88 a	42.0 a	10 a	0.3 a	42.1 a	11,220 a	48.0 bcd	3,050 def	14,270 b-f
1	CLXL745	120	96 a	86 a	44.5 a	95 a	3 a	44.4 a	9,738 a	48.1 bcd	1,730 ghi	11,468 gh
2	CLXL729	120	98 a	88 a	43.3 a	55 a	2 a	43.8 a	9,980 a	47.3 d	4,721 abc	14,701 b-e
3	XL753	120	99 a	89 a	41.3 a	2.5 a	0.3 a	43.9 a	11,633 a	46.8 d	4,104 bcd	15,737 abc
1	CLXL745	150	95 a	85 a	43.5 a	92.5 a	3 a	45.3 a	10,506 a	47.7 bcd	2,364 fg	12,870 d-g
2	CLXL729	150	99 a	89 a	43.8 a	32.5 a	1.8 a	46.4 a	11,554 a	49.3 bc	5,687 a	17,241 a
3	XL753	150	99 a	89 a	42.3 a	5 a	0.5 a	44.8 a	11,635 a	46.8 d	4,573 abc	16,208 ab
	P		0.1414	0.1414	0.3876	0.4797	0.861	0.591	0.1494	0.0174	0.0278	0.0339
	LSD P=.05		1.12	1.12	2.44	21	0.89	3.46	1,369.1	1.85	1,252.7	2,083.1

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

Nitrogen Volatilization from Different Nitrogen Sources and Sampling Times

Experiment number ....: 15-CM-18 Volatilization

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.50
- **pH** ....: 7.61
- **Extractable nutrients** ppm ....: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety ....: Rice / CL111
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 22

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
  1 qt/A glyphosate, Feb. 11
  2 pt/A Prowl H_2O, March 31
  2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
  2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 40. Nitrogen volatilization loss at each of the seven sampling times from seven N sources using semi-open volatilization chambers in a drill-seeded, delayed flood rice production system. Permanent flood was established 10 days after fertilizer application. LSU AgCenter H. Rouse Caffey Rice Research Station, 2015.

Crop Name		NH_4	NH_4	NH_4	NH_4	NH_4	NH_4	NH_4	TOTAL N
Crop Variety		Rice	Rice	Rice	Rice	Rice	Rice	Rice	
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.	Treatment								
1	UREA + HM-1002	0.63 b	2.13 b	11.58 b	22.25 a	9.35 ab	4.78 ab	1.68 a	52.4 b
2	UREA + HM-1152C	0.70 b	2.13 b	12.53 b	24.50 a	10.60 a	3.83 ab	1.75 a	56.0 b
3	UREA + HM-1536	1.15 b	5.78 b	18.73 b	25.70 a	11.05 a	5.45 ab	2.65 a	70.5 b
4	UREA + HM-1556	1.15 b	6.23 b	21.63 b	29.58 a	13.30 a	6.63 a	1.73 a	80.2 b
5	UREA + HM-1152C + HM1354A	2.25 b	9.65 b	27.00 b	33.95 a	12.15 a	4.53 ab	1.30 a	90.8 b
6	UREA + HM-1536 + HM1354A	1.65 b	5.33 b	20.53 b	22.40 a	7.80 ab	3.65 ab	1.48 a	62.8 b
7	UREA-Grower standard	34.55 a	243.75 a	47.78 a	9.50 a	3.10 b	2.30 b	1.25 a	342.2 a
LSD P=.05		7.698	33.996	15.478	15.625	5.298	2.536	1.171	45.32
Standard Deviation		5.182	22.884	10.419	10.518	3.566	1.707	0.788	30.51
CV		86.21	58.26	45.65	43.86	37.06	38.36	46.65	28.29
Replicate F		1.026	1.147	0.081	1.045	1.739	1.997	6.189	2.200
Replicate Prob(F)		0.4044	0.3569	0.9697	0.3965	0.1948	0.1506	0.0045	0.1233
Treatment F		23.640	62.144	5.504	2.104	3.609	2.631	1.415	46.679
Treatment Prob(F)		0.0001	0.0001	0.0022	0.1035	0.0158	0.0520	0.2626	0.0001

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls).

DPF = days pre-flood; DPA = days post application; DPostF = days post flood.

Table 41. Cumulative nitrogen volatilization loss at each of the seven sampling times from seven N sources using semi-open volatilization chambers in a drill-seeded, delayed flood rice production system. Permanent flood was established 10 days after fertilizer application. LSU AgCenter H. Rouse Caffey Rice Research Station, 2015.

Crop Name		Cumulative N		Cumulative N		Cumulative N		Cumulative N		Cumulative N		Cumulative N		Cumulative N	
Rating Type		1 DPA		3 DPA		5 DPA		7 DPA		9 DPA		11 DPA		15 DPA	
Rating Unit		%		%		%		%		%		%		%	
Trt	Treatment														
1	UREA + HM-1002	0.04	b	0.2	b	0.9	b	2.2	b	2.8	b	3.1	b	3.2	b
2	UREA + HM-1152C	0.04	b	0.2	b	0.9	b	2.4	b	3.1	b	3.3	b	3.4	b
3	UREA + HM-1536	0.07	b	0.4	b	1.6	b	3.1	b	3.8	b	4.1	b	4.3	b
4	UREA + HM-1556	0.07	b	0.4	b	1.8	b	3.6	b	4.4	b	4.8	b	4.9	b
5	UREA + HM-1152C + HM1354A	0.14	b	0.7	b	2.4	b	4.4	b	5.2	b	5.5	b	5.5	b
6	UREA + HM-1536 + HM1354A	0.10	b	0.4	b	1.7	b	3.0	b	3.5	b	3.7	b	3.8	b
7	UREA-Grower standard	2.10	a	16.9	a	19.9	a	20.4	a	20.6	a	20.8	a	20.8	a
LSD P=.05		0.469		2.52		2.22		2.65		2.71		2.74		2.76	
Standard Deviation		0.316		1.70		1.49		1.78		1.82		1.85		1.86	
CV		86.21		61.6		36.04		31.75		29.43		28.57		28.29	
Replicate F		1.026		1.122		1.720		1.898		2.058		2.185		2.200	
Replicate Prob(F)		0.4044		0.3663		0.1986		0.1662		0.1417		0.1251		0.1233	
Treatment F		23.640		54.305		86.360		54.591		49.499		47.419		46.679	
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, Student-Newman-Keuls).

DPF = days pre-flood; DPA = days post application; DPostF = days post flood.

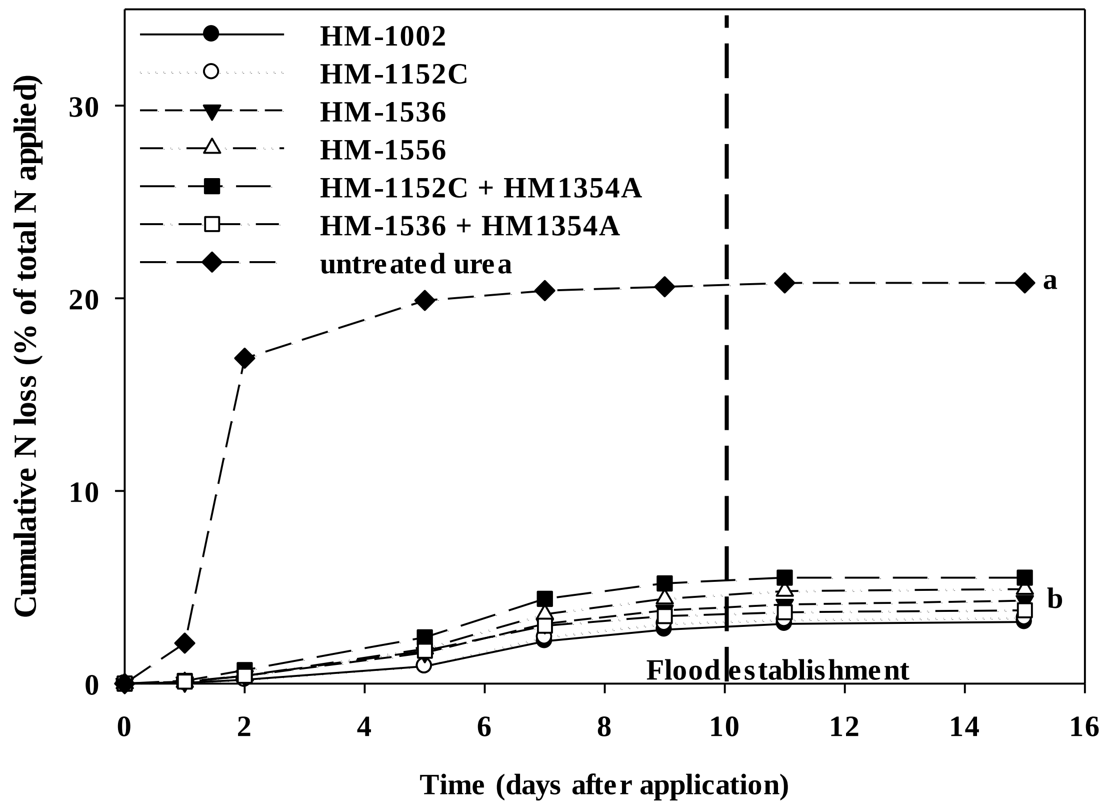

Figure 1. Cumulative volatilization from seven N sources over a 15-day period of time after surface broadcast application on a Crowley silt loam soil. Flood applied on day 10. LSU AgCenter H. Rouse Caffey Rice Research Station 2015.

Table 42. Effect of seven chemically treated urea fertilizers and an untreated control (no N fertilizer) on agronomics and NUE of CL111 rice grown on a Crowley silt loam soil at the LSU AgCenter H. Rouse Caffey Rice Research Station. Crowley, LA. 2015.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top		Tissue	Tissue N	N Uptake	N fert Eff.	N fert Eff.
Part Rated							Abvgrd	Abvgrd	total		
Rating Date					7/27/2015	7/28/2015		8/21/2015			
Rating Type			50% HD	50% HD	Height	Yield	biomass-dry				
Rating Unit			days	days	inches	lb/A	lb/A	% N	lb/A	%	%
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	by block	by mean
Crop Stage Scale							50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name	Rate lb N/A									
1	0 N	0	89 c	79 c	27.3 c	3,697 c	4,153 d	0.74 c	31 d	0 d	0 d
2	Urea	120	93 b	83 b	32.0 b	7,307 b	7,575 c	0.95 b	72 c	24 c	24 c
3	HM-1002	120	96 a	86 a	39.0 a	9,404 a	8,507 abc	1.27 a	108 ab	53 ab	53 ab
4	HM-1152C	120	95 ab	85 ab	37.0 a	9,390 a	9,154 ab	1.31 a	120 a	63 a	63 a
5	HM-1536	120	95 a	85 a	37.5 a	9,331 a	9,581 a	1.24 a	119 a	62 a	62 a
6	HM-1556	120	94 ab	84 ab	37.0 a	9,822 a	7,293 c	1.31 a	95 bc	43 bc	43 bc
7	HM-1152C HM1354A	120	94 ab	84 ab	38.0 a	9,581 a	9,373 ab	1.20 a	112 ab	56 ab	56 ab
8	HM-1536 HM1354A	120	95 ab	85 ab	37.8 a	9,470 a	7,915 bc	1.20 a	95 b	43 bc	43 b
LSD P=.05			1.8	1.8	2.85	580.3	1,512.3	0.1281	22.8	19.2	19.1
Standard Deviation			1.22	1.22	1.94	394.6	1,028.4	0.0871	15.5	13.1	13
CV			1.3	1.46	5.43	4.64	12.95	7.57	16.52	30.45	30.21
Replicate F			3.42	3.42	1.387	2.236	2.227	1.138	1.229	1.862	1.105
Replicate Prob(F)			0.036	0.036	0.2744	0.1139	0.1149	0.3565	0.324	0.167	0.3691
Treatment F			10.887	10.887	17.054	112.48	11.583	21.25	14.777	10.928	11.104
Treatment Prob(F)			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).

Evaluation of Bayer Hybrid USH14001 on Fertilizer Timing Response – Experiment 1

Experiment number	15-CM-10
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 7
Soil type	Crowley silt loam
% organic matter	1.57
pH	7.58
Extractable nutrients ppm	Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2
Crop/Variety	Rice / USH14001
Planting method/date	Drill seeded / March 20
Seeding rate/depth	14 seeds/ft^2 / .5 inch
Emergence date	March 29
Harvest date	July 10
Ratoon Harvest date	
Seed treatment/cwt	Trilex Zinc GA3 Dermacor AV-1011 (bird repellent) – 18.3 oz (added to seed by Research Station)
Fertilization	92 lb N/A 46-0-0, July 13
Water management	
Flush	April 1
Flood	May 5
Drain	June 29
Ratoon drain	Sept. 23
Pest management	
Herbicides	1.5 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1.5 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 3 qt/A propanil + .5 oz/A Londax + .25 oz/A Permit, April 29
Insecticides	5 oz/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Gem500SC + 6 oz/A Bumper, June 18

Table 43. Evaluation of Bayer Hybrid USH14001 on fertilizer timing response (with no N applied at heading). Experiment 1.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top									
Rating Date						7/10/2015	7/10/2015		7/10/2015	10/7/2015		10/7/2015			
Rating Type				50% HD	50% HD	Height	Lodge		Yield	Lodge		Yield	Yield	Milling (%)	
Rating Unit				days	days	inches	% plot	rate	lb/A	% plot	rate	lb/A	lb/A	head	total
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC + RC	Main	Main
Trt No.	Treatment Name	N rate (lb ai/A)	Application Time												
1	42-52-60	42	Planting	70 c	61 c	27.0 c	65 a	0.8 c	4,353 d	93 a	3.5 a	2,823 a	7,176 d	57.97 c	73.69 c
	UREA	23	PF												
	UREA	92	Harvest												
2	42-52-60	42	Planting	71 bc	62 bc	30.3 b	70 a	1.8 b	5,888 c	70 ab	3.3 a	2,832 a	8,720 c	62.16 b	74.25 b
	UREA	46	PF												
	UREA	92	Harvest												
3	42-52-60	42	Planting	74 ab	65 ab	33.5 a	70 a	2.8 a	6,920 b	48 b	2.3 b	2,814 a	9,735 b	63.34 b	74.41 b
	UREA	69	PF												
	UREA	92	Harvest												
4	42-52-60	42	Planting	74 a	65 a	35.3 a	78 a	3.0 a	7,690 a	43 b	1.8 b	2,965 a	10,655 a	65.21 a	74.73 a
	UREA	92	PF												
	UREA	92	Harvest												
LSD P=.05				2.81	2.81	2.26	30.89	0.77	554.2	36.38	0.77	423.3	633.5	1.6265	0.2604
Standard Deviation				1.76	1.76	1.41	19.31	0.48	346.5	22.75	0.48	264.6	396	1.0168	0.1628
CV				2.43	2.77	4.49	27.34	23.21	5.58	36.03	17.81	9.26	4.37	1.64	0.22
Replicate F				1.865	1.865	1.417	3.235	0.273	0.85	0.624	1.727	2.848	2.461	3.742	1.823
Replicate Prob(F)				0.2059	0.2059	0.3006	0.0748	0.8436	0.5006	0.6171	0.2307	0.0975	0.1292	0.0539	0.2131
Treatment F				4.838	4.838	26.583	0.285	18.455	69.388	4.071	11.909	0.29	56.652	36.456	28.505
Treatment Prob(F)				0.0284	0.0284	0.0001	0.8352	0.0003	0.0001	0.0441	0.0017	0.8317	0.0001	0.0001	0.0001

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

Evaluation of Bayer Hybrid USH14001 on Fertilizer Timing Response – Experiment 2

Experiment number ....: 15-CM-11

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.57
- **pH** ....: 7.58
- **Extractable nutrients** ppm ....: Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2

Crop/Variety ....: Rice / USH14001
- **Planting method/date** ....: Drill seeded / March 20
- **Seeding rate/depth** ....: 14 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: July 10
- **Ratoon Harvest date** ....:

Seed treatment/cwt ....: Trilex
Zinc
GA3
Dermacor
AV-1011 (bird repellent) – 18.3 oz (added to seed by Research Station)

Fertilization ....: No blanket applications

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 5
- **Drain** ....: June 29
- **Ratoon drain** ....: Sept. 23

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
  1.5 qt/A glyphosate, Feb. 11
  2 pt/A Prowl H_2O, March 31
  2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
  3 qt/A propanil + .5 oz/A Londax + .25 oz/A Permit, April 29
- **Insecticides** ....: 5 oz/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem500SC + 6 oz/A Bumper, June 18

Table 44. Evaluation of Bayer Hybrid USH14001 on fertilizer timing response (with N applied at heading). Experiement 2.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top									
Rating Date							7/10/2015		7/10/2015	10/7/2015		10/7/2015			
Rating Type				50% HD	50% HD	Height	Lodge		Yield	Lodge		Yield	Yield	Milling (%)	
Rating Unit				days	days	inches	% plot	rate	lb/A	% plot	rate	lb/A	lb/A	head	total
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC + RC	Main	Main
Trt No.	Treatment Name	N rate (lb ai/A)	Application Time												
1	42-52-60	42	Planting	69.8 a	60.8 a	29.3 b	98 a	1.0 c	4,633 b	100 a	4.0 a	2,158 a	6,791 b	62.90 b	74.02 a
	UREA	23	PF												
	UREA	46	HD												
	UREA	46	Harvest												
2	42-52-60	42	Planting	70.3 a	61.3 a	30.8 b	95 a	1.0 c	6,279 ab	98 a	3.8 a	2,288 a	8,567 ab	64.92 a	74.41 a
	UREA	46	PF												
	UREA	46	HD												
	UREA	46	Harvest												
3	42-52-60	42	Planting	71.3 a	62.3 a	35.0 a	80 a	2.3 b	7,536 a	75 b	2.5 b	2,179 a	9,715 a	66.07 a	74.53 a
	UREA	69	PF												
	UREA	46	HD												
	UREA	46	Harvest												
4	42-52-60	42	Planting	72.5 a	63.5 a	34.8 a	88 a	3.0 a	7,133 a	70 b	2.0 b	2,365 a	9,497 a	65.46 a	74.43 a
	UREA	92	PF												
	UREA	46	HD												
	UREA	46	Harvest												
LSD P=.05				2.2	2.2	2.5	13.06	0.4	1,785.7	12.58	0.93	350.1	1,835.1	1.7382	0.3707
Standard Deviation				1.38	1.38	1.57	8.16	0.25	1,116.3	7.86	0.58	218.9	1,147.2	1.0866	0.2318
CV				1.94	2.22	4.83	9.07	13.79	17.46	9.18	19.05	9.74	13.27	1.68	0.31
Replicate F				2.143	2.143	1.657	1.25	1	1.066	1.18	0.673	0.502	1.292	0.796	0.229
Replicate Prob(F)				0.1649	0.1649	0.2446	0.3482	0.4363	0.4107	0.3707	0.5896	0.6904	0.3353	0.5266	0.8742
Treatment F				3.11	3.11	13.555	3.75	62.333	5.311	15.202	10.959	0.782	5.383	6.378	3.713
Treatment Prob(F)				0.0813	0.0813	0.0011	0.0536	0.0001	0.0221	0.0007	0.0023	0.5335	0.0213	0.0132	0.0549

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

LSU Hybrid Rice Program Multi-Location Yield Trial – H. Rouse Caffey Rice Research Station

Experiment number	15-CM-26
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 7
Soil type	Crowley silt loam
% organic matter	1.57
pH	7.58
Extractable nutrients ppm	Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2
Crop/Variety	Rice / Multiple
Planting method/date	Drill seeded / March 20
Seeding rate/depth	Multiple rates / .5 inch
Emergence date	March 29
Harvest date	Aug. 3
Ratoon harvest date	Nov. 10
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 repellent) - 18.3 oz Hyb – Maxim 4FS Apron XL Gibberellic acid Zinc Dynasty AV-1011 (bird repellent) - 18.3 oz
Fertilization	250 lb/A 0-24-24-2.7, March 25 90 lb N/A 46-0-0, May 8 90 lb N/A 46-0-0, Aug. 10
Water management	
Flush	April 1
Flood	May 11
Drain	July 23
Ratoon flood	Aug. 11
Ratoon drain	Oct. 28
Pest management	
Herbicides	1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7 3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 45. LSU Hybrid rice program multi-location yield trial. H. Rouse Caffey Rice Research Station.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top					
Rating Date						8/3/2015		8/3/2015	11/10/2015	11/10/2015
Rating Type			50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit			days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name	Rate (lb ai/A)								
1	CL111	90	100 d	91 d	38.8 ef	0.0 b	0.0 d	7,836 c	3,590 b	11,426 cd
2	CL152	90	104 b	95 b	36.8 f	0.0 b	0.0 d	7,786 c	3,930 ab	11,716 cd
3	LAH169	90	95 f	86 f	40.0 de	95.0 a	4.8 a	9,495 abc	3,478 b	12,973 bc
4	CLH161	90	96 f	87 f	45.5 b	70.0 a	3.8 ab	8,646 bc	3,237 b	11,883 bcd
5	09A/R608	90	106 a	97 a	48.8 a	0.0 b	0.0 d	9,068 bc	3,805 ab	12,874 bc
6	CLXL729	90	99 e	90 e	41.5 cde	0.0 b	0.0 d	10,851 a	4,835 a	15,686 a
7	CLXL745	90	95 f	86 f	42.8 bcd	75.0 a	2.3 bc	8,480 bc	1,865 c	10,346 d
8	XL753	90	99 de	90 de	41.0 de	7.5 b	0.3 d	9,750 ab	4,180 ab	13,930 ab
9	XL760	90	103 c	94 c	44.5 bc	25.0 b	1.3 cd	9,918 ab	3,132 b	13,049 bc
LSD P=.05			1.45	1.45	3.03	39.18	1.90	1,727.0	1,131.0	2,211.8
Standard Deviation			1.00	1.00	2.08	26.85	1.30	1,183.3	775.0	1,515.5
CV			1.0	1.1	4.92	88.67	95.77	13.01	21.76	11.98
Replicate F			1.818	1.818	2.827	0.220	0.191	3.753	0.580	2.286
Replicate Prob(F)			0.171	0.171	0.060	0.882	0.902	0.024	0.634	0.104
Treatment F			64.077	64.077	12.499	8.310	7.839	2.938	4.475	4.232
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001	0.0194	0.0020	0.0028

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

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

Experiment number ....: 15-VP-26

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 inches / 7

Soil type ....: Kaplan silt loam
- **% organic matter** ....: 1.29
- **pH** ....: 4.8
- **Extractable nutrients** ppm ....: Ca-1029; Cu-1.0; Mg-122; P-49.31; K-58.65; Na-15.4; S-6.8; Zn-3.2

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 24
- **Seeding rate/depth** ....: NA seeds/ft^2 / .5 inch
- **Emergence date** ....: April 5
- **Harvest date** ....: Aug. 5
- **Ratoon harvest date** ....: Oct. 29

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 8-24-24, April 8
90 lb N/A 46-0-0, May 11
90 lb N/A 46-0-0, Aug. 11

Water management ....:
- **Flush** ....: April 4
- **Flood** ....: May 12
- **Drain** ....: July 18
- **Ratoon flood** ....: Aug. 12
- **Ratoon drain** ....: Oct. 9

Pest management ....:
- **Herbicides** ....: 8 oz/A Command, April 8
  3 qt/A propanil + 1 oz/A Permit + 1 oz/A Londax, May 11
  25 oz/a Clincher + .5 oz/A Permit + 1 qt/A COC, May 14
- **Insecticides** ....: None
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 22

Table 46. LSU Hybrid rice program multi-location yield trial. Vermilion Parish.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top					
Rating Date						8/5/2015		8/5/2015	10/29/2015	
Rating Type			50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit			days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name	Rate (lb ai/A)								
1	CL111	90	82 f	70 f	38.0 e	0.0 c	0.0 d	6,710 f	4,824 d	11,534 d
2	CL152	90	87 de	75 de	38.8 e	0.0 c	0.0 d	6,620 f	5,079 d	11,699 d
3	LAH169	90	85 e	73 e	42.5 d	87.5 a	2.3 b	9,090 e	7,934 bc	17,023 c
4	CLH161	90	88 cd	76 cd	48.8 b	92.5 a	3.5 a	9,651 de	8,069 ab	17,721 bc
5	09A/R608	90	96 a	84 a	56.3 a	82.5 ab	3.0 a	11,437 a	7,187 c	18,624 ab
6	CLXL729	90	89 bc	77 bc	42.0 d	0.0 c	0.0 d	9,739 de	7,085 c	16,825 c
7	CLXL745	90	86 de	74 de	47.0 bc	55.0 b	1.0 c	10,660 b	8,399 ab	19,059 a
8	XL753	90	91 b	79 b	44.0 cd	0.0 c	0.0 d	9,801 cd	8,858 a	18,660 ab
9	XL760	90	94 a	82 a	48.3 b	0.0 c	0.0 d	10,493 bc	8,334 ab	18,827 ab
LSD P=.05			2.07	2.07	3.23	31.75	0.57	707.9	872.8	1,266.1
Standard Deviation			1.42	1.42	2.21	21.76	0.39	485.1	598.0	867.5
CV			1.60	1.86	4.91	61.67	36.08	5.19	8.18	5.21
Replicate F			2.025	2.025	0.583	0.820	4.545	2.622	0.636	1.716
Replicate Prob(F)			0.137	0.137	0.632	0.496	0.012	0.074	0.599	0.190
Treatment F			40.291	40.291	26.512	15.678	54.818	47.416	23.515	46.826
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).

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

Experiment number	: 15-SLP-26
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 inches / 7
Soil type	: Dundee silty clay loam
% organic matter	: 1.51
pH	: 7.7
Extractable nutrients ppm	: Ca-3732; Cu-3.4; Mg-648; P-96.8; K-184; Na-15.9; S-2.2; Zn-1.2
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill seeded / March 30
Seeding rate/depth	: NA seeds/ft^2 / .5 inch
Emergence date	: April 8
Harvest date	: Aug. 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 repellent) - 18.3 oz
Fertilization	: 90 lb N/A 46-0-0, June 4
Water management	:
Flush	: NA
Flood	: June 6
Drain	: July 27
Pest management	:
Herbicides	: 13 oz/A Command + 2 oz/A Sharpen, March 30
	0.6 oz/A Regiment + .5 oz/A Permit, June 5
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: None

Table 47. LSU Hybrid rice program multi-location yield trial. St. Landry Parish.

Crop Name			Rice		Rice		Rice		Rice		Rice		Rice	
Description			plant-hd		emer-hd		Top							
Rating Date									8/13/2015				8/13/2015	
Rating Type			50% HD		50% HD		Height		Lodge				Yield	
Rating Unit			days		days		inches		% plot		rate		lb/A	
Crop Stage Majority			Main		Main		Main		Main		Main		Main	
Trt No.	Treatment Name	Rate (lb ai/A)												
1	CL111	90	83	e	74	e	32	d	0	c	0	e	5,830	e
2	CL152	90	88	d	79	d	34	d	0	c	0	e	7,789	d
3	LAH169	90	84	e	75	e	39	c	55	ab	1.3	cd	9,105	cd
4	CLH161	90	90	b	81	b	44	ab	85	a	4.5	a	8,020	d
5	09A/R608	90	92	a	83	a	48	a	70	a	3.3	b	8,910	cd
6	CLXL729	90	89	bcd	80	bcd	40	c	23	bc	0.3	de	11,149	a
7	CLXL745	90	88	d	79	d	39	c	20	bc	0.3	de	9,010	cd
8	XL753	90	89	cd	80	cd	39	c	53	ab	1.8	c	9,627	bc
9	XL760	90	90	bc	81	bc	42	bc	0	c	0	e	10,707	ab
LSD P=.05			1.67		1.67		4.16		45.51		1.11		1,348.8	
Standard Deviation			1.15		1.15		2.85		31.18		0.76		924.2	
CV			1.3		1.45		7.19		92.02		60.61		10.38	
Replicate F			0.366		0.366		0.407		0.278		0.565		1.851	
Replicate Prob(F)			0.778		0.778		0.750		0.841		0.644		0.165	
Treatment F			26.704		26.704		10.576		4.358		18.726		11.908	
Treatment Prob(F)			0.0001		0.0001		0.0001		0.0023		0.0001		0.0001	

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

Evaluation of Stubble Management Practices and Desiccant Use 5d Pre-harvest on CL111 and CLXL745 Ratoon Yield

Experiment number ....: 15-CM-23

Site and design ....:
Location/Cooperator ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
% organic matter ....: 1.57
pH ....: 7.58
Extractable nutrients ppm ....: Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2

Crop/Variety ....: Rice / CL111 and CLXL745
Planting method/date ....: Drill seeded / March 20
Seeding rate/depth ....: Hyb-14, Conv-33 seeds/ft^2 / .5 inch
Emergence date ....: March 29
Harvest date ....: Aug. 7
Ratoon harvest date ....: Nov. 9

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 repellent) - 18.3 oz
Hyb – Maxim 4FS
Apron XL
Gibberellic acid
Zinc
Dynasty
AV-1011 (bird repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
150 lb N/A 46-0-0, May 8
90 lb N/A 46-0-0, Aug. 10
Water management ....:
Flush ....: April 1
Flood ....: May 11
Drain ....: July 23
Ratoon flood ....: Aug. 11
Ratoon drain ....: Oct. 28

Pest management ....:
Herbicides ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 48. Evaluation of stubble management practices and desiccant use 5d pre-harvest on ratoon yield.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top					
Rating Date						8/7/2015		8/7/2015	11/9/2015	
Rating Type			50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit			days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Ratoon	MC + RC
Trt No.	Treatment Name	Rate (qt/A)								
1	with sodium chlorate Norm harv ht (16") CL111	3	98 b	89 b	39.3 b	38 cd	3.0 a	8,530 de	3,777 a-d	12,307 c-f
2	with sodium chlorate Norm harv ht (16") CLXL745	3	96 c	87 c	46.5 a	95 a	4.0 a	10,524 a	2,300 ef	12,823 cde
3	with sodium chlorate Bush hog CL111	3	99 ab	90 ab	41.3 b	38 cd	2.8 a	8,433 de	3,009 cde	11,442 efg
4	with sodium chlorate Bush hog CLXL745	3	96 c	87 c	45.8 a	75 ab	2.8 a	9,258 b-e	1,848 f	11,106 fg
5	with sodium chlorate Bush hog (8") CL111	3	99 ab	90 ab	41.5 b	18 d	2.5 a	8,996 cde	3,810 abc	12,806 cde
6	with sodium chlorate Bush hog (8") CLXL745	3	96 c	87 c	46.3 a	100 a	4.0 a	9,996 abc	2,935 de	12,931 cde
7	with sodium chlorate rolled (16") CL111	3	99 ab	90 ab	41.5 b	33 cd	2.5 a	8,027 e	2,627 ef	10,654 g
8	with sodium chlorate rolled (16") CLXL745	3	95 c	86 c	46.0 a	100 a	3.5 a	9,542 a-d	2,045 f	11,587 d-g
9	without sodium chlorate Norm harv ht (16") CL111	0	99 ab	90 ab	41.8 b	55 bc	3.5 a	8,931 cde	4,020 ab	12,951 cde

Continued.

Table 48. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top					
Rating Date						8/7/2015		8/7/2015	11/9/2015	
Rating Type			50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit			days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Ratoon	MC + RC
Trt No.	Treatment Name	Rate (qt/A)								
10	without sodium chlorate Norm harv ht (16") CLXL745	0	96 c	87 c	46.0 a	95 a	4.0 a	10,385 ab	4,441 a	14,827 a
11	without sodium chlorate Bush hog CL111	0	98 ab	89 ab	41.3 b	15 d	2.3 a	8,991 cde	4,226 ab	13,217 bc
12	without sodium chlorate Bush hog CLXL745	0	96 c	87 c	45.8 a	100 a	4.0 a	10,005 abc	3,139 cde	13,144 bcd
13	without sodium chlorate Bush hog (8") CL111	0	99 ab	90 ab	41.8 b	18 d	2.3 a	9,110 cde	4,588 a	13,698 abc
14	without sodium chlorate Bush hog (8") CLXL745	0	96 c	87 c	46.3 a	100 a	3.3 a	10,390 ab	4,179 ab	14,569 ab
15	without sodium chlorate rolled (16") CL111	0	100 a	91 a	41.3 b	20 d	2.5 a	9,351 a-d	3,562 bcd	12,913 cde
16	without sodium chlorate rolled (16") CLXL745	0	96 c	87 c	46.5 a	98 a	4.0 a	9,959 abc	3499 bcd	13,458 abc
LSD P=.05			1.35	1.35	2.52	34.77	1.9	1,261.6	845.2	1,606.2
Standard Deviation			0.95	0.95	1.77	24.41	1.34	885.9	593.5	1,127.8
CV			0.97	1.07	4.05	39.26	42.16	9.42	17.58	8.83
Replicate F			42.373	42.373	2.036	0.297	0.428	2.727	10.362	5.869
Replicate Prob(F)			0.0001	0.0001	0.1223	0.8273	0.7337	0.0551	0.0001	0.0018
Treatment F			12.069	12.069	8.778	8.697	1.057	2.889	8.327	4.162
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.4197	0.003	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 Ratoon Response to First Crop Nitrogen Application Rate, Timing, and Stubble Management

Experiment number	15-CM-24
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 7
Soil type	Crowley silt loam
% organic matter	1.57
pH	7.58
Extractable nutrients ppm	Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2
Crop/Variety	Rice / CL111 and CLXL745
Planting method/date	Drill seeded / March 20
Seeding rate/depth	Hyb-14, Conv-33 seeds/ft^2 / .5 inch
Emergence date	March 29
Harvest date	Aug. 4
Ratoon harvest date	Nov. 9
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 repellent) - 18.3 oz Hyb – Maxim 4FS Apron XL Gibberellic acid Zinc Dynasty AV-1011 (bird repellent) - 18.3 oz
Fertilization	250 lb/A 0-24-24-2.7, March 25 120 lb N/A 46-0-0, May 8
Water management	
Flush	April 1
Flood	May 11
Drain	July 23
Ratoon flood	Aug. 11
Ratoon drain	Oct. 28
Pest management	
Herbicides	1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7 3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 49. Evaluation of ratoon response to first crop N application rate, timing, and stubble management.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top					
Rating Date					8/4/2015		8/4/2015	11/9/2015	11/9/2015
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name								
1	CL111 120 lb N/A 30 lb N/A Normal Harvest (16") 0 lb N/A	97 a	88 a	40.5 d	35 bcd	1.3 a	9,272 c-g	1,558 g	10,829 fg
2	CL111 120 lb N/A 30 lb N/A Normal Harvest (16") 90 lb N/A	97 a	88 a	40.8 d	20 cd	1 a	9,160 d-g	4,245 def	13,404 d
3	CL111 120 lb N/A 30 lb N/A Normal Harvest (16") 150 lb N/A	97 a	88 a	39.5 d	27.5 cd	1.8 a	8,674 g	4,240 def	12,914 de
4	CL111 120 lb N/A 30 lb N/A Normal Harvest (16") 45/45 lb N/A	97 a	88 a	39.8 d	15 d	1 a	8,965 efg	3,766 f	12,730 de
5	CL111 120 lb N/A 30 lb N/A Normal Harvest (16") 75/75 lb N/A	98 a	89 a	41.0 d	7.5 d	1.3 a	8,671 g	4,123 ef	12,794 de

Continued.

Table 49. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top					
Rating Date					8/4/2015		8/4/2015	11/9/2015	11/9/2015
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name								
6	CL111 120 lb N/A 30 lb N/A Bush hog 0 lb N/A	98 a	89 a	40.0 d	12.5 d	1 a	8,875 fg	1,626 g	10,501 g
7	CL111 120 lb N/A 30 lb N/A Bush hog 90 lb N/A	97 a	88 a	41.3 d	32.5 bcd	1.5 a	8,409 g	4,347 def	12,755 de
8	CL111 120 lb N/A 30 lb N/A Bush hog 150 lb N/A	98 a	89 a	41.0 d	0 d	0 a	9,134 d-g	4,551 cde	13,686 cd
9	CL111 120 lb N/A 30 lb N/A Bush hog 45/45 lb N/A	98 a	89 a	40.3 d	5 d	0.5 a	8,890 fg	3,806 f	12,696 de
10	CL111 120 lb N/A 30 lb N/A Bush hog 75/75 lb N/A	98 a	89 a	41.3 d	25 cd	1 a	8,893 fg	4,361 def	13,254 d

Continued.

Table 49. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top					
Rating Date					8/4/2015		8/4/2015	11/9/2015	11/9/2015
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name								
11	CLXL745 120 lb N/A 30 lb N/A Normal Harvest (16") 0 lb N/A	94 c	85 c	45.5 ab	90 a	2 a	10,192 abc	1,650 g	11,841 ef
12	CLXL745 120 lb N/A 30 lb N/A Normal Harvest (16") 90 lb N/A	95 bc	86 bc	46.0 a	92.5 a	1.5 a	10,302 ab	5,207 b	15,509 ab
13	CLXL745 120 lb N/A 30 lb N/A Normal Harvest (16") 150 lb N/A	95 bc	86 bc	46.0 a	92.5 a	1.6 a	9,898 a-e	5,108 bc	15,006 b
14	CLXL745 120 lb N/A 30 lb N/A Normal Harvest (16") 45/45 lb N/A	95 bc	86 bc	45.0 abc	95 a	1.8 a	10,171 abc	4,786 bcd	14,958 b
15	CLXL745 120 lb N/A 30 lb N/A Normal Harvest (16") 75/75 lb N/A	95 bc	86 bc	46.0 a	95 a	1.6 a	10,074 a-d	4,785 bcd	14,859 bc

Continued.

Table 49. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top					
Rating Date					8/4/2015		8/4/2015	11/9/2015	11/9/2015
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name								
16	CLXL745 120 lb N/A 30 lb N/A Bush hog 0 lb N/A	95 bc	86 bc	43.5 c	57.5 abc	1.5 a	10,862 a	1,854 g	12,716 de
17	CLXL745 120 lb N/A 30 lb N/A Bush hog 90 lb N/A	95 bc	86 bc	44.8 abc	82.5 a	1.5 a	9,832 b-f	5,105 bc	14,937 bc
18	CLXL745 120 lb N/A 30 lb N/A Bush hog 150 lb N/A	95 bc	86 bc	45.3 abc	80 a	1.5 a	10,284 ab	6,023 a	16,308 a
19	CLXL745 120 lb N/A 30 lb N/A Bush hog 45/45 lb N/A	96 b	87 b	44.3 abc	70 ab	2 a	10,530 ab	4,847 bcd	15,377 ab

Continued.

Table 49. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top					
Rating Date					8/4/2015		8/4/2015	11/9/2015	11/9/2015
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name								
20	CLXL745 120 lb N/A 30 lb N/A Bush hog 75/75 lb N/A	95 bc	86 bc	44.0 bc	77.5 a	2 a	9,955 a-d	5,387 b	15,342 ab
LSD P=.05		1.15	1.15	1.89	38.55	1.29	968.1	635.7	1,254.3
Standard Deviation		0.81	0.81	1.34	27.22	0.91	683.7	448.9	885.9
CV		0.84	0.93	3.12	53.77	66.56	7.16	11.03	6.50
Replicate F		30.012	30.012	2.287	0.195	11.235	12.37	9.61	17.657
Replicate Prob(F)		0.0001	0.0001	0.0883	0.8993	0.0001	0.0001	0.0001	0.0001
Treatment F		11.396	11.396	13.207	6.803	1.272	4.563	35.82	13.167
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.2422	0.0001	0.0001	0.0001

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

Evaluation of Desiccant Timing, Stubble Management, and Milling on CLXL729 and CL111 (RRS.1)

Experiment number ....: 15-CM-25

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.57
- **pH** ....: 7.58
- **Extractable nutrients** ppm ....: Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2

Crop/Variety ....: Rice / CLXL729 and CL111
- **Planting method/date** ....: Drill seeded / March 20
- **Seeding rate/depth** ....: Hyb-14, Conv-33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: Aug. 7
- **Ratoon harvest date** ....: Nov. 10

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 repellent) - 18.3 oz
Hyb – Maxim 4FS
Apron XL
Gibberellic acid
Zinc
Dynasty
AV-1011 (bird repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
120 lb N/A 46-0-0, May 8
90 lb N/A 46-0-0, Aug. 10

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 23
- **Ratoon flood** ....: Aug. 11
- **Ratoon drain** ....: Oct. 28

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 50. Evaluation of desiccant timing, stubble management, and milling on CLXL729 and CL111 (RRS.1).

					Lodge					Milling (%)	
Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top							
Rating Date				8/7/2015	8/7/2015		8/7/2015	11/9/2015	11/9/2015	8/20/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield	Milling (%)	
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A	whole	total
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	Main	Main
Trt No.	Treatment Name										
1	CLXL729 14 days pre-harvest Normal cut	101 a	92 a	41.3 cde	97.5 a	1.8 a	9,607 cd	3,060 c	9,653 cd		
2	CLXL729 14 days pre-harvest Bush hog	100 a	91 a	44.5 a	85.0 a	2.5 a	10,102 bc	1,946 d	10,147 bc	30.10 e	74.64 d
3	CLXL729 7 days pre-harvest Normal cut	101 a	92 a	44.0 ab	85.0 a	2.0 a	10,129 bc	4,364 b	10,175 bc		
4	CLXL729 7 days pre-harvest Bush hog	100 a	91 a	43.0 abc	92.5 a	2.3 a	10,598 ab	3,790 bc	10,644 ab	40.29 d	74.84 d
5	CLXL729 1 day pre-harvest Normal cut	100 a	91 a	41.8 bcd	87.5 a	1.8 a	10,435 abc	5,409 a	10,481 abc		
6	CLXL729 1 day pre-harvest Bush hog	100 a	91 a	43.3 abc	75.0 ab	1.8 a	11,073 a	5,905 a	11,118 a	50.94 bc	75.53 c
7	CL111 14 days pre-harvest Normal cut	98 b	89 b	39.5 de	2.5 c	0.5 a	8,394 e	3,605 bc	8,440 e		
8	CL111 14 days pre-harvest Bush hog	98 b	89 b	40.3 de	20.0 c	1.0 a	8,225 e	3,816 bc	8,270 e	46.10 c	76.45 b

Continued.

Table 50. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top							
Rating Date				8/7/2015	8/7/2015		8/7/2015	11/9/2015	11/9/2015	8/20/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield	Milling (%)	
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A	whole	total
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	Main	Main
Trt No.	Treatment Name										
9	CL111 7 days pre-harvest Normal cut	97 b	88 b	39.3 e	27.5 c	2.0 a	8,296 e	4,259 b	8,342 e		
10	CL111 7 days pre-harvest Bush hog	97 b	88 b	39.5 de	40.0 bc	2.8 a	8,815 de	3,684 bc	8,860 de	53.17 b	76.86 ab
11	CL111 1 day pre-harvest Normal cut	98 b	89 b	39.8 de	37.5 bc	2.3 a	8,825 de	4,240 b	8,870 de		
12	CL111 1 day pre-harvest Bush hog	97 b	88 b	40.0 de	37.5 bc	2.3 a	8,577 e	4,321 b	8,622 e	60.22 a	77.01 a
LSD P=.05		1.01	1.01	2.45	38.35	1.58	935.2	899.8	935.6	4.9392	0.5116
Standard Deviation		0.71	0.71	1.7	26.66	1.1	650.1	625.5	650.3	3.2771	0.3394
CV		0.71	0.79	4.11	46.53	57.97	6.9	15.51	6.87	7	0.45
Replicate F		22.838	22.838	2.558	4.584	3.697	2.574	7.926	2.578	1.876	1.823
Replicate Prob(F)		0.0001	0.0001	0.0719	0.0086	0.0213	0.0706	0.0004	0.0703	0.177	0.1862
Treatment F		18.533	18.533	5.072	6.13	1.297	9.744	10.593	9.742	41.681	36.84
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.2693	0.0001	0.0001	0.0001	0.0001	0.0001

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

Evaluation of Agrotain Volatilization When Used in Dry, Moist, and Flooded Soil Conditions

Experiment number	15-CM-28 Yield
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 7
Soil type	Crowley silt loam
% organic matter	1.26
pH	7.57
Extractable nutrients ppm	Ca-1,495; Cu-2.0; Mg-235; P-18; K-86; Na-90; S-9.2; Zn-7.5
Crop/Variety	Rice / CL111
Planting method/date	Drill seeded / March 20
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 29
Harvest date	Flood bay – July 20, Dry/Moist bay – July 27
Ratoon harvest date	Flood bay – Oct. 7, Dry/Moist bay – Oct. 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 repellent) - 18.3 oz
Fertilization	250 lb/A 0-24-24-2.7, March 25 90 lb/A 46-0-0, July 21 (Flood bay) 90 lb/A 46-0-0, July 29 (Dry/Moist bays)
Water management	
Flush	April 1
Flood	Flood bay – April 30, Dry/Moist bays – May 11
Drain	Flood bay – July 6, Dry/Moist bays – July 13
Ratoon flood	Flood bay – July 21, Dry/Moist bays – July 30
Ratoon drain	Flood bay – Sept. 23, Dry/Moist bays – Oct. 8
Pest management	
Herbicides	1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 3 qt/A propanil + .5 oz/A Londax + .25 oz/A Permit, April 29
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 51. Nitrogen volatilization loss at each of the seven sampling times from four N fertilizer sources when applied at three differing soil moistures (dry, moist, and flooded).

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	plant-hd	emer-hd	Top			Tissue	Tissue N	N Uptake	N fert Eff.	N fert Eff.
Part Rated						Abvgrd	Abvgrd	total		
Rating Date				7/20/2015	7/27/2015					
Rating Type	50% HD	50% HD	Height	Test Wt.	Yield	biomass-dry				
Rating Unit	days	days	inches	lb/bu	lb/A	lb/A	% N	lb/A	%	%
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	by block	by mean
Crop Stage Scale						50% HD	50% HD	50% HD	50% HD	50% HD
Urea Dry	95.0 a	86.0 a	34.3 a	48.9 ab	7,136 a	7,642 a	1.04 b	81.4 a	53 a	53 a
Urea Moist	92.5 b	83.5 b	29.3 b	49.4 ab	3,887 b	3,934 b	0.73 c	29.0 b	10 b	10 b
Urea Flooded (2" initial)	88.3 c	79.3 c	26.8 bc	49.6 a	2,212 cd	2,969 b	0.80 c	23.6 b	6 b	6 b
Agrotain Ultra-Urea (3qt/ton) Dry	95.3 a	86.3 a	36.0 a	48.7 ab	8,294 a	7,241 a	1.28 a	93.3 a	63 a	63 a
Agrotain Ultra-Urea (3qt/ton) Moist	94.8 a	85.8 a	33.5 a	49.0 ab	7,396 a	6,600 a	1.18 ab	79.6 a	52 a	52 a
Agrotain Ultra-Urea (3qt/ton) Flooded (2" initial)	88.0 c	79.0 c	25.8 bc	49.5 a	3,500 bc	2,655 b	0.78 c	20.9 b	4 b	4 b
AIU Dry	95.3 a	86.3 a	35.3 a	48.5 b	8,125 a	8,136 a	1.31 a	106.0 a	74 a	74 a
AIU Moist	96.3 a	87.3 a	35.3 a	48.8 ab	7,219 a	7,841 a	1.18 ab	92.5 a	63 a	63 a
AIU Flooded (2" initial)	88.0 c	79.0 c	26.8 bc	49.6 a	2,144 cd	2,764 b	0.79 c	21.7 b	5 b	5 b
SuperU Dry	95.3 a	86.3 a	36.0 a	48.8 ab	7,908 a	7,134 a	1.32 a	92.3 a	62 a	62 a
SuperU Moist	95.3 a	86.3 a	35.0 a	49.0 ab	7,319 a	6,865 a	1.20 ab	83.6 a	56 a	56 a
SuperU Flooded (2" initial)	88.0 c	79.0 c	26.5 bc	49.1 ab	2,079 cd	2,870 b	0.81 c	23.2 b	6 b	6 b
UTC (no N) Dry	91.0 b	82.0 b	25.0 c	49.4 ab	1,816 d	2,392 b	0.73 c	17.4 b	0 b	0 b
UTC (no N) Moist	91.8 b	82.8 b	26.5 bc	49.6 a	2,354 cd	2,252 b	0.74 c	16.7 b	0 b	0 b
UTC (no N) Flooded (2" initial)	88.5 c	79.5 c	24.0 c	49.0 ab	1,820 d	2,004 b	0.81 c	16.2 b	0 b	0 b
LSD P=.05 (% mean diff)	1.57	1.57	2.39	0.57	1,013.4	1,562.1	0.152	22.65	19.2	18.9
Standard Deviation	1.10	1.10	1.68	0.40	710.2	1,094.7	0.107	15.88	13.4	13.2
CV	1.19	1.32	5.52	0.81	14.55	22.4	10.89	29.86	44.34	43.6

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls).

Table 52. Cumulative nitrogen volatilization loss at each of the seven sampling times from four N fertilizer sources when applied at three differing soil moistures (dry, moist, and flooded).

Crop Name		Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N
Description		Days after App	Days after App	Days after App	Days after App	Days after App	Days after App	Days after App
Rating Type		1 DPA	3 DPA	5 DPA	7 DPA	9 DPA	11 DPA	15 DPA
Rating Unit	lb ai/A	%	%	%	%	%	%	%
Urea Dry	120	0.8 b	14.8 b	21.5 a	22.7 a	23.2 a	23.5 a	23.6 a
Urea Moist	120	1.2 a	18.0 a	23.1 a	24.5 a	24.8 a	25.0 a	25.2 a
Urea Flooded (2" initial)	120	0.3 c	1.5 c	3.0 b	4.2 b	4.9 bc	5.4 bc	5.9 bc
Agrotain Ultra-Urea (3qt/ton) Dry	120	0.0 c	0.2 c	1.4 b	4.2 b	6.0 b	6.6 b	6.8 b
Agrotain Ultra-Urea (3qt/ton) Moist	120	0.1 c	0.2 c	0.7 b	1.6 b	3.0 bc	3.5 bc	3.7 bc
Agrotain Ultra-Urea (3qt/ton) Flooded (2" initial)	120	0.0 c	0.3 c	1.0 b	1.6 b	2.1 c	2.6 c	3.5 bc
AIU Dry	120	0.0 c	0.2 c	1.5 b	3.4 b	5.0 bc	5.4 bc	5.5 bc
AIU Moist	120	0.1 c	0.2 c	0.8 b	2.5 b	4.4 bc	5.1 bc	5.3 bc
AIU Flooded (2" initial)	120	0.0 c	0.5 c	1.0 b	1.4 b	1.8 c	2.1 c	2.4 c
SuperU Dry	120	0.0 c	0.3 c	2.0 b	4.7 b	6.3 b	6.9 b	7.2 b
SuperU Moist	120	0.1 c	0.3 c	1.4 b	3.4 b	4.8 bc	5.4 bc	5.7 bc
SuperU Flooded (2" initial)	120	0.0 c	0.6 c	1.7 b	2.4 b	2.9 bc	3.3 bc	3.5 bc
LSD P=.05		0.36	2.53	2.27	2.34	2.41	2.47	2.66
Standard Deviation		0.25	1.76	1.58	1.63	1.68	1.72	1.85
CV		109.12	56.68	32.02	25.56	22.54	21.78	22.51
Replicate F		0.811	1.056	1.837	2.345	2.627	2.496	1.853
Replicate Prob(F)		0.4969	0.3811	0.1597	0.0908	0.0667	0.0769	0.1569
Treatment F		9.441	51.105	106.686	99.058	88.496	82.277	69.578
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, Student-Newman-Keuls).

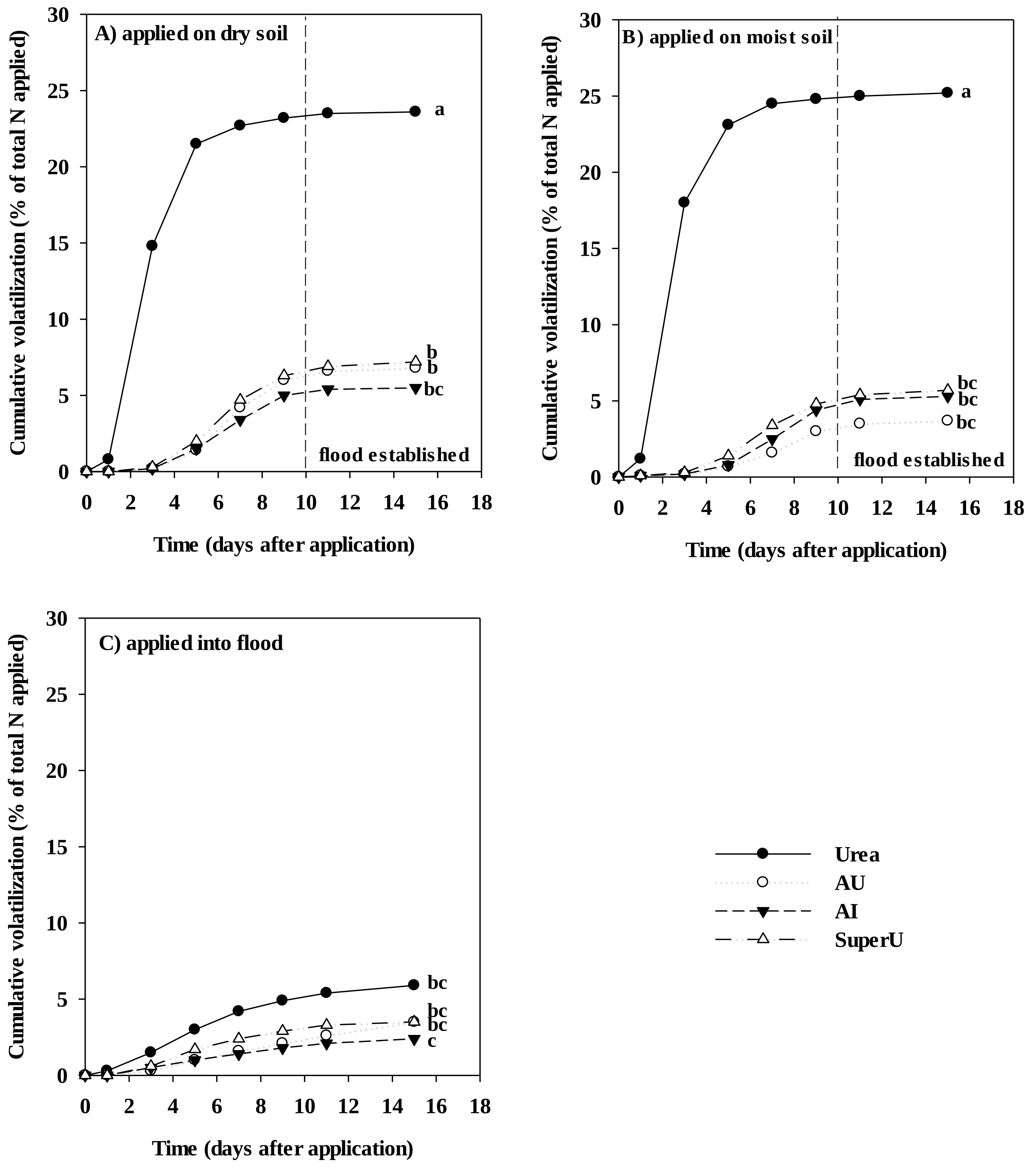

Figure 2. Cumulative nitrogen (N) volatilization loss at over a 15-day period from four fertilizer sources when applied at three differing soil moistures (dry, moist, and flooded) using semi-open volatilization chambers in a rice production system. LSU AgCenter H. Rouse Caffey Rice Research Station, 2015. Flood applied 10 days after application (day 10).

Table 53. Treatment means for the main effects of N source and soil moisture (condition) at the time of application on rice grain yield, agronomics, and nitrogen use efficiency (NUE).

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	plant-hd	emer-hd	Top		Tissue	Tissue N	N Uptake	N fert Eff.	N fert Eff.
Part Rated					Abvgrd	Abvgrd	total		
Rating Date			7/20/2015	7/27/2015					
Rating Type	50% HD	50% HD	Height	Yield	biomass-dry				
Rating Unit	days	days	inches	lb/A	lb/A	% N	lb/A	%	%
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	by block	by mean
N Source Means									
Urea	92 b	83 b	30.1 b	4,412 c	4,848 b	0.86 b	44.7 b	23 b	23 b
Agrotain Ultra-Urea (3qt/ton)	93 ab	84 ab	31.8 a	6,397 a	5,499 ab	1.08 a	64.6 a	40 a	40 a
AIU	93 a	84 a	32.4 a	5,830 b	6,247 a	1.09 a	73.4 a	47 a	47 a
SuperU	93 a	84 a	32.5 a	5,769 b	5,623 ab	1.11 a	66.4 a	41 a	41 a
UTC (no N)	90 c	81 c	25.2 c	1,996 d	2,216 c	0.76 c	16.8 c	0 c	0 c
P	0.001	0.001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
LSD (0.05)	0.90	0.90	1.38	565	901.9	0.088	13.08	11.1	10.9
Soil Condition Means									
Dry	94 a	85 a	33.3 a	6,656 a	6,509 a	1.13 a	78.1 a	51 a	51 a
Moist	94 a	85 a	31.9 b	5,635 b	5,498 b	1.01 b	60.3 b	36 b	36 b
Flooded (2" initial)	88 b	79 b	26.0 c	2,351 c	2,652 c	0.80 c	21.1 c	4 c	4 c
P	0.0011	0.0011	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
LSD (0.05)	0.70	0.70	1.07	623	698.6	0.068	10.13	8.6	8.4

Table 54. Treatment means for the 2-way interaction of N source and soil moisture (condition) at the time of application on rice grain yield, agronomics, and nitrogen use efficiency (NUE).

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	plant-hd	emer-hd	Top		Tissue	Tissue N	N Uptake	N fert Eff.	N fert Eff.
Part Rated					Abvgrd	Abvgrd	total		
Rating Date			7/20/2015	7/27/2015					
Rating Type	50% HD	50% HD	Height	Yield	biomass-dry				
Rating Unit	days	days	inches	lb/A	lb/A	% N	lb/A	%	%
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	by block	by mean
N Source x Soil Condition									
Urea Dry	95.0 a	86.0 a	34.3 ab	7,136 b	7,642 a	1.04 b	81.4 b	53 b	53 b
Agrotain Ultra-Urea (3qt/ton) Dry	95.3 a	86.3 a	36.0 a	8,294 a	7,241 a	1.28 a	93.3 ab	63 ab	63 ab
AIU Dry	95.3 a	86.3 a	35.3 ab	8,125 ab	8,136 a	1.31 a	106.0 a	74 a	74 a
SuperU Dry	95.3 a	86.3 a	36.0 a	7,908 ab	7,134 a	1.32 a	92.3 ab	62 ab	62 ab
UTC (no N) Dry	91.0 b	82.0 b	25.0 de	1,816 d	2,392 bc	0.73 c	17.4 c	0 c	0 c
Urea Moist	92.5 b	83.5 b	29.3 c	3,887 c	3,934 b	0.73 c	29.0 c	10 c	10 c
Agrotain Ultra-Urea (3qt/ton) Moist	94.8 a	85.8 a	33.5 b	7,396 ab	6,600 a	1.18 ab	79.6 b	52 b	52 b
AIU Moist	96.3 a	87.3 a	35.3 ab	7,219 b	7,841 a	1.18 ab	92.5 ab	63 ab	63 ab
SuperU Moist	95.3 a	86.3 a	35.0 ab	7,319 ab	6,865 a	1.20 a	83.6 ab	56 ab	56 ab
UTC (no N) Moist	91.8 b	82.8 b	26.5 d	2,354 d	2,252 c	0.74 c	16.7 c	0 c	0 c

Continued.

Table 54. Continued.

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	plant-hd	emer-hd	Top		Tissue	Tissue N	N Uptake	N fert Eff.	N fert Eff.
Part Rated					Abvgrd	Abvgrd	total		
Rating Date			7/20/2015	7/27/2015					
Rating Type	50% HD	50% HD	Height	Yield	biomass-dry				
Rating Unit	days	days	inches	lb/A	lb/A	% N	lb/A	%	%
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	by block	by mean
N Source x Soil Condition									
Urea Flooded (2" initial)	88.3 c	79.3 c	26.8 d	2,212 d	2,969 bc	0.80 c	23.6 c	6 c	6 c
Agrotain Ultra-Urea (3qt/ton) Flooded (2" initial)	88.0 c	79.0 c	25.8 de	3,500 c	2,655 bc	0.78 c	20.9 c	4 c	4 c
AIU Flooded (2" initial)	88.0 c	79.0 c	26.8 d	2,144 d	2,764 bc	0.79 c	21.7 c	5 c	5 c
SuperU Flooded (2" initial)	88.0 c	79.0 c	26.5 d	2,079 d	2,870 bc	0.81 c	23.2 c	6 c	6 c
UTC (no N) Flooded (2" initial)	88.5 c	79.5 c	24.0 e	1,820 d	2,004 c	0.81 c	16.2 c	0 c	0 c
P	0.0011	0.0011	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
LSD (0.05)	1.57	1.57	2.39	1051	1562	0.152	22.65	19.2	18.9

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.

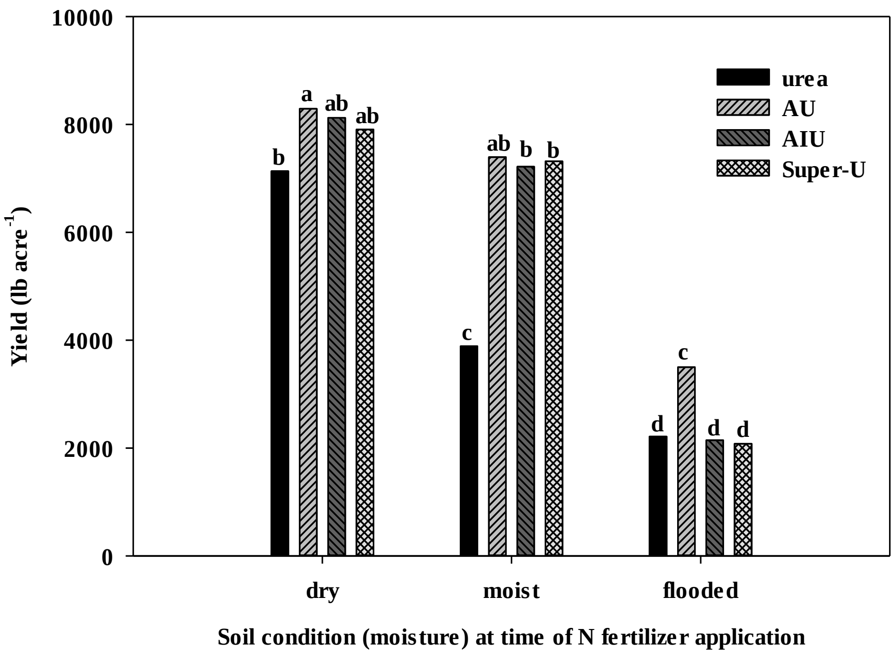

Figure 3. **Interaction of soil moisture at time of N fertilizer application and N fertilizer source rice yields. LSU AgCenter H. Rouse Caffey Rice Research Station, 2015.**

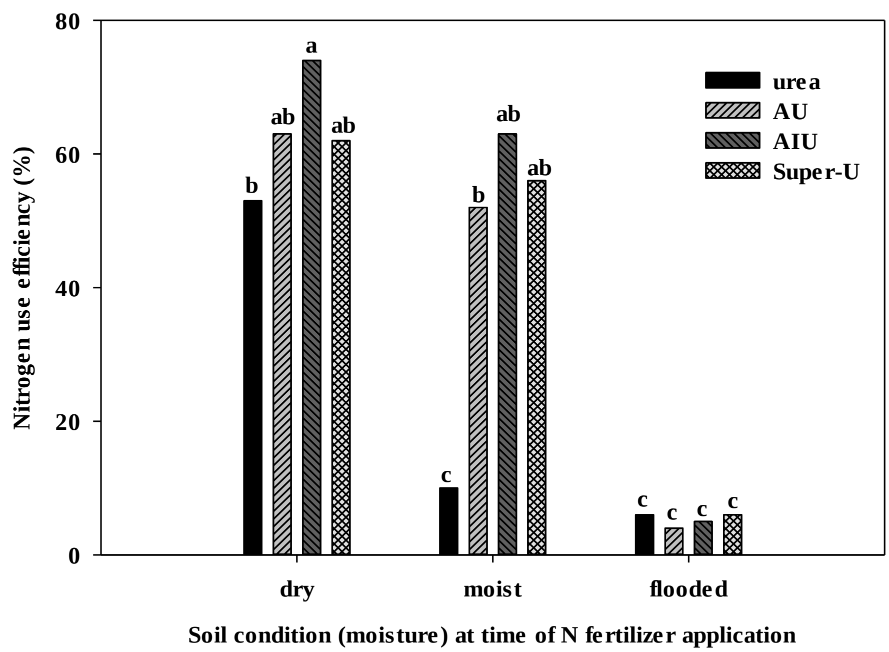

Figure 4. **Interaction of soil moisture at time of N fertilizer application and N fertilizer source on nitrogen use efficiency (NUE) of applications to 4- to 5-leaf rice in a delayed-flood production system. LSU AgCenter H. Rouse Caffey Rice Research Station, 2015.**

Evaluation of NZone Max and ContaiN-Treated Urea When Applied at 10 Days Preflood

Experiment number	: 15-CM-35
Site and design	:
Location/Cooperator	: H. Rouse Caffey 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 inches / 7
Soil type	: Crowley silt loam
% organic matter	: 1.57
pH	: 7.58
Extractable nutrients ppm	: Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2
Crop/Variety	: Rice / CL152
Planting method/date	: Drill seeded / March 20
Seeding rate/depth	: 33 seeds/ft^2 / .5 inch
Emergence date	: March 29
Harvest date	: Aug. 1
Ratoon harvest date	: Nov. 10
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 repellent) - 18.3 oz
Fertilization	: 250 lb/A 0-24-24-2.7, March 25
	90 lb N/A 46-0-0, Aug. 10
Water management	:
Flush	: April 1
Flood	: May 11
Drain	: July 23
Ratoon flood	: Aug. 11
Ratoon drain	: Oct. 28
Pest management	:
Herbicides	: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
	1 qt/A glyphosate, Feb. 11
	2 pt/A Prowl H_2O, March 31
	2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
	2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
	3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 55. Evaluation of NZone Max and ContaiN-treated urea when applied at 10 days preflood. Treatment means for the main effects and 2-way interaction of N source and rate.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top		Tissue	Tissue N	N Uptake	N fert Eff.	N fert Eff.
Part Rated							Abvgrd	Abvgrd	total		
Rating Date						8/1/2015					
Rating Type			50% HD	50% HD	Height	Yield	biomass-dry				
Rating Unit			days	days	inches	lb/A	lb/A	% N	lb/A	%	%
Crop Stage Majority			Main	Main	Main		Main	Main	Main	by block	by mean
Crop Stage Scale							50% HD	50% HD	50% HD	50% HD	50% HD
Treatment Name	Rate (lb/A)	Growth Stage									
N Source Means											
NZone Max-Urea		10 DPF	101 b	92 b	32.6 b	5,779 b	6,774 b	0.91 b	63 b	25 b	5 b
Urea		10 DPF	100 b	91 b	32.4 b	5,657 b	6,194 b	0.92 b	58 b	23 b	4 b
ContaiN-Urea		10 DPF	103 a	94 a	35.7 a	7,662 a	8,075 a	1.21 a	101 a	51 a	24 a
P			0.0001	0.0001	0.0001	0.0001	0.000 2	0.000 1	0.0001	0.0001	0.0001
LSD P=.05			0.54	0.54	1.05	396.8	850.7	0.067	11.3	8.5	5.9
N rate Means											
45 lb N/A	45	10 DPF	100 d	91 d	29.4 c	4,600 d	4,752 c	0.82 d	39 c	36 a	0 c
90 lb N/A	90	10 DPF	100 d	91 d	33.0 b	5,731 c	6,556 b	0.90 cd	59 b	34 a	6 bc
135 lb N/A	135	10 DPF	101 c	92 c	33.6 b	6,616 b	7,216 ab	0.97 c	71 b	28 a	9 b
180 lb N/A	180	10 DPF	102 b	93 b	35.9 a	7,434 a	8,272 a	1.14 b	96 a	34 a	19 a
225 lb N/A	225	10 DPF	103 a	94 a	35.8 a	7,448 a	8,276 a	1.23 a	105 a	33 a	21 a
P			0.0001	0.000 1	0.000 1	0.000 1	0.000 1	0.0001	0.0001	0.7055	0.0001
LSD P=.05			0.7	0.7	1.36	512.2	1098. 3	0.086	14.6	11	7.7

Continued.

Table 55. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top		Tissue	Tissue N	N Uptake	N fert Eff.	N fert Eff.
Part Rated							Abvgrd	Abvgrd	total		
Rating Date						8/1/2015					
Rating Type			50% HD	50% HD	Height	Yield	biomass-dry				
Rating Unit			days	days	inches	lb/A	lb/A	% N	lb/A	%	%
Crop Stage Majority			Main	Main	Main		Main	Main	Main	by block	by mean
Crop Stage Scale							50% HD	50% HD	50% HD	50% HD	50% HD
Treatment Name	Rate (lb/A)	Growth Stage									
N Source x N rate Means											
NZone Max-Urea	45	10 DPF	100 e	90.8 e	28.8 a	4,473 fg	4,661 a	0.80 g	37 gh	31 a	0 e
Urea	45	10 DPF	100 e	90.8 e	29.3 a	4,228 g	3,976 a	0.79 g	32 h	21 a	0 e
ContaiN-Urea	45	10 DPF	100 e	91.0 e	30.3 a	5,098 efg	5,619 a	0.86 fg	48 e-h	55 a	0 e
NZone Max-Urea	90	10 DPF	100 e	90.8 e	32.3 a	5,072 efg	5,914 a	0.81 g	48 fgh	21 a	0 e
Urea	90	10 DPF	100 e	90.8 e	32.3 a	5,132 ef	6,215 a	0.91 d-g	55 d-h	32 a	2 de
ContaiN-Urea	90	10 DPF	102 cd	92.5 cd	34.5 a	6,990 bc	7,539 a	0.97 def	74 cde	48 a	15 bcd
NZone Max-Urea	135	10 DPF	100 e	91.3 e	31.8 a	5,486 de	6,631 a	0.83 fg	55 d-h	19 a	0 e
Urea	135	10 DPF	100 e	91.3 e	32.3 a	6,111 cd	6,766 a	0.90 efg	60 d-g	20 a	1 e
ContaiN-Urea	135	10 DPF	104 b	94.5 b	36.8 a	8,249 a	8,250 a	1.18 c	96 bc	45 a	25 b
NZone Max-Urea	180	10 DPF	102 c	93.0 c	35.3 a	6,771 bc	7,327 a	1.05 cde	77 bcd	23 a	9 cde
Urea	180	10 DPF	101 de	91.8 de	34.3 a	6,539 bc	7,970 a	0.97 def	77 bcd	25 a	8 cde
ContaiN-Urea	180	10 DPF	104 b	95.0 b	38.3 a	8,990 a	9,518 a	1.40 b	133 a	55 a	39 a
NZone Max-Urea	225	10 DPF	102 cd	92.8 cd	35.0 a	7,090 b	9,335 a	1.05 cd	99 b	28 a	16 bc
Urea	225	10 DPF	102 cd	92.5 cd	34.0 a	6,273 bcd	6,043 a	1.02 de	64 def	19 a	6 cde
ContaiN-Urea	225	10 DPF	106 a	96.8 a	38.5 a	8,981 a	9,449 a	1.63 a	153 a	52 a	40 a
P			0.0006	0.0006	0.3415	0.0306	0.1986	0.0001	0.0048	0.8286	0.0133
LSD P=.05			1.22	1.22	2.36	887.2	1902.3	0.149	25.4	19	13.3

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

Table 56. Evaluation of NZone Max and ContaiN-treated urea when applied at 10 days preflood. Analysis of variance for all treatments including the control which did not receive N fertilizer.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emer-hd	Top		Tissue	Tissue N	N Uptake	N fert Eff.	N fert Eff.
Part Rated							Abvgrd	Abvgrd	total		
Rating Date					8/1/2015	8/1/2015					
Rating Type			50% HD	50% HD	Height	Yield	biomass-dry				
Rating Unit			days	days	inches	lb/A	lb/A	% N	lb/A	% (by block)	% (by mean)
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale							50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name	Rate lb N/A									
1	NZone Max-Urea	45	100 f	91 f	28.8 h	4,473 fg	4,661 fgh	0.80 f	37 efg	31 bcd	0 e
2	NZone Max-Urea	90	100 f	91 f	32.3 def	5,072 efg	5,914 d-h	0.81 f	48 d-g	21 d	0 e
3	NZone Max-Urea	135	100 f	91 f	31.8 efg	5,486 def	6,631 c-f	0.83 ef	55 c-g	19 de	0 e
4	NZone Max-Urea	180	102 c	93 c	35.3 bc	6,771 c	7,327 b-e	1.05 cd	77 bc	23 d	9 cde
5	NZone Max-Urea	225	102 cd	93 cd	35.0 bc	7,090 bc	9,335 ab	1.05 cd	99 b	28 cd	16 bc
6	Urea	45	100 f	91 f	29.3 gh	4,228 g	3,976 gh	0.79 f	32 g	21 d	0 e
7	Urea	90	100 f	91 f	32.3 def	5,132 efg	6,215 c-f	0.91 def	55 c-g	32 bcd	2 de
8	Urea	135	100 f	91 f	32.3 def	6,111 cde	6,766 c-f	0.90 def	60 c-f	20 d	1 e
9	Urea	180	101 def	92 def	34.3 b-e	6,539 cd	7,970 a-d	0.97 de	77 bc	25 d	8 cde
10	Urea	225	102 cde	93 cde	34.0 cde	6,273 cde	6,043 d-g	1.02 d	64 cde	19 de	6 cde
11	ContaiN-Urea	45	100 f	91 f	30.3 fgh	5,098 efg	5,619 e-h	0.86 ef	48 d-g	55 a	0 e
12	ContaiN-Urea	90	102 cde	93 cde	34.5 bcd	6,990 c	7,539 a-e	0.97 de	74 bcd	48 ab	15 bcd
13	ContaiN-Urea	135	104 b	95 b	36.8 ab	8,249 ab	8,250 abc	1.18 c	96 b	45 abc	25 b
14	ContaiN-Urea	180	104 b	95 b	38.3 a	8,990 a	9,518 a	1.40 b	133 a	55 a	39 a
15	ContaiN-Urea	225	106 a	97 a	38.5 a	8,981 a	9,449 a	1.63 a	153 a	52 a	40 a
16	UTC (0N)		101 ef	92 ef	29.8 fgh	4,383 fg	3,866 h	0.86 ef	36 fg	0 e	0 e
LSD P=.05			1.24	1.24	2.64	1,255.1	2,114.4	0.155	27.6	19.7	12.9
Standard Deviation			0.87	0.87	1.85	881.3	1,484.7	0.109	19.4	13.8	9
CV			0.86	0.94	5.57	14.12	21.78	10.85	27.11	44.75	88.92
Replicate F			14.381	14.381	0.8	3.534	1.793	3.778	1.74	29.797	1.578
Replicate Prob(F)			0.0001	0.0001	0.5006	0.0221	0.162	0.0168	0.1723	0.0001	0.2078
Treatment F			16.604	16.604	10.677	12.315	5.978	18.269	12.64	5.217	9.218
Treatment Prob(F)			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).

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System (CL163)

Experiment number	15-CM-33
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 7
Soil type	Crowley silt loam
% organic matter	1.50
pH	7.61
Extractable nutrients ppm	Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0
Crop/Variety	Rice / CL163
Planting method/date	Drill seeded / March 20
Seeding rate/depth	Multiple seeds/ft^2 / .5 inch
Emergence date	March 29
Harvest date	July 30
Ratoon harvest date	Nov. 5
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 repellent) - 18.3 oz
Fertilization	250 lb/A 0-24-24-2.7, March 25 120 lb N/A 46-0-0, May 8 90 lb N/A 46-0-0, Aug. 3
Water management	
Flush	April 1
Flood	May 11
Drain	July 22
Ratoon flood	Aug. 4
Ratoon drain	Oct. 20
Pest management	
Herbicides	1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014 1 qt/A glyphosate, Feb. 11 2 pt/A Prowl H_2O, March 31 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9 2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7 3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 57. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (CL163). H. Rouse Caffey Rice Research Station.

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Variety								w/o 10 P gr wt		filled grain
Description	Rice Density	plant-hd	emer-hd	Top				Yield Component		
Rating Date				7/27/2015	7/30/2015					
Rating Type	Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P gr wt.	10 P seed
Rating Unit	number	days	days	inches	lb/A	grams	number	grams	grams	number
Sample Size, Unit	1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit						2 row	2 row	2 row	2 row	2 row
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale	2-3 leaf									
Trt No. Treatment Name										
1 15 seed/ft^2 (34.9 lb/A)	11 d	104 a	94 a	40.5 a	8,274 a	739.5 a	123 b	325.1 a	44.14 a	1,852 a
2 20 seed/ft^2 (46.6 lb/A)	12 cd	103 a	93 a	41.0 a	8,262 a	724.1 a	115 b	324.8 a	40.31 ab	1,674 b
3 25 seed/ft^2 (58.2 lb/A)	15 bc	104 a	94 a	40.8 a	7,970 a	726.7 a	126 b	309.6 a	39.39 b	1,637 b
4 30 seed/ft^2 (69.9 lb/A)	20 ab	103 a	93 a	39.5 a	8,308 a	755.8 a	126 b	342.6 a	36.44 b	1,528 b
5 35 seed/ft^2 (81.5 lb/A)	19 ab	103 a	93 a	40.3 a	8,467 a	758.4 a	144 a	349.8 a	36.79 b	1,519 b
6 40 seed/ft^2 (93.1 lb/A)	23 a	103 a	93 a	39.5 a	8,266 a	730.5 a	142 a	325.3 a	36.31 b	1,536 b
LSD P=.05	4.4	0.9	0.9	2.07	366.4	81.984	13.76	40.686	4.331	170.57
Standard Deviation	2.9	0.6	0.6	1.37	243.1	54.396	9.13	26.995	2.873	113.17
CV	17.43	0.6	0.67	3.41	2.94	7.36	7.05	8.19	7.39	6.97
Replicate F	0.558	5.286	5.286	0.382	0.96	3.941	10.812	4.998	0.574	0.601
Replicate Prob(F)	0.6505	0.0109	0.0109	0.7672	0.4372	0.0295	0.0005	0.0134	0.641	0.6246
Treatment F	10.041	1.971	1.971	0.847	1.751	0.299	6.055	1.141	4.544	5.159
Treatment Prob(F)	0.0002	0.1417	0.1417	0.5376	0.1837	0.9061	0.0029	0.3818	0.01	0.006

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

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System (CL172)

Experiment number ....: 15-CM-34

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.50
- **pH** ....: 7.61
- **Extractable nutrients** ppm ....: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety ....: Rice / CL172
- **Planting method/date** ....: Drill seeded / March 20
- **Seeding rate/depth** ....: Multiple seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: July 30
- **Ratoon harvest date** ....: Nov. 5

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
120 lb N/A 46-0-0, May 8
90 lb N/A 46-0-0, Aug. 3

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 22
- **Ratoon flood** ....: Aug. 4
- **Ratoon drain** ....: Oct. 20

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 58. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (CL172). H. Rouse Caffey Rice Research Station.

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Variety								w/o 10 P gr wt		filled grain
Description	Rice Density	plant-hd	emer-hd	Top				Yield Component		
Rating Date	4/20/2015			7/27/2015	7/30/2015					
Rating Type	Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P gr wt.	10 P seed
Rating Unit	number	days	days	inches	lb/A	grams	number	grams	grams	number
Sample Size, Unit	1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit						2 row	2 row	2 row	2 row	2 row
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale	2-3 leaf									
Trt No. Treatment Name										
1 15 seed/ft^2 (34.9 lb/A)	11 d	104 a	94 a	35.8 a	8,243 a	748.3 a	140 a	322.0 a	36.9 a	1,497 a
2 20 seed/ft^2 (46.6 lb/A)	14 c	103 a	93 a	37.0 a	8,649 a	737.7 a	144 a	336.8 a	34.6 a	1,394 a
3 25 seed/ft^2 (58.2 lb/A)	14 c	103 a	93 a	37.3 a	8,357 a	747.1 a	150 a	340.3 a	37.3 a	1,498 a
4 30 seed/ft^2 (69.9 lb/A)	20 b	103 a	93 a	36.5 a	8,634 a	712.0 a	146 a	320.3 a	35.3 a	1,417 a
5 35 seed/ft^2 (81.5 lb/A)	19 b	103 a	93 a	37.3 a	8,754 a	722.8 a	157 a	324.3 a	32.9 a	1,315 a
6 40 seed/ft^2 (93.1 lb/A)	23 a	103 a	93 a	36.3 a	8,468 a	741.3 a	167 a	317.3 a	35.1 a	1,383 a
LSD P=.05	2.8	1.1	1.1	2.35	477.1	72.54	25.52	47.485	4.37	191.54
Standard Deviation	1.9	0.7	0.7	1.56	316.6	48.13	16.93	31.506	2.9	127.09
CV	11.31	0.69	0.77	4.24	3.72	6.55	11.25	9.64	8.2	8.97
Replicate F	1.617	2.826	2.826	1.33	2.211	0.391	1.774	0.653	1.336	1.823
Replicate Prob(F)	0.2273	0.0742	0.0742	0.3017	0.1291	0.7609	0.1953	0.5931	0.3	0.1863
Treatment F	24.237	0.783	0.783	0.606	1.52	0.361	1.412	0.357	1.223	1.241
Treatment Prob(F)	0.0001	0.5777	0.5777	0.697	0.2422	0.8669	0.2759	0.87	0.346	0.3387

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

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System (LA2134)

Experiment number ....: 15-CM-38

Site and design ....:
  Location/Cooperator ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
  % organic matter ....: 1.50
  pH ....: 7.61
  Extractable nutrients ppm ....: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety ....: Rice / LA2134
  Planting method/date ....: Drill seeded / March 20
  Seeding rate/depth ....: Multiple seeds/ft^2 / .5 inch
  Emergence date ....: March 29
  Harvest date ....: July 30
  Ratoon harvest date ....: Nov. 5

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
120 lb N/A 46-0-0, May 8
90 lb N/A 46-0-0, Aug. 3

Water management ....:
  Flush ....: April 1
  Flood ....: May 11
  Drain ....: July 22
  Ratoon flood ....: Aug. 4
  Ratoon drain ....: Oct. 20

Pest management ....:
  Herbicides ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
  Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
  Fungicides ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 59. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (LA2134). H. Rouse Caffey Rice Research Station.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Variety									w/o 10 P gr wt		filled grain
Description		Rice Density	plant-hd	emer-hd	Top				Yield Component		
Rating Date		4/20/2015			7/27/2015	7/30/2015					
Rating Type		Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P gr wt.	10 P seed
Rating Unit		number	days	days	inches	lb/A	grams	number	grams	grams	number
Sample Size, Unit		1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit							2 row	2 row	2 row	2 row	2 row
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		2-3 leaf									
Trt No.	Treatment Name										
1	15 seed/ft^2 (34.9 lb/A)	7 c	103 a	93 a	39.8 a	8,565 a	760.1 a	149 a	343.7 a	31.7 a	1,318 a
2	20 seed/ft^2 (46.6 lb/A)	9 c	103 a	93 a	41.0 a	8,515 a	726.3 a	144 a	318.7 a	31.5 a	1,308 a
3	25 seed/ft^2 (58.2 lb/A)	11 b	103 a	93 a	39.3 a	8,487 a	695.8 a	139 a	304.6 a	32.7 a	1,333 a
4	30 seed/ft^2 (69.9 lb/A)	12 b	102 a	92 a	40.0 a	8,938 a	709.7 a	151 a	328.0 a	31.9 a	1,304 a
5	35 seed/ft^2 (81.5 lb/A)	13 b	102 a	92 a	39.8 a	9,011 a	677.2 a	141 a	313.2 a	33.5 a	1,379 a
6	40 seed/ft^2 (93.1 lb/A)	15 a	103 a	93 a	39.5 a	8,958 a	673.0 a	143 a	299.8 a	32.7 a	1,330 a
LSD P=.05		2.2	1.3	1.3	2.14	576.9	94.603	21.39	54.326	4.676	192.17
Standard Deviation		1.4	0.9	0.9	1.42	382.8	62.769	14.19	36.045	3.102	127.5
CV		12.93	0.84	0.93	3.55	4.38	8.88	9.82	11.34	9.60	9.60
Replicate F		0.64	3.955	3.955	0.851	0.539	0.907	3.156	0.992	1.54	1.971
Replicate Prob(F)		0.6009	0.0291	0.0291	0.4877	0.6627	0.4608	0.056	0.4231	0.245	0.1617
Treatment F		17.904	1.03	1.03	0.734	1.669	1.089	0.395	0.797	0.235	0.184
Treatment Prob(F)		0.0001	0.4354	0.4354	0.609	0.2027	0.4059	0.845	0.5688	0.941	0.9642

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

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System (LA2008)

Experiment number ....: 15-CM-39

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.50
- **pH**...: 7.61
- **Extractable nutrients** ppm ....: Ca-1641; Cu-2.2; Mg-231; P-26; K-76; Na-111; S-6.7; Zn-9.0

Crop/Variety ....: Rice / LA2008
- **Planting method/date** ....: Drill seeded / March 20
- **Seeding rate/depth**......................: Multiple seeds/ft^2 / .5 inch
- **Emergence date**...........................: March 29
- **Harvest date** ....: July 30
- **Ratoon harvest date**....................: Nov. 5

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 repellent) - 18.3 oz

Fertilization.......................................: 250 lb/A 0-24-24-2.7, March 25
120 lb N/A 46-0-0, May 8
90 lb N/A 46-0-0, Aug. 3

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain**..: July 22
- **Ratoon flood** ....: Aug. 4
- **Ratoon drain** ....: Oct. 20

Pest management ....:
- **Herbicides**...................................: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 3
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides**....................................: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 60. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (LA2008).

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Variety								w/o 10 P gr wt		filled grain
Description	Rice Density	plant-hd	emer-hd	Top				Yield Component		
Rating Date	4/20/2015			7/27/2015	7/30/2015					
Rating Type	Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P gr wt.	10 P seed
Rating Unit	number	days	days	inches	lb/A	grams	number	grams	grams	number
Sample Size, Unit	1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit						2 row	2 row	2 row	2 row	2 row
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale	2-3 leaf									
Trt No. Treatment Name										
1 15 seed/ft^2 (34.9 lb/A)	7 c	104 a	94 a	40.0 a	8,427 c	744.5 a	145.5 a	326.42 a	37.4 a	1,443 a
2 20 seed/ft^2 (46.6 lb/A)	7 c	104 a	94 a	39.8 a	8,489 c	696.0 a	132.3 a	293.98 a	36.8 a	1,415 a
3 25 seed/ft^2 (58.2 lb/A)	12 b	104 a	94 a	41.3 a	8,690 bc	713.9 a	137.0 a	306.64 a	36.1 a	1,445 a
4 30 seed/ft^2 (69.9 lb/A)	11 b	104 a	94 a	39.0 a	8,941 ab	708.0 a	138.8 a	307.07 a	35.6 a	1,330 a
5 35 seed/ft^2 (81.5 lb/A)	12 b	104 a	94 a	40.5 a	9,017 a	726.9 a	148.5 a	319.19 a	35.0 a	1,341 a
6 40 seed/ft^2 (93.1 lb/A)	16 a	104 a	94 a	40.5 a	8,929 ab	746.4 a	142.8 a	324.11 a	36.1 a	1,384 a
LSD P=.05	3.0	0.6	0.6	2.37	297.7	60.267	16.63	27.354	3.361	145.52
Standard Deviation	2.0	0.4	0.4	1.57	197.5	39.987	11.03	18.15	2.23	96.55
CV	18.33	0.37	0.41	3.92	2.26	5.53	7.84	5.8	6.17	6.93
Replicate F	0.387	0.769	0.769	0.314	1.229	0.662	1.571	0.294	0.915	0.529
Replicate Prob(F)	0.764	0.5289	0.5289	0.8151	0.3336	0.5884	0.238	0.829	0.457	0.669
Treatment F	12.732	1.154	1.154	0.955	6.472	1.031	1.162	1.893	0.556	1.065
Treatment Prob(F)	0.0001	0.3759	0.3759	0.475	0.0021	0.4346	0.372	0.1554	0.732	0.4179

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

Evaluation of Nitrogen Use Efficiency of Ratoon Crop Variety or Hybrid Selection to First Crop Nitrogen Rate and Timing

Experiment number ....: 15-CM-09

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.26
- **pH** ....: 7.57
- **Extractable nutrients** ppm ....: Ca-1,495; Cu-2.0; Mg-235; P-18; K-86; Na-90; S-9.2; Zn-7.5

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 20
- **Seeding rate/depth** ....: Hyb-14, Var-33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: Aug. 3
- **Ratoon harvest date** ....: Nov. 10

Seed treatment/cwt ....: Variety - Dithane (fungicide) - 114 g
Release (gibberellic acid) - 10 g
Zinc Plus (10% Zn and 4.9% combined sulfur) - 296 ml
AV-1011 (bird repellent) - 18.3 oz
Hybrid –Treated by seed company with Maxim 4FS, Apron XL, Gibberellic acid, Zinc, and Dynasty. No amounts were given. AV-1011 was added by Research Station.

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
90 lb N/A 46-0-0, Aug. 10

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 24
- **Ratoon flood** ....: Aug. 11
- **Ratoon drain** ....: Oct. 28

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
1 qt/A glyphosate, Feb. 11
2 pt/A Prowl H_2O, March 31
2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
2 pt/A Basagran + 2 pt/A 2,4-D, Aug. 10
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 61. Evaluation of nitrogen use efficiency of ratoon crop variety or hybrid selection to first crop nitrogen rate and timing. H. Rouse Caffey Rice Research Station.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue		
Part Rated								Abvgrd		
Rating Date					8/3/2015		8/3/2015		11/10/2015	
Rating Type		50% HD	50% HD	Height	Lodge	Lodge	Yield	biomass-dry	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Crop Stage Scale								Maturity		
Trt No.	Treatment Name									
1	CLXL729 SPF	98 efg	88 efg	39.8 def	12.5 cd	0.8 b	11,746 a	17,472 ab	5,151 b-e	16,897 a
2	CLXL729 120 PF/30 GR 120 PF/30 GR	101 bcd	91 bcd	37.5 fg	0.0 d	0.0 b	10,800 cd	17,418 ab	3,885 fgh	14,685 b
3	CLXL729 120 PF/30 HD 120 PF/30 HD	102 bc	92 bc	36.8 g	0.0 d	0.0 b	10,514 def	14,377 cd	4,248 efg	14,762 b
4	CLXL729 0 lb N/A	95 hi	85 hi	25.8 h	0.0 d	0.0 b	3,805 j	5,067 e	6,089 ab	9,894 e
5	CLXL745 SPF	98 fg	88 fg	44.5 a	62.5 b	2.0 a	11,377 abc	16,436 abc	2,437 klm	13,814 bc
6	CLXL745 120 PF/30 GR 120 PF/30 GR	97 g	87 g	42.0 a-d	67.5 ab	2.0 a	10,714 cde	16,679 abc	1,809 m	12,524 cd
7	CLXL745 120 PF/30 HD 120 PF/30 HD	97 gh	87 gh	43.0 ab	85.0 a	2.0 a	10,071 efg	18,377 a	2,111 lm	12,182 d
8	CLXL745 0 lb N/A	95 hi	85 hi	28.3 h	12.5 cd	0.5 b	3,838 j	5,969 e	4,779 c-f	8,618 ef
9	XL753 SPF	101 bc	91 bc	41.3 b-e	0.0 d	0.0 b	11,664 ab	17,852 ab	3,168 h-k	14,832 b

Continued.

Table 61. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue		
Part Rated								Abvgrd		
Rating Date					8/3/2015		8/3/2015		11/10/2015	
Rating Type		50% HD	50% HD	Height	Lodge	Lodge	Yield	biomass-dry	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Crop Stage Scale								Maturity		
Trt No.	Treatment Name									
10	XL753 120 PF/30 GR 120 PF/30 GR	100 b-f	90 b-f	39.5 d-g	5.0 cd	0.3 b	11,006 bcd	18,456 a	3,474 g-j	14,480 b
11	XL753 120 PF/30 HD 120 PF/30 HD	102 b	92 b	42.8 abc	0.0 d	0.0 b	10,936 cd	16,670 abc	2,805 i-l	13,741 bc
12	XL753 0 lb N/A	95 hi	85 hi	27.8 h	0.0 d	0.0 b	3,522 jk	6,471 e	6,218 a	9,740 e
13	CL111 SPF	100 c-f	90 c-f	40.0 c-f	25.0 c	2.0 a	9,828 fgh	15,862 a-d	4,339 d-g	14,166 b
14	CL111 120 PF/30 GR 120 PF/30 GR	100 c-f	90 c-f	39.0 efg	12.5 cd	1.0 ab	9,435 ghi	16,193 abc	4,632 c-f	14,067 b
15	CL111 120 PF/30 HD 120 PF/30 HD	99 efg	89 efg	40.3 b-f	12.5 cd	0.8 b	9,191 hi	16,992 abc	4,803 c-f	13,994 b
16	CL111 0 lb N/A	94 i	84 i	27.3 h	0.0 d	0.0 b	3,051 k	4,707 e	4,282 efg	7,333 fg
17	CL152 SPF	106 a	96 a	37.8 fg	0.0 d	0.0 b	9,414 ghi	16,088 a-d	5,236 bcd	14,650 b
18	CL152 120 PF/30 GR 120 PF/30 GR	107 a	97 a	36.8 g	0.0 d	0.0 b	9,148 hi	13,347 d	4,678 c-f	13,826 bc

Continued.

Table 61. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue		
Part Rated								Abvgrd		
Rating Date					8/3/2015		8/3/2015		11/10/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Crop Stage Scale								Maturity		
Trt No.	Treatment Name									
19	CL152 120 PF/30 HD 120 PF/30 HD	107 a	97 a	37.5 fg	0.0 d	0.0 b	8,931 i	15,878 a-d	5,461 abc	14,392 b
20	CL152 0 lb N/A	99 d-g	89 d-g	26.3 h	0.0 d	0.0 b	3,414 jk	4,587 e	5,523 abc	8,937 e
21	Mermentau SPF	100 b-f	90 b-f	38.3 fg	0.0 d	0.0 b	9,318 hi	15,532 bcd	2,576 j-m	11,894 d
22	Mermentau 120 PF/30 GR 120 PF/30 GR	100 b-e	90 b-e	38.0 fg	5.0 cd	0.5 b	9,164 hi	17,888 ab	2,509 klm	11,674 d
23	Mermentau 120 PF/30 HD 120 PF/30 HD	100 b-e	90 b-e	38.3 fg	0.0 d	0.0 b	8,870 i	16493 abc	2,814 i-l	11,685 d
24	Mermentau 0 lb N/A	95 i	85 i	26.5 h	0.0 d	0.0 b	2,913 k	4,813 e	3,680 ghi	6,593 g
LSD P=.05		2.1	2.1	2.84	20.68	1.09	702.1	2,766.7	948.4	13,22.6
Standard Deviation		1.49	1.49	2.01	14.66	0.78	497.7	1,961.3	672.3	937.6
CV		1.5	1.66	5.52	117.26	158.35	5.89	14.28	16.68	7.52
Replicate F		8.305	8.305	2.48	0.349	1.543	1.344	3.93	3.646	2.168
Replicate Prob(F)		0.0001	0.0001	0.0683	0.7899	0.2113	0.2673	0.0119	0.0167	0.0996
Treatment F		23.78	23.78	34.92	10.72	3.74	153.61	27.39	14.59	32.61
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Continued.

Table 61. Continued.

		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		Grain	Straw	Tissue N	Grain N	N Uptake	N Uptake	N Uptake	N Uptake	N fert Eff.
Part Rated		Abvgrd	Abvgrd	Abvgrd	Abvgrd	Straw	Grain	Total	0 N	
Rating Date										
Rating Type		Biomass-dry	Biomass-dry							
Rating Unit		lb/A	lb/A	% N	%N	lb/A	lb/A	lb/A	lb/A	%
Crop Stage Majority		Main	Main	Straw	Grain	Straw	Grain	Str+Grn	0 N plot	by mean
Crop Stage Scale		Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	by mean	Maturity
Trt No.	Treatment Name									
1	CLXL729 SPF	9,114 ab	8,358 abc	0.66 c-f	1.07 a-d	115 ab	125 a	240 a	69 b	100 a
2	CLXL729 120 PF/30 GR 120 PF/30 GR	9,518 a	7,900 abc	0.60 g-j	1.04 b-f	104 a-d	112 bcd	216 bc	69 b	96 a-d
3	CLXL729 120 PF/30 HD 120 PF/30 HD	7,329 cd	7,048 c	0.67 a-f	1.03 b-f	97 cde	109 b-e	205 cde	69 b	88 c-f
4	CLXL729 0 lb N/A	2,657 e	2,411 d	0.73 a	0.86 i	37 f	32 j	69 f	69 b	0 g
5	CLXL745 SPF	8,477 abc	7,959 abc	0.62 e-i	1.01 c-f	103 a-e	115 bc	218 bc	72 a	95 a-d
6	CLXL745 120 PF/30 GR 120 PF/30 GR	8,377 abc	8,302 abc	0.58 hij	1.00 def	96 de	107 c-f	203 cde	72 a	88 def
7	CLXL745 120 PF/30 HD 120 PF/30 HD	9,775 a	8,602 abc	0.55 j	1.01 c-f	101 a-e	102 e-h	202 cde	72 a	85 ef
8	CLXL745 0 lb N/A	3,341 e	2,628 d	0.67 b-f	0.83 ij	40 f	32 j	71 f	72 a	0 g
9	XL753 SPF	9,258 a	8,594 abc	0.65 d-g	1.00 c-f	116 a	117 ab	233 ab	67 c	100 a

Continued.

Table 61. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		Grain	Straw	Tissue N	Grain N	N Uptake	N Uptake	N Uptake	N Uptake	N fert Eff.
Part Rated		Abvgrd	Abvgrd	Abvgrd	Abvgrd	Straw	Grain	Total	0 N	
Rating Date										
Rating Type		Biomass-dry	Biomass-dry							
Rating Unit		lb/A	lb/A	% N	%N	lb/A	lb/A	lb/A	lb/A	%
Crop Stage Majority		Main	Main	Straw	Grain	Straw	Grain	Str+Grn	0 N plot	by mean
Crop Stage Scale		Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	by mean	Maturity
Trt No.	Treatment Name									
10	XL753 120 PF/30 GR 120 PF/30 GR	9,346 a	9,110 a	0.57 ij	0.98 fg	105 a-d	107 c-f	212 cd	67 c	94 a-d
11	XL753 120 PF/30 HD 120 PF/30 HD	8,394 abc	8,276 abc	0.58 hij	0.99 ef	94 de	108 b-e	202 cde	67 c	90 b-f
12	XL753 0 lb N/A	3,694 e	2,777 d	0.61 f-j	0.78 j	40 f	28 j	67 f	67 c	0 g
13	CL111 SPF	7,462 bcd	8,400 abc	0.73 ab	1.07 abc	116 ab	105 d-g	221 abc	58 e	97 abc
14	CL111 120 PF/30 GR 120 PF/30 GR	7,339 cd	8,854 abc	0.67 a-f	1.03 b-f	108 a-d	97 ghi	205 cde	58 e	98 ab
15	CL111 120 PF/30 HD 120 PF/30 HD	8,129 abc	8,864 abc	0.68 a-e	1.00 def	115 ab	92 i	207 cd	58 e	97 a-d
16	CL111 0 lb N/A	2,336 e	2,371 d	0.68 a-e	0.86 hi	32 f	26 j	58 f	58 e	0 g
17	CL152 SPF	7,253 cd	8,835 abc	0.71 a-d	1.13 a	115 ab	106 def	221 abc	59 d	100 a
18	CL152 120 PF/30 GR 120 PF/30 GR	6,165 d	7,182 bc	0.69 efg	1.08 ab	86 e	99 f-i	185 e	59 d	84 f

Continued.

Table 61. Continued.

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	Grain	Straw	Tissue N	Grain N	N Uptake	N Uptake	N Uptake	N Uptake	N fert Eff.
Part Rated	Abvgrd	Abvgrd	Abvgrd	Abvgrd	Straw	Grain	Total	0 N	
Rating Date									
Rating Type	Biomass-dry	Biomass-dry							
Rating Unit	lb/A	lb/A	% N	%N	lb/A	lb/A	lb/A	lb/A	%
Crop Stage Majority	Main	Main	Straw	Grain	Straw	Grain	Str+Grn	0 N plot	by mean
Crop Stage Scale	Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	Maturity	by mean	Maturity
Trt No. Treatment Name									
19 CL152 120 PF/30 HD 120 PF/30 HD	6,890 cd	8,987 ab	0.63 e-i	1.05 b-e	99 b-e	94 hi	193 de	59 d	90 b-f
20 CL152 0 lb N/A	2,136 e	2,451 d	0.60 g-j	0.92 gh	27 f	31 j	59 f	59 d	0 g
21 Mermentau SPF	7,491 bcd	8,041 abc	0.73 abc	1.06 bcd	113 abc	99 f-i	211 cd	56 f	100 a
22 Mermentau 120 PF/30 GR 120 PF/30 GR	8,336 abc	9,552 a	0.64 e-h	1.04 b-f	114 ab	95 hi	209 cd	56 f	94 a-e
23 Mermentau 120 PF/30 HD 120 PF/30 HD	8,306 abc	8,187 abc	0.65 d-g	1.06 bcd	108 a-d	94 hi	202 cde	56 f	95 a-d
24 Mermentau 0 lb N/A	2,557 e	2,256 d	0.63 e-i	0.88 hi	30 f	25 j	56 f	56 f	0 g
LSD P=.05	1,670.8	1,823.1	0.0645	0.0671	16.8	8.9	20.5	0.1408	9.1
Standard Deviation	1,184.4	1,292.4	0.0457	0.0475	11.9	6.3	14.5	0.0998	6.4
CV	17.37	18.69	7.09	4.8	13.52	7.4	8.38	0.16	9.15
Replicate F	1.836	5.454	0.134	14.077	5.755	3.484	1.691	2.091	1.332
Replicate Prob(F)	0.1487	0.002	0.9398	0.0001	0.0014	0.0203	0.177	0.1094	0.271
Treatment F	18.46	17.09	5.32	14.07	30.13	117.14	82.52	15141.27	168.05
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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

Evaluation of Rice Response to Calcium Silicate Slag Fertilization – H. Rouse Caffey Rice Research Station (Year 3)

Experiment number ....: 15-CM-27

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.57
- **pH** ....: 7.58
- **Extractable nutrients** ppm ....: Ca-1691; Cu-1.9; Mg-213; P-27; K-70; Na-95; S-6.0; Zn-7.2

Crop/Variety ....: Rice / CL111
- **Planting method/date** ....: Drill seeded / March 20
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 29
- **Harvest date** ....: Aug. 3
- **Ratoon harvest date** ....: Nov. 10

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 repellent) - 18.3 oz

Fertilization ....: 250 lb/A 0-24-24-2.7, March 25
120 lb N/A 46-0-0, May 8
90 lb N/A 46-0-0, Aug. 10

Water management ....:
- **Flush** ....: April 1
- **Flood** ....: May 11
- **Drain** ....: July 23
- **Ratoon flood** ....: Aug. 11
- **Ratoon drain** ....: Oct. 28

Pest management ....:
- **Herbicides** ....: 1 qt/A glyphosate + 1 pt/A 2,4-D + 2 oz/A Valor, Dec. 4, 2014
  1 qt/A glyphosate, Feb. 11
  2 pt/A Prowl H_2O, March 31
  2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, April 9
  2 qt/A RiceBeaux + 2 qt/A propanil + 1 oz/A Londax + .5 oz/A Permit, May 7
  3 pt/A Basagran + 1 pt/A 2,4-D, Aug. 10
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 18

Table 62. Evaluation of rice response to calcium silicate slag fertilization. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top							
Rating Date							8/3/2015		8/3/2015	8/3/2015	11/10/2015	11/10/2015	11/10/2015
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit				days	days	inches	% 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 (ton/A)	Growth Stage										
1	Check (no slag, no lime)	0	At Plant	99 a	90 a	41 a	18 a	1 a	46.8 a	8,784 a	45.8 a	3,768 a	12,552 a
2	Ca Silicate slag	0.5	At Plant	100 a	91 a	40 a	23 a	1 a	46.2 a	8,993 a	46.0 a	3,656 a	12,649 a
3	Ca Silicate slag	1	At Plant	100 a	91 a	40 a	20 a	2 a	46.1 a	8,726 a	45.9 a	3,824 a	12,550 a
4	Ca Silicate slag	2	At Plant	100 a	91 a	40 a	13 a	1 a	45.6 a	8,833 a	45.4 a	3,734 a	12,566 a
5	Ca Silicate slag	3	At Plant	101 a	92 a	39 a	13 a	1 a	46.0 a	8,823 a	45.8 a	3,743 a	12,566 a
6	Ca Silicate slag	4	At Plant	100 a	91 a	40 a	20 a	2 a	46.6 a	9,015 a	45.3 a	3,463 a	12,478 a
7	Ag lime	1	At Plant	100 a	91 a	39 a	20 a	1 a	45.7 a	8,817 a	45.7 a	3,694 a	12,511 a
8	Ag lime	2	At Plant	99 a	90 a	40 a	28 a	3 a	45.2 a	8,526 a	45.6 a	3,666 a	12,193 a
LSD P=.05				1.1	1.1	1.2	15.5	1.3	1.35	531.1	0.58	421.3	623.5
Standard Deviation				0.8	0.8	0.8	10.6	0.9	0.92	361.2	0.4	286.5	424
CV				0.75	0.83	2.12	55.38	61.89	2	4.1	0.87	7.76	3.39
Replicate F				3.316	3.316	2.04	9.075	9.613	2.277	9.106	5.648	2.635	2.281
Replicate Prob(F)				0.0397	0.0397	0.14	0.0005	0.0003	0.1092	0.0005	0.0053	0.0765	0.1089
Treatment F				1.863	1.863	2.01	0.893	2.257	1.327	0.72	1.288	0.572	0.416
Treatment Prob(F)				0.1275	0.1275	0.1	0.5293	0.0703	0.2867	0.6568	0.3034	0.7705	0.8818

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

Evaluation of Rice Response to Calcium Silicate Slag Fertilization – Vermilion Parish (Year 3)

Experiment number ....: 15-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 inches / 7

Soil type ....: Kaplan silt loam
- **% organic matter**........................: 1.29
- **pH**...: 4.8
- **Extractable nutrients** ppm ....: Ca-1029; Cu-1.0; Mg-122; P-49.31; K-58.65; Na-15.4; S-6.8; Zn-3.2

Crop/Variety ....: Rice / CL111
- **Planting method/date** ....: Drill seeded / March 24
- **Seeding rate/depth**......................: 33 seeds/ft^2 / .5 inch
- **Emergence date**...........................: April 5
- **Harvest date** ....: Aug. 5
- **Ratoon harvest date**....................: Oct. 29

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 repellent) - 18.3 oz

Fertilization..: 250 lb/A 8-24-24, April 8
120 lb N/A 46-0-0, May 11
90 lb N/A 46-0-0, Aug. 11

Water management ....:
- **Flush** ....: April 4
- **Flood** ....: May 12
- **Drain**..: July 18
- **Ratoon flood** ....: Aug. 12
- **Ratoon drain** ....: Oct. 9

Pest management ....:
- **Herbicides**....................................: 8 oz/A Command, April 8
3 qt/A propanil + 1 oz/A Permit + 1 oz/A Londax, May 11
25 oz/a Clincher + .5 oz/A Permit + 1 qt/A COC, May 14
- **Insecticides** ....: None
- **Fungicides**....................................: 4.5 oz/A Gem 500SC + 6 oz/A Bumper, June 22

Table 63. Evaluation of rice response to calcium silicate slag fertilization. Vermilion Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emer-hd	Top					
Rating Date						8/5/2015	8/5/2015	8/5/2015	10/29/2015	10/29/2015	10/29/2015
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Yield
Rating Unit				days	days	inches	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Treatment Name	Rate (ton/A)	Growth Stage								
1	Check (no slag, no lime)	0	At Plant	84 a	72 a	38 a	46.0 a	7,186 a	47.4 a	4,848 a	12,034 a
2	Ca Silicate slag	0.5	At Plant	83 a	71 a	37 a	46.1 a	7,346 a	47.0 a	5,064 a	12,410 a
3	Ca Silicate slag	1	At Plant	83 a	71 a	39 a	46.0 a	7,183 a	47.2 a	4,955 a	12,138 a
4	Ca Silicate slag	2	At Plant	82 a	70 a	38 a	46.3 a	7,270 a	47.2 a	4,956 a	12,225 a
5	Ca Silicate slag	3	At Plant	83 a	71 a	38 a	46.2 a	7,122 a	47.2 a	5,230 a	12,353 a
6	Ca Silicate slag	4	At Plant	83 a	71 a	39 a	46.1 a	7,573 a	46.9 a	5,217 a	12,790 a
7	Ag lime	1	At Plant	83 a	71 a	39 a	46.3 a	7,413 a	47.2 a	5,163 a	12,576 a
8	Ag lime	2	At Plant	83 a	71 a	38 a	46.1 a	7,281 a	47.2 a	5,122 a	12,403 a
LSD P=.05				1.1	1.1	2.3	0.35	568.9	0.42	449.3	747.2
Standard Deviation				0.7	0.7	1.6	0.24	386.9	0.29	305.6	508.1
CV				0.88	1.03	4.09	0.51	5.3	0.61	6.03	4.11
Replicate F				19.51	19.51	0.361	1.805	4.333	1.528	0.97	3.62
Replicate Prob(F)				0.0001	1E-04	0.7816	0.177	0.0158	0.2365	0.426	0.03
Treatment F				1.807	1.807	0.848	0.937	0.567	1.215	0.823	0.905
Treatment Prob(F)				0.1389	0.139	0.5615	0.499	0.7739	0.3379	0.58	0.5213

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

Evaluation of Phosphorus Rate on Yield and Phosphorus Uptake

Experiment number ....: 15-KL-02

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish / Kenneth LaHaye
- **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 inches / 7

Soil type ....: Mowata silt loam
- **% organic matter**........................: 1.22
- **pH**...: 5.0
- **Extractable nutrients** ppm ....: Ca-803; Cu-1.1; Mg-154; P-15.72; K-41.74; Na-70.5; S-5.4; Zn-8.1

Crop/Variety ....: Rice / CLXL729, CLXL745, and CL111
- **Planting method/date** ....: Drill seeded / March 31
- **Seeding rate/depth**......................: Hyb-14, Conv-33 seeds/ft^2 / .5 inch
- **Emergence date**...........................: April 9
- **Harvest date** ....: Aug. 6
- **Ratoon harvest date**....................: Nov. 12

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 repellent) - 18.3 oz
Hyb – Maxim 4FS
Apron XL
Gibberellic acid
Zinc
Dynasty
AV-1011 (bird repellent) - 18.3 oz

Fertilization..: 120 lb/A Potash + 15 lb/A $ZnSO_4$ + 100 lb/A Ammonium Sulfate, March 31
120 lb/A 46-0-0, May 8
90 lb N/A 46-0-0, Aug. 26

Water management ....:
- **Flush** ....: April 4
- **Flood** ....: May 12
- **Drain**..: July 29
- **Ratoon flood**................................: Aug. 27
- **Ratoon drain** ....: Oct. 28

Pest management ....:
- **Herbicides**...................................: 8 oz/A Command, April 2
3 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O, April 23
2 qt/A RiceBeaux + 2 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax, May 8
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides**...................................: NA

Table 64. Evaluation of phosphorus rate on yield and phosphorus uptake. Agronomic data.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015	11/12/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	P Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
1	CLXL729 0 lb P_2O_5/A 120 lb N/A 30 lb N/A	95 a	86 a	41.3 e	0 e	0 c	10,946 bc	7,255 a	53.33 a	76.79 a	881 a	11,827 cde	16 a
2	CLXL729 30 lb P_2O_5/A 120 lb N/A 30 lb N/A	91 abc	82 abc	41.5 de	32.5 b-e	0.8 abc	12,702 a	10,301 a	53.70 a	77.06 a	984 a	13,685 abc	25 a
3	CLXL729 60 lb P_2O_5/A 120 lb N/A 30 lb N/A	90 cd	81 cd	41.5 de	45 abc	0.8 abc	12,446 ab	8,751 a	51.79 a	77.08 a	1,555 a	14,001 ab	22 a
4	CLXL729 90 lb P_2O_5/A 120 lb N/A 30 lb N/A	91 bc	82 bc	42.3 b-e	47.5 abc	1 abc	12,735 a	8,288 a	54.68 a	77.29 a	1,712 a	14,447 ab	24 a
5	CLXL729 120 lb P_2O_5/A 120 lb N/A 30 lb N/A	91 bc	82 bc	41.5 de	37.5 a-e	1.5 a	13,223 a	9,949 a	58.40 a	77.28 a	1,364 a	14,587 ab	27 a
6	CLXL729 150 lb P_2O_5/A 120 lb N/A 30 lb N/A	91 bc	82 bc	41.8 cde	20 cde	1.3 ab	13,161 a	8,970 a	54.36 a	77.10 a	2,074 a	15,235 a	27 a

Continued.

Table 64. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015	11/12/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	P Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
7	CLXL729 90 lb P_2O_5/A 120 lb N/A 60 lb N/A	92 abc	83 abc	42.3 b-e	47.5 abc	1.3 ab	12,450 ab	8,451 a	54.14 a	76.99 a	1,232 a	13,682 abc	25 a
8	CLXL745 0 lb P_2O_5/A 120 lb N/A 30 lb N/A	94 ab	85 ab	44.8 a	62.5 ab	1 abc	10,524 cd	7,039 a	56.73 a	77.40 a	469 a	10,992 e	15 a
9	CLXL745 30 lb P_2O_5/A 120 lb N/A 30 lb N/A	89 cde	80 cde	43.5 a-e	65 ab	1.5 a	12,441 ab	9,098 a	47.53 a	77.03 a	765 a	13,206 bcd	25 a
10	CLXL745 60 lb P_2O_5/A 120 lb N/A 30 lb N/A	88 c-f	79 c-f	41.8 cde	32.5 b-e	0.5 abc	12,430 ab	10,166 a	52.31 a	77.37 a	1,060 a	13,490 abc	23 a
11	CLXL745 90 lb P_2O_5/A 120 lb N/A 30 lb N/A	87 d-g	78 d-g	43.8 a-d	70 ab	1.3 ab	12,332 ab	8,732 a	57.59 a	77.53 a	1,486 a	13,818 ab	23 a
12	CLXL745 120 lb P_2O_5/A 120 lb N/A 30 lb N/A	87 d-g	78 d-g	44.0 abc	72.5 a	1 abc	12,505 ab	8,342 a	51.68 a	77.06 a	1,630 a	14,135 ab	23 a

Continued.

Table 64. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015	11/12/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	P Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
13	CLXL745 150 lb P_2O_5/A 120 lb N/A 30 lb N/A	89 cde	80 cde	43.0 a-e	42.5 a-d	1.3 ab	12,801 a	9,075 a	45.40 a	77.13 a	1,245 a	14,046 ab	25 a
14	CLXL745 90 lb P_2O_5/A 120 lb N/A 60 lb N/A	89 cde	80 cde	44.3 ab	42.5 a-d	1 abc	12,868 a	8,981 a	55.54 a	77.20 a	1,215 a	14,083 ab	25 a
15	CL111 0 lb P_2O_5/A 120 lb N/A 30 lb N/A	87 d-g	78 d-g	35.8 fg	0 e	0 c	9,826 cd	7,407 a	55.73 a	77.65 a	1,004 a	10,830 e	18 a
16	CL111 30 lb P_2O_5/A 120 lb N/A 30 lb N/A	84 g	75 g	37.0 fg	0 e	0 c	9,843 cd	8,245 a	52.51 a	76.96 a	1,127 a	10,970 e	18 a
17	CL111 60 lb P_2O_5/A 120 lb N/A 30 lb N/A	86 efg	77 efg	36.8 fg	0 e	0 c	10,077 cd	9,135 a	52.85 a	77.07 a	1,247 a	11,324 de	25 a
18	CL111 90 lb P_2O_5/A 120 lb N/A 30 lb N/A	84 g	75 g	37.5 f	0 e	0 c	9,732 cd	7,411 a	61.16 a	77.36 a	1,420 a	11,152 e	21 a

Continued.

Table 64. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015	11/12/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	P Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
19	CL111 120 lb P_2O_5/A 120 lb N/A 30 lb N/A	86 efg	77 efg	35.0 g	0 e	0 c	9,959 cd	8,702 a	54.76 a	77.12 a	1,362 a	11,321 de	29 a
20	CL111 150 lb P_2O_5/A 120 lb N/A 30 lb N/A	85 efg	76 efg	36.8 fg	5 de	0.5 abc	9,220 d	9,464 a	56.01 a	76.90 a	1,313 a	10,532 e	30 a
21	CL111 90 lb P_2O_5/A 120 lb N/A 60 lb N/A	85 fg	76 fg	37.3 fg	2.5 e	0.3 bc	9,512 cd	8,458 a	51.88 a	77.14 a	1,378 a	10,890 e	25 a
LSD P=.05		3.52	3.52	2.4	38.79	1.07	1653	2,487.7	9.264	0.888	792.6	1,947.5	8.8
Standard Deviation		2.49	2.49	1.7	27.42	0.76	1,168.6	1,758.8	6.55	0.628	560.4	1,376.9	6.2
CV		2.81	3.13	4.19	92.14	107.6	10.15	20.27	12.15	0.81	44.37	10.78	26.56
Replicate F		15.61	15.61	2.142	3.514	0.577	2.621	1.734	1.503	1.22	29.843	12.283	8.782
Replicate Prob(F)		0.0001	0.0001	0.1044	0.0204	0.6325	0.0589	0.1696	0.2228	0.3103	0.0001	0.0001	0.0001
Treatment F		6.528	6.528	13.52	3.666	2.129	6.002	1.053	1.114	0.447	1.544	5.148	1.674
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0129	0.0001	0.4194	0.3608	0.9760	0.1000	0.0001	0.0645

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 65. Evaluation of phosphorus rate on yield and phosphours uptake. Plant analysis data.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Type		N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al
Rating Unit		%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name											
1	CLXL729 0 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.96 a	0.20 hi	1.43 a	0.23 a	0.21 fgh	0.15 a	41 f	242 a	854 a	2.18 a	149 a
2	CLXL729 30 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.79 a	0.24 e-i	1.51 a	0.22 a	0.22 d-h	0.14 a	42 ef	227 a	833 a	2.20 a	135 a
3	CLXL729 60 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.62 a	0.25 c-h	1.50 a	0.22 a	0.21 fgh	0.13 a	44 c-f	251 a	988 a	2.54 a	157 a
4	CLXL729 90 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.89 a	0.29 a-e	1.43 a	0.21 a	0.25 a-f	0.15 a	45 c-f	306 a	1,104 a	3.08 a	210 a
5	CLXL729 120 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.79 a	0.27 b-f	1.26 a	0.22 a	0.25 a-f	0.14 a	48 b-f	364 a	1,015 a	2.26 a	259 a
6	CLXL729 150 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.84 a	0.30 abc	1.34 a	0.23 a	0.26 a-e	0.16 a	43 def	323 a	1,019 a	2.74 a	228 a
7	CLXL729 90 lb P_2O_5/A 120 lb N/A 60 lb N/A	1.98 a	0.30 a-d	1.51 a	0.22 a	0.26 a-e	0.16 a	45 c-f	345 a	1,138 a	3.06 a	230 a
8	CLXL745 0 lb P_2O_5/A 120 lb N/A 30 lb N/A	2.15 a	0.19 i	1.70 a	0.25 a	0.23 b-g	0.17 a	52 a-e	268 a	1,028 a	3.23 a	163 a

Continued.

Table 65. Continued.

		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Type		N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al
Rating Unit		%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name											
9	CLXL745 30 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.83 a	0.27 b-f	1.56 a	0.25 a	0.26 a-e	0.15 a	53 a-d	318 a	1,056 a	3.52 a	179 a
10	CLXL745 60 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.88 a	0.22 f-i	1.31 a	0.26 a	0.26 a-d	0.15 a	58 a	476 a	1,098 a	2.96 a	312 a
11	CLXL745 90 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.85 a	0.26 c-g	1.42 a	0.23 a	0.27 abc	0.14 a	51 a-f	331 a	1,010 a	3.06 a	221 a
12	CLXL745 120 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.57 a	0.28 b-f	1.50 a	0.23 a	0.25 a-f	0.13 a	45 c-f	288 a	874 a	2.61 a	200 a
13	CLXL745 150 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.83 a	0.28 a-e	1.39 a	0.24 a	0.27 ab	0.14 a	51 a-e	274 a	892 a	2.76 a	137 a
14	CLXL745 90 lb P_2O_5/A 120 lb N/A 60 lb N/A	2.05 a	0.27 b-f	1.36 a	0.26 a	0.29 a	0.16 a	54 abc	263 a	1,049 a	3.43 a	125 a
15	CL111 0 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.63 a	0.25 d-i	1.42 a	0.22 a	0.18 h	0.13 a	45 c-f	214 a	856 a	2.40 a	96 a
16	CL111 30 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.77 a	0.21 ghi	1.34 a	0.24 a	0.20 gh	0.14 a	51 a-e	254 a	959 a	2.19 a	148 a

Continued.

Table 65. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Type		N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al
Rating Unit		%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name											
17	CL111 60 lb P_2O_5/A 120 lb N/A 30 lb N/A	2.04 a	0.27 b-f	1.45 a	0.24 a	0.22 c-h	0.16 a	51 a-e	312 a	911 a	2.30 a	175 a
18	CL111 90 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.92 a	0.28 b-f	1.31 a	0.25 a	0.23 b-g	0.15 a	54 abc	373 a	981 a	2.66 a	224 a
19	CL111 120 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.97 a	0.33 a	1.32 a	0.23 a	0.21 fgh	0.16 a	49 a-f	374 a	921 a	3.01 a	252 a
20	CL111 150 lb P_2O_5/A 120 lb N/A 30 lb N/A	1.87 a	0.32 ab	1.39 a	0.24 a	0.23 c-g	0.15 a	57 ab	312 a	887 a	2.59 a	187 a
21	CL111 90 lb P_2O_5/A 120 lb N/A 60 lb N/A	2.00 a	0.29 a-e	1.38 a	0.26 a	0.22 e-h	0.16 a	51 a-f	414 a	1,018 a	2.46 a	241 a
LSD P=.05		0.427	0.0558	0.2497	0.035	0.0451	0.028	10.02	162.2	303.32	1.304	128.98
Standard Deviation		0.302	0.0394	0.1765	0.025	0.0319	0.02	7.08	114.7	214.45	0.922	91.19
CV		16.17	14.89	12.44	10.49	13.52	13.53	14.49	36.9	21.98	33.83	47.56
Replicate F		2.719	19.302	11.568	1.425	1.654	0.393	8.13	14.41	4.142	5.944	2.186
Replicate Prob(F)		0.052	0.0001	0.0001	0.244	0.1865	0.758	0.0001	0.0001	0.0098	0.001	0.099
Treatment F		0.937	3.529	1.34	1.464	3.107	1.18	1.907	1.281	0.7	0.791	1.349
Treatment Prob(F)		0.546	0.0001	0.1908	0.129	0.0004	0.303	0.0286	0.227	0.8104	0.714	0.1856

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 Phosphorus Timing on CL111 Main and Ratoon Rice Yields and Agronomics

Experiment number	15-KL-34
Site and design	
Location/Cooperator	Evangeline Parish / Kenneth LaHaye
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 inches / 7
Soil type	Mowata silt loam
% organic matter	0.83
pH	6.5
Extractable nutrients ppm	Ca-1087; Cu-1.0; Mg-252; P-6.72; K-38.97; Na-110; S-17.2; Zn-1.7
Crop/Variety	Rice / CL111
Planting method/date	Drill seeded / March 31
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	April 9
Harvest date	Aug. 6
Ratoon harvest date	Nov. 12
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 repellent) - 18.3 oz
Fertilization	120 lb/A 46-0-0, May 8 90 lb N/A 46-0-0, Aug. 26
Water management	
Flush	April 4
Flood	May 12
Drain	July 29
Ratoon flood	Aug. 27
Ratoon drain	Oct. 28
Pest management	
Herbicides	8 oz/A Command, April 2 3 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O, April 23 2 qt/A RiceBeaux + 2 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax, May 8
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	NA

Table 66. Evaluation of phosphorus timing on CL111 main and ratoon rice yields and agronomics. Evangeline Parish.

	Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
	Description	plant-hd	emer-hd	Top					
	Rating Date				8/6/2015		8/6/2015	11/12/2015	11/12/2015
	Rating Type	50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
	Rating Unit	days	days	inches	% plot	rate	lb/A	lb/A	lb/A
	Crop Stage Majority	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name								
1	Untreated Check 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	84 bcd	75 bcd	40.3 a	0 a	0 a	9,959 a	2,158 c	12,117 a
2	TSP 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	83 cd	74 cd	38.3 a	2.5 a	0.3 a	10,124 a	2,965 ab	13,089 a
3	TSP 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	85 abc	76 abc	40.5 a	5 a	0.8 a	9,778 a	2,324 bc	12,103 a
4	TSP 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	85 abc	76 abc	39.8 a	0 a	0 a	9,597 a	2,278 c	11,875 a
5	TSP 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	86 ab	77 ab	39.8 a	0 a	0 a	10,193 a	2,476 abc	12,669 a
6	TSP 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	85 a-d	76 a-d	39.3 a	0 a	0 a	9,976 a	2,122 c	12,098 a
7	TSP 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	87 a	78 a	39.8 a	0 a	0 a	9,894 a	2,203 c	12,097 a

Continued.

Table 66. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top					
Rating Date					8/6/2015		8/6/2015	11/12/2015	11/12/2015
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name								
8	TSP TSP 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	84 cd	75 cd	38.5 a	2.5 a	0.3 a	9,944 a	3,085 a	13,029 a
9	TSP TSP 60 lb K_2O 15 lb Zn 100 lb ammonium sulfate	83 d	74 d	38.8 a	2.5 a	0.5 a	9,619 a	3,023 a	12,642 a
LSD P=.05		1.87	1.87	2.02	4.27	0.69	783.4	671.7	1,229.5
Standard Deviation		1.28	1.28	1.39	2.93	0.47	536.8	460.2	842.4
CV		1.52	1.7	3.51	210.71	243.7	5.42	18.3	6.79
Replicate F		7.283	7.283	1.25	4.649	2.763	1.118	8.016	4.734
Replicate Prob(F)		0.001	0.001	0.3138	0.0106	0.064	0.3614	0.0007	0.0099
Treatment F		3.33	3.33	1.27	1.541	1.33	0.577	2.974	1.146
Treatment Prob(F)		0.011	0.011	0.3043	0.1956	0.277	0.7862	0.0183	0.3702

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

Evaluation of Potassium Rate and Timing on CLXL745
Rice Yields (Main and Ratoon) and Potassium Uptake

Experiment number	: 15-KL-03
Site and design	:
Location/Cooperator	: Evangeline Parish / Kenneth LaHaye
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 inches / 7
Soil type	: Mowata silt loam
% organic matter	: 1.22
pH	: 5.0
Extractable nutrients ppm	: Ca-803; Cu-1.1; Mg-154; P-15.72; K-41.74; Na-70.5; S-5.4; Zn-8.1
Crop/Variety	: Rice / CLXL745
Planting method/date	: Drill seeded / March 31
Seeding rate/depth	: 14 seeds/ft^2 / .5 inch
Emergence date	: April 9
Harvest date	: Aug. 6
Ratoon harvest date	: Nov. 12
Seed treatment/cwt	: Hyb – Maxim 4FS Apron XL Gibberellic acid Zinc Dynasty AV-1011 (bird repellent) – 18.3 oz
Fertilization	: 90 lb/A P_2O_5 + 15 lb/A $ZnSO_4$ + 100 lb/A Ammonium Sulfate, March 31 120 lb/A 46-0-0, May 8 90 lb N/A 46-0-0, Aug. 26
Water management	:
Flush	: April 4
Flood	: May 12
Drain	: July 29
Ratoon flood	: Aug. 27
Ratoon drain	: Oct. 28
Pest management	:
Herbicides	: 8 oz/A Command, April 2 3 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O, April 23 2 qt/A RiceBeaux + 2 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax, May 8
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: NA

Table 67. Evaluation of potassium rate and timing on CLXL745 yields (main and ratoon) and potassium uptake. Agronomic data.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015		
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	K Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
1	0 lb K_2O/A 120 lb N/A 30 lb N/A	88 a	79 a	41.5 d	100 a	1.5 abc	11,440 a	7,153 a	54.78 a	77.71 a	841 a	12,281 a	72 d
2	30 lb K_2O/A 120 lb N/A 30 lb N/A	88 a	79 a	41.5 d	85 a	2 a	11,022 a	11,288 a	53.05 a	77.97 a	1,189 a	12,211 a	134 abc
3	60 lb K_2O/A 120 lb N/A 30 lb N/A	88 a	79 a	42.5 bcd	72.5 a	1 bcd	11,812 a	8,782 a	57.64 a	78.16 a	1,400 a	13,212 a	99 cd
4	90 lb K_2O/A 120 lb N/A 30 lb N/A	88 a	79 a	44.8 ab	50 a	1.8 ab	12,178 a	7,610 a	53.75 a	77.80 a	1,172 a	13,350 a	94 cd
5	120 lb K_2O/A 120 lb N/A 30 lb N/A	89 a	80 a	42.0 cd	45 a	2 a	11,672 a	10,081 a	55.24 a	77.99 a	1,541 a	13,214 a	162 a
6	120 lb K_2O/A 120 lb N/A 60 lb N/A	87 a	78 a	44.0 abc	72.5 a	0.8 cd	12,225 a	9,674 a	57.94 a	77.71 a	1,693 a	13,918 a	134 abc
7	150 lb K_2O/A 120 lb N/A 30 lb N/A	87 a	78 a	46.3 a	47.5 a	0.5 d	12,613 a	8,419 a	53.56 a	77.80 a	2,172 a	14,785 a	135 abc
8	60 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	88 a	79 a	43.5 bcd	72.5 a	1 bcd	11,816 a	8,729 a	59.39 a	78.14 a	1,188 a	13,004 a	109 bcd

Continued.

Table 67. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015		
								biomass-				Total	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	dry	Milling (%)		Yield	Yield	K Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage													
Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
9	90 lb K2O/A 120 lb N/A 30 lb K2O/A 30 lb N/A	88 a	79 a	44.3 abc	47.5 a	1.0 bcd	11,949 a	8,554 a	57.13 a	77.72 a	1,244 a	13,193 a	107 bcd
10	120 lb K2O/A 120 lb N/A 30 lb K2O/A 30 lb N/A	88 a	79 a	44.5 ab	55 a	1.3 a-d	12,804 a	9,444 a	58.31 a	77.86 a	1,590 a	14,394 a	144 ab
11	60 lb K2O/A 120 lb N/A 30 lb N/A 30 lb K2O/A	88 a	79 a	42.8 bcd	60 a	1.5 abc	11,788 a	8,246 a	55.19 a	77.66 a	1,393 a	13,180 a	100 cd
12	90 lb K2O/A 120 lb N/A 30 lb N/A 30 lb K2O/A	87 a	78 a	42.5 bcd	57.5 a	1.0 bcd	12,390 a	7,612 a	56.65 a	77.51 a	1,279 a	13,669 a	94 cd
13	120 lb K2O/A 120 lb N/A 30 lb N/A 30 lb K2O/A	88 a	79 a	44.0 abc	70 a	0.8 cd	12,534 a	8,233 a	54.39 a	77.65 a	1,084 a	13,618 a	113 bcd
LSD P=.05		1.72	1.72	2.44	41.51	0.94	1,027	2,374.4	6.027	0.5104	818	1,557	42.9
Standard Deviation		1.2	1.2	1.7	28.94	0.66	716.1	1,655.7	4.202	0.3559	570.4	1,086	29.9
CV		1.37	1.52	3.92	45.06	53.38	5.96	18.91	7.51	0.46	41.69	8.11	26
Replicate F		11.88	11.88	3.312	20.449	15.8	7.322	0.699	6.848	3.213	16.184	14.15	2.55
Replicate Prob(F)		0.0001	0.0001	0.0308	0.0001	0.0001	0.0006	0.5588	0.0009	0.0342	0.0001	1E-04	0.07
Treatment F		0.7	0.7	2.743	1.285	2.168	1.97	1.868	0.943	1.209	1.349	1.776	2.8
Treatment Prob(F)		0.741	0.741	0.01	0.2691	0.036	0.0579	0.0734	0.518	0.3144	0.2351	0.091	0.01

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

Table 68. Evaluation of potassium rate and timing on CLXL745 rice yields (main and ratoon) and potassium uptake. Plant analysis data.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Type		N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al	B
Rating Unit		%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name												
1	0 lb K_2O/A 120 lb N/A 30 lb N/A	2.01 a	0.25 a	1.01 e	0.27 a	0.29 a	0.16 a	57 a	231 a	1,037 a	3.04 a	139 a	3.81 a
2	30 lb K_2O/A 120 lb N/A 30 lb N/A	2.19 a	0.28 a	1.18 cde	0.29 a	0.33 a	0.17 a	60 a	322 a	1,141 a	3.27 a	240 a	3.75 a
3	60 lb K_2O/A 120 lb N/A 30 lb N/A	2.00 a	0.26 a	1.14 de	0.27 a	0.29 a	0.15 a	55 a	216 a	963 a	2.62 a	133 a	3.37 a
4	90 lb K_2O/A 120 lb N/A 30 lb N/A	2.11 a	0.25 a	1.24 cde	0.28 a	0.29 a	0.16 a	63 a	383 a	1,119 a	3.11 a	269 a	3.10 a
5	120 lb K_2O/A 120 lb N/A 30 lb N/A	2.08 a	0.28 a	1.60 a	0.27 a	0.29 a	0.16 a	58 a	218 a	1,111 a	4.05 a	131 a	3.47 a
6	120 lb K_2O/A 120 lb N/A 60 lb N/A	2.15 a	0.23 a	1.36 bcd	0.27 a	0.30 a	0.17 a	60 a	327 a	1,168 a	3.11 a	246 a	2.69 a
7	150 lb K_2O/A 120 lb N/A 30 lb N/A	2.01 a	0.26 a	1.60 a	0.27 a	0.28 a	0.16 a	60 a	227 a	1,133 a	3.42 a	154 a	3.40 a
8	60 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	2.20 a	0.25 a	1.22 cde	0.29 a	0.32 a	0.17 a	59 a	329 a	1,178 a	3.37 a	240 a	4.06 a

Continued.

Table 68. Continued.

		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Type		N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al	B
Rating Unit		%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name												
9	90 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	1.87 a	0.24 a	1.26 cd	0.24 a	0.27 a	0.14 a	54 a	212 a	960 a	2.82 a	129 a	2.46 a
10	120 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	2.08 a	0.28 a	1.53 ab	0.28 a	0.29 a	0.17 a	58 a	289 a	1,191 a	3.98 a	185 a	4.03 a
11	60 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	1.94 a	0.28 a	1.22 cde	0.27 a	0.29 a	0.15 a	50 a	212 a	897 a	2.99 a	140 a	3.37 a
12	90 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	2.04 a	0.24 a	1.27 cd	0.28 a	0.30 a	0.16 a	54 a	196 a	1,072 a	3.06 a	136 a	3.43 a
13	120 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	1.88 a	0.24 a	1.38 abc	0.27 a	0.27 a	0.15 a	56 a	224 a	1,094 a	3.06 a	134 a	3.68 a
LSD P=.05		0.2369	0.0535	0.233	0.0314	0.0403	0.024	13.26	158.06	208.25	1.2187	133.27	1.3784
Standard Deviation		0.1652	0.0373	0.1625	0.0219	0.0281	0.0167	9.24	110.22	145.21	0.8498	92.93	0.9612
CV		8.09	14.54	12.43	8.04	9.65	10.55	16.2	42.33	13.42	26.38	53.12	28.03
Replicate F		2.903	4.965	11.795	21.444	9.088	6.843	3.018	3.916	11.369	19.031	2.94	12.106
Replicate Prob(F)		0.048	0.0055	0.0001	0.0001	0.0001	0.0009	0.0423	0.0162	0.0001	0.0001	0.0461	0.0001
Treatment F		1.674	0.94	4.897	1.012	1.604	1.066	0.548	1.226	1.617	0.921	1.331	0.96
Treatment Prob(F)		0.1146	0.5196	0.0001	0.4588	0.1344	0.4155	0.868	0.3038	0.1304	0.5364	0.2446	0.5023

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

Evaluation of Potassium Rate and Timing on CLXL729 Rice Yields (Main and Ratoon)

Experiment number ....: 15-KL-04

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish / Kenneth LaHaye
- **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 inches / 7

Soil type ....: Mowata silt loam
- **% organic matter** ....: 1.22
- **pH** ....: 5.0
- **Extractable nutrients** ppm ....: Ca-803; Cu-1.1; Mg-154; P-15.72; K-41.74; Na-70.5; S-5.4; Zn-8.1

Crop/Variety ....: Rice / CLXL729
- **Planting method/date** ....: Drill seeded / March 31
- **Seeding rate/depth** ....: 14 seeds/ft^2 / .5 inch
- **Emergence date** ....: April 9
- **Harvest date** ....: Aug. 6
- **Ratoon harvest date** ....: Nov. 12

Seed treatment/cwt ....: Hyb – Maxim 4FS
Apron XL
Gibberellic acid
Zinc
Dynasty
AV-1011 (bird repellent) – 18.3 oz

Fertilization ....: 90 lb/A P_2O_5 + 15 lb/A $ZnSO_4$ + 100 lb/A ammonium sulfate, March 31
120 lb/A 46-0-0, May 8
90 lb N/A 46-0-0, Aug. 26

Water management ....:
- **Flush** ....: April 4
- **Flood** ....: May 12
- **Drain** ....: July 29
- **Ratoon flood** ....: Aug. 27
- **Ratoon drain** ....: Oct. 28

Pest management ....:
- **Herbicides** ....: 8 oz/A Command, April 2
  3 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O, April 23
  2 qt/A RiceBeaux + 2 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax, May 8
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: NA

Table 69. Evaluation of potassium rate and timing on CLXL729 rice yields (main and ratoon). Agronomic data.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015	11/12/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	K Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
1	0 lb K_2O/A 120 lb N/A 30 lb N/A	87 a	78 a	39.5 a	0 a	0 a	12,139 a	8,435 a	60.95 a	77.68 a	1,769 a	13,908 a	76 e
2	30 lb K_2O/A 120 lb N/A 30 lb N/A	90 a	81 a	40.0 a	12.5 a	0.8 a	12,646 a	10,061 a	63.64 a	77.76 a	1,261 a	13,907 a	122 a-e
3	60 lb K_2O/A 120 lb N/A 30 lb N/A	89 a	80 a	41.0 a	20 a	0.5 a	12,531 a	7,717 a	62.58 a	77.52 a	1,924 a	14,456 a	92 de
4	90 lb K_2O/A 120 lb N/A 30 lb N/A	90 a	81 a	43.0 a	25 a	0.3 a	12,333 a	8,643 a	62.05 a	77.52 a	2,114 a	14,447 a	117 a-e
5	120 lb K_2O/A 120 lb N/A 30 lb N/A	90 a	81 a	43.3 a	5 a	0.8 a	12,936 a	9,715 a	62.74 a	77.45 a	2,363 a	15,299 a	139 abc
6	120 lb K_2O/A 120 lb N/A 60 lb N/A	89 a	80 a	43.0 a	15 a	0.8 a	12,602 a	10,222 a	62.81 a	77.35 a	2,030 a	14,631 a	156 a
7	150 lb K_2O/A 120 lb N/A 30 lb N/A	89 a	80 a	42.8 a	2.5 a	0.3 a	12,759 a	9,879 a	60.91 a	77.46 a	2,455 a	15,214 a	144 ab
8	60 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	89 a	80 a	40.8 a	0 a	0 a	12,459 a	7,982 a	63.62 a	77.76 a	2,355 a	14,814 a	96 cde

Continued.

Table 69. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015	11/12/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	K Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
9	90 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	90 a	81 a	43.0 a	0 a	0 a	12,594 a	7,619 a	64.10 a	77.52 a	2,020 a	14,614 a	110 b-e
10	120 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	88 a	79 a	42.5 a	0 a	0 a	12,462 a	9,274 a	62.24 a	77.22 a	2,508 a	14,970 a	142 ab
11	60 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	90 a	81 a	42.3 a	25 a	0.8 a	13,012 a	8,041 a	63.26 a	77.57 a	2,530 a	15,542 a	111 a-e
12	90 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	89 a	80 a	42.3 a	25 a	1 a	12,532 a	9,162 a	61.88 a	77.02 a	2,364 a	14,896 a	130 a-d
13	120 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	88 a	79 a	41.5 a	0 a	0 a	12,739 a	10,367 a	64.09 a	77.56 a	1,997 a	14,736 a	146 ab
LSD P=.05		2.56	2.56	2.97	33.04	0.95	696.1	2,538.2	4.1388	0.4737	882.5	1,209.7	45.6
Standard Deviation		1.79	1.79	2.07	23.04	0.67	485.4	1,769.9	2.8861	0.3303	615.4	843.5	31.8
CV		2.01	2.23	4.94	230.41	173.12	3.85	19.65	4.6	0.43	28.89	5.73	26.2
Replicate F		12.109	12.109	2.035	4.231	13.186	4.361	1.371	1.837	0.718	21.312	17.895	0.38
Replicate Prob(F)		0.0001	0.0001	0.1262	0.0116	0.0001	0.0102	0.2672	0.1579	0.5475	0.0001	0.0001	0.77
Treatment F		0.962	0.962	1.432	0.871	1.28	0.936	1.259	0.542	1.575	1.352	1.331	2.28
Treatment Prob(F)		0.5003	0.5003	0.1967	0.5818	0.2722	0.5234	0.2842	0.872	0.1433	0.2337	0.2445	0.03

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

Table 70. Evaluation of potassium rate and timing on CLXL729 rice yields (main and ratoon). Plant analysis data.

	Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
	Rating Type	N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al	B
	Rating Unit	%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
	Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
	Crop Stage Scale	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name												
1	0 lb K_2O/A 120 lb N/A 30 lb N/A	2.20 a	0.28 a	0.91 d	0.29 a	0.28 a	0.17 a	49 a	265 a	1,097 a	2.66 a	194 a	3.93 a
2	30 lb K_2O/A 120 lb N/A 30 lb N/A	1.92 a	0.29 a	1.21 bc	0.28 a	0.27 a	0.16 a	51 a	296 a	1,038 a	2.66 a	233 a	3.83 a
3	60 lb K_2O/A 120 lb N/A 30 lb N/A	2.04 a	0.27 a	1.20 c	0.29 a	0.27 a	0.16 a	47 a	351 a	1,048 a	3.08 a	285 a	4.20 a
4	90 lb K_2O/A 120 lb N/A 30 lb N/A	2.19 a	0.31 a	1.36 abc	0.28 a	0.28 a	0.17 a	52 a	287 a	1,179 a	3.51 a	185 a	4.53 a
5	120 lb K_2O/A 120 lb N/A 30 lb N/A	2.08 a	0.29 a	1.42 ab	0.28 a	0.27 a	0.16 a	50 a	287 a	1,176 a	3.49 a	188 a	4.37 a
6	120 lb K_2O/A 120 lb N/A 60 lb N/A	2.14 a	0.31 a	1.52 a	0.28 a	0.28 a	0.17 a	52 a	268 a	1,144 a	3.64 a	201 a	4.07 a
7	150 lb K_2O/A 120 lb N/A 30 lb N/A	2.08 a	0.29 a	1.47 a	0.27 a	0.27 a	0.17 a	51 a	541 a	1,315 a	3.77 a	468 a	4.93 a
8	60 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	2.11 a	0.27 a	1.20 bc	0.30 a	0.27 a	0.17 a	49 a	322 a	1,174 a	3.20 a	241 a	4.45 a

Continued.

Table 70. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Type		N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al	B
Rating Unit		%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name												
9	90 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	2.09 a	0.30 a	1.45 a	0.27 a	0.28 a	0.16 a	54 a	251 a	1,090 a	3.50 a	164 a	4.22 a
10	120 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	2.18 a	0.28 a	1.53 a	0.27 a	0.27 a	0.17 a	43 a	235 a	1,377 a	3.80 a	158 a	4.02 a
11	60 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	2.10 a	0.30 a	1.39 abc	0.28 a	0.29 a	0.17 a	46 a	247 a	1,108 a	3.86 a	186 a	4.50 a
12	90 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	2.04 a	0.30 a	1.44 a	0.28 a	0.29 a	0.17 a	48 a	208 a	1,040 a	3.62 a	134 a	4.28 a
13	120 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	2.02 a	0.25 a	1.39 abc	0.27 a	0.25 a	0.16 a	50 a	301 a	1,226 a	3.58 a	223 a	4.05 a
LSD P=.05		0.2033	0.0588	0.2154	0.0348	0.0311	0.0158	6.06	261.98	239.38	0.8841	271.24	1.1106
Standard Deviation		0.1418	0.041	0.1502	0.0243	0.0217	0.0111	4.22	182.68	166.93	0.6165	189.14	0.7744
CV		6.79	14.32	11.18	8.71	8	6.67	8.6	61.56	14.46	18.07	86.03	18.19
Replicate F		2.335	13.382	7.14	0.212	9.147	12.157	27.757	5.603	4.655	0.924	4.003	3.188
Replicate Prob(F)		0.0902	0.0001	0.0007	0.8872	0.0001	0.0001	0.0001	0.0029	0.0075	0.4392	0.0148	0.0352
Treatment F		1.173	0.79	5.298	0.712	1.039	0.696	2.001	0.813	1.547	1.677	0.793	0.593
Treatment Prob(F)		0.3382	0.657	0.0001	0.7299	0.4366	0.7448	0.0538	0.6356	0.1526	0.1138	0.6543	0.8335

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

Evaluation of Potassium Rate and Timing on CL111 Rice Yields (Main and Ratoon)

Experiment number	: 15-KL-05
Site and design	:
Location/Cooperator	: Evangeline Parish / Kenneth LaHaye
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 inches / 7
Soil type	: Mowata silt loam
% organic matter	: 1.22
pH	: 5.0
Extractable nutrients ppm	: Ca-803; Cu-1.1; Mg-154; P-15.72; K-41.74; Na-70.5; S-5.4; Zn-8.1
Crop/Variety	: Rice / CL111
Planting method/date	: Drill seeded / March 31
Seeding rate/depth	: 33 seeds/ft^2 / .5 inch
Emergence date	: April 9
Harvest date	: Aug. 6
Ratoon harvest date	: Nov. 12
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 repellent) - 18.3 oz
Fertilization	: 90 lb/A P_2O_5 + 15 lb/A $ZnSO_4$ + 100 lb/A Ammonium Sulfate, March 31 120 lb/A 46-0-0, May 8 90 lb N/A 46-0-0, Aug. 26
Water management	:
Flush	: April 4
Flood	: May 12
Drain	: July 29
Ratoon flood	: Aug. 27
Ratoon drain	: Oct. 28
Pest management	:
Herbicides	: 8 oz/A Command, April 2 3 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O, April 23 2 qt/A RiceBeaux + 2 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax, May 8
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: NA

Table 71. Evaluation of potassium rate and timing on CL111 rice yields (main and ratoon). Agronomic data.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top				Tissue					
Part Rated								Abvgrd					
Rating Date					8/6/2015		8/6/2015				11/12/2015	11/12/2015	
Rating Type		50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	K Uptake
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main			Ratoon	MC+RC	Main
Crop Stage Scale								50% HD					50% HD
Trt No.	Treatment Name												
1	0 lb K_2O/A 120 lb N/A 30 lb N/A	83 a	74 a	33.5 c	5 a	0.5 a	7,856 d	8,597 a	58.55 a	77.90 a	1,638 a	9,495 c	89 de
2	30 lb K_2O/A 120 lb N/A 30 lb N/A	83 a	74 a	35.0 bc	0 a	0 a	9,233 c	6,971 a	59.78 a	78.19 a	1,893 a	11,126 b	86 e
3	60 lb K_2O/A 120 lb N/A 30 lb N/A	83 a	74 a	35.0 bc	0 a	0 a	9,549 bc	7,929 a	60.88 a	78.38 a	2,144 a	11,693 ab	96 de
4	90 lb K_2O/A 120 lb N/A 30 lb N/A	83 a	74 a	40.0 a	0 a	0 a	10,327 a	7,569 a	61.79 a	78.18 a	2,563 a	12,889 a	108 b-e
5	120 lb K_2O/A 120 lb N/A 30 lb N/A	83 a	74 a	37.5 ab	0 a	0 a	10,014 ab	8,053 a	62.90 a	78.36 a	2,925 a	12,939 a	133 abc
6	120 lb K_2O/A 120 lb N/A 60 lb N/A	83 a	74 a	37.5 ab	0 a	0 a	9,813 abc	8,555 a	61.72 a	78.15 a	2,163 a	11,976 ab	124 a-d
7	150 lb K_2O/A 120 lb N/A 30 lb N/A	81 a	72 a	36.5 bc	0 a	0 a	10,129 ab	9,270 a	61.93 a	78.51 a	2,679 a	12,808 a	146 a
8	60 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	83 a	74 a	36.3 bc	0 a	0 a	9,973 ab	7,336 a	62.68 a	78.14 a	2,358 a	12,331 ab	96 de

Continued.

Table 71. Continued.

Trt No.	Treatment Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
	Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
	Description	plant-hd	emer-hd	Top				Tissue					
	Part Rated							Abvgrd					
	Rating Date				8/6/2015		8/6/2015				11/12/2015	11/12/2015	
	Rating Type	50% HD	50% HD	Height	Lodge		Yield	biomass-dry	Milling (%)		Yield	Total Yield	K Uptake
	Rating Unit	days	days	inches	% plot	rate	lb/A	lb/A	Head	Total	lb/A	lb/A	lb/A
	Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main			Ratoon	MC+RC	Main
	Crop Stage Scale							50% HD					50% HD
9	90 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	82 a	73 a	36.0 bc	0 a	0 a	9,749 abc	7,399 a	60.89 a	78.16 a	2,243 a	11,992 ab	109 b-e
10	120 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	84 a	75 a	37.0 ab	2.5 a	0.3 a	10,236 ab	6,923 a	62.37 a	78.19 a	2,355 a	12,591 a	103 cde
11	60 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	83 a	74 a	37.0 ab	0 a	0 a	10,009 ab	7,349 a	61.69 a	78.15 a	2,494 a	12,503 a	96 cde
12	90 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	83 a	74 a	37.3 ab	5 a	0.3 a	9,697 abc	9,372 a	62.92 a	77.95 a	2,356 a	12,052 ab	142 ab
13	120 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	84 a	75 a	37.3 ab	0 a	0 a	9,894 abc	7,896 a	60.85 a	78.15 a	1,897 a	11,791 ab	120 a-e
	LSD P=.05	2.31	2.31	3.08	5.82	0.48	728.1	2,520.2	3.4604	0.5864	836.4	1,344.4	36.8
	Standard Deviation	1.61	1.61	2.14	4.06	0.33	507.7	1,757.3	2.413	0.4089	583.2	937.5	25.6
	CV	1.94	2.18	5.86	421.85	435.41	5.22	22.13	3.93	0.52	25.52	7.8	23
	Replicate F	1.279	1.279	0.918	1.675	1.371	1.952	0.656	2.428	1.332	1.316	1.999	0.73
	Replicate Prob(F)	0.2962	0.2962	0.4417	0.1895	0.2671	0.1387	0.5846	0.0813	0.2791	0.2841	0.1315	0.54
	Treatment F	0.813	0.813	2.143	0.896	0.886	6.227	0.838	1.105	0.634	1.43	3.875	2.45
	Treatment Prob(F)	0.6356	0.6356	0.0386	0.5591	0.5686	0.0001	0.6126	0.3857	0.799	0.1975	0.0008	0.02

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

Table 72. Evaluation of potassium rate and timing on CL111 rice yields (main and ratoon). Plant analysis data.

	Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
	Rating Type	N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al	B
	Rating Unit	%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
	Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
	Crop Stage Scale	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name												
1	0 lb K_2O/A 120 lb N/A 30 lb N/A	2.20 a	0.34 a	1.03 e	0.27 a	0.25 a	0.19 a	57 a	367 a	1,142 a	2.61 a	290 a	4.51 a
2	30 lb K_2O/A 120 lb N/A 30 lb N/A	2.23 a	0.33 a	1.21 de	0.26 a	0.23 a	0.18 a	56 a	247 a	1,007 a	2.68 a	172 a	4.46 a
3	60 lb K_2O/A 120 lb N/A 30 lb N/A	2.27 a	0.34 a	1.21 de	0.27 a	0.24 a	0.18 a	54 a	244 a	1,029 a	2.93 a	161 a	4.70 a
4	90 lb K_2O/A 120 lb N/A 30 lb N/A	2.22 a	0.34 a	1.44 bcd	0.25 a	0.23 a	0.18 a	55 a	282 a	1,179 a	3.34 a	212 a	4.49 a
5	120 lb K_2O/A 120 lb N/A 30 lb N/A	2.20 a	0.35 a	1.68 a	0.24 a	0.20 a	0.18 a	57 a	280 a	980 a	3.34 a	209 a	4.78 a
6	120 lb K_2O/A 120 lb N/A 60 lb N/A	2.14 a	0.33 a	1.46 abc	0.25 a	0.23 a	0.17 a	54 a	276 a	1,052 a	2.76 a	204 a	4.27 a
7	150 lb K_2O/A 120 lb N/A 30 lb N/A	2.19 a	0.33 a	1.57 ab	0.24 a	0.22 a	0.17 a	56 a	285 a	1,151 a	3.12 a	213 a	3.94 a
8	60 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	2.17 a	0.33 a	1.31 cd	0.25 a	0.23 a	0.17 a	51 a	240 a	1,067 a	2.79 a	170 a	3.61 a
9	90 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	2.16 a	0.30 a	1.46 abc	0.26 a	0.22 a	0.17 a	48 a	243 a	1,095 a	2.67 a	184 a	3.19 a

Continued.

Table 72. Continued.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Type		N	P	K	Ca	Mg	S	Zn	Fe	Mn	Cu	Al	B
Rating Unit		%	%	%	%	%	%	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD	50% HD
Trt No.	Treatment Name												
10	120 lb K_2O/A 120 lb N/A 30 lb K_2O/A 30 lb N/A	2.15 a	0.33 a	1.53 abc	0.24 a	0.22 a	0.17 a	54 a	207 a	870 a	3.28 a	127 a	4.54 a
11	60 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	2.11 a	0.32 a	1.32 cd	0.24 a	0.22 a	0.16 a	50 a	215 a	980 a	2.89 a	153 a	4.18 a
12	90 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	2.23 a	0.33 a	1.51 abc	0.25 a	0.23 a	0.18 a	53 a	260 a	1,016 a	2.99 a	196 a	4.10 a
13	120 lb K_2O/A 120 lb N/A 30 lb N/A 30 lb K_2O/A	2.17 a	0.31 a	1.54 abc	0.24 a	0.21 a	0.17 a	53 a	227 a	1,040 a	2.54 a	167 a	3.85 a
LSD P=.05		0.209	0.055	0.24	0.0336	0.0269	0.02	7.91	117.38	248.87	0.7577	117.72	0.9746
Standard Deviation		0.146	0.0384	0.1674	0.0234	0.0188	0.0139	5.51	81.85	173.54	0.5284	82.09	0.6796
CV		6.66	11.72	11.91	9.37	8.42	8.07	10.31	31.56	16.58	18.12	43.46	16.18
Replicate F		0.501	11.017	2.327	5.426	15.808	4.818	5.488	2.582	10.01	15.508	1.076	8.344
Replicate Prob(F)		0.6841	0.0001	0.091	0.0035	0.0001	0.0064	0.0033	0.0685	0.0001	0.0001	0.3713	0.0002
Treatment F		0.353	0.44	4.635	0.863	2.007	0.954	0.991	1.007	0.922	1.115	0.942	1.817
Treatment Prob(F)		0.9717	0.9356	0.0002	0.589	0.0531	0.5078	0.4764	0.4628	0.5358	0.3789	0.5179	0.0825

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

Evaluation of Potassium Time of Application on CL111 Main and Ratoon Rice Yields and Agronomics

Experiment number	15-KL-33
Site and design	
Location/Cooperator	Evangeline Parish / Kenneth LaHaye
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 inches / 7
Soil type	Mowata silt loam
% organic matter	0.83
pH	6.5
Extractable nutrients ppm	Ca-1087; Cu-1.0; Mg-252; P-6.72; K-38.97; Na-110; S-17.2; Zn-1.7
Crop/Variety	Rice / CL111
Planting method/date	Drill seeded / March 31
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	April 9
Harvest date	Aug. 6
Ratoon harvest date	Nov. 12
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 repellent) - 18.3 oz
Fertilization	120 lb/A 46-0-0, May 8 90 lb N/A 46-0-0, Aug. 26
Water management	
Flush	April 4
Flood	May 12
Drain	July 29
Ratoon flood	Aug. 27
Ratoon drain	Oct. 28
Pest management	
Herbicides	8 oz/A Command, April 2 3 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax + 2 pt/A Prowl H_2O, April 23 2 qt/A RiceBeaux + 2 qt/A propanil + .5 oz/A Permit + 1 oz/A Londax, May 8
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	NA

Table 73. Evaluation of potassium time of application on CL111 main and ratoon rice yields and agronomics. Evangeline Parish.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		plant-hd	emer-hd	Top					
Rating Date					8/6/2015		8/6/2015	11/12/2015	11/12/2015
Rating Type		50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield
Rating Unit		days	days	inches	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Ratoon	MC+RC
Trt No.	Treatment Name								
1	Untreated Check 60 lb P_2O_5/A 15 lb Zn/A 100 lb ammonium sulfate	84 a	75 a	36.0 a	5 a	0.8 a	9,098 a	2,154 a	11,252 a
2	Muriate of Potash 0-0-60 60 lb P_2O_5/A 15 lb Zn/A 100 lb ammonium sulfate	83 a	74 a	38.8 a	0 a	0 a	10,286 a	2,871 a	13,157 a
3	Muriate of Potash 0-0-60 60 lb P_2O_5/A 15 lb Zn/A 100 lb ammonium sulfate	84 a	75 a	39.3 a	10 a	0.8 a	9,564 a	2,310 a	11,874 a
4	Muriate of Potash 0-0-60 60 lb P_2O_5/A 15 lb Zn/A 100 lb ammonium sulfate	85 a	76 a	38.8 a	2.5 a	0.3 a	9,818 a	2,334 a	12,152 a
5	Muriate of Potash 0-0-60 60 lb P_2O_5/A 15 lb Zn/A 100 lb ammonium sulfate	85 a	76 a	38.8 a	0 a	0 a	9,533 a	2,399 a	11,931 a
6	Muriate of Potash 0-0-60 60 lb P2O5/A 15 lb Zn/A 100 lb ammonium sulfate	85 a	76 a	37.8 a	0 a	0 a	9,992 a	2,420 a	12,412 a
7	Muriate of Potash 0-0-60 60 lb P_2O_5/A 15 lb Zn/A 100 lb ammonium sulfate	84 a	75 a	37.8 a	0 a	0 a	9,566 a	2,407 a	11,972 a
8	Muriate of Potash 0-0-60 Muriate of Potash 0-0-60 60 lb P_2O_5/A 15 lb Zn/A 100 lb ammonium sulfate	85 a	76 a	38.8 a	2.5 a	0.3 a	9,934 a	2,629 a	12,564 a
9	Muriate of Potash 0-0-60 Muriate of Potash 0-0-60 60 lb P_2O_5/A 15 lb Zn/A 100 lb ammonium sulfate	85 a	76 a	38.3 a	5 a	0.5 a	9,397 a	2,189 a	11,587 a
LSD P=.05		2.19	2.19	3.27	9.95	0.93	718.8	789.3	1,397.9
Standard Deviation		1.5	1.5	2.24	6.82	0.63	492.5	540.8	957.8
CV		1.78	2	5.86	245.6	228.5	5.08	22.42	7.92
Replicate F		3.975	3.975	1.316	4.537	5.241	5.996	3.997	5.419
Replicate Prob(F)		0.0197	0.0197	0.2922	0.012	0.006	0.0034	0.0193	0.0054
Treatment F		1.127	1.127	0.754	1	1	2.092	0.668	1.368
Treatment Prob(F)		0.3811	0.3811	0.6448	0.461	0.461	0.0776	0.7144	0.2598

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

ROTATIONAL CROP RESEARCH

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

INTRODUCTION

Rotational Crop Research

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 in the 2015 Soybean Variety Yields and Production Practices publication (LSU AgCenter publication number 2269) which 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 2015, the varieties with the highest yield at the H Rouse Caffey Rice Research Station (RRS) location included Dyna-Gro 39RY43 (Group III; 36 bu/A), 5N433R2 (early Group IV; 35 bu/A), DG4981 LL/STS (mid to late Group IV; 54 bu/A), BHK LL4953 (mid/late Group IV; 54 bu/A), 5N479R2 (mid/late Group IV; 54 bu/A), and CZ 5515 LL (Group V; 58 bu/A).

Wheat varietal and experimental lines are evaluated annually. The results for the Crowley South Farm location can be found in the 2015 Small Grain Performance Trials publication (LSU AgCenter publication number 206) which can be found online at www.lsuagcenter.com. The top two yielding commercially available varieties at the Crowley location in 2015 were Dyna-Gro Savoy (43.8 bu/A) and Terral LA754 (42.8 bu/A). The variety Dyna-Gro Savoy had the highest two-year mean yield (73.0 bu/A) of 24 entries at Crowley.

Grain sorghum hybrids are evaluated annually for their yield response. The results of the RRS South Farm variety trial can be found in the Performance of Sorghum Hybrids in Louisiana in 2015 publication (LSU AgCenter publication number 208) which can be accessed online at www.lsuagcenter.com. Thirty-one entries were evaluated in 2015. The highest yielding grain sorghum hybrids at the Crowley location in 2015 were Sorghum Partners SP70B17, Alta Seeds AG2105, and Alta Seeds AG3101 with yields of 64.9, 62.7, and 62.7 bu/A, respectively.

A trial was conducted to evaluate soybean response to K fertilization rate at the RRS South Farm. 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 1. Mean soybean yields ranged from 5 to 10 bu/A. A significant response to K rate was not observed (P = 0.492; LSD = 6.6).

A multi-year trial was established in 2012 and continued in 2015 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)) were evaluated. 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 May 5 at a seeding rate of 60,000 seeds/A. Sorghum was harvested at the soft dough stage of development on Oct. 12. Plant samples were then dried, ground, and analyzed for total nutrient content. Agronomic and sugar analysis results are presented in Table 2. Harvestable stalks ranged from 38,333 to 54,014 stalks/A. Plant height ranged from 119 – 131 inches. Total biomass at harvest ranged from 14.1 to 20.2 tons/A, while stalk diameter ranged from 10.4 – 16.0 cm at the stalk base. Fermentable solids ranged from 1.4 – 2.1 tons/A. Fermentable solids were not significantly affected by tillage practice or fertilization in 2015.

A trial was conducted at the RRS South Farm location in 2015 to evaluate the agronomic response of two different Bayer soybean varieties when grown under differing plant populations. The two varieties in the trial were CZ 5515 LL and CZ 5445 LL. Four seeding rates were evaluated: 80,000, 110,000, 140,000, and 170,000 seed/A. Soybeans were drill planted on June 5 to a depth of 0.5 inch and a row spacing of 30 inches. Soybeans were harvested on Oct. 14. Plant populations increased with increasing seeding rates. Soybean grain yield for the CZ 5515 LL variety was

15, 18, 24, and 27 bu/A for the 80,000, 110,000, 140,000, and 170,000 seed/A seeding rates, respectively. The CZ 5445 LL variety yielded 14, 19, 21, and 26 bu/A at the 80,000, 110,000, 140,000, and 170,000 seed/A seeding rates, respectively.

A date of planting trial was conducted for the third year in 2015 at the RRS in Crowley, LA. The trial evaluated eight late Group III and Group IV soybean varieties (Armor 44-R08, REV 38-R10, Asgrow AG4135, REV 39A35, Armor 48R66, Dyna-Gro 39RY43, REV 47R53, and AG4934) and four Group V soybean varieties (Armor 55R22, REV 56R63, Asgrow AG5535, and Dyna-Gro 32RY55). Actual dates of planting were April 2 and April 28. Additional dates of planting were not possible due to the excessive rainfall received at the South Farm location during the months of March, April, May, and June. Soybean yield ranged from 1.7 to 17.8 bu/A for the beans planted on April 2. Soybean yields ranged from 6.4 to 30.0 bu/A for beans planted on April 28. 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. These trials were subsequently eaten by cattle that escaped from a nearby pasture, and the trials had to be abandoned.

Evaluation of the Effect of Potassium Fertilization Rate on Soybean Yield and Insect Pressure

Experiment number ....: 15-CS-SoybeanK

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 4

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.42
- **pH**...: 6.1
- **Extractable nutrients** ppm ....: Ca-1,492; Cu-1.8; Mg-200; P-38; K-90; Na-45; S-11; Zn-6.7

Crop/Variety ....: Soybeans / Dyna-Gro 37RY47
- **Planting method/date** ....: Drill seeded / June 5
- **Seeding rate/depth**......................: 135,000 seed/A / .5 inch
- **Emergence date**...........................: June 12
- **Harvest date** ....: Oct. 12

Seed treatment/cwt ....: NA

Fertilization..: 250 lb/A 0-24-24-2.8, June 5

Water management ....:
- **Flush** ....: NA
- **Flood**..: NA
- **Drain**..: NA

Pest management ....:
- **Herbicides**....................................: 1.5 pt/A Charger Max, June 9
  1.5 pt/A Basagran + 1.5 pt/A Charger Max + 2 pt/A Poast Plus + 1.5 pt/A COC, July 8
  1.5 pt/A Basagran + 2 pt/A Poast Plus + 1.5 pt/A COC, Aug. 28
  1 pt/A Gramoxone + .0025% NIS, Oct. 1
- **Insecticides** ....: 2 oz/A Belt + .5 lb ai/A Acephate + 2.8 oz/A Leverage + 1 pt/A COC, Aug. 25
- **Fungicides**....................................: None

Table 1. Evaluation of the effect of Potassium fertilization rate on soybean yield and insect pressure.

Crop Name		Soybeans		Soybeans		Soybeans		Soybeans		Soybeans		Soybeans	
Description		Maturity		Maturity		Plt Height		Moisture		Test Wt.		Yield	
Rating Date						9/30/2015							
Rating Type		plant-R8		Emerg-R8									
Rating Unit		days		days		inches		%		lb/bu		bu/A	
Trt. No.	Trt. Name												
1	0 lb K_2O/A	92	a	85	a	20.8	a	7.8	a	41.5	a	5.0	a
2	30 lb K_2O/A	92	a	85	a	21.5	a	9.4	a	55.5	a	10.0	a
3	60 lb K_2O/A	92	a	85	a	21.0	a	9.1	a	55.4	a	5.0	a
4	90 lb K_2O/A	88	a	81	a	21.5	a	8.5	a	40.7	a	9.0	a
5	120 lb K_2O/A	86	a	79	a	20.5	a	7.1	a	41.6	a	6.0	a
6	150 lb K_2O/A	90	a	83	a	20.5	a	7.3	a	26.8	a	8.0	a
LSD P=.05		9.08		9.08		2.3		4.92		26.13		6.6	
Standard Deviation		6.02		6.02		1.53		3.26		17.34		4.4	
CV		6.71		7.28		7.28		39.66		39.77		60.35	
Replicate F		5.104		5.104		3.117		8.556		5.803		6.105	
Replicate Prob(F)		0.012		0.012		0.058		0.002		0.008		0.006	
Treatment F		0.737		0.737		0.361		0.341		1.544		0.925	
Treatment Prob(F)		0.608		0.608		0.867		0.880		0.235		0.492	

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

Evaluation of Tillage on Production Agronomics, Nutrient Uptake, and Soil Sustainability of Sweet Sorghum Production (Year 4 - 2015)

Experiment number ....: SS-CAP-2015

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (South Unit)
- **Tillage type** ....: Conventional / No till
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 10 x 30 ft
- **Row width/rows per plot** ....: 30 inches / 4

Soil type ....: Crowley silt loam
- **% organic matter** ....: See data sheet
- **pH** ....: See data sheet
- **Extractable nutrients** ppm ....: See data sheet

Crop/Variety ....: Sweet Sorghum / Dura Sweet
- **Planting method/date** ....: Drill seeded / May 5
- **Seeding rate/depth** ....: 60,000 seed/A / .5 inch
- **Emergence date** ....: May 12
- **Harvest date** ....: Oct. 12

Seed treatment/cwt ....: NA

Fertilization ....: 90 lb N/A 46-0-0, June 5

Water management ....:
- **Flush** ....: NA
- **Flood** ....: NA
- **Drain** ....: NA

Pest management ....:
- **Herbicides** ....: 1 qt/A Facet + 1 qt/A Atrazine + 1.5 pt/A Charger Max + 1 oz/A Permit + 1.2 pt/A COC, June 5
- **Insecticides** ....: 1 oz/A Transform, July 21
  2 oz/A Belt + .5 lb/A Acephate + 2.8 oz/A Leverage 360 + 1 pt/A COC, Aug. 27
- **Fungicides** ....: None

Table 2. Evaluation of tillage on production agronomics, nutrient uptake, and soil sustainability of sweet sorghum (Dura Sweet) production: Agronomic results.

Description		50% HD	50% HD	Plant	Harvestable	% Tillers	Height	Total	Stalk	Stalk diameter	Sol. Solids	Ferm. Solids*
Part Rated				Population	Stalks	at Harvest		Biomass	Biomass	at base	Stalk	Stalk
Rating Date				10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015
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
Crop Stage Majority				3 leaf			soft dou	soft dou	soft dou	soft dou		
Crop Stage Scale						harvest	harvest	harvest	harvest	harvest		
Trt No.	Treatment Name											
1	Conventional Tillage No Fertilization	143 a	137 a	47,045 a	54,014 a	11 ab	120 a	17.6 a	13.6 a	13.6 b	14.7 a	1.8 a
2	Conventional Tillage Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	141 a	135 a	46,609 a	43,996 a	-6 b	131 a	20.2 a	16.0 a	15.3 a	14.8 a	2.1 a
3	No-Till No Fertilization	144 a	138 a	33,977 b	44,867 a	24 a	119 a	14.1 a	10.4 a	11.7 c	15.2 a	1.4 a
4	No-Till Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	145 a	139 a	33,977 b	38,333 a	9 ab	122 a	14.4 a	11.2 a	14.6 ab	15.2 a	1.5 a
LSD P=.05		6.27	6.27	9,075.6	12,536.3	17.8	14.48	6.28	5.21	1.13	2.21	0.88
Standard Deviation		3.62	3.62	5,245.3	7,245.5	10.3	8.37	3.63	3.01	0.65	1.28	0.51
CV		2.53	2.64	12.98	15.99	109.46	6.8	21.89	23.54	4.71	8.54	29.52
Replicate F		2.552	2.552	1.018	0.482	1.329	4.097	1.598	1.887	4.152	0.178	1.355
Replicate Prob(F)		0.152	0.152	0.448	0.707	0.350	0.067	0.286	0.233	0.065	0.908	0.343
Treatment F		0.851	0.851	8.007	3.21	5.865	1.835	2.493	2.798	22.864	0.157	1.565
Treatment Prob(F)		0.515	0.515	0.016	0.104	0.032	0.241	0.157	0.131	0.001	0.921	0.293

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

Mean separations are based on the complete error term.

* Fermentable solids is a rough estimated by: stalk biomass * Brix * 0.90

Table 3. Nutrient content of sweet sorghum (Dura Sweet) seed head.

Description		weight %	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Part Rated		head	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd
Rating Type		dry	P	K	S	Ca	Mg	Zn	Fe	Mn	Cu	Na	Al	B
Rating Unit		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Crop Stage Majority			Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do
Crop Stage Scale			Head	Head	Head	Head	Head	Head	Head	Head	Head	Head	Head	Head
Trt No.	Treatment Name													
1	Conventional Tillage No Fertilization	7.45 a	0.39 a	0.44 a	0.11 b	0.07 a	0.22 a	40.3 a	81.6 a	64.3 b	9.22 a	5.69 a	22.5 a	5.03 a
2	Conventional Tillage Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	6.82 a	0.36 a	0.48 a	0.10 b	0.07 a	0.20 a	38.8 a	91.8 a	61.3 b	8.72 a	5.08 a	26.9 a	4.49 a
3	No-Till No Fertilization	8.09 a	0.40 a	0.51 a	0.12 a	0.08 a	0.23 a	40.7 a	93.1 a	81.8 a	8.71 a	6.52 a	25.8 a	4.98 a
4	No-Till Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	6.93 a	0.34 a	0.46 a	0.10 b	0.07 a	0.20 a	37.2 a	102.6 a	61.0 b	7.98 a	5.22 a	21.1 a	4.65 a
LSD P=.05		2.515	0.050	0.082	0.007	0.020	0.035	6.591	33.574	13.943	1.792	1.544	13.241	2.211
Standard Deviation		1.453	0.029	0.047	0.004	0.012	0.020	3.809	19.404	8.058	1.036	0.892	7.653	1.278
CV		19.85	7.82	10.06	3.57	16.44	9.63	9.7	21.03	12.01	11.96	15.86	31.77	26.68
Replicate F		4.705	1.199	4.783	2.714	2.791	0.672	0.788	1.601	10.012	1.083	101.827	2.942	0.693
Replicate Prob(F)		0.051	0.387	0.050	0.138	0.132	0.600	0.543	0.285	0.009	0.425	0.0001	0.121	0.589
Treatment F		0.638	3.462	1.458	9.571	1	1.738	0.675	0.788	6.029	0.976	2.112	0.505	0.166
Treatment Prob(F)		0.618	0.091	0.317	0.011	0.455	0.258	0.598	0.543	0.031	0.464	0.200	0.693	0.915

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

Table 4. Nutrient content of sweet sorghum (Dura Sweet) stalk.

Description		weight %	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Part Rated		stalk	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd
Rating Type		dry weight	P	K	S	Ca	Mg	Zn	Fe	Mn	Cu	Na	Al	B
Rating Unit		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Crop Stage Majority			Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do
Crop Stage Scale			Stalk	Stalk	Stalk	Stalk	Stalk	Stalk	Stalk	Stalk	Stalk	Stalk	Stalk	Stalk
Trt No.	Treatment Name													
1	Conventional Tillage No Fertilization	64.72 a	0.12 c	0.74 b	0.11 b	0.22 a	0.14 a	51.49 a	80 a	131 a	2.10 a	24.8 a	15.6 a	1.60 a
2	Conventional Tillage Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	67.38 a	0.16 b	0.97 a	0.11 b	0.20 a	0.12 a	48.07 a	77 a	117 a	1.96 a	21.7 a	16.4 a	1.60 a
3	No-Till No Fertilization	63.07 a	0.18 a	0.85 ab	0.13 a	0.23 a	0.16 a	63.58 a	95 a	143 a	2.51 a	18.5 a	16.5 a	1.67 a
4	No-Till Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	66.91 a	0.19 a	0.99 a	0.13 a	0.20 a	0.13 a	54.09 a	78 a	141 a	1.71 a	12.4 a	16.4 a	1.16 a
LSD P=.05		3.692	0.0198	0.1792	0.0122	0.0414	0.0396	10.9148	30.7686	19.0623	0.877	15.4559	0.6676	1.0562
Standard Deviation		2.134	0.0115	0.1036	0.0071	0.0239	0.0229	6.3083	17.783	11.0172	0.5069	8.9329	0.3859	0.6104
CV		3.26	7.19	11.7	6.02	11.36	16.86	11.62	21.58	8.28	24.51	46.2	2.38	40.53
Replicate F		12.128	11.095	39.5	17	1.669	0.777	19.411	6.956	55.553	1.646	0.425	5263.5	1.788
Replicate Prob(F)		0.006	0.007	0.000	0.002	0.271	0.548	0.002	0.022	0.000	0.276	0.742	0.000	0.249
Treatment F		3.516	26.46	5.044	11.333	1.669	1.988	4.456	0.931	4.678	1.77	1.391	4.214	0.594
Treatment Prob(F)		0.089	0.001	0.044	0.007	0.271	0.217	0.057	0.482	0.052	0.253	0.333	0.064	0.642

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

Table 5. Nutrient content of sweet sorghum (Dura Sweet) green leaves.

Description		weight %	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Part Rated		green le	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd	abvgrd
Rating Type		dry weight	P	K	S	Ca	Mg	Zn	Fe	Mn	Cu	Na	Al	B
Rating Unit		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Crop Stage Majority			Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do	Sft Do
Crop Stage Scale			Grn Le	Grn Le	Grn Le	Grn Le	Grn Le	Grn Le	Grn Le	Grn Le	Grn Le	Grn Le	Grn Le	Grn Le
Trt No.	Treatment Name													
1	Conventional Tillage No Fertilization	10.31 a	0.26 a	0.92 b	0.08 a	0.61 a	0.30 a	22.08 a	202 a	266 a	3.05 a	20.0 a	54.0 a	4.80 a
2	Conventional Tillage Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	10.82 a	0.23 a	1.11 a	0.08 a	0.55 a	0.20 a	21.03 a	195 a	203 b	3.26 a	20.8 a	61.0 a	5.10 a
3	No-Till No Fertilization	12.63 a	0.28 a	1.15 a	0.08 a	0.46 a	0.22 a	19.67 a	204 a	209 b	3.40 a	22.6 a	56.0 a	3.60 a
4	No-Till Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	11.77 a	0.27 a	1.17 a	0.07 a	0.43 a	0.19 a	17.98 a	244 a	173 b	2.53 a	20.7 a	51.0 a	3.60 a
LSD P=.05		3.625	0.0457	0.1291	0.0178	0.1823	0.0822	3.8834	131.174	41.7259	1.1729	12.106	22.6	1.85
Standard Deviation		2.095	0.0264	0.0746	0.0103	0.1054	0.0475	2.2444	75.8129	24.1159	0.6779	6.9968	13.1	1.07
CV		18.41	10.23	6.88	13.19	20.59	21.00	11.12	35.91	11.33	22.15	33.29	23.58	25.14
Replicate F		2.485	3.4	3.419	4.294	1.608	0.565	2.435	2.514	19.12	0.655	0.752	0.755	1.24
Replicate Prob(F)		0.158	0.094	0.093	0.061	0.284	0.658	0.163	0.155	0.002	0.609	0.560	0.559	0.375
Treatment F		0.964	2.516	9.088	1.157	2.508	4.262	2.495	0.339	10.522	1.264	0.101	0.396	2.068
Treatment Prob(F)		0.468	0.155	0.012	0.400	0.156	0.062	0.157	0.798	0.008	0.368	0.957	0.761	0.206

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

Table 6. Nutrient content of sweet sorghum (Drua Sweet) brown leaves.

Description		weight %		Tissue		Tissue		Tissue		Tissue		Tissue		Tissue		Tissue		Tissue		Tissue		Tissue		Tissue	
Part Rated		brown le		abvgrd		abvgrd-		abvgrd-		abvgrd		abvgrd		abvgrd		abvgrd-		abvgrd -		abvgrd-		abvgrd-		abvgrd-	
Rating Type		dry weight		P		K		S		Ca		Mg		Zn		Fe		Mn		Cu		Al		B	
Rating Unit		%		%		%		%		%		%		ppm		ppm		ppm		ppm		ppm		ppm	
Crop Stage Majority				Sft Do		Sft Do		Sft Do		Sft Do		Sft Do		Sft Do		Sft Do		Sft Do		Sft Do		Sft Do		Sft Do	
Crop Stage Scale				Brown Le		Brown Le		Brown Le		Brown Le		Brown Le		Brown Le		Brown Le		Brown Le		Brown Le		Brown Le		Brown Le	
Trt No.	Treatment Name																								
1	Conventional Tillage No Fertilization	17.52	a	0.18	b	0.32	b	0.07	a	0.69	a	0.38	a	31.68	a	260	a	335	a	2.45	a	69.7	a	6.29	a
2	Conventional Tillage Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	14.98	a	0.15	b	0.43	a	0.06	ab	0.57	b	0.21	c	23.62	b	265	a	239	a	2.17	a	96.2	a	6.86	a
3	No-Till No Fertilization	16.21	a	0.22	a	0.46	a	0.07	a	0.60	ab	0.30	b	23.82	b	247	a	325	a	2.17	a	65.4	a	5.90	a
4	No-Till Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	14.39	a	0.18	b	0.40	ab	0.05	b	0.53	b	0.23	c	19.17	b	184	a	253	a	1.56	a	67.3	a	6.15	a
LSD P=.05		3.56		0.04		0.092		0.011		0.099		0.06		7.638		150.5		121.51		0.72		53.2663		1.58	
Standard Deviation		2.06		0.023		0.053		0.006		0.057		0.04		4.414		86.96		70.231		0.41		30.7857		0.91	
CV		13.1		12.49		13.19		10.38		9.56		12.7		17.96		36.36		24.37		19.8		41.24		14.5	
Replicate F		1.81		13.43		6.634		2.263		12.05		6.07		1.514		3.199		5.138		0.75		1.723		3.29	
Replicate Prob(F)		0.245		0.005		0.025		0.181		0.006		0.030		0.304		0.105		0.043		0.564		0.261		0.100	
Treatment F		1.82		6.833		5.313		7.316		5.114		17.5		5.553		0.736		1.942		3.28		0.886		0.78	
Treatment Prob(F)		0.244		0.023		0.040		0.020		0.043		0.002		0.036		0.568		0.224		0.101		0.500		0.545	

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

Table 7. Post-harvest soil nutrient content (0-3 inches) of sweet sorghum (Dura Sweet).

Description		O.M.		pH		P		K		Ca		Mg		S		Na		Cu		Zn	
Part Rated		soil		soil		soil		soil		soil		soil		soil		soil		soil		soil	
Rating Date		12/5/2015		12/5/2015		12/5/2015		12/5/2015		12/5/2015		12/5/2015		12/5/2015		12/5/2015		12/5/2015		12/5/2015	
Rating Type		0-3 inches		0-3 inches		0-3 inches		0-3 inches		0-3 inches		0-3 inches		0-3 inches		0-3 inches		0-3 inches		0-3 inches	
Rating Unit		%				ppm		ppm		ppm		ppm		ppm		ppm		ppm		ppm	
Trt No.	Treatment																				
1	Conventional Tillage No Fertilization	2.14	a	5.25	a	84	a	61	a	1,419	a	201	a	7.49	a	38.7	a	1.66	a	6.04	ab
2	Conventional Tillage Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	2.23	a	5.40	a	103	a	84	a	1,660	a	204	a	8.92	a	37.2	a	1.73	a	6.60	a
3	No-Till No Fertilization	2.30	a	5.06	a	95	a	73	a	1,502	a	223	a	8.94	a	40.0	a	1.74	a	5.63	b
4	No-Till Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	2.21	a	5.08	a	96	a	71	a	1,509	a	214	a	7.13	a	39.7	a	1.66	a	5.54	b
LSD P=.05		0.105		0.263		19.586		19.280		250.66		20.56		3.676		5.5847		0.2086		0.6542	
Standard Deviation		0.061		0.152		11.320		11.143		144.87		11.88		2.124		3.2278		0.1206		0.3781	
CV		2.73		2.92		11.96		15.43		9.51		5.65		26.16		8.30		7.11		6.35	
Replicate F		33.11		21.036		5.486		0.704		12.662		8.058		1.5		1.005		10.487		0.944	
Replicate Prob(F)		0.000		0.001		0.037		0.584		0.005		0.016		0.307		0.453		0.008		0.476	
Treatment F		4.664		4.404		1.891		2.959		1.909		2.785		0.795		0.628		0.548		6.518	
Treatment Prob(F)		0.052		0.058		0.232		0.120		0.229		0.132		0.540		0.623		0.667		0.026	

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

Table 8. Post-harvest soil nutrient content (3-6 inches) of sweet sorghum (Dura Sweet).

	Description	O.M.	pH	P	K	Ca	Mg	S	Na	Cu	Zn
	Part Rated	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
	Rating Date	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015
	Rating Type	3-6 inches	3-6 inches	3-6 inches	3-6 inches	3-6 inches	3-6 inches	3-6 inches	3-6 inches	3-6 inches	3-6 inches
	Rating Unit	%		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Trt No.	Treatment Name										
1	Conventional Tillage No Fertilization	1.64 a	5.35 a	73 a	58 a	1,466 a	227 a	8.50	49.8 a	1.60 a	4.14 a
2	Conventional Tillage Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	1.59 a	5.60 a	76 a	64 a	1,620 a	226 a	6.14	47.6 a	1.65 a	4.50 a
3	No-Till No Fertilization	1.61 a	5.38 a	79 a	65 a	1,646 a	242 a	8.14	48.9 a	1.68 a	4.21 a
4	No-Till Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	1.55 a	5.47 a	70 a	61 a	1,656 a	245 a	7.08	51.2 a	1.67 a	3.70 a
	LSD P=.05	0.187	0.3523	18.649	12.92	243.77	25.61	1.777	2.519	0.113	1.4239
	Standard Deviation	0.108	0.2036	10.779	7.466	140.89	14.8	1.027	1.456	0.065	0.823
	CV	6.77	3.74	14.52	12.04	8.82	6.3	13.76	2.95	3.97	19.9
	Replicate F	3.079	29.83	2.354	4.029	23.214	3.934	0.21	16.46	11.139	0.12
	Replicate Prob(F)	0.112	0.001	0.171	0.069	0.001	0.072	0.886	0.003	0.007	0.945
	Treatment F	0.47	1.284	0.522	0.719	1.584	1.776	4.321	4.312	1.122	0.65
	Treatment Prob(F)	0.714	0.362	0.683	0.576	0.289	0.252	0.061	0.061	0.412	0.611

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

Table 9. Post-harvest soil nutrient content (6-12 inches) of sweet sorghum (Dura Sweet).

Description		O.M.	pH	P	K	Ca	Mg	S	Na	Cu	Zn
Part Rated		soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
Rating Date		12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015	12/5/2015
Rating Type		6-12 inches	6-12 inches	6-12 inches	6-12 inches	6-12 inches	6-12 inches	6-12 inches	6-12 inches	6-12 inches	6-12 inches
Rating Unit		%		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Trt No.	Treatment Name										
1	Conventional Tillage No Fertilization	1.10 a	5.53 a	19 a	61 a	1,785 a	321 a	8.85 a	63.6 a	1.46 a	0.72 a
2	Conventional Tillage Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	1.06 a	5.85 a	16 a	67 a	1,937 a	324 a	9.29 a	61.1 a	1.36 a	0.75 a
3	No-Till No Fertilization	1.21 a	5.54 a	16 a	61 a	1,771 a	309 a	7.74 a	60.0 a	1.41 a	0.99 a
4	No-Till Maintenance Fertilization 40 lb P_2O_5 60 lb K_2O	1.26 a	5.70 a	25 a	66 a	1,849 a	307 a	10.78 a	68.3 a	1.48 a	0.72 a
LSD P=.05		0.2563	0.4597	12.355	19.75	368.42	61.41	4.529	6.67	0.2854	0.4269
Standard Deviation		0.1481	0.2657	7.1409	11.41	212.93	35.49	2.617	3.855	0.1649	0.2468
CV		12.76	4.7	37.55	17.9	11.6	11.25	28.56	6.09	11.58	31.07
Replicate F		0.958	9.029	9.737	1.398	5.562	3.612	0.226	0.724	1.599	1.815
Replicate Prob(F)		0.471	0.012	0.010	0.332	0.036	0.085	0.875	0.574	0.286	0.245
Treatment F		1.563	1.338	1.437	0.287	0.508	0.225	0.929	3.598	0.384	1.153
Treatment Prob(F)		0.293	0.347	0.322	0.834	0.691	0.876	0.482	0.085	0.769	0.402

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

Evaluation of General Agronomic Characteristics and Yield Performance of Two Different Soybean Varieties When Grown Under Different Plant Populations

Experiment number ....: 2015 Soybean Seeding Rate

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (South Unit)
- **Tillage type**..................................: Conventional
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 10 x 20 ft.
- **Row width/rows per plot**............: 30 inches / 4

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.42
- **pH**...: 6.1
- **Extractable nutrients** ppm ....: Ca-1,492; Cu-1.8; Mg-200; P-38; K-90; Na-45; S-11; Zn-6.7

Crop/Variety ....: Soybeans / See data sheet
- **Planting method/date** ....: Drill seeded / June 5
- **Seeding rate/depth**......................: See data sheet seed/A / .5 inch
- **Emergence date**...........................: June 12
- **Harvest date** ....: Oct. 14

Seed treatment/cwt ....: NA

Fertilization..: 250 lb/A 0-24-24-2.8, June 5

Water management ....:
- **Flush** ....: NA
- **Flood** ....: NA
- **Drain**..: NA

Pest management ....:
- **Herbicides**....................................: 1.5 pt/A Charger Max, June 9
  1.5 pt/A Basagran + 1.5 pt/A Charger Max + 2 pt/A Poast Plus + 1.5 pt/A COC, July 8
  1.5 pt/A Basagran + 2 pt/A Poast Plus + 1.5 pt/A COC, Aug. 28
- **Insecticides** ....: 2 oz/A Belt + .5 lb ai/A Acephate + 2.8 oz/A Leverage + 1 pt/A COC, Aug. 25
- **Fungicides**....................................: None

Table 10. Evaluation of the general agronomic characteristics and yield performance of two different soybean varieties when grown under different plant populations.

Crop Name		Soybean		Soybean		Soybean		Soybean		Soybean		Soybean	
Description		Stand count		Population		Plt. Height		Moisture		Test Wt.		Yield	
Rating Date		7/24/2015				10/12/2015		10/12/2015		10/12/2015			
Rating Type		#plants		#plants									
Rating Unit		1 row 10 ft		/A		inches		%		lb/bu		bu/A	
Trt No.	Treatment Name												
1	CZ 5515 LL 80,000 seed/A	23.3	cde	81,022	cde	31.5	a	16.1	a	53.5	b	15.0	e
2	CZ 5515 LL 110,000 seed/A	26.8	cd	93,218	cd	34.0	a	17.1	a	53.2	b	18.0	de
3	CZ 5515 LL 140,000 seed/A	37.5	b	130,680	b	32.0	a	14.9	ab	53.8	b	24.0	abc
4	CZ 5515 LL 170,000 seed/A	47.5	a	165,528	a	36.0	a	15.6	a	53.7	b	27.0	a
5	CZ 5445 LL 80,000 seed/A	18.5	e	64,469	e	16.0	b	10.8	c	55.4	a	14.0	e
6	CZ 5445 LL 110,000 seed/A	19.2	de	66,829	de	17.3	b	11.8	bc	54.9	a	19.0	cde
7	CZ 5445 LL 140,000 seed/A	27.0	c	94,090	c	15.5	b	11.5	bc	55.0	a	21.0	bcd
8	CZ 5445 LL 170,000 seed/A	28.8	c	100,283	c	22.7	b	10.8	c	55.2	a	26.0	ab
LSD P=.05		7.65		26,650.1		7.30		3.54		1.01		5.0	
Standard Deviation		5.17		18,006.9		4.93		2.39		0.68		3.4	
CV		18.09		18.09		19.26		17.65		1.26		16.66	
Replicate F		3.609		3.609		0.223		3.450		4.995		10.874	
Replicate Prob(F)		0.032		0.032		0.879		0.037		0.010		0.000	
Treatment F		14.164		14.164		12.349		4.760		6.373		8.246	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0031		0.0006		0.0001	

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

Evaluation of Date of Planting on Non-irrigated Soybeans in Southwest Louisiana (Year 3)

Experiment number ....: Soybean 2015 DOP1

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey 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 inches / 4

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.42
- **pH** ....: 5.08
- **Extractable nutrients** ppm ....: Ca-864; Cu-1.4; Mg-173; P-31; K-95; Na-24; S-13.8; Zn-6.3

Crop/Variety ....: Soybeans / See data sheet
- **Planting method/date** ....: Drill seeded / April 2
- **Seeding rate/depth** ....: 135,000 seeds/A / 2 inches
- **Emergence date** ....: April 9
- **Harvest date** ....: Sept. 24

Seed treatment/cwt ....: NA

Fertilization ....: 250 lb/A 0-24-24-2.8, April 10

Water management ....:
- **Flush** ....: NA
- **Flood** ....: NA
- **Drain** ....: NA

Pest management ....:
- **Herbicides** ....: 1.5 pt/A Basagran + 1.5 qt/A Glyphosate + 1 pt/A Dual Magnum II + 1.5 pt/A COC, April 9
  1.5 pt/A Basagran + 1.5 qt/A Glyphosate + 3 pt/A COC, April 23
  1.5 pt/A Basagran + 1.5 qt/A Glyphosate + 3 pt/A COC, May 25
  1.5 pt/A Basagran + 2 pt/A Poast Plus + 1.5 pt/A COC, Aug. 28
  1 pt/A Gramoxone + .0025% NIS, Sept. 21
- **Insecticides** ....: 2 oz/A Belt + .5 lb ai/A Acephate +2.8 oz/A Leverage 360 + 1 pt/A COC, Aug. 27
- **Fungicides** ....: None

Experiment number	Soybean 2015 DOP2
Site and design	
Location/Cooperator	H. Rouse Caffey 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 inches / 4
Soil type	Crowley silt loam
% organic matter	1.42
pH	5.08
Extractable nutrients ppm	Ca-864; Cu-1.4; Mg-173; P-31; K-95; Na-24; S-13.8; Zn-6.3
Crop/Variety	Soybeans / See data sheet
Planting method/date	Drill seeded / April 22
Seeding rate/depth	135,000 seeds/A / 1.25 inches
Emergence date	April 28
Harvest date	Sept. 24
Seed treatment/cwt	NA
Fertilization	250 lb/A 0-24-24-2.8, April 10
Water management	
Flush	NA
Flood	NA
Drain	NA
Pest management	
Herbicides	1.5 pt/A Basagran + 1.5 qt/A Glyphosate + 3 pt/A COC, April 23 1.5 pt/A Basagran + 1.5 qt/A Glyphosate + 3 pt/A COC, May 25 1.5 pt/A Basagran + 2 pt/A Poast Plus + 1.5 pt/A COC, Aug. 28 1 pt/A Gramoxone + .0025% NIS, Sept. 21
Insecticides	2 oz/A Belt + .5 lb ai/A Acephate +2.8 oz/A Leverage 360 + 1 pt/A COC, Aug. 27
Fungicides	None

Table 11. Evaluation of date of planting on non-irrigated soybeans in southwest Louisiana.

		Soybeans		Soybeans		Soybeans		Soybeans		Soybean	
Crop Name		Soybeans		Soybeans		Soybeans		Soybeans		Soybean	
Rating Date				10/5/2015		10/5/2015		10/5/2015		10/5/2015	
Rating Type		Maturity		Height		Moisture		Test Wt.		Yield	
Rating Unit		days		inches		%		lb/bu		bu/A	
Trt No.	Treatment Name										
1	DOP-1 April 9 Armor 44-R08 (4.4)			11.3	hij	10.35	a-f	43.6	a	2.3	kl
2	DOP-1 April 9 REV 38-R10 (3.8)			12.1	e-h	9.83	a-f	43.9	a	2.9	jkl
3	DOP-1 April 9 Asgrow AG4135 (4.1)			9.8	j	6.45	efg	33.6	abc	1.7	l
4	DOP-1 April 9 REV 39A35 (3.9)			12.0	fgh	8.33	c-f	45.3	a	2.2	kl
5	DOP-1 April 9 Armor 48R66 (4.8)			11.5	g-j	8.87	b-f	44.8	a	3.7	i-l
6	DOP-1 April 9 Dyna-Gro 39RY43 (4.3)	141	abc	11.0	hij	2.61	g	24.0	bc	3.4	jkl
7	DOP-1 April 9 REV 47R53 (4.7)	146	a	13.8	cde	7.25	d-g	21.2	c	5.9	h-l
8	DOP-1 April 9 Asgrow AG4934 (4.9)	144	ab	13.8	cde	9.48	a-f	19.9	c	7.4	f-l
9	DOP-1 April 9 Armor 55R22 (5.5)	141	abc	12.0	fgh	8.56	c-f	32.9	abc	10.4	e-h
10	DOP-1 April 9 Dyna-Gro 32RY55 (5.5)	141	abc	11.3	hij	5.45	fg	22.2	c	11.3	e-h
11	DOP-1 April 9 REV 56R63 (5.6)	137	cd	11.5	g-j	6.12	efg	21.9	c	17.8	d
12	DOP-1 April 9 Asgrow AG5535 (5.5)	141	abc	10.2	ij	13.15	abc	42.1	ab	7.8	f-k
13	DOP-2 April 22 Armor 44-R08 (4.4)	131	e	13.5	c-f	14.12	ab	41.9	ab	7.7	f-k
14	DOP-2 April 22 REV 38-R10 (3.8)	121	f	13.2	d-g	11.01	a-e	43.8	a	8.3	e-j
15	DOP-2 April 22 Asgrow AG4135 (4.1)	129	e	14.0	cd	12.05	a-d	42.9	a	6.4	g-l
16	DOP-2 April 22 REV 39A35 (3.9)	121	f	14.0	cd	10.88	a-f	44.0	a	9.5	e-i
17	DOP-2 April 22 Armor 48R66 (4.8)	131	e	14.0	cd	12.66	a-d	43.0	a	11.8	efg
18	DOP-2 April 22 Dyna-Gro 39RY43 (4.3)	131	e	15.2	bc	13.37	abc	42.6	a	12.8	def
19	DOP-2 April 22 REV 47R53 (4.7)	130	e	16.3	b	11.67	a-e	43.9	a	18.5	cd
20	DOP-2 April 22 Asgrow AG4934 (4.9)	133	de	19.8	a	12.60	a-d	43.0	a	13.9	de
21	DOP-2 April 22 Armor 55R22 (5.5)	139	bc	13.8	cde	13.87	abc	42.8	a	23.8	bc
22	DOP-2 April 22 Dyna-Gro 32RY55 (5.5)	139	bc	12.5	d-h	13.23	abc	43.1	a	27.0	ab

Continued.

Table 11. Continued.

Crop Name		Soybeans		Soybeans		Soybeans		Soybeans		Soybean	
Rating Date				10/5/2015		10/5/2015		10/5/2015		10/5/2015	
Rating Type		Maturity		Height		Moisture		Test Wt.		Yield	
Rating Unit		days		inches		%		lb/bu		bu/A	
Trt No.	Treatment Name										
23	DOP-2 April 22 REV 56R63 (5.6)	139	bc	14.2	cd	14.82	a	42.4	ab	30.0	a
24	DOP-2 April 22 Asgrow AG5535 (5.5)	139	bc	11.8	ghi	13.26	abc	43.2	a	24.8	ab
LSD P=.05		5.66		1.69		5.551		18.592		5.87	
Standard Deviation		3.99		1.2		3.934		13.176		4.16	
CV		1.66		9.19		37.77		34.68		36.8	
Replicate F		4.501		3.836		3.634		1.75		1.867	
Replicate Prob(F)		0.007		0.014		0.017		0.165		0.143	
Treatment F		13.503		12.887		2.621		1.858		15.97	
Treatment Prob(F)		0.0001		0.0001		0.0011		0.0259		0.0001	

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

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

RICE DISEASE CONTROL RESEARCH

RICE DISEASE CONTROL STUDIES, 2015

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INTRODUCTION

Numerous diseases pose major threats to the production of rice (*Oryzae sativa* L.). In Louisiana, sheath blight (*Rhizoctonia solani Kuhn*), bacterial panicle blight (*Burkholderia glumae* Kurita and Tabei), blast (*Pyricularia grisea* Sacc.), and narrow brown leaf spot (*Cercospora oryzae* (Racib.) O. Const.) continue to be the most important diseases of rice causing significant yield and quality reductions costing farmers millions of dollars each year. Narrow brown leaf spot developed into a major pest during the 2006 growing season, and since that year, it has been problematic in later planted rice and the second crop. Bacterial panicle blight has been a major problem in many rice fields during abnormally hot conditions. In 2010 and 2011, strobilurin fungicide-resistant sheath blight pathogen was detected in Acadia Parish. Most recently in 2012 and 2015, major blast epidemics developed on several major rice varieties causing significant damage. Information is critically needed on these disease pest and their interactions to determine best control practices. Data from inoculated research plots and surveys in farmers' fields suggest that these rice diseases cause an average 6 to 25% loss each year in yield and quality. With present production costs and the low rice prices, these yield and quality losses can represent negative net returns due to rice diseases. Direct losses to disease include thin stands, lodging, spotted kernels, fewer and smaller grains, reduced milling, and a general reduction in plant efficiency. Indirect losses include the cost of pesticides used to manage diseases, application costs, and reduced yields associated with special cultural control practices that reduce disease but may not be conducive to producing maximum yields.

A number of factors affect disease development, including varietal resistance, cultural management, cropping history, weather, and pesticides. Host resistance is the best control method, but often, it is not available or breaks down after varietal release. Most long-grain varieties are susceptible to sheath blight, and several major varieties are also susceptible to blast. Cultural practices often play an important role in disease development as evidenced by the fact that sheath blight was a minor disease until the introduction of semidwarf varieties, high fertilization rates, and soybeans as a rotational crop. Cultural practices, such as reducing seeding rates and nitrogen levels, can reduce disease development, but this can limit yield. As a result, rice farmers often rely on fungicides to control diseases. Constant effort on breeding for resistance and development of effective chemical control programs is needed to keep rice diseases at tolerable levels.

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 2015.

	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
Artisan	Flutolanil/Propiconazole	Nichino
Equation	Azoxystrobin	FMC

2015 Disease Nursery Trial (DN1 and DN2)

Location: H. Rouse Caffey 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

Plot Size: Three 6-foot rows

Planting Method/Date: Drill seeded, May 4

Fertilization: Preplant 0-60-60+7 Zn, Sept. 26; Preflood 150-0-0, June 9

Experimental Design: Randomized complete block design with five replications

Water Management: Flooded, June 9; Drained, Aug. 19

Herbicides: Tank-Mix Propanil 3 qt/A, RiceBeaux 2 qt/A, Londax 1 oz/A, and Permit ½ oz/A, May 29
Tank-Mix Propanil 3 qt/A and Acumen 2.4 pt/A, June 5

Insecticides: Dermacor seed treatment

Fungicides: None

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, June 26

Application Equipment: none

Application Dates:

Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
N/A						

Disease Ratings: Aug. 24

Drained: Aug. 19

Harvest: Sept. 1

Results: See Tables 2-9

Comments: Sheath blight, blast, and bacterial panicle blight severities were moderate.

Table 2. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), rotten neck blast (Blast), narrow brown leaf spot (NBLS), and bacterial panicle blight (BPB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015.

Character Rated	SB	Blast	NBLS	BPB
Rating Date	Aug. 24	Aug. 24	Aug. 24	Aug. 24
Rating Type	Severity	Severity	Severity	Severity
Rating Unit	0-9	0-9	0-9	0-9
Trt Treatment				
1 Antonio	6.8bcd	2.6f-j	2.2c-f	2.2d-g
2 Caffey	5.0ghi	1.8g-m	0.6fg	2.0d-h
3 Catahoula	6.8bcd	0.8k-n	0.6fg	1.6e-i
4 Cheniere	6.8bcd	3.8c-f	4.6a	3.0cde
5 CL111	7.6ab	3.0fgh	4.4ab	3.2cde
6 CL151	7.0bc	5.2bc	2.8b-e	4.0c
7 CL152	7.0bc	2.6f-j	1.6c-g	0.8ghi
8 CL163	6.6b-e	5.2bc	0.4fg	2.8c-f
9 CL172	6.6b-e	2.4f-k	2.2c-f	3.0cde
10 CL271	5.8d-h	3.2efg	1.0efg	2.4c-g
11 CLXL729	5.0ghi	0.4lmn	0.2fg	0.6hi
12 CLXL745	4.8hi	1.0j-n	1.4d-g	0.8ghi
13 Cocodrie	7.6ab	3.4d-g	4.4ab	3.2cde
14 Colorado	7.0bc	4.8b-e	3.2a-d	3.2cde
15 Della-2	6.6b-e	1.6g-n	2.2c-f	2.2d-g
16 Jazzman	6.0c-g	1.4h-n	3.4abc	5.2b
17 Jazzman-2	7.0bc	2.6f-j	4.0ab	5.6ab
18 Jupiter	5.6e-i	2.0f-l	0.8fg	1.2f-i
19 LaKast	6.0c-g	3.4d-g	1.0efg	2.4c-g
20 Mermentau	6.8bcd	3.8c-f	2.0c-g	2.4c-g
21 Roy J	5.4f-i	5.4bc	0.0g	2.4c-g
22 XL753	4.6i	0.2mn	0.2fg	1.0ghi
23 XL760	4.8hi	0.0n	0.2fg	0.2i
24 MM14	5.4f-i	3.2efg	0.0g	6.4a
25 15URN-1	6.0c-g	5.6b	0.2fg	3.0cde
26 15URN-56	5.6e-i	4.8b-e	0.2fg	2.4c-g
27 15URN-155	5.8d-h	2.8f-i	1.2efg	2.8c-f
28 15URN-178	6.4c-f	3.4d-g	1.6c-g	2.4c-g
29 15URN-187	5.6e-i	0.6lmn	0.2fg	3.4cd
30 LA2008	6.2c-f	5.0bcd	0.2fg	2.8c-f
31 LA2134	6.6b-e	1.2i-n	3.4abc	2.8c-f
32 Purple	3.0j	0.0n	0.0g	1.0ghi
33 M202	8.0a	8.0a	2.2c-f	2.2d-g
LSD P=.05	0.64	1.05	1.11	0.96
Standard Deviation	0.51	0.84	0.89	0.76
CV	8.4	29.11	55.66	29.83
Bartlett's X2	10.914	35.254	61.488	31.099
P(Bartlett's X2)	0.99	0.133	0.001	0.411
Replicate F	1.000	0.610	0.782	0.145
Replicate Prob(F)	0.4102	0.6561	0.5391	0.9649
Treatment F	20.152	26.000	13.683	15.997
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.

Table 3. Disease reaction of various rice varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015. (URRN Group I).

Character Rated		BPB	SB	RNB
Rating Date		Aug. 12	Aug. 25	Aug. 25
Rating Data Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
Trt	Treatment			
1	BOLIVAR/DREW	4.3a-d	4.8cd	2.5bc
2	CPRS/KBNT//WELLS CFX 18/3/MBLE	3.0b-e	5.5bcd	2.3bc
3	CF4-69/CCDR//Sierra	2.3cde	7.0ab	5.3a
4	STG03AC-37-042(FRAN AC LINE)/RU0801076 (LGRU//KATY/STBN/5/NWBT/KATY//RA73/LMNT/4/LBNT/9902/3/DAWN/9695//STBN)	2.5cde	5.0cd	4.3ab
5	CL131/3/CPRS/KBNT//9502008-A	4.8abc	7.5a	1.5c
6	CPRS/CCDR	3.5a-e	5.0cd	1.8c
7	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/LGRU/MILL/6/RU9201127/4/KATY/NWBT//L201/7402003/3/WLLS	4.5abc	4.8cd	1.5c
8	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	3.5a-e	6.8abc	1.5c
9	CPRS/9901081	4.8abc	4.8cd	1.5c
10	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/RU9201179/7/BASMATI-370/KATY/4/VSNTLM//L201/9NRZ/3/KATY/5/…	1.3e	4.3d	3.3abc
11	CCDR/JEFF//TRNS	1.5e	5.3bcd	2.5bc
12	LCSN/LGRU	2.3cde	6.0a-d	1.3c
13	CYBT/LM1/4/WLLS/PI597049/3/RSMT//NWBT/KATY/5/9901133/JEFF	3.5a-e	5.0cd	2.5bc
14	8603006//3/MARS/NWRX//TBNT	2.8b-e	4.8cd	3.3abc
15	CFX-18(CL161)/0004054	2.0de	4.5d	3.3abc
16	8804032/KATY	3.0b-e	6.3a-d	2.0bc
17	CL111	5.5a	6.3a-d	1.5c
18	CL151	5.0ab	6.3a-d	3.5abc
19	PRESIDIO	1.8e	4.5d	3.3abc
20	MERMENTAU	3.0b-e	6.3a-d	2.5bc
LSD P=.05		1.44	1.14	1.32
Standard Deviation		1.02	0.81	0.93
CV		31.53	14.66	36.8
Bartlett's X2		12.002	10.517	17.621
P(Bartlett's X2)		0.886	0.939	0.548
Replicate F		0.661	1.551	0.397
Replicate Prob(F)		0.5796	0.2113	0.7560
Treatment F		5.952	5.461	5.138
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.

Table 4. Disease reaction of various rice varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015. (URRN Group II).

Character Rated		BPB	SB	RNB
Rating Date		Aug. 12	Aug. 25	Aug. 25
Rating Data Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
Trt	Treatment			
21	M206/STG99F5-07-118//JPTR	5.5a-d	6.0abc	2.3fg
22	NEPTUNE//BNGL/CL161	5.3a-d	5.5a-d	3.5c-f
23	CF4-69/CCDR//Sierra	2.3fgh	6.5ab	4.0a-f
24	CL111/3/CCDR//9502008/LGRU	2.8e-h	6.3abc	4.8abc
25	BNGL/CL161//CAFFEY	4.3b-f	4.8cd	3.0def
26	CPRS/NWBT//KATY/3/CCDR	6.0abc	5.8a-d	2.5ef
27	NPTN//BNGL/CL161	5.5a-d	5.0bcd	3.3c-f
28	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18	7.0a	5.3a-d	2.5ef
29	CPRS/CCDR	4.5b-f	6.3abc	2.3fg
30	CPRS/KBNT//9502008-A	4.0c-g	5.5a-d	0.5h
31	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	6.5ab	5.8a-d	2.3fg
32	IR64/IR 1321-12	1.8gh	4.3d	0.3h
33	IR36/8603006	4.5b-f	6.0abc	4.3a-e
34	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	4.8b-e	6.8a	0.8gh
35	IR36/8603006	3.3d-h	5.0bcd	5.3ab
36	CPRS/NWBT	3.8c-h	5.3a-d	5.5a
37	JUPITER	1.5h	5.5a-d	2.5ef
38	WELLS	1.8gh	5.3a-d	2.3fg
39	LAKAST	3.8c-h	6.0abc	3.8b-f
40	FRANCIS	4.5b-f	5.5a-d	4.5a-d
LSD P=.05		1.45	0.92	1.11
Standard Deviation		1.03	0.65	0.78
CV		24.72	11.61	26.23
Bartlett's X2		16.375	6.341	7.756
P(Bartlett's X2)		0.632	0.995	0.989
Replicate F		1.425	0.315	2.300
Replicate Prob(F)		0.2449	0.8142	0.0870
Treatment F		9.585	3.573	14.372
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.

Table 5. Disease reaction of various rice varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015. (URRN Group III).

		BPB	SB	RNB
Character Rated		BPB	SB	RNB
Rating Date		Aug. 12	Aug. 25	Aug. 25
Rating Data Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
Trt	Treatment			
41	STG05-IMI-02-055/STG05IMI-01-113	1.8ef	6.5bc	0.3e
42	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	6.3a	7.0ab	5.0a
43	CPRS/CCDR	4.8abc	6.8b	2.5bcd
44	RU0902125/CL131	4.0bcd	8.0a	2.0b-e
45	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4.0bcd	7.0ab	3.0bcd
46	IR64/IR 1321-12	3.5c-f	4.0e	0.0e
47	IR-TGRT 30 RADS	4.8abc	4.5de	3.0bcd
48	CPRS/KBNT//WELLS CFX 18/5/KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18	1.5f	5.8bcd	1.5cde
49	CCDR/L202	4.0bcd	7.0ab	2.0b-e
50	RU0501136/RU0902162	6.0ab	5.0cde	1.8b-e
51	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	3.3c-f	6.5bc	1.0de
52	CPRS/CCDR	2.8c-f	5.3cde	1.0de
53	CPRS//NWBT/C4-63	4.5a-d	5.8bcd	1.0de
54	CPRS//NWBT/C4-63	2.3def	5.3cde	3.3abc
55	CPRS/NWBT	2.5c-f	5.3cde	3.8ab
56	ALAN/BALDO	4.3a-d	5.3cde	3.5abc
57	Rex	3.8cde	5.8bcd	1.8b-e
58	CHENIERE	2.8c-f	6.0bc	2.5bcd
59	COCODRIE	4.8abc	6.5bc	3.3abc
60	CL271	4.5a-d	5.0cde	3.8ab
LSD P=.05		1.30	0.88	1.23
Standard Deviation		0.92	0.62	0.87
CV		24.36	10.53	37.89
Bartlett's X2		13.126	8.488	15.627
P(Bartlett's X2)		0.784	0.862	0.619
Replicate F		0.289	1.727	2.857
Replicate Prob(F)		0.8333	0.1716	0.0449
Treatment F		7.677	10.255	8.909
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.

Table 6. Disease reaction of various rice varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015. (URRN Group IV).

Character Rated		BPB	SB	RNB
Rating Date		Aug. 12	Aug. 25	Aug. 25
Rating Data Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
Trt	Treatment			
61	CL111//CCDR/0502085	4.5ab	6.8a	3.3b
62	CCDR/3/CPRS/KBNT//WELLS CFX 18	3.5bcd	5.3abc	1.0cd
63	CPRS/CCDR	3.5bcd	6.5ab	3.0bc
64	JZMN/PI597046	2.8b-e	5.8abc	1.0cd
65	CL111/4/CPRS/9502008-A//AR 1188/CCDR	4.3abc	6.0abc	2.0bc
66	SABR/CCDR	2.3de	5.0abc	2.0bc
67	19991516/19951094//RNS3/RU9101001	2.3de	5.5abc	3.8b
68	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	2.0de	6.0abc	3.3b
69	CPRS/JSMN	2.8b-e	6.3abc	2.8bc
70	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	2.5cde	6.0abc	3.5b
71	LAH10	0.8e	4.5c	0.0d
72	043752/0047277/CHEN	1.8de	5.5abc	3.0bc
73	CPRS//NWBT/C4-63	1.5de	5.3abc	2.5bc
74	DXBL//NWBT/KATY	1.8de	5.0abc	3.0bc
75	CPRS/CCDR	2.5cde	6.5ab	2.3bc
76	STG05IMI-01-113/STG05L-40-137	3.0bcd	5.3abc	5.3a
77	RSMT/KATY	3.0bcd	6.0abc	6.5a
78	CPRS/NWBT//KATY/3/CCDR	2.3de	6.3abc	2.3bc
79	ROY J	2.0de	4.8bc	3.0bc
80	MM14	5.5a	4.5c	1.0cd
LSD P=.05		1.16	1.06	1.25
Standard Deviation		0.82	0.75	0.88
CV		30.3	13.27	32.54
Bartlett's X2		10.653	9.529	9.892
P(Bartlett's X2)		0.908	0.89	0.872
Replicate F		1.597	0.150	1.642
Replicate Prob(F)		0.2001	0.9295	0.1899
Treatment F		7.372	3.283	11.087
Treatment Prob(F)		0.0001	0.0003	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 bacterial panicle blight (BPB), sheath blight (SB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015. (URRN Group V).

Character Rated	BPB	SB	RNB
Rating Date	Aug. 12	Aug. 25	Aug. 25
Rating Data Type	Severity	Severity	Severity
Rating Unit	0-9	0-9	0-9
Trt Treatment			
81 248DREW16C-1-3/6/LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT	4.5a-g	4.5bc	2.5bcd
82 9502008-A/DREW//CLR 20/3/CL111	4.0b-g	6.5abc	2.0bcd
83 CL131/PSCL	7.0ab	6.5abc	1.5cd
84 LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT/7/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/19981429	3.0d-g	5.5abc	0.0d
85 CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4.5a-g	6.5abc	3.5bcd
86 CCDR/L202	5.0a-f	5.0abc	2.5bcd
87 STG05IMI-04-091/STG05IMI-02-055	3.0d-g	7.0ab	2.5bcd
88 CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/…	3.0d-g	7.0ab	1.5cd
89 CPRS/9901081	3.5c-g	6.5abc	4.0bc
90 FRNS/CL.WLLS/7/LBNT/9902//NWBT/3/KATY/NWBT/5/IR36M4/4/L201/3/TTEP/IR-8//UNKN/6/9101001//TBNT/KATY/3/LGRU	3.5c-g	5.0abc	3.5bcd
91 LAH169	2.0fg	3.5c	2.0bcd
92 CPRS/3/CPRS/NWBT/KATY	2.5efg	5.0abc	1.5cd
93 248DREW16C-1-3/248DREW16C-1-2	5.0a-f	5.5abc	2.0bcd
94 CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	2.5efg	6.5abc	1.0cd
95 M202*4/Katy BC5F4	5.0a-f	6.5abc	0.0d
96 STG07IMI-01-129/JPTR	3.0d-g	7.0ab	4.0bc
97 CL111/3/CPRS/KBNT//WELLS CFX 18	4.5a-g	6.5abc	2.0bcd
98 CPRS/9901081	4.0b-g	6.5abc	4.0bc
99 BNGL/CL161/4/9502065/3/MERC//MERC/…	7.5a	5.5abc	2.0bcd
100 Cheniere/Banks	3.5c-g	5.5abc	5.5b
101 CPRS/JSMN	3.0d-g	7.0ab	4.0bc
102 JASM85/DREW//UA99-167	3.5c-g	6.0abc	1.0cd
103 CL111/CCDR	4.5a-g	5.5abc	2.5bcd
104 M202*4/Katy BC5F4	6.0a-d	5.0abc	1.0cd
105 JZMN/PI560239//KDM/JSMN85			
106 CL111/CHENIERE	4.0b-g	6.5abc	2.5bcd
107 Sierra/Cocodrie	4.5a-g	8.0a	3.0bcd
108 JZMN/PI597046			
109 CPRS/KBNT//CFX 29/CCDR/3/06CFP952	4.5a-g	6.5abc	1.0cd
110 Deltabelle//LGRU/LCSN/CF4-85	2.5efg	5.0abc	1.5cd
111 BNGL/CL161/4/9502065/3/MERC//MERC/…	6.5abc	5.5abc	2.5bcd
112 9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	5.5a-e	8.0a	3.5bcd
113 CPRS/CCDR	2.5efg	6.5abc	1.5cd
114 Cheniere/Banks	3.0d-g	5.0abc	4.5bc
115 9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4.0b-g	7.0ab	0.0d
116 CCDR/L202	3.5c-g	5.5abc	3.0bcd
117 JAZZMAN-2	5.0a-f	7.5ab	1.5cd
118 CL172	3.0d-g	6.0abc	0.0d
119 M206	4.0b-g	5.0abc	8.0a
120 CL163	1.5g	6.5abc	3.5bcd
LSD P=.05	1.80	1.70	2.08
Standard Deviation	0.89	0.84	1.03
CV	22.31	13.89	42.52
Bartlett's X2	7.327	7.451	11.368
P(Bartlett's X2)	1.00	1.00	0.969
Replicate F	2.810	1.191	0.794
Replicate Prob(F)	0.1021	0.2822	0.3787
Treatment F	4.560	2.706	4.986
Treatment Prob(F)	0.0001	0.0016	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. Disease reaction of various rice varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015. (URRN Group VI).

Character Rated		BPB	SB	RNB
Rating Date		Aug. 12	Aug. 25	Aug. 25
Rating Data Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
Trt	Treatment			
121	CL111/CCDR	5.0ab	6.0abc	3.5ab
122	CL151//COLUMBIA2/BENGAL	3.5a-d	6.5abc	2.0ab
123	CPRS/CCDR	2.5a-d	6.5abc	3.5ab
124	KATY/CPRS//JKSN/3/AR1188/CCDR/4/CFX-29/CCDR	5.5a	6.0abc	2.5ab
125	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5.0ab	6.5abc	2.0ab
126	CF4-69/CCDR//Sierra	1.5cd	6.5abc	4.5a
127	CCDR/RU0801167	4.0a-d	5.0abc	4.0ab
128	9502008/3/CPRS//82CAY21/…/4/CFX18/5/9502008-A/DREW//CLR 20	3.0a-d	5.5abc	3.0ab
129	RU0302195/CHEN	4.0a-d	7.5a	3.5ab
130	CPRS/KBNT//CFX29/CCDR/3/06CFP952	2.5a-d	5.5abc	3.0ab
131	CPRS/KBNT//WELLS CFX 18/3/CPRS/9502008-A//CFX 26/WELLS	4.5abc	6.5abc	2.0ab
132	CPRS/9901081	3.5a-d	6.0abc	3.5ab
133	CPRS/KBNT//WLLS/CFX18/5/9502008/3/CPRS//82CAY21/TBNT/ //…	1.5cd	5.0abc	1.5ab
134	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	2.5a-d	5.5abc	1.0b
135	CCDR/L202	3.5a-d	5.5abc	1.5ab
136	RU0902174/RU0902134	4.5abc	5.0abc	2.0ab
137	CPRS/KBNT//CFX 29/CCDR/3/06CFP952	2.5a-d	5.5abc	1.5ab
138	043752/0047277/CHEN	2.0bcd	4.5bc	2.0ab
139	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/RU9201179/7/IR GA409/RXMT/5/LGRU//LMNT/RA73/3/LGRU/4/LGRU	1.0d	4.0c	1.5ab
140	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4.5abc	6.0abc	1.5ab
141	AC110DH2/AC108DH2//CHEN	3.0a-d	5.0abc	1.5ab
142	KBNT/Q36194/6/LBNT/9902//NWBT/3/KATY/NWBT/5/IR36M4/4/L201/3/TTEP/	3.0a-d	5.0abc	3.5ab
143	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	5.0ab	7.0ab	1.5ab
144	CCDR/L202	4.0a-d	5.0abc	2.0ab
145	RU0801076/2/KBNT/Q36194	3.0a-d	5.5abc	3.0ab
146	9502008-A/DREW//CLR 20/3/CL111	4.0a-d	5.0abc	3.0ab
147	CPRS/3/CPRS/NWBT/KATY/4/SPRING	2.5a-d	6.0abc	3.0ab
148	FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW/7/GP1341 6/KATY//PI312777	2.0bcd	5.0abc	2.0ab
149	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	5.5a	7.5a	2.5ab
150	CF4-69/CCDR//Sierra	2.0bcd	6.5abc	4.5a
151	248FRA16U-21/2/248DREW16C-1-2	3.5a-d	6.5abc	2.0ab
152	9502008/3/MBLE//LMNT/20001-5/4/…/5/9502008-A/DREW//CLR 20	5.0ab	7.5a	2.0ab
153	L202/LQ39a//SABR	4.0a-d	7.0ab	3.0ab
154	RSMT//TXMT/IR36/3/(0115735)/CL131	2.5a-d	6.0abc	3.5ab
155	Mo0204044 / Kataki	5.0ab	4.5bc	3.0ab
156	Cocodrie/Priscilla	3.0a-d	6.0abc	3.0ab
157	CPRS/JACKSON//BANKS	3.5a-d	5.5abc	2.5ab
158	DELLA-2	2.0bcd	5.5abc	1.5ab
159	CPRS/CCDR	2.0bcd	5.5abc	2.5ab
160	TAGGART	2.5a-d	4.0c	3.0ab
LSD P=.05		1.60	1.39	1.81
Standard Deviation		0.79	0.69	0.89
CV		23.74	11.92	35.08
Bartlett's X2		6.05	3.523	6.672
P(Bartlett's X2)		1.00	1.00	1.00
Replicate F		1.613	0.239	1.000
Replicate Prob(F)		0.2117	0.6279	0.3235
Treatment F		4.590	3.371	1.981
Treatment Prob(F)		0.0001	0.0001	0.0178

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 bacterial panicle blight (BPB), sheath blight (SB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015. (URRN Group VII).

Character Rated		BPB	SB	RNB
Rating Date		Aug. 12	Aug. 25	Aug. 25
Rating Data Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
Trt	Treatment			
161	STG05-IMI-02-055/STG05IMI-01-113	2.5c-f	5.5a-d	2.0a-d
162	CPRS/4/NWBT/KATY//9902207x2/3/CPRS	2.0def	5.5a-d	1.5bcd
163	CPRS/SABR	3.5a-f	6.5abc	2.0a-d
164	CPRS/KBNT//WLLS/CFX18/5/9502008/3/CPRS//82CAY21/TBNT/4/CPRS//..	3.5a-f	5.5a-d	1.0cd
165	TRNS/CPRS/KBNT//9502008-A	5.5ab	6.5abc	1.0cd
166	AC110DH2/AC108DH2//CYBT	1.5ef	5.5a-d	2.0a-d
167	RU0902125/CL131	4.5a-d	7.0ab	3.5a-d
168	CPRS/KBNT//9502008-A /3/AC105	3.5a-f	6.5abc	1.5bcd
169	Hayakogane/BALDO	4.0a-e	5.5a-d	3.0a-d
170	CHNR/4/CPRS/9502008-A/3/CFX 29//AR1142/LA2031	3.5a-f	5.5a-d	1.0cd
171	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	2.0def	7.0ab	1.5bcd
172	CPRS/NWBT//KATY/3/CCDR	3.5a-f	5.0bcd	3.0a-d
173	CPRS/KBNT//9502008-A/3/TRNS/4/CPRS/KBNT//WLLS/CFX18	3.0b-f	5.5a-d	2.5a-d
174	CCDR/3/KATY/CPRS//JKSN/4/MILL//9502008/LGRU	5.0abc	6.5abc	3.0a-d
175	L202/LQ39a//SABR	4.5a-d	6.5abc	4.0abc
176	KBNT/Q36194/7/RU9201176/4/LBNT/STBN//NWBT/3/MILL/5/LGRU2/6/WLLS	3.5a-f	6.5abc	5.0a
177	9502008/CPRS/4/CPRS//82CAY21/TBNT/3/AR1121/5/CCDR//9502008//…	6.0a	7.0ab	3.0a-d
178	05 Cross - Spring / RU0202008	5.0abc	6.0a-d	4.0abc
179	FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW/7/NWBT/3/L BNT/9902//LBLE/4/DREW/5/FRNS	3.0b-f	5.0bcd	1.5bcd
180	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/…	3.0b-f	6.0a-d	3.0a-d
181	CPRS/3/CPRS/NWBT/KATY	3.5a-f	6.5abc	3.5a-d
182	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	2.5c-f	5.0bcd	4.0abc
183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	3.0b-f	5.0bcd	0.5d
184	FRAN/LQ39a	3.5a-f	5.5a-d	3.0a-d
185	CPRS/KBNT//WLLS/CFX18/5/9502008/3/CPRS//82CAY21/TBNT/4/CPRS//..	4.5a-d	6.0a-d	1.0cd
186	GFMT/LBLE	2.5c-f	6.0a-d	2.0a-d
187	Banks / Wells	2.0def	4.5cd	1.5bcd
188	248FRA16U-21/2/248DREW16C-1-2	1.5ef	7.5a	1.5bcd
189	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	3.5a-f	5.0bcd	4.5ab
190	LCSN/LGRU	5.0abc	5.5a-d	2.5a-d
191	RSMT//TXMT/IR36/3/(0115735)/CL151(CL006)	3.0b-f	6.5abc	3.0a-d
192	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	2.0def	5.5a-d	1.0cd
193	IR36/8603006	3.0b-f	5.5a-d	2.5a-d
194	DXBL//NWBT/KATY	1.5ef	4.5cd	1.0cd
195	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MERC	3.0b-f	4.5cd	3.5a-d
196	Rexmont/Banks	5.0abc	4.5cd	5.0a
197	RSMT/3/MARS/NWRX//TBNT/4/CL151	5.0abc	6.5abc	2.0a-d
198	Rexmont/Banks	3.5a-f	5.0bcd	2.0a-d
199	RONDO	1.0f	4.0d	0.5d
200	CL152	2.0def	5.5a-d	2.5a-d
LSD P=.05		1.42	1.16	1.74
Standard Deviation		0.70	0.58	0.86
CV		21.1	10.07	35.77
Bartlett's X2		3.989	0.0	5.971
P(Bartlett's X2)		1.00	.	1.00
Replicate F		1.625	0.151	1.696
Replicate Prob(F)		0.2099	0.7001	0.2005
Treatment F		6.018	4.089	3.937
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.

2015 RRS Yield Loss Fungicide Trial

Location: H. Rouse Caffey 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: CL131, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, March 24

Fertilization: Preplant 0-60-60+7 Zn, Sept. 26; Preflood 150-0-0, April 22; Topdressed 46-0-0, May 30

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, March 30; Flooded, April 23; Drained, July 20

Herbicides: Tank-Mix Propanil 3.5 qt/A, Prowl 1 qt/A, and Permit 1 oz/A, April 20;
Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, and Permit ¾ oz/A, May 18

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 29

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	08:00	80°F	6 mph	92%	Hazy	Moderate

Disease Ratings: July 21

Drained: July 20

Harvest: July 30

Results: See Table 10

Comments: Stands were very thin and disease development was poor.

Table 10. Effect of fungicide applications on sheath blight (SB) and narrow brown leaf spot (NBLS) development and rice yield and milling at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2015.

Character Rated			SB	SB	NBLS	Yield	Milling head	Milling total
Rating Date			July 21	July 21	July 21	July 30	Aug. 11	Aug. 11
Rating Unit			0-9	%	0-9	LB/A	%	%
Trt	Treatment	Rate						
1	Untreated		3.9a	11a	1.8a	6,394a	66.3a	75.9a
2	Tilt	6oz/A	4.1a	13a	1.0a	6,548a	67.5a	75.6a
3	Tilt	9oz/A	3.7a	9a	1.3a	6,730a	67.6a	76.2a
4	Tilt	12oz/A	3.6a	9a	1.0a	6,319a	67.6a	75.8a
5	GEM	4.7oz/A	2.9a	7a	2.0a	6,754a	68.2a	76.1a
6	Stratego	19oz/A	3.2a	8a	2.5a	6,913a	68.7a	76.4a
7	Stratego Tilt	19oz/A 3oz/A	3.2a	8a	1.0a	6,612a	68.4a	76.2a
8	Quadris	12oz/A	3.4a	10a	1.0a	6,764a	68.2a	76.5a
9	Quilt Xcel	21oz/A	3.2a	7a	1.8a	6,567a	67.0a	76.2a
10	Quilt Xcel Tilt	21oz/A 3oz/A	3.5a	9a	1.0a	6,390a	67.1a	75.8a
11	Sercadis	6.8oz/A	2.7a	7a	0.8a	6,083a	66.5a	75.8a
12	Sercadis Tilt	6.8oz/A 6oz/A	3.7a	8a	0.5a	6,534a	67.6a	75.9a
13	Convoy	32oz/A	3.4a	8a	2.3a	6,299a	67.3a	75.9a
14	Artisan	40oz/A	2.7a	6a	1.5a	6,725a	67.3a	76.0a
15	Equation	12oz/A	3.0a	6a	1.5a	7,310a	67.4a	76.0a
16	Equation Tilt	12oz/A 6oz/A	3.7a	10a	1.3a	6,857a	68.1a	76.5a
LSD P=.05			0.12t	0.2t	1.18	0.1t	1.38	0.60
Standard Deviation			0.09t	0.1t	0.82	0.0t	0.97	0.42
CV			13.37t	14.4t	60.0	1.26t	1.43	0.55
Bartlett's X2			10.151	18.332	7.307	23.163	21.545	9.479
P(Bartlett's X2)			0.751	0.246	0.949	0.081	0.12	0.851
Replicate F			0.373	1.297	0.918	1.241	14.053	17.623
Replicate Prob(F)			0.7729	0.2872	0.4397	0.3059	0.0001	0.0001
Treatment F			0.896	1.226	1.812	0.628	1.865	1.465
Treatment Prob(F)			0.5738	0.2884	0.0629	0.8359	0.0543	0.1598

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.

2015 Lake Arthur Yield Loss Trial

Location: Kent Lounsberry Farm, Lake Arthur, LA, Vermilion Parish

Soil Type: Crowley silt loam

Variety/Seed Rate: CL131, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, March 24

Fertilization: Preplant 20-60-60, April 8; Preflood 109-0-0, May 11

Experimental Design: Randomized complete block design with four replications

Water Management: Flush, April 4; Flood, May 12; Drained, July 18

Herbicides: Command 8 oz/A, (on preplant fertilizer)
Tank-Mix Propanil 3 qt/A, Londax 1 oz/A, and Permit 1 oz/A, May 11
Tank-Mix Clincher 25 oz/A, Permit ½ oz/A, and Crop Oil 1 qt/A, May 15

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 15	Boot	09:30	83°F	9 mph	82%	70%	Moderate

Disease Ratings: July 23

Drained: July 18

Harvest: Aug. 5

Results: See Table 11

Comments: Disease development was very light.

Table 11. Effect of fungicide applications on sheath blight (SB), narrow brown leaf spot (NBLS), leaf smut (LS) development, and rice yield and milling. Kent Lounsberry Farm, Lake Arthur, LA, Vermilion Parish. 2015.

Character Rated		SB	SB	NBLS	LS	Yield	Milling head	Milling total
Rating Date		July 23	July 23	July 23	July 23	Aug. 11	Sept. 4	Sept. 4
Rating Unit		0-9	%	0-9	0-9	LB/A	%	%
Trt Treatment	Rate							
1 Untreated		2.8a	8a	3.3a	3.5ab	7,686a	51.9a	74.7a
2 Tilt	6oz/A	2.3a	5ab	2.8abc	3.3abc	8,738a	54.2a	74.8a
3 Tilt	9oz/A	2.5a	7ab	1.8bc	2.0bc	8,672a	58.1a	75.6a
4 Tilt	12oz/A	2.5a	5ab	1.8bc	2.5abc	8,285a	54.0a	75.1a
5 GEM	4.7oz/A	2.0a	4b	3.3a	3.8a	9,046a	59.4a	76.1a
6 Stratego	19oz/A	2.3a	5ab	2.3abc	3.3abc	9,423a	62.4a	76.3a
7 Stratego Tilt	19oz/A 3oz/A	2.0a	4ab	2.0abc	3.3abc	9,130a	63.8a	76.4a
8 Quadris	12oz/A	1.8a	3b	2.5abc	3.8a	8,822a	59.7a	75.4a
9 Quilt Xcel	21oz/A	1.8a	4b	2.0abc	2.3bc	8,930a	58.7a	75.6a
10 Quilt Xcel Tilt	21oz/A 3oz/A	1.8a	3b	1.5c	2.0bc	8,359a	53.5a	74.5a
11 Sercadis	6.8oz/A	1.8a	4b	2.0abc	1.8c	8,286a	56.5a	75.6a
12 Sercadis Tilt	6.8oz/A 6oz/A	1.5a	3b	1.5c	2.0bc	9,300a	62.2a	76.4a
13 Convoy	32oz/A	1.8a	4ab	3.0ab	3.3abc	8,986a	64.1a	76.7a
14 Artisan	40oz/A	2.0a	4ab	2.0abc	2.0bc	9,081a	59.9a	75.6a
15 Equation	12oz/A	1.5a	3b	2.8abc	3.3abc	8,947a	61.5a	76.2a
16 Equation Tilt	12oz/A 6oz/A	1.3a	3b	1.8bc	2.5abc	9,393a	61.3a	76.1a
LSD P=.05		0.87	2.3	0.76	0.89	1,007.9	8.39	1.79
Standard Deviation		0.61	1.6	0.53	0.62	604.5	5.03	1.07
CV		31.08	37.68	23.77	22.52	6.86	8.56	1.42
Bartlett's X2		6.81	31.001	2.519	6.485	24.384	19.605	28.697
P(Bartlett's X2)		0.912	0.009	0.998	0.953	0.059	0.188	0.018
Replicate F		1.965	1.559	0.146	3.693	2.017	1.052	1.482
Replicate Prob(F)		0.1328	0.2126	0.9320	0.0185	0.1507	0.3616	0.2434
Treatment F		1.829	2.730	4.893	5.111	1.801	1.727	1.170
Treatment Prob(F)		0.0600	0.0047	0.0001	0.0001	0.0831	0.0988	0.3445

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.

2015 Jefferson Davis Yield Loss Trial

Location: Jimmy Hoppe Farm, Fenton, LA, Jefferson Davis Parish

Soil Type: Crowley silt loam

Variety/Seed Rate: CL131, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, March 30

Fertilization: Preplant 20-60-60, March 30; Preflood 124-0-0, May 4

Experimental Design: Randomized complete block design with four replications

Water Management: Flooded, May 6; Drained, July 17

Herbicides: Tank-Mix Propanil 5 qt/A + Permit 1 oz/A, April 22
Tank-Mix Propanil 2 qt/A + RiceBeaux 2 qt/A + Permit 1 oz/A, June 4

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 8	Boot	15:30	89°F	7 mph	67%	40%	None

Disease Ratings: July 22

Drained: July 17

Harvest: Aug. 4

Results: See Table 12

Comments: Sheath blight development was moderate in severity.

Table 12. Effect of fungicide applications on sheath blight (SB), narrow brown leaf spot (NBLS), leaf smut (LS) development, and rice yield and milling. Jimmy Hoppe Farm, Fenton LA, Jefferson Davis Parish, LA. 2015.

Character Rated			SB	SB	NBLS	LS	Yield	Milling head	Milling total
Rating Date			July 22	July 22	July 22	July 22	Aug. 11	Aug. 3	Aug. 3
Rating Type			Severity	Infestation	Severity	Severity	Weight	Quality	Quality
Rating Unit			0-9	%	0-9	0-9	LB/A	%	%
Trt	Treatment	Rate							
1	Untreated		5.3abc	43abc	3.3a	4.3a	9,330a	71.7a	77.6a
2	Tilt	6oz/A	5.5ab	45ab	2.3a	3.3a	9,557a	72.6a	77.8a
3	Tilt	9oz/A	6.3a	51a	1.5a	3.3a	9,264a	73.2a	77.7a
4	Tilt	12oz/A	3.8bc	21bcd	1.3a	2.5a	10,235a	72.7a	77.4a
5	GEM	4.7oz/A	3.8bc	22bcd	2.0a	3.8a	9,888a	71.9a	77.5a
6	Stratego	19oz/A	3.5c	21bcd	2.0a	3.5a	9,953a	72.1a	77.6a
7	Stratego Tilt	19oz/A 3oz/A	4.0bc	28bcd	1.8a	2.5a	9,744a	70.2a	76.9a
8	Quadris	12oz/A	4.5bc	30bcd	2.3a	3.5a	9,277a	72.2a	77.9a
9	Quilt Xcel	21oz/A	3.5c	22bcd	1.3a	3.0a	9,932a	71.7a	77.4a
10	Quilt Xcel Tilt	21oz/A 3oz/A	3.3c	16d	1.0a	2.8a	10,340a	72.1a	77.6a
11	Sercadis	6.8oz/A	3.3c	18cd	2.3a	3.3a	9,626a	71.8a	77.2a
12	Sercadis Tilt	6.8oz/A 6oz/A	3.5c	19cd	2.0a	2.5a	10,018a	72.0a	77.3a
13	Convoy	32oz/A	4.3bc	28bcd	1.8a	3.3a	10,137a	71.7a	77.0a
14	Artisan	40oz/A	4.3bc	25bcd	2.3a	3.5a	9,406a	72.0a	77.2a
15	Equation	12oz/A	4.0bc	24bcd	2.0a	3.8a	9,884a	72.2a	77.5a
16	Equation Tilt	12oz/A 6oz/A	4.3bc	30bcd	1.3a	3.3a	9,930a	72.5a	77.1a
LSD P=.05			1.14	14.9	1.15	1.02	704.9	1.76	0.70
Standard Deviation			0.80	10.4	0.81	0.71	493.3	1.05	0.42
CV			19.14	38.08	43.09	22.02	5.04	1.46	0.55
Bartlett's X2			11.365	22.098	9.305	11.182	30.791	15.739	12.472
P(Bartlett's X2)			0.657	0.105	0.75	0.672	0.009	0.40	0.643
Replicate F			1.592	1.161	1.596	2.577	14.092	7.162	4.920
Replicate Prob(F)			0.2044	0.3350	0.2036	0.0654	0.0001	0.0029	0.0142
Treatment F			4.532	3.850	1.889	1.936	1.906	1.149	1.288
Treatment Prob(F)			0.0001	0.0002	0.0508	0.0445	0.0485	0.3599	0.2688

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.

2015 Sheath Blight Fungicide Trial (SB5)

Location: H. Rouse Caffey 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, March 24

Fertilization: Preplant 0-60-60+7 Zn, Sept. 26; Preflood 150-0-0, April 22; Topdressed 46-0-0, May 30

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, March 30; Flooded, April 23; Drained, July 20

Herbicides: Tank-Mix Propanil 3.5 qt/A, Prowl 1 qt/A, and Permit 1 oz/A, April 20
Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, and Permit ¾ oz/A, May 18

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 29

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 11	Boot	09:00	82°F	4 mph	78%	15%	Moderate

Disease Ratings: July 21

Drained: July 20

Harvest: July 30

Results: See Table 13

Comments: Sheath blight and other diseases were light in severity. Variation in plot yields were more erratic than previous years.

Table 13. Effect of fungicide application on sheath blight (SB), narrow brown leaf spot (NBLS), leaf smut (LS) development, and rice yield and milling. H. Rouse Caffey Rice Research Station, Crowley, LA. 2015.

Character Rated			SB	SB	NBLS	LS	Yield	Milling head	Milling total
Rating Date			July 21	July 21	July 21	July 21	July 30	Aug. 11	Aug. 11
Rating Type			Severity	Infestation	Severity	Severity	Weight	Quality	Quality
Rating Unit			0-9	%	0-9	0-9	LB/A	%	%
Trt	Treatment	Rate							
1	Untreated		6.0a	28a	3.3a	4.3a	7,724a	64.2a	76.2a
2	Quilt Xcel	21fl oz/A	3.8b	12b	2.3a	4.0ab	8,040a	63.9a	75.9a
3	Quadris TOP	14fl oz/A	3.3b	10b	1.8a	1.5c	8,206a	63.0a	76.6a
4	A20760	7.7fl oz/A	3.3b	8b	1.8a	2.5abc	8,027a	62.6a	76.4a
5	A20760 Quadris	7.7fl oz/A 3.3fl oz/A	3.8b	11b	2.3a	2.3abc	9,255a	63.8a	76.7a
6	A20760 Sercadis	7.7fl oz/A 5.7fl oz/A	3.5b	9b	1.5a	1.8bc	7,921a	63.4a	76.5a
7	A20760 Tilt	7.7fl oz/A 6fl oz/A	4.5b	13b	1.5a	2.5abc	8,133a	63.1a	76.5a
8	Quadris TOP Sercadis	14fl oz/A 5.7fl oz/A	3.5b	8b	1.5a	2.3abc	8,161a	62.1a	76.0a
LSD P=.05			1.08	10.0	1.27	1.55	1,471.8	3.94	0.60
Standard Deviation			0.74	6.8	0.86	1.05	1,000.7	2.68	0.41
CV			18.69	55.96	43.86	40.08	12.23	4.23	0.53
Bartlett's X2			6.021	19.729	3.394	6.458	21.894	19.757	3.753
P(Bartlett's X2)			0.537	0.006	0.846	0.487	0.003	0.006	0.808
Replicate F			1.615	0.450	0.489	1.430	1.502	6.960	1.329
Replicate Prob(F)			0.2158	0.7199	0.6936	0.2622	0.2431	0.0020	0.2916
Treatment F			6.297	3.995	1.958	3.548	0.843	0.281	1.888
Treatment Prob(F)			0.0005	0.0063	0.1104	0.0113	0.5650	0.9544	0.1228

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.

2015 Sheath Blight Fungicide Trial (SB6)

Location: H. Rouse Caffey 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, March 24

Fertilization: Preplant 0-60-60+7 Zn, Sept. 26; Preflood 150-0-0, April 22; Topdressed 46-0-0, May 30

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, March 30; Flooded, April 23; Drained, July 20

Herbicides: Tank-Mix Propanil 3.5 qt/A, Prowl 1 qt/A, and Permit 1 oz/A, April 20
Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, and Permit ¾ oz/A, May 18

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 29

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 10	Boot	09:00	85°F	2 mph	72%	20%	Moderate
June 18	Heading	09:00	82°F	7 mph	83%	Hazy	Slight

Disease Ratings: July 21

Drained: July 20

Harvest: July 29

Results: See Table 14

Comments: Sheath blight severity was severe. Other diseases were light.

Table 14. Effect of fungicide application on sheath blight (SB), narrow brown leaf spot (NBLS), leaf smut (LS) development, and rice yield and milling. H. Rouse Caffey Rice Research Station, Crowley, LA. 2015.

Character Rated		SB	SB	NBLS	LS	Yield	Milling head	Milling total
Rating Date		July 21	July 21	July 21	July 21	July 29	Aug. 7	Aug. 7
Rating Type		Severity	Infestation	Severity	Severity	Weight	Quality	Quality
Rating Unit		0-9	%	0-9	0-9	LB/A	%	%
Trt Treatment	Rate							
1 Untreated		7.0a	62a	3.3ab	5.3a	7607b	66.4a	75.8a
2 Equation SC	9fl oz/A	3.8b	17b	3.0ab	4.0a	8565ab	69.0a	76.3a
3 Equation SC	12.5fl oz/A	3.5b	18b	3.8a	4.8a	8974a	68.6a	76.2a
4 Equation SC Equation SC	9fl oz/A 9fl oz/A	3.8b	17b	3.0ab	5.0a	9772a	68.5a	76.0a
5 Equation XL	14fl oz/A	3.5b	17b	2.5b	4.3a	8834ab	69.5a	76.5a
6 Equation XL	18fl oz/A	4.0b	19b	2.5b	5.0a	9072a	68.6a	76.3a
7 Quadris	12.5fl oz/A	3.5b	14b	2.8ab	4.8a	8643ab	68.5a	76.1a
8 Quilt Xcel	18fl oz/A	4.3b	23b	2.8ab	4.5a	9022a	67.2a	76.2a
9 Sercadis	6.8fl oz/A	4.0b	20b	3.0ab	3.8a	8833ab	67.8a	76.4a
LSD P=.05		0.77	11.7	0.72	0.92	869.7	3.17	0.68
Standard Deviation		0.53	8.0	0.49	0.63	595.9	2.17	0.47
CV		12.79	35.31	16.66	13.77	6.76	3.18	0.61
Bartlett's X2		2.272	20.262	1.266	4.801	9.793	9.606	9.656
P(Bartlett's X2)		0.893	0.009	0.974	0.684	0.28	0.294	0.29
Replicate F		3.008	1.712	1.692	6.023	2.227	6.539	3.058
Replicate Prob(F)		0.0500	0.1913	0.1953	0.0033	0.1110	0.0022	0.0476
Treatment F		17.430	13.674	2.538	2.512	3.666	0.800	0.829
Treatment Prob(F)		0.0001	0.0001	0.0370	0.0386	0.0063	0.6081	0.5858

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.

2015 Mowata Trial 1

Location: Kim Frey, Mowata, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: CL111; 70 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded,

Fertilization: Unknown

Experimental Design: Randomized complete block design with four replications

Water Management: Unknown

Herbicides: Unknown

Insecticides: Unknown

Fungicides: Various

Inoculation Dates: N/A 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 5	Boot	10:00	84°F	3 mph	62%	0%	Slight

Disease Ratings/Date: July 16

Drained: Unknown

Harvest: N/A

Results: See Table 15

Comments: Sheath blight severity was moderate and erratic.

Table 15. Effect of fungicide application on sheath blight development and rice milling. Mowata, LA. 2015.

Character Rated			SB	SB	Milling head	Milling total
Rating Date			June 19	July 16	July 23	July 23
Rating Type			Severity	Severity	Quality	Quality
Rating Unit			0-9	0-9	%	%
Trt	Treatment	Rate				
1	Untreated		4.5a	5.8a	73.2a	77.7a
2	Quilt Xcel	21fl oz/A	2.5b	4.0b	73.1a	77.7a
3	Quadris TOP	14fl oz/A	2.8b	3.5b	72.8a	77.6a
4	A20760	7.7fl oz/A	3.3b	3.8b	73.4a	77.7a
5	A20760 Quadris	7.7fl oz/A 3.3fl oz/A	2.8b	4.3ab	73.5a	77.7a
6	A20760 Sercadis	7.7fl oz/A 5.7fl oz/A	2.5b	3.3b	72.6a	77.1a
7	A20760 Tilt	7.7fl oz/A 6fl oz/A	2.8b	3.8b	73.1a	77.8a
8	Quadris TOP Sercadis	14fl oz/A 5.7fl oz/A	2.8b	4.3ab	72.8a	77.5a
LSD P=.05			1.05	1.30	1.35	0.65
Standard Deviation			0.71	0.88	0.92	0.44
CV			23.99	21.74	1.26	0.57
Bartlett's X2			3.394	5.017	12.111	4.646
P(Bartlett's X2)			0.846	0.658	0.097	0.703
Replicate F			4.003	3.901	0.877	2.980
Replicate Prob(F)			0.0212	0.0232	0.4689	0.0546
Treatment F			3.440	3.000	0.452	0.833
Treatment Prob(F)			0.0131	0.0239	0.8575	0.5718

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.

2015 Mowata Trial 2

Location: Kim Frey, Mowata, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 /kg)

Variety/Seed Rate: CL111

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded

Fertilization: Unknown

Experimental Design: Randomized complete block design with four replications

Water Management: Unknown

Herbicides: Unknown

Insecticides: Unknown

Fungicides: Various

Inoculation Dates: N/A 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 5	Boot	10:00	84°F	3 mph	62%	0%	Slight

Disease Ratings/Date: July 16

Drained: Unknown

Harvest: N/A

Results: See Table 16

Comments: Sheath blight severity was moderate and erratic.

Table 16. Effect of fungicide application on sheath blight development and rice milling. Mowata, LA. 2015.

Character Rated			SB	SB	Milling head	Milling total
Rating Date			June 19	July 16	July 23	July 23
Rating Type			Severity	Severity	%	%
Rating Unit			0-9	0-9	Quality	Quality
Trt	Treatment	Rate				
1	Untreated		5.0a	6.9a	72.008a	77.100a
2	Quilt Xcel	21fl oz/A	4.0ab	4.4b	72.543a	77.263a
3	Convoy	32fl oz/A	2.5b	3.7b	72.180a	77.125a
4	Artisan	40fl oz/A	3.0b	3.9b	72.535a	77.315a
5	Sercadis	6.8fl oz/A	3.3b	5.0b	72.418a	77.568a
6	Sercadis Tilt	6.8fl oz/A 6fl oz/A	3.0b	3.9b	72.355a	77.448a
7	Stratego	10fl oz/A	4.0ab	4.5b	72.495a	77.335a
8	Tilt	6fl oz/A	3.5b	5.0b	72.390a	77.303a
LSD P=.05			1.05	0.09t	1.5182	0.5137
Standard Deviation			0.71	0.06t	1.0323	0.3493
CV			20.17	8.61t	1.43	0.45
Bartlett's X2			1.489	2.761	6.862	8.311
P(Bartlett's X2)			0.983	0.906	0.443	0.306
Replicate F			1.375	2.234	2.702	1.602
Replicate Prob(F)			0.2777	0.1141	0.0715	0.2189
Treatment F			4.848	4.897	0.130	0.780
Treatment Prob(F)			0.0022	0.0021	0.9949	0.6114

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, J.K. Peng, T. Lelis, N. Jungkhun, I. Barphagha, and D.E. Groth

Introduction

Sheath blight and bacterial panicle blight are recurring rice disease problems in the southeastern United States including Louisiana. Even though cultivation of disease-resistant varieties is an effective and economical way to manage these diseases, most of the commercial varieties are susceptible to them, especially in conducive environments. Thus, it is imperative to make continuous efforts to develop new varieties having higher levels of disease resistance along with desirable commercial values. It is also important to develop new or improved methods and agents for management of these diseases.

Application of strobilurin-type fungicides has been the most effective way to manage sheath blight. But, the recent occurrence of fungicide-resistant isolates of the sheath blight pathogen *Rhizoctonia solani* indicates urgent need for new disease management strategies including application of alternative fungicides that have different modes of action and development of new biological or chemical materials that suppress pathogen growth. Development of new effective disease management strategies is even more crucial for bacterial panicle blight caused by the bacterial pathogens *Burkholderia glumae* and *B. gladioli* because there is no registered chemical product available in United States.

The primary goal of this project is to increase rice yield through development of new disease-resistant rice varieties as well as new disease management strategies based on a better understanding of genetic backgrounds underlying rice disease resistance to sheath blight and bacterial panicle blight. The medium-grain variety Jupiter and the long-grain line LM-1 have been used as major genetic sources of disease resistance for this project. Various chemical and biological materials have also been tested as potential disease control agents to develop new disease management strategies for sheath blight and bacterial panicle blight as well as another major rice disease blast.

Progress

Genetic and genomic studies of rice disease resistance. For genetic mapping of quantitative trait loci (QTLs) involved in disease resistance to sheath blight and bacterial panicle blight, four mapping populations composed of recombinant inbred lines (RILs) derived from a pair of disease-susceptible and disease-resistant parental genotypes have been generated. Jupiter (a medium-grain variety) and LM-1 (a mutant line derived from the long-grain variety Lemont) were used as the disease-resistant parents due to their partial resistance to both sheath blight and bacterial panicle blight, while Trenasse (a long-grain variety) and Bengal (a medium-grain variety) were used as disease-susceptible parents.

Until 2015, the four mapping populations derived from the four cross combinations (Trenasse/Jupiter, Trenasse/LM-1, Bengal/Jupiter, and Bengal/LM-1) have been advanced to the F_8 generation with 290 to ~ 300 RILs for each population. Among these four populations, two mapping populations from Trenasse/Jupiter and LM-1/Bengal cross combinations were characterized for the phenotypic traits of their individual RILs in disease resistance to sheath blight and bacterial panicle blight as well as plant height, days to 50% heading, flag leaf size, and panicle length/shape with the RILs at F_5 and F_6 generations. In 2015, RILs of all four mapping populations were grown in the field or greenhouse to obtain the F_9 seeds, which are genetically more homogenous, for further comprehensive genotyping and phenotyping processes in following growing seasons.

Meanwhile, whole genome sequence (WGS) analysis was performed with the WGS data of five rice genomes; Bengal, Jupiter, LM-1, Trenasse, and Lemont (the wild type parent of LM-1) for designing molecular makers and identifying genome sequence variations associated with disease resistance and other agronomic traits. Comparison of the WGS data of the five rice genomes with those of other known rice accessions indicated that the medium-grain varieties (Jupiter and Bengal) and the long-grain varieties (Trenasse and Lemont, as well as its mutant line LM-1) belong to the temperate japonica type and the tropical japonica type, respectively, which is consistent with their breeding pedigrees. As predicted, sequence variations indicated by the number of single nucleotide polymorphisms

(SNPs) were larger in the pairs of different rice types (Bengal vs. Trenasse, and Jupiter vs. Trenasse) than in the pair of a same rice type (Bengal vs. Jupiter) (Table 1). Distribution of SNPs throughout the entire genome at 1 Mb interval was also revealed for each comparing pair in this analysis (Fig. 1). Comparison between Lemont and its disease-resistant mutant line LM-1 revealed more than 680,000 SNPs, indicating that identifying the sequence variations responsible for the disease-resistance traits based solely on WGS comparison is not feasible (Table 2). Nevertheless, this WGS information of specific SNPs between two parental genotypes will be very useful for the future identification of the disease resistance genes if it is combined with the QTL maps to be constructed by our ongoing mapping efforts.

One of the molecular characteristics of Jupiter related to disease resistance is the strong and rapid induction of *BPR1*, a rice gene encoding an NAC-family transcriptional factor, in response to the pathogen of bacterial panicle blight *B. glumae*. It was recently found that this *BPR1* induction phenotype of Jupiter is governed by a single recessive gene, but the correlation of this phenotype and disease resistance was inclusive. Continued research on *BPR1* induction was performed this year to determine if this *BPR1* induction phenotype is specific to Jupiter and related to disease resistance to bacterial panicle blight.

Quantitative reverse transcription (qRT)-PCR was performed to examine the induction of *BPR1* like previous experiments. This year's study clearly revealed that induction of *BPR1* is specific to Jupiter (Fig. 2). *BPR1* induction was not observed in either Bengal (another medium-grain variety) or LM-1 (another disease-resistant line. It should be noted that the sampling times for determining *BPR1* induction in the experiments conducted this year were different from those in the previous experiments for observation of the induction patterns in early time points (0, 6, and 12 hours after pathogen treatment) (Fig. 2).

Interestingly, induction of *BPR1* was observed at 0 hours indicating that the induction occurred within ~30 seconds between the treatment of the pathogen and the sample collection step. *BPR1* induction was also abolished if mutants defective in the production of the phytotoxin, toxoflavin, or other materials known to elicit plant defense systems were treated (Fig. 2). It is also noteworthy that the induced *BPR1* transcripts were completely diminished within at least 6 hours (Fig. 2). To see the correlation of the *BPR1* induction phenotype with disease resistance to bacterial panicle blight, several F_7 RILs from the mapping population derived from Trenasse and Jupiter were tested for their *BPR1* induction phenotypes and disease resistance to bacterial panicle blight. As shown in Fig. 3, the two traits were unrelated to each other. Nevertheless, biological function and process of *BPR1* induction will continue to be studied next year with increased sample sizes and a more comprehensive experimental scheme.

Development of new disease-resistant lines. Fourteen rice lines selected from our multi-year screening procedures for sheath blight resistant lines and 15 sheath blight resistant lines provided by Dr. James Oard were tested in the field along with known susceptible and resistant rice varieties (Fig. 4). In the presence of high disease pressure in the test plot, most of the lines tested showed higher levels of sheath blight resistance than the rice varieties included as checks (Fig. 4). From our screening, INIAP12 and three lines from Dr. Oard's breeding program (14SP10, 14SP69, and 14SP208) showed promising levels of disease resistance to sheath blight (Fig. 4). These lines will be excellent breeding materials for the development of new disease-resistant rice lines and varieties. Meanwhile, 1,500 mutant lines derived from the disease susceptible variety Mermentau were grown in the field as rows, and 100 lines of them were initially screened based on relatively higher tolerance to bacterial panicle blight compared to other mutant lines. These screened mutant lines will be further tested to confirm their enhanced disease resistance to bacterial panicle blight.

Development of new disease management strategies. Chemical and biological agents that had been identified as potential alternative measures for the management of sheath blight and bacterial panicle blight were tested for their efficacy in suppression of disease development, in comparison with fungicides or other materials known to enhance plant defense systems. In the field test for sheath blight, all five antagonistic bacterial agents identified by our research group (RAB6, RAB9, RAB16, RAB17S, and RAB18) moderately suppressed sheath blight development but were less effective than any of the fungicides included in the same field trial (Fig. 5). Another set of bacterial agents (RAB14R, RRB985, and RRB1044) was also tested for efficacy in the suppression of blast along with the fungicide Stratego as a check.

As shown in Fig. 6, moderate suppression of panicle blast in CL151 was observed with the bacterial agents. However, the bacterial agents tested did not show any significant disease suppression activity on leaf blast of CL151 and on both leaf blast and panicle blast of the susceptible line M202 (Fig. 6). Meanwhile, moderate reduction of

bacterial panicle blight symptoms was observed in the rice panicles treated with Axiom® (a commercial bacterial protein product), ascorbic acid, or hydrogen peroxide in a field trial (Fig. 7). Four out of the five bacterial agents included in the field trial (RAB6, RAB9, RAB16, and RAB18) also showed similar levels of moderate disease suppression (Fig. 7). In addition, more than 100 bacterial isolates that show strong antagonistic activities against the bacterial panicle blight pathogen *B. glumae* were newly identified from rice panicles grown in the field. These antagonistic bacteria will be further tested as new potential biological control agents.

Table 1. Number of single nucleotide polymorphisms (SNPs) identified from pairwise comparisons of whole genome sequences (WGS) of the rice varieties Bengal, Jupiter, and Trenasse.

	Jupiter vs. Trenasse	Jupiter vs. Bengal	Trenasse vs. Bengal
Chromosome 1	155,199	100,099	141,033
Chromosome 2	90,748	45,183	85,556
Chromosome 3	192,799	44,731	179,385
Chromosome 4	173,417	117,846	143,115
Chromosome 5	123,230	45,510	137,547
Chromosome 6	145,550	62,332	138,097
Chromosome 7	95,086	52,068	99,307
Chromosome 8	216,367	34,359	216,274
Chromosome 9	167,313	31,846	163,268
Chromosome 10	150,008	51,131	146,134
Chromosome 11	272,063	125,128	246,707
Chromosome 12	190,753	29,083	192,370
Total	**1,972,533**	**739,316**	**1,888,793**

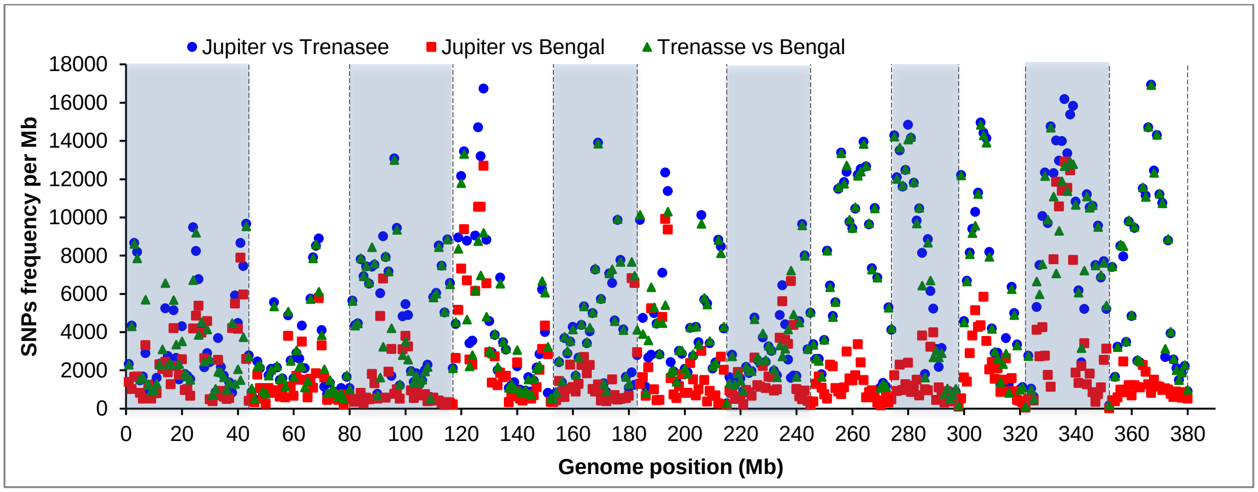

Figure 1. Frequency of SNPs per 1 Mb throughout the entire genome in pairwise comparisons of genome sequence between two varieties. Each segment of genome position indicate chromosome 1 to 12 from the left to right.

Table 2. Number of single nucleotide polymorphisms (SNPs) identified from a pairwise comparison of whole genome sequences (WGS) of Lemont and its disease-resistant mutant line LM-1.

	Lemont vs. LM-1
Chromosome 1	58,363
Chromosome 2	38,230
Chromosome 3	42,496
Chromosome 4	74,948
Chromosome 5	52,990
Chromosome 6	49,527
Chromosome 7	47,094
Chromosome 8	61,629
Chromosome 9	45,371
Chromosome 10	61,421
Chromosome 11	69,728
Chromosome 12	80,483
Total	**682,280**

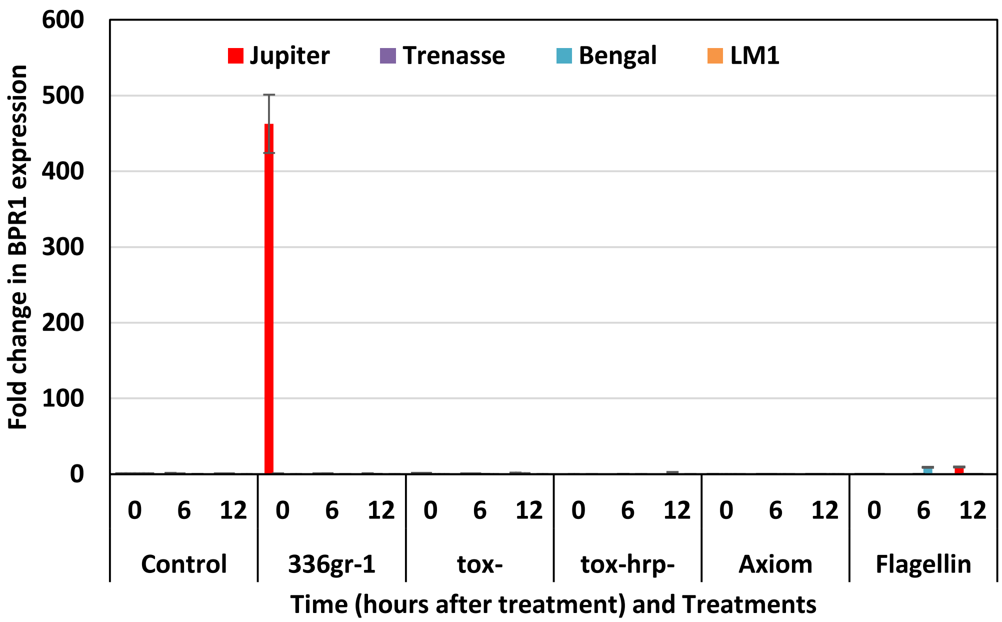

Figure 2. Induction of *BPR1* in Jupiter, Trenasse, Bengal, and LM-1 in response to various treatments. 336gr-1: a virulent strain of the bacterial panicle pathogen, *Burkholderia glumae*. tox-: a toxoflavin-deficient mutant of 336gr-1. tox-/hrp-: a mutant of 336gr-1 deficient in both toxoflavin and a type III secretion system. Axiom: a commercial product of bacterial protein known to activate plant defense systems. Flagellin: a bacterial protein known to activate plant defense systems.

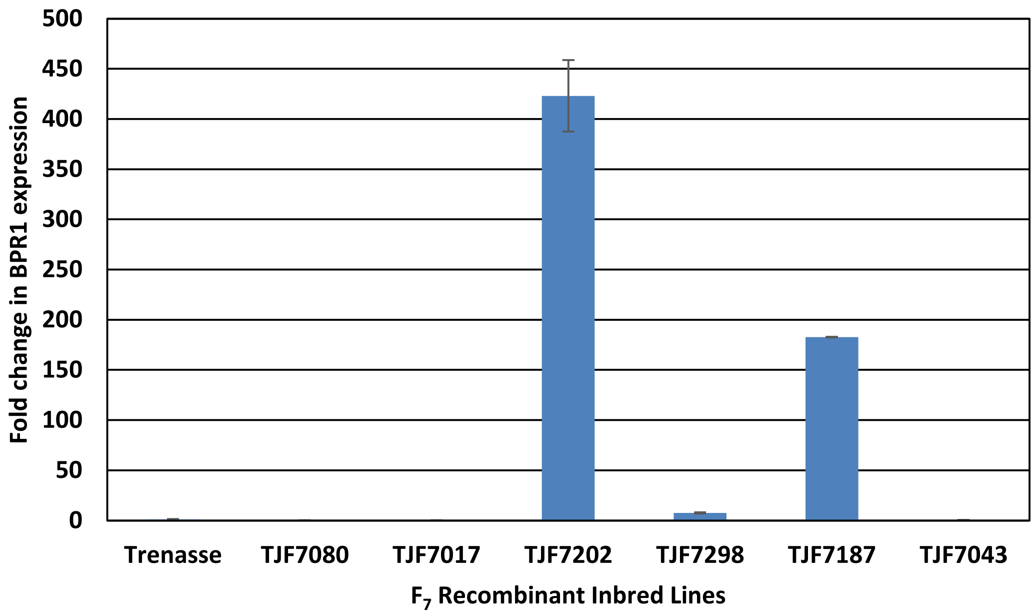

Figure 3. Induction of *BPR1* in selected F_7 recombinant inbred lines (RILs) derived from the cross between Trenasse and Jupiter. *BPR1* induction was determined at 48 hours after pathogen treatment to rice panicles. TJF7017 is a disease-resistant line, while TJF7080, TJF7202, TJF7298, TJF7187, and TJF7043 are susceptible lines.

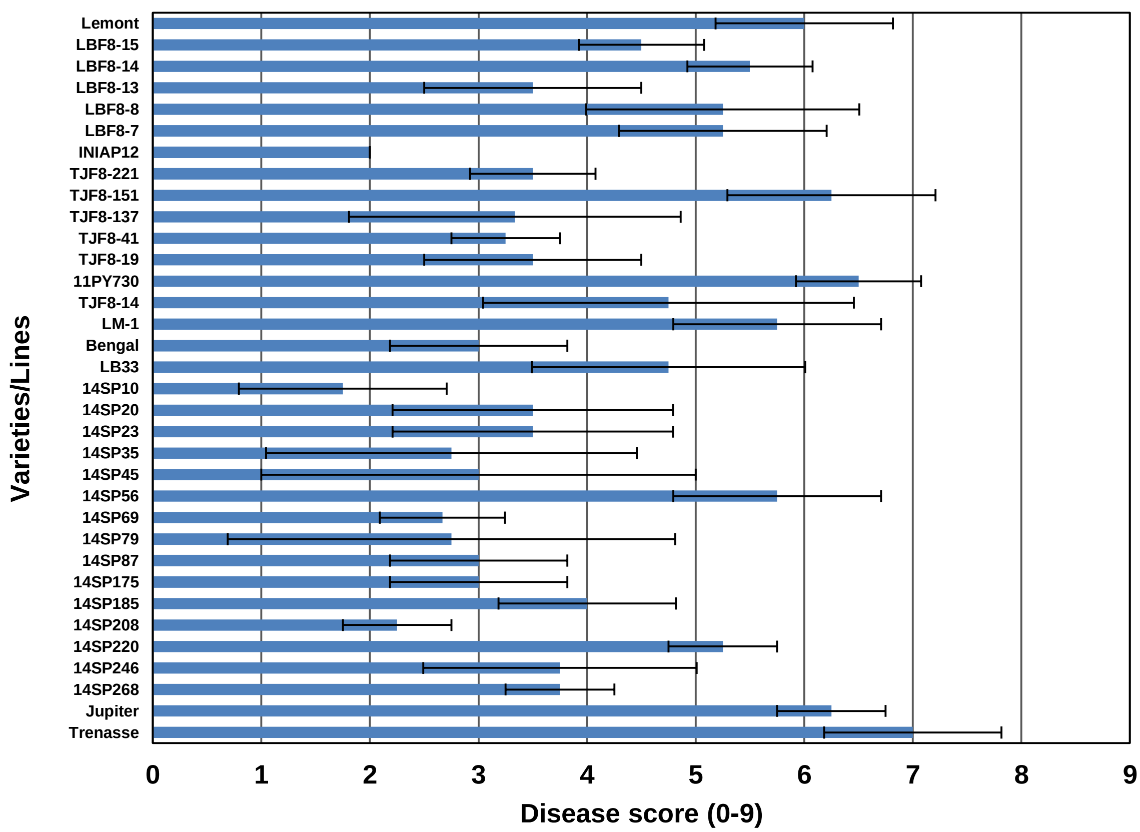

Figure 4. Sheath blight scores of breeding lines in a 0-9 scale.

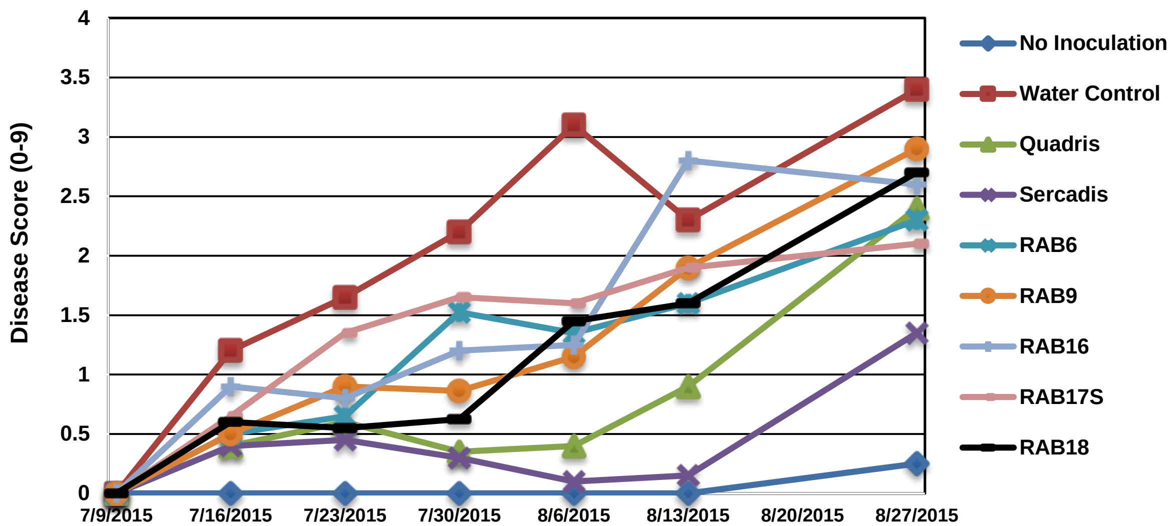

Figure 5. Disease progress of sheath blight in Bengal treated with bacterial agents (RAB6, RAB9, RAB16, RAB17S, and RAB18) and fungicides (Quadris and Sercadis).

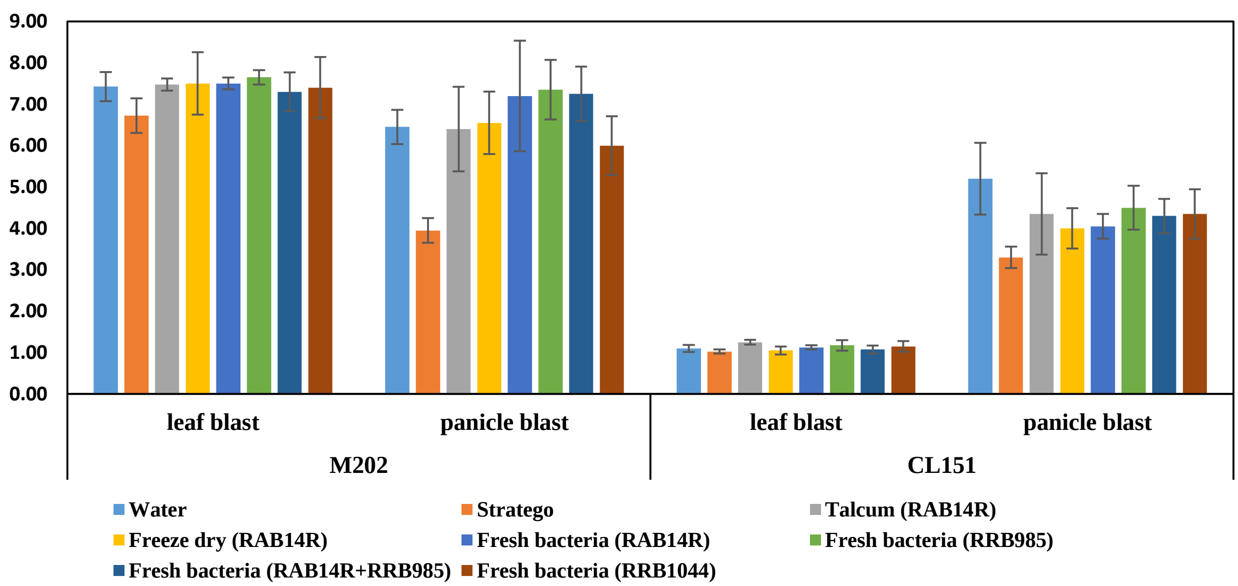

Figure 6. Efficacy of bacterial agents (RAB14R, RRB985, and RRB1044) and the fungicide Stratego in the suppression of leaf blast and panicle blast.

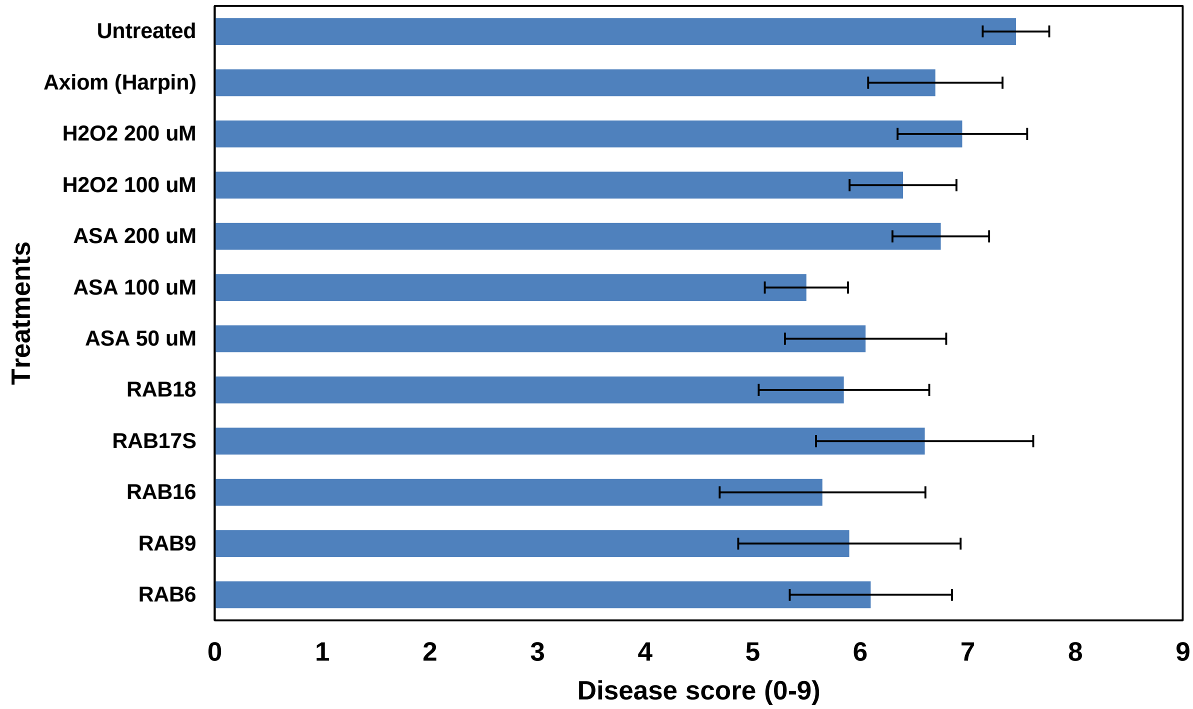

Figure 7. Suppression of bacterial panicle blight by various chemical and biological materials. Axiom®: a commercial product derived from the bacterial protein harpin. H2O2: hydrogen peroxide (H_2O_2). ASA: ascorbic acid. RABs: bacterial strains isolated from rice plants as potential biological control agents.

RICE INSECTS RESEARCH

DETERMINATION OF ACUTE TOXICITY AND RESIDUAL ACTIVITY OF BELAY AGAINST THE RICE WATER WEEVIL

S.K. Lanka, M.J. Frey, and M.J. Stout

Belay, a liquid (SC) formulation of the neonicotinoid insecticide clothianidin, has been registered for use in rice for several years. The primary target for this insecticide is the adult rice water weevil. Prior experiments with this insecticide have shown that applications at label rate (4.5 fl oz/A) reduce populations of rice water weevils as effectively as applications of pyrethroids when applied immediately before flooding or after flooding. The following experiment was conducted to quantify LC_{50} (a measure of acute toxicity) values of clothianidin against the rice water weevil and to compare the residual activity of this insecticide and Karate.

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Variety/Seeding Rate: Cocodrie/60 lb/A

Plot Size: 4.1 ft x 20 ft (7 rows at 7 inch spacing)

Planting Method/Date: Drill seeded, March 25, 2015

Agronomic Practices: Standard for drill-seeded rice

Experimental Narrative: Rice was flooded and in the mid-tillering stage when this experiment was conducted. Individual plots of rice were assigned to each of the six treatments. The treatments consisted of an untreated control, Belay at four rates (1.5, 3.0, 4.5 [label rate], and 6.0 fl oz Belay/A), and Karate (0.04 lb ai/A, within the rate range specified on the label). Rice was treated on June 1, 2015, using a backpack sprayer with 15 gallons of water per acre as a carrier. To determine the acute toxicity and residual activity of insecticides, leaf material was collected from plants in each plot using scissors at three time points: 2 hours post-spray, 24 hours post-spray, and 72 hours post-spray. Leaf material collected at these time points was used for feeding assays with adult rice water weevils and for analyses of foliar clothianidin concentrations. Feeding assays were conducted by placing leaf material into Petri dishes lined with moistened cotton batting and releasing 30-50 adult weevils (field-collected) into each Petri dish. Dishes were kept on a lab bench. Survival of weevils was assessed 48 hours after placing weevils on leaf material. Weevils that exhibited little or no leg movement and were incapable of righting themselves after placing them on their nota for 2 minutes were considered dead. Clothianidin concentrations in foliage were analyzed by the LSU AgCenter Department of Agricultural Chemistry by using an LC-MS-MS method.

An additional experiment was conducted simultaneously to assess direct contact toxicity of Karate and Belay. Field-collected weevils were placed in Petri dishes (40 weevils per dish) with no leaf material and positioned on small stands in rice plots approximately 1.5 ft above the flood. Dishes were then sprayed with water, Belay (4.5 fl oz product/A), or Karate (0.04 lb ai/A). After spraying, the dishes were removed from the stands, transported to the lab, and weevils were provided with fresh, untreated leaf material. Mortality was assessed 48 hours after treatment.

Data Analysis: The relationship between foliar concentration of clothianidin and mortality of adult weevils was determined using data on weevil mortalities in feeding assays on foliage obtained from plots treated with different rates of Belay in conjunction with concentrations of active ingredients estimated in foliage of rice leaves. In the 2-hour post-spray bioassay, a control morality of less than 5% was recorded, and this was used for correcting the mortalities in other treatments by using Abbott's formula. The concentration-mortality relationship was determined for each time point using Proc Probit procedure in SAS (9.4 version).

Results: In the test for direct toxicity, weevils exposed directly to Karate and Belay both showed 100% mortality. Mortality in the controls (sprayed with water) was 12.1%.

The data on clothianidin concentrations and weevil mortality were used to calculate LC_{50} values for Belay against the rice water weevil. LC_{50} values at 2 hours and 24 hours after the application of Belay were between 1.0 and 1.2 ppm (Table 1). The data from the 72-hour post-spray collection showed a poor relationship between concentration and mortality (slope non-significant). The LC_{50} value of 763 ppb from the 72-hour collections was not a reliable estimate (no confidence intervals could be calculated due to non-significant slope).

Table 1. LC_{50} values in ppb for leaf material collected 2 hours, 24 hours, and 72 hours after the application of Belay.

Time Point	**LC_{50} ppb**	**95% Confidence Interval**	**Slope ± SE**
2 hours post-spray	1,191	715-1,708	2.5 ± 0.4
24 hours post-spray	1,092	196-2,321	1.7 ± 0.5
72 hours post-spray	763	n/a	NS

The raw data showing weevil mortality and foliar concentrations at different times and application rates of Belay (Table 2) revealed two important facts:

1. The residual activity of Belay on weevils is superior to that of Karate. This was especially seen on leaf material collected 24 hours after spraying. Weevils placed on leaves sprayed with the label rate of Belay showed over 70% mortality, while weevils placed on leaf material sprayed with a high label rate of Karate showed only 12.5% mortality.

2. Concentrations of clothianidin in the plot treated with the label rate of Belay remained at or above the LC_{50} value even at 72 hours after spraying (At 72 hours, the foliar concentration of clothianidin in the 4.5 fl oz treatment was 1.39 ppm).

Table 2. Raw data showing clothianidin concentrations and weevil mortality data from leaves collected at 2 hours, 24 hours, and 72 hours after Belay and Karate applications.

	Foliar concentration of clothianidin (ppm) in leaf material collected at:			**48-hour mortality (%) of weevils on leaf material collected at:**		
Treatment	2 hours	24 hours	72 hours	2 hours	24 hours	72 hours
Control	ND	ND	ND	4.8	0	0
Karate	ND	ND	ND	77.5	12.5	42.8
1.5 fl oz Belay	0.22	0.21	0.041	12.9	20.5	0
3.0 fl oz Belay	1.56	1.97	1.15	63.3	48.8	43.2
4.5 fl oz Belay	3.84	3.16	1.39	84	72.9	47.7
6.0 fl oz Belay	5.52	3.39	1.5	79	72.9	62.2

Conclusions: Belay shows both direct (contact) toxicity and superior residual activity against the rice water weevil.

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 H. Rouse Caffey Rice Research Station (RRS), Northeast Research Station (NERS), and producer fields in Louisiana in 2015. A total of 85 studies were conducted with a total of 852 treatments and 3,381 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.

The active ingredient in Provisia is quizalofop, and the herbicide is only active on grasses. Sixteen studies were conducted at the RRS and one study at the NERS. A trial was conducted to evaluate Provisia mixed with herbicides with contact activity, and a trial to evaluate Provisia mixed with herbicides with ALS activity. In the contact trial, Provisia activity was reduced for barnyardgrass control when mixed with propanil. At 21 days after treatment (DAT), barnyardgrass control decreased from 86% with Provisia applied alone to 25% control when Provisia was mixed with propanil. Similar results were observed with control of CL111, CLXL745, Mermentau, and red rice. When Provisia was mixed with Grasp, Grasp Xtra, Permit, Halomax, Regiment, Strada Pro, Strada XT, League, and Londax, antagonism occurred with all combinations. Provisia applied alone controlled barnyardgrass 95% at 24 DAT. Control of barnyardgrass decreased to 80 to 84% when Provisia was mixed with Permit, Halomax, Strada Pro, League, and Londax. Severe antagonism of Provisia occurred for barnyardgrass control when Provisia was mixed with Grasp (50%), Grasp Xtra (39%), Regiment (46%), and Strada XT (74%). Another study evaluated the application of Provisia at 7, 3, 1, and 0 days prior to a RiceBeaux application or followed by Provisia at 1, 3, and 7 days after a RiceBeaux application. At 18 DAT, no antagonism was observed for barnyardgrass control with Provisia applied prior to RiceBeaux; however, when applied after a RiceBeaux application, control decreased 6 to 16%. When Provisia was mixed with RiceBeaux at 0 days, antagonism was severe with a 46% reduction in barnyardgrass control compared with 89% control from Provisia applied alone.

Management and Competition of Nealley's Sprangletop.

Clincher and RiceStar HT were evaluated on a grower location for control of Nealley's sprangletop. Clincher was applied at 13, 15, and 20 oz/A, and RiceStar HT was applied at 13, 17, and 24 oz/A at a pre-flood and post-flood timing. RiceStar HT was more consistent than Clincher regardless of rate. The pre-flood application was made 10 days prior to the post-flood timing, and Clincher performed slightly better at the earlier application. This increased control with the pre-flood timing was probably due to smaller Nealley's sprangletop at the earlier timing. In a similar study, Clincher at 20 oz/A controlled Nealley's sprangletop 85% at 21 DAT compared with RiceStar HT with 92% control. In a competition study, Nealley's sprangletop was established at a density of 1, 3, 7, 13, or 26 plants/yd^2. Rough rice yield was reduced 2 to 4% 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. The 4-year study evaluated five rotations including the use of Provisia rice in 2014 and 2015. The rotations used were: 1) Roundup Ready® (RR) soybean (2013)/Provisia rice (2014)/RR soybean (2015)/Clearfield (CL) hybrid rice (2016); 2) Fallow (2013)/Provisia rice (2014)/RR soybean (2015)/CL hybrid rice (2016); 3) CL hybrid rice (2013)/Liberty Link (LL) soybean (2014)/Provisia rice (2015)/CL hybrid rice (2016); 4) RR soybean (2013)/LL soybean (2014)/RR soybean (2015)/CL hybrid rice (2016); 5) RR soybean/CL hybrid rice (2014)/RR soybean (2015)/CL hybrid (2016). In 2014, the second year of the study, Provisia proved to be very active on weedy rice by reducing weedy rice plants to manageable levels. Provisia rice was planted in 2015, and this particular rotation scheme included Clearfield CLXL745 in 2013 and LL soybean in 2014. At the end of the growing season in 2014, there were 10,526 weedy rice

plants/A, and by rotating to Provisia rice in 2015, weedy rice plants were not observed at the end of the growing season.

Evaluation of Experimental Herbicide – benzobicyclon (GWN 10235).

This project continues to evaluate several experimental herbicides. Benzobicyclon has a great deal of potential for use on aquatic weeds. It is an excellent herbicide for control of ducksalad. In 2015, a study was conducted to evaluate weed control with benzobicyclon with no rice growing in the research area. The lack of rice interference caused a large population of ducksalad. At 48 DAT, each plot area was hand harvested and fresh weight was determined for ducksalad. The plot area consisted of a 3 ft diameter by 1 ft tall galvanized ring. The ring was used to help contain the herbicide within the ring in order to limit dilution of the herbicide when applied under permanent flood conditions. Benzobicyclon was applied at 1, 2.1, 4.2, 6.3, 8.4, 16.9, 25.3, 33.7, and 42 oz/A. Ducksalad fresh weight ranged from 3 to 6,385 g/plot. The target rate of benzobicyclon is 8.4 oz/A, and ducksalad fresh weight was reduced by 80% when treated with the 8.4 oz/A rate compared with nontreated ducksalad. Benzobicyclon has excellent activity on many broadleaf weeds and troublesome aquatic weed, but one weed that takes advantage of reduced ducksalad population in a benzobicyclon treated area is false pimpernel.

Evaluation of Herbicides Applied as a Salvage Treatment.

Control of hemp sesbania, Indian jointvetch, and rice flatsedge can be controlled when treated late in the season with a salvage application of Permit, Halomax, and Permit Plus. However, there are slight yield reductions when using Permit Plus as a salvage treatment. Data indicates the addition of thifensulfuron to Permit may slightly delay or slow the maturity of treated rice. Little to no difference is observed in the control of late season weed pressure with our without the addition of thifensulfuron; therefore, due to the delay in maturity and possible yield loss, Permit Plus should be avoided as a salvage treatment.

This is a summary of the research that was conducted in 2015. To see the complete weed management annual report, please go to:

http://cms.lsuagcenter.net/MCMS/RelatedFiles/%7B9CF8B5B7-6472-4816-A2E6-B5F272939C94%7D/2015-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, 2014-2015 season, crawfish research project, H. Rouse Caffey Rice Research Station (RRS), 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 at the RRS.

Pond History: Pond was fallow for a period of 10 months following the previous crawfish season of 2012-2013.

Pond Area: 14.0 A

Soil Type: Midland silty clay loam

Water Source: Ground water

Forage Crops: Rice variety 'Catahoula' was drill-seeded on April 15, 2014 at 73 lb/A. Grain was harvested by a rice combine on Sept. 4, 2014, and a ratoon forage crop was managed for crawfish production.

Fertilizer: <u>Main Crop</u>: 8-24-24 at 250 lb/A post plant application, 46-0-0 at 200 lb/A June 4, 2014. No additional fertilization after rice harvest.

Herbicide: RiceBeaux at 1 gal/A + Permit at 1.0 oz/A as tank mix on May 19, 2014; Ricestar HT 24 oz/A + 1% Crop Oil on June 4, 2014.

Insecticide: None

Fungicide: None

Crawfish Stocking Rate: 62.1 lb/A from May 26 to June 9, 2014.

Permanent Flood Date: Oct. 13, 2014

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, Louisiana) 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: Jan. 9 - June 30, 2015 (1,330 total trap-sets/A)

Fields Drained: June 30, 2015

Table 1. Annual environmental conditions and crawfish production (averaged or totaled weekly). H. Rouse Caffey Rice Research Station, Crowley, LA, 2014-2015.

Weeks (2014 - 2015)	Avg. Air Temp. Min.	Avg. Air Temp. Max.	Avg. Water Temp. Min.	Avg. Water Temp. Max.	Total Rainfall	Total Crawfish Harvest	Total Trap Sets	Avg. Count/lb
	--------------deg. F-------------				(inches)	(lb/A)	(#/A)	
June 1-7	72.3	86.3			.52			
June 8-14	71.6	87.9			3.90			
June 15-21	72.9	89.7			.26			
June 22-28	73.7	87.9			1.80			
June 29-July 5	72.6	89.7						
July 6-12	71.4	91.1			.30			
July 13-19	71.3	87.3			7.90			
July 20-26	73.4	88.6			1.37			
July 27-Aug. 2	73.0	89.3			.74			
Aug. 3-9	74.0	89.7			1.65			
Aug. 10-16	70.9	89.1			2.65			
Aug. 17-23	72.9	91.1			1.34			
Aug. 24-30	74.3	90.1			2.10			
Aug. 31-Sept. 6	73.7	89.3			1.55			
Sept. 7-13	71.9	88.7			3.54			
Sept. 14-20	70.3	84.9			.53			
Sept. 21-27	64.4	84.7						
Sept. 28-Oct. 4	68.6	84.7			2.04			
Oct. 5-11	63.6	82.9			.92			
Oct. 12-18	59.9	82.9			1.15			
Oct. 19-25	53.1	77.7	64.7	76.5				
Oct. 26-Nov. 1	51.4	80.3	64.4	74.0				
Nov. 2-8	49.0	69.4	59.8	68.1	2.45			
Nov. 9-15	42.0	61.3	53.9	61.9	.36			
Nov. 16-22	39.6	65.7	50.4	59.3	1.35			
Nov. 23-29	44.3	63.6	54.9	62.3	1.25			
Nov. 30-Dec 6	53.3	73.4	61.9	68.5				
Dec. 7-13	42.7	65.6	54.3	62.4				
Dec. 14-20	47.0	66.6	56.4	61.9	.44			
Dec. 21-27	44.3	59.9	53.4	58.8	1.97			
Dec. 28-Jan 3	43.4	58.1	51.1	55.9	.86			
Jan. 4-10	32.0	51.7	45.3	50.2	2.75	3.32	28.0	.
Jan. 11-17	35.4	49.1	44.4	48.9	1.40	9.36	42.0	29.7
Jan. 18-24	40.4	62.6	50.1	56.7	1.75	5.32	28.0	27.3
Jan. 25-31	42.0	66.4	51.2	58.9		9.76	49.0	26.3
Feb. 1-7	36.7	57.4	49.1	56.6	1.02	15.24	56.0	25.9
Feb. 8-14	42.6	67.0	54.4	63.9		12.84	37.5	24.9
Feb. 15-21	38.9	60.7	50.4	58.1	.96	30.87	62.0	26.1
Feb. 22-28	38.3	51.3	46.3	54.3	.94	52.15	60.6	29.7
March 1-7	42.9	65.4	52.3	64.3	.87	41.71	38.5	27.7
March 8-14	53.9	68.7	60.6	66.3	2.55	56.44	73.9	22.9
March 15-21	62.0	80.0	70.9	79.3		13.50	28.0	.
March 22-28	54.6	74.9	65.1	76.8	.52	54.89	70.0	21.9
March 29-April 4	61.4	81.1	69.1	79.3		48.61	56.0	23.0
April 5-11	64.0	78.7	70.2	79.0	2.51	72.95	70.0	21.2
April 12-18	66.3	78.3	72.4	79.1	6.81	91.61	70.0	22.1

Continued.

Table 1. Continued.

Weeks (2015)	Avg. Air Temp. Min.	Avg. Air Temp. Max.	Avg. Water Temp. Min.	Avg. Water Temp. Max.	Total Rainfall	Total Crawfish Harvest	Total Trap Sets	Avg. Count/lb
	-------------deg. F------------				(inches)	(lb/A)	(#/A)	
April 19-25	65.0	81.4	73.1	82.1	.12	129.29	79.0	24.7
April 26-May 2	59.4	76.4	68.9	78.2	2.76	109.62	75.6	27.1
May 3-9	66.6	83.3	74.3	84.8		72.39	70.0	32.7
May 10-16	69.4	84.7	75.5	84.1	1.99	65.49	42.0	33.7
May 17-23	68.7	84.1	76.9	87.0	1.67	41.08	28.0	32.8
May 24-30	68.6	85.3	77.7	88.8	3.14	30.77	28.0	35.3
May 31-June 6	69.7	86.7	81.4	94.0	1.30	55.26	56.0	37.1
June 7-13	73.8	87.9	82.0	92.6	4.31	35.82	56.0	.
June 14-20	75.3	87.3	81.4	90.9	1.52	32.96	56.0	.
June 21-27	74.7	90.2	83.5	94.7	.80	52.22	56.0	30.0
June 28-30	73.7	88.1	79.7	89.3	2.81	5.12	14.0	.
Yearly Total					**74.70[1]**	**1,148.59**	**1,330.1**	

[1] Rainfall total is for one year only (June 1, 2014 - May 31, 2015) and does not include additional rainfall for the extended harvest period (June 2015).

EFFECT OF CRAWFISH DENSITY ON SIZE DISTRIBUTION AT HARVEST: YEAR 2

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 2-year 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 this 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. 25, 2014 at 120 lb/A. Fertilizer (8-25-14) was applied at 250 lb/A prior to planting, and 45-0-0 was applied at 200 lb/A as a topdress on Sept. 23, 2014. A tank mix of herbicides (RiceBeaux, Basagran, Londax, Permit, and Clincher) was applied at recommended rates on Sept. 8, 2014, and Grasp Extra (with crop oil) was applied at 20 oz/A on Sept. 19, 2014. The insecticide Karate (at 10 ml/gal) was applied as a mist application for armyworm control on Sept. 2 and on Oct. 1, 2014. A permanent flood was established on Oct. 6, 2014.

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 14 inches (35.6 centimeters) deep throughout the crawfish growth trials.

Crawfish: Stocker crawfish were red swamp (*Procambarus clarkii*) hatchlings, obtained by capturing females in berry. Broods from six berried females at each stocking were pooled, and hatchlings were randomly assigned to tanks at the predetermined stocking densities. Average weight of hatchlings stocked was 1.14 mg.

Experimental Design: A 2 x 2 factorial design with three replicated mesocosms per treatment combination.

Experimental Treatments: Stocking date was one treatment factor, with an early (Nov. 11, 2014) and late (March 2, 2015) 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. 11, 2014. Late stocking = March 2, 2015.

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 4 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 hours) 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 a given stocking date was mature or when average crawfish captured reached 25 g, the trial relating to that stocking date was terminated and all crawfish were retrieved.

Study Termination: Early stocking treatments were terminated on May 5, 2015. Late stocking treatments were terminated on June 2, 2015. 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: In this study, crawfish recruitment was simulated to represent an early (November) or late (March) recruitment period by stocking hatchling crawfish in outdoor tanks (mesocosms) managed to simulate the natural environment of a typical rice-field crawfish pond. Newly hatched crawfish averaging 1.14 mg were stocked at either 4 or 12 crawfish/m^2 bottom surface area in the fall and early spring (Table 1). These experimental treatments represented a 2 x 2 factorial design with either early or late recruitment and either relatively low or moderately high crawfish densities. Crawfish populations were sampled by baited traps (Table 2). When sampling revealed a maturity rate of 50% or greater or average weight of 25 g by date of stocking, then all pools for that date of stocking were drained and all surviving crawfish recovered. The results are summarized in Tables 3-5.

It should be noted that crawfish survival/retrieval was exceptionally low (less than 36%) in two of the 12 tanks (one late/low and one early/high treatment reps); therefore, because of the high correlation of density on other parameters, data for those reps were omitted from treatment averages even though outcomes for those tanks are reported for comparison.

Mean growth response for each replication of treatment combinations are presented in Table 3. 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 (Table 1) 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 and corroborated by previous 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 dates 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 crawfish/lb. On average, 37% of the crawfish in the high density groups did not reach 15 g. Ten percent were below 10 g or 45 crawfish/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 inch) 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-hour soak durations as in commercial situations. While trap density varies from about 10 to 25 traps/A in commercial crawfish ponds, the use of 3 traps per tank in this study equated to 1,156 traps/A. After three consecutive days of harvests (3,468 total trap lifts/A), it is interesting to learn that only 81 to 94% of the surviving populations was recovered by traps (Table 4). 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 5 provides an overall summary of response variables by treatment combination.

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. 10, 2014	42	3	176	3,042
Early / High	Nov. 10, 2014	126	3	176	3,042
Late / Low	March 2, 2015	42	3	92	2,903
Late / High	March 2, 2015	126	3	92	2,903

Table 2. Results of sampling efforts to determine maturity status and average weight by stocking date. Threshold for terminating growth trials was 25.0 g average weight of captured individuals or approximately 50% maturity.

Stocking Date	Sampling Date	Days After Stocking	Sampling Traps	Avg. Weight (g)	% Mature	Termination Began
Nov. 10, 2014	April 8, 2015	149	Large-mesh	14.9	0	May 5, 2015
	April 29, 2015	170	Large-mesh	24.4	22.8	
	May 5, 2015	176	Large-mesh	26.0	36.6	
March 2, 2015	May 19, 2015	78	Large-mesh	17.8	22.9	June 2, 2015
	May 26, 2015	85	Large-mesh	21.6	47.8	

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	% Survival	Avg. Ind. Wt. (g)	Min. - Max Wt. (g)	% Mature	% Females	% Runts (< 15 g)
Early / Low	50.0	29.3	11.1 – 52.2	28.6	57.1	4.8
Early / Low	64.3	33.4	10.2 – 66.5	44.4	33.3	3.7
Early / Low	83.3	31.6	17.6 – 54.3	35.3	44.1	0
Avg.	***65.9***	***31.4***		***36.1***	***44.8***	***2.8***
Early / High	61.1	15.8	7.5 – 36.9	11.7	53.2	59.7
Early / High	32.5	31.1	13.9 – 62.4	53.7	41.5	2.4
Early / High	47.6	23.2	9.5 – 42.5	30.0	45.0	26.7
Avg.[1]	***54.4***	***19.5***		***20.9***	***49.1***	***43.2***
Late / Low	35.7	14.3	9.7 – 23.4	40.0	46.7	60.0
Late / Low	71.4	27.0	15.2 – 45.5	56.7	50.0	0
Late / Low	59.5	29.1	12.9 – 46.4	84.0	52.0	4
Avg.[1]	***65.5***	***28.1***		***70.4***	***51.0***	***2.0***
Late / High	43.7	19.9	8.8 – 36.4	52.7	52.7	27.3
Late / High	41.3	16.3	8.3 – 29.7	23.1	38.5	44.2
Late / High	50.8	22.2	7.9 – 43.6	50.0	48.4	23.4
Avg.	***45.3***	***19.5***		***41.9***	***46.5***	***31.6***

[1] Data for shaded reps (one each in the Early/High and Late/Low treatment combinations) were not used to determine treatment averages due to exceptionally low survival rates.

Table 4. Harvest statistics for crawfish retrieved at termination of growth trials.

Treatment	Stocking Date	Stocking Rate	Total Retrieved	% Survival	% Retrieval by Harvest
Early / Low	Nov. 10, 2014	42	21	50.0	90.5
Early / Low	Nov. 10, 2014	42	27	64.3	96.3
Early / Low	Nov. 10, 2014	42	34	83.3	85.3
Avg.			***27.3***	***65.9***	***90.7***
Early / High	Nov. 10, 2014	126	77	61.1	92.2
Early / High	Nov. 10, 2014	126	41	32.5	85.4
Early / High	Nov.10, 2014	126	60	47.6	95.0
Avg.[1]			***68.5***	***54.4***	***93.6***
Late / Low	March 2, 2015	42	15	35.7	73.3
Late / Low	March 2, 2015	42	30	71.4	86.7
Late / Low	March 2, 2015	42	25	59.5	84.0
Avg.[1]			***27.5***	***65.5***	***85.4***
Late / High	March 2, 2015	126	55	43.7	78.2
Late / High	March 2, 2015	126	52	41.3	84.6
Late / High	March 2, 2015	126	64	50.8	79.7
Avg.			***57.0***	***45.2***	***80.8***

1 Data for shaded reps (one each in the Early/High and Late/Low treatment combinations) were not used to determine treatment averages due to exceptionally low survival rates.

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	2.6	176	3,042	65.9	31.0	36.6	2.8
Early / High[1]	12	5.6	176	3,042	54.4	19.5	20.9	43.2
Late / Low[1]	4	2.6	92	2,903	65.5	28.1	70.4	2.0
Late / High	12	5.4	92	2,903	45.2	19.5	41.9	31.6

1 Data for one rep each in the Early/High and Late/Low treatment combinations were not used to determine treatment averages due to exceptionally low survival rates.

COMPARISON OF POTENTIAL ATTRACTANT FORMULATIONS IN AN ALGINATE-BASED BAIT BLOCK FOR COOL-WATER CRAWFISH HARVESTS

W.R. McClain and J.J. Sonnier

INTRODUCTION

Cut fresh or frozen fish is the bait of choice for harvesting crawfish during cooler water temperatures. This is not due to initial cost savings, because fish baits cost approximately twice that of formulated baits, and not due to convenience, because fish requires refrigerated transport and storage and usually requires cutting into smaller portions – a labor intensive and unpleasant job. However, the catch with cut fish is far superior to commercially formulated crawfish baits at the cooler water temperatures and is much more cost effective. Fish baits though are frequently in short supply, and costs continue to increase.

Several recent studies have been undertaken by this lab to evaluate potential attractants and formulations in an attempt to identify suitable alternatives to cut fish for capturing crawfish at water temperatures below 70°F, the threshold at which formulated baits tend to lose their efficacy. Previous research utilized a gelatin formulation in which various dry or wet ingredients or substances were mixed. Upon setting (hardening), the gelatin-based matrix formed a bait block that could be used in conventional traps to test the efficacy of the ingredients as crawfish bait. Trap catch data was utilized to compare the effectiveness of the different test ingredients.

Though differences in catch resulted among the different bait treatments, no experimental attractant or formulation equaled or exceeded the average catch rate of cut fish. It was determined that the gelatin-based medium could have possibly captured and bound up much of the attractant preventing complete and consistent release of the attractants during the extended (24-hour) soak duration. Therefore, the objective of this study was to re-evaluate some of the test attractants in a different medium.

A proprietary formulation of an alginate-based medium was chosen for these preliminary trials because of the natural tendency for it to break down in water over time (releasing attractants). Yet, it proved firm enough in limited pre-trial evaluations to withstand typical grazing pressure from crawfish inside the trap. In addition, dry test ingredients (i.e., experimental attractant treatments) are easily mixed and incorporated into this medium prior to the addition of water and hardening of the matrix. Therefore, various potential attractants, some of which appeared promising from earlier research trials with a gelatin-based matrix, was re-evaluated in the alginate-based medium.

Test Site and Production Scenario: An experimental crawfish pond at the H. Rouse Caffey Rice Research Station, Crowley, Louisiana, that was managed to simulate a typical rice-crawfish field rotational production system. Crawfish population density in this pond was relatively high resulting in high yields and relatively small crawfish, but consistent with commercial ponds exhibiting similar densities.

Trap Type: Industry standard 3-funnel pyramid traps constructed of 0.75-inch coated square mesh wire, each fitted with a bait well of 0.75-inch plastic hexagon mesh centered in the trap and extending above the water line. Bait wells were used to position the bait in the center of the trap to insure uniform consistency of protocol, especially important when working with limited numbers of replications.

Baits: Experimental baits consisted of various ingredients alone or in combination that were contained in a proprietary (LSU, Baton Rouge, Louisiana) alginate medium, which formed a semi-harden bait block upon setting. Control baits or checks consisted of cut pogy (menhaden) and a commercially available pelleted bait (Southern Pride, Purina Mills, Shreveport, Louisiana). Traps without bait were also used as a negative control treatment.

Bait Quantity: Experimental bait blocks weighed 180 g or approximately 0.4 lb wet weight per tap. Dry weight of total attractant ingredients per bait block was approximately 25 g. Commercial baits or controls (cut fish or pelleted baits) weighted approximately 115 g or 1/4 lb per trap. In all cases, some residual pieces of bait were present in the trap after each 24-hour soak. Fresh bait was used daily.

Trap Soak Duration: Approximately 24 hours.

Dates: Trial 1 = Feb. 19- 20, 2015. Trial 2 = Feb. 25- 27, 2015.

Water Temperature: Average daily water temperature was derived from data recorded by a temperature data logger every 4 hours between harvesting episodes.

Experimental Design: Traps were placed in a designated trapping lane and spaced at approximately 50-ft intervals. Each trap was randomly assigned a bait treatment. Bait treatment per trap remained consistent over consecutive days of baiting to minimize attractant contamination in the immediate vicinity of the trap.

Replicates: A single trap-set or soak constituted a replicate for each bait treatment, and replications were achieved over at least two days of trapping.

Parameters: Crawfish catch per unit effort by numbers of crawfish and weight of crawfish per trap; average weight of individual crawfish. To facilitate comparisons among trials for experimental baits, crawfish catch results were also expressed as a percentage of the catch with cut fish (the common control treatment in this and previous trials).

Support: Supported by Hatch funds, U.S. Department of Agriculture, National Institute of Food and Agriculture.

Comments: Crawfish catch results are presented in Table 1. Although there were a limited number of replications per treatment in trial 1, significant differences were observed – especially between cut fish and the other formulated baits, including Southern Pride. No significant differences were observed among baits containing feather meal, with or without supplemental amino acids. Crawfish catch from non-baited traps were similar to traps containing feather meal as well as those with Southern Pride. Bait blocks containing krill meal (with an amino acid premix) resulted in slightly higher crawfish yields, but only accounted for approximately half of the catch with cut fish.

Greater differences among the experimental baits were observed in trial 2; however, no formulated bait resulted in a catch of more than about 50% of that with cut fish. The best catch from any of the formulated baits was with a mixture of poultry meal, squid meal, and krill meal with an amino acid premix at 3%, yet this was still far inferior to cut fish. This formulation yielded only about half as many crawfish as cut fish at the temperatures tested. The substitution of part of the poultry meal with squid and krill meal resulted in a significantly greater yield than poultry meal alone (with and without the amino acid premix). This suggests that with the right combination of the right ingredients, the catch per unit effort might possibly be increased further when compared to the industry standard (cut fish). Therefore, further research with other ingredients alone and in combination is needed.

The protocol of testing various ingredients (at least dry ingredients) in the alginate-based medium appears to be a suitable protocol for evaluating potential attractants and formulations as crawfish bait attractants. From these (and other preliminary) trials, it is obvious that the integrity of the alginate matrix is suitable for 24-hour soak duration at cool water temperatures. Some residual material of the bait blocks were present in all traps after each 24-hour soak. There was a gradual breakdown (thus leaching of attractants) of the bait blocks. Yet, at the nominal quantities used, with obvious crawfish grazing pressure, sufficient material was present throughout each 24-hour soak to continuously provide attraction.

It was also possible to pick up apparent subtle differences due to attractant quality using the alginate matrix with sufficient replications under this protocol. Several significant differences were observed with the different attractants/formulations. This provides confidence in being able to discern slight differences among various ingredients and/or formulations in future trials. Therefore, further research is needed to investigate other potential attractants/formulations as alternatives to cut fish for crawfish 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 experimental bait treatments by trial. Values within columns, by trial, with the same superscript were not significantly different (P>0.05). ***NS*** indicates no significant differences among treatments within a trial.

Test Ingredients	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
Trial 1 (4 reps) – Average Daily Water Temperature ranged from 50.4 to 51.5°F					
No Bait	8.3^{C}	0.29^{C}	15.8	25.5	21.2
Southern Pride	10.8^{BC}	0.44^{BC}	18.2	33.2	32.1
Feather Meal[1]	10.3^{C}	0.41^{C}	18.0	31.7	29.9
Feather Meal + Taurine[1]	11.0^{BC}	0.48^{BC}	17.6	33.8	35.0
Feather Meal + Glycine[1]	13.3^{BC}	0.53^{BC}	17.9	40.9	38.7
Feather Meal + Alanine & Taurine[1]	7.5^{C}	0.31^{C}	19.1	23.1	22.6
Krill Meal + AA Premix[1]	18.3^{B}	0.78^{B}	19.5	56.3	56.9
Cut Fish	32.5^{A}	1.37^{A}	19.2	-	-
			NS		
Trial 2 (12 reps) – Average Daily Water Temperature ranged from 44.4 to 46.7°F					
No Bait	3.8^{E}	0.13^{E}	15.8^{AB}	10.3	8.6
Southern Pride	5.2^{DE}	0.17^{DE}	14.6^{B}	14.1	11.3
Ground Southern Pride[1]	3.7^{E}	0.14^{E}	18.6^{A}	10.1	9.3
Soybean Meal + Soy Protein Concentrate[1]	3.3^{E}	0.12^{E}	15.6^{AB}	9.0	7.9
Poultry Meal[1]	10.4^{CD}	0.41^{CD}	17.2^{AB}	28.3	27.2
Poultry Meal + AA Premix[1]	11.4^{C}	0.43^{C}	17.2^{AB}	31.0	28.5
Fish Hydrolysate + Fish Meal[1]	13.3^{C}	0.53^{BC}	17.9^{A}	36.1	35.1
Poultry + Squid + Krill Meal + AA Premix[1]	19.9^{B}	0.77^{B}	17.2^{AB}	54.1	51.0
Cut Fish	36.8^{A}	1.51^{A}	18.4^{A}	-	-

[1] Test Ingredients were incorporated into an alginate matrix, which formed a semi-solid bait block upon setting.

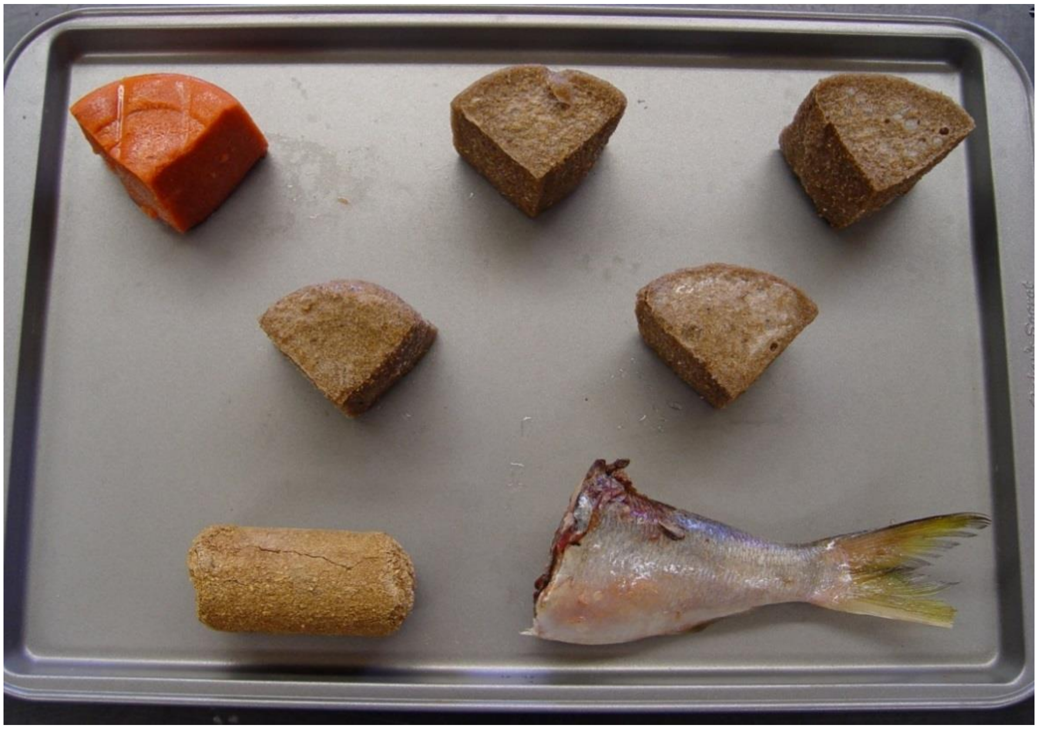

Figure 1. Industry standard baits (cut fish and Southern Pride) and alginate-based bait blocks used for trial 1.

Figure 2. Industry standard baits (cut fish and Southern Pride) and alginate-based bait blocks used for trial 2.

INVESTIGATION OF A PROPRIETARY FORMULATION AND INDIVIDUAL INGREDIENTS AS POTENTIAL ATTRACTANTS FOR CRAWFISH

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish are harvested in more than 225,000 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 when water temperatures are below about 70°F. 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, fish baits have become problematic for the crawfish industry. Moreover, fish baits are also problematical because, unlike formulated pelleted baits, fish baits require transport and storage in a frozen state and require cutting into more suitable sizes in most cases. 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.

Until recently, limited 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 attractant efficacy trials outside of this research unit were conducted at water temperatures greater than 70°F. Development of an effective testing protocol for assessing potential attractants has also been a challenge.

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 only reliable method for testing potential baits and attractants for their effectiveness in attracting crawfish to traps has been to employ those baits in standard industry traps under conventional crawfish aquaculture environments. Even this is challenging because crawfish traps are relatively inefficient at holding crawfish once they enter the trap. Therefore, developments of a suitable attractant or bait must take into consideration the ability of the bait to both attract and retain crawfish inside the trap upon entering.

Recent research has focused on evaluating various dry or semi-most feedstuffs, singularly or in combination, as potential attractants when contained in a common base or matrix. Those research efforts were carried out *in situ* by employing industry standard traps in producing ponds under typical commercial cool-water conditions. Although optimal efficacy may have been limited by the bait matrix or medium used, several attractants tested showed promise, and one formulation was further tested in this study.

One component of this study (objective 1) was to evaluate the effectiveness of the proprietary bait formulation by comparing crawfish catch with industry standard baits – cut fish and formulated pelleted baits. This test was conducted under both cool- and warm-water conditions. In addition, another component of the study (objective 2) involved re-evaluation of potential attractants using an improved formulation of the base bait matrix/medium under cool-water conditions. The improved matrix allowed for more effective and consistent release of attractant at the cooler water temperatures.

Test Site and Production Scenario: An experimental crawfish pond at the H. Rouse Caffey Rice Research Station, Crowley, Louisiana, was managed to simulate typical rice-crawfish field rotational production systems. Crawfish population density in this pond was relatively high resulting in high yields and relatively small crawfish, but consistent with commercial ponds exhibiting similar densities.

Trap Type: *Objective 1*: Industry standard 3-funnel pyramid traps, constructed of 0.75-inch coated square mesh wire. *Objective 2*: Traps were the same as for objective 1 except that they were fitted with 0.75-inch plastic mesh bait wells, centered in the trap and extending above the water line. The bait wells were used to position the bait in the center of the trap to insure uniform consistency of protocol, especially important when working with limited numbers of replications.

Baits: Experimental baits consisted of a proprietary formulation (Cargill, U.S. Aquaculture, Franklinton, Louisiana) for objective 1 or proprietary test attractants (Cargill, U.S. Aquaculture, Franklinton, Louisiana) for objective 2. Control baits used under objective 1 consisted of cut pogy (menhaden) and commercial pelleted baits (Southern Pride and Early On, Purina Mills, Shreveport, Louisiana). Traps without bait were also used as a negative control treatment. Baits used for objective 2 consisted of test ingredients contained in a proprietary (LSU, Baton Rouge, Louisiana) alginate medium, which forms a semi-harden bait block upon setting. Proprietary attractants were identified by numerical I.D. only. A commercial cat-food and amino acid premix was also used as test ingredients in some experimental treatments under objective 2. As in objective 1, cut fish, Southern Pride pellets, and non-baited traps were also used in each trial of objective 2.

Bait Quantity: For *Objective 1*, bait quantity consisted of 150 g or about 1/3 lb of bait per trap set. For *Objective 2*, experimental bait blocks weighed 180 g or approximately 0.4 lb wet weight per tap. Dry weight of attractant ingredients per bait block was approximately 25 g. Commercial bait treatments or controls under objective 2 weighted approximately 115 g or 1/4 lb per trap. In nearly all cases, some residual pieces of bait were present in the trap after each 24-hr soak. Fresh bait was used daily.

Trap Soak Duration: Approximately 24 hours.

Dates: *Objective 1*: Cool-water trial, Feb. 2 to March 10, 2015. Warm-water trial, April 21 to May 1, 2015. *Objective 2*: Trial A, Feb. 20 - 24, 2015. Trial B, March 6 - 10, 2015. Trial C, March 13, 2015.

Experimental Design: Traps were placed in designated trapping lanes and spaced at approximately 50-ft intervals. Each trap was randomly assigned a bait treatment. Bait treatment per trap remained consistent over consecutive days of baiting to minimize attractant contamination in the immediate vicinity of the trap.

Replicates: A single trap-set or soak constituted a replicate for each bait treatment, and replications were usually achieved over several days of trapping.

Parameters: Crawfish catch per unit effort, by numbers of crawfish and weight of crawfish per trap; average weight of individual crawfish. To facilitate comparisons among trials for experimental baits, crawfish catch results were also expressed as a percentage of the catch with cut pogy (the common control treatment among all trials).

Support: Cargill, U.S. Aquaculture, Franklinton, LA

Comments: Experimental conditions of this study provided valuable comparisons among attractants under both primary objectives. Population density of crawfish in the experimental pond was relatively high and seasonal growth was adequate to achieve suitable trap catches early in the season while water temperatures were low. Although mean crawfish size was small (due to relatively high population density), the larger catches per unit effort ensured greater opportunity to discern differences between attractants, especially early on when water temperatures were especially low.

Under objective 1, an experimentally formulated dry bait (referred to as Cargill disks in Table 1) was compared to both an industry standard cool-water bait (cut fish) and a standard warm-water bait (Purina's Southern Pride pellets). Non-baited traps were also included as an experimental treatment. Trials were conducted both at water temperatures less than and generally greater than 70°F – the threshold temperature at which catch efficiency of formulated baits typically equals or exceeds that with cut fish.

Results of the cool-water portion of objective 1 suggests that the experimental bait formulation, while not equal to cut fish in efficacy, exceeded that of Southern Pride by a wide margin (Table 1). While several previous trials conducted in past years resulted in catches with Southern Pride approaching or exceeded 50% of the catch with cut

fish, average catch in this study in cool water resulted in a comparative catch rate of less than 30% of that with fish. This suggests that the exceptionally cool-water conditions of this study (46-62°F) rendered the Southern Pride formulation much less effective. However, under these same exceptionally cool conditions, the experimental Cargill formulation yielded much higher crawfish catches than did Southern Pride; albeit, not as great as with cut fish. This indicates that while the experimental formulation is not up to par with cut fish in catch efficacy, it appears to be superior to the commercial formulation tested, at least under the temperatures and crawfish density tested.

Cut fish is often inferior to the grain based commercial formulations under elevated water temperatures, and this held true under the current study. Two commercially formulated crawfish baits were utilized in this trial under warm-water conditions. While both yielded higher catches than cut fish, the experimental Cargill formulation yielded significantly higher catches than either of them and much greater than cut fish (Table 1). Thus, the experimental formulation proves superior to commercially available baits for warm-water crawfish harvests, and shows promise as a potential alternative to cut fish under cool-water conditions with further improvements.

Under objective 2, a series of short preliminary trials were conducted at the same location under similar experimental conditions. This protocol tested many of the same dry experimental attractants evaluated in 2014 but with a different bait medium. While the 2014 tests involved a much harder gelatin-based medium, the current study employed an improved, softer matrix comprised of an alginate-based medium. The experimental attractants were suspended in the alginate matrix constituting a bait block of similar size and weight as cut fish or Southern Pride pellets. The alginate bait blocks were much softer that previous gelatin-based bait blocks, however, and more amenable to break down and consumption. Due to the number of test ingredients and limited number of replications available for each trial, traps with bait wells were used to ensure consistent placement of the bait to entrance funnels and access by crawfish. These trials were conducted under cool-water conditions only, and the proprietary ingredients were defined by numerical I.D. Due to the preliminary nature of these trials and limited number of replications, statistical analyses were not conducted and hard conclusions of relative comparisons were avoided.

In trial A, 18 experimental ingredients (including a dry commercial cat food) were tested, and crawfish catch was compared with conventional standard industry baits (Southern Pride and cut fish) as well as with non-baited traps. Results are presented in Table 2. While catch data with all test ingredients were superior to that with Southern Pride, no attractants caught as well as cut fish. However, based on encouraging data from this trial using the alginate matrix and previous preliminary data from the 2014 trial, the following ingredients were re-evaluated in a subsequent trial (trial B): No. 2, 4, 5, 6, 7, 9, 13, 14, 15, 16, and 17. Remaining supply of No. 4 was insufficient for further tests although it initially ranked among the better ingredients.

Results of trail B are presented in Table 3. Experimental attractants Nos. 6, 13, and 16 continued the trend of leading the others in crawfish catch per trap soak. Though slightly better than Southern Pride in this trial, these three attractants captured only about 50% of the crawfish captured with cut fish, the standard industry cool-water bait.

In the last of these preliminary trials, attractants Nos. 6, 13, and 16 were evaluated again singularly and in combination, with and without an amino acid premix. Results are presented in Table 4. The amino acid premix appeared to provide no benefit and actually may have detracted from the catch. However, caution must be emphasized at drawing any hard conclusions with preliminary data, especially with so few replications. Nonetheless, it should be noted that the combination of these three ingredients produced 82 to 85% of the catch with cut fish, with ingredients Nos. 6 and 16 alone catching nearly as well. It should be further noted that the water temperature was also slightly warmer in this last trial.

In summary, it appears the alginate-based medium is a suitable medium for testing the efficacy of dry ingredients as potential attractants to crawfish. The alginate matrix held up well in traps, with some residual bait pieces present after each 24-hour soak, yet broke down and/or was consumed during the soak period, presumably allowing release of attractants on somewhat of a consistent basis. Further credence is given to this protocol with alginate medium for testing attractants because greater disparity was observed among experimental attractants and between Southern Pride and cut fish. However, further testing of other ingredients, alone and in combination, may be necessary to identify a suitable alternative to cut fish for cool-water harvesting of crawfish.

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 experimental bait treatments under both cool- and warm-water conditions. Values within columns, by trial, with the same superscript were not significantly different (P>0.05).

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 (68 reps) – Average Daily Water Temperature ranged from 46.4 to 61.7°F					
No Bait	4.2[C]	0.12[C]	16.7[BC]	19.3	17.4
Southern Pride	6.2[C]	0.19[C]	15.9[C]	28.4	26.1
Cargill Disks	11.1[B]	0.41[B]	17.3[AB]	50.9	48.9
Cut Fish	21.8[A]	0.88[A]	18.6[A]	-	-
Warm-Water Trial (32 reps) – Average Daily Water Temperature ranged from 68.0 to 80.5°F					
No Bait	12.0[D]	0.43[C]	15.8[D]	20.0	17.2
Southern Pride	74.4[B]	2.73[B]	17.2[BC]	124.2	110.6
Early On	69.7[B]	2.57[B]	16.7[C]	116.4	104.0
Cargill Disks	82.4[A]	3.21[A]	17.7[B]	137.6	129.9
Cut Fish	59.9[C]	2.47[B]	18.6[A]	-	-

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 initial preliminary trial A. Data represents mean of four replications per treatment. Average daily water temperature ranged from 46.4 to 51.5°F during the trial.

Test Ingredients[1]	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
3	3.5	0.12	14.4	10.1	8.2
Southern Pride	3.5	0.13	16.4	10.1	8.9
No Bait	3.5	0.14	18.2	10.1	9.6
10	3.8	0.16	16.5	11.0	11.0
9	4.5	0.16	15.9	13.0	11.0
8	4.5	0.17	16.9	13.0	11.6
12	4.8	0.16	14.4	13.9	11.0
1	4.8	0.18	16.3	13.9	12.3
7	5.8	0.20	15.4	16.8	13.7
15	6.0	0.24	17.6	17.4	16.4
11	6.5	0.24	17.0	18.8	16.4
2	6.5	0.25	16.3	18.8	17.1
17	7.0	0.28	17.3	20.3	19.2
5	7.3	0.24	13.8	21.2	16.4
14	7.5	0.27	15.8	21.7	18.5
Dry Cat Food	9.0	0.38	18.7	26.1	26.0
4	9.3	0.37	17.8	27.0	25.3
6	15.0	0.56	16.1	43.5	38.4
13	18.3	0.68	18.1	53.0	46.6
16	26.0	1.03	17.9	75.4	70.5
Cut Fish	34.5	1.46	20.3	-	-

[1] Numbered test ingredients (or cat food) were incorporated into an alginate matrix, which formed a semi-solid bait block upon setting. Southern Pride pellets and cut fish baits were employed in their natural form.

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 follow-up trial B. Data represents mean of eight replications per treatment. Average daily water temperature ranged from 44.1 to 61.7°F during the trial.

Test Ingredients[1]	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
2	4.6	0.17	16.2	12.7	10.8
9	4.7	0.25	20.0	12.9	15.9
14	5.1	0.19	17.9	14.0	12.1
No Bait	5.4	0.30	18.1	14.9	19.1
17	5.6	0.23	17.2	15.4	14.6
7	5.7	0.23	16.9	15.7	14.6
Southern Pride	5.7	0.25	17.4	15.7	15.9
15	10.7	0.42	18.9	29.5	26.8
5	11.3	0.50	21.3	31.1	31.8
13	16.0	0.64	21.1	44.1	40.8
6	20.0	0.80	20.9	55.1	51.0
16	21.7	0.84	21.0	59.8	53.5
Cut Fish	36.3	1.57	21.2	-	-

[1] Numbered test ingredients were incorporated into an alginate matrix, which formed a semi-solid bait block upon setting. Southern Pride pellets and cut fish baits were employed in their natural form.

Table 4. 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 follow-up trial C. Data represents mean of eight replications per treatment. Average daily water temperature was 64.3°F.

Test Ingredients[1]	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
Amino Acids	4.1	0.14	15.2	28.1	20.9
No Bait	5.4	0.21	16.9	37.0	31.3
16+6+13+Amino Acids	7.5	0.36	21.6	51.4	53.7
13	8.1	0.39	20.6	55.5	58.2
Southern Pride	8.9	0.34	17.1	61.0	50.7
16	10.1	0.45	19.7	69.2	67.2
6	10.5	0.50	21.2	71.9	74.6
16+6+13	12.4	0.55	20.0	84.9	82.1
Cut Fish	14.6	0.67	21.1	-	-

[1] Numbered test ingredients (singularly or in combination) and/or amino acid premix were incorporated into an alginate matrix, which formed a semi-solid bait block upon setting. Southern Pride pellets and cut fish baits were employed in their natural form.

Figure 1. Industry standard baits (cut fish and Southern Pride) and alginate-based bait blocks used in trial A.

EFFECTS OF WATER TEMPERATURE ON BAIT EFFICACY IN CRAWFISH AQUACULTURE: A PRELIMINARY ASSESSMENT

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish aquaculture in Louisiana depends solely on a passive system of harvest due to the large size and irregular shape of ponds, shallow water, dense vegetation, and presence of small and soft-shelled individuals, all of which preclude the use of seins or other active means of harvest. Crawfish are harvested in baited wire-mesh traps that are lifted 3 to 6 days a week beginning as early as November or December and continuing through May to July of the following year. Harvesting is typically the highest production expense in crawfish aquaculture, often exceeding 50% of annual operating cost, with bait alone accounting for 22-30% or more of total direct expense. Therefore, baiting strategies that maximize net returns by achieving the greatest possible catch with the lowest possible cost is key to realizing maximum profits in crawfish farming.

As with the commercial crab and lobster fishery, low cost fish species were the sole bait of choice for harvesting crawfish until about the mid 1980s when several manufactured formulated crawfish baits were introduced. These manufactured baits, consisting of a mixture of processed grain by-products and other proprietary ingredients, are sold in dry, large pellet form and are more pleasant to use. They require no refrigerated storage or further processing as do most of the cut fish baits. However, research has shown that the fish baits are more effective than formulated baits at water temperatures below about 70°F.

The most widely used fishes for crawfish bait includes the gizzard shad and menhaden, but common carp, buffalofish, herring, and other low cost fish species may be used. Using fish for crawfish bait has become much more expensive in the last decade, costing up to twice that of commercially formulated bait, and fish bait is frequently in short supply. Because of the high cost of fish and frequent availability issues, as well as the need to transport and store fish baits in a frozen state, and the typical need to cut the frozen fish into smaller portions, many producers have abandoned or reduce their use of fish for the more convenient formulated bait with little regard to net cost efficiency.

While research has determined the critical temperature at which the formulated baits produce crawfish catches equal to or greater than fish baits, little is known of the relative effects of temperature on bait efficacy well below that critical temperature. Thus, the objective of this study was to compare crawfish catch by bait type at various temperatures below the critical threshold of 70°F.

Test Site and Production Scenario: An experimental crawfish pond at the H. Rouse Caffey Rice Research Station, Crowley, LA, that was managed to simulate a rice-crawfish field rotational production system. The pond was partitioned in the center, length-wise, by an earthen levee, essentially dividing the pond into two contiguous halves. Both halves were managed identically in all respects from stocking rate to forage and water management. Trapping effort was consistent across both sections. Crawfish population density in this pond was relatively high (and consistent between pond sections), resulting in high yields and relatively small crawfish but consistent with commercial ponds exhibiting similar densities.

Trap Type: Industry standard 3-funnel pyramid traps constructed of 0.75-inch coated square mesh wire. Traps were placed in designated trapping lanes and spaced at approximately 50-ft intervals.

Baits: Experimental baits (i.e., treatments) consisted of either cut pogy (menhaden) or a commercially available pelleted bait (Southern Pride, Purina Mills, Shreveport, LA). Bait quantity used throughout the study was approximately 115 g or 1/4 lb per trap. Residual pieces of bait were often present after each soak period. Fresh bait was used daily.

Trap Soak Duration: Traps baited with cut fish were emptied after 24 hours. Traps baited with the manufactured bait were left to soak for 48 hours until water temperatures reached approximately 60°F, and then 24-hour soak durations were employed.

Dates: Harvesting was intermittent from Jan. 14 to May 1, 2015, occurring one or two days per week initially and increasing to four days per week. Total harvesting effort (i.e., number of total trap lifts) was consistent for both bait treatments.

Harvesting Protocol: To prevent unintentional influence from competing baits on nearby traps, each bait selection was relegated to one pond section only, and this remained consistent for one week. Then bait selections were alternated in opposing pond sections for a second week. Therefore, over each 2-week period both baits were employed in each pond section (alternately), and the total trap lifts for each bait in each section of the pond was the same for the course of a season. This minimized any bias due to pond section even though both sections were managed exactly alike and held virtually equal crawfish densities.

Water Temperature: Water temperature was recorded by a submerged temperature data logger (Hobo®, 104 Onset Computers, Pocasset, Massachusetts, model TEMP) that recorded temperature at 4-hour intervals. Average daily water temperature was derived from the data for each 24- or 48-hour period preceding the trap lifts and averaged on a weekly basis to correspond to weekly treatment averages.

Replicates: A single trap-set or soak constituted a replicate for each bait treatment, and number of replications by week ranged from a low of 14 to a high of 400. Number of replications per bait type per week were consistent. Average number of replicates per week by bait type was 221.

Parameters: Average weight of crawfish captured per trap by bait type at various mean water temperatures.

Support: Supported by Hatch funds, USDA National Institute of Food and Agriculture.

Comments: Over the 15-week crawfish harvesting period, a total of 6,630 crawfish traps, half of which were baited with fish and half with the manufactured bait "Southern Pride", were emptied after soaking in water temperatures ranging from the mid 40s to upper 70s (F). There are many factors that affect the daily catch of crawfish besides water temperature, such as weather events, harvesting patterns, and water management, but this study concentrated on the differences between bait types at a range of water temperatures.

The findings are summarized in Figure 1. In that chart, average weight of crawfish captured per trap, by bait type, is plotted against the corresponding water temperatures. While the magnitude of the differences in catch by bait varied as a result of other influencing factors, cut fish consistently resulted in higher yields below about 70°F. Best-fit lines were fitted to the data to better show the trend differences in catch between the two types of bait used. The resulting picture clearly provides a good indication of differences associated with bait type at the various temperatures.

As one would expect, crawfish catch with either bait generally increased as pond water temperatures increased. However, the chart also emphasizes the differences in catch between cut fish and the manufactured bait as it relates to the temperature at which the baits are used. Crawfish catch with fish at water temperatures below 50°F was 448% greater than catch with Southern Pride. At water temperatures between 50 and 55°F, fish resulted in 322% higher yields. Between 56 and 60°F, fish averaged 224% greater catches, and from 61 to 65°F, that difference was still 125% greater with fish. It is not until mean water temperature reached about 70°F did the catch with Southern Pride approach that of fish and eventually exceeded it.

The data clearly indicates that the further below 70-75°F the water temperature is, the greater the reduction in crawfish catch will be with Southern Pride when compared to cut fish as bait. Although not tested, it is doubtful that other commercially available manufactured baits would yield significant increases over Southern Pride at the cooler water temperatures. Limited studies and anecdotal evidence suggest that few differences exist among the different brands of manufactured bait, especially at the lower water temperatures. Therefore, these results illustrate the disadvantage of using currently offered manufactured baits at water temperatures below about 70°F, even though cut fish baits may be more expensive. As an example, with crawfish selling for $2.50/lb, using cut fish ($0.48/lb) at twice the cost of a manufactured bait ($0.24/lb), a modest increase in catch of just 50% would result in a net increase in profit of $0.255 per trap or $255 per day when lifting 1,000 traps.

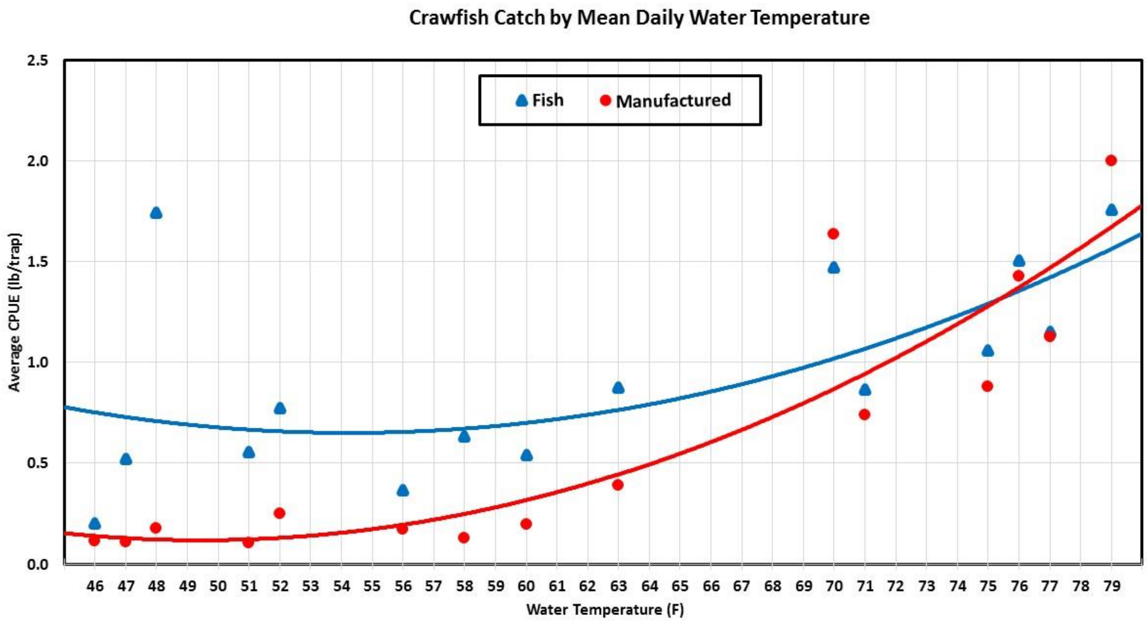

Figure 1. Average crawfish catch by bait type for mean water temperatures ranging from 46 to 79°F.

FOUNDATION SEED RICE PROGRAM

L.M. White III and R.E. Zaunbrecher

INTRODUCTION

Foundation seed rice has been produced by the LSU AgCenter's H. Rouse Caffey Rice Research Station (RRS) for distribution to Louisiana farmers since 1949. The RRS 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 169,600 cwt. of pedigreed stock of 45 rice varieties.

Concurrent with the distribution of pure seed by the RRS, 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 RRS seed program, Louisiana farmers may obtain seed rice of improved varieties developed through the RRS 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 RRS 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 RRS seed stocks. The nursery also serves as a site for evaluating, purifying, and increasing selections from the RRS breeding program that show promise as new varieties.

The distribution of pedigreed seed rice produced by the RRS 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 RRS 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 RRS 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 RRS 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 RRS 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.

2015 ACTIVITIES

Of the 823 cwt. of foundation seed rice sold in 2015, the varieties and quantities were as follows: Mermentau, 147 cwt.; Cocodrie, 75 cwt.; Jazzman-2, 49 cwt.; Jupiter, 317 cwt.; Pirogue, 62 cwt.; Della-2, 48 cwt.; Toro-2, 50 cwt.; and Caffey, 75 cwt.

The RRS foundation seed crop in 2015 consisted of 7.5 acres of Cheniere, 6 acres of Jupiter, 1.5 acres of Jazzman, 1.5 acres of Jazzman-2, and .5 acre of Catahoula.

Headrows of Cheniere, Jupiter, Jazzman, Jazzman-2, Cypress, and Catahoula were grown for replenishment of breeder seed stock.

RICE PRODUCTION ECONOMICS RESEARCH IN 2015

M.E. Salassi and M.A. Deliberto

Rice enterprise production cost budget projections for 2015 were developed in the fall of 2014 for alternative rice production systems in Louisiana. Projected rice crop enterprise cost of production budgets were estimated for six typical rice production systems in Southwest Louisiana and two rice production systems in Northeast Louisiana. For Southwest Louisiana, rice crop enterprise budgets were estimated for: (a.) Conventional variety, water planted, (b.) Clearfield variety, water planted, (c.) Conventional variety, drill planted, (d.) Clearfield variety, drill planted, (e.) Clearfield hybrid variety, drill planted, and (f.) ratoon crop. For Northeast Louisiana, rice crop enterprise budgets were estimated for: (a.) Conventional variety, drill planted and (b.) Clearfield variety, drill planted.

A summary of the enterprise budgeting analysis for rice production systems in Southwest Louisiana is presented in Tables 1-4. Values presented in the tables represent tenant operator net returns above total specified production costs. 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. 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. Net return estimates for the conventional variety drill-planted production system (Table 1) are based on production cost estimates of $531 per acre of variable costs and $618 per acre for total costs. Net return estimates for the Clearfield variety drill-planted production system (Table 2) are based on production cost estimates of $583 per acre of variable costs and $669 per acre for total costs. Net return estimates for the hybrid variety drill-planted production system (Table 3) are based on production cost estimates of $679 per acre of variable costs and $761 per acre for total costs. Net return estimates for ratoon crop production (Table 4) are based on production cost estimates of $133 per acre of variable costs and $154 per acre for total costs.

The Projected 2015 Rice Farm Cash Flow Model was developed to assist producers in planning for the 2015 crop year. The model is an Excel spreadsheet that allows rice producers to enter projected acreage, yield, market price, and production cost data for 2015 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 overall costs. Farm program parameters related to the Price Loss Coverage (PLC) Program are included in the model, with projected PLC Program payments included in the net return calculations.

Table 1. Estimated Net Returns above Total Specified Costs for a Tenant Operator Rice, Conventional Variety, Drill Planted, Conventional Tillage, Southwest Louisiana, 2015.

		Percent								
		80%	85%	90%	95%	100%	105%	110%	115%	120%
	Yield	Rice Market Price ($/cwt)								
Percent	(cwt.)	$9.60	$10.20	$10.80	$11.40	$12.00	$12.60	$13.20	$13.80	$14.40
		($/acre)								
80%	56.0	-72	-52	-32	-11	9	29	50	70	90
85%	59.5	-49	-27	-5	17	38	60	82	104	126
90%	63.0	-25	-2	21	45	68	91	114	138	161
95%	66.5	-2	23	48	73	97	122	147	171	196
100%	70.0	22	48	74	100	127	153	179	205	231
105%	73.5	45	73	101	128	156	184	211	239	267
110%	77.0	69	98	127	156	185	215	244	273	302
115%	80.5	92	123	154	184	215	245	276	307	337
120%	84.0	116	148	180	212	244	276	308	340	373

Net returns above total specified costs for a tenant operator is calculated here as the grower's share of market revenue less total specified costs paid by the grower. Specified costs include charges for direct costs and fixed machinery costs but exclude charges for general farm overhead and management expenses. The land rental arrangement charge represented here is a 30% crop share with the landlord paying variable and fixed irrigation pumping costs.

Table 2. Estimated Net Returns above Total Specified Costs for a Tenant Operator Rice, Clearfield Variety, Drill Planted, Conventional Tillage, Southwest Louisiana, 2015.

		Percent								
		80%	85%	90%	95%	100%	105%	110%	115%	120%
	Yield	Rice Market Price ($/cwt)								
Percent	(cwt.)	$9.60	$10.20	$10.80	$11.40	$12.00	$12.60	$13.20	$13.80	$14.40
		($/acre)								
80%	56.0	-123	-103	-82	-62	-42	-21	-1	19	40
85%	59.5	-99	-78	-56	-34	-12	10	31	53	75
90%	63.0	-76	-53	-29	-6	17	40	64	87	110
95%	66.5	-52	-28	-3	22	47	71	96	121	145
100%	70.0	-29	-3	24	50	76	102	128	155	181
105%	73.5	-5	22	50	78	105	133	161	188	216
110%	77.0	18	47	77	106	135	164	193	222	251
115%	80.5	42	72	103	134	164	195	225	256	287
120%	84.0	65	97	129	162	194	226	258	290	322

Net returns above total specified costs for a tenant operator is calculated here as the grower's share of market revenue less total specified costs paid by the grower. Specified costs include charges for direct costs and fixed machinery costs but exclude charges for general farm overhead and management expenses. The land rental arrangement charge represented here is a 30% crop share with the landlord paying variable and fixed irrigation pumping costs.

Table 3. Estimated Net Returns above Total Specified Costs for a Tenant Operator Rice, Hybrid Variety, Drill Planted, Conventional Tillage, Southwest Louisiana, 2015.

		Percent								
		80%	85%	90%	95%	100%	105%	110%	115%	120%
	Yield	Rice Market Price ($/cwt)								
Percent	(cwt.)	$9.60	$10.20	$10.80	$11.40	$12.00	$12.60	$13.20	$13.80	$14.40
		($/acre)								
80%	64.0	-155	-132	-109	-85	-62	-39	-16	7	31
85%	68.0	-128	-103	-78	-54	-29	-4	21	46	71
90%	72.0	-101	-75	-48	-22	5	32	58	85	111
95%	76.0	-74	-46	-18	10	39	67	95	123	152
100%	80.0	-48	-18	12	42	72	102	132	162	192
105%	84.0	-21	11	42	74	106	137	169	201	232
110%	88.0	6	39	73	106	139	173	206	239	273
115%	92.0	33	68	103	138	173	208	243	278	313
120%	96.0	60	97	133	170	207	243	280	317	353

Net returns above total specified costs for a tenant operator is calculated here as the grower's share of market revenue less total specified costs paid by the grower. Specified costs include charges for direct costs and fixed machinery costs but exclude charges for general farm overhead and management expenses. The land rental arrangement charge represented here is a 30% crop share with the landlord paying variable and fixed irrigation pumping costs.

Table 4. Estimated Net Returns above Total Specified Costs for a Tenant Operator Rice, Ratoon Crop, Southwest Louisiana, 2015.

		Percent								
		80%	85%	90%	95%	100%	105%	110%	115%	120%
	Yield	Rice Market Price ($/cwt)								
Percent	(cwt.)	$9.60	$10.20	$10.80	$11.40	$12.00	$12.60	$13.20	$13.80	$14.40
		($/acre)								
80%	18.4	18	25	32	38	45	52	58	65	72
85%	19.6	26	33	40	48	55	62	69	76	83
90%	20.7	34	41	49	57	64	72	80	87	95
95%	21.9	42	50	58	66	74	82	90	98	107
100%	23.0	49	58	67	75	84	92	101	110	118
105%	24.2	57	66	75	84	93	102	112	121	130
110%	25.3	65	74	84	93	103	113	122	132	141
115%	26.5	72	83	93	103	113	123	133	143	153
120%	27.6	80	91	101	112	122	133	143	154	165

Net returns above total specified costs for a tenant operator is calculated here as the grower's share of market revenue less total specified costs paid by the grower. Specified costs include charges for direct costs and fixed machinery costs but exclude charges for general farm overhead and management expenses. The land rental arrangement charge represented here is a 30% crop share with the landlord paying variable and fixed irrigation pumping costs.

LOUISIANA RICE RESEARCH VERIFICATION PROGRAM - 2015[1]

D.L. Harrell and K.A. Fontenot

INTRODUCTION

The Louisiana Rice Research Verification Program (LRRVP) began in 1997 in three parishes: Allen, Calcasieu, and Jefferson Davis. 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 2014, 123 fields have been included in the verification program. In 2015, the program included five fields (Figure 1).

The fields were visited on at least a weekly basis by a specialist or county agent. Production practice recommendations were made by the specialist or agent. These recommendations included, but were not limited to, fertilization, weed control, disease control, insect control, and water management to a limited degree. The fields were followed from planting to harvest.

Yield data were collected for each of the fields (Table 1). Yields of the first crop averaged 7,919 lb/A (176 bu/A or 48.8 bbl/A) at 12% moisture. Second crop was harvested in Acadia and Cameron parishes, adding another 4,169 lb/A to the total, for a final average of 9,908 lb/A (219.9 bu/A or 61.1 bbl/A). This is the second highest ranked overall yield of the verification program in the 18 years that the program has been carried out.

Economic data revealed large production cost differences between growers. It is also clear that more needs to be done to help farmers reduce production costs (Table 2). Harvest and water costs remain the most elusive information to capture and are often underestimated by all parties involved in the verification program.

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, consultants, and extension personnel) increases each year.

[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 2015.

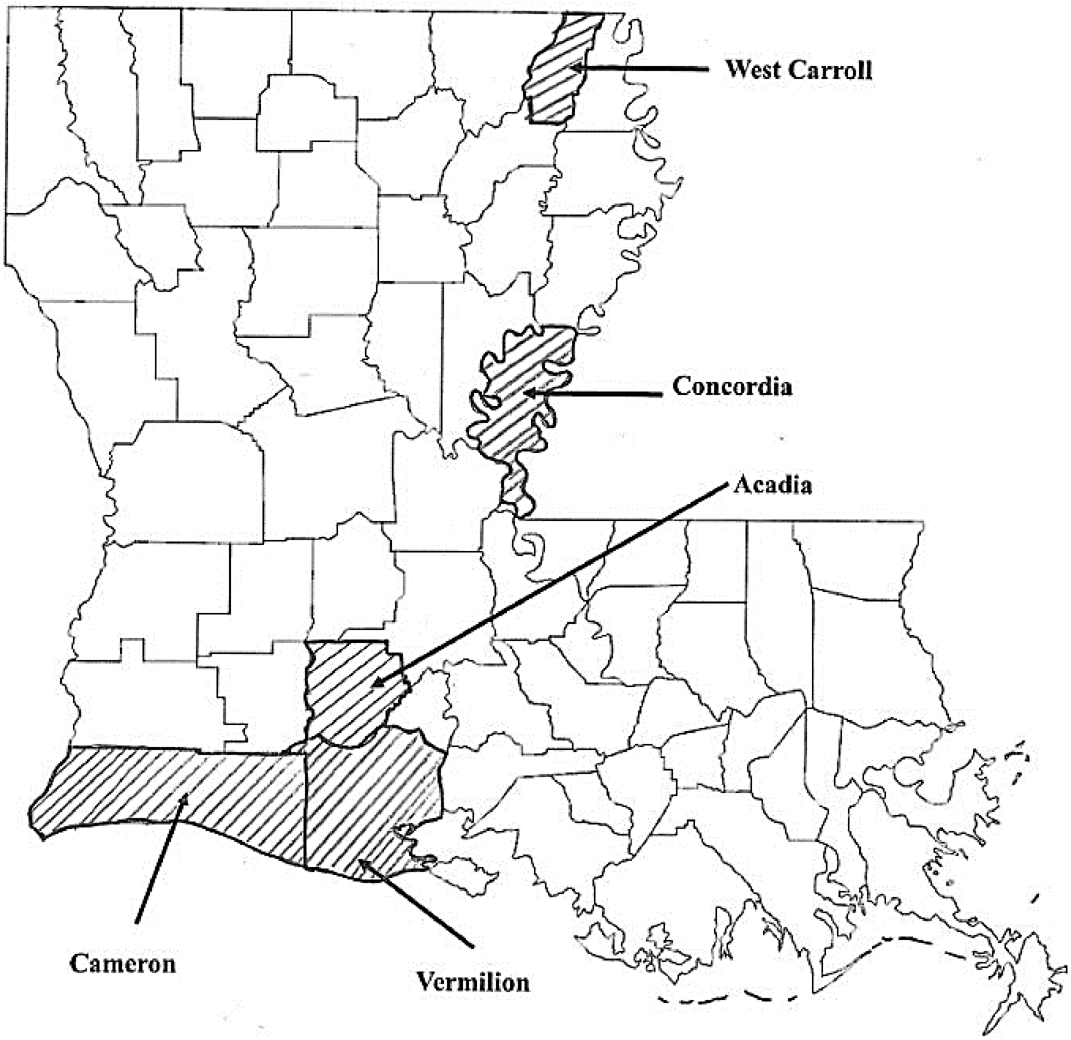

Table 1. 2015 Louisiana Rice Verification Program Yields.

Parish	Acres	Variety	Cwt/A green	Bbl/A green	Bu/A green	Cwt/A dry	Bbl/A dry	Bu/A dry
Acadia[1]	40.5	XL723	148.2	91.4	329.4	138.6	85.5	308.1
Cameron[1]	45.0	CL111	111.3	69.0	248.0	105.2	65.0	233.6
Concordia	18.0	CLXL745	92.2	57.0	205.0	84.8	52.0	189.0
Vermilion	39.2	CL111	71.2	44.0	158.0	65.2	40.0	145.0
W. Carroll	36.5	CLXL745	95.9	59.0	213.0	90.8	56.0	202.0
Total Acres	179.2							
Average			105.8	65.3	235.2	99.0	61.0	219.9

[1] Yield includes second crop.

Table 2. 2015 Louisiana Rice Verification Program Yield, Milling, and Economic Summary.

Parish	Variety	Yield at 12% Moisture (cwt/A)	Milling (% Whole / % Total)	Variable Costs ($/A)[2]	Cost of Production ($/cwt)[2]	Return on Variable Costs ($/A)[2,3]
Acadia	XL723	138.67[1]	48.06 / 75.62	710.86	5.12	939.13
Cameron	CL111	105.22[1]	63.30 / 79.53	680.27	6.46	571.84
Concordia	CLXL745	84.87	58.53 / 76.36	629.61	7.41	380.34
Vermilion	CL111	65.29	68.80 / 76.82	522.42	8.00	254.53
W. Carroll	CLXL756	83.29	61.24 / 76.49	585.44	6.44	496.15

[1] Figure includes ratoon crop yield.
[2] Costs captured are from land preparation to harvest. They do not include land rent, transporting, drying, storing, or fixed costs.
[3] This value was obtained using a selling price of $11.90/cwt for long grain and $14.72/cwt for medium grain.

ACADIA PARISH

The Acadia Parish field was initially burned down with Honcho and Helosate Plus applied by ground. The field was subsequently disked and shanked. The hybrid variety XL723, treated with Dermacor X-100, was dry broadcasted by air on March 28 at a rate of 25 lb/A.

Emergence was called on April 7. Rice reached internode elongation (green ring) on May 19 and panicle differentiation on May 26. Fifty percent heading was called on June 16. The field was drained on July 14 and harvested on July 31.

Rice was grown using the delayed flood water management practice. After planting, 350 lb of 0-26-26 impregnated with Command at 10 oz/A was applied. The field was flushed after fertilization. The field received approximately a half inch of rain the next week. A little over 8 inches of rain fell in separate events in the following two weeks. An application of 3 qt propanil and ¾ oz Permit Plus was made on April 23 followed by an application of 250 lb of urea the next day. Permanent flood was established after the fertilizer was applied. The field was topdressed with 100 lb of urea on May 27.

Disease pressure was not evident in the field and stinkbug numbers were very low through the remainder of the growing season. Late season fungicide or insecticide treatments were not recommended.

The field was drained July 14 and harvested July 31. Following harvest, 200 lb of urea was applied for the ratoon crop.

First crop yield was 8,845 lb or 54.5 dry bbl/A. This was followed by a ratoon crop yield of 5,022 lb or 31 dry bbl. Total rice yield was 13,851 lb/A or 85.5 dry bbl/A.

ACADIA PARISH

Cooperator: Brent Pousson
Agent: Barrett Courville
Consultant: Ruston Gilder
Field Size: 40.5 Acres

Cultural Practices

Variety: XL723
Method of Planting: Dry broadcast
Water Management: Delayed flood

Seeding Rate: 25 lb/A
Date of Planting: 3/28/15
Date of Emergence: 4/7/15

Growth and Development

Stage	Observation Date
Green Ring	5/19
PD	5/26
50% Heading	6/16
Drain for Harvest	7/14
Harvest	7/31

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
First Crop	88.45	48 / 75.6	575.11	6.50	477.45
Ratoon Crop	50.22	--	135.75	2.70	461.86
Total Crop	138.07		710.86	5.12	939.13

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $11.90/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)
3/29	0-26-26	350		91	91
4/24	36-0-0	250	90		
5/27	46-0-0	100	46	0	0
First Crop	Total		136	91	91
8/3	46-0-0	200	92		
Ratoon Crop	Total		92		
Season Total			228	91	91

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Various Burndown		glyphosate
Nutsedge, Barnyardgrass, Dayflower, Indian jointvetch, Fall Panicum, Hemp sesbania	3/29	10 oz Command impregnated on fertilizer
Same as above	4/23	3 qt propanil + ¾ oz Permit Plus

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
N/A		

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil	Seed treatment	Dermacor X-100

ACADIA PARISH

Item	Description	Cost/A	Acres		Total
Burndown	Helosate plus 30 Gal, Honcho 30 Gal	$4.66	40.5		$188.73
Application cost herb	Ground Rig	$7.00	40.5		$283.50
Field work, discing, etc.					$0.00
Water leveling					$0.00
Ditching					$0.00
Seed	Ricetec XL753 Mini Bulk	$122.45	40.5		$4,959.23
Seed treatment (if separate)	Dermacor X-100 6 oz treatment	$14.47	40.5		$586.04
Planting	Reed Aviation	$10.93	40.5		$442.67
Fertilizer	350 lb 00-26-26, 10 oz command	$95.33	40.5		$3,860.87
Application cost - fertilizer	Spreader	$7.00	40.5		$283.50
Herbicide	Stamm M-4 30 gl drum	$23.23	40.5		$940.82
Application cost herb	Ground Rig	$7.00	40.5		$283.50
Herbicide	Permit Plus	$15.55	40.5		$629.78
Application cost herb					$0.00
Fertilizer (urea)	250 lb 36-0-0	$53.08	40.5		$2,149.74
Application cost - fertilizer	Reed Aviation	$13.31	40.5		$539.06
Fertilizer (urea)	Agrotain	$7.51	40.5		$304.16
Application cost - fertilizer					$0.00
Fertilizer (urea)	100 lb 46-0-0	$23.14	40.5		$937.17
Application cost - fungicide	Reed Aviation	$8.61	40.5		$348.71
Insecticide					$0.00
Application cost - insecticide					$0.00
Harvest - cart 1 w\ tractor		$5.04	40.5		$204.12
Harvest - cart 2 w tractor					$0.00
Harvest - combine 1		$43.50	40.5		$1,761.75
Harvest - combine 2					$0.00
Water costs		$113.30	40.5		$4,588.65
Fuel and maintenance					$0.00
Power unit and gear head					$0.00
		$575.11			$0.00
First crop totals					$23,291.96

RATOON CROP

Item	Description	Cost/A	Acres		Total
Ratoon Crop Manipulation					$0.00
Ratoon Crop Fertilizer	200 lb Urea	46.28	40.5		$1,874.34
Ratoon Fertilizer Application	Reed Aviation	13.31	40.5		$539.06
Ratoon Crop Water Cost		27.62	40.5		$1,118.61
Ratoon Crop Harvest Cart 1		5.04	40.5		$204.12
Ratoon Crop Harvest Combine 1		43.5	40.5		$1,761.75
Ratoon Crop Totals		$135.75			$5,497.88

Total for First Crop and Ratoon	$710.86			$28,789.83

CAMERON PARISH

The Cameron Parish field was the only water-planted field in the 2015 Verification Program. It was planted on March 23, with Dermacor X-100-treated CL111 seed at the rate of 75 lb/A. The field was water leveled prior to seeding. Emergence was called on March 31. There was some seed loss due to bird predation in the top cut. Green ring was noted on May 12. Fifty percent heading was called on June 16. The field was drained July 12. Harvest began July 27 and was completed July 28.

Nitrogen, phosphorus, and potassium were applied the same day as planting. Just ahead of permanent flood establishment, 150 lb of 33-0-16 was applied. Urea was applied at a rate of 45 lb N/A between internode elongation and panicle differentiation.

Newpath (6 oz), Permit (1/3 oz), and Facet (0.4 lb) were applied to control the major weeds present (barnyardgrass, hemp sesbania, and Indian jointvetch) on April 22. Stink bugs did not reach treatment levels. Stratego was applied at a rate of 19 oz/A to control sheath blight.

Harvest began July 27 and was completed July 28. Yield adjusted to 12% moisture was 7,120 lb/A (44 bbl/A or 158 bu/A). The field was fertilized with N and flooded for ratoon crop production. Second crop yield was 3,402 lb/A (23 bbl/A or 75.6 bu/A). Total yield was 10,522 lb/A (65 bbl/A or 233.6 bu/A) adjusted to 12% moisture.

CAMERON PARISH

Cooperator: Kelly Precht
Agent: Bradley Pousson / Jimmy Meaux
Consultant: Randy Verrett
Field Size: 45 Acres

Cultural Practices

Variety: CL111
Method of Planting: Water seeded
Water Management: Delayed flood
Seeding Rate: 75 lb/A
Date of Planting: 3/23/15
Date of Emergence: 3/31/15

Growth and Development

Stage	Observation Date
Green Ring	5/12
PD	5/22*
50% Heading	6/16*
Drain for Harvest	7/12
Harvest	7/27 & 7/28

* Estimated.

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1,3]	Cost of Production ($/cwt)[1,3]	Return on Variable Costs ($/A)[1,2,3]
First Crop	71.20	63.3 / 79.5	547.76	7.69	299.52
Ratoon Crop	34.02		132.51	3.89	272.32
Total Crop	105.22		680.27	6.46	571.84

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $11.90/cwt.
[3] Costs and returns for first and ratoon crop combined.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)
3/23	15-30-15	300	45	90	45
5/4	33-0-16	150	49.5	0	24
5/19	46-0-0	100	46	0	0
First Crop			140.5	90	69
Ratoon Crop	46-0-0	200	92	0	0
Season Total			232.5	90	69

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Hemp sesbania, Indian jointvetch, Barnyardgrass	4/22	6 oz Newpath + 1/3 oz Permit + 0.4 lb Facet

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Sheath blight	6/10	19 oz Stratego

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil	Seed treatment	Dermacor X-100

CAMERON PARISH

Item	Description	Cost/A	Acres		Total
Burndown					$0.00
Application cost herb					$0.00
Field work, discing, etc.					$0.00
Water leveling	Water leveling	$33.01	45		$1,485.45
Ditching	Ditcher	$1.25	45		$56.25
Seed	CL111	$71.60	45		$3,222.00
Seed treatment (if separate)	Dermacor X-100	$26.00	45		$1,170.00
Planting	LA Rice Air Plant Svc.	$7.00	45		$315.00
Fertilizer	15-30-15 @ 300	$75.86	45		$3,413.70
Application cost - fertilizer	7.00/cwt/A + GPS .35	$21.35	45		$960.75
Herbicide	Clearpath at .5 lb/A, Newpath 2 oz, 1/3 oz Permit	$45.20	45		$2,034.00
Application cost herb	5 gal - 6.50 + GPS .35=	$6.85	45		$308.25
Herbicide					$0.00
Application cost herb					$0.00
Fertilizer (urea)	33-0-16 at 150 an A	$31.00	45		$1,395.00
Application cost - fertilizer	7.00 cwt/A + GPS .35 =	$10.85	45		$488.25
Fertilizer (urea)	46-0-0 100 lb	$21.00	45		$945.00
Application cost - fertilizer	7.00 cwt/A + GPS .35 =	$7.35	45		$330.75
Fungicide (urea)	Stratego 19 oz	$26.00	45		$1,170.00
Application cost - fungicide	5 gal 6.50 + GPS .35	$6.85	45		$308.25
Insecticide					$0.00
Application cost - insecticide					$0.00
Harvest - cart 1 w\ tractor		$5.04	45		$226.80
Harvest - cart 2 w\ tractor					$0.00
Harvest - combine 1		$43.50	45		$1,957.50
Harvest - combine 2					$0.00
Water costs		$108.05	45		$4,862.25
Fuel and maintenance					$0.00
Power unit and gear head					$0.00
		$547.76			$0.00
First Crop Totals					$24,649.20

Ratoon Crop

Item	Description	Cost/A	Acres		Total
Ratoon Crop Manipulation					$0.00
Ratoon Crop Fertilizer	46-0-0 200 lb	$42.00	45		$1,890.00
Ratoon Fertilizer Application	7.00 cwt/A + GPS .35 =	$14.35	45		$645.75
Ratoon Crop Water Cost		$27.62	45		$1,242.90
Ratoon Crop Harvest Cart 1		$5.04	45		$226.80
Ratoon Crop Harvest Combine 1		$43.50	45		$1,957.50
Ratoon Crop Totals		$132.51			$5,962.95

Total for First Crop & Ratoon	$680.27			$30,612.15

CONCORDIA PARISH

The Concordia Parish field was drill-seeded with CLXL745 on May 15. The seed was treated with NipsIt INSIDE and half rate of Dermacor X-100. After planting, 21 oz of glyphosate, 2 oz of Sharpen, and 12.8 oz of Command were applied. The rice did get a little stretched after a large rainfall event early but pulled out of this condition in approximately one week.

Some grasses as well as broadleaf weeds were the primary target species when an application of 4 oz Newpath, 3 qt propanil, and 1/3 oz Permit were applied on June 3. Later during the season, Sprangletop necessitated the use of a 15-oz application of Clincher. Nitrogen fertilizer (200 lb/A of urea) was applied prior to flood establishment. A second fertilizer N application of 100 lb/A urea was applied at panicle initiation (100 lb/A of urea). An application of 6 oz/A of Tilt fungicide was made prior to boot split to provide protection from smut.

Harvest began Sept. 1 and finished Sept. 3. Harvest was prolonged due to a mechanical problem with the combine. Rice yield was 9,224 lb/A (57 bbl/A or 205 bu/A) green. Adjusted to 12% moisture it was 8,487 lb/A (52 bbl/A or 189 bu/A).

CONCORDIA PARISH

Cooperator: Thomas Ater
Agent: Kylie Miller
Consultant: Will Miller
Field Size: 18.0 Acres

Cultural Practices

Variety: CLXL745
Method of Planting: Drill seeded
Water Management: Delayed flood

Seeding Rate: 22 lb/A
Date of Planting: 5/15/15
Date of Emergence: 5/25/15

Growth and Development

Stage	Observation Date
Green Ring	6/24
PD	7/8
50% Heading	7/30
Drain for Harvest	8/15
Harvest	9/1 and 9/3

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
First Crop	84.87	58.5 / 76.3	629.61	7.41	380.34

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $11.90/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)	S (lb/A)	ZN (lb/A)
5/21	15-32-0-6.5-5	185	28	60	0	12	11.3
6/5	46-0-0	200	92				
6/28	46-0-0	100	46				
Total			166	60	0	12	11.3

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Various grasses and broadleaves	5/15	21 oz glyphosate + 2 oz Sharpen + 12.8 oz Command
Various	6/3	4 oz Newpath + 3 qt propanil + 1/3 oz Permit
Sprangletop	6/25	15 oz Clincher

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Smut Prevention	7/17	6 oz Tilt

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil	Seed treatment	NipsIt INSIDE + ½ rate Dermacor X-100

CONCORDIA PARISH

Item	Description	Cost/A	Acres		Total
Burndown	1 qt 2,4-D, 32 oz Rdup pm, 21 oz Command	$32.73	18		$589.14
Application cost herb	Air - 6.00 5 gal work	$6.00	18		$108.00
Herbicide - at planting	21 oz Rdup PM; 2 oz Sharpen- 12.8 oz Command	$29.29	18		$527.22
Application cost herb	Air - 6.00/5 gal/A	$6.00	18		$108.00
Ditching					$0.00
Seed	22.5 lb/A - CLXL745	$150.00	18		$2,700.00
Seed treatment (if separate)	NipsIt - $12/A Dermacor X-100 1/2 rate 9.00/A	$21.00	18		$378.00
Planting	Drilled - 40' JD9520	$10.21	18		$183.78
Fertilizer	15-32-0 - 9.45-5.4 Zn 185 lb/A	$61.00	18		$1,098.00
Application cost - fertilizer	7.00/cwt/A/air	$12.95	18		$233.10
Herbicide	4 oz NP – 3 qt propanil - 1/3 oz Permit	$34.02	18		$612.36
Application cost herb	6.00/5 gal/A/air	$6.00	18		$108.00
Herbicide	15 oz Clincher	$34.50	18		$621.00
Application cost herb	6.00/5 gal/A/air	$6.00	18		$108.00
Fertilizer (urea)	200 lb UREA at 20.83	$41.66	18		$749.88
Application cost - fertilizer	7.00/cwt/A/air	$14.00	18		$252.00
Fertilizer (urea)	100 lb UREA at 20.83	$20.83	18		$374.94
Application cost - fertilizer	7.00/cwt/A/air	$7.00	18		$126.00
Fungicide (urea)	Tilt at 6 oz/A .86	$5.16	18		$92.88
Application cost - fungicide	6.00/A/5 gal/air	$6.00	18		$108.00
Insecticide					$0.00
Application cost - fungicide					$0.00
Harvest - cart 1 w\ tractor		$5.04	18		$90.72
Harvest - cart 2 w\ tractor					$0.00
Harvest - combine 1		$43.50	18		$783.00
Harvest - combine 2					$0.00
Water costs	water budget costs	$76.72	18		$1,380.96
Fuel and maintenance					$0.00
Power unit and gear head					$0.00
First Crop Totals		$629.61			$11,332.98

No Ratoon Crop

Ratoon Crop

Item	Description	Cost/A	Acres		Total
Ratoon Crop Manipulation					$0.00
Ratoon Crop Fertilizer					$0.00
Ratoon Fertilizer Application					$0.00
Ratoon Crop Water Cost					$0.00
Ratoon Crop Harvest Cart 1					$0.00
Ratoon Crop Harvest Combine 1					$0.00
Ratoon Crop Totals					$0.00

Total for First Crop & Ratoon	$0.00			$11,332.98

VERMILION PARISH

CL111 was dry broadcasted by air onto a conventionally tilled seedbed and harrowed in on April 7. Seed was treated with Dermacor X-100. Emergence on most of the field was called on April 15. Low and wet portions of the field delayed seedling emergence in places. Clearpath was applied on April 23 at 0.6 lb/A. Weed control was very good. Rice was stretched following excess rainfall. After the field dried out, ¼ oz Permit, 4 oz Newpath, and 3 qt propanil were applied to control grasses, yellow nutsedge, sprangletop, and some Indian jointvetch. Fertilizer P and K was applied on all cuts with zinc sulfate also being applied only to the top cut. Other growth stages were estimated as follows: green ring on June 2, panicle differentiation on June 8, and 50% heading on July 1. The field was drained on July 24.

Disease was not observed therefore a fungicide application was not made. Stink bugs were at 1/3 threshold during soft dough stage and jumped to borderline threshold values the week prior to draining. Because this field was to be used for crawfish production, the decision was made not to spray for control.

Rice harvest occurred on Aug. 6. Moisture at harvest averaged 19.3%. Green yield was 7,120 lb/A (44 bbl/A or 158 bu/A). Yield adjusted to 12% moisture was 6,529 lb/A (40 bbl/A or 145 bu/A).

VERMILION PARISH

Cooperator: Adler Stelly
Agent: Andrew Granger
Consultant: Terry Gonsoulin
Field Size: 39.2 Acres

Cultural Practices

Variety: CL111
Method of Planting: Dry seeded by air
Water Management: Delayed flood

Seeding Rate: 76 lb/A
Date of Planting: 4/7/15
Date of Emergence: 4/15/15

Growth and Development

Stage	Observation Date
Green Ring	6/2
PD	6/8
50% Heading	7/1
Drain for Harvest	7/24
Harvest	8/6

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
First Crop	65.29	68.8 / 76.8	522.42	8.00	254.53

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $11.90/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)	Zn (lb/A)	S (lb/A)
	46-46-0	130	60	60			
	0-0-60	35			21		
	0-0-0-35-17.5	15				5.3	2.6
5/19	46-0-0	46					
6/8	46-0-0	100	46				
Total			152	60	21	5.3	2.6

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Water bermuda, Yellow nutsedge, Sprangletop, Indian jointvetch	4/23	Clearpath at 0.6 lb/A
	5/19	3 qt propanil + 4 oz Newpath + ¼ oz Permit

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
N/A		

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil	Seed treatment	Dermacor X-100

VERMILION PARISH

Item	Description	Cost/A	Acres		Total
Burndown					$0.00
Application cost herb					$0.00
Field work, disking, etc.					$0.00
Water leveling	Plow and blade	$15.78	42		$662.76
Ditching	2 times	$2.50	42		$105.00
Seed	CL111	$80.00	42		$3,360.00
Seed treatment (if separate)	Dermacor X-100	$33.00	42		$1,386.00
Planting	Plane + harrow	$13.48	42		$566.16
Fertilizer	N-P-K-S	$59.26	42		$2,488.92
Application cost - fertilizer	3*	$21.00	42		$882.00
Herbicide	Newpath-10.92 + Permit - 4.92 + propanil - 22.52	$38.36	42		$1,611.12
Application cost herb	2*	$14.00	42		$588.00
Herbicide	4/23 Clearpath at 0.6 lb	$32.40	42		$1,360.80
Application cost herb			42		$0.00
Fertilizer (urea)	200/A (92-N)	$43.80	42		$1,839.60
Application cost - fertilizer		$7.00	42		$294.00
Fertilizer (urea)					$0.00
Application cost - fertilizer					$0.00
Fungicide (urea)					$0.00
Application cost - fungicide					$0.00
Insecticide					$0.00
Application cost - insecticide					$0.00
Harvest - cart 1 w\ tractor		$5.04	42		$211.68
Harvest - cart 2 w\ tractor					$0.00
Harvest - combine 1		$43.50	42		$1,827.00
Harvest - combine 2					$0.00
Water costs		$113.30	42		$4,758.60
Fuel and maintenance					$0.00
Power unit and gear head					$0.00
					$0.00
First Crop Totals		$522.42			$21,941.64

No Second Crop

Ratoon Crop

Item	Description	Cost/A	Acres		Total
Ratoon Crop Manipulation					$0.00
Ratoon Crop Fertilizer					$0.00
Ratoon Fertilizer Application					$0.00
Ratoon Crop Water Cost					$0.00
Ratoon Crop Harvest Cart 1					$0.00
Ratoon Crop Harvest Combine 1					$0.00
Ratoon Crop Totals					$0.00

Total for First Crop & Ratoon	$522.42			$21,941.64

WEST CARROLL PARISH

Planting at the West Carroll field was delayed due to rain and cool soil conditions. The weather conditions also necessitated two early burndown applications utilizing glyphosate, with one application also including Firstshot. The field was drill-seeded on May 6 at the rate of 23 lb/A of the hybrid CLXL745. The seed was treated with CruiserMaxx and Dermacor X-100. Emergence was called on May 11; however, low and wet areas of the field delayed emergence until May 15. Internode elongation was called on July 24. Panicle differentiation was estimated on July 8. Fifty percent heading was difficult to call but was determined to be around Aug. 5, although heading was very uneven. The field was drained on Aug. 21. The crop was harvested on Sept. 2.

Basic fertilizer included N, phosphate, potash, zinc, and sulfur. Urea treated with Agrotain was applied at a rate of 200 lb/A on June 3. Midseason N was applied on June 24, with 100 lb of urea.

Herbicide applications included 4 oz of Newpath plus a pint of Command on May 24. A second application by air of Newpath at 4 oz/A plus 3/4 oz of Permit was made on June 3.

Two years ago, Dr. Johnny Saichuk observed what he believed to be an all-time worst rice water weevil infestation that he had ever seen when an insecticide seed treatment was used. In 2015, very few weevils were observed. However, out of caution, the farmer added an application of 1 oz of Karate to the field.

Sheath blight pressure was low to moderate. There was some concern about kernel smut, so an application of 6 oz of Fitness fungicide (generic Tilt) was made on July 15.

The field was harvested Sept. 2. Yield was 9,590 lb/A (59 bbl/A or 213 bu/A) at 16.6% moisture. Yield adjusted to 12% moisture was 9,089 lb/A (56 bbl/A or 202 bu/A).

WEST CARROLL PARISH

Cooperator: Jim Lingo
Agent: Bruce Garner
Consultant: Richard Costello
Field Size: 36.5 Acres

Cultural Practices

Variety: CLXL745
Method of Planting: Drill seeded
Water Management: Delayed flood

Seeding Rate: 23 lb/A
Date of Planting: 5/6/15
Date of Emergence: 5/11/15 - 5/15/15

Growth and Development

Stage	Observation Date
Green Ring	6/24
PD	7/8
50% Heading	8/5
Drain for Harvest	8/21
Harvest	9/2

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
First Crop	90.89	61.2 / 76.4	585.44	6.44	496.15

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $11.90 /cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)	S (lb/A)
	21-60-20-24S	100	21	60	20	24
6/3	46-0-0	200	92			
6/24	46-0-0	100	46			
Total			159	60	20	24

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Various	Prior to planting	Glyphosate + FirstShot
Various	Prior to planting	Glyphosate
Barnyardgrass, Indian jointvetch,	5/24	4 oz Newpath + 1 pt Command
Barnyardgrass, Hemp sesbania, Sedge	6/3	4 oz Newpath + 3/4 oz Permit Plus

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Sheath blight, Kernel smut (anticipated)	7/20	6 oz Fitness (generic Tilt)

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil preventative	At seed purchase	CruiserMaxx and Dermacor X-100
Rice water weevil adults	6/11	1 oz Karate

WEST CARROLL PARISH

Item	Description	Cost/A	Acres		Total
Burndown	2 apps, touchdown, 1 app Firstshot	$28.58	36.49		$1,042.88
Application cost herb					$0.00
Field work, discing, etc.					$0.00
Water leveling					$0.00
Ditching					$0.00
Seed	745, 22 lb Dermacor X-100 + App	$186.00	36.49		$6,787.14
Seed treatment (if separate)					$0.00
Planting					$0.00
Fertilizer	21-60-20-24 + App	$68.63	36.49		$2,504.31
Application cost - fertilizer					$0.00
Herbicide	Command, Newpath, oil + app	$36.86	36.49		$1,345.02
Application cost herb					$0.00
Herbicide	Newpath, permit plus, oil + app	$30.78	36.49		$1,123.16
Application cost herb					$0.00
Fertilizer (urea)	46-0-0 + app	$54.65	36.49		$1,994.18
Application cost - fertilizer					$0.00
Fertilizer (urea)	46-0-0 & app	$32.15	36.49		$1,173.15
Application cost - fertilizer					$0.00
Fungicide (urea)					$0.00
Application cost - fungicide					$0.00
Insecticide	Karate 1 oz + app	$10.37	36.49		$378.40
Application cost - fungicide	Fitness Fungicide 6 oz $5 lb + 7.00 app cost	$12.16	36.49		$443.72
Harvest - cart 1 w\ tractor		$5.04	36.49		$183.91
Harvest - cart 2 w\ tractor					$0.00
Harvest - combine 1					$0.00
Harvest - combine 2		$43.50	36.49		$1,587.32
Water costs		$76.72	36.49		$2,799.51
Fuel and maintenance					$0.00
Power unit and gear head					$0.00
					$0.00
First Crop Totals		$585.44			$21,362.71

No Second Crop

Ratoon Crop

Item	Description	Cost/A	Acres		Total
Ratoon Crop Manipulation					$0.00
Ratoon Crop Fertilizer					$0.00
Ratoon Fertilizer Application					$0.00
Ratoon Crop Water Cost					$0.00
Ratoon Crop Harvest Cart 1					$0.00
Ratoon crop Harvest Combine 1					$0.00
Ratoon Crop Totals					$0.00

Total for First Crop & Ratoon	$0.00			$21,362.71

Table 1. Summary of Management Practices and Economic Data for 2015 Verification Fields.

Parish	Planting Method	Rice Variety	Planting Date	Water Management	Seed Costs	Insecticide Seed Treatment Costs	Herbicide Costs ($)	Herbicide Application Costs ($)
Acadia[1]	Dry Broadcast Air/ Harrow	CLXL723	3/28	Delayed Flood	122.45	14.47	54.94	14.00
Cameron[1]	Water	CL111	3/23	Delayed Flood	71.60	26.00	45.20	6.85
Concordia	Drill	CLXL745	5/15	Delayed Flood	150.00	21.00	130.54	24.00
Vermilion	Dry Broadcast Air/ Harrow	CL111	4/7	Delayed Flood	80.00	N/A	70.76	14.00
West Carroll	Drill	CLXL745	5/6	Delayed Flood	150.00	18.00	82.14	21.00

[1] Costs include first and ratoon crop. All parish water and harvest costs from AgCenter budgets.

Continued.

Table 1. Continued.

Parish	Fertilizer Costs ($)	Fertilizer Application Costs ($)	Fungicide Costs ($)	Fungicide Application Costs ($)	Insecticide Costs ($)	Insecticide Application Costs ($)	Water Costs ($)
Acadia[1]	225.34	42.23	N/A	N/A	N/A	N/A	N/A
Cameron[1]	169.86	53.90	26.00	6.88	N/A	N/A	135.67
Concordia	123.49	34.00	5.16	6.00	N/A	N/A	113.30
Vermilion	103.06	28.00	N/A	N/A	N/A	N/A	113.30
West Carroll	121.43	34.00	34.00	7.00	10.37	5.04	76.72

[1] Costs include first and ratoon crop. All parish water and harvest costs from AgCenter budgets.

Continued.

Table 1. Continued.

Parish	Harvest Date	Yield at 12% Moisture[1]			Milling % % Whole / % Total	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
		lb	**bbl**	**bu**				
Acadia[1]	7/31	13.867	85.5	308	48.75	710.86	5.12	939.13
Cameron[1]	7/27	10,522	65	233	63/79	680.27	6.46	571.84
Concordia	9/1	8,487	52	189	58/76	629.61	7.41	380.34
Vermilion	8/6	6,529	40	145	68/76	522.42	8.00	254.53
West Carroll	9/2	9,809	56	202	61/76	585.44	6.44	496.15

[1] Costs and yields include first and ratoon crop.
[2] Value obtained using selling price of $11.90/cwt based on FSA figures.

Table 3. Eighteen-Year Louisiana Rice Research Verification Summary.

1998 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

1999 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

Table 3. Continued.

2000 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

2001 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

Table 3. Continued.

2002 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

2003 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

Table 3. Continued.

2004 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

2005 Verification Acres and Yields*				
		Yield at 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 at 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 at 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**

* Yield includes second crop.

2008 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

Table 3. Continued.

2009 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

2010 Verification Acres and Yields				
		Yield at 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**

* Yield includes second crop.

2011 Verification Acres and Yields				
		Yield at 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] Yield includes second crop.
[2] Yield calculated on 10.5 acres, total field acres 73.4.

Table 3. Continued.

2012 Verification Acres and Yields				
		Yield at 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] Yield includes second crop.

2013 Verification Acres and Yields				
		Yield at 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] Yield includes second crop.

2014 Verification Acres and Yields				
		Yield at 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
Jeff Davis[1]	42.6	83.8	301.6	13,574
Vermilion[1]				
W. Carroll	32.2	51.4	185.1	8,329
TOTALS	**118.5**			**9,931**

[1] Yield includes second crop.

Table 3. Continued.

2015 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia [1]	40.5	85.5	308	13,867
Cameron [1]	45	65	233	10,522
Concordia	18	52	189	8,487
Vermilion	39.2	40	145	6,529
W. Carroll	36.5	56	202	9,089
TOTALS	**179.2**	**61**	**219.9**	**9,908**

[1] Yield includes second crop.

1998 – 2015 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	118.5	9,931	194,761	7,541	2,390
2015	179.2	9,908	155,845	*	*
Totals	**5,738.2**		**47,945,697**		

* Not available at press time.

STATION PERSONNEL

Steven D. Linscombe, Professor -- Regional Director/Resident Coordinator

Valerie B. Dartez	Administrative Coordinator III
Kimberly G. Guidry	Accounting Specialist I
Carol D. LeDoux	Administrative Program Specialist-A
Donna L. Sonnier	Custodian I

Adam N. Famoso, Assistant Professor[1] -- Rice Breeding

Donald E. Groth, Professor/Research Coordinator -- Rice Pathology

Carl W. Dischler	Research Associate/Specialist
Laura L. Monte	Research Farm Specialist I

Dustin L. Harrell, Associate Professor[2] -------------------------------- Rice Agronomy/Rotational Crops/Extension

Jacob S. Fluitt	Research Associate/Specialist
James P. Leonards	Research Associate/Specialist
Ronald P. Regan[3]	Research Associate/Specialist
Nutifafa Adotey[4]	Graduate Assistant
Jifeng Li[5]	Graduate Assistant

Manoch Kongchum, Assistant Professor-Research[6] --------------------------------Rice Agronomy/Rotational Crops

William J. Leonards, Jr., Research Associate/Coordinator/Manager -----------------------------Farm Management

Brent W. Theunissen[7]	Research Associate/Coordinator/Manager
Nathan T. Breaux	Research Farm Specialist I
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 II
Lazo N. Pavich[8]	Research Associate/Specialist
Brent W. Theunissen	Research Associate/Coordinator/Manager

Mona M. Meche, Research Associate/Coordinator -------------------------Rice Anther Culture/Tissue Culture

Jennifer D. Dartez	Research Farm Specialist I

[1] Appointed 05/29/15
[2] Assumed State Rice Specialist responsibilities (06/27/14); John K. Saichuk retired 01/05/15
[3] Retired 08/07/15
[4] Appointed 08/15/13
[5] Appointed 08/15/13
[6] Promoted 11/16/15
[7] Promoted 08/01/15
[8] Appointed 02/16/15

STATION PERSONNEL
(Continued)

W. Ray McClain, Professor -- Aquaculture

John J. Sonnier	Research Farm Specialist II

James H. Oard, Professor -- Rice Hybrid Breeding

Troy C. Barrilleaux	Research Associate/Specialist
Elle M. Cooper	Research Farm Specialist I
Jose R. Camacho Montero[9]	Graduate Assistant
Christian T. De Guzman[10]	Graduate Assistant
Manuel Q. Esquerra[11]	Graduate Assistant
Dominique C.A. Galam[12]	Graduate Assistant
Federico Molina Casella[13]	Graduate Assistant

Glenn J. Schexnayder, Research Farm Maintenance Manager ----------------------- Maintenance Department

Ted R. Trahan	Maintenance Repairer II

Michael J. Stout, Professor (Baton Rouge)---Rice Entomology

Marty J. Frey	Research Associate/Specialist

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[14] --------------------------------------Foundation Seed Rice

Richard E. Zaunbrecher, Research Associate/Coordinator[15] ------------------------------------Foundation Seed Rice

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[9] Appointed 05/31/13
[10] Appointed 05/30/11
[11] Appointed 08/09/12
[12] Appointed 01/09/12
[13] Appointed 08/01/15
[14] Retired 10/31/15
[15] Promoted 10/01/15

LSU AGCENTER CAMPUS PERSONNEL

LSU AgCenter personnel conducting research at the H. Rouse Caffey Rice Research Station include the following:

Jong Hyun Ham, Associate Professor--- Rice Diseases

Department of Plant Pathology and Crop Physiology

Inderjit K. Barphagha[14]	Research Associate
Bishnu K. Shrestha[15]	Research Associate
Jingyu Peng[16]	Graduate Assistant

Michael E. Salassi, Professor--Economics

Department of Agricultural Economics and Agribusiness

Michael J. Stout, Professor--Rice Entomology

Department of Entomology

Marty J. Frey (RRS)	Research Associate/Specialist
Lina Bernaola Alvarado[17]	Graduate Assistant
Emily C. Kraus[18]	Graduate Assistant
Maisarah Mohamad Saad[19]	Graduate Assistant
James M.P. Villegas[20]	Graduate Assistant

Eric P. Webster, Professor -- Rice Weed Control

School of Plant, Environmental and Soil Sciences

J. Caleb Fish[21]	Research Associate
Benjamin M. McKnight	Research Associate
Eric A. Bergeron	Graduate Assistant
Samer Y. Rustom, Jr.[22]	Graduate Assistant

[14] Appointed 02/18/08
[15] Separated 01/03/16
[16] Graduated-Separated 12/18/15
[17] Appointed 01/11/10
[18] Appointed 06/13/14
[19] Appointed 09/01/15
[20] Appointed 06/02/15
[21] Graduated-Separated 12/31/14
[22] Appointed 01/08/15

COOPERATING PERSONNEL

Cooperating personnel on research projects at the H. Rouse Caffey Rice Research Station include the following:

Lucas Aviles -- Rice Breeding
University of Puerto Rico Research and 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
Louisiana State University Agricultural Center

Clayton Hollier---Soybean and Rice Disease Control
Department of Plant Pathology and Crop Physiology
Louisiana State University Agricultural Center

Ronald J. Levy -- Soybeans
Dean Lee Research and Extension Center
Louisiana State University Agricultural Center

Anthony Rivera--- Rice Breeding
University of Puerto Rico Research & Extension Center
Lajas, Puerto Rico

Aaron Smith--- Rice Breeding
Department of Biological Sciences
Louisiana State University

Prasanta Subudhi -- Rice Breeding
School of Plant, Environmental and Soil Sciences
Louisiana State University Agricultural Center

Brenda Tubaña -- Rice Fertilization
School of Plant, Environmental and Soil Sciences
Louisiana State University Agricultural Center

Sonny Viator -- Sweet Sorghum
Sugar Research Station/Iberia Research Station
Louisiana State University Agricultural Center

E. Allen Wilson --Bird Control
USDA Animal Damage Control
Crowley, Louisiana

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William B. Richardson, LSU Vice President for Agriculture
Louisiana State University Agricultural Center
Louisiana Agricultural Experiment Station
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