104th Annual Research Report

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Rice Research Station

Crowley, Louisiana • 2012

LSU AgCenter Research & Extension

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Cover Photos

A 2012 trial evaluated Agrotain Ultra- and Arborite AG-treated urea when applied 10 days, five days and one day prior to flood establishment.

Pyramid style traps used in the crawfish industry also are used in research to test efficacy of experimental crawfish baits.

Aerial seeding was tested on a newly constructed marsh in Marsh Island. The intent is to develop large-scale planting technology for coastal restoration and erosion control.

Planting and fertilizing off-station variety trial in Evangeline Parish.

Differences in blast disease resistance or susceptibility of rice breeding lines were evaluated in 2012 at the LSU AgCenter's Rice Research Station.

A grain sorghum variety trial is harvested – with sweet sorghum growing in the background.

104th Annual Research Report

RICE RESEARCH STATION

Crowley, Louisiana

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Louisiana State University Agricultural Center
Louisiana Agricultural Experiment Station
Louisiana Cooperative Extension Service
William B. Richardson, Chancellor and Director

Southwest Region/Rice Research Station
Steve D. Linscombe, Regional Director/Resident Coordinator

The LSU Agricultural Center is a statewide campus of the LSU System and provides equal opportunities in programs and employment.

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INTRODUCTION

Research at the Rice Research Station, Crowley, Louisiana, is conducted by scientists with the LSU AgCenter's Louisiana Agricultural Experiment Station. The 2012 rice research program included breeding/variety development, biotechnology, variety testing, fertilization, soil and water management, cultural practices, weed control, insect control, and disease investigations. Crops grown in rotation with rice were evaluated relative to increasing the efficiency of land use. The aquaculture research program places emphasis upon production practices, forages, and multi-cropping of crawfish with agronomic crops. Another important area of work is the production and distribution of foundation seed. The Rice Research Station also conducts research studies in improving species for coastal restoration. In addition, the statewide rice extension agronomist conducts numerous educational programs from the Rice Research Station. In addition to the research conducted by members of the Rice Station faculty, several faculty members from the Baton Rouge campus conducted research at this station.

The research activities of this station include both fundamental and applied research, although the latter predominates because of the mission of the Rice Research Station. Research accomplishments and general progress of the Rice Station during 2012 are presented in this report representing the 104th Annual Research Report of the Rice Research Station, Louisiana Agricultural Experiment Station, and LSU Agricultural Center. It is significant that this research facility has been providing new technology to the Louisiana rice industry for more than 100 years.

In addition to research responsibilities of the Rice Research Station faculty and cooperators, a large number of farmers, extension personnel, and others were trained and otherwise contacted during 2012. Approximately 500 people attended the annual Rice Research Station field day to view plots and participate in discussions of research findings. Field days also were conducted in Evangeline, Jefferson Davis, Richland, St. Landry, and Vermilion parishes. In addition, the faculty participated in industry meetings, both on and off the station, and worked individually with farmers and others in solving immediate problems. Several thousand people received services from the Rice Research Station during 2012.

Projects at this station are conducted under the supervision of research scientists from the Rice Research Station and also by cooperating personnel from certain departments of the Louisiana Agricultural Experiment Station. Following the reports, station personnel and cooperators in 2012 are listed.

MONTHLY RAINFALL DATA
RICE RESEARCH STATION - CROWLEY, LA
2012

DATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR TOTAL
1	.30	.10				.05			.25	1.22			
2	.01	.46							.62				
3		.15	.08	1.35	1.47				.02				
4		.44	.02	.96				.18				.20	
5		1.06						.25			.02	.91	
6		.02									.61		
7	.07					1.98	1.10						
8	.02				.30	1.50							
9			.82		1.97	.11	1.00	1.23					
10	6.70	.10	.49				.23	1.09				.80	
11		.58			.23		.95					.01	
12			.90	.03	.40		.50				.73		
13			.66			1.13	1.28		.54				
14		.32				1.39	.08	.02	.10				
15						.16	.02			.06			
16		.24				.05	.02						
17				.76	.04			.96	1.00	.21		2.90	
18	.10	.51				.13		1.00	.29	.25			
19		2.90				.01	.02	.52					
20							.55	1.85				.07	
21			2.34	.25			2.50						
22			.18				.65						
23		.02					.67						
24		.03						.01					
25	.50							.50				.06	
26	1.69						.44	.50	.37			1.56	
27							.35	.30			.35		
28		.36										.03	
29		.02					.19		.89			1.06	
30			.16					1.62	.91				
31								.25					
MONTH TOTAL	9.39	7.31	5.65	3.35	4.41	6.51	10.55	10.28	4.99	1.74	1.71	7.60	73.49
	5.15	2.46	1.71	3.57	1.45	2.43	10.96	1.85	7.66	0.70	3.57	3.56	45.07

RICE BREEDING

GENETIC IMPROVEMENT OF RICE FOR LOUISIANA PRODUCTION[1]

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

INTRODUCTION

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

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

The 2012 rice breeding nursery included more than 96,000 breeding rows, 540 F_1 transplant populations, and 345 space planted F_2 populations. About 730 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 (50 Louisiana entries). The commercial-advanced test was conducted at the Rice Research Station and five off-station locations.

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

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

COMMERCIAL-ADVANCED TEST

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

Test locations in 2012 included the Rice Research Station (RRS) at Crowley and five on-farm test sites in Jefferson Davis, Evangeline, Vermilion, Acadia, and St. Landry parishes. The tests in St. Landry and Vermilion parishes were conducted in cooperation with the Rice Agronomy Project.

Sixty entries were tested in a randomized complete block design with three replications. The Acadia location included a subset of the 60 entries and several additional lines. Varieties and hybrids were seeded at 90 and 38 lb/A, respectively. Planting dates were: RRS, March 5; Evangeline, March 29: Vermilion, March 28; Acadia, April 24; Jefferson Davis, March 8, and St. Landry, March 27. Harvest dates were: RRS, July 24; Evangeline, August 3; Vermilion, August 2; Acadia, August 28; Jefferson Davis, July 27, and St. Landry, Aug. 8. 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 Trial, 2012.

Entry	**Pedigree**	**Grain Type**†	**Source**‡
201	CL111	L	LAES
202	CL131	L	LAES
203	CL142 (ARKANSAS)	L	AAES
204	CL151	L	LAES
205	CL152	L	LAES
206	CL161	L	LAES
207	CL162 (MISSISSIPPI)	L	MAFES
208	MERMENTAU	L	LAES
209	CL261	M	LAES
210	COCODRIE	L	LAES
211	CHENIERE	L	LAES
212	CATAHOULA	L	LAES
213	CYPRESS	L	LAES
214	WELLS	L	AAES
215	REX	L	MAFES
216	TEMPLETON	L	AAES
217	TAGGERT	L	AAES
218	ROY J	L	AAES
219	JAZZMAN	L(A)	LAES
220	JAZZMAN-2	L(A)	LAES
221	DELLA-2	L(A)	LAES
222	NEPTUNE	M	LAES
223	JUPITER	M	LAES
224	CAFFEY	M	LAES
225	LAH10	M	LAES
226	BENGAL	M	LAES
227	9502008-A//AR1188/CCDR/3/…	L	LAES

Continued.

Table 1. Continued.

Entry	Pedigree	Grain Type†	Source‡
228	TRNS//CCDR/JEFF	L	LAES
229	TRNS//CCDR/JEFF	L	LAES
230	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	L	LAES
231	TRNS//CCDR/JEFF	L	LAES
232	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	L	LAES
233	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	L	LAES
234	CFX-26/9702128//CCDR/JEFF	L	LAES
235	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	L	LAES
236	CCDR//CLPY 003	L	LAES
237	BNGL/CL161	M	LAES
238	CFX-26/9702128//EP 144	L	LAES
239	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	L	LAES
240	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	L	LAES
241	CCDR/JEFF/3/CFX-18//CPRS/KBNT	L	LAES
242	CCDR/JEFF//CFX-26/9702128	L	LAES
243	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	L	LAES
244	WELLS/CFX-18//DREW/CFX-18	L	LAES
245	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	L	LAES
246	CCDR//9502008/LGRU	L	LAES
247	JZMN/08CLR004//JZMN	L	LAES
248	CPRS/KBNT//9502008-A/3/RU0602180	L	LAES
249	RU0602103/3/9502008-A//AR1188/CCDR	L	LAES
250	CPRS/KBNT//9502008-A	L	LAES
251	CCDR/JEFF/3/9502008//AR1142/MBLE	L	LAES
252	9502008//AR1188/CCDR/3/CCDR	L	LAES
253	CCDR/AC919	L	LAES
254	CCDR//CCDR/JEFF	L	LAES
255	9502008-A//AR1188/CCDR/3/CCDR/JEFF	L	LAES
256	DLMT/5/DLMT 8462…/4/DMSI	L	LAES
257	JZM2//07PY824/08CLR003	L	LAES
258	BNGL/CL 162//BNGL	M	LAES
259	BNGL/CL 162//BNGL	M	LAES
260	BNGL/CL 164/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	M	LAES

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

‡ AAES - Rice Research and Extension Center, Arkansas Agricultural Experiment Station, Stuttgart, AR; LAES -Rice Research Station, Louisiana Agricultural Experiment Station, LSU Agricultural Center, Crowley, LA; MAFES - Delta Research and Extension Center, Mississippi Agricultural and Forestry Experiment Station, Stoneville, MS.

Table 2. Grain and milling yields and agronomic performance of entries in 2012 Commercial-Advanced Trial. Acadia Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
225	LAH10	LAH10	5	86	50	10032
261	H10010	H10010	5	87	48	8185
223	JPTR	JUPITER	5	83	38	7413
262	11CLPR119	JZMN/08CLR004//JZMN	4	87	45	6811
224	CFFY	CAFFEY	4	83	39	6797
212	CHTL	CATAHOULA	5	84	39	6749
247	1202025	JZMN/08CLR004//JZMN	4	86	41	6383
222	NPTN	NEPTUNE	4	83	36	6061
217	TGRT	TAGGERT	5	90	45	6017
219	JZMN	JAZZMAN	5	88	41	5787
250	1102034	CPRS/KBNT//9502008-A	6	82	39	5757
221	DELLA-2	DELLA-2	5	89	42	5748
227	0902088	9502008-A//AR1188/CCDR/3/…	4	80	38	5648
216	TMPT	TEMPLETON	4	86	41	5626
253	1202131	CCDR/AC919	6	81	43	5612
245	1102155	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	80	37	5524
201	CL111	CL111	3	78	39	5427
235	1202094	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	5	75	40	5303
229	1102192	TRNS//CCDR/JEFF	6	78	38	5164
246	1002128	CCDR//9502008/LGRU	5	83	41	5100
210	CCDR	COCODRIE	6	80	39	5047
256	1202140	DLMT/5/DLMT 8462…/4/DMSI	6	81	36	5006
251	1102125	CCDR/JEFF/3/9502008//AR1142/MBLE	5	78	40	4994
215	REX	REX	5	83	43	4934
220	JZMN2	JAZZMAN-2	5	86	36	4905
254	1202134	CCDR//CCDR/JEFF	4	79	40	4877
208	MRMT	MERMENTAU	4	78	37	4847
255	1202137	9502008-A//AR1188/CCDR/3/CCDR/JEFF	6	77	40	4822
203	CL142	CL142	4	84	43	4737
213	CPRS	CYPRESS	5	87	39	4693
230	1002011	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	80	38	4652
252	1102128	9502008//AR1188/CCDR/3/CCDR	5	77	40	4641
218	ROY J	ROY J	5	91	43	4592
249	1102031	RU0602103/3/9502008-A//AR1188/CCDR	6	79	41	4558
211	CHNR	CHENIERE	5	83	36	4512
248	1102137	CPRS/KBNT//9502008-A/3/RU0602180	6	83	39	4499
202	CL131	CL131	4	80	35	4219

Continued.

Table 2. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
231	1102195	TRNS//CCDR/JEFF	5	80	38	3979
206	CL161	CL161	4	84	37	3966
237	0902082	BNGL/CL161	3	80	38	3937
228	1102174	TRNS//CCDR/JEFF	4	80	36	3921
214	WLLS	WELLS	4	87	41	3803
226	BNGL	BENGAL	4	80	38	3782
239	1202045	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	5	82	38	3620
204	CL151	CL151	4	81	40	3601
205	CL152	CL152	4	84	38	3364
209	CL261	CL261	3	77	38	2763
207	CL162	CL162	4	78	39	1850
CV						
LSD						

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2012 Commercial-Advanced Yield Trial. Evangeline Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
225	LAH10	LAH10	5	90	51	9170	60.1	66.8
250	1102034	CPRS/KBNT//9502008-A	4	79	32	8411	56.5	70.7
237	0902082	BNGL/CL161	3	85	38	8406	66.0	70.0
260	CLPR 100	BNGL/CL164/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	4	85	36	8357	65.9	70.0
224	CFFY	CAFFEY	4	84	35	8200	55.8	61.1
243	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	85	35	7922	55.9	68.6
236	1202097	CCDR//CLPY 003	5	80	36	7821	62.4	71.2
259	CLPR 097	BNGL/CL162//BNGL	4	84	37	7820	63.6	67.8
244	1202106	WELLS/CFX-18//DREW/CFX-18	5	81	36	7779	58.2	69.9
228	1102174	TRNS//CCDR/JEFF	5	80	31	7749	57.8	69.1
258	CLPR 094	BNGL/CL162//BNGL	4	84	36	7743	64.5	68.9
253	1202131	CCDR/AC919	5	79	37	7739	57.8	69.7
232	1202082	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	5	83	37	7710	59.6	69.7
207	CL162	CL162	4	79	37	7709	54.2	69.7
254	1202134	CCDR//CCDR/JEFF	5	81	38	7654	60.3	69.8
241	1202091	CCDR/JEFF/3/CFX-18//CPRS/KBNT	4	81	34	7636	62.5	71.9
204	CL151	CL151	5	85	38	7617	56.7	68.8
201	CL111	CL111	4	80	36	7526	58.9	69.7
231	1102195	TRNS//CCDR/JEFF	6	78	35	7518	59.3	69.4
235	1202094	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	4	81	34	7438	62.4	71.5
240	1202048	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	4	80	33	7409	60.6	70.2
238	1202103	CFX-26/9702128//EP 144	5	84	37	7388	52.1	65.4

Continued.

Table 3. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
209	CL261	CL261	4	83	35	7370	63.5	68.6
223	JPTR	JUPITER	5	87	34	7302	56.2	60.2
249	1102031	RU0602103/3/9502008-A//AR1188/CCDR	5	79	36	7292	59.1	71.5
255	1202137	9502008-A//AR1188/CCDR/3/CCDR/JEFF	5	78	35	7271	60.1	71.0
226	BNGL	BENGAL	4	85	34	7262	58.9	65.4
239	1202045	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	4	79	34	7237	60.8	70.4
210	CCDR	COCODRIE	5	80	35	7204	57.6	70.3
202	CL131	CL131	4	85	31	7185	66.1	72.5
252	1102128	9502008//AR1188/CCDR/3/CCDR	5	78	32	7158	60.0	71.0
230	1002011	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	86	36	7098	53.0	66.6
213	CPRS	CYPRESS	4	84	33	7046	62.9	70.6
227	0902088	9502008-A//AR1188/CCDR/3/…	5	85	37	7041	58.5	69.8
216	TMPT	TEMPLETON	4	83	38	7039	63.2	71.5
212	CHTL	CATAHOULA	5	80	37	6994	59.7	71.6
245	1102155	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	85	36	6990	57.8	69.9
251	1102125	CCDR/JEFF/3/9502008//AR1142/MBLE	5	79	34	6908	58.1	71.0
215	REX	REX	4	85	39	6846	56.4	67.2
248	1102137	CPRS/KBNT//9502008-A/3/RU0602180	5	79	31	6845	59.8	70.0
233	1202085	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	5	84	34	6836	60.8	70.8
229	1102192	TRNS//CCDR/JEFF	6	80	33	6781	53.4	68.4
203	CL142	CL142	4	86	41	6754	47.2	64.5
221	JES	JES	5	90	39	6694	54.9	64.4
257	1202146	JZM2//07PY824/08CLR003	5	85	33	6678	56.6	67.9
246	1002128	CCDR//9502008/LGRU	6	79	34	6551	60.8	70.8
218	ROY J	ROY J	4	88	43	6545	49.3	62.6
214	WLLS	WELLS	3	85	37	6524	52.5	67.7
208	MRMT	MERMENTAU	4	85	34	6461	57.3	69.2
247	1202025	JZMN/08CLR004//JZMN	4	89	40	6458	50.4	66.6
217	TGRT	TAGGERT	4	85	41	6452	45.0	63.2
211	CHNR	CHENIERE	5	83	32	6425	64.6	73.0
234	1202088	CFX-26/9702128//CCDR/JEFF	6	86	38	6332	50.0	65.5
205	CL152	CL152	4	89	38	6211	55.2	68.7
242	1202165	CCDR/JEFF//CFX-26/9702128	6	85	36	6187	54.1	65.5
206	CL161	CL161	4	86	38	6170	59.4	69.7
222	NPTN	NEPTUNE	5	88	36	6013	57.6	64.2
256	1202140	DLMT/5/DLMT 8462…/4/DMSI	6	83	36	5773	59.5	69.5
220	JZMN2	JAZZMAN-2	4	82	32	5536	58.9	68.4
219	JZMN	JAZZMAN	5	87	37	4837	54.7	67.9
CV								
LSD								

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2012 Commercial-Advanced Yield Trial. Jefferson Davis Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
223	JPTR	JUPITER	4	91	34	8820	63.9	67.6
221	JES	JES	6	61	33	8431	57.7	68.4
225	LAH10	LAH10	7	96	44	8237	60.7	68.9
247	1202025	JZMN/08CLR004//JZMN	4	91	39	7693	63.2	71.6
250	1102034	CPRS/KBNT//9502008-A	4	88	32	7660	58.0	70.7
216	TMPT	TEMPLETON	4	91	36	7519	64.8	71.0
226	BNGL	BENGAL	4	91	34	7439	61.5	67.7
222	NPTN	NEPTUNE	5	90	32	7286	63.9	68.3
224	CFFY	CAFFEY	4	90	33	7251	60.9	66.9
211	CHNR	CHENIERE	5	89	32	7205	65.6	73.1
218	ROY J	ROY J	5	92	35	7144	54.6	69.7
243	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	4	87	33	7028	56.1	69.6
249	1102031	RU0602103/3/9502008-A//AR1188/CCDR	5	87	34	6933	59.6	69.9
259	CLPR 097	BNGL/CL 162//BNGL	4	89	35	6863	64.8	70.3
217	TGRT	TAGGERT	5	93	41	6811	51.1	68.2
214	WLLS	WELLS	4	91	37	6756	56.7	70.5
232	1202082	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	6	88	33	6721	63.4	70.1
202	CL131	CL131	4	88	33	6672	63.6	70.5
236	1202097	CCDR//CLPY 003	5	86	34	6637	66.5	72.4
253	1202131	CCDR/AC919	4	87	36	6617	65.8	72.1
230	1002011	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	6	89	32	6560	61.1	69.6
233	1202085	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	6	87	31	6553	63.4	70.5
203	CL142	CL142	4	89	44	6552	48.2	69.0
240	1202048	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	4	87	33	6537	62.4	71.2
255	1202137	9502008-A//AR1188/CCDR/3/CCDR/JEFF	5	86	33	6495	59.8	71.6
237	0902082	BNGL/CL161	4	89	35	6493	66.1	69.8
258	CLPR 094	BNGL/CL 162//BNGL	4	89	35	6486	64.9	69.0
257	1202146	JZM2//07PY824/08CLR003	5	87	33	6414	61.9	69.4
210	CCDR	COCODRIE	5	89	31	6393	62.0	71.0
260	CLPR 100	BNGL/CL 164/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	5	89	35	6385	65.6	69.7
254	1202134	CCDR//CCDR/JEFF	5	88	35	6309	59.9	70.7
204	CL151	CL151	5	89	35	6294	55.7	69.9
242	1202165	CCDR/JEFF//CFX-26/9702128	5	87	32	6254	58.4	69.0
201	CL111	CL111	4	88	37	6254	61.1	70.8
256	1202140	DLMT/5/DLMT 8462…/4/DMSI	5	88	31	6232	61.3	71.7
241	1202091	CCDR/JEFF/3/CFX-18//CPRS/KBNT	4	86	34	6150	65.2	71.6
219	JZMN	JAZZMAN	6	93	35	6125	62.4	70.7
231	1102195	TRNS//CCDR/JEFF	5	87	35	6110	62.2	70.9
212	CHTL	CATAHOULA	6	88	33	6092	64.0	71.9
251	1102125	CCDR/JEFF/3/9502008//AR1142/MBLE	6	88	31	6080	64.7	71.7

Continued.

Table 4. Continued..

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
206	CL161	CL161	5	90	35	6051	64.9	70.6
213	CPRS	CYPRESS	5	93	32	6028	64.6	70.8
229	1102192	TRNS//CCDR/JEFF	5	87	34	5976	64.2	71.3
220	JZMN2	JAZZMAN-2	5	89	33	5891	64.3	70.3
239	1202045	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	5	87	32	5833	63.3	70.8
246	1002128	CCDR//9502008/LGRU	6	89	32	5819	59.8	69.9
235	1202094	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	5	86	31	5778	65.4	71.8
238	1202103	CFX-26/9702128//EP 144	5	87	34	5755	56.4	67.3
208	MRMT	MERMENTAU	5	89	32	5702	58.7	69.7
244	1202106	WELLS/CFX-18//DREW/CFX-18	4	85	34	5686	58.3	68.6
205	CL152	CL152	5	90	34	5660	59.5	69.8
245	1102155	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	6	87	32	5585	65.6	71.4
248	1102137	CPRS/KBNT//9502008-A/3/RU0602180	6	89	32	5462	61.8	71.3
227	0902088	9502008-A//AR1188/CCDR/3/…	6	39	34	5338	62.9	70.9
234	1202088	CFX-26/9702128//CCDR/JEFF	5	88	30	5212	60.3	68.5
252	1102128	9502008//AR1188/CCDR/3/CCDR	6	89	31	5126	65.4	71.2
215	REX	REX	4	89	36	5005	54.6	66.7
209	CL261	CL261	3	87	34	4763	60.2	66.7
228	1102174	TRNS//CCDR/JEFF	6	88	30	4700	60.2	69.1
207	CL162	CL162	4	85	35	4685	54.4	67.2
CV								
LSD								

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2012 Commercial-Advanced Yield Trial. Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
221	JES	JES	6	90	35	9517	2171	11688	53.5	67.8
223	JPTR	JUPITER	5	88	36	9703	1717	11420	56.7	63.5
222	NPTN	NEPTUNE	4	87	33	9347	1929	11275	61.9	66.3
212	CHTL	CATAHOULA	5	83	37	9489	1684	11172	64.9	72.1
250	1102034	CPRS/KBNT//9502008-A	5	83	37	9234	1753	10987	63.0	70.7
245	1102155	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	83	36	9108	1864	10973	65.4	71.1
225	LAH10	LAH10	6	90	49	9822	1063	10886	56.1	66.3
242	1202165	CCDR/JEFF//CFX-26/9702128	5	84	39	8707	2082	10789	57.2	69.1
224	CFFY	CAFFEY	4	85	36	8309	2231	10541	57.9	65.4
232	1202082	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	4	84	38	8820	1695	10514	59.7	68.5
253	1202131	CCDR/AC919	5	82	40	8144	2162	10305	61.6	70.2
217	TGRT	TAGGERT	4	87	45	7967	2167	10134	50.8	67.5
202	CL131	CL131	5	84	35	8327	1740	10067	65.0	71.5
216	TMPT	TEMPLETON	4	86	43	7636	2426	10062	64.0	70.5
247	1202025	JZMN/08CLR004//JZMN	4	85	41	8082	1901	9983	57.8	69.0
201	CL111	CL111	5	82	39	7889	1941	9830	60.8	70.8
235	1202094	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	5	83	38	7721	1853	9573	61.4	71.1
246	1002128	CCDR//9502008/LGRU	5	83	37	7558	1921	9479	57.9	69.1
254	1202134	CCDR//CCDR/JEFF	5	84	39	7454	1954	9408	55.0	68.8
227	0902088	9502008-A//AR1188/CCDR/3/…	5	83	30	7672	1689	9362	59.5	69.3
219	JZMN	JAZZMAN	4	85	39	7830	1500	9330	58.7	69.9
256	1202140	DLMT/5/DLMT 8462…/4/DMSI	5	83	38	7168	2158	9326	62.9	70.5
243	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	83	35	6972	2240	9212	53.3	67.1
255	1202137	9502008-A//AR1188/CCDR/3/CCDR/JEFF	5	83	38	7391	1778	9170	57.4	70.9
251	1102125	CCDR/JEFF/3/9502008//AR1142/MBLE	5	82	37	7354	1722	9076	57.9	68.9
236	1202097	CCDR//CLPY 003	4	82	37	7123	1918	9041	61.3	70.4
252	1102128	9502008//AR1188/CCDR/3/CCDR	5	82	36	7281	1704	8985	57.1	69.3
210	CCDR	COCODRIE	5	84	37	7177	1724	8900	56.3	69.4
220	JZMN2	JAZZMAN-2	5	84	36	7221	1623	8845	63.1	72.9
229	1102192	TRNS//CCDR/JEFF	5	83	38	7111	1649	8760	53.2	71.1
248	1102137	CPRS/KBNT//9502008-A/3/RU0602180	5	84	36	6997	1735	8732	56.3	67.5
249	1102031	RU0602103/3/9502008-A//AR1188/CCDR	5	83	40	7024	1699	8724	57.0	69.1

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG1	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
230	1002011	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	86	39	6455	2124	8579	55.3	68.0
213	CPRS	CYPRESS	5	86	36	6665	1857	8522	52.4	72.2
240	1202048	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	4	83	38	6749	1733	8482	54.0	67.5
241	1202091	CCDR/JEFF/3/CFX-18//CPRS/KBNT	4	82	39	6644	1660	8305	57.3	68.5
208	MRMT	MERMENTAU	4	84	35	6569	1699	8267	51.6	66.5
206	CL161	CL161	4	85	39	6140	1852	7992	59.3	68.8
231	1102195	TRNS//CCDR/JEFF	5	82	38	5795	2068	7862	57.8	68.5
218	ROY J	ROY J	4	87	40	5817	2009	7826	48.0	66.5
211	CHNR	CHENIERE	5	85	35	6057	1690	7746	54.1	68.8
214	WLLS	WELLS	4	87	40	5358	2186	7545	47.1	66.6
233	1202085	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	5	82	36	6005	1529	7534	56.3	68.5
260	CLPR 100	BNGL/CL 164/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	4	86	38	5311	2154	7465	57.0	64.6
238	1202103	CFX-26/9702128//EP 144	5	83	40	5300	2103	7403	45.9	61.5
234	1202088	CFX-26/9702128//CCDR/JEFF	6	84	38	5386	1960	7346	50.5	65.6
237	0902082	BNGL/CL161	5	84	37	4494	1920	6413	57.4	65.0
259	CLPR 097	BNGL/CL162//BNGL	4	86	39	4379	2016	6396	56.5	64.3
257	1202146	JZM2//07PY824/08CLR003	5	82	38	4631	1594	6225	49.7	65.0
258	CLPR 094	BNGL/CL 162//BNGL	4	84	38	4244	1912	6156	56.1	64.3
239	1202045	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	5	82	37	4557	1510	6067	52.2	65.7
203	CL142	CL142 (ARKANSAS)	4	85	45	3828	2217	6045	42.9	63.1
244	1202106	WELLS/CFX-18//DREW/CFX-18	5	82	38	3744	2288	6032	42.5	63.6
205	CL152	CL152	5	85	36	3757	2252	6009	40.9	61.4
215	REX	REX	5	82	40	3328	2139	5467	45.3	62.7
228	1102174	TRNS//CCDR/JEFF	5	82	36	2977	1696	4673	43.7	64.0
226	BNGL	BENGAL	4	85	33	2581	1801	4382	48.6	62.1
209	CL261	CL261	4	82	36	2591	1728	4319	51.8	62.2
204	CL151	CL151	5	84	39	2241	2003	4244	44.1	63.1
207	CL162	CL162 (MISSISSIPPI)	4	82	39	1474	2092	3566		
CV										
LSD										

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

Table 6. Grain and milling yields and agronomic performance of entries in the 2012 Commercial-Advanced Yield Trial. St. Landry Parish, LA.

ENT	SOURCE	PEDIGREE	HDT	HTE	YIELD
225	LAH10	LAH10	91	51	10327
243	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	81	36	10101
214	WLLS	WELLS	88	37	10070
218	ROY J	ROY J	88	40	9950
230	1002011	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	81	36	9838
204	CL151	CL151	83	38	9811
211	CHNR	CHENIERE	84	36	9799
229	1102192	TRNS//CCDR/JEFF	81	36	9746
231	1102195	TRNS//CCDR/JEFF	81	34	9730
250	1102034	CPRS/KBNT//9502008-A	82	38	9697
203	CL142	CL142 (ARKANSAS)	86	43	9649
217	TGRT	TAGGERT	88	41	9629
226	BNGL	BENGAL	84	37	9576
224	CFFY	CAFFEY	83	35	9560
206	CL161	CL161	82	37	9550
207	CL162	CL162 (MISSISSIPPI)	80	38	9532
249	1102031	RU0602103/3/9502008-A//AR1188/CCDR	82	38	9473
227	0902088	9502008-A//AR1188/CCDR/3/…	82	37	9271
244	1202106	WELLS/CFX-18//DREW/CFX-18	77	38	9246
247	1202025	JZMN/08CLR004//JZMN	86	39	9156
221	JES	JES	87	36	9140
208	MRMT	MERMENTAU	86	35	9122
223	JPTR	JUPITER	88	37	9113
259	CLPR 097	BNGL/CL 162//BNGL	85	37	9109
255	1202137	9502008-A//AR1188/CCDR/3/CCDR/JEFF	79	37	9078
239	1202045	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	82	34	9020
205	CL152	CL152	82	38	9019
210	CCDR	COCODRIE	81	38	8954
242	1202165	CCDR/JEFF//CFX-26/9702128	81	36	8953
213	CPRS	CYPRESS	85	37	8945
238	1202103	CFX-26/9702128//EP 144	83	36	8901
240	1202048	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	81	36	8895
228	1102174	TRNS//CCDR/JEFF	82	34	8882
252	1102128	9502008//AR1188/CCDR/3/CCDR	83	37	8877
251	1102125	CCDR/JEFF/3/9502008//AR1142/MBLE	83	37	8874
246	1002128	CCDR//9502008/LGRU	82	37	8836
233	1202085	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	82	35	8754
254	1202134	CCDR//CCDR/JEFF	82	37	8692
215	REX	REX	84	41	8690
237	0902082	BNGL/CL161	84	37	8688
258	CLPR 094	BNGL/CL 162//BNGL	86	35	8678

Continued.

Table 6. Continued.

ENT	SOURCE	PEDIGREE	HDT	HTE	YIELD
248	1102137	CPRS/KBNT//9502008-A/3/RU0602180	83	36	8621
241	1202091	CCDR/JEFF/3/CFX-18//CPRS/KBNT	79	37	8569
232	1202082	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	84	37	8549
236	1202097	CCDR//CLPY 003	80	37	8549
212	CHTL	CATAHOULA	81	39	8537
216	TMPT	TEMPLETON	89	40	8456
235	1202094	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	79	37	8408
253	1202131	CCDR/AC919	83	41	8386
220	JZMN2	JAZZMAN-2	86	36	8374
222	NPTN	NEPTUNE	86	35	8370
209	CL261	CL261	82	37	8298
260	CLPR 100	BNGL/CL 164/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	85	37	8140
201	CL111	CL111	80	40	8112
219	JZMN	JAZZMAN	88	41	8080
202	CL131	CL131	82	33	8046
245	1102155	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	81	36	8022
257	1202146	JZM2//07PY824/08CLR003	81	36	8000
256	1202140	DLMT/5/DLMT 8462…/4/DMSI	83	36	7391
234	1202088	CFX-26/9702128//CCDR/JEFF	88	38	7345
CV					
LSD					

Table 7. Grain and milling yields and agronomic performance of entries in the 2012 Commercial-Advanced Yield Trial. Vermilion Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
225	LAH10	LAH10	6	84	47	10689	2822	13511	58.2	67.5
224	CFFY	CAFFEY	4	82	36	9278	3219	12497	61.0	68.8
222	NPTN	NEPTUNE	4	83	35	8284	3195	11478	60.2	67.3
250	1102034	CPRS/KBNT//9502008-A	3	78	35	9106	2368	11474	55.2	70.4
243	1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	78	34	8757	2628	11385	52.2	68.9
260	CLPR 100	BNGL/CL 164/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	4	80	37	8351	2985	11336	63.7	70.8
232	1202082	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	5	79	36	8824	2474	11298	59.8	70.9
236	1202097	CCDR//CLPY 003	4	74	35	8211	2979	11190	62.9	71.9
237	0902082	BNGL/CL161	4	81	36	8132	3052	11184	61.4	69.9
242	1202165	CCDR/JEFF//CFX-26/9702128	5	77	35	9045	2101	11146	60.6	70.5
231	1102195	TRNS//CCDR/JEFF	5	74	38	7980	3132	11112	59.7	70.6
253	1202131	CCDR/AC919	5	76	36	8483	2575	11057	63.5	71.8
240	1202048	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	4	76	34	8526	2472	10998	60.1	70.8
212	CHTL	CATAHOULA	5	77	35	8387	2600	10988	60.0	72.7
241	1202091	CCDR/JEFF/3/CFX-18//CPRS/KBNT	4	75	36	8294	2608	10902	61.9	71.3
254	1202134	CCDR//CCDR/JEFF	5	76	37	8188	2696	10884	61.1	71.3
201	CL111	CL111	3	76	36	8449	2424	10872	60.5	71.2
230	1002011	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	5	79	36	7995	2857	10852	57.2	70.5
216	TMPT	TEMPLETON	3	79	38	8353	2466	10819	62.4	71.4
252	1102128	9502008//AR1188/CCDR/3/CCDR	5	77	33	8311	2410	10721	60.3	71.4
223	JPTR	JUPITER	5	83	36	8708	2006	10714	60.4	66.2
227	0902088	9502008-A//AR1188/CCDR/3/…	5	77	35	8343	2342	10685	62.8	72.0
238	1202103	CFX-26/9702128//EP 144	5	78	37	8443	2241	10684	54.6	67.1
246	1002128	CCDR//9502008/LGRU	5	77	34	8094	2507	10601	59.6	66.6
204	CL151	CL151	4	77	37	7700	2867	10566	60.2	71.1
258	CLPR 094	BNGL/CL162//BNGL	4	81	37	7616	2830	10446	63.4	70.4
233	1202085	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	5	76	34	8070	2320	10390	60.4	71.1
244	1202106	WELLS/CFX-18//DREW/CFX-18	4	74	36	7778	2590	10368	61.1	71.1
249	1102031	RU0602103/3/9502008-A//AR1188/CCDR	4	76	37	7963	2380	10343	62.6	72.1
217	TGRT	TAGGERT	3	84	39	7617	2701	10319	51.2	68.1
235	1202094	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	5	76	36	8361	1924	10286	63.2	72.7
228	1102174	TRNS//CCDR/JEFF	5	75	36	7478	2760	10238	55.3	69.8

Continued.

Table 7. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
234	1202088	CFX-26/9702128//CCDR/JEFF	6	82	37	7809	2361	10169	58.1	68.8
245	1102155	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	78	35	7810	2346	10155	63.5	71.8
210	CCDR	COCODRIE	4	77	35	7817	2332	10149	63.2	71.2
221	JES	JES	6	85	35	8329	1805	10134	58.6	67.7
206	CL161	CL161	4	81	35	7861	2241	10102	63.7	71.9
218	ROY J	ROY J	3	84	38	7194	2879	10073	54.0	69.3
248	1102137	CPRS/KBNT//9502008-A/3/RU0602180	5	77	35	7592	2323	9915	56.8	70.1
229	1102192	TRNS//CCDR/JEFF	6	77	35	7776	2132	9908	61.4	70.6
259	CLPR 097	BNGL/CL 162//BNGL	3	81	37	7166	2720	9887	64.3	70.7
226	BNGL	BENGAL	3	81	36	7274	2549	9823	59.7	68.4
213	CPRS	CYPRESS	4	81	34	7433	2343	9776	64.4	71.5
202	CL131	CL131	3	78	31	7630	2130	9760	64.0	72.7
255	1202137	9502008-A//AR1188/CCDR/3/CCDR/JEFF	5	76	33	7590	2157	9748	60.6	72.2
251	1102125	CCDR/JEFF/3/9502008//AR1142/MBLE	4	74	35	7759	1905	9664	62.1	72.7
256	1202140	DLMT/5/DLMT 8462…/4/DMSI	6	79	35	7229	2366	9595	57.0	71.2
257	1202146	JZM2//07PY824/08CLR003	5	75	34	7328	2250	9579	64.0	70.5
205	CL152	CL152	4	79	35	6915	2441	9355	57.3	68.9
239	1202045	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	4	76	34	7327	1958	9285	61.8	71.3
203	CL142	CL142 (ARKANSAS)	3	79	44	6880	2388	9268	44.9	68.9
247	1202025	JZMN/08CLR004//JZMN	4	81	37	7512	1663	9175	59.8	71.2
211	CHNR	CHENIERE	5	80	34	7082	2038	9120	63.1	72.9
214	WLLS	WELLS	3	81	36	6491	2624	9115	56.1	70.5
209	CL261	CL261	3	78	37	6847	2127	8974	63.4	69.4
215	REX	REX	4	81	38	6517	2285	8802	52.7	66.8
208	MRMT	MERMENTAU	3	78	32	6859	1812	8671	55.7	67.7
220	JZMN2	JAZZMAN-2	4	80	32	6138	2054	8192	62.7	71.0
207	CL162	CL162 (MISSISSIPPI)	3	74	38	6096	1694	7791	47.9	66.9
219	JZMN	JAZZMAN	4	86	38	6571	1188	7759	60.5	70.9
CV										
LSD										

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

CLEARFIELD EXPERIMENTAL LINES

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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 2012 included the Rice Research Station (RRS) at Crowley and two on-farm test sites in Vermilion and St. Landry parishes. The test in St. Landry Parish was conducted in cooperation with the Rice Agronomy Project.

Twenty-five entries were tested in a randomized complete block design with three replications. Varieties were seeded at 90 lb/A. Planting dates were: RRS, March 5; Vermilion, March 28; and St. Landry, March 27. Harvest dates were: RRS, July 19-20; Vermilion, August 2; and St. Landry, August 8. Results from these trials are shown in Tables 1-3.

Table 1. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield multi-location trial. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
007	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	84	38	8936	1756	10692	62.6	71.7
005	CCDR//CFX-29/CCDR	4	84	41	8284	2114	10398	55.4	67.0
009	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	4	84	38	8142	1957	10099	54.8	68.3
022	JZMN/08CLR004//JZMN	4	87	44	7636	2386	10022	57.9	68.6
001	9502008-A//AR1188/CCDR/3/CFX 29//AR 1142/LA 2031	4	85	40	7967	2025	9992	58.4	70.5
014	CCDR//CLPY 003	4	83	42	7727	2249	9976	57.2	69.9
002	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	86	40	7216	2617	9834	53.7	68.4
019	JZMN/08CLR004//JZMN	3	85	41	7819	1981	9800	59.2	69.5
008	CCDR/JEFF//CFX-26/9702128	4	83	39	8048	1735	9783	53.7	67.0
013	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	4	83	39	7505	1801	9306	57.9	68.0
004	DREW/CFX-18//CFX-29/CCDR	5	86	38	7007	2175	9182	53.2	67.0
012	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	84	36	6704	2321	9025	48.0	67.9
010	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	4	82	37	6633	1856	8490	50.6	65.5
011	CFX-26/9702128//CCDR/JEFF	4	85	39	6101	2193	8294	51.9	64.3
018	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4	84	41	5762	1818	7580	50.1	65.5
006	BNGL/CL161	4	86	40	5301	2223	7524	58.5	65.0
003	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	4	86	44	5562	1804	7366	47.7	67.4
017	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	3	85	41	5401	1854	7254	48.7	65.2
020	JZM2//07PY824/08CLR003	5	84	40	5405	1761	7166	49.8	63.9
015	CFX-26/9702128//EP 144	4	84	38	5199	1956	7154	43.3	60.7
016	WELLS/CFX-18//DREW/CFX-18	4	83	40	4409	2355	6764	38.4	61.2
024	CL152	5	86	38	4238	2271	6509	37.7	59.4
025	CL261	4	84	38	3368	2126	5494	52.4	61.6
021	JZMN/08CLR004//JZMN	4	83	43	3030	2430	5461	39.3	60.2
023	CL151	5	84	40	3305	2093	5398	41.3	60.7
CV									
LSD									

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield multi-location trial. St. Landry Parish, LA.

ENT	PEDIGREE	VIG[1]	HTE	YIELD
023	CL151	83	38	11359
012	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	82	34	10408
002	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	81	36	10239
019	JZMN/08CLR004//JZMN	84	38	9912
022	JZMN/08CLR004//JZMN	84	44	9910
001	9502008-A//AR1188/CCDR/3/CFX 29//AR 1142/LA 2031	80	37	9461
006	BNGL/CL161	84	37	9440
015	CFX-26/9702128//EP 144	81	34	9435
013	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	78	37	9385
014	CCDR//CLPY 003	77	36	9159
017	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	80	39	9140
021	JZMN/08CLR004//JZMN	82	47	9025
005	CCDR//CFX-29/CCDR	80	38	8994
018	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	81	38	8902
004	DREW/CFX-18//CFX-29/CCDR	82	35	8884
025	CL261	83	34	8720
009	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	79	33	8689
007	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	81	36	8657
008	CCDR/JEFF//CFX-26/9702128	78	36	8578
016	WELLS/CFX-18//DREW/CFX-18	77	36	8567
003	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-20	81	37	8524
020	JZM2//07PY824/08CLR003	79	36	8266
010	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	78	33	7959
024	CL152	79	39	7882
011	CFX-26/9702128//CCDR/JEFF	82	35	7877
CV				
LSD				

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield multi-location trial. Vermilion Parish, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD
002	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	80	37	8829	2654	11483
007	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5	80	35	8969	2273	11242
009	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	4	78	36	8527	2411	10938
001	9502008-A//AR1188/CCDR/3/CFX 29//AR 1142/LA 2031	4	79	36	8596	2179	10775
006	BNGL/CL161	5	82	38	7869	2871	10739
011	CFX-26/9702128//CCDR/JEFF	5	80	36	8114	2328	10443
013	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	5	76	35	8401	2032	10433
014	CCDR//CLPY 003	4	75	36	7933	2402	10336
012	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	77	33	7891	2354	10244
023	CL151	4	78	37	7456	2705	10162
003	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-20	4	79	41	8183	1897	10080
005	CCDR//CFX-29/CCDR	4	77	38	7542	2458	10000
022	JZMN/08CLR004//JZMN	4	82	40	7600	2397	9997
016	WELLS/CFX-18//DREW/CFX-18	3	74	36	7673	2196	9869
018	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	3	79	38	7935	1920	9855
010	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	5	78	35	7684	2120	9804
015	CFX-26/9702128//EP 144	4	79	35	7674	2084	9759
008	CCDR/JEFF//CFX-26/9702128	5	78	36	8021	1705	9726
004	DREW/CFX-18//CFX-29/CCDR	4	79	36	7320	2394	9714
017	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	3	77	38	7869	1839	9708
024	CL152	3	79	34	7212	2257	9469
021	JZMN/08CLR004//JZMN	5	78	44	6501	2865	9367
025	CL261	3	79	38	7017	2346	9363
019	JZMN/08CLR004//JZMN	3	80	38	7531	1644	9174
020	JZM2//07PY824/08CLR003	5	76	36	7124	1915	9039
CV							
LSD							

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

CLEARFIELD PRELIMINARY YIELD TEST

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

Tests were conducted using standard agronomic practices (except that no fungicides were applied) at the Rice Research Station at Crowley, LA. A randomized complete block design was applied to arrange test entries. The plot size was 4.66 x 16 ft. Seeding rate was 90 lb/A. This test was drill seeded on March 5 and harvested on July 19-20. Data are presented in Tables 1 to 14.

Table 1. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 1. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
010	DREW/CFX-18/3/CPRS/KBNT//CFX 18	4	85	40	10374	1677	12051	64.4	71.8
020	9502008-A/DREW//CFX 26/WELLS/4/CPRS/3/CFX 29//AR 1142/LA 2031	4	87	37	9009	2103	11112	62.2	70.3
005	DREW/CFX-18/3/CFX-18//CCDR/9770532 DH2	4	87	38	9139	1577	10716	63.2	70.9
008	DREW/CFX-18/3/CPRS/KBNT//CFX 18	4	86	36	8754	1773	10526	57.8	70.1
021	9502008-A/DREW//CFX 26/WELLS/4/CPRS/3/CFX 29//AR 1142/LA 2031	4	86	36	8980	1503	10483	62.4	68.9
006	DREW/CFX-18/3/CFX-18//CCDR/9770532 DH2	4	85	40	8939	1523	10462	62.3	70.1
014	CCDR/CLR 11/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4	83	34	8220	1832	10052	59.6	70.3
011	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/AR 1179/3/CPRS//…/4/WELLS	4	83	37	7993	1685	9678	61.8	71.1
022	9502008-A/DREW//CFX 26/WELLS/4/CPRS/3/CFX 29//AR 1142/LA 2031	4	85	38	7670	1766	9436	63.2	71.2
024	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4	85	35	7101	2128	9229	54.5	67.3
002	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/CL 161	4	86	36	6949	2043	8991	57.9	68.2
017	9502008-A/DREW//CFX 26/WELLS/3/CL 161	4	90	36	6543	2026	8569	53.8	67.5
015	9502008-A/DREW//CFX 26/WELLS/3/CCDR/9770532 DH1//LGRU	4	86	36	6261	2252	8513	50.1	66.0
013	CCDR/CLR 11/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4	81	33	6573	1787	8359	46.4	64.6
023	CPRS/KBNT//WELLS CFX 18/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4	84	37	6329	1853	8182	54.6	66.9
001	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/CL 161	4	87	38	6409	1658	8067	59.5	68.5
018	9502008-A/DREW//CFX 26/WELLS/3/CL 161	4	87	40	5514	1960	7474	53.4	68.0
009	DREW/CFX-18/3/CPRS/KBNT//CFX 18	4	86	38	5261	1996	7256	55.9	67.7
019	9502008-A/DREW//CFX 26/WELLS/3/CL 161	4	83	38	5034	1846	6879	53.6	66.4
003	DREW/CFX-18//CCDR	4	86	35	5044	1775	6819	56.2	67.7
016	9502008-A/DREW//CFX 26/WELLS/3/CL 161	4	85	39	4756	1909	6665	50.1	64.8
012	CFX-26/9702128/3/CPRS/KBNT//CFX 18	4	86	36	4261	2131	6392	51.6	65.9
007	DREW/CFX-18/3/9502008-A/TACAURI//CLR 5	4	84	39	4762	1630	6392	48.8	65.0
004	DREW/CFX-18//CCDR	4	84	37	3625	1937	5562	46.8	63.7
025	CL151	4	84	36	2931	2292	5223	43.0	61.2
CV									
LSD									

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 2. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
047	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	4	86	38	9038	2205	11243	63.5	70.8
048	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	4	84	36	8734	2456	11190	56.1	67.3
038	9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	4	83	37	9734	1260	10994	65.3	71.7
037	9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/9502008-A/TACAURI//CFX-18	4	84	36	9226	1754	10980	60.4	69.9
045	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/9502008-A/DREW//CLR 20	4	87	38	8585	2300	10885	58.6	70.1
035	9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/9502008-A/TACAURI//CFX-18	4	85	37	8816	2016	10832	60.3	68.7
041	CL131/3/CPRS/KBNT//9502008-A	4	84	36	9316	1454	10770	63.5	70.8
044	9302065//DREW CLR 13/3/DREW/CLR 13	4	86	35	8712	1824	10536	60.9	70.8
042	CL131/3/CPRS/KBNT//9502008-A	4	84	32	8592	1885	10477	60.9	69.4
046	CHENIERE//CFX-26/9702128	4	84	39	8549	1875	10424	63.1	70.6
040	WELLS/CFX-18//SPRING	4	85	19	8715	1537	10252	60.9	69.3
050	MILL//9502008/LGRU/3/CCDR/CFX-18	4	81	35	8163	2003	10166	65.9	71.2
034	MBLE/ALAN/4/L201//…/5/MBLE/…/4/CCDR/…/6/CPRS/3/CFX 29//AR 1142/LA 2031	4	84	37	8594	1552	10146	62.1	69.4
043	CL131//DREW/CLR 13	4	86	34	8752	1279	10031	62.1	70.5
032	MBLE/ALAN/4/L201//…/5/MBLE/…/4/CCDR/…/6/CPRS/3/CFX 29//AR 1142/LA 2031	4	83	35	8211	1487	9698	54.9	68.2
033	MBLE/ALAN/4/L201//…/5/MBLE/…/4/CCDR/…/6/CPRS/3/CFX 29//AR 1142/LA 2031	4	84	38	7473	1735	9208	61.9	69.7
028	9502008-A/DREW//WELLS/CFX 18/5/9502008/3/MBLE//LMNT/20001-5/4/CFX 26/WELLS	4	86	36	7668	1324	8992	61.2	70.1
030	9502008-A/DREW//WELLS/CFX 18/3/9502008-A/TACAURI//CFX-18	4	84	36	6670	1776	8446	60.6	68.1
039	9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	4	85	41	6261	2168	8429	59.4	67.8
029	9502008-A/DREW//WELLS/CFX 18/5/9502008/3/MBLE//LMNT/20001-5/4/CFX 26/WELLS	4	83	32	6001	1328	7329	56.6	67.8
031	9502008-A/DREW//WELLS/CFX 18/3/9502008-A/TACAURI//CFX-18	4	83	37	5510	1631	7141	53.1	67.8
036	9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/9502008-A/TACAURI//CFX-18	4	83	35	4367	2437	6804	48.0	63.6
049	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	4	84	36	4643	2136	6779	46.6	62.2
027	9502008-A/DREW//WELLS/CFX 18/3/SPRING	4	85	37	4310	1885	6195	50.9	66.1
026	9502008-A/DREW//WELLS/CFX 18/3/SPRING	4	84	40	4369	1800	6169	40.1	59.6
CV									
LSD									

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 3. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
071	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	87	34	9876	1645	11521	62.2	70.4
057	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	83	38	9669	1729	11398	57.3	69.6
056	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	85	37	9369	1519	10887	63.4	71.0
060	CL131/TRNS	4	81	36	9655	1193	10848	60.7	68.5
059	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	37	9326	1485	10810	59.5	69.7
074	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	85	36	8791	1824	10615	61.2	69.7
064	CHENIERE//CFX-26/9702128	4	86	37	8757	1667	10424	60.5	69.9
054	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	37	8865	1469	10335	61.4	69.6
061	CL131/CHENIERE	4	85	35	8761	1295	10055	63.2	70.5
063	CL131/CHENIERE	4	84	38	8718	1260	9978	60.3	70.2
069	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	83	36	8039	1899	9938	61.6	70.1
070	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	37	8202	1633	9835	57.4	69.5
062	CL131/CHENIERE	4	85	37	8361	1378	9739	60.0	70.0
055	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	84	38	7820	1777	9597	55.9	67.5
065	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	86	35	7251	1883	9134	52.9	66.5
068	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	36	7148	1489	8636	61.3	70.8
073	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	84	37	6699	1785	8484	54.2	65.6
053	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	82	37	6877	1414	8291	59.6	69.4
067	MILL//9502008/LGRU/3/CCDR/CFX-18	4	86	37	6367	1842	8209	59.5	69.6
051	CFX-18//CCDR/9770532 DH2/5/9502008/3/CPRS//82CAY21/…/4/CFX-18	4	81	39	6290	1663	7953	57.2	67.5
066	MILL//9502008/LGRU/3/CCDR/CFX-18	4	83	34	5604	1763	7367	50.8	65.4
075	CL152	4	86	38	4578	2470	7048	47.7	63.2
052	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	37	5275	1626	6901	49.8	65.0
072	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//…	4	84	36	4300	2349	6649	47.5	62.5
058	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	85	35	4541	1756	6297	47.2	63.1
CV									
LSD									

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 4. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
099	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/DREW/CLR 13	4	82	41	9484	1772	11256	64.7	70.4
086	CL131/CHENIERE	4	85	36	9132	1621	10754	62.7	70.4
092	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	86	36	9100	1633	10733	59.9	70.6
079	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	85	38	9391	1238	10629	63.4	70.2
076	9502008-A/DREW//CLR 20/3/9502008-A/DREW//CLR 20	4	83	38	8727	1503	10230	62.6	70.9
085	CL131/3/CPRS/KBNT//9502008-A	4	84	36	8633	1581	10214	61.3	69.1
095	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	4	83	35	8450	1669	10119	60.6	70.3
084	CFX-26/9702128/5/AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…	4	83	36	8539	1524	10063	58.8	67.3
088	CPRS/KBNT//9502008-A /3/CCDR/CFX-18	4	82	37	8718	1304	10021	62.7	69.6
097	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	4	83	38	7948	1948	9895	62.2	70.0
094	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	83	33	8186	1684	9870	59.2	69.9
083	CFX-26/9702128/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	34	8507	1325	9832	61.2	70.0
081	9502008-A/DREW//CLR 20/5/9502008/3/CPRS//82CAY21/…/4/CFX-18	4	84	36	8127	1686	9813	62.8	70.2
087	CL131/CHENIERE	4	84	36	8578	1149	9727	62.0	69.8
096	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/9770532 DH2	4	82	36	8096	1570	9666	62.6	71.0
090	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/9502008-A/DREW//CLR 20	4	83	37	7562	1826	9388	57.3	67.4
089	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/9502008-A/DREW//CLR 20	4	84	38	7489	1785	9274	55.5	68.2
078	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	35	7547	1610	9157	60.1	69.5
091	CHENIERE//CFX-26/9702128	4	86	38	6948	1695	8642	52.9	65.6
080	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	35	6076	1647	7723	52.1	66.4
100	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-26/9702128	4	82	36	5713	1945	7658	58.1	68.5
082	CFX-26/9702128/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	82	37	5536	1676	7211	54.7	67.2
077	WELLS/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	36	4844	2066	6909	50.5	63.6
098	TACAURI//DREW/CFX-18	4	84	37	4254	2084	6338	51.2	66.1
093	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A	4	84	34	4179	1722	5902	45.8	62.3
CV									
LSD									

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 5. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
125	CL111	4	82	38	9239	1691	10931	60.9	70.7
122	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	4	85	39	9312	1538	10851	67.1	71.5
123	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	4	85	38	9046	1726	10772	65.9	72.5
117	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	34	38	8640	1818	10458	61.7	70.8
124	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/	4	84	36	8644	1797	10441	64.2	70.8
121	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	4	86	34	8690	1702	10392	65.0	71.3
108	MILL//9502008/LGRU/3/CCDR/CFX-18	4	83	39	8648	1646	10294	61.7	71.3
105	CCDR/3/KATY/CPRS//JKSN/4/CFX-26/9702128	4	83	37	8526	1543	10069	64.1	71.2
113	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	4	84	38	8310	1682	9991	64.3	71.4
111	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	4	84	37	8447	1523	9970	65.0	71.1
102	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-26/9702128	4	83	38	7707	1824	9531	61.8	70.4
101	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-26/9702128	4	82	37	7721	1675	9396	58.5	69.7
106	MILL//9502008/LGRU/3/CCDR/CFX-18	4	83	41	7237	1907	9144	62.2	70.1
116	CCDR/CFX-18/3/9502008-A/DREW//CLR 20	4	81	37	7593	1436	9029	57.2	69.9
109	MILL//9502008/LGRU/3/CCDR/CFX-18	4	82	37	7393	1574	8967	60.4	69.9
118	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	583	37	6408	1573	7981	51.6	68.4
114	CFX-18//CCDR/9770532 DH2/5/9502008/3/CPRS//82CAY21/…/4/CFX-18	4	83	38	6213	1567	7779	56.2	67.5
119	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	82	38	6144	1522	7666	55.4	68.5
115	CCDR/CFX-18/3/9502008-A/DREW//CLR 20	4	82	35	5844	1559	7403	52.7	66.6
110	MILL//9502008/LGRU/3/CCDR/CFX-18	4	82	38	5281	1672	6953	48.8	64.5
112	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	4	82	37	4924	1997	6921	46.2	64.0
104	CCDR/3/KATY/CPRS//JKSN/4/CFX-26/9702128	4	82	37	5140	1776	6916	42.9	63.7
107	MILL//9502008/LGRU/3/CCDR/CFX-18	4	79	38	5125	1678	6803	53.2	67.7
120	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	4	84	38	4247	1918	6166	51.3	65.5
103	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-26/9702128	4	82	35	3910	1497	5407	43.9	64.8
CV									
LSD									

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

Table 6. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 6. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
130	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	84	37	9742	1540	11282	61.6	70.1
132	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	83	37	9592	1633	11225	61.5	70.2
126	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/	4	84	38	9253	1693	10946	64.3	70.3
139	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	37	9048	1657	10704	60.3	69.9
133	9502008-A/DREW//CLR 20/3/9502008-A/DREW//CLR 20	4	80	38	9157	1454	10610	61.7	70.4
138	CFX-26/9702128/5/AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…	4	85	37	8279	1837	10116	59.2	68.5
131	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	83	38	8333	1770	10103	60.7	68.8
137	9502008-A/DREW//CFX 26/WELLS/3/DREW	4	84	36	8222	1880	10102	62.8	69.1
134	9502008-A/DREW//CLR 20/3/9502008-A/DREW//CLR 20	4	82	36	8295	1790	10085	61.6	69.4
148	9502008-A/DREW/3/JSMN/DLLA//LEAH/DLLA/4/DREW/JEFF/CFX-18	4	85	39	8004	1891	9895	61.6	68.9
140	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	83	37	8252	1595	9847	64.2	70.9
141	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	82	38	7830	1664	9494	55.2	66.7
127	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/	4	83	35	7950	1531	9481	58.0	69.9
149	CCDR/CFX-18/3/CFX-18//CCDR/9770532 DH2	4	82	40	7184	1455	8639	53.9	66.3
129	9502008-A/DREW//CLR 20/3/CRX-26/9702128	4	83	39	6747	1616	8363	57.3	67.4
147	9502008-A/DREW/3/JSMN/DLLA//LEAH/DLLA/4/DREW/JEFF/CFX-18	4	82	35	6524	1792	8316	56.5	67.8
135	9502008-A/DREW//CLR 20/3/9502008-A/DREW//CLR 20	4	83	38	6267	1794	8061	52.7	65.6
143	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/4/WELLS=CFX-18	4	83	34	6151	1814	7964	55.3	66.9
150	CCDR/CFX-18/3/CFX-18//CCDR/9770532 DH2	4	81	39	6183	1566	7749	51.7	66.2
145	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/4/WELLS=CFX-18	4	83	37	5489	2171	7659	54.2	65.9
144	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/4/WELLS=CFX-18	4	84	37	5677	1737	7414	53.6	66.7
146	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/4/WELLS=CFX-18	4	82	38	5405	1894	7300	46.3	62.6
142	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/4/WELLS=CFX-18	4	84	36	5363	1653	7016	51.4	65.6
128	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/	4	85	38	5174	1781	6955	50.5	64.3
136	9502008-A/DREW//CFX 29/CCDR/3/CFX-26/9702128	4	84	38	3674	2336	6011	50.0	66.8
CV									
LSD									

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

Table 7. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 7. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
170	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	4	86	38	8994	1677	10672	58.5	69.1
156	CL131/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	83	35	9154	1384	10538	62.5	70.3
169	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	4	87	39	8572	1787	10358	56.2	68.5
164	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/…	4	83	36	8507	1658	10165	59.4	68.7
174	9502008-A/DREW//CLR 2/3/CHENIERE	4	84	37	8546	1388	9935	57.4	69.8
157	CCDR/3/9502008-A/DREW//CLR 20	4	82	36	8313	1336	9649	58.5	70.0
175	URN 002	4	85	39	7973	1636	9609	58.6	69.1
173	9502008-A/DREW//CLR 2/3/CHENIERE	4	81	37	8135	1415	9551	59.9	70.4
160	CPRS/KBNT//WELLS CFX 18/3/CPRS	4	86	33	7531	1775	9306	55.8	67.7
172	9502008-A/DREW//CLR 2/3/CHENIERE	4	85	37	7908	1391	9299	57.7	68.4
161	CPRS/KBNT//WELLS CFX 18/3/CPRS	4	86	34	7373	1900	9273	56.3	67.6
155	CL131/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	87	34	7446	1602	9048	54.9	67.3
167	CFX-26/9702128//LGRU/WELLS	4	86	36	7180	1597	8778	52.5	66.3
171	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	4	86	40	6825	1929	8754	51.5	65.4
159	CPRS/KBNT//WELLS CFX 18/3/CPRS	4	86	32	7026	1590	8616	57.4	68.0
151	CCDR/CFX-18/3/CFX-18//CCDR/9770532 DH2	4	83	39	6977	1523	8500	55.5	67.8
162	LGRU/CLR 11//CCDR	4	86	40	6812	1542	8353	57.7	67.3
168	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	4	85	36	6447	1693	8140	56.2	68.2
166	CFX-26/9702128//LGRU/WELLS	4	85	39	6380	1755	8135	52.0	67.2
158	CPRS/KBNT//WELLS CFX 18/3/CPRS	4	86	33	6496	1592	8088	55.8	66.8
153	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/4/…	4	83	38	6418	1659	8076	52.6	65.9
163	LGRU/CLR 11//CCDR	4	85	39	6175	1617	7793	55.3	66.8
152	9502008-A/DREW//CLR 20/5/9502008/3/CPRS//…	4	83	36	5639	1683	7322	53.0	66.8
165	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/…	4	84	34	5581	1337	6918	50.7	65.6
154	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/4/…	4	85	38	5049	1634	6683	51.3	64.3
CV									
LSD									

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

Table 8. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 8. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
181	9302065/3/CFX-29/AR 1142/LA 2031/4/902207x2/LGRU//CHENIERE	4	90	37	8884	3726	12610	59.9	68.2
180	9502008/3/MBLE//LMNT/20001-5/4/…/5/KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 29/CCDR	4	85	40	9127	2705	11832	60.3	69.5
178	9502008/3/MBLE//LMNT/20001-5/4/…/5/KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 29/CCDR	4	83	38	8408	2860	11269	60.5	68.6
179	9502008/3/MBLE//LMNT/20001-5/4/…/5/KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 29/CCDR	4	85	39	8155	3028	11183	57.7	68.7
195	CPRS/3/CFX 29//AR 1142/LA 2031/4/CCDR/CFX 18	4	86	40	6691	3147	9838	57.8	67.6
190	KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18/5/AR 1188/CCDR//9502008/LGRU	4	85	34	6090	3663	9754	56.2	67.2
182	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	84	37	6331	3413	9744	55.1	65.6
185	CPRS/KBNT//WELLS CFX 18/3/CPRS	4	85	38	6405	3331	9736	55.8	65.4
183	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	84	37	6344	3234	9578	55.5	66.0
194	CPRS/3/CFX 29//AR 1142/LA 2031/4/CCDR/CFX 18	4	86	40	6524	3042	9566	56.5	67.4
188	KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18/5/AR 1188/CCDR//9502008/LGRU	4	84	36	5481	3992	9473	53.6	66.5
184	CPRS/KBNT//WELLS CFX 18/3/MBLE	4	85	39	6197	3154	9351	55.8	65.7
186	CPRS/KBNT//WELLS CFX 18/3/CPRS	4	85	36	6054	3288	9342	55.3	65.3
192	KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18/5/AR 1188/CCDR//9502008/LGRU	4	85	37	5548	3736	9284	53.9	65.7
191	KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18/5/AR 1188/CCDR//9502008/LGRU	4	84	36	5627	3577	9204	56.0	67.4
189	KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18/5/AR 1188/CCDR//9502008/LGRU	4	84	36	5541	3640	9181	54.2	66.6
187	KATY/CPRS//NWBT/…/3/CPRS/KBNT/4/CFX 18/5/AR 1188/CCDR//9502008/LGRU	4	36	34	5324	3520	8844	54.3	66.2
176	AR 1188/CCDR//9502008/LGRU/3/CHENIERE//CFX 29/CCDR	4	85	37	5061	3201	8262	49.5	64.2
193	CPRS/3/CFX 29//AR 1142/LA 2031/4/CCDR/CFX 18	4	84	37	4992	3203	8195	53.7	66.8
199	LGRU/CLR 11//CCDR	4	85	35	4550	3570	8119	51.1	65.6
198	LGRU/CLR 11//CCDR	4	84	33	4566	3483	8049	50.3	65.2
200	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	4	85	35	4039	3857	7897	49.8	64.0
196	LGRU/CLR 11//CCDR	4	85	35	4593	3249	7842	50.6	66.6
197	LGRU/CLR 11//CCDR	4	85	35	4455	3349	7805	50.5	64.9
177	AR 1188/CCDR//9502008/LGRU/3/CHENIERE//CFX 29/CCDR	4	85	38	4980	2670	7650	48.8	63.8
CV									
LSD									

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

Table 9. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 9. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
202	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	4	88	37	8181	1679	9860	58.2	69.1
220	CCDR/CFX 18/3/AR 1188/CCDR//9502008/LGRU	4	86	37	7120	1736	8857	60.8	69.3
221	CCDR/CFX 18/3/AR 1188/CCDR//9502008/LGRU	4	83	37	7045	1407	8452	54.0	68.8
225	URN 011	4	86	38	6018	2239	8256	53.2	67.8
212	902207x2/LGRU//CHENIERE/3/CHENIERE//CFX 29/CCDR	4	88	36	5755	2150	7906	53.7	67.3
207	902207x2/LGRU//CHENIERE/3/CCDR/CFX 18	4	88	38	6071	1801	7872	50.8	65.2
219	CCDR/CFX 18//TAGGART	4	84	39	6155	1658	7813	57.3	69.2
223	CCDR/CFX 18/3/AR 1188/CCDR//9502008/LGRU	4	85	39	5960	1852	7812	51.7	67.3
222	CCDR/CFX 18/3/AR 1188/CCDR//9502008/LGRU	4	86	39	5756	1723	7480	51.1	66.2
211	902207x2/LGRU//CHENIERE/3/CHENIERE//CFX 29/CCDR	4	87	38	5377	1936	7313	52.5	67.0
210	902207x2/LGRU//CHENIERE/3/CHENIERE//CFX 29/CCDR	4	88	36	5398	1855	7253	51.5	65.3
204	902207x2/LGRU//CHENIERE/3/CCDR/CFX 18	4	88	37	5547	1642	7190	47.4	65.6
203	902207x2/LGRU//CHENIERE/3/CCDR/CFX 18	4	89	37	5540	1621	7161	46.8	64.0
209	902207x2/LGRU//CHENIERE/3/CHENIERE//CFX 29/CCDR	4	89	36	5256	1897	7153	52.1	65.1
208	902207x2/LGRU//CHENIERE/3/CCDR/CFX 18	4	86	39	5476	1603	7078	48.6	64.9
205	902207x2/LGRU//CHENIERE/3/CCDR/CFX 18	4	87	38	5289	1719	7008	50.0	65.0
213	CCDR/CFX 18/3/CFX-18//CCDR/9770532 DH2	4	84	40	4798	1666	6464	51.4	66.2
217	CCDR/CFX 18/3/CFX-18//CCDR/9770532 DH2	4	84	37	4561	1811	6373	47.2	64.9
216	CCDR/CFX 18/3/CFX-18//CCDR/9770532 DH2	4	84	38	4610	1640	6250	49.2	65.3
206	902207x2/LGRU//CHENIERE/3/CCDR/CFX 18	4	86	41	4125	1845	5969	64.3	64.2
215	CCDR/CFX 18/3/CFX-18//CCDR/9770532 DH2	4	83	37	4295	1567	5862	51.8	66.5
201	LGRU/CLR 11/4/9302065/3/CFX-29/AR 1142/LA 2031	4	86	33	4171	1691	5862	49.1	64.4
218	CCDR/CFX 18/3/CFX-18//CCDR/9770532 DH2	4	85	37	3968	1846	5814		
214	CCDR/CFX 18/3/CFX-18//CCDR/9770532 DH2	4	85	38	2918	2003	4921		
224	CCDR/CFX 18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	35	3005	1877	4882	42.6	63.2
CV									
LSD									

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

Table 10. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 10. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
230	TRNS/CL131	4	83	40	10551	1374	11925	61.4	69.9
233	CCDR/3/9502008-A/DREW//CFX 26/WELLS	4	84	40	8203	1733	9936	62.5	70.9
232	CCDR/3/9502008-A/DREW//CFX 26/WELLS	4	84	37	8383	1432	9815	54.7	69.6
241	9502008-A//AR 1188/CCDR/3/9502008-A/TACAURI//CFX-18	4	84	35	8005	1620	9625	58.0	70.1
238	CPRS/9901081/3/CFX-18//CCDR/9770532 DH2	4	85	38	7803	1757	9560	56.4	68.7
239	9502008-A//AR 1188/CCDR/3/9502008-A/TACAURI//CFX-18	4	85	38	7950	1596	9546	60.8	69.6
236	CPRS/9901081/3/CFX-18//CCDR/9770532 DH2	4	86	38	7463	1850	9313	55.2	68.4
235	AR 1188/CCDR//9502008/LGRU/3/9502008-A/TACAURI//CFX-18	4	84	37	7459	1681	9140	57.8	69.1
237	CPRS/9901081/3/CFX-18//CCDR/9770532 DH2	4	83	39	6471	2265	8736	56.2	66.6
231	CL131/3/CPRS/KBNT//WELLS CFX 18	4	83	35	6657	1802	8459	61.7	69.6
246	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/9502008-A/…	4	85	34	6472	1987	8459	52.5	66.5
234	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	4	84	35	6463	1864	8327	51.8	68.1
244	9502008-A//AR 1188/CCDR/3/9502008-A/TACAURI//CFX-18	4	83	35	6794	1482	8275	52.6	66.1
240	9502008-A//AR 1188/CCDR/3/9502008-A/TACAURI//CFX-18	4	84	37	6489	1779	8267	57.3	67.9
245	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/9502008-A/…	4	84	37	5946	2067	8013	56.2	68.1
247	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/9502008-A/…	4	83	36	5981	2003	7984	49.4	64.5
242	9502008-A//AR 1188/CCDR/3/9502008-A/TACAURI//CFX-18	4	83	36	6137	1660	7798	51.6	64.7
226	CCDR/CFX 18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	85	39	4764	1752	6515	49.2	64.5
243	9502008-A//AR 1188/CCDR/3/9502008-A/TACAURI//CFX-18	4	85	37	4527	1766	6294	49.0	63.6
228	CCDR/CFX 18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	85	37	3724	1680	5404	47.8	63.8
248	CFX-18//CCDR/9770532 DH2/3/9302065	4	83	37	3375	1846	5222	33.7	58.6
227	CCDR/CFX 18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	85	37	3512	1666	5178	43.8	61.2
250	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	4	83	36	2684	2423	5108	36.3	60.4
229	CCDR/CFX 18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	84	37	3499	1598	5097	42.6	61.6
249	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	4	82	37	3038	1774	4812	34.3	58.7
CV									
LSD									

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

Table 11. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 11. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
251	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	4	85	37	9651	1756	11407	63.0	71.5
257	FRANCIS/CLR 13//CCDR	4	83	38	8338	1810	10149	50.0	67.6
255	FRANCIS/CLR 13//CCDR	4	86	42	8508	1625	10133	54.5	69.0
258	FRANCIS/CLR 13//9502008-A/DREW	4	86	37	8237	1599	9837	56.8	70.8
275	URN 051	4	84	39	7298	2030	9328	53.4	66.3
262	FRANCIS/CLR 13//DREW	4	86	39	7281	1998	9278	60.6	70.1
271	FRANCIS/CLR 13/3/CCDR//CFX 26/WELLS	4	85	40	6698	1774	8472	59.8	68.2
256	FRANCIS/CLR 13//CCDR	4	84	40	6573	1560	8133	52.5	67.8
273	FRANCIS/CLR 13/4/CPRS/3/CFX 29//AR 1142/LA 2031	4	84	35	6303	1815	8118	55.6	67.2
263	FRANCIS/CLR 13//DREW	4	85	35	6293	1763	8056	48.6	64.1
272	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	4	84	39	6060	1668	7729	47.6	62.6
274	FRANCIS/CLR 13/4/CPRS/3/CFX 29//AR 1142/LA 2031	4	85	37	5758	1948	7706	54.1	67.1
253	FRANCIS/CLR 13//CCDR	4	87	42	5790	1786	7576	54.0	67.1
252	CFX-18//CCDR/9770532 DH2/3/CFX-26/9702128	4	85	39	5233	1841	7075	48.6	66.1
268	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4	86	43	5243	1803	7047	50.1	67.6
261	FRANCIS/CLR 13//DREW	4	83	35	5139	1888	7027	50.3	64.0
265	FRANCIS/CLR 13/3/9502008-A/DREW//CFX 26/WELLS	4	86	40	5270	1628	6898	51.1	65.2
267	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4	85	39	5191	1695	6886	48.8	64.7
264	FRANCIS/CLR 13/3/9502008-A/DREW//CFX 26/WELLS	4	86	40	5210	1616	6826	55.7	68.4
259	FRANCIS/CLR 13/3/CFX-18//CCDR/9770532 DH2	4	85	36	4764	2017	6781	47.5	62.8
270	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	4	85	43	4760	1961	6721	49.2	64.6
254	FRANCIS/CLR 13//CCDR	4	84	36	5128	1438	6566	53.9	67.0
266	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	4	84	39	4849	1698	6547	48.6	64.7
260	FRANCIS/CLR 13/3/CFX-18//CCDR/9770532 DH2	4	83	36	4770	1705	6476	47.2	63.9
269	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	4	87	42	4517	1897	6414	49.1	64.4
CV									
LSD									

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

Table 12. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 12. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
279	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL131	4	84	39	9549	1371	10921	64.7	71.7
277	FRANCIS/CLR 13/3/CFX-18//CCDR/9770532 DH2	4	86	36	8878	1636	10514	60.3	70.1
300	JZM2//07PY824/08CLR003	4	83	35	7761	2073	9834	60.1	68.8
278	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL131	4	86	37	7866	1594	9461	58.3	68.8
280	9502008-A//AR 1188/CCDR/3/9502008-A/DREW//CFX 26/WELLS	4	85	39	7846	1488	9335	59.4	68.5
296	CL131/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	85	33	7047	1960	9007	55.0	67.0
281	9502008-A//AR 1188/CCDR/3/9502008-A/DREW//CFX 26/WELLS	4	82	39	7413	1517	8930	57.6	69.2
297	CL131/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	83	35	6731	2109	8840	54.8	66.3
276	FRANCIS/CLR 13/4/CPRS/3/CFX 29//AR 1142/LA 2031	4	85	38	7018	1753	8771	57.6	68.7
299	JZMN/08CLR004//08AY001	4	85	37	6249	1791	8040	59.0	69.0
287	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL171	4	85	39	5014	2101	7116	50.5	64.2
286	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL171	4	86	38	4909	2178	7087	52.7	65.7
284	9502008-A/TACAURI//CLR 5/3/CL 171	4	85	34	5321	1750	7071	51.3	65.6
289	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL171	4	85	40	4711	2211	6923	48.4	65.0
290	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL171	4	85	40	4490	2426	6916	51.9	64.3
285	9502008-A/TACAURI//CLR 5/3/CL 171	4	85	39	5030	1706	6735	49.9	64.9
283	CL151/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	4	86	37	5063	1671	6734	49.0	63.6
288	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL171	4	86	40	4253	2304	6557	49.8	65.9
298	CCDR/4/9302065/3/CFX-29/AR 1142/LA 2031	4	84	36	4622	1857	6479	43.9	61.1
293	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CPRS/3/CFX 29//AR 1142/LA 2031	4	87	40	4146	2045	6190	48.5	63.0
295	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CPRS/3/CFX 29//AR 1142/LA 2031	4	85	37	3886	1927	5813	48.2	63.4
291	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CPRS/3/CFX 29//AR 1142/LA 2031	4	87	38	3722	1979	5702	47.2	64.6
292	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CPRS/3/CFX 29//AR 1142/LA 2031	4	86	36	3700	1990	5690	46.0	62.5
282	CL151//DREW/CFX-18	4	84	39	3586	1964	5550	55.9	64.6
294	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CPRS/3/CFX 29//AR 1142/LA 2031	4	85	38	3384	2103	5487	46.8	62.4
CV									
LSD									

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

Table 13. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 13. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
301	JPTR//BNGL/CFX18	4	85	38	7876	2178	10054	51.4	66.6
312	BNGL/CL161//LFTE	4	84	40	7572	2097	9669	60.6	67.2
303	JPTR//BNGL/CFX18	4	83	39	6812	1858	8670	49.2	64.7
314	BNGL/CFX18/JPTR	4	84	39	6603	1984	8587	57.0	64.7
302	JPTR//BNGL/CFX18	4	84	37	5943	1840	7783	49.6	67.5
309	BNGL//PY 678/CL161	4	85	39	4564	1778	6342	51.4	64.7
325	URN 062	4	86	38	3737	2078	5815	52.7	62.0
311	BNGL//PY 678/CL161	4	82	39	3749	1936	5684	53.2	57.8
305	BNGL//BNGL/CFX18	4	85	37	3720	1872	5591	47.3	65.3
319	BNGL/CFX18/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	84	37	3445	1909	5354	52.1	62.6
320	BNGL/CFX18/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	85	38	3396	1911	5307	55.5	64.4
310	BNGL//PY 678/CL161	4	82	37	3276	1680	4957	41.2	58.1
318	BNGL/CFX18/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	85	36	3003	1748	4751	54.9	65.9
308	BNGL//PY 678/CL161	4	82	38	3037	1660	4698	49.1	64.6
307	BNGL//BNGL/CFX18	4	82	37	2650	1938	4588	47.2	62.1
317	BNGL/CFX18/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	84	36	2732	1804	4536	54.1	63.5
304	BNGL//BNGL/CFX18	4	83	37	2509	1998	4507	60.7	61.8
306	BNGL//BNGL/CFX18	4	85	36	2438	2022	4461	41.5	64.3
315	BNGL/CFX18/4/BNGL/MERC/RICO/3/MERC/RICO//BNGL	4	85	35	2495	1895	4390	55.2	65.0
324	CL261	4	85	38	2699	1604	4303	53.2	62.3
321	BNGL/CFX18/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	84	36	1868	1915	3783		
316	BNGL/CFX18/4/BNGL/MERC/RICO/3/MERC/RICO//BNGL	4	85	36	1870	1829	3699	50.6	61.2
322	PY 678/CL161/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	83	36	2070	1276	3347	41.9	60.3
323	PY 678/CL161/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	77	38	1634	1537	3170		
313	BNGL/CL161/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	84	35	1206	1778	2985		
CV									
LSD									

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

Table 14. Grain and milling yields and agronomic performance of entries in the 2012 Clearfield Preliminary Yield test. Group 14. Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
350	URN 068	4	86	39	8528	1997	10525	65.3	69.3
339	BNGL/CFX18 (XC 065)/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	86	38	8687	1776	10463	64.7	69.2
343	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18 (XC 065)	4	85	38	8637	1779	10416	63.1	68.3
341	NEPTUNE//BNGL/CL 161	4	88	38	8048	2177	10225	60.3	67.0
349	URN 065	4	85	37	8169	1980	10149	63.2	68.2
327	BNGL//MERC/RICO/3/MERC/RICO//BNGL/5/ORIN//MERC/RICO/3/MARS//M201/…	4	84	39	7454	2395	9849	58.5	64.4
347	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CFX18 (XC 065)	4	86	38	7435	1878	9313	63.6	68.5
338	BNGL/CFX18 (XC 065)/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	85	37	6905	2037	8943	60.9	67.6
346	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CL 161	4	86	36	5344	1958	7302	57.7	66.2
329	BNGL/CL162//BNGL	4	86	39	5128	1991	7119	56.1	63.7
333	BNGL/CL164/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	4	86	38	5032	1893	6925	54.6	62.6
328	BNGL/CL162//BNGL	4	86	40	4870	1864	6734	56.5	64.0
331	BNGL/CL162//BNGL	4	86	38	4847	1775	6622	56.6	63.8
332	BNGL/CL164/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	4	87	40	4792	1801	6593	56.7	64.2
330	BNGL/CL162//BNGL	4	86	37	4715	1833	6548	58.9	66.7
336	BNGL/CFX18 (XC 065)//BNGL	4	86	41	4334	1880	6213	58.3	66.2
334	BNGL/CFX18 (XC 065)//BNGL	4	85	39	4325	1779	6104	59.6	66.5
337	BNGL/CFX18 (XC 065)/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	87	38	4057	2002	6059	59.5	66.9
335	BNGL/CFX18 (XC 065)//BNGL	4	84	39	3923	2078	6001	57.0	65.9
345	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CL161	4	86	35	3722	2105	5827		
348	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL/CFX18 (XC 065)	4	85	38	3864	1708	5572	55.9	63.0
340	BNGL/CFX18 (XC 065)/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	85	38	3445	1819	5264	57.3	65.0
342	NEPTUNE//BNGL/CL161	4	84	34	3051	1602	4653	47.8	58.4
344	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18 (XC 065)	4	85	37	2327	1963	4291		
326	PY 678/CL161/5/ORIN//MERC/RICO/3/MARS//M201/MARS/4/CL161	4	82	37	1362	1730	3092		
CV									
LSD									

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

PRELIMINARY YIELD TEST

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

Tests were conducted using standard agronomic practices (except that no fungicides were applied) at the Rice Research Station at Crowley, LA. A randomized complete block design was applied to arrange test entries. The plot size was 4.66 x 16 ft. Seeding rate was 90 lb/A. This test was drill seeded on March 19 and harvested on July 30-31. Data are presented in Tables 1 to 14.

Table 1. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 1, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	TOTAL YIELD	TOTAL YIELD	WHOLE	TOTAL
523	CPRS/KBNT//9502008-A/3/CCDR	5	81	35	9318	2155	11473	56.4	69.9
517	TRNS//CCDR/9502008-A	5	78	40	8698	2422	11120	62.3	69.8
518	TRNS//CCDR/9502008-A	4	78	38	8415	2699	11113	55.2	68.6
522	CCDR//CPRS/9901081	5	80	35	7992	2954	10946	61.6	71.7
502	9502008-A//AR 1188/CCDR/3/CCDR/9502008-A	5	79	37	8133	2661	10795	54.5	67.5
521	CCDR//CPRS/9901081	5	82	36	8270	2355	10625	57.6	71.1
524	CPRS/KBNT//9502008-A/3/CCDR	6	78	34	8717	1831	10547	57.1	71.3
503	9502008-A//AR 1188/CCDR/3/CCDR/9502008-A	4	79	35	7995	2503	10498	57.5	70.2
508	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/CCDR/JEFF	5	78	39	8458	1986	10444	59.8	71.0
525	COCODRIE	5	81	36	8485	1957	10442	57.8	70.1
520	CCDR//CPRS/9901081	4	78	35	7630	2644	10274	57.9	70.4
507	CCDR/LGRU/4/KATY/CPRS//JKSN/3/AR 1188/CCDR	4	77	38	7812	2274	10086	58.8	70.4
510	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/9502008-A//…	5	80	34	8229	1839	10069	52.2	67.7
504	9502008-A//AR 1188/CCDR/3/CCDR/9502008-A	5	78	35	7869	2198	10067	56.2	68.8
514	CPRS/NWBT//KATY/3/CCDR/4/9502008-A/DREW	6	80	33	7850	2210	10060	54.8	70.5
512	9502008-A//AR 1188/CCDR/3/CCDR/9502008-A	4	77	37	7762	2141	9902	60.8	71.3
511	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/9502008-A//…	3	80	34	7554	2221	9775	58.2	70.6
513	CPRS/NWBT//KATY/3/CCDR/4/9502008-A/DREW	4	77	37	7494	2235	9729	55.6	70.0
506	CCDR/LGRU//CCDR	4	79	38	6931	2690	9621	54.3	68.7
509	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/CCDR/JEFF	5	78	37	7775	1809	9584	56.8	68.4
516	MBLE/4/KATY/CPRS//JKSN/3/AR 1188/CCDR	5	84	34	7003	2580	9583	54.8	67.9
501	9502008-A//AR 1188/CCDR/3/CCDR/JEFF	4	79	37	7583	1989	9572	57.8	69.5
519	CCDR/3/9502008-A//AR 1188/CCDR	6	81	36	7888	1670	9558	59.6	71.2
515	MBLE/CHENIERE	4	80	35	6900	2417	9317	53.1	68.5
505	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/KATY/CPRS//…	4	80	39	6910	1866	8776	51.2	69.8
CV									
LSD									

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 2, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
542	CPRS/9901081/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/CPRS	5	81	36	7822	3158	10980	49.2	66.5
550	CATAHOULA	5	81	38	8715	2094	10809	49.7	69.5
529	CHENIERE//CCDR/9502008-A	5	82	36	8269	2277	10546	56.4	70.9
526	CPRS/KBNT//9502008-A/3/CCDR	4	81	36	8349	2166	10515	51.1	68.5
531	CHENIERE//CCDR/9502008-A	5	79	37	7903	2471	10374	57.0	69.5
545	9502008-A//AR 1188/CCDR/3/CPRS/KBNT//9502008-A	5	82	36	8301	1997	10298	51.5	69.2
547	9502008-A//AR 1188/CCDR/3/CPRS/KBNT//9502008-A	5	84	37	8259	1943	10202	57.9	70.3
540	CCDR/9770532 DH1//LGRU/5/CPRS/KBNT/4/9502008/3/CPRS//82CAY21/TBNT	4	81	38	7363	2696	10059	58.9	69.7
541	CPRS/9901081/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/CPRS	5	81	32	7291	2711	10001	49.0	68.1
539	AR 1188/CCDR//9502008/LGRU/3/DREW/CCDR	5	82	38	7295	2656	9951	59.0	69.9
549	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/9901081/CCDR	4	79	36	8005	1833	9838	59.6	70.7
535	CHENIERE/3/9502008-A//AR 1188/CCDR	5	84	35	7845	1935	9780	59.2	69.7
548	9502008-A//AR 1188/CCDR/3/CCDR	5	82	36	7920	1857	9778	58.5	70.1
543	CPRS/9901081/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/CPRS	5	82	33	7276	2409	9685	53.6	69.3
538	AR 1188/CCDR//9502008/LGRU/3/DREW/CCDR	5	84	37	7340	2319	9659	55.7	68.2
544	CPRS/9901081/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/CPRS	5	82	35	6909	2585	9494	59.4	70.8
546	9502008-A//AR 1188/CCDR/3/CPRS/KBNT//9502008-A	4	78	35	7624	1798	9421	53.8	69.2
528	CPRS/KBNT//9502008-A/3/9502008-A//AR 1188/CCDR	5	76	35	7044	2173	9217	55.3	68.5
530	CHENIERE//CCDR/9502008-A	5	82	35	6201	2688	8889	54.2	68.9
532	CHENIERE/3/9502008-A//AR 1188/CCDR	5	84	33	7299	1571	8870	58.1	70.0
527	CPRS/KBNT//9502008-A/3/9502008-A//AR 1188/CCDR	5	83	31	6220	2445	8665	53.9	69.4
534	CHENIERE/3/9502008-A//AR 1188/CCDR	6	84	36	6485	2105	8590	54.0	68.6
537	CHENIERE/LGRU	7	85	34	6177	1964	8141	51.2	68.0
536	CHENIERE/3/9502008-A//AR 1188/CCDR	6	85	35	6078	1972	8050	55.4	66.5
533	CHENIERE/3/9502008-A//AR 1188/CCDR	6	86	34	6630	1315	7945	51.8	68.2
CV									
LSD									

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 3, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
555	TRNS/SPRING	3	83	36	7739	2481	10220	57.5	70.1
569	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/NWBT/KATY//9902207x2/3/CPRS	4	80	35	8190	1974	10164	57.5	70.1
560	CPRS/KBNT//9502008-A /3/CCDR/JEFF	5	78	36	8572	1570	10141	57.6	70.4
574	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//9902207x2/3/…	4	79	37	8645	1363	10008	52.7	68.5
571	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CCDR	4	83	37	8386	1610	9995	57.3	69.4
551	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/9901081/CCDR	5	83	35	7736	2228	9964	57.2	70.5
570	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/NWBT/KATY//9902207x2/3/CPRS	5	84	33	7364	2569	9933	56.3	68.1
568	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CPRS	4	80	35	7940	1982	9922	59.7	70.7
566	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CCDR	4	79	35	7936	1876	9812	57.9	70.8
562	CPRS/KBNT//9502008-A /4/NWBT/KATY//9902207x2/3/9502008-A/DREW	5	79	36	8519	1292	9812	53.1	69.6
572	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CCDR	5	79	36	8221	1589	9810	56.5	70.3
561	CPRS/KBNT//9502008-A /3/CCDR/JEFF	5	78	34	7922	1828	9749	54.8	69.1
563	SPRING/MBLE	4	84	36	7513	2092	9605	60.1	69.5
564	SPRING/3/AR 1188/CCDR//9502008/LGRU	5	82	35	7491	2068	9559	59.0	69.9
552	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/9901081/CCDR	5	82	38	7136	2362	9498	58.3	71.2
573	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//9902207x2/3/…	4	77	36	7835	1568	9403	56.3	69.1
553	9502008-A//AR 1188/CCDR/3/9502008/CPRS	5	79	38	7471	1817	9289	58.6	69.6
565	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CCDR	5	78	36	7529	1756	9285	58.6	70.5
556	LGRU/CPRS/KBNT//DREW	5	82	38	6871	2374	9244	56.5	68.5
559	DREW//CCDR/9502008-A	5	78	35	7162	1990	9152	56.4	69.8
567	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CCDR	4	78	36	7478	1664	9142	60.0	71.1
558	CCDR/CHENIERE	4	81	35	7415	1391	8805	56.7	70.7
557	CCDR/CHENIERE	5	84	34	6762	1958	8720	55.9	70.0
554	9502008/CPRS//CPRS/9901081	4	82	35	5584	2947	8530	53.5	67.8
575	URN 005	5	80	37	6095	2159	8253	50.6	66.7
CV									
LSD									

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 4, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
597	DREW//CHENIERE/LMNT	5	85	35	9024	2304	11328	60.6	70.0
596	DREW//CHENIERE/LMNT	5	85	34	8563	2641	11204	56.6	69.8
578	CPRS/KBNT//DREW/3/CPRS	4	83	37	8065	2329	10394	59.3	69.1
582	DREW/4/9502008-A/DREW/3/NWBT/KATY//9902207x2	4	79	35	8357	1646	10002	53.2	68.8
589	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CPRS	5	81	34	7661	2337	9999	60.0	71.2
588	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CPRS	4	82	34	7845	2096	9940	56.3	70.7
587	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CCDR	5	81	37	7809	2045	9854	55.6	70.0
585	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CCDR	5	81	36	8045	1783	9828	58.8	71.3
583	CPRS/KBNT//9502008-A /4/NWBT/KATY//9902207x2/3/…	5	78	34	8162	1629	9791	51.4	70.4
584	CPRS/KBNT//9502008-A /4/NWBT/KATY//9902207x2/3/…	4	78	35	8427	1351	9778	47.7	69.6
594	TRNS/4/NWBT/KATY//9902207x2/3/9502008-A/DREW	6	81	39	8829	937	9766	56.0	68.5
577	CPRS/KBNT//DREW/3/CPRS	4	83	35	7435	2310	9745	60.7	70.0
579	CPRS/KBNT//DREW/3/AR 1188/CCDR//9502008/LGRU	5	82	36	7322	2378	9701	57.4	69.4
580	TRNS/MBLE	4	79	34	7384	2302	9686	56.8	69.7
598	CHENIERE/3/AR 1188/CCDR//9502008/LGRU	5	80	37	7741	1872	9613	58.7	71.6
586	CCDR/JEFF/4/NWBT/KATY//9902207x2/3/CCDR	5	79	35	7809	1754	9563	58.6	71.5
591	AR 1188/CCDR//9502008/LGRU/3/TRNS	4	82	34	7748	1740	9488	59.0	70.6
576	CCDR/9502008-A/3/CPRS/KBNT//DREW	5	78	36	7592	1793	9385	57.4	70.4
592	AR 1188/CCDR//9502008/LGRU/3/TRNS	5	80	37	7920	1406	9326	61.6	71.0
600	MERMENTAU	4	79	27	7276	1931	9208	56.8	69.0
590	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…/5/CPRS/KBNT/DREW	5	83	34	6686	2427	9114	56.3	69.3
581	9302065/4/NWBT/KATY//9902207x2/3/CPRS	4	85	31	7159	1889	9048	63.0	71.2
593	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY/4/CCDR	6	82	36	6436	2402	8838	52.5	69.1
599	CHENIERE/3/AR 1188/CCDR//9502008/LGRU	6	77	35	6357	1790	8147	44.7	66.7
595	MBLE/CHENIERE	3	75	38	4800	1719	6520	34.9	67.1
CV									
LSD									

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 5, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
624	CAFFEY	3	83	36	9045	1806	10851	55.3	65.4
607	BNGL/SHORT RICO/4/ORIN//…/5/JPTR	6	81	37	9662	1075	10737	61.3	66.3
603	BNGL/SHORT RICO/4/ORIN//…/5/NEPTUNE	5	82	38	8910	1814	10724	62.7	67.6
622	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	82	36	9204	1286	10490	64.9	69.8
616	JPTR/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	6	84	39	9372	1003	10375	62.0	67.4
605	BNGL/SHORT RICO/4/ORIN//…/5/JPTR	6	83	37	8825	1398	10223	60.0	65.9
609	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	4	83	35	9788	371	10159	62.3	67.6
623	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/9502065/3/MERC//MERC/…	4	82	34	8179	1939	10118	63.7	70.3
625	JUPITER	6	85	36	8621	1410	10031	59.8	65.7
619	JPTR/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	4	83	38	8816	1146	9963	61.9	67.5
615	JPTR/S-102	6	85	35	8606	1318	9924	60.9	66.7
620	BNGL/JPTR	5	84	38	7802	2105	9907	60.0	67.3
621	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	4	83	37	9118	773	9891	64.0	68.6
618	JPTR/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	5	82	37	8478	1307	9785	60.3	67.3
602	BNGL/SHORT RICO/4/ORIN//…/5/LFTE	5	77	38	8004	1612	9617	61.5	67.4
613	ORIN/3/MERC/CAM9/MARS/4/BNGL/5 BNGL	5	84	35	7888	1686	9574	61.1	67.8
606	BNGL/SHORT RICO/4/ORIN//…/5/JPTR	6	82	37	8093	1446	9539	62.5	67.3
604	BNGL/SHORT RICO/4/ORIN//…/5/NEPTUNE	5	80	37	7763	1734	9498	59.0	65.9
610	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	4	83	34	8887	581	9468	62.7	68.2
611	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	5	84	34	9134	266	9400	61.4	67.3
612	ORIN/3/MERC/CAM9/MARS/4/BNGL/5 BNGL	4	85	36	7540	1484	9024	61.0	67.8
601	BNGL/SHORT RICO/4/ORIN//…/5/EARL/9902028	6	79	34	7040	1745	8784	61.6	67.6
614	ORIN/3/MERC/CAM9/MARS/4/BNGL/5 BNGL	5	83	33	7103	1475	8578	62.8	68.3
617	JPTR/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	6	83	40	7968	511	8479	64.6	69.0
608	BNGL/SHORT RICO//LFTE/3/MERC	7	83	37	6914	673	7587	63.7	69.0
CV									
LSD									

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

Table 6. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 6, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
639	CCDR/FRNS	4	79	96	7853	1978	9831	59.9	69.1
644	9502008-A/DREW//AC101/DREW	3	79	96	8125	1652	9777	63.5	70.7
637	FRNS/4/TACAURI/3/CPRS//82CAY21/TBNT	4	79	90	7356	2371	9727	57.5	69.0
630	CPRS/KBNT//9502008-A	3	79	92	8082	1559	9641	57.4	69.3
646	CCDR/LGRU//AC101/DREW	3	80	96	7991	1631	9622	64.1	71.5
634	CTHL/4/NWBT/KATY//9902207x2/3/CCDR	3	77	92	8515	1099	9614	56.4	71.2
635	CCDR//CCDR/JEFF	3	78	95	7949	1571	9520	64.0	71.4
631	CCDR/JEFF/3/9502008-A//AR1188/CCDR	4	79	92	8083	1387	9470	60.0	70.0
629	CPRS//CCDR/JEFF	4	82	82	7442	2012	9454	60.0	70.4
650	CL151	4	83	96	6975	2474	9449	51.8	66.6
641	CCDR//CCDR/JEFF	3	79	92	8024	1418	9442	59.1	70.2
643	CCDR/JEFF/3/9502008-A//AR1188/CCDR	4	80	92	7802	1584	9386	59.9	69.6
632	CPRS/KBNT//9502008-A	3	79	93	8291	1046	9337	56.4	69.0
642	CCDR/JEFF/3/9502008-A//AR1188/CCDR	4	79	96	7678	1653	9331	59.5	70.0
627	9502008-A//AR1188/CCDR/3/LGRU/LCSN	4	82	95	7896	1353	9249	62.3	71.1
626	CPRS/4/TACAURI/3/CPRS//L202/TBNT	4	82	88	7195	2007	9202	57.4	68.5
636	9502008//KATY/902207x2/3/0402082	4	79	102	7779	1177	8956	61.9	71.1
633	AR1179/3/CPRS//…/4/WELLS/5/9502008//KATY/902207x2	4	81	94	7255	1691	8946	52.6	67.6
647	CCDR/4/9502008/3/MBLE//LMNT/LSBR-5	4	76	97	7396	1513	8909	60.7	70.5
645	9502008-A/DREW//AC101/DREW	6	83	90	7927	908	8835	62.4	71.2
640	CPRS/3/9502008//AR1188/CCDR	4	77	99	7184	1534	8718	60.9	69.4
649	CCDR/JEFF/3/9502008//AR1142/MBLE	4	78	93	7035	1366	8401	60.7	70.7
628	9502008-A//AR1188/CCDR/3/LGRU/LCSN	4	81	96	7134	1137	8271	60.7	70.8
638	CPRS//9502008-A/DREW	4	82	85	6422	1513	7935	58.8	68.4
648	CPRS/3/9502008//AR1188/CCDR	4	77	92	6138	1539	7677	57.2	67.3
CV									
LSD									

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

Table 7. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 7, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
656	CCDR//CCDR/JEFF	4	81	92	8160	1898	10058	56.4	70.5
657	9502008-A/DREW//AC101/DREW	4	80	97	8085	1894	9979	60.2	69.1
666	CCDR/JEFF//CCDR	4	80	95	8342	1592	9935	61.7	71.3
673	CCDR//CCDR/JEFF	4	78	92	8223	1594	9817	59.9	72.6
655	9502008/DREW/3/0402097	4	80	94	8081	1487	9567	57.7	72.0
652	9502008//KATY/902207x2/3/0502091	4	82	92	8697	862	9559	60.0	70.8
669	CCDR/3/9502008-A//AR1188/CCDR	4	82	96	7941	1579	9520	56.4	70.6
672	CCDR//CCDR/JEFF	4	80	89	8106	1334	9439	59.6	70.9
660	9502008/DREW/3/0502103	4	81	99	7833	1601	9434	51.9	69.6
670	CCDR/3/9502008-A//AR1188/CCDR	4	80	93	7918	1481	9399	55.6	70.3
653	CPRS/KBNT//9502008/3/9502008/DREW	4	81	94	7957	1358	9315	58.0	71.4
671	9502008//KATY/902207x2/3/0402082	4	79	97	8232	1062	9295	59.2	71.1
675	Mermentau	3	79	93	7355	1845	9200	59.5	69.7
651	9502008//KATY/902207x2/3/0502091	4	82	97	7800	1391	9191	56.8	69.5
659	0402022/3/9502008//AR1142/MBLE	4	81	89	7889	1100	8989	57.0	71.3
668	CCDR/4/9502008/3/MBLE//LMNT/LSBR-5	4	78	91	7422	1559	8981	56.9	70.3
667	9502008//AR1188/CCDR/3/0402097	4	78	98	7827	1150	8978	56.7	70.6
662	CCDR/3/9502008-A//AR1188/CCDR	4	81	91	7604	1358	8962	54.2	69.6
663	9502008//AR1142/MBLE/3/0502165	4	82	92	6970	1862	8833	51.8	69.0
661	0402022/3/CPRS/KBNT//9502008	4	81	96	7724	985	8709	55.0	68.7
665	9502008/DREW/3/0502103	4	79	94	7749	924	8673	51.7	70.1
674	CCDR/JEFF/3/9502008//AR1142/MBLE	4	78	93	7440	1209	8649	57.7	70.4
654	0402022/3/9502008//AR1142/MBLE	4	78	87	7115	1509	8624	56.5	70.0
658	0402022/0502094	4	79	97	6979	1564	8543	57.7	69.5
664	9502008/DREW/3/0502103	5	81	99	6938	1424	8363	55.2	69.8
CV									
LSD									

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

Table 8. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 8, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
700	LAH12	4	89	118	11748	1051	12800	56.5	68.7
698	FRNS/CCDR//CCDR	4	85	100	8242	2339	10581	56.5	69.8
676	0402022/3/CPRS/KBNT//9502008	4	78	90	8824	1275	10100	57.6	70.0
694	FRNS/CCDR//RU0702082	4	82	90	7909	1730	9639	55.8	70.7
687	CCDR/RU0501093	4	80	94	7995	1641	9636	53.4	66.9
697	FRNS/CCDR//CCDR	4	84	96	7542	2002	9544	53.7	69.9
693	FRNS/CCDR//CCDR	5	83	97	7653	1743	9396	53.0	68.2
699	CPRS/9901081/4/KATY/CPRS//JKSN/3/AR1188/CCDR	4	81	96	7404	1875	9279	51.2	67.2
684	9502008-A/DREW//CCDR/LGRU	4	81	100	8019	1182	9201	57.6	70.7
682	CCDR/JEFF/3/9502008-A//AR1188/CCDR	4	80	96	7503	1577	9081	57.4	69.8
688	CCDR/RU0702082	4	85	94	7129	1886	9015	57.0	70.5
681	CPRS/KBNT//9502008-A/3/9901081/CCDR	4	79	92	7651	1337	8988	55.1	68.5
685	9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	3	78	95	7915	1012	8927	57.1	68.9
695	FRNS/CCDR//CCDR/JEFF	5	86	98	6910	2000	8910	50.5	68.6
677	CCDR//CCDR/JEFF	4	80	93	7708	1203	8910	57.7	69.4
679	CCDR//CCDR/JEFF	4	77	90	7317	1582	8900	54.3	70.1
689	CCDR/3/NWBT/KATY//9902207x2	4	81	91	7501	1345	8846	54.0	68.4
690	CCDR/RU0702082	4	80	97	7145	1550	8695	54.5	68.6
678	CCDR//9502008-A/DREW	4	82	96	7497	1183	8681	57.4	69.8
683	0402022/0502094	4	80	90	7638	1042	8679	54.2	68.8
691	FRNS/CCDR//CCDR	4	83	99	7308	1356	8664	51.3	69.3
692	FRNS/CCDR//RU0702082	5	86	98	6742	1759	8501	53.5	68.4
696	CPRS/9901081//CCDR	4	80	93	6527	1370	7897	49.6	68.3
686	9502008//KATY/902207x2/3/CCDR	4	79	95	6917	922	7839	55.4	68.8
680	CPRS/KBNT//9502008-A/4/9502008-A//AR1188/CCDR	3	76	94	6260	1349	7609	53.8	68.3
CV									
LSD									

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

Table 9. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 9, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
724	CCDR//EPAGRI 107/LMNT	4	82	91	8943	1213	9034	57.5	69.1
718	CCDR//CCDR/JEFF	3	82	91	8148	1692	8239	58.0	70.0
703	9502008-A//AR1188/CCDR/3/RU0702082	4	82	99	7906	1207	8005	56.1	69.8
716	RU0502068/08PY755	4	80	94	7641	1873	7735	54.7	68.4
715	RU0802134/RU0902134	4	81	92	7632	1550	7724	53.0	68.1
709	9502008-A//AR1188/CCDR/3/RU0702082	4	83	91	7612	1656	7703	57.7	69.4
722	CPRS/4/TACAURI/3/CPRS//L202/TBNT	4	82	90	7593	1905	7683	53.1	66.2
721	CPRS/4/9502008/3/MBLE//LMNT/20001-5	4	82	86	7491	1430	7577	58.4	68.9
723	CPRS/WELLS	3	81	86	7309	1844	7395	58.5	68.7
711	CCDR/3/KATY/CPRS//JKSN/4/CCDR/JEFF	4	80	98	7187	1374	7285	56.7	69.1
705	CCDR/9502008-A//RU0502091	3	77	95	7164	1354	7259	57.1	69.7
708	CCDR/9502008-A//RU0502091	4	77	93	7147	1352	7239	52.9	68.4
719	CPRS//CCDR/JEFF	3	78	92	7119	1484	7211	56.4	68.3
707	9502008-A//AR1188/CCDR	4	81	96	7106	1450	7202	54.7	68.3
712	CCDR/JEFF//CCDR/9502008-A	4	80	96	7066	1550	7161	54.8	68.5
714	RU0902137/RU0403166	4	81	99	7055	1534	7153	48.0	66.0
717	RU0502068/08PY755	4	79	92	6980	1686	7072	52.8	68.4
702	CCDR/9502008-A//RU0502091	4	81	99	6970	1524	7069	55.8	69.2
701	9502008-A//AR1188/CCDR	4	81	94	6945	1516	7039	56.3	68.5
720	9502008//AR1188/CCDR/3/0502165	5	81	97	6878	1552	6975	55.1	68.5
706	CCDR/9502008-A//RU0502094	4	79	100	6838	1568	6938	54.9	68.0
710	CBNT/3/MILL//9502008/LGRU	4	78	98	6818	2108	6916	52.7	69.0
704	9502008-A//AR1188/CCDR	4	80	93	6290	1811	6382	52.2	67.3
725	Wells	5	83	98	5899	2690	5997	41.5	64.8
713	RU0902174/RU0403166	4	84	88	4590	2123	4677	38.5	62.3
CV									
LSD									

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

Table 10. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 10, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
749	CCDR/JEFF/3/CPRS/KBNT//9502008-A	3	80	96	9270	1581	10851	56.4	69.5
745	RU0902155/RU0902131	4	81	92	8968	1664	10632	57.7	69.7
726	CPRS/9502008//KATY/902207x2	4	80	91	7755	2305	10060	52.8	67.6
746	RU0902155/RU0902131	3	80	91	7940	1930	9870	58.8	69.2
747	CPRS/KBNT//9502008-A /3/AC105	3	79	95	7847	1718	9564	61.1	69.9
728	CCDR/9502008-A//LCSN	4	80	103	7337	2078	9415	53.5	67.1
733	CCDR//9502008//AR1188/CCDR	3	77	96	7643	1765	9408	57.4	69.8
736	FRAN/CCDR//RU0702082	4	82	91	7055	2335	9390	54.3	67.9
748	CPRS/KBNT//9502008-A /3/CYBT	4	80	101	7483	1892	9374	49.2	68.3
744	CCDR/RU0902125	4	80	88	7720	1487	9207	55.2	69.3
730	DREW/CCDR//9502008/DREW	4	80	91	7267	1922	9189	59.6	69.6
732	CCDR//CCDR/JEFF	4	81	92	7362	1826	9188	60.1	71.1
731	0402022/3/9502008//AR1188/CCDR	4	78	85	7406	1758	9164	56.5	69.1
750	Cocodrie	4	80	95	7471	1646	9117	55.9	70.0
735	CCDR/3/9502008-A//AR1188/CCDR	4	79	91	7374	1735	9108	53.4	68.5
742	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	3	78	87	7394	1711	9105	58.7	69.2
743	CCDR/RU0902125	4	80	87	7605	1471	9076	54.3	68.7
734	9502008//KATY/902207x2/3/0402082	4	82	87	6261	2799	9060	46.7	65.2
739	9502008/CPRS/4/CPRS//82CAY21/TBNT/3/AR1121/5/CCDR//…	4	77	92	7388	1517	8905	54.0	67.9
740	CCDR/0502085/3/MILL//9502008/LGRU	4	77	93	7166	1719	8885	50.1	67.9
738	CCDR/3/KATY/CPRS//JKSN/4/CCDR/JEFF	4	78	98	7439	1296	8735	55.9	69.5
741	CBNT/3/MILL//9502008/LGRU	4	77	98	6912	1776	8689	57.7	70.4
737	CCDR/JEFF/3/MILL//9502008/LGRU	3	77	100	6762	1695	8457	55.5	68.2
727	CCDR/RU0501093	4	77	84	6311	1901	8212	51.0	67.6
729	9502008-A//AR1188/CCDR/3/WELLS/ZHE733	4	76	93	3272	1692	4964	40.0	62.7
CV									
LSD									

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

Table 11. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 11, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
752	CCDR/JEFF/3/CPRS/KBNT//9502008-A	3	77	94	8698	1952	10650	54.6	69.3
751	CCDR/JEFF/3/CPRS/KBNT//9502008-A	4	78	91	8571	1625	10196	51.3	68.2
769	CTHL//CCDR/JEFF	4	78	91	8355	1589	9945	51.9	69.7
760	CCDR/JEFF//CYBT	3	79	96	8203	1710	9913	55.4	69.7
758	CCDR/JEFF//CYBT	3	80	93	8169	1701	9871	56.0	69.6
773	CCDR/0502085/3/MILL//9502008/LGRU	4	77	89	7933	1785	9717	57.0	70.0
761	AR1188/CCDR//9502008/LGRU/3/AC1019	4	78	90	7936	1718	9655	55.8	70.0
754	CCDR/JEFF//CCDR/9502008-A	4	78	97	7492	2021	9513	56.1	69.2
756	CCDR/JEFF//CCDR/9502008-A	3	77	90	7561	1870	9431	55.3	68.8
772	9502008/CPRS/4/NWBT/KATY//9902207x2/3/CCDR	4	79	95	7407	1998	9406	56.1	68.3
755	CCDR/JEFF//CCDR/9502008-A	4	78	91	7746	1627	9372	57.6	70.3
759	CCDR/JEFF//CYBT	3	81	89	7450	1912	9362	54.1	69.1
767	9502008-A//AR1188/CCDR/4/9502008//KATY/9902207x2/3/9502008/CPRS	4	78	96	7746	1497	9243	54.9	69.5
762	CCDR/9502008-A//CTHL	4	78	93	7998	1099	9097	48.1	68.7
768	9502008-A//AR1188/CCDR/3/CYBT	4	78	91	7349	1738	9087	46.7	68.3
770	CTHL/4/CCDR/3/9502008//AR1188/CCDR	4	78	95	7457	1629	9086	53.9	69.5
766	9502008-A//AR1188/CCDR/3/CCDR/9502008-A	4	77	89	7438	1533	8970	56.8	69.9
757	CCDR/JEFF/3/MILL//9502008/LGRU	4	76	99	6854	2116	8970	52.3	67.9
775	Cheniere	5	82	86	7316	1651	8968	57.0	70.2
763	CCDR/9502008-A//CTHL	4	77	96	7201	1765	8966	47.2	68.1
753	CCDR/JEFF/3/CPRS/KBNT//9502008-A	3	78	92	7593	1243	8836	48.2	68.5
765	9502008-A//AR1188/CCDR/3/CCDR/9502008-A	3	78	89	7370	1325	8694	52.9	69.2
771	CTHL/4/CCDR/3/9502008//AR1188/CCDR	3	79	87	7052	1626	8679	52.6	69.5
774	CCDR/0502085/3/MILL//9502008/LGRU	4	77	94	6443	2052	8496	54.4	68.8
764	CCDR/9502008-A/3/MILL//9502008/LGRU	4	77	88	6482	1644	8126	55.8	69.6
CV									
LSD									

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

Table 12. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 12, Crowley, LA.

ENT	PEDIGREE	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
809	07PY823/07PY824	99	35	9122	2300	11423	64.3	69.6
803	CCDR/JEFF//RU0302125	99	39	8380	2296	10676	64.1	70.3
812	AC780/JZMN	99	38	7917	2745	10663	63.6	70.0
808	RU0302125/RU0502189	94	37	7734	2686	10420	59.8	68.8
778	RU0702137/07SP160	97	36	7901	2511	10412	65.6	70.3
782	JZMN//JZMN/CCDR/3/JZM2	98	39	8268	1969	10237	62.2	68.5
796	JZMN/08CLR004//JZMN	101	40	7912	2116	10028	59.7	68.7
804	RU0602103/RU0302125	96	37	7181	2796	9977	64.7	70.6
797	JZMN/08CLR004//RU0802146	98	36	7588	2380	9968	60.4	69.2
798	JZMN/08CLR004//RU0802146	100	38	7694	2081	9775	62.7	69.5
807	0302125/4/9502008-A//AR 1188/CCDR/3/CPRS/LGRU//97KDM X2-5	106	38	7121	2577	9698	64.6	69.4
801	9502008//KATY/9902207x2/3/0302125	98	38	7138	2495	9633	64.3	69.2
779	07PY824/RU0702137	95	37	7161	2420	9581	58.1	66.9
783	JZMN//JZMN/CCDR/3/JZM2	99	39	7296	2128	9425	65.3	70.3
777	RU0702137/07SP160	99	38	6702	2695	9397	63.1	68.7
786	AC780/KDM105//08AY001	95	35	6866	2423	9289	64.6	69.3
814	Jazzman	102	41	7806	1443	9248	61.9	69.5
806	RU0402042/3/JSMN/DLLA/96SP287	95	37	7450	1776	9226	65.6	70.5
813	L202/Leah//Toro/3/IR67016	104	41	6416	2735	9151	64.5	70.6
776	RU0702137/07PY824	87	35	7168	1928	9096	60.9	68.6
805	RU0302125/AC780	95	37	7245	1767	9011	66.5	71.4
789	JZMN//JZMN/CCDR/3/JZM2	82	34	6722	2189	8912	64.1	69.5
791	9502008//KATY/9902207x2/3/0302125	92	40	6571	2149	8720	65.7	69.8
794	CCDR/3/JSMN/DLLA//LEAH/DLLA	93	39	6575	1927	8502	62.6	68.9
810	JSMN/DLLA//DLLA/3/JZMN	99	38	6177	1913	8090	61.3	68.6

Continued.

Table 12. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
815	Cheniere	95	38	6322	1668	7990	54.5	68.2
785	AC780/KDM105//08AY002	92	37	5679	2247	7926	58.7	67.6
800	JZMN//A-301/KATY	101	39	5603	2116	7719	60.4	67.2
780	07PY824/AC1106	94	38	5317	2117	7434	54.9	66.0
781	9502008/KBNT//DREW/KDM 105/3/07PY822	93	38	4541	2613	7154	NA*	NA
802	JSMN/DLLA//DLLA/3/JZMN	98	40	4562	2249	6811	55.1	66.9
799	JZMN/DLRS	91	38	4747	1804	6551	57.6	66.8
784	JZMN//JZMN/CCDR/3/JZM2	100	41	4535	1915	6450	61.7	69.1
788	JZMN//AC1027/97 KDM X2-1/3/JZM2	101	41	4504	1788	6293	53.4	66.5
787	JZMN//AC1027/97 KDM X2-1/3/0302125	94	40	4317	1973	6290	NA	NA
793	NCHS/A-201	92	35	3592	1723	5316	57.4	66.5
795	JSMN/DLLA//96SP287/3/CPRS/DREW	96	38	3564	1316	4879	NA	NA
792	DLRS//AR1142/LA 2031/3/RU0402085	93	36	2517	2152	4668	NA	NA
811	06PY773/JZMN	98	37	2178	1842	4020	NA	NA
790	DLRS//AR1142/LA 2031/3/RU0302125	94	36	1233	1737	2970	NA	NA
CV								
LSD								

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

Table 13. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 13, Crowley, LA.

ENT	PEDIGREE	HTE	YIELD	WHOLE	TOTAL
826	JZMN//JZMN/CCDR/3/JZM2	107	7303	62.1	69.5
832	NPTN/08-81984	106	7025	57.4	67.1
845	Cheniere	99	6950	57.0	68.9
816	RU0602103/07PY824	107	6902	62.0	69.8
820	07PY824/07SP159	104	6801	61.6	69.1
843	Jazzman	114	6713	54.8	66.0
833	NPTN/08-81984	103	6692	63.4	67.8
835	NWBT/KATY//9902207x2/3/RU0302125/4/CCDR/RU0302125	105	6659	59.4	68.6
821	07SP160/JZMN	102	6629	57.9	67.3
834	NWBT/KATY//9902207x2/3/RU0302125/4/CCDR/RU0302125	107	6588	62.3	68.4
824	JZMN//JZMN/CCDR/3/JZM2	97	6428	57.5	67.3
819	07PY824/AC1106	106	6421	59.7	69.3
830	JZMN//AC1027/97 KDM X2-1/3/JZM2	105	6093	53.4	64.6
827	JZMN//JZMN/CCDR/3/JZM2	95	6070	54.7	65.8
839	DLMT 8462…/4/DMSI/5/RSMT/6/L202/Leah//Toro/3/IR67016	112	6047	54.6	65.8
829	AC780/KDM 105//08AY002	104	5910	55.7	65.7
837	NWBT/KATY//9902207x2/3/RU0302125/4/NWBT/KATY//9902207x2/3/RU0302125	97	5894	52.2	65.4
844	Della-2	105	5866	57.0	65.7
818	JZMN/07SP224	102	5737	57.2	66.3
841	08-81984/4/NWBT/KATY//9902207x2/3/RU0302125	96	5688	57.1	67.76
838	NWBT/KATY//9902207x2/3/RU0302125/4/NWBT/KATY//9902207x2/3/RU0302125	100	5567	56.4	66.8
836	NWBT/KATY//9902207x2/3/RU0302125/4/CCDR/RU0302125	108	5546	50.7	64.4
825	JZMN//JZMN/CCDR/3/JZM2	103	5318	59.1	68.2
822	07SP160/JZMN	96	5289	59.3	67.3
828	AC780/KDM 105//08AY002	95	5279	60.3	68.8
823	07SP160/07PY822	99	5269	50.4	62.4
831	AC780/KDM 105//08AY002	102	5229	54.1	64.9
842	DLL2//CPRS/DLRS	104	4909	49.5	62.7
840	08-81984/4/NWBT/KATY//9902207x2/3/RU0302125	106	4793	48.2	64.1
817	JZMN/07SP159	98	2007	47.5	64.5
CV					
LSD					

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

Table 14. Grain and milling yields and agronomic performance of entries in the 2012 Preliminary Yield Trial, Group 14, Crowley, LA.

ENT	PEDIGREE	HTE	YIELD	WHOLE	TOTAL
867	LAH12	108	6683	62.4	70.2
860	RU0902140/CTHL	84	5140	59.4	70.2
856	RU0902155/RU0802031	86	4710	61.6	70.9
863	RU1002128/RU1002192	89	4360	60.8	70.6
855	MRMT/RU0802134	92	4219	56.8	69.3
858	RU0902028/CYBT	94	4175	51.8	67.7
851	CHNR/RU0902137	87	4015	59.9	71.1
861	RU0802031/10AY032	92	3983	60.8	70.5
850	CHNR/RU0902137	92	3890	59.5	70.9
852	MRMT/RU1002189	84	3833	59.4	69.8
866	Mermentau	90	3806	58.7	69.7
862	RU0802134/RU0902034	83	3747	57.7	69.9
859	RU0902125/10AY027	81	3491	59.2	69.9
848	CPRS/RU0802031	88	3445	59.0	70.1
853	MRMT/RU1002189	80	3316	53.5	68.6
849	CPRS/RU0802031	85	3201	52.9	67.1
847	CPRS/RU0802031	84	3165	47.8	67.3
864	10AY015/FRNS	91	3102	53.0	68.1
857	RU0902174/RU0902134	90	3070	37.9	65.7
846	CCDR/WELLS	91	2665	37.0	63.4
865	10AY015/RU0802031	88	2168	NA	NA
854	MRMT/RU0902034	84	2017	NA	NA
CV					
LSD					

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

COOPERATIVE UNIFORM REGIONAL RICE NURSERY

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

The 2012 URN test included 200 experimental lines and varieties planted in six states. The randomized complete block design was applied, with three replications for groups 1-4 and two replications for groups 5-7. Seeding rates were 90 lb for varieties.

The 2012 URN results from the Rice Research Station will be reported. All plots were drill seeded on March 5. The test was harvested on July 23. Tests were conducted using standard agronomic practices (except that no fungicides were applied). Tables 1-7 show grain and milling yield and agronomic performance (seedling vigor, days to 50% heading, plant height, and lodging percentage) of entries in the 2012 URN at the Rice Research Station.

Table 1. Grain and milling yields and agronomic performance of entries in the 2012 Uniform Regional Rice Nursery, Group 1, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
017	CL111	CL111	4	84	37	8258	1904	10162	60.7	70.0
010	RU1101108	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/19981429	4	86	39	8065	1577	9642	61.4	69.9
002	RU 0902088	9502008-A//AR1188/CCDR/3/CFX 29//AR 1142/LA 2031	4	85	37	8080	1520	9600	60.6	71.7
015	RU1004083	CL161/PSCL	3	85	38	7695	1805	9500	58.8	69.2
004	RU1201004	BRAZ/TBNT/3/164986-4/NV66//NTAI/4/BNGL/5/RU9201176/4/…	5	83	38	7719	1619	9338	62.6	70.0
019	RU9903092	PRESIDIO	4	83	38	7098	2213	9311	65.1	70.8
007	RU0801081	LGRU//KATY/STBN/3/LGRU	3	83	42	6923	2049	8972	54.9	68.7
008	RU 1102192	TRNS//CCDR/JEFF	5	82	37	7059	1720	8778	61.3	70.9
012	RU0803147	LCSN/LGRU	6	85	37	7093	1634	8728	49.1	68.1
020	MRMT	MERMANTAU	4	84	36	7141	1527	8669	56.7	70.3
003	RU1003178	CF4-69/CCDR	5	84	38	7243	1247	8490	64.9	71.9
001	RU1001139	BASMATI-370/KATY/4/VSNTLM//L201/9NRZ/3/KATY/5/CPRS/6/RU9701151	5	84	39	7166	1312	8477	46.2	67.8
016	RU1004197	GFMT//NWBT/KATY	4	83	34	7115	1339	8454	57.7	69.3
011	RU 1002011	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4	87	37	6646	1804	8449	52.6	69.7
009	RU0903141	CPRS/9901081	6	85	37	6860	1398	8258	54.4	70.2
006	RU0803190	CPRS/CCDR	5	85	35	5446	1822	7268	56.7	67.1
013	RU1001167	LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT	4	82	39	5247	1742	6989	49.9	66.1
014	RU1004053	RSMT//8403113/3/KCAL/LEAH//LEAH	4	86	33	3632	1936	5567	29.6	64.0
018	CL151	CL151	4	85	38	3506	1887	5393	49.6	64.9
005	RU 1102174	TRNS//CCDR/JEFF	5	84	34	2886	1550	4436	46.2	64.6
CV										
LSD										

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2012 Uniform Regional Rice Nursery, Group 2, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
037	JPTR	JUPITER	5	88	37	8459	1311	9770	57.1	65.6
034	RU 1102034	CPRS/KBNT//9502008-A	5	83	35	8194	1339	9533	58.3	71.4
028	RU 1102137	CPRS/KBNT//9502008-A/3/RU0602180	5	83	37	7961	1218	9179	54.4	69.4
025	RU 1202025	JZMN/08CLR004//JZMN	3	86	40	7467	1532	8999	57.7	69.4
022	RU 1002128	CCDR//9502008/LGRU	5	82	37	7335	1662	8996	59.3	70.2
026	RU1003129	SABR/CCDR	5	90	38	7576	1256	8833	61.8	70.6
030	RU1201030	STG03L-50-045/RU0401164	4	86	39	7899	653	8552	59.2	69.6
021	RU1201021	STG03L-50-045/RU0401164	4	83	38	5935	2111	8046	34.8	65.4
029	RU0803153	CPRS/CCDR	5	86	36	6633	1412	8045	50.1	67.6
031	RU 1102031	RU0602103/3/9502008-A//AR1188/CCDR	5	83	36	6617	1304	7921	56.3	69.9
024	RU1201024	RU0301041/STG01L-37-069	4	90	39	5857	1916	7773	32.5	65.5
027	RU1201027	TMPL/ RU0401164	4	86	40	5615	1999	7614	46.7	64.2
038	WLLS	WELLS	4	87	40	5237	1725	6962	46.5	65.1
023	RU1003126	LGRU/LSCN/CF4-85	4	86	39	4940	1940	6880	52.3	66.8
033	RU1104073	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	4	84	37	5199	1611	6810	55.7	67.5
040	FRNS	FRANCIS	4	85	42	3917	2015	5932	46.7	64.4
035	RU1104077	8603006//3/MARS/NWRX//TBNT	4	80	36	2322	1610	3932	16.8	56.8
036	RU1104122	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	5	81	37	1973	1618	3591		
032	RU0703190	CCDR/L202	5	80	37	1878	1331	3209		
039	CL162	CL162	5	82	39	1011	1865	2876		
CV										
LSD										

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2012 Uniform Regional Rice Nursery, Group 3, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
050	RU1201050	STG03L-50-045/RU0401164	5	88	29	8533	1598	10131	35.9	64.4
056	TGRT	TAGGART	5	89	44	7179	1988	9168	49.3	66.1
051	RU 1202051	CCDR//CFX-29/CCDR	5	85	38	7526	1594	9121	54.5	66.5
053	RU1104154	CFX-18(CL161)/PSCL	5	84	38	7728	1392	9120	52.8	68.2
047	RU1201047	STG01L-64-105/SPRN	5	87	40	7686	1434	9120	43.3	66.2
052	RU0703181	CPRS/CCDR	5	86	39	6865	1415	8280	49.8	66.3
059	CCDR	COCODRIE	5	84	35	6904	1278	8182	52.1	66.4
043	RU0803181	CPRS/CCDR	6	85	36	6820	1255	8075	59.5	69.2
046	RU0703147	CPRS/CCDR	6	87	38	6460	1519	7978	47.9	66.1
041	RU1201041	STG00F5-07-007/UA99-103//STG03P-07-045	5	76	34	6699	904	7603	62.2	69.6
048	RU 1202048	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	6	83	38	6286	1284	7570	55.2	67.1
060	CL 181 AR	CL181 AR	4	85	37	6201	1319	7520	45.5	65.9
042	RU 1102195	TRNS//CCDR/JEFF	5	82	35	5486	1787	7273	53.9	66.3
058	CHNR	CHENIERE	6	84	35	5734	1312	7046	55.5	68.8
049	RU0903147	CCDR/L202	6	84	35	5885	1102	6987	55.6	67.1
045	RU 1202045	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	5	82	35	4790	1380	6170	51.6	64.7
057	REX	REX	5	85	40	3939	2071	6010	35.7	60.8
055	RU1104157	RSMT//RXMT/IR36	5	83	36	4190	1766	5956		
044	RU1201044	FRNS// WLLS/CL161	5	85	35	3415	1779	5194	45.3	63.2
054	RU1104156	LMNT//TBNT/LA110	4	85	37	1352	1774	3126		
CV										
LSD										

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2012 Uniform Regional Rice Nursery, Group 4, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
064	JES	JES	6	89	35	9646	5839	15485	55.1	67.2
080	CFFY	CAFFEY	4	84	36	8704	5508	14212	58.5	67.1
065	RU 1202065	NEPTUNE//BNGL/CL161	4	85	36	9463	4466	13929	64.2	69.8
068	RU 1202068	NEPTUNE//BNGL/CL161	4	84	37	8673	4877	13551	63.7	69.6
075	RU0903190	CPRS/CCDR	5	86	38	6827	5458	12286	46.0	66.2
071	RU 1102071	LAH10	5	89	49	8910	3099	12009	53.2	65.4
078	RU0703184	L201/SABR	5	86	38	7144	4729	11872	62.4	67.4
070	RU1201070	STG01L-64-105/RU0101133	5	87	40	7248	4354	11602	50.7	68.6
067	RU1101185	IRGA409/RXMT/5/NWBT/3/LBNT.9902/LBLE/4/…	4	89	38	7715	3874	11589	40.1	68.0
063	RU0903184	CPRS/CCDR	5	85	39	6417	5138	11556	45.8	66.5
066	RU0903086	SABR/CCDR	6	89	39	6841	4216	11057	58.9	68.9
061	RU1201061	TMPL/ RU0401164	5	86	41	5119	5788	10907	43.3	63.5
079	ROYJ	ROY J	5	89	39	4811	5437	10247	44.0	63.1
076	RU1201076	WLLS/CL161	5	86	33	5255	4636	9892	54.4	63.2
073	RU1104186	L201//TBNT/BLMT/3/8403113/4/TBNT/NRAS//N	5	87	33	3702	5968	9670	30.1	61.9
069	RU1003107	CF4-69/CCDR	6	83	40	6484	3099	9583	60.8	70.1
077	RU1104193	L201//TBNT/BLMT/3/8403113/4/MILL	5	85	32	3582	5986	9568	44.4	62.2
072	RU0903123	CPRS/NWBT//KATY/3/CCDR	8	83	40	5909	3554	9463	52.7	67.4
062	RU 0902082	BNGL/CL161	5	84	36	4013	5225	9237	58.6	65.6
074	RU1104191	RSMT//3/MARS/NWRX//TBNT	4	81	36	2468	4755	7223	16.5	54.0
CV										
LSD										

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2012 Uniform Regional Rice Nursery, Group 5, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
102	RU1201102	STG05IMI-02-028/STG03L-10-047	5	84	35	8511	1679	10190	61.1	70.9
087	RU1201087	STG05IMI-02-028/STG03L-10-047	5	84	43	8356	1612	9968	60.8	69.4
101	RU1003101	CF4-69/CCDR	5	86	41	8112	1557	9669	60.2	70.2
089	RU1003089	CPRS/CCDR	6	86	40	7411	1884	9295	50.3	67.6
108	RU1201108	STG01P-18-011/ RU9701151	5	85	40	8265	938	9204	47.4	67.4
094	RU 1202094	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	5	83	39	7650	1274	8923	61.5	70.2
114	RU1204114	248CO13E-1	5	83	40	7431	1484	8915	60.2	69.7
090	RU1001090	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/19981429	6	84	37	7662	1103	8766	47.9	66.5
096	RU1201096	STG05IMI-02-028/STG03L-10-047	5	83	41	7089	1604	8694	62.3	69.5
081	RU1001081	WLLS/ZHE733//19981434	6	84	37	7198	1466	8664	62.6	69.2
082	RU 1202082	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	5	85	38	7086	1406	8493	59.2	67.4
116	RU1003116	CPRS/CCDR	5	85	37	6963	1497	8460	54.5	68.9
093	RU1101093	19991516/WLLS	6	74	37	6918	1452	8370	47.3	63.2
113	RU1003113	CPRS/CCDR	5	86	39	6618	1523	8141	48.6	66.3
097	RU 1202097	CCDR//CLPY 003	5	81	38	6522	1375	7897	61.4	69.8
117	JZMN2	JAZZMAN-2	5	85	34	6205	1687	7892	64.1	69.9
088	RU 1202088	CFX-26/9702128//CCDR/JEFF	6	86	37	5770	1787	7557	53.4	64.5
086	RU1203086	CCDR/L202	6	85	37	6253	1151	7403	51.7	67.6
098	RU1003098	CPRS/NWBT//KATY/3/CCDR	6	85	38	6066	1104	7169	58.2	69.3
111	RU1201111	STG03L-50-045/RU0401164	5	85	37	5005	2128	7133	31.5	63.0
085	RU 1202085	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	5	82	35	5689	1260	6949	54.4	67.2
095	RU0803178	LGRU/LSCN/CF4-85	6	88	35	4631	2238	6869	46.6	64.3
105	RU1001105	FRNS/5/LBNT/9902//NWBT/3/KATY/NWBT/4/LGRU	4	85	42	4767	1984	6751	39.4	64.4
092	RU1103092	CCDR/L202	8	84	35	5674	806	6480	59.7	69.8
112	RU 1202112	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4	85	41	4782	1635	6417	51.8	66.2

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
103	RU 1202103	CFX-26/9702128//EP 144	5	83	38	4475	1802	6277	47.0	62.5
084	RU1201084	STG05IMI-02-028/STG03L-10-047	5	84	43	4331	1888	6218	55.4	66.7
115	RU 1202115	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	4	83	40	4542	1558	6100	50.1	66.3
091	RU 1202091	CCDR/JEFF/3/CFX-18//CPRS/KBNT	5	83	39	4905	1171	6076	56.2	67.5
118	CL 142 AR	CL142 AR	4	86	23	3870	2046	5916	41.5	62.8
109	RU 1202109	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	5	84	40	4452	1386	5837	53.5	67.5
106	RU 1202106	WELLS/CFX-18//DREW/CFX-18	5	81	39	3383	1968	5351	43.1	63.2
099	RU1201099	WLLS/CL161	5	85	33	3440	1326	4766	50.3	66.5
110	RU1103110	MILL/JSMN ?	6	87	43	3075	1120	4194	44.5	64.2
100	RU1104198	RSMT/KATY	5	86	34	2200	1913	4113	37.0	58.9
107	RU1103107	MILL/JSMN ?	6	87	43	2954	1071	4026	37.0	63.8
120	CL261	CL261	4	81	35	2352	1611	3962	54.2	63.3
104	RU1103104	MILL/JSMN ?	6	84	43	1851	798	2649	33.5	63.5
083	RU1104194	CPRS/3/L201/TBNT/BLMT	5	83	36	781	1502	2283		
119	M206	M206	6	68	33	1128	510	1639		
CV										
LSD										

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

Table 6. Grain and milling yields and agronomic performance of entries in the 2012 Uniform Regional Rice Nursery, Group 6, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
160	TMPL	TEMPLETON	5	85	22	8661	1822	10483	63.9	70.5
124	RU1201124	M206/STG03AC-25-109//RU0401127	4	81	39	9025	1377	10403	65.5	69.8
139	RU1201139	STG03L-50-045/RU0401164	4	84	38	9036	1184	10220	45.4	68.6
127	RU1201127	TMPL/RU0401164	4	86	41	8336	1251	9588	52.0	69.2
121	RU1001102	RU0401084/IRAT 13//STG03F5-04-062	5	85	34	8154	1079	9233	58.8	66.2
158	DLLA2	DELLA-2	5	88	40	7230	1906	9137	58.2	67.2
140	RU 1202140	DLMT/5/DLMT 8462…/4/DMSI	6	85	38	7155	1718	8873	63.1	70.8
141	RU1003141	CPRS/CCDR	5	85	41	7005	1798	8803	51.1	67.3
159	RU0703144	ANTONIO	5	84	38	7360	1409	8768	55.8	69.7
123	RU1003123	CPRS/CCDR	5	86	40	6979	1743	8722	50.7	68.5
134	RU 1202134	CCDR//CCDR/JEFF	5	82	39	7252	1468	8720	59.7	69.8
122	RU1204122	248CO13E-1	5	84	40	7385	1309	8693	61.0	69.9
154	RU1204154	CPRS//NWBT/KATY	5	86	35	7669	958	8628	64.4	70.7
125	RU 1102125	CCDR/JEFF/3/9502008//AR1142/MBLE	6	83	38	7067	1540	8607	60.5	70.4
131	RU 1202131	CCDR/AC919	6	83	40	6991	1548	8538	61.7	70.6
130	RU1201130	STG05IMI-01-021/TMPL	4	86	45	6831	1603	8434	45.4	68.3
155	RU 1202155	FRANCIS/CLR 13//CCDR	5	83	40	6899	1522	8421	51.5	70.0
156	RU1204156	CFX-18(CL 161)/0004054	5	90	36	6831	1586	8417	53.8	67.6
145	RU1201145	STG03L-22-134/STG03L-60-070	5	87	40	7268	1106	8374	54.7	69.7
128	RU 1102128	9502008//AR1188/CCDR/3/CCDR	6	83	37	6755	1415	8169	50.6	68.7
137	RU 1202137	9502008-A//AR1188/CCDR/3/CCDR/JEFF	5	81	38	6799	1329	8127	55.5	70.0
129	RU1203129	CPRS/CCDR	6	85	36	6555	1511	8065	58.6	71.2
132	RU1003132	CPRS/9901081	7	86	38	6396	1645	8042	51.5	69.4
150	RU0903150	(JEFF//JEFF/O. RUFIPOGON)43_1-2	6	84	35	5908	2016	7924	57.6	68.6
133	RU1201133	STG05-IMI-02-055/CL142-AR	4	84	44	6242	1568	7810	52.0	66.8

Continued.

Table 6. Continued.

ENT	SOURCE	PEDIGREE	VIG1	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
136	RU1201136	RU0301041/STG01L-37-069	4	89	39	5556	1777	7333	35.6	66.7
151	RU1201151	STG05-IMI-02-055/CL142-AR	5	84	40	5409	1710	7119	48.5	65.7
148	RU1201148	TMPL/ RU0401164	5	88	38	5132	1838	6970	45.5	64.5
144	RU0803144	CCDR/L202	7	85	37	5689	1263	6952	49.1	67.9
143	RU 1202143	FRANCIS/CLR 13//9502008-A/DREW	5	79	38	5269	1472	6741	47.8	68.1
135	RU1003135	CPRS/CCDR	6	85	35	5286	1380	6666	53.6	69.4
153	RU1003153	CPRS/CCDR	6	85	35	5114	1419	6533	51.7	68.2
146	RU 1202146	JZM2//07PY824/08CLR003	5	83	39	4731	1487	6218	52.5	65.4
147	RU1203147	FRAN/WELLS	6	89	39	4097	1814	5912	49.4	64.2
152	RU 1202152	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	5	84	42	4293	1574	5866	50.3	65.6
142	RU1101142	KBNT/Q36194	4	85	40	3720	2091	5811	42.8	63.9
149	RU 1202149	FRANCIS/CLR 13/3/9502008-A/DREW//CFX 26/WELLS	4	84	39	4085	1420	5505	53.6	68.2
157	RU1204157	DXBL//A301/RSMT	6	84	38	2637	1332	3969	39.8	62.9
138	RU1203138	CCDR/L202	8	84	35	2362	1189	3551	43.5	62.9
126	RU1103126	MILL/JSMN ?	5	87	45	2043	1148	3190	42.1	63.2
CV										
LSD										

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

Table 7. Grain and milling yields and agronomic performance of entries in the 2012 Uniform Regional Rice Nursery, Group 7, Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
176	RU1201176	TWO LINE HYBRID, SMOOTH LEAF	6	88	41	11390	1536	12926	39.0	62.1
182	RU1201182	THREE-LINE HYBRID, ROUGH LEAF	6	90	49	8162	2748	10910	29.0	57.4
173	RU1201173	TWO LINE HYBRID, SMOOTH LEAF	6	88	44	9164	1310	10474	46.4	63.1
168	RU 1202168	NEPTUNE//BNGL/CL 161	4	87	37	8279	2169	10449	65.0	69.5
161	RU1101161	LGRU//IRGA409/RXMT/3/CYBT	5	86	40	9152	1125	10277	54.1	68.5
199	RNDO	RONDO	6	94	40	8039	2001	10040	49.8	66.4
170	RU1201170	TWO LINE HYBRID, SMOOTH LEAF	6	87	44	9008	955	9963	49.9	64.2
179	RU1201179	THREE-LINE HYBRID, ROUGH LEAF	7	85	47	7280	2506	9786	43.3	60.8
164	RU1201164	TWO LINE HYBRID, SMOOTH LEAF	6	85	46	8518	1220	9738	44.6	65.2
185	RU1201185	STG03L-16-028/STG03L-63-107	5	91	40	7572	1960	9532	46.9	66.9
188	RU1201188	THREE-LINE HYBRID, ROUGH LEAF	6	84	47	8154	1374	9528	24.6	59.2
167	RU1201167	TWO LINE HYBRID, SMOOTH LEAF	6	86	46	8191	1156	9347	47.0	64.5
166	RU1003166	CPRS/NWBT//KATY/3/CCDR	6	89	35	7295	1487	8783	59.3	70.1
177	RU 1202177	CHNR/3/NWBT/KATY//9902207X2	5	86	39	6790	1698	8489	52.3	68.5
165	RU 1202165	CCDR/JEFF//CFX-26/9702128	5	81	36	6874	1602	8477	52.5	67.8
169	RU1203169	SABR/CCDR	6	91	43	7086	1195	8282	61.1	70.1
171	RU 1202171	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/9770532 DH2	5	84	35	6361	1887	8247	55.2	67.6
163	RU1103163	SABR/CCDR	6	84	40	6941	1194	8135	58.4	69.2
197	RU1204197	RSMT//8203035/GCHW	5	84	39	6553	1499	8051	50.8	68.3
189	RU 1202189	CHENIERE//CCDR/JEFF	5	86	37	6217	1592	7809	51.4	68.0
180	RU 1202180	LGRU//CCDR/9770532 DH2	5	90	44	5813	1990	7803	47.4	65.5
181	RU1203181	CPRS/CCDR	6	86	39	5972	1739	7711	54.2	66.7
184	RU1003184	CPRS/NWBT//KATY/3/CCDR	6	86	38	6094	1419	7513	58.8	69.3
190	RU1203190	CPRS/NWBT//KATY/3/CCDR	7	86	35	6120	1384	7504	51.9	69.3
195	RU 1202195	DREW/CFX-18//CFX-29/CCDR	5	88	39	5990	1479	7470	55.3	67.5

Continued.

Table 7. Continued.

ENT	SOURCE	PEDIGREE	VIG1	HDT	HTE	YIELD	RATOON	TOTAL YIELD	WHOLE	TOTAL
175	RU0903175	CCDR/L202	7	86	37	5959	1232	7191	54.5	67.4
187	RU0903187	Carolina Gold/IR64//IR65610-24-3-6-3-2-3	5	91	48	5646	1424	7070	36.8	63.7
174	RU 1202174	CCDR/JEFF//CPRS	5	84	36	5339	1529	6868	52.2	66.6
194	RU1204194	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	5	85	39	5020	1775	6796	48.7	64.7
192	RU 1202192	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	6	83	37	5447	1341	6788	59.5	68.6
183	RU 1202183	CHENIERE//CCDR/JEFF	6	84	38	5074	1303	6377	53.9	69.0
193	RU1204193	CFX-18(CL161)/RSMT/3/MARS/NWRX//TBNT	5	86	31	4192	1991	6182	47.3	63.4
178	RU1103178	(MARS/CM101)/(LBNT_WX/RU8703190)	6	88	35	3863	1898	5761	52.9	64.1
172	RU1103172	(MARS/CM101)/(LBNT_WX/RU8703190)	6	89	35	4113	1474	5587	52.8	63.8
200	CL152	CL152	5	86	35	3289	1819	5109	43.3	62.1
162	RU 1202162	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	6	82	36	3618	1379	4997	45.7	65.0
196	RU1204196	LMNT//TBNT/LA110	5	86	36	2758	2029	4787	39.4	62.3
191	RU1204191	CL151/JSMN85	5	85	40	2840	1901	4741	39.7	60.1
198	RU1204198	RSMT/KATY	5	85	36	1505	1841	3346	42.3	63.6
186	RU1204186	DXBL//A301/RSMT	6	82	37	1442	1138	2581		
CV										
LSD										

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

DATE OF PLANTING STUDIES

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

Experiment: Date of Planting

Location: Rice Research Station, Crowley, Louisiana

Planting Method: Drill seeded

Plot size: 4.66 x 16 ft

Planting Dates: March 5, March 19, March 29, April 15, April 30, May 16, May 29, and June 20

Entries: Caffey, Cheniere, CL111, CL151, CL152, CL261, Jazzman-2, Jupiter, LAH10, Mermentau, LA2128, and LA2174

Experimental Design: Replicated complete block design with three replications

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

Table 1. Grain yields[†] of 12 rice varieties and experimental lines planted over eight planting dates, 2012. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 5	March 19	March 29	April 15	April 30	May 16	May 29	June 20	Mean
LAH10	10764	11992	11587	9670	7785	3853	5687	5999	8417
JUPITER	9229	10789	9716	6577	4826	3640	3694	4780	6656
CL111	8982	9426	9550	7775	5739	3002	3579	3749	6475
CAFFEY	8658	9616	9365	5610	4483	2803	4364	3827	6091
JAZZMAN-2	7023	8085	7867	4824	4473	2674	3333	3824	5263
LA2128	7071	7953	7328	4785	4244	3573	3552	3145	5206
CHENIERE	6144	7913	7735	4900	4359	3385	3028	3097	5070
CL151	5223	6935	6807	3103	5232	3684	3647	4306	4867
MERMENTAU	5047	7709	7140	4707	3906	3958	2882	3141	4811
CL152	6506	6583	6365	3514	4366	4010	3220	3355	4740
LA2174	4421	6192	6533	3594	4436	3280	3016	3136	4326
CL261	4428	5967	7034	3469	3869	2711	2372	3125	4122
Mean	6958	8263	8086	5211	4810	3381	3531	3790	
C.V.%									
LSD (0.05)									

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

Table 2. Seedling vigor† of 12 rice varieties and experimental lines planted over eight planting dates, 2012. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 5	March 19	March 29	April 15	April 30	May 16	May 29	June 20	Mean
CL111	3	3	4	3	3	4	3	3	3
CL261	3	3	3	3	3	4	3	3	3
CL151	4	3	4	3	4	4	4	4	4
CL152	3	3	4	3	3	4	3	4	3
CHENIERE	5	4	5	4	4	4	5	5	5
MERMENTAU	5	3	4	4	4	4	5	4	4
JAZZMAN-2	5	4	5	4	5	4	4	5	5
CAFFEY	4	3	3	3	3	3	5	5	4
JUPITER	4	4	5	5	4	4	7	6	5
LAH10	5	5	5	6	5	4	5	5	5
LA2128	4	3	5	4	5	4	5	5	4
LA2174	4	3	4	4	4	3	4	5	4
Mean	4	3	4	4	4	4	4	5	
C.V.%									
LSD (0.05)									

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

Table 3. Days to 50% heading of 12 rice varieties and experimental lines planted over eight planting dates, 2012. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 5	March 19	March 29	April 15	April 30	May 16	May 29	June 20	Mean
CL111	81	81	79	71	73	78	66	60	74
CL261	80	80	79	72	75	77	69	68	75
CL151	83	83	80	73	75	77	71	65	76
CL152	85	84	80	75	79	82	75	67	78
CHENIERE	88	82	79	74	78	78	71	65	77
MERMENTAU	88	82	80	74	77	79	69	62	76
JAZZMAN-2	88	82	80	74	78	78	71	66	77
CAFFEY	87	83	81	77	79	81	74	68	79
JUPITER	88	85	82	77	77	79	75	70	79
LAH10	88	86	83	78	77	79	71	72	79
LA2128	85	82	79	73	76	79	70	63	76
LA2174	82	80	80	71	75	79	69	62	75
Mean	85	83	80	74	77	79	71	66	
C.V.%									
LSD (0.05)									

Table 4. Plant height† of 12 rice varieties and experimental lines planted over eight planting dates, 2012. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 5	March 19	March 29	April 15	April 30	May 16	May 29	June 20	Mean
CL111	41	37	38	44	43	37	38	35	39
CL261	38	36	38	39	39	35	35	33	37
CL151	38	38	38	42	41	37	38	34	38
CL152	36	36	35	40	40	39	38	34	37
CHENIERE	36	36	34	39	40	35	37	33	36
MERMENTAU	35	36	37	40	41	39	38	33	37
JAZZMAN-2	35	36	35	37	36	36	33	30	35
CAFFEY	36	37	37	39	41	38	37	31	37
JUPITER	38	38	38	39	40	36	35	32	37
LAH10	48	48	48	50	51	41	46	43	47
LA2128	38	38	37	39	39	36	38	32	37
LA2174	38	37	38	36	38	36	34	30	36
Mean	38	38	38	40	41	37	37	33	
C.V.%									
LSD (0.05)									

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

Table 5. Whole milling percentage† of 12 rice varieties and experimental lines planted over eight planting dates, 2012. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 5	March 19	March 29	April 15	April 30	May 16	May 29	June 20	Mean
CL111	56.7	56.5	51.6	51.9	49.5	50.1	53.7	58.8	53.6
CL261	53.6	61.7	58.8	51.4	46.7	54.6	56.9	66.0	56.2
CL151	47.6	43.5	37.1	52.0	44.1	46.9	52.5	61.8	48.2
CL152	50.4	44.7	47.0		47.6	65.8	55.8	63.1	53.5
CHENIERE	53.9	53.7	51.9	42.1	55.1	54.3	62.2	66.3	54.9
MERMENTAU	50.7	57.1	55.0	41.0	47.6	60.2	59.7	63.9	54.4
JAZZMAN-2	62.8	64.5	65.3	47.2	57.5	48.3	58.9	66.2	58.8
CAFFEY	60.3	49.6	46.9	40.9	44.7	59.5	53.9	65.0	52.6
JUPITER	59.9	55.1	55.2	43.4	45.9	48.5	57.1	65.3	53.8
LAH10	55.8	56.5	56.8	48.4	57.2	56.3	58.3	67.0	57.0
LA2128	57.9	56.9	54.2	42.1	52.6	56.7	60.7	64.3	55.7
LA2174	43.9	49.3	46.8	42.1	47.0	60.4	54.1	57.6	50.2
Mean	54.5	54.1	52.2	45.7	49.6	55.1	57.0	63.8	
C.V.%									
LSD (0.05)									

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

Table 6. Total milling percentage† of 12 rice varieties and experimental lines planted over eight planting dates, 2012. Rice Research Station, Crowley, LA.

	Planting Date								
Entry	March 5	March 19	March 29	April 15	April 30	May 16	May 29	June 20	Mean
CL111	70.4	71.0	70.8	65.5	64.0	68.3	68.9	69.4	68.5
CL261	65.6	68.5	68.5	64.2	59.2	70.9	56.9	69.1	65.4
CL151	67.4	67.0	66.0	68.7	62.2	64.5	52.5	70.6	64.9
CL152	68.1	65.6	67.9		65.9	70.8	55.8	70.5	66.4
CHENIERE	69.3	71.7	71.3	69.4	69.8	66.7	62.2	72.5	69.1
MERMENTAU	68.2	70.4	69.9	65.6	65.0	71.2	59.7	70.5	67.6
JAZZMAN-2	69.3	71.2	72.0	63.0	67.8	67.6	58.9	71.1	67.6
CAFFEY	67.5	66.9	64.8	61.8	59.3	69.2	53.9	68.8	64.0
JUPITER	66.5	65.2	64.5	61.7	56.0	65.3	57.1	68.0	63.0
LAH10	66.6	68.5	65.8	62.1	65.7	68.3	58.3	70.1	65.7
LA2128	71.2	71.2	71.0	67.1	67.5	67.3	60.7	71.9	68.5
LA2174	65.7	68.3	69.2	61.2	64.5	70.4	54.1	69.5	65.4
Mean	68.0	68.8	68.5	64.6	63.9	68.4	58.3	70.2	
C.V.%									
LSD (0.05)									

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

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

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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 to 20% more than the best inbreds grown under similar conditions believed to be the result of "hybrid vigor" or "heterosis" from crossing the two parents. Research goals of the Hybrid Rice program at the Rice Research Station include: 1) developing and identifying 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 2012 hybrid breeding nurseries included an Observational Trial that evaluated some 600 test crosses for agronomic and milling performance, Advanced Yield Trials in Acadia, Jeff Davis, and St. Landry parishes, Variety x Nitrogen Trials in Acadia, St. Landry, and Vermilion parishes, and a seeding rate trial in Acadia Parish. Additional nurseries included 1,300 rows for male sterile S line development and 3,000 rows for restorer and maintainer line development. Some 300 S lines were selected and advanced. Approximately 100 male sterile, maintainer, and restorer lines were introduced, inspected under plant quarantine, and seed-increased. A total of 21 micro and small-scale plots were evaluated at the Rice Research Station with four different management options to maximize hybrid seed production. DNA technology was used to identify 17 candidate markers for low chalk percentage in hybrids and inbred varieties.

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 525 crosses for sheath blight was made in 2012. In addition, 1,600 F_1 plants, 400 backcross (BC) populations, and 86 space-planted F_2 populations were evaluated. Some 397 early and advanced lines were tested in inoculated field plots at the Rice Research Station. DNA technology was used to identify 21 candidate markers for sheath blight resistance.

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 26, 2012. The total number of single-row plots for this trial was 2,300. Test crosses consisted of F_1 seeds derived from introduced Chinese male sterile lines mated with elite Louisiana long-grain or Chinese genotypes in 2011. A total of 150 cross combinations, which included 73 of 3-line and 77 of 2-line candidate hybrids produced higher yields than inbred check CL151. Results from 11 selected hybrids are shown in Table 1. A total of nine selected hybrids produced more than 20% grain yield vs. the advanced hybrid LAH10, and 10 entries generated substantially higher grain yield and similar milling performance vs. the inbred variety CL151. In related studies, 73 southern long-grain varieties/lines were found to have either partial or full restoring ability to Chinese CMS male sterile lines, and 77 southern long-grain varieties/lines were found to have either partial or full restoring ability to Chinese S male sterile lines.

Advanced Hybrid Yield Trials

The objective of the Advanced Hybrid Yield Trials is to evaluate agronomic and milling performance at multiple locations of selected entries for vigor, maturity, height, grain yield, and head rice yields. The four trials were planted March 27 to April 11, 2012, at a seeding rate of 38 lb/A. Results from these trials are shown in Tables 2-5. In general, the three hybrids LAH10, LAH12, and 10TC151 showed high yield potential with good milling performance across the different locations vs. the inbreds CL151 and Caffey.

Table 1. Observational (Test cross) Trial, Rice Research Station, 2012.

Entry	Pedigree	Type†	Days to 50% Heading	Plant Height (cm)	Lodging %	Yield (lb/A)	Milling (%)	
							Head	Total
11TC335	08S/9502008A…	CL, 2-line	87	102	3	17401	59	70
11TC071	08A/MRMT	3-line	84	99	1	14503	65	71
11TC075	08A/CL162	CL, 3-line	84	102	1	13976	64	72
11TC276	08S/CL161	CL, 2-line	91	109	5	13549	61	71
11TC267	08S/CL162	CL, 2-line	90	104	3	13087	57	71
11TC158	08A/10PY757	3-line	84	109	1	12807	65	72
11TC263	08S/RU1102091	2-line	90	96	0	12807	59	72
11TC376	28A/RU0501087	3-line	90	104	1	12511	63	70
11TC251	08S/CPRS	2-line	90	94	1	12429	61	72
11TC245	08S/CL131	CL, 2-line	90	102	0	10667	58	72
LAH10	08A/R609	3-line	95	124	5	10075	68	72
CL151	CFX-26 /RU9702128	Pure line	90	109	1	4510	56	68

† CL = Clearfield long-grain

Table 2. Agronomic and milling performance of 2012 Advanced Yield Trial, Hybrid entries. Rice Research Station, Crowley, LA.

Entry	Type†	Days to 50% Heading	Plant Height (cm)	Yield (lb/A)	Milling (%)	
					Head	Total
11TC401	L	91	123	9547	54	68
10TC446	L	98	123	9996	56	70
LAH12	L	93	123	8705	57	71
LAH10	M	92	129	8273	61	69
LAH20	M	98	121	10177	56	66
Caffey	M	87	98	7963	58	67
10TC151	CL-L	87	116	9504	60	72
CL151	CL-L	86	100	3855	49	66

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

Table 3. Agronomic and milling performance of 2012 Advanced Yield Trial, Hybrid entries. Jefferson Davis Parish, LA.

Entry	Type†	Vigor‡	Days to 50% Heading	Plant Height (cm)	Yield (lb/A)	Milling (%)	
						Head	Total
11TC401	L	6	97	110	8570	59	69
10TC446	L	7	102	109	8254	58	70
LAH12	L	7	98	109	7166	60	70
LAH10	M	7	100	115	8463	63	68
LAH20	M	6	95	115	9523	56	63
Caffey	M	4	91	86	7906	64	68
10TC151	CL-L	7	90	100	6830	58	69
CL151	CL-L	6	90	90	7458	64	70

† CL-L = Clearfield long-grain, L = long-grain, and M = medium-grain.
‡ Subjective rating 1 to 7, where 1 = excellent, 7 = stand.

Table 4. Agronomic and milling performance of 2012 Advanced Yield Trial, Hybrid entries, Lake Arthur, LA.

Entry	Type†	Vigor‡	Days to 50% Heading	Plant Height (cm)	Main Yield (lb/A)	Milling (%)	
						Head	Total
11TC401	L	6	86	113	9429	53	66
LAH12	L	6	88	121	8661	51	67
CL151	CL-L	6	90	90	7458	54	67
LAH10	M	6	85	121	11155	60	69
LAH20	M	6	85	120	10817	56	69
Caffey	M	4	83	88	8862	52	69

† CL-L = Clearfield long-grain, L = long-grain, and M = medium-grain.
‡ Subjective rating 1 to 7, where 1 = excellent, 7 = stand.

Table 5. Agronomic performance of 2012 Yield Trial, Hybrid entries, St. Landry Parish, LA.

Entry	Type†	Plant Height (cm)	Main Yield (lb/A)
LAH10	M	127	10682
LAH20	M	120	10410
Caffey	M	111	9028
LAH12	L	128	9226
11TC401	L	107	10146
CL151	CL-L	91	9846

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

Variety X Nitrogen Trials

The objective of the Variety x Nitrogen Trials is to evaluate maturity, height, and grain yield at two different nitrogen rates for the hybrid LAH10 at multiple locations. The four trials were planted March 27 to April 11, 2012, at a seeding rate of 38 lb/A. Results from these trials are shown in Table 6. High yields were produced at both the 60 and 90 lb/A rates. Only small to moderate increases in maturity, height, and grain yield were observed at the 90 lb vs. 60 lb/A rate.

Table 6. 2012 Variety (LAH10) x Nitrogen Trials at the, Rice Research Station (Acadia Parish), Vermilion Parish, and St. Landry Parish.

Location	Lb N/A	Days to 50% Heading	Plant Height (cm)	Grain Yield (lb/A)
Rice Research Station	60	90	117	14149†
Rice Research Station	90	90	119	14736†
c.v.%	-	1.0	5.0	7.0
LSD0.05	-	1.0	4.0	1520
Vermilion Parish	60	92	119	13781†
Vermilion Parish	90	93	122	13901†
c.v.%	-	1.4	3.5	5.7
LSD0.05	-	1.7	2.8	1145
St. Landry Parish	60	92	129	9117
St. Landry Parish	90	93	129	10583
c.v.%	-	0.9	3.1	10.3
LSD0.05	-	1.2	2.3	1429
Franklin Parish	60	88	129	9297
Franklin Parish	90	88	129	10061
c.v.%	-	1.3	2.5	12.6
LSD0.05	-	1.6	4.6	1793

† Main crop and ratoon crop

Seeding Rate Trial

The goal of the Seeding Rate Trial was to determine the optimum seeding rate for the advanced hybrid LAH10. The trial was planted March 28, 2012, at 90 lb N/A. Results from the trial are shown in Table 7. High yields were produced at seeding rates of 25.0 and 31.2 lb/A that are similar to commercial hybrid planting densities. Lodging at 5 to 8% was observed only at the higher seeding rates of 37.5 and 43.7 lb/A.

Table 7. Seeding Rate Trial, LAH10, Rice Research Station, 2012.

Seeding Rate lb/A	Seedlings/ft^2	Days to 50% Heading	Height (cm)	Lodge (%)	Yield† (lb/A)
6.25	1	93	119	0	10016
12.5	3	92	119	0	11563
18.7	6	92	117	0	12225
25.0	6	92	119	0	12519
31.2	8	91	117	0	13239
37.5	10	91	122	5	13295
43.7	10	90	117	8	13349
c.v.%	18.0	0.2	1.2	19.9	3.8
LSD0.05	1.7	0.3	2.1	0.5	700.7

† Main crop and ratoon crop

Development of Sheath Blight-Resistant Germplasm

A total of 57 sheath blight-resistant lines was developed by traditional crossing and DNA marker technology that included 35 lines among 150 F_2-F_5 families. Twenty-one selected DNA markers were used in a backcross program to develop 22 BC_2F_1 lines with desirable agronomic traits and candidate genes for resistance to *R. solani*. Five selected lines showed similar height, maturity, and grain type compared with the Cocodrie check. Two lines displayed good levels of tolerance to both sheath blight and blast infections that have been submitted to Dr. Linscombe's breeding program.

DEVELOPMENT OF HYBRID RICE FOR LOUISIANA

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Rice is one of the most important commodity crops in Louisiana. Because of its hybrid vigor (heterosis), hybrid rice can have a 15% or more yield advantage over the best inbred variety grown under similar conditions. Therefore, it offers Louisiana rice growers an opportunity to further improve their productivity. Research goals of the Hybrid Rice Development program at the LSU AgCenter's Rice Research Station include 1) development of and identifying male sterile lines (cytoplasmic A or environmental sensitive S) and restorer (R) lines adapted to the southern U.S. environmental conditions, 2) identifying elite cross combinations through extensive test-crossing, 3) exploring the feasibility of economical hybrid seed production, and 4) development of a marker-assisted selection scheme involving identifying and developing molecular markers for sterility/fertility traits, as well as anther culture to significantly expedite the breeding process.

The 2012 research has been focused on the development of adapted CMS, PTGMS, maintainer, and restorer lines; production of a large number of test crosses between introduced Chinese male sterile lines, newly developed CMS and PTGMS lines, newly developed restorer lines and elite Louisiana long-grain and medium-grain genotypes; an observational trial of 680 rows of test crosses made in 2011; multi-location hybrid yield trial; and both mini- and small-scale concept hybrid seed production. Breeding populations have been significantly increased in number and rapidly advanced for the development of adapted male sterile, maintainer, and restorer lines. Twenty-nine F_2 segregating populations derived from crosses between Chinese hybrid germplasm and Louisiana long-grain lines were grown at the Puerto Rico winter nursery for generation advancement. Selection was made on those materials, and some of the selections were turned over for an additional generation before being harvested in April and planted in May in Crowley. About 3,000 progeny rows, ranging from F_3 to F_6, for R line selection were grown in the summer of 2011. About 1,300 progeny rows, ranging from F_3 to F_7, for PTGMS line selection were also grown in the summer of 2011.About 400 new test crosses were produced between Chinese male sterile lines and Louisiana long-grain genotypes in the spring and summer of 2012. About 300 PTGMS lines were grown in the fall of 2012 for selection and generation advancement in the greenhouse. About 100 male sterile, maintainer, and restorer lines were introduced, inspected under plant quarantine, and seed-increased. From the observational test cross trials, 150 cross combinations were identified and harvested. These included 73 3-line and 77 2-line candidate hybrids, for further milling and cereal chemistry evaluation. Additionally, 73 southern long-grain varieties/lines were found to have either partial or full restoring ability to Chinese CMS male sterile lines and 77 southern long-grain varieties/lines were found to have either partial or full restoring ability to Chinese PTG male sterile lines. A number of test crosses showed good agronomic characteristics and high yield potential (Table 1) and was chosen for re-testcrossing or small scale seed production and re-evaluation in 2013. In the multi-location advanced hybrid yield trial, the RRS-bred hybrids LAH10 and LAH20, along with the experimental long-grain Clearfield hybrids 10TC447 and 10TC151), demonstrated good yield potential compared with the two inbred local checks CL151 and Caffey (Table 2). Meanwhile, LAH10 was also tested and showed excellent yield potential in the Uniform Regional Rice Nursery (8910 lb/A), Variety x Nitrogen trials, and a seeding rate trial (11,628 lb/A with seeding rate 31.2 lb/A and 90 lb/A nitrogen) (Table 3). A 1/8-acre concept hybrid seed production of a new long-grain hybrid LAH25 was a success using the method similar to the one developed in previous years. To facilitate future research needs, several different mini- and small-scale seed production methods were also proposed and tested. Using DNA marker-assisted selection, 10 PTG male sterile lines were identified that possess both wide compatible gene(s) and low chalk gene(s). This research was conducted in cooperation with Dr. Jim Oard.

Table 1. Some candidate hybrids from test-cross combinations observational trial, Crowley, LA. 2012.

Hybrid	Pedigree	Days to 50% heading	Height (in)	Lodge (%)	Yield (lb/A)	Head rice/Total	Notes
11TC071	08A/MRMT	84	39	1	14,503	65/71	
11TC075	08A/CL162	84	40	1	13,976	64/72	
11TC276	08S/CL 161	91	43	5	13,549	61/71	
11TC267	08S/CL162	90	41	3	13,087	57/71	
11TC158	08A/10PY757	84	43	1	12,807	65/72	
11TC263	08S/RU1102091	90	38	0	12,807	59/72	
11TC376	28A/RU0501087	90	41	1	12,511	63/70	
11TC251	08S/CPRS	90	37	1	12,429	61/72	
11TC245	08S/CL 131	90	40	0	10,667	58/72	
LAH10	08A/R609	95	49	5	10,075	68/72	M grain
CL151		90	43	1	4,510	56/68	Check
11TC040	08A/RU1004016	88	43	1		65/72	Low chalk
11TC041	08A/RU1004055	88	43	1		64/72	Low chalk
11TC253	08S/RU1004055	90	43	1		61/72	Low chalk
11TC335	08S/11X-12620	86	43	1		59/70	Low chalk
11TC253	08S/RU1002011	85	43	1		59/72	Low chalk
11TC857	08A/CL131	85	42	1		66/73	Low chalk
12X-11821	28A/12XB001	90	45	1	11,625	55/66	Low chalk
12X-11730	69S-1/10HHB020	85	40	0	12,530	61/71	Low chalk
12X-11934	69S-1/11X12134	85	41	0		66/70	Low chalk
12X-11102	08A/12X-12229	88	43	1		62/70	Low chalk

Table 2. Agronomic and yield performance of 2012 advanced yield trial, hybrid entries. Rice Research Station.

Hybrid/Cultivar	Type	Pedigree	Days to 50% heading	Height (in)	Yield (lb/A)	Lodging (%)
LAH10	M	08A/R609	92	129	8,273	92
LAH12	L	08A/R539	93	123	8,705	80
LAH20	M	26A/R609	98	121	10,177	92
11TC401	L	08A/R608	91	123	9,547	82
CL151	CL-L		86	100	3,855	0
Caffey	M		87	98	7,963	0
10TC151	CL-L	08S/CL161	87	116	9,504	33
10TC446	L	08S/R53	98	123	9,996	45

Table 3. Seeding rate trial for LAH10 with 90 lb/A nitrogen, Crowley, 2012.

Seeding rate lb/A	Seedlings/ ft^2	Days to 50% heading	Plant height (in)	Lodge (%)	Yield (lb/A)
6.25	1	93	47	0	8,675
12.5	3	92	47	0	9,958
18.7	6	92	46	0	10,333
20.5	6	92	47	0	10,889
31.2	8	91	46	0	11,628
37.5	10	91	48	5	11,614
43.7	10	90	46	8	11,898

Table 4. Uniform Rice Regional Nursery five-state summary on LAH10.

	Variety	GT	ST	Height (cm)						Days to 50% head						% Lodging						% Head rice					
				AR	LA	MO	MS	TX	Avg	AR	LA	MO	MS	TX	Avg	AR	LA	MO	MS	TX	Avg	AR	LA	MO	MS	TX	Avg
URN4	LAH10 RU1102071	M	LA	124	125	97	129	127	120	98	89	93	80	89	90	87	90	90	0	0	53	59	51	57	54	56	56

Continued

% Total rice						Ker. Wgt.		Ratoon	Total Yield	Yield (lb)						Rank Overall	BPB Reaction
AR	LA	MO	MS	TX	Avg	AR	MS	LA	LA	AR	LA	MO	MS	TX	Avg		
70	67	63	69	71	68	17	23.2	3099	12099	10266	8910	.	12859	9318	10338	1	Resistance (Score: 0)

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

H.S. Utomo and S.D. Linscombe

In the 2012 growing season, five most advanced lines developed from marker-assisted selections were placed in the commercial advanced (CA) trials in collaboration with Dr. Steve Linscombe. These promising lines were selected from 22 advanced lines that were previously tested in the Preliminary Yield (PY) trials in 2011. The goal of the CA trials was to evaluate the performance of promising marker-assisted lines under different environments and management practices. The four testing locations were Evangeline, Vermilion, and Jeff Davis parishes and the Rice Research Station near Crowley. Test results are summarized in Tables 1a-d.

In addition to CA trials, 22 lines derived from marker-assisted breeding together with four cultivar checks (Catahoula, Mermentau, CL151, and Cocodrie) were evaluated in the PY trials using a standard plot size of 4 x 16 ft. The objectives were to evaluate their yield potential, milling performance, and other agronomic traits in addition to marker-based selection for disease resistant traits. Five most promising lines showing high yield potential with plant height, heading date, and vigor similar to typical Louisiana rice cultivars were selected to enter CA trials next year. Several advanced lines from the marker-assisted selection have excellent yield potential, milling quality, and other agronomic traits (Table 1). Four promising lines will be further tested in commercial advanced tests.

A total of 8,000 headrow tests were conducted to achieve various objectives of the marker-assisted breeding program. The on-going marker-assisted breeding includes 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 marker-assisted selections were focused in the early generations of F_2 and F_3 lines. Lines containing fixed allele for the target genes were grouped to facilitate cost and labor efficiency. For a single gene target, fixed target alleles can usually be obtained through screening of the F_2 or F_3 progeny lines. More elaborate crossing schemes, however, were used for a multiple gene target. The schemes were developed to keep the volume and cost of marker screening at its minimum level. Once the target genes have been fixed, the progeny lines were advanced and subjected to regular breeding selections. The most viable/promising breeding lines were then selected. Performance of a subset of these selected lines, i.e. 50 Pi-ta^2/Pi-b lines, is presented in Table 2.

The USDA minicore collection was evaluated under the Louisiana environment. Five lines were selected and used in crosses with major Louisiana cultivars. Extensive SSR marker analyses are being carried out to evaluate the progeny of these crosses to help assess the chromosomal segment of these donors that affect potential yield improvement during the breeding process. Work continues to evaluate natural nucleotide variation in the DHDPS gene associated with grain lysine content. Verification studies are being conducted in two specific genomic regions that were identified to encode the percent protein increase of 49 and 35%. In addition to the continuation of research conducted last year, the proposed project will include genetic mapping of purple pigment associated purple brand of rice. The brand of purple rice possesses bioactive properties, a rich source of natural anthocyanin compounds, such as cyanidin 3-glucoside, and peonidin 3-glucoside, which possess anti-oxidative and anti-inflammatory activities. These antioxidant compounds can eliminate reactive oxygen species and lower cholesterol content. Marker studies will help identify the genetic basis for these traits that can be incorporated in the breeding process to strengthen/expand the characteristic of U.S. premium rice. A bi-parental population for grain chalkiness is being advanced and will be used to map the trait. Grain chalkiness is one of the most important factors determining grain appearance and milling qualities. It is an undesirable character that can be encountered during the development of both pure breed and hybrid cultivars. Molecular markers associated with this trait will help breeders to minimize the problem in the very early stage.

Table 1a. Multi-location trials (Rice Research Station site).

Plot	Entry	Rep	Edt	Vig	Hdt	MS	Ht	Milling Whole	Milling Total	Yield (lb/A) Main Crop	Yield (lb/A) Ratoon	Yield (lb/A) Total
1	09R-B-413-4	1	89	4	171	1.47	90	69.8	57.8	7783.7	2555.4	10339.1
2	09R-B-891-4	1	89	4	170	1.07	87	69.9	58.7	8210.3	3181.9	11392.2
3	09R-B-1621-4	1	89	4	173	1.284	90	67.9	56.4	8734.9	2835.9	11570.8
4	09H1048 Ent029-4	1	90	5	180	0.96	94	70.3	56.8	8598.8	3073.3	11672.1
5	09HU002-4	1	90	4	174	1.532	87	70.4	60.4	7689.1	3444.0	11133.1
6	09R-B-413-5	2	90	4	175	1.04	86	68.0	55.1	8341.6	2449.7	10791.3
7	09H1048 Ent029-5	2	90	5	180	1.32	84	69.7	53.9	8148.8	2833.5	10982.3
8	09HU002-5	2	89	3	182	1.118	93	69.8	59.0	8569.9	2835.2	11405.1
9	09R-B-1621-5	2	90	4	171	1.072	90	68.7	57.9	8708.4	2473.0	11181.4
10	09R-B-891-5	2	89	3	175	1.332	90	70.3	58.7	8763.4	3183.6	11947.0
11	09R-B-891-6	3	89	4	170	1.052	91	69.2	58.3	8016.3	2805.7	10822.0
12	09H1048 Ent029-6	3	90	6	181	0.996	87	70.6	56.5	8264.3	2684.0	10948.3
13	09HU002-6	3	90	3	171	1.02	91	69.9	58.7	8007.6	2690.6	10698.2
14	09R-B-413-6	3	89	3	171	1.158	86	69.2	57.7	8442.2	2882.0	11324.2
15	09R-B-1621-6	3	90	4	175	1.132	90	68.8	57.2	8092.9	2727.2	10820.1

Table 1b. Multi-location trials (Lake Arthur site).

Plot	Entry	Rep	Edt	Vig	Hdt	Ht	Milling Whole	Milling Total	Yield (lb/A) Main crop	Yield (lb/A) Ratoon	Yield (lb/A) Total
1	09H1048 Ent029-1	1	94	4	171	86	70.2	56.7	7560.8	2406.2	9967.0
2	09H1048 Ent029-2	2	95	4	171	89	69.9	58.5	7799.2	2880.2	10679.4
3	09H1048 Ent029-3	3	95	4	172	88	70.1	56.7	7755.6	2972.5	10728.1
4	09HU002-1	1	95	4	171	90	70.0	60.5	8259.3	2840.2	11099.5
5	09HU002-2	2	95	4	170	86	69.2	54.9	7706.6	2369.7	10076.3
6	09HU002-3	3	94	4	172	90	68.2	57.6	7887.7	2953.2	10840.9
7	09R-B-1621-1	1	95	4	171	86	68.1	56.7	6863.8	2593.9	9457.7
8	09R-B-1621-2	2	95	4	171	90	68.6	57.7	7929.7	2982.0	10911.7
9	09R-B-1621-3	3	94	4	172	91	69.8	56.6	7018.5	2549.4	9567.9
10	09R-B-413-1	1	95	5	172	85	70.1	58.2	6020.3	2981.6	9001.9
11	09R-B-413-2	2	95	5	172	89	68.2	55.2	6027.4	2966.0	8993.4
12	09R-B-413-3	3	94	4	172	92	69.1	58.7	6019.2	2821.6	8840.8
13	09R-B-891-1	1	95	5	172	93	70.9	58.2	6773.7	3032.4	9806.1
14	09R-B-891-2	2	94	4	172	92	70.4	59.4	6460.4	3148.5	9608.9
15	09R-B-891-3	3	94	4	172	89	69.5	57.8	6208.9	3149.2	9358.1

Table 1c. Multi-location trials (Evangeline site).

Plot	Entry	Rep	Edt	Vig	Hdt	Hte	Milling Whole	Milling Total	Yield (lb/A) Main Crop
1	09R-B-413-7	1	97	5	173	83	68.8	57.6	6002.8
2	09R-B-891-7	1	97	5	173	82	69.4	59.2	6598.3
3	09R-B-1621-7	1	97	5	179	88	67.5	57.4	5825.3
4	09H1048 Ent029-7	1	97	6	179	95	70.4	56.4	5443.9
5	09HU002-7	1	97	4	173	86	70.4	60.8	6749.7
6	09R-B-413-8	2	96	4	173	83	67.0	55.4	7421.9
7	09H1048 Ent029-8	2	97	5	179	86	69.7	53.3	6136.0
8	09R-B-891-8	2	97	4	171	86	69.3	59.6	7357.8
9	09R-B-1621-8	2	97	5	177	87	69.7	57.1	7563.1
10	09HU002-8	2	97	5	173	82	70.6	59.4	7445.8
11	09R-B-1621-9	3	97	5	178	85	69.5	58.4	6135.4
12	09H1048 Ent029-9	3	96	6	179	95	70.7	56.7	6035.8
13	09R-B-413-9	3	97	6	173	86	69.9	57.8	6143.5
14	09HU002-9	3	96	6	177	83	69.2	59.5	6278.2
15	09R-B-891-9	3	96	4	171	83	68.2	57.9	7682.2

Table 2a. Results of 2012 preliminary yield tests at the Rice Research Station locations.

Plot	Line	Rep	Edt	Vig	Hdt	Hte	Milling Whole	Milling Total	Yield Main crop	Yield Ratoon	Yield Total
1	11R-3028	1	89	5	91	75	60.06	71.44	8535.4	2950.3	11485.8
2	11R-3044	1	90	5	96	76	59.02	70.27	8397.6	2701.9	11099.6
3	11R-3054	1	90	4	97	75	54.5	67.08	8296.0	2060.5	10356.5
4	11R-3084	1	90	5	86	79	61.05	71.79	8437.3	2366.0	10803.3
5	11R-3088	1	90	5	91	81	54.48	69.93	8382.5	3063.1	11445.6
6	11R-3090	1	89	4	90	75	54.71	69.07	7951.5	3063.1	11014.5
7	11R-3111	1	89	3	98	74	59.39	69.3	8607.1	2882.2	11489.3
8	11R-3591	1	90	5	97	75	55.28	68.29	7884.6	2682.3	10566.8
9	11R-4447	1	90	4	99	8	55.47	68.69	10052.4	3531.5	13583.9
10	11R-4570	1	90	4	95	79	61.48	71.41	7700.9	2433.9	10134.8
11	11R-4571	1	90	4	92	80	59.73	70.02	7419.3	2603.4	10022.7
12	11R-4584	1	90	4	98	80	58.32	68.65	7303.1	1971.7	9274.8
13	11R-4596	1	89	4	95	76	60.81	71.19	7646.1	2565.2	10211.3
14	11R-4605	1	90	5	97	76	58.37	69.7	7925.2	2242.8	10168.0
15	11R-4612	1	90	5	99	80	59.39	71.17	7306.6	2191.1	9497.7
16	11R-4622	1	90	4	100	80	61.38	71.94	7698.7	2158.1	9856.8
17	11R-5145	1	89	6	90	75	59.1	70.47	7427.8	2222.2	9650.1
18	11R-5167	1	90	4	99	78	59.04	71.83	7961.9	2562.1	10524.0

Continued.

Table 2a. Continued.

Plot	Line	Rep	Edt	Vig	Hdt	Hte	Milling Whole	Milling Total	Yield Main crop	Yield Ratoon	Yield Total
19	11R-5169	1	90	5	77	73	57.43	69.07	7037.7	2443.7	9481.4
20	11R-5171	1	90	6	85	75	57.35	69.23	6837.2	2308.7	9145.9
21	11R-5173	1	89	4	85	84	61.67	72.27	7918.5	2742.4	10660.9
22	11R-5263	1	90	6	98	73	56.57	70.59	7667.2	2291.9	9959.1
23	CCDR	1	89	4	93	75	57.59	70.13	7951.4	2537.7	10489.1
24	CL152	1	89	4	98	77	51.07	67.73	6454.8	2789.8	9244.6
25	MRNT	1	90	4	76	80	59.86	70.02	7620.5	2564.8	10185.3
26	11R-5171	2	90	5	82	77	61.34	71.72	7563.5	2180.1	9743.6
27	11R-3028	2	90	5	86	75	56.57	68.28	7427.8	1912.3	9340.1
28	11R-5167	2	90	5	78	75	58.91	71.74	7404.3	2071.1	9475.5
29	11R-3111	2	89	4	85	79	61.19	71.17	7482.4	2151.5	9633.9
30	11R-3088	2	89	6	93	81	53.83	69.2	6769.1	2496.1	9265.2
31	11R-5173	2	89	4	91	81	58.9	70.81	7570.5	2383.5	9954.0
32	11R-4447	2	89	4	84	85	55.96	68.86	9065.9	2480.5	11546.4
33	11R-3084	2	89	4	87	79	58.97	71.4	8255.9	2147.5	10403.5
34	11R-4584	2	90	3	91	80	59.76	70	8279.7	1907.6	10187.3
35	11R-3591	2	90	6	76	75	61.28	69.05	8466.4	2300.3	10766.7
36	11R-4612	2	90	5	94	78	60.15	71.04	8232.2	1966.9	10199.1
37	11R-4622	2	90	5	88	76	59.27	69.55	7931.9	1733.5	9665.4
38	CL152	2	89	5	85	76	52.27	67.63	6018.8	2722.1	8740.9
39	CCDR	2	89	4	85	72	57.8	70.49	8154.6	2071.1	10225.8
40	11R-5145	2	89	5	88	78	56.12	69.75	7562.4	1950.3	9512.7
41	11R-5169	2	90	6	93	70	58.33	70.51	7215.6	2028.9	9244.5
42	11R-4571	2	90	4	91	83	58.49	69.65	8102.5	2300.3	10402.8
43	11R-3044	2	90	5	86	74	59.91	71.64	7825.0	1987.1	9812.2
44	11R-4605	2	90	5	91	75	60.15	71.37	7590.9	2023.2	9614.1
45	11R-3090	2	90	6	83	80	57.4	71.42	7290.6	2692.0	9982.5
46	11R-3054	2	90	6	91	72	60.06	71.44	8288.8	1675.2	9964.0
47	11R-4596	2	90	5	86	80	59.02	70.27	8643.2	2148.9	10792.1
48	11R-5263	2	90	6	92	74	54.5	67.08	8014.0	2081.2	10095.2
49	MRNT	2	90	4	92	78	61.05	71.79	7878.9	2476.6	10355.6
50	11R-4570	2	90	4	91	83	54.48	69.93	8526.0	2424.4	10950.5
51	11R-5169	3	89	4	95	74	54.71	69.07	8531.0	2444.9	10975.9
52	11R-4622	3	89	5	98	81	59.39	69.3	8775.9	1837.3	10613.2
53	11R-4605	3	89	4	96	78	55.28	68.29	9046.7	2506.4	11553.1
54	11R-5167	3	90	5	96	80	55.47	68.69	8439.9	2286.3	10726.2
55	11R-4570	3	90	4	96	83	61.48	71.41	8947.2	2322.6	11269.8
56	11R-5173	3	90	5	91	78	59.73	70.02	8625.5	1756.8	10382.4
57	11R-3054	3	90	5	93	71	58.32	68.65	8162.9	1317.4	9480.4
58	11R-5171	3	90	5	91	76	60.81	71.19	8223.4	1805.7	10029.1

Continued.

Table 2a. Continued.

Plot	Line	Rep	Edt	Vig	Hdt	Hte	Milling Whole	Milling Total	Main crop	Yield Ratoon	Total
59	11R-3088	3	90	5	94	75	58.37	69.7	8872.9	2584.3	11457.2
60	11R-3028	3	90	5	95	79	59.39	71.17	8602.3	2078.7	10681.0
61	11R-5145	3	90	6	97	78	61.38	71.94	8129.5	1647.0	9776.5
62	11R-4447	3	90	5	91	82	59.1	70.47	9708.1	2446.7	12154.8
63	11R-3111	3	90	4	98	81	59.04	71.83	8398.2	1844.6	10242.8
64	11R-3090	3	90	6	91	76	57.43	69.07	8192.6	2073.6	10266.3
65	11R-3591	3	90	6	95	81	57.35	69.23	8257.8	1935.6	10193.3
66	CL152	3	90	5	99	82	61.67	72.27	6757.6	2865.2	9622.8
67	11R-3084	3	90	5	95	78	56.57	70.59	8029.9	2061.0	10090.9
68	11R-4596	3	90	5	97	79	57.59	70.13	8731.5	2146.3	10877.8
69	CCDR	3	90	4	91	75	51.07	67.73	8230.0	2409.3	10639.3
70	MRNT	3	89	4	97	78	59.86	70.02	8505.9	2442.0	10947.9
71	11R-3044	3	90	5	99	80	61.34	71.72	9148.3	2222.6	11370.9
72	11R-4612	3	90	5	98	75	56.57	68.28	8404.9	1671.1	10076.0
73	11R-5263	3	89	5	94	75	58.91	71.74	8047.8	1951.8	9999.6
74	11R-4584	3	89	5	91	77	61.19	71.17	8196.4	1693.7	9890.1
75	11R-4571	3	89	5	93	82	53.83	69.2	8398.3	1956.4	10354.7

Table 2b. Five most promising lines with their potential yield, milling, plant height, heading date, and seedling vigor based on 2012 preliminary yield trials.

	Pedigree	Edt	Vig	Hdt	Milling Whole	Milling Total	Hte	Yield Main Crop	Yield Ratoon	Yield Total
1	11R-4447	89.7	4.3	81.3	56.8	69.3	58.3	9608.8	2819.6	12428.3
2	11R-4570	90.0	4.0	85.3	59.1	70.9	81.7	8391.4	2393.6	10785.0
3	11R-3044	90.0	5.0	89.0	60.1	71.2	76.7	8457.0	2303.9	10760.9
4	11R-3088	89.7	5.3	97.0	55.6	69.6	79.0	8008.2	2714.5	10722.7
5	11R-4596	89.7	4.7	86.0	59.1	70.5	78.3	8340.3	2286.8	10627.1
	MRNT	89.7	4.0	92.7	60.3	70.6	78.7	8001.8	2494.4	10496.2
	CCDR	89.3	4.0	94.3	55.5	69.5	74.0	8112.0	2339.4	10451.4
	CL152	89.3	4.7	98.0	55.0	69.2	78.3	6410.4	2792.4	9202.8

Table 3. 2012 Field performance of some select lines carrying Pi-ta^2/Pi-b lines (3nd year tests).

No.	Plant ID	Blast genes	Grain type§	Vigor¶	Plant height (cm)	Heading date	Panicle length (cm)	Panicle weight (g)	Row yield (g)
1	08F39731 (1)	Pi-ta^2,Pi-b	L	1	77	89	33.0	7.6	708
2	08F39733 (3)	Pi-ta^2,Pi-b	L	2	79	87	29.8	8.1	624
3	08F39734 (5)	Pi-ta^2,Pi-b	L	2	72	81	29.7	8.3	691
4	08F37225 (1)	Pi-ta^2,Pi-b	L	3	75	89	30.6	7.9	626
5	08F37226 (1)	Pi-ta^2,Pi-b	L	4	79	87	26.1	7.1	493
6	08F47911 (3)	Pi-ta^2,Pi-b	L	3	77	72	32.7	6.8	494
7	08F47913 (5)	Pi-ta^2,Pi-b	L	2	82	84	29.6	6.3	571
8	08F47914 (5)	Pi-ta^2,Pi-b	L	3	77	90	25.7	6.7	698
9	08F47916 (2)	Pi-ta^2,Pi-b	L	3	81	88	29.1	5.4	529
10	08F49122 (3)	Pi-ta^2,Pi-b	L	3	79	82	32.5	6.7	434
11	08F49123 (2)	Pi-ta^2,Pi-b	L	1	76	84	26.3	7.9	471
12	08F49125 (5)	Pi-ta^2,Pi-b	L	3	77	82	28.5	5.9	576
13	08F49126 (1)	Pi-ta^2,Pi-b	L	3	82	82	29.9	7.8	565
14	08F51342 (5)	Pi-ta^2,Pi-b	L	1	79	76	30.8	6.7	603
15	08F51343 (6)	Pi-ta^2,Pi-b	L	3	85	83	31.5	6.8	756
16	08F54032 (1)	Pi-ta^2,Pi-b	L	1	83	82	33.3	5.9	460
17	08F54034 (1)	Pi-ta^2,Pi-b	L	2	87	76	28.0	6.6	575
18	08F54036 (3)	Pi-ta^2,Pi-b	L	1	85	85	34.1	6.1	535
19	08F47544 (1)	Pi-ta^2,Pi-b	L	2	83	82	29.6	8.8	605
20	08F47545 (6)	Pi-ta^2,Pi-b	L	3	77	77	33.8	8.3	591
21	08F43761 (7)	Pi-ta^2,Pi-b	L	3	76	79	28.3	7.0	610
22	08F43765 (1)	Pi-ta^2,Pi-b	L	3	77	83	28.8	7.8	510
23	08F43766 (2)	Pi-ta^2,Pi-b	L	4	81	76	29.9	7.9	608
24	08F43769 (2)	Pi-ta^2,Pi-b	L	2	84	79	25.7	6.4	567
25	08F34552 (6)	Pi-ta^2,Pi-b	L	4	81	86	30.4	7.9	585
26	08F34553 (3)	Pi-ta^2,Pi-b	L	1	77	89	37.7	8.7	690
27	08F44111 (3)	Pi-ta^2,Pi-b	L	1	83	83	29.5	7.9	766
28	08F44112 (3)	Pi-ta^2,Pi-b	L	2	85	75	31.3	7.6	578
29	08F44114 (8)	Pi-ta^2,Pi-b	L	2	88	80	26.5	6.4	604
30	08F76222 (1)	Pi-ta^2,Pi-b	L	3	80	83	28.1	7.1	591
31	08F76223 (7)	Pi-ta^2,Pi-b	L	3	81	81	31.4	7.8	688
32	08F57115 (1)	Pi-ta^2,Pi-b	L	2	79	80	31.5	7.5	605
33	08F77223 (8)	Pi-ta^2,Pi-b	L	2	80	83	25.6	5.1	479
34	08F77224 (7)	Pi-ta^2,Pi-b	L	2	79	71	34.3	8.4	561
35	08F77225 (2)	Pi-ta^2,Pi-b	L	1	71	74	29.3	7.1	799
36	08F46721 (2)	Pi-ta^2,Pi-b	L	3	81	71	24.8	5.1	488
37	08F46724 (5)	Pi-ta^2,Pi-b	L	3	79	87	26.5	6.2	524
38	08F53842 (3)	Pi-ta^2,Pi-b	L	2	85	82	31.1	7.6	778

Continued.

Table 3. Continued.

No.	Plant ID	Blast genes	Grain type§	Vigor¶	Plant height (cm)	Heading date	Panicle length (cm)	Panicle weight (g)	Row yield (g)
39	08F53849 (1)	Pi-ta^2,Pi-b	L	2	85	84	32.3	7.9	559
40	08F71751 (3)	Pi-ta^2,Pi-b	L	3	87	81	31.7	7.0	780
41	08F71756 (6)	Pi-ta2,Pi-b	L	2	81	84	29.1	7.1	579
42	08F71757 (6)	Pi-ta^2,Pi-b	L	1	77	76	25.5	6.0	689
43	08F71759 (5)	Pi-ta^2,Pi-b	L	2	79	77	31.4	7.9	571
44	08F58251 (5)	Pi-ta^2,Pi-b	L	3	81	79	29.9	7.1	647
45	08F58258 (3)	Pi-ta^2,Pi-b	L	1	90	83	26.4	5.2	705
46	08F12455 (7)	Pi-ta^2,Pi-b	L	2	87	76	29.4	6.1	463
47	08F77541 (2)	Pi-ta^2,Pi-b	L	2	78	88	31.8	7.4	711
48	08F77544 (5)	Pi-ta^2,Pi-b	L	1	85	86	26.2	5.9	656
49	08F77548 (1)	Pi-ta^2,Pi-b	L	2	86	90	25.3	5.3	504
50	08F77549 (2)	Pi-ta^2,Pi-b	L	3	88	78	22.1	5.1	563
51	CCDR		L	2	96	84	28.6	7.9	556

[§]L= Long grain; [¶]Subjective rating (1= excellent, 9=poor).

Table 4. Field performance of two marker-assisted backcrossing lines to pyramid Pi-ta^2, Pi-b, and Pi-kh genes into the recurrent parental lines Trenasse (TRNS) and CL151 in 2011 (third year).

	Allele Compost. (%)	**Grain Type[§]**	**Vigor[¶]**	**Days to 50% Heading**	**Plant Height (cm)**	**Row Yield (g)**
mbTRNS-11	65(T);14(L);10(S);11(K)	L	2	81	99	476
mbCL151-16	73(CL);11(L);11(S);5(K)	L	2	83	101	490
TRNS ck		L	2	80	105	480
CL151 ck		L	1	83	98	465
C.V. (%)			4.4	5.5	5.9	27.1
LSD (0.05)			0.8	5.2	5.1	28.5

[†]T=Trenasse, L=Lemont, S=Saber, K=Katy, and CL=CL151; [§]L= long grain; [¶]Subjective rating (1= excellent, 9=poor).

Table 5. Field performance of double haploid lines carrying Pi-ta[2], Pi-b, and Pi-kh genes in 2012 (third year).

	Allele compt. (%)[†]	**Grain type**[§]	**Vigor**[¶]	**Days to 50% heading**	**Plant height (cm)**	**Row yield (g)**
mbTRNSdh	28(T);17(L);31(S);24(K)	L	1	91	98	524
mbCL151dh	34(CL);23(L);11(S);32(K)	L	3	85	91	490
TRNS ck		L	1	78	103	525
CL151 ck		L	2	87	97	524
C.V. (%)			3.4	2.4	6.5	22.1
LSD (0.05)			0.5	4.3	3.0	18.1

[†]T=Trenasse, L=Lemont, S=Saber, K=Katy, and CL=CL151; [§]L= long grain; [¶]Subjective rating (1= excellent, 9=poor).

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

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

INTRODUCTION AND METHODOLOGIES

High Protein Rice:

Seven of the most promising high-protein lines were evaluated in multi-location commercial advance trials (CA) to determine their yield potential and consistency of their protein content. The CA tests were conducted on the Rice Research Station site and on-farm test sites in Vermilion, Evangeline, Acadia, and Jefferson Davis parishes. The selected lines were evaluated together with five commercial cultivars. Three of the most promising lines that have high yield potential and show high and stable grain protein content will be subjected to more advanced trials. In addition to CA trials, 18 newly selected high protein lines were evaluated in preliminary yield (PY) trials. Five promising lines that have high yield potential and grain protein content of more than 11% were selected and will be advanced to CA trials. Over 1,100 newly developed high protein lines were evaluated in replicated tests in 6-foot rows with 2 grams of seed per row. Field data have been collected. Their protein contents are being analyzed using high temperature digestion of samples at 850° to 1200°C using the N Combustion Analyzer. Thirty most potential lines will be selected for further tests.

Development of New Herbicide-Resistant Rice:

In recent years, the sustainability of Clearfield technology has been a major concern despite established, strategies to protect the technology. A list of standard practices to minimize the transfer of the herbicide-resistant trait to weeds includes 1) elimination of the presence of red rice in the Clearfield rice field (i.e. using two sequential applications of Newpath and an additional application of Beyond if a larger escaped red rice plant is present); and 2) crop rotation (not to plant Clearfield rice two consecutive growing seasons in the same field). Clearfield technology has provided significant economic advantage in managing red rice and maintaining high yield potential to give maximum return. It represents one of the most promising breakthroughs in Louisiana rice production. This technology has to be protected using a more reliable way so that it will continually benefit the rice industry.

One form of more reliable protection is developing a new type of herbicide-resistant rice. This new type of herbicide-resistant rice will allow rapid eradication of weeds (including red rice) that acquire resistance to Newpath herbicide from the rice production system. This will prolong the value of the technology. In the past growing season, induced mutation has been conducted in two Louisiana rice cultivars (Cypress and Catahoula). The treated seed (M_o) was grown in the field and currently approaching maturity. The M_1 seed produced will be harvested in a couple of weeks. The herbicide screening process will be carried out among M_2 plants.

RESULTS

Table 1. Multi-location trials of high protein elite lines (three locations, A through C).

A. Evangeline Parish site

PLOT	ENT	PEDIGREE	REP	EDT	VIG	HDT	HTE	YLD	H_2O	Yield (lb/A)
12IWE 001	001	06P200023	1	96	5	179	95	12.63	14.69	7155.38
12IWE 002	002	06P200055	1	96	5	176	85	14.11	14.27	8029.27
12IWE 003	003	06P200497	1	96	4	181	90	11.58	17.21	6364.18
12IWE 004	004	06P200112	1	96	5	179	89	11.31	15.00	6382.63
12IWE 005	005	06P200807	1	97	5	179	88	11.84	15.08	6672.84
12IWE 006	006	07P201570	1	96	4	173	84	11.05	14.24	6288.76
12IWE 007	007	08P210027	1	97	4	181	100	12.27	17.26	6738.73
12IWE 008	008	CCDR	1	96	4	176	87	12.20	14.53	6923.97
12IWE 009	009	CPRS	1	96	4	179	90	13.71	14.27	7805.18
12IWE 010	010	FRNS	1		4	179	102	11.60	17.35	6365.41
12IWE 011	011	CL152	1	96	3	182	92	14.39	16.10	8013.26
12IWE 012	003	06P200497	2	96	5	181	90	10.95	18.64	5915.27
12IWE 013	009	CPRS	2	97	4	181	91	11.46	14.21	6523.99
12IWE 014	002	06P200055	2	96	5	178	92	11.14	14.52	6321.59
12IWE 015	010	FRNS	2	97	4	181	100	11.74	17.39	6436.68
12IWE 016	007	08P210027	2	97	4	181	96	12.17	15.18	6850.83
12IWE 017	006	07P201570	2	97	4	173	92	13.52	17.44	7410.61
12IWE 018	005	06P200807	2	96	5	177	84	13.83	13.50	7940.03
12IWE 019	011	CL152	2		4	182	111	12.80	17.48	7014.42
12IWE 020	004	06P200112	2		4	179	90	12.76	13.56	7322.04
12IWE 021	001	06P200023	2	96	6	179	90	12.73	15.45	7145.11
12IWE 022	008	CCDR	2	97	4	176	83	12.67	14.29	7211.75
12IWE 023	009	CPRS	3	97	4	181	86	11.64	15.06	6561.18
12IWE 024	011	CL152	3	96	4	183	90	12.68	16.77	7006.68
12IWE 025	008	CCDR	3	97	4	173	84	12.88	12.17	7511.31
12IWE 026	006	07P201570	3	96	4	173	81	12.38	12.91	7155.02
12IWE 027	001	06P200023	3	96	4	177	83	12.38	13.91	7074.33
12IWE 028	004	06P200112	3	97	5	178	85	11.63	14.12	6633.22
12IWE 029	007	08P210027	3	96	5	183	101	10.11	18.36	5477.80
12IWE 030	010	FRNS	3	96	5	182	101	10.87	19.66	5799.21
12IWE 031	003	06P200497	3	96	4	182	85	9.31	13.15	5365.89
12IWE 032	002	06P200055	3	96	4	177	84	13.74	17.70	7508.14
12IWE 033	005	06P200807	3	97	4	177	88	11.37	13.65	6519.90

Continued.

Table 1. Continued.

B. Vermilion Parish site

PLOT	ENT	PEDIGREE	REP	EDT	VIG	HDT	HTE	YLD	H2O	SB	Yield (lb/A)
12IWV 001	001	06P200023	1	94	5	172	100	11.05	12.21	4	6442.09
12IWV 002	002	06P200055	1	95	4	176	88	11.96	25.62	5	5906.28
12IWV 003	003	06P200497	1	94	4	177	89	12.35	13.25	6	7111.83
12IWV 004	004	06P200112	1	94	3	172	90	9.90	17.30	5	5432.82
12IWV 005	005	06P200807	1	95	4	174	92	10.97	13.25	5	6320.72
12IWV 006	006	07P201570	1	95	4	172	87	12.31	19.47	5	6582.07
12IWV 007	007	08P210027	1	94	4	174	91	14.30	23.39	8	7272.97
12IWV 008	008	CCDR	1	94	3	172	97	10.42	13.65	5	5971.03
12IWV 009	009	CPRS	1	94	3	175	90	11.68	21.16	8	6115.83
12IWV 010	010	FRNS	1	94	4	172	86	11.91	15.42	6	6690.10
12IWV 011	011	CL152	1	94	4	172	94	9.86	11.10	5	5818.68
12IWV 012	001	06P200023	2	95	5	175	89	9.62	16.52	7	5333.07
12IWV 013	011	CL152	2	94	4	172	86	11.88	14.28	7	6761.27
12IWV 014	010	FRNS	2	95	5	172	90	12.18	13.90	6	6964.30
12IWV 015	009	CPRS	2	94	3	172	87	12.05	26.63	6	5870.37
12IWV 016	005	06P200807	2	95	4	172	85	11.79	12.14	6	6876.22
12IWV 017	007	08P210027	2	94	3	172	96	12.00	10.67	5	7113.72
12IWV 018	003	06P200497	2	94	4	175	85	11.09	10.92	6	6559.34
12IWV 019	006	07P201570	2	95	4	175	81	11.58	11.05	8	6838.18
12IWV 020	002	06P200055	2	94	5	178	85	11.00	16.35	6	6106.26
12IWV 021	008	CCDR	2	94	5	172	84	11.80	10.67	6	6996.52
12IWV 022	004	06P200112	2	95	5	172	85	12.07	13.18	6	6955.00
12IWV 023	010	FRNS	3	95	6	177	81	11.02	11.99	6	6438.55
12IWV 024	008	CCDR	3	94	4	172	85	9.94	11.56	5	5835.88
12IWV 025	001	06P200023	3	94	5	172	104	9.73	11.32	5	5728.35
12IWV 026	003	06P200497	3	94	5	172	86	11.72	12.02	6	6844.96
12IWV 027	006	07P201570	3	94	4	176	80	12.21	14.45	5	6932.79
12IWV 028	004	06P200112	3	94	4	171	86	12.60	12.80	8	7293.44
12IWV 029	005	06P200807	3	94	4	170	82	15.00	11.94	6	8769.83
12IWV 030	011	CL152	3	95	5	172	84	12.78	12.60	6	7413.83
12IWV 031	007	08P210027	3	95	6	172	94	13.01	13.30	5	7486.03
12IWV 032	002	06P200055	3	95	6	172	85	12.89	13.46	6	7407.94
12IWV 033	009	CPRS	3	94	4	172	87	14.31	15.70	7	8010.45

Continued.

Table 1. Continued.

C. Jefferson Davis Parish site

PLOT	ENT	PEDIGREE	REP	EDT	VIG	HDT	MS (g)	MS (lb)	THE	YLD	SB	Yield (lb/A)
12IWJ 001	001	06P200023	1	79	4	168	565.00	1.24	76	9.37	7	6151.34
12IWJ 002	002	06P200055	1	80	4	167	509.00	1.12	82	9.57	8	6279.83
12IWJ 003	003	06P200497	1	80	5	169	415.00	0.91	84	9.61	8	6011.55
12IWJ 004	004	06P200112	1	80	6	172	607.00	1.34	83	9.11	7	6120.10
12IWJ 005	005	06P200807	1	80	5	172	542.00	1.19	78	8.96	7	5830.11
12IWJ 006	006	07P201570	1	80	6	168	510.00	1.12	72	9.31	7	6117.90
12IWJ 007	007	08P210027	1	79	5	171	576.00	1.27	88	8.71	6	5809.65
12IWJ 008	008	CCDR	1	80	6	169	517.00	1.14	79	9.87	7	6471.83
12IWJ 009	009	CPRS	1	79	4	170	411.00	0.90	84	9.72	8	6147.78
12IWJ 010	010	FRNS	1	79	3	169	543.00	1.19	92	10.26	6	6777.85
12IWJ 011	011	CL152	1	79	3	168	347.00	0.76	86	7.77	8	5086.01
12IWJ 012	011	CL152	2	80	3	169	396.00	0.87	83	7.35	8	4865.12
12IWJ 013	003	06P200497	2	79	5	171	330.00	0.73	80	9.16	5	5774.11
12IWJ 014	008	CCDR	2	80	4	168	467.00	1.03	72	10.66	6	6814.46
12IWJ 015	009	CPRS	2	80	4	170	474.00	1.04	83	9.33	8	6097.70
12IWJ 016	005	06P200807	2	79	5	170	337.00	0.74	75	8.94	8	5618.96
12IWJ 017	010	FRNS	2	79	4	170	517.00	1.14	96	10.88	6	7138.75
12IWJ 018	004	06P200112	2	80	4	168	360.00	0.79	85	9.56	8	6014.89
12IWJ 019	001	06P200023	2	79	5	167	467.00	1.03	83	10.33	7	6674.06
12IWJ 020	002	06P200055	2	79	5	166	403.00	0.89	84	9.63	8	6179.24
12IWJ 021	007	08P210027	2	80	5	168	455.00	1.00	91	10.69	6	6915.24
12IWJ 022	006	07P201570	2	79	4	167	506.00	1.11	82	10.77	8	6874.50
12IWJ 023	009	CPRS	3	79	3	170	431.00	0.95	80	10.08	8	6460.65
12IWJ 024	010	FRNS	3	80	3	170	488.00	1.07	96	10.79	6	6998.81
12IWJ 025	008	CCDR	3	80	4	168	465.00	1.02	78	9.77	7	6291.26
12IWJ 026	002	06P200055	3	80	4	167	578.00	1.27	82	10.62	7	6942.03
12IWJ 027	011	CL152	3	80	3	169	325.00	0.72	89	9.33	7	5936.65
12IWJ 028	005	06P200807	3	80	6	172	512.00	1.13	80	8.50	6	5535.70
12IWJ 029	006	07P201570	3	79	6	167	443.00	0.97	82	9.11	7	5934.63
12IWJ 030	007	08P210027	3	80	6	172	643.00	1.41	89	8.16	5	5564.18
12IWJ 031	003	06P200497	3	80	5	170	371.00	0.82	80	8.16	6	5146.00
12IWJ 032	004	06P200112	3	79	4	168	563.00	1.24	85	9.66	7	6263.46
12IWJ 033	001	06P200023	3	78	4	166	538.00	1.18	80	9.33	8	6141.41

Table 2. Preliminary yield trials of high protein lines.

PLOT	ENT	ID	REP	EDT	VIG	MS (g)	MS (lb)	YLD	H_2O	Yield (lb/A)
IWPY 001	001	08P200152	1	90	4	604.00	1.33	12.39	12.68	7957.43
IWPY 002	002	08P200153	1	90	4	765.00	1.68	11.73	12.56	7793.66
IWPY 003	003	08P200352	1	89	4	634.00	1.39	12.36	12.39	8000.53
IWPY 004	004	06P200023	1	89	4	664.00	1.46	11.74	12.95	7638.27
IWPY 005	005	06P200112	1	90	6	589.00	1.30	11.20	13.39	7195.42
IWPY 006	006	06P201112	1	89	5	632.00	1.39	11.80	12.71	7649.41
IWPY 007	007	06P201311	1	89	4	560.00	1.23	12.08	12.55	7734.62
IWPY 008	008	06P200283	1	89	3	918.00	2.02	12.15	12.79	8212.14
IWPY 009	009	06P202003	1	90	6	569.00	1.25	13.43	12.78	8505.32
IWPY 010	010	06P2000497	1	89	5	689.00	1.52	10.97	13.28	7199.09
IWPY 011	011	06P2001497	1	89	5	682.00	1.50	11.14	13.50	7271.63
IWPY 012	012	06P201828	1	90	7	210.00	0.46	4.54	12.19	2915.16
IWPY 013	013	06P2008280	1	89	6	344.00	0.76	5.16	12.61	3434.75
IWPY 014	014	05P100128	1	89	5	557.00	1.23	11.03	14.36	6986.23
IWPY 015	015	05P101115	1	90	5	403.00	0.89	7.54	12.59	4893.60
IWPY 016	016	05P100115	1	89	6	368.00	0.81	8.42	13.10	5328.42
IWPY 017	017	07P201571	1	90	5	560.00	1.23	11.83	12.96	7555.85
IWPY 018	018	05P102115	1	90	6	430.00	0.95	7.63	12.39	4990.32
IWPY 019	019	CCDR	1	89	5	717.00	1.58	11.00	13.64	7229.19
IWPY 020	020	CPRS	1	89	4	607.00	1.34	12.05	12.95	7743.74
IWPY 021	021	FRNS	1	89	8	524.00	1.15	7.63	12.73	5095.29
IWPY 022	022	WELLS	1	89	4	591.00	1.30	9.11	12.27	6067.25
IWPY 023	008	06P200283	2	89	5	622.00	1.37	11.36	12.32	7414.22
IWPY 024	014	05P100128	2	89	4	502.00	1.10	10.42	12.98	6666.17
IWPY 025	006	06P201112	2	89	4	752.00	1.65	11.57	12.31	7702.78
IWPY 026	012	06P201828	2	90	7	241.00	0.53	5.31	11.79	3417.61
IWPY 027	013	06P2008280	2	89	7	146.00	0.32	5.12	12.01	3180.81
IWPY 028	022	WELLS	2	89	3	537.00	1.18	9.85	11.84	6455.30
IWPY 029	015	05P101115	2	90	6	373.00	0.82	6.37	12.52	4179.36
IWPY 030	005	06P200112	2	89	4	658.00	1.45	11.52	12.33	7548.92
IWPY 031	018	05P102115	2	89	5	432.00	0.95	7.90	12.01	5167.16
IWPY 032	016	05P100115	2	90	6	442.00	0.97	8.74	11.96	5678.04
IWPY 033	019	CCDR	2	89	4	512.00	1.13	12.28	12.42	7797.58
IWPY 034	011	06P2001497	2	89	4	646.00	1.42	11.96	11.86	7830.28
IWPY 035	002	08P200153	2	89	5	657.00	1.45	11.72	11.88	7699.71

Continued.

Table 2. Continued.

PLOT	ENT	ID	REP	EDT	VIG	MS (g)	MS (lb)	YLD	H_2O	Yield (lb/A)
IWPY 036	010	06P2000497	2	90	5	543.00	1.19	9.58	11.59	6322.18
IWPY 037	003	08P200352	2	89	4	603.00	1.33	11.89	11.83	7733.93
IWPY 038	021	FRNS	2	89	5	459.00	1.01	7.79	12.84	5098.86
IWPY 039	007	06P201311	2	89	4	567.00	1.25	11.59	11.82	7510.76
IWPY 040	004	06P200023	2	89	4	569.00	1.25	11.59	12.02	7498.76
IWPY 041	017	07P201571	2	89	4	787.00	1.73	11.70	11.67	7869.72
IWPY 042	009	06P202003	2	90	5	524.00	1.15	13.45	12.41	8493.07
IWPY 043	001	08P200152	2	89	4	447.00	0.98	12.51	12.13	7874.72
IWPY 044	020	CPRS	2	89	4	473.00	1.04	11.41	14.01	7121.88

Table 3. Grain crude protein content (GCPC) among newly developed rice lines. The GCPC was determined using C using the N Combustion Analyzer through high temperature digestion of samples at 850° to 1200°C.

Genotype	Sample mass (g)	Nitrogen content (%)	Crude Protein Content (%)
11R-5115pan3	0.1113	1.68	10.5
11R5202pan1	0.1178	1.68	10.5
11R5242pan6	0.1133	1.68	10.5
11R-5621-PAN3	0.1125	1.68	10.5
11R-5022pan2	0.1118	1.69	10.5625
11R5070pan1	0.1202	1.69	10.5625
11R-5113pan1	0.1157	1.69	10.5625
11R-5162-PAN6	0.116	1.69	10.5625
11R5183pan9	0.1136	1.69	10.5625
11R5193pan4	0.1168	1.69	10.5625
11R5196pan3	0.1077	1.69	10.5625
11R5551pan13	0.112	1.69	10.5625
11R-5024pan5	0.1148	1.7	10.625
11R5088pan3	0.1203	1.7	10.625
11R5195pan5	0.1168	1.7	10.625
11R5197pan1	0.1204	1.7	10.625
11R5218pan13	0.1149	1.7	10.625
11R5218pan6	0.1135	1.7	10.625
11R5222pan6	0.1148	1.7	10.625
11R5568pan1	0.1328	1.7	10.625
11R-5619-PAN3	0.1165	1.7	10.625
11R5084pan8	0.1205	1.71	10.6875
11R-5188-PAN7	0.1111	1.71	10.6875
11R5198pan4	0.1165	1.71	10.6875

Continued.

Table 3. Continued.

Genotype	Sample mass (g)	Nitrogen content (%)	Crude Protein Content (%)
11R5243pan7	0.1144	1.71	10.6875
11R5245pan11	0.116	1.71	10.6875
11R5249pan5	0.1171	1.71	10.6875
11R5603pan11	0.1115	1.71	10.6875
11R5614pan2	0.1239	1.71	10.6875
11R5616pan3	0.1186	1.71	10.6875
11R5638pan14	0.1157	1.71	10.6875
11R5264pan1	0.1143	1.72	10.75
11R-5326pan3	0.1179	1.72	10.75
11R5641pan7	0.1183	1.72	10.75
11R5237pan7	0.1186	1.73	10.8125
11R-5026pan7	0.11	1.74	10.875
11R5202pan3	0.1144	1.74	10.875
11R5506pan7	0.1225	1.74	10.875
11R5638pan13	0.113	1.74	10.875
11R-5009pan5	0.1121	1.75	10.9375
11R-5403pan2	0.118	1.75	10.9375
11R-5609-PAN2	0.1128	1.75	10.9375
11R5611pan3	0.1157	1.75	10.9375
11R5203pan2	0.1203	1.76	11
11R5242pan5	0.1131	1.76	11
11R5243pan16	0.1125	1.76	11
11R5296pan6	0.1153	1.76	11
11R-5328pan1	0.1181	1.76	11
11R-5444pan3	0.1107	1.76	11
11R5566pan7	0.1169	1.76	11
11R5061pan2	0.12	1.77	11.0625
11R-5170	0.1176	1.77	11.0625
11R5210pan6	0.1202	1.77	11.0625
11R5242pan9	0.1127	1.77	11.0625
11R-5427pan3	0.1132	1.77	11.0625
11R5571pan3	0.1154	1.77	11.0625
11R5182pan4	0.1208	1.78	11.125
11R5296pan7	0.1142	1.78	11.125
11R5554pan1	0.1147	1.78	11.125
11R-5135pan3	0.1164	1.79	11.1875
11R5577pan3	0.12	1.79	11.1875
11R5151pan7	0.0939	1.8	11.25
11R5202pan6	0.1198	1.8	11.25

Continued.

Table 3. Continued.

Genotype	Sample mass (g)	Nitrogen content (%)	Crude Protein Content (%)
11R5298pan2	0.1169	1.8	11.25
11R-5548pan2	0.094	1.8	11.25
11R5581pan4	0.131	1.8	11.25
11R-5637-PAN1	0.1151	1.8	11.25
11R5213pan2	0.1097	1.81	11.3125
11R5296pan10	0.115	1.81	11.3125
11R-5408pan4	0.0999	1.81	11.3125
11R-5623-PAN1	0.1131	1.81	11.3125
11R5087pan2	0.1205	1.82	11.375
11R-5161-PAN1	0.1139	1.82	11.375
11R5180pan1	0.1184	1.82	11.375
11R5298pan3	0.119	1.84	11.5
11R5298pan1	0.1156	1.85	11.5625
11R-5442pan3	0.1151	1.85	11.5625
11R5218pan11	0.115	1.86	11.625
11R-5434pan2	0.1168	1.86	11.625
11R5558pan1	0.1271	1.87	11.6875
11R5577pan1	0.1182	1.87	11.6875
11R-5021pan4	0.1145	1.88	11.75
11R5183pan7	0.116	1.88	11.75
11R5245pan12	0.0949	1.89	11.8125
11R5222pan9	0.1101	1.9	11.875
11R5203pan12	0.0942	1.91	11.9375
11R-5043pan7	0.1121	1.92	12
11R5177pan10	0.1069	1.92	12
11R5574pan2	0.1122	1.92	12
11R5069pan2	0.1115	1.93	12.0625
11R5181pan8	0.1205	1.93	12.0625
11R-5200-PAN9	0.117	1.93	12.0625
11R5211pan10	0.1277	1.94	12.125
11R5212pan1	0.1243	1.94	12.125
11R5232pan5	0.0865	1.98	12.375
11R5554pan2	0.1198	1.99	12.4375
11R5069pan10	0.1197	2	12.5
11R5062pan1	0.1203	2.02	12.625
11R-5417pan2	0.0873	2.02	12.625
11R5571pan2	0.1122	2.02	12.625
11R5193pan3	0.1207	2.04	12.75
11R5231pan5	0.1204	2.04	12.75

Continued.

Table 3. Continued.

Genotype	Sample mass (g)	Nitrogen content (%)	Crude Protein Content (%)
11R-5158-PAN5	0.1115	2.07	12.9375
11R5094pan3	0.1011	2.08	13
11R5081pan6	0.1108	2.09	13.0625
11R5093pan7	0.0768	2.12	13.25
11R5098pan9	0.0945	2.13	13.3125
11R5081pan5	0.1053	2.16	13.5
11R5613pan10	0.1209	2.2	13.75
11R5093pan3	0.0836	2.22	13.875
11R5098pan10	0.1081	2.23	13.9375
11R5231pan12	0.101	2.23	13.9375
11R5232pan9	0.0877	2.24	14
11R5068pan5	0.1098	2.29	14.3125
11R5094pan7	0.1085	2.29	14.3125
11R-5536pan1	0.0877	2.29	14.3125
11R5231pan2	0.0738	2.31	14.4375
11R5232pan11	0.0729	2.34	14.625
11R5068pan7	0.0893	2.45	15.3125
11R5068pan4	0.1207	2.46	15.375
11R5073pan5	0.0943	2.56	16
11R5514pan12	0.0906	2.59	16.1875
11R5073pan3	0.0943	2.95	18.4375
11R5229pan15	0.0948	3.02	18.875
11R-5436pan3	0.0892	3.08	19.25
11R-5130pan2	0.0912	3.62	22.625
11R-5109pan2	0.0925	3.8	23.75
11R5073pan4	0.0966	4.11	25.6875
11R-5009pan5	0.1121	1.75	10.9375
11R-5021pan4	0.1145	1.88	11.75
11R-5022pan2	0.1118	1.69	10.5625
11R-5024pan5	0.1148	1.7	10.625
11R-5026pan7	0.11	1.74	10.875
11R-5043pan7	0.1121	1.92	12
11R5061pan2	0.12	1.77	11.0625
11R5062pan1	0.1203	2.02	12.625
11R5068pan4	0.1207	2.46	15.375
11R5068pan5	0.1098	2.29	14.3125
11R5068pan7	0.0893	2.45	15.3125
11R5069pan10	0.1197	2	12.5
11R5069pan2	0.1115	1.93	12.0625

Continued.

Table 3. Continued.

Genotype	Sample mass (g)	Nitrogen content (%)	Crude Protein Content (%)
11R5070pan1	0.1202	1.69	10.5625
11R5073pan3	0.0943	2.95	18.4375
11R5073pan4	0.0966	4.11	25.6875
11R5073pan5	0.0943	2.56	16
11R5081pan5	0.1053	2.16	13.5
11R5081pan6	0.1108	2.09	13.0625
11R5084pan8	0.1205	1.71	10.6875
11R5087pan2	0.1205	1.82	11.375
11R5088pan3	0.1203	1.7	10.625
11R5093pan3	0.0836	2.22	13.875
11R5093pan7	0.0768	2.12	13.25
11R5094pan3	0.1011	2.08	13
11R5094pan7	0.1085	2.29	14.3125
11R5098pan10	0.1081	2.23	13.9375
11R5098pan9	0.0945	2.13	13.3125
11R-5109pan2	0.0925	3.8	23.75
11R-5113pan1	0.1157	1.69	10.5625
11R-5115pan3	0.1113	1.68	10.5
11R-5130pan2	0.0912	3.62	22.625
11R-5135pan3	0.1164	1.79	11.1875
11R5151pan7	0.0939	1.8	11.25
11R-5158-PAN5	0.1115	2.07	12.9375
11R-5161-PAN1	0.1139	1.82	11.375
11R-5162-PAN6	0.116	1.69	10.5625
11R-5170	0.1176	1.77	11.0625
11R5177pan10	0.1069	1.92	12
11R5180pan1	0.1184	1.82	11.375
11R5181pan8	0.1205	1.93	12.0625
11R5182pan4	0.1208	1.78	11.125
11R5183pan7	0.116	1.88	11.75
11R5183pan9	0.1136	1.69	10.5625
11R-5188-PAN7	0.1111	1.71	10.6875
11R5193pan3	0.1207	2.04	12.75
11R5193pan4	0.1168	1.69	10.5625
11R5195pan5	0.1168	1.7	10.625
11R5196pan3	0.1077	1.69	10.5625
11R5197pan1	0.1204	1.7	10.625
11R5198pan4	0.1165	1.71	10.6875
11R-5200-PAN9	0.117	1.93	12.0625

Continued.

Table 3. Continued.

Genotype	Sample mass (g)	Nitrogen content (%)	Crude Protein Content (%)
11R5202pan1	0.1178	1.68	10.5
11R5202pan3	0.1144	1.74	10.875
11R5202pan6	0.1198	1.8	11.25
11R5203pan12	0.0942	1.91	11.9375
11R5203pan2	0.1203	1.76	11
11R5210pan6	0.1202	1.77	11.0625
11R5211pan10	0.1277	1.94	12.125
11R5212pan1	0.1243	1.94	12.125
11R5213pan2	0.1097	1.81	11.3125
11R5218pan11	0.115	1.86	11.625
11R5218pan13	0.1149	1.7	10.625
11R5218pan6	0.1135	1.7	10.625
11R5222pan6	0.1148	1.7	10.625
11R5222pan9	0.1101	1.9	11.875
11R5229pan15	0.0948	3.02	18.875
11R5231pan12	0.101	2.23	13.9375
11R5231pan2	0.0738	2.31	14.4375
11R5231pan5	0.1204	2.04	12.75
11R5232pan11	0.0729	2.34	14.625
11R5232pan5	0.0865	1.98	12.375
11R5232pan9	0.0877	2.24	14
11R5237pan7	0.1186	1.73	10.8125
11R5242pan5	0.1131	1.76	11
11R5242pan6	0.1133	1.68	10.5
11R5242pan9	0.1127	1.77	11.0625
11R5243pan16	0.1125	1.76	11
11R5243pan7	0.1144	1.71	10.6875
11R5245pan11	0.116	1.71	10.6875
11R5245pan12	0.0949	1.89	11.8125
11R5249pan5	0.1171	1.71	10.6875
11R5264pan1	0.1143	1.72	10.75
11R5296pan10	0.115	1.81	11.3125
11R5296pan6	0.1153	1.76	11
11R5296pan7	0.1142	1.78	11.125
11R5298pan1	0.1156	1.85	11.5625
11R5298pan2	0.1169	1.8	11.25
11R5298pan3	0.119	1.84	11.5
11R-5326pan3	0.1179	1.72	10.75
11R-5328pan1	0.1181	1.76	11

Continued.

Table 3. Continued.

Genotype	Sample mass (g)	Nitrogen content (%)	Crude Protein Content (%)
11R-5403pan2	0.118	1.75	10.9375
11R-5408pan4	0.0999	1.81	11.3125
11R-5417pan2	0.0873	2.02	12.625
11R-5427pan3	0.1132	1.77	11.0625
11R-5434pan2	0.1168	1.86	11.625
11R-5436pan3	0.0892	3.08	19.25
11R-5442pan3	0.1151	1.85	11.5625
11R-5444pan3	0.1107	1.76	11
11R5506pan7	0.1225	1.74	10.875
11R5514pan12	0.0906	2.59	16.1875
11R-5536pan1	0.0877	2.29	14.3125
11R-5548pan2	0.094	1.8	11.25
11R5551pan13	0.112	1.69	10.5625
11R5554pan1	0.1147	1.78	11.125
11R5554pan2	0.1198	1.99	12.4375
11R5558pan1	0.1271	1.87	11.6875
11R5566pan7	0.1169	1.76	11
11R5568pan1	0.1328	1.7	10.625
11R5571pan2	0.1122	2.02	12.625
11R5571pan3	0.1154	1.77	11.0625
11R5574pan2	0.1122	1.92	12
11R5577pan1	0.1182	1.87	11.6875
11R5577pan3	0.12	1.79	11.1875
11R5581pan4	0.131	1.8	11.25
11R5603pan11	0.1115	1.71	10.6875
11R-5609-PAN2	0.1128	1.75	10.9375
11R5611pan3	0.1157	1.75	10.9375
11R5613pan10	0.1209	2.2	13.75
11R5614pan2	0.1239	1.71	10.6875
11R5616pan3	0.1186	1.71	10.6875
11R-5619-PAN3	0.1165	1.7	10.625
11R-5621-PAN3	0.1125	1.68	10.5
11R-5623-PAN1	0.1131	1.81	11.3125
11R-5637-PAN1	0.1151	1.8	11.25
11R5638pan13	0.113	1.74	10.875
11R5638pan14	0.1157	1.71	10.6875
11R5641pan7	0.1183	1.72	10.75

RICE AGRONOMY[1]

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

INRODUCTION

The following three sections of the report document research conducted in rice plant nutrition, cultural management, and rice rotational crops. Rice plant nutrition studies were conducted at the LSU AgCenter Rice Research Station and 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 LSU AgCenter Rice Research Station and on-farm locations in Vermilion, St. Landry, Franklin, and West Carroll parishes. Cultural management studies were conducted at the Rice Research Station north and south units.

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

Lounsberry Farms – Vermilion Parish
Vendall and Ken Fairchild – West Carroll Parish
Charlie Fontenot – St. Landry Parish
John Owen – Franklin Parish

Throughout the following sections multiple abbreviations are used to represent common units of measure and agricultural chemicals. These abbreviations are explained below in Tables 1 and 2, respectively.

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

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

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

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

RICE NUTRITION EXPERIMENTS

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

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 uptake efficiency. Environmental influences also impact the N rate needed to produce optimum yields. These include such factors as soil type, weather, and disease and insect pressure. For this reason, trials are conducted not only at the Rice Research Station (RRS) but also at cooperator sites in Vermilion (VP), Franklin Parish (FP), St. Landry (SLP), and West Carroll (WC) parishes. The soils at RRS, VP, FP, SLP, and WCP are classified as Crowley silt loam, Kaplan silt loam, Sharkey clay, Tensas-Sharkey complex, and Sharkey 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 are also determined for trials in South West Louisiana. A minimum of 3 years of data for each variety is needed before final recommendations are established. These recommendations can be found in Rice Varieties and Management Tips 2013, LAES publication number 2270. Electronic copies of this publication can be accessed from the LSU AgCenter Website (http://www.lsuagcenter.com).

Ten conventional rice varieties, one advanced experimental line, one advanced experimental medium-grain LSU hybrid, and one Bayer CropScience hybrid were evaluated in 2012. Complete results for each variety by nitrogen trial at each location are presented in Tables 1 – 29. The Rice Research Station location was drill-seeded into a stale seedbed on March 18. Statistically, optimum grain yields at the RRS were obtained after applying 90 lb N/A for Roy J. LAH10 yields were optimized at 60 lb N/A although it was lodged (30%) even at this low rate of N. Other variety by N trials were lost due to a combine weigh system failure.

Rice was drill-seeded into a conventionally tilled seedbed at the VP locations on March 28. Rice was harvested on March 28. Optimal yields were obtained at 30 lb N/A for Caffey,and LA2128; 60 lb N/A for Jazzman2, Della-2, Mermentau, LAH10, CL152, and CL162. The variety CL261 was optimized when no N was applied.

Rice was drill-seeded into a spring stale seedbed on April 11 at the Franklin Parish location. Rice was harvested on August 21. Optimal yields were obtained at an N rate of 60 lb N/A for CL162; 90 lb N/A for LAH10; 120 lb N/A for CL152, Jazzman 2, Mermentau, and LA2128; 150 lb N/A for Caffey; and 180 lb N/A for CL261.

Rice was drill-seeded into a spring stale seedbed in St. Landry on March 27. Rice was harvested on August 8. Optimal yields were obtained at an N rate of 60 lb N/A for CL261 and Jazzman 2; 90 lb N/A for LAH10, which was lodged even when no N was applied; 120 lb N/A for CL162; and 150 lb N/A for CL152.

A fifth location in West Carroll Parish was also planted; however, early season blackbird pressure compromised the trial at this location.

The Bayer CropScience rice hybrid (01H10010) was evaluated only at the FP (Table 22) and SLP (Table 29) locations only. Applications of N fertilizer were split between preflood and heading application timings (PF/HD). Seven application scenarios were evaluated: 0, 60/30, 0/30, 90/30, 120/30, 150/30, and 180/30 lb N/A. Rice yield was optimized at the FP location using the 60/30 lb N/A scenario. Lodging at this location began when 150 lb N/A were applied using the 90/30 lb N/A scenario. Rice was optimized at the SLP location when no N fertilizer was applied. Lodging began at this location even when N fertilizer was not applied.

A trial was conducted at the RRS location to evaluate and compare the N-uptake efficiency of six released rice varieties (CL151, CL111, CL181, CL261, Caffey, and Jazzman-2) and one rice experimental medium-grain hybrid (LAH10). Three rates of N (0, 90, and 150 lb N/A) were used. A significant varietal difference was observed (Table

31). When pooled over all N rates (data not shown) total mean N-uptake was greatest for LAH10 (142 lb N/A); followed by CL181 (136 lb N/A), Jazzman-2 (125 lb N/A), CL151 (121 lb N/A), Caffey (112 lb N/A), CL111 (101 lb N/A), and CL261 (101 lb N/A).

Other Fertility Experiments

A study was initiated to evaluate the effect of ProGibb plant growth regulator (gibberellic acid) rate applied at the soft dough stage of main crop rice development on ratoon rice yields and agronomics. The variety CL111 was choosen for this study. Rates of ProGibb were 0, 5, and 10 g ai/A. All treatments were tank mixed with a pyrethroid (2.08 lb/gal) plus a non-ionic surfactant (2 fluid oz/A). Main crop yield was reduced from 7,103 lb/A when ProGibb was not used to 6,855 and 6,776 lb/A when ProGibb was used at a rate of 5 and 10 g ai/A, respectively. Ratoon rice yields were not statistically different between ProGibb rates. Ratoon yields were 3,761, 3,792, and 3,825 lb/A for the 0, 5, and 10 g ai/A application rates of ProGibb.

A trial was established in 2012 to evaluate the agronomic effectiveness East Coast Technology's Brandit supplemental foliar fertilizer program in traditional drill-seeded delayed-flood rice production. The Brandit fertilizers included Manniplex Cal/Zn, Converge (30% N), N-Boost, and Manniplex K. Three treatments were evaluated: 1) Control plot: 120 lb N/A applied as urea preflood; 2) Brandit program #1: 120 lb N/A applied as urea preflood. Manniplex Cal/Zn (2 qt/A) at the 3-tiller stage of rice development. Converge (1 gal/A) + Manniplex Cal/Zn (1 qt/A) at 5% heading stage of rice development. N-Boost (2 qt/A) + Manniplex K (2 qt/A) at beginning 100% heading stage of rice development; and 3) Brandit program #2: 120 lb N/A applied as urea preflood. Manniplex Cal/Zn (2 qt/A) at the 3-tiller stage of rice development. N-Boost (2 qt/A) + Manniplex Cal/Zn (2 qt/A) at 5% heading stage of rice development. N-Boost (2 qt/A) + Manniplex K (2 qt/A) at beginning 100% heading stage of rice development. The agronomic results are presented in Table 37. Rice yield between treatments ranged from 7,148 to 7,328 lb/A in the main crop and from 3,476 to 3,483 in the ratoon rice crop. A statistical difference in the agronomic characteristics of plant height, days to 50% heading, test weight, moisture at harvest, or yield due to the addition of the either of the Brandit supplemental fertilizer programs was not observed in the main or ratoon rice crop. Total aboveground biomass samples were taken at the mid-tillering stage of development and again just after the rice was fully headed. The rice was then dried and ground, and total N content was determined by combustion analysis. Biomass, tissue N, and total N uptake were not statistically different across all treatments evaluated.

A study was established to evaluate the effect of the organic soil amendment AvGro Crop/Turf on rice agronomics and yield. Seven independent treatments were evaluated: 1) AvGro (0 lb/A) + 120 lb N/A; 2) AvGro (125 lb/A) + 120 lb N/A; 3) AvGro (250 lb/A) + 120 lb N/A; 4) AvGro (500 lb/A) + 120 lb N/A; 5) AvGro (1,000 lb/A) + 120 lb N/A; 6) AvGro (250 lb/A) + 0 lb N/A; and 7) AvGro (0 lb/A) + 0 lb N/A. All AvGro applications were surface broadcast by hand just prior to planting. The agronomic results are presented in Table 38. Days from planting to 50% heading increased from 88 days when no N fertilizer was applied (treatments 6 and 7) to 93 days when 120 lb N/A was applied (treatments 1-5). Alternately, days to 50% heading was not altered due to AvGro application, with or without N fertilization. Plant height was increased when 120 lb N/A was applied (treatments 1-5) compared with treatments not receiving N fertilization (treatments 6-7). Application of AvGro did not alter plant height with or without N application (treatments 1-5 and 6-7, respectively). Rice grain yield ranged from 7,965 to 8,089 when 120 lb N/A was applied and ranged between 3,562 to 3,848 lb/A when N fertilizer was not applied. Regardless of rate, AvGro Crop and Turf did not improve rice grain yield with or without N fertilization. After main crop harvest, all plots were fertilized with 90 lb N/A using urea and reflooded. Ratoon (second crop) rice yields were not increased with the application of AvGro Crop and Turf application, regardless of N application rate in the main crop. However, when total yield was determined (main + ratoon), rice grain yield was maximized when at least 250 lb of AvGro and 120 lb N/A were applied in the main crop (treatments 3-5) compared with all other treatments.

A trial was established in 2012 to evaluate the agronomic effectiveness of World Harvest Group's product SumaGro in traditional drill-seeded delayed-flood rice production. SumaGrow is a liquid composition of humic and fulvic acids (derived from the mineral Leonardite) and a proprietary polymicrobial blend. The product does not have any fertilizer nutritive value. A medium-grain rice variety, Neptune, was used for the trial. The agronomic results are presented in Table 39. A statistical increase in plant height was observed between the untreated control (treatment 1) and treatments 3, 4, and 5. The increase in plant height was observed when SumaGrow + 60 lb N/A was used or when 120 lb N/A was used with or without SumaGrow. Plant height did numerically increase from 26

to 29 inches at maturity when SumaGrow was used at the 1.5 gal/A rate when no N was applied; however, the increase was not statistically significant. Rice grain yield significantly increased by approximately 4,300 lb/A over the untreated control with the addition of 60 lb N/A. A second yield increase was observed between the 60 and 120 lb N/A fertilization rates. Both sequential increases in grain yield between the UTC and the 60 lb N/A rate and between the 60 and 120 lb N/A rates can be solely contributed to the increase in N and not due the addition of SumaGrow since treatments 2 and 3 or treatments 4 and 5 were not statistically different from each other. In general, the use of SumaGrow in drill-seeded delayed flood rice production did not provide an agronomic advantage over traditional N fertilization when urea was the fertilizer source.

A study was conducted to evaluate the separate and combined effects of CruiserMaxx and N fertilizer rate on rice agronomics and yield. The CruiserMaxx seed treatment was used at a rate of 7 fluid oz/100 lb seed. Five rates of N (0, 45, 90, 135, and 180 lb/A) were evaluated. The 135 and 180 lb N/A fertilizer application rates were applied as a split application between the preflood and panicle differentiation timings (PF/PD; 90/45 and 135/45, respectively). Two seed treatments were evaluated: with and without CruiserMaxx. Results of this trial are presented in Table 41. Rice plant height at the 3- to 4-leaf stage of development was not different between treatments. In general, yield was increased by increasing N rates up to the 135 lb N/A rate. CruiserMaxx provided a yield increase when N was not applied; however, when N was applied, yields were not statistically increased with the inclusion of the CruiserMaxx seed treatment.

A trial was established in 2012 in Crowley, Louisiana, to evaluate the amount and rate of ammonia volatilization loss from four N sources over a 15-day period. ArboriteAG- treated urea, Agrotain-treated urea, an experimental zinc sulfate (8%)-coated urea, and untreated urea was evaluated. Semi-open volatilization chambers similar to that described by Norman et al. (2009) were used to estimate ammonia volatilization loss. Fertilizer was applied by hand on a dry soil, and phosphoric acid-treated sponges were used to trap the ammonia gas released. The sponges were removed for analysis and replaced 10, 9, 7, 5, 3, and 1 day before the permanent flood was established and 1 and 5 days post flooding. Cumulative N losses over the 15-day period are presented in Figure 1. Approximate cumulative N loss over the 15-day period was 13, 7.5, 3.4, and 3.7% from urea, zinc sulfate-coated urea, Arborite-treated urea, and Agrotain-treated urea (Figure 1). Both the ArboriteAG- and Agrotain-treated urea significantly reduced ammonia volatilization by 9.3 and 9.6%, respectively. Both Agrotain and ArboriteAG contain the active ingredient N-(n-butyl) thiophosphoric triamide (NBPT) and were similar in their effectiveness in slowing volatilization losses compared with untreated urea. The experimental zinc sulfate (8%)-coated urea had a mean cumulative volatilization rate over the 15-day period that was between untreated urea and the NBPT-treated ureas, indicating that the product may have some volatilization control. However, it must be noted that even though the cumulative N loss over the 15-day period for the zinc sulfate-coated urea product was approximately 5.5% lower than that observed from the untreated urea, it was not statistically different (Figure 1).

A trial was conducted as a companion trial to the one above in order to evaluate the corresponding rice grain yield loss associated with the four N sources when they were applied several days before rice flood establishment. The trial was set up as a randomized complete block design with four N sources [ArboriteAG-treated urea, Agrotain-treated urea, zinc sulfate (8%)-coated urea, and urea], two rates of N (60 and 120 lb N/A), and three application timings (10, 5, and 1 day prior to flood establishment, DPF). A check plot, which received no N, was also included as a reference. The trial was conducted at the Rice Research Station in Crowley, Louisiana, on a Crowley silt loam soil. A significant rainfall event did not occur during the 10-day preflood time of this trial. The CL151 rice variety used in this trial had a significant incidence of rotten neck blast, which reduced yields across all treatments. Analysis of variance results from the factorial arrangement of treatments (not including the check treatment) are presented in Tables 43, 44, and 45 for the main effects, 2-way, and 3-way interactions, respectively. Results from the ANOVA using the randomized complete block design, including the check treatment, are presented in Table 46. Rice grain yield was not significantly affected by the 3-way interaction or any of the 2-way interactions. Rice grain yield was increased by the main effect of N rate (P = 0.0075) when the data were pooled over N application timing and N source. The 120 lb N/A rate significantly increased yield by 855 lb/A compared with the 60 lb N/A rate. When pooled over N rate and N source, time of application did have a significant (P = 0.0073; LSD 118) effect on rice yield. Rice yields were 6,905 lb/A when applied 1 day, 6,890 lb/A when applied 5 days, and 6,690 lb/A when applied 10 days prior to permanent flood establishment. A significant difference in grain yield between N fertilizer sources was not observed (P = 0.7484) when the data were pooled over N rate and time of application.

The trial was established to evaluate the amount and rate of ammonia volatilization loss from urea treated with Helena Chemical Company products HM1135 and HM1002 over 15 days. Both products were evaluated at the 3- and 4-qt/ton of urea application rates and compared with untreated urea and Agrotain-treated urea. Semi-open volatilization chambers similar to that described by Norman et al. (2009) were used to estimate ammonia volatilization loss. Fertilizer was applied by hand on a dry soil and phosphoric acid-treated sponges were used to trap the ammonia gas released. The sponges were removed for analysis and replaced 10, 9, 7, 5, 3, and 1 day before the permanent flood was established and 1 and 5 days post flooding. Cumulative N losses over the 15-day period are presented in Figure 3. Approximate cumulative N loss over the 15-day period was 18.7, 5.5, 6.2, 4.4, 5.9, and 3.9% from urea, HM1152 (3 qt/ton), HM1152 (4 qt/ton), HM1002 (3 qt/ton), HM1002 (4 qt/ton), and AboriteAG-treated urea, respectively (Figure 2). The cumulative N lost from volatilization for all treated urea products was significantly less than the untreated urea but not different from each other.

Another trial was conducted as a companion trial to the one above in order to evaluate the corresponding rice grain yield loss associated with the five N sources when they were applied several days before rice flood establishment. The trial was set up as a randomized complete block design with six N sources: urea, HM1152 (3 qt/ton)-treated urea, HM1152 (4 qt/ton)-treated urea, HM1002 (3 qt/ton)-treated urea, HM1002 (4 qt/ton)-treated urea, and AboriteAG-treated urea; two rates of N (60 and 120 lb N/A); and three application timings (10, 5, and 1 day prior to flood establishment, DPF). A check plot, which received no N, was also included as a reference. A significant rainfall event did not occur during the 10-day preflood time of this trial. The CL151 rice variety used in this trial had a significant incidence of rotten neck blast that reduced yields across all treatments. Analysis of variance results from the factorial arrangement of treatments (not including the check treatment) are presented in Tables 47, 48, and 49 for the main effects, 2-way, and 3-way interactions, respectively. Results from the ANOVA using the randomized complete block design, including the check treatment, are presented in Table 50. Rice grain yield was not significantly affected by the 3-way interaction or any of the 2-way interactions. Rice grain yield was increased by the main effect of N rate (P = 0.0079, LSD = 396 lb/A) when the data were pooled over N application timing and N source. The 120 lb N/A rate significantly increased yield by 985 lb/A compared with the 60 lb N/A rate. The main effects of N source and N application timing did not significantly affect rice grain yield.

The trial was established in 2012 in Crowley, Louisiana, to evaluate the amount and rate of ammonia volatilization loss from six N sources over a 15-day period. Sources of fertilizer N included: urea, ArboriteAG-treated urea, zinc sulfate (6%)-coated urea, zinc sulfate (6%)-coated urea plus 0.04% NBPT, zinc sulfate (6%)-coated urea plus 0.08% NBPT, and zinc sulfate (6%)-coated urea plus 0.12% NBPT. Semi-open volatilization chambers similar to that described by Norman et al. (2009) were used to estimate ammonia volatilization loss. Fertilizer was applied by hand on a dry soil and phosphoric acid-treated sponges were used to trap the ammonia gas released. The sponges were removed for analysis and replaced 10, 9, 7, 5, 3, and 1 day before the permanent flood was established and 1 and 5 days post flooding. Cumulative N losses over the 15-day period are presented in Figure 3. Approximate cumulative N loss over the 15-day period was 17.7, 18.6, 8.7, 6.7, 5, and 3.9% from urea, zinc sulfate (6%)-coated urea, zinc sulfate (6%)-coated urea plus 0.04% NBPT, zinc sulfate (6%)-coated urea plus 0.08% NBPT, zinc sulfate (6%)-coated urea plus 0.12% NBPT, and AboriteAG-treated urea, respectively (Figure 2). The cumulative N lost from volatilization for the experimental zinc sulfate (6%)-coated urea product (18.6%) was not significantly different from untreated urea (17.7%), indicating that the zinc sulfate coating on this product did not reduce volatilization. The addition of NBPT to the experimental zinc sulfate-coated urea did significantly reduce volatilization compared with untreated urea. Volatilization of N from the zinc sulfate-coated urea was increased with the increasing rates of NBPT. The cumulative N loss from the zinc sulfate-coated urea products with the addition of 0.08% or 0.12% NBPT were not statistically different from the ArboriteAG-treated urea. The zinc sulfate-coated urea with 0.04% NBPT had a significantly higher cumulative volatilization loss compared with the ArboriteAG-treated urea; however, it was significantly less than that observed from untreated urea and the zinc sulfate-coated urea without NBPT.

A second trial was conducted as a companion trial to the one above in order to evaluate the corresponding rice grain yield loss associated with the six N sources when they applied several days before rice flood establishment. The trial was set up as a randomized complete block design with five N sources (urea, zinc sulfate (6%)-coated urea, zinc sulfate (6%)-coated urea plus 0.04% NBPT, zinc sulfate (6%)-coated urea plus 0.08% NBPT, zinc sulfate (6%)-coated urea plus 0.12% NBPT, and AgrboriteAG-treated urea), two rates of N (60 and 120 lb N/A), and three application timings (10, 5, and 1 day prior to flood establishment, DPF). A check plot, which received no N, was also included as a reference. A significant rainfall event did not occur during the 10-day preflood time of this trial.

The CL151 rice variety used in this trial had a significant incidence of rotten neck blast that reduced yields across all treatments. Analysis of variance results from the factorial arrangement of treatments (not including the check treatment) are presented in Tables 51, 52, and 53 for the main effects, 2-way, and 3-way interactions, respectively. Results from the ANOVA using the randomized complete block design, including the check treatment, are presented in Table 54. Rice grain yield was not significantly affected by the 3-way interaction or any of the 2-way interactions. Rice grain yield was increased by the main effect of N rate (P = 0.0002) when the data were pooled over N application timing and N source. The 120 lb N/A rate significantly increased yield by 775 lb/A compared with the 60 lb N/A rate. The main effects of N source and N application timing did not significantly affect rice grain yield.

Ratoon Rice Fertility Experiments

A trial was initiated in 2010 and repeated in 2011 and 2012 to evaluate the response of CL111 and CL151 ratoon yields to various N sources and rates. Sources of N included urea, ammonium sulfate (AS), and a 1:1 N based blend of urea and AS. Rates of N were 45, 90, and 135 lb/A. Treatment means from the analysis of variance (ANOVA) of all 18 treatments are presented in Table 32. Main crop yields varied between varieties (P = 0.0019; LSD = 780 lb/A). Mean main crop yield for CL151 and CL111 was 7,582 and 10,132 lb/A, respectively. A significant ratoon yield response was seen for N rate (P < 0.001, LSD = 285 lb/A), N source (P = 0.0571, LSD = 153 lb/A), and variety (P < 0.001, LSD = 109 lb/A). Ratoon grain yield means for the 45, 90, and 135 lb/A N rates were 2,521, 3,016, and 3,442 lb/A, respectively. Yields were optimized at an N rate of 135 lb/A. Overall mean yield across N rates for CL111 and CL151 was 2,520 and 3,466 lb/A, respectively. Mean ratoon yields were 3,092, 2,988, and 2,899 lb/A when the N fertilizer source was AS, urea, or the urea-AS blend, respectively.

A trial was initiated in 2010 and repeated in 2011 and 2012 to evaluate the ratoon yield response of CL111 and CL151 to various rates of N. Six post-harvest rates of N (0, 30, 60, 90, 120, and 150 lb/A) were evaluated. All plots received 150 lb N/A as urea prior to permanent flood establishment in the first crop. Results of this trial are presented in Table 33. Analysis of variance indicated that main crop ratoon yields of CL111 (10128 lb/A) were statistically (P = 0.0072, LSD = 1,358 lb/A) superior to CL151 (7,335 lb/A). Ratoon crop yields were significantly (P = 0.0010, LSD = 225 lb/A) greater for CL151 (3,519 lb/A) compared with CL111 (2,603 lb/A). A significant ratoon yield response was observed for N rate (P = 0.0001, LSD = 204 lb/A). Mean ratoon yield was 2,267, 2,633, 2,937, 3,314, 3,586, and 3,629 lb/A for the 0, 30, 60, 90, 120, and 150 lb/A N fertilization rates, respectively. Nitrogen was optimized at the 120 lb/A N fertilization rate. A variety by N rate interaction was not observed.

A trial was initiated to evaluate the effectiveness of Agrotain-treated urea compared with untreated urea in ratoon rice production. Two N sources (Agrotain-treated urea and urea) and six N rates (0, 30, 60, 90, 120, and 150 lb/A) were evaluated in the trial. First crop rice was fertilized with urea at rate of 150 lb N/A after harvest. Results of the study are presented in Table 34. CL111 was the rice variety grown. Main crop grain yield was similar across all treatments. A significant N rate by N source interaction was not observed. Mean ratoon rice yields were not statistically different between Agrotain treated urea (2,410 lb/A) and urea (2,443 lb/A). Rate on N was significant for ratoon grain yield (P = 0.0001, LSD = 209). Mean ratoon grain yield was 1,624, 1,959, 2,322, 2,672, 2,928, and 3,053 lb/A for the 0, 30, 60, 90, 120, and 150 lb N/A application rates, respectively. The optimal ratoon N rate for CL111 was 120 lb/A.

Rice Variety by Nitrogen Experiments at the Rice Research Station

Experiment number	Rice Research Station VxN Studies
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.47
pH	6.97
Extractable nutrients ppm	Ca-1,337; Cu-1.9; Mg-395; P-11; K-80; Na-120; S-12.3; Zn-6.3
Crop/Variety	Rice / See Data Sheet
Planting method/date	Drill seeded / March 18
Seeding rate/depth	40 seeds/ft^2 / .5 inch
Emergence date	March 26
Harvest date	August 1
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19
Water management	
Flush	None
Flood	April 26
Drain	July 10
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt + 1 pt/A Headset, June 15

Table 1. Determine the agronomic response of drill-seeded JES to nitrogen fertilizer rate and time of application (2.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/19/2012	8/1/2012		8/1/2012	8/1/2012	8/1/2012
Rating Type					50% HD	50% HD	Height	Lodge		Moist	Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	%	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	94 ef	86 ef	29 f	.	.	14.2 a	45.9 a	7041 e
2	UREA	30	lb ai/A	4-5 leaf	93 f	85 f	32 def	.	.	13.9 a	46.0 a	8081 de
3	UREA	60	lb ai/A	4-5 leaf	94 ef	86 ef	33 cde	.	.	14.2 a	45.8 a	9255 cd
4	UREA	90	lb ai/A	4-5 leaf	96 cde	88 cde	31 ef	.	.	15.7 a	45.6 a	9367 cd
5	UREA	120	lb ai/A	4-5 leaf	98 b	90 b	36 abc	64 a	3 a	17.6 a	44.4 a	10806 abc
6	UREA	150	lb ai/A	4-5 leaf	99 ab	91 ab	36 abc	18 a	1 a	18.8 a	44.0 a	10574 abc
7	UREA	180	lb ai/A	4-5 leaf	101 a	93 a	38 a	45 a	2 a	19.0 a	43.8 a	12061 a
8	UREA	210	lb ai/A	4-5 leaf	98 b	90 b	36 abc	38 a	2 a	18.4 a	44.6 a	11275 ab
9	UREA	45	lb ai/A	4-5 leaf	95 def	87 def	33 cde	.	.	16.8 a	44.7 a	9669 bcd
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	97 bcd	89 bcd	36 abc	.	.	17.7 a	44.4 a	10516 abc
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	98 b	90 b	37 ab	30 a	2 a	17.3 a	44.9 a	10990 abc
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	98 bc	90 bc	34 bcd	2 a	1 a	16.9 a	45.1 a	10528 abc
	UREA	45	lb ai/A	PD								
LSD (P=.05)					2.2	2.2	2.8	244.0	9.0	4.5	2.4	1735.4
Standard Deviation					1.5	1.5	1.7	27.2	1.0	3.1	1.7	1201.9
CV					1.6	1.7	4.8	83.0	57.9	18.5	3.7	12.0
Treatment F					9.6	9.6	7.2	2.6	1.6	1.4	0.8	5.5
Treatment Prob(F)					0.0001	0.0001	0.0001	0.44	0.54	0.2195	0.6205	0.0001

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

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

Table 2. Determine the agronomic response of drill-seeded Roy J to nitrogen fertilizer rate and time of application (2.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd				
Rating Date							7/19/2012	8/1/2012	8/1/2012	8/1/2012
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield
Rating Unit					days	days	in	%	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage						
1	UREA	0	lb ai/A	4-5 leaf	96 c-f	88 c-f	32 g	12.3 de	46.9 abc	3217 d
2	UREA	30	lb ai/A	4-5 leaf	94 f	86 f	34 fg	11.5 e	47.5 a	5070 c
3	UREA	60	lb ai/A	4-5 leaf	95 ef	87 ef	36 ef	11.6 e	47.5 a	6187 b
4	UREA	90	lb ai/A	4-5 leaf	97 cd	89 cd	38 de	12.5 de	46.9 abc	6571 ab
5	UREA	120	lb ai/A	4-5 leaf	99 ab	91 ab	40 cd	12.8 cd	46.7 bcd	6840 ab
6	UREA	150	lb ai/A	4-5 leaf	99 ab	91 ab	41 abc	13.7 bc	46.1 de	7046 a
7	UREA	180	lb ai/A	4-5 leaf	101 a	93 a	44 a	14.4 ab	45.7 ef	7097 a
8	UREA	210	lb ai/A	4-5 leaf	99 a	91 a	43 ab	15.4 a	45.1 f	7024 a
9	UREA	45	lb ai/A	4-5 leaf	95 def	87 def	37 ef	12.0 de	47.3 ab	5331 c
	UREA	45	lb ai/A	PD						
10	UREA	75	lb ai/A	4-5 leaf	96 cde	88 cde	41 bcd	12.2 de	47.1 abc	6476 ab
	UREA	45	lb ai/A	PD						
11	UREA	105	lb ai/A	4-5 leaf	97 bc	89 bc	40 cd	13.1 cd	46.5 cd	6753 ab
	UREA	45	lb ai/A	PD						
12	UREA	135	lb ai/A	4-5 leaf	99 a	91 a	43 abc	13.8 bc	46.0 de	6823 ab
	UREA	45	lb ai/A	PD						
LSD (P=.05)					2.0	2.0	2.7	1.2	0.8	749.0
Standard Deviation					1.4	1.4	1.6	0.8	0.5	518.7
CV					1.4	1.6	4.0	6.3	1.1	8.4
Treatment F					9.6	9.6	16.2	8.5	8.4	19.5
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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

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

Rice Hybrid (LAH10) by Nitrogen Experiment at the Rice Research Station

Experiment number	12-CM-14
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.47
pH	6.97
Extractable nutrients ppm	Ca-1,337; Cu-1.9; Mg-395; P-11; K-80; Na-120; S-12.3; Zn-6.3
Crop/Variety	Rice / LAH10
Planting method/date	Drill seeded / March 18
Seeding rate/depth	14 seeds/ft^2 / .5 inch
Emergence date	March 26
Harvest date	August 6
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19
Water management	
Flush	None
Flood	April 26
Drain	July 10
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt + 1 pt/A Headset, June 15

Table 3. Determine the agronomic response of drill-seeded LAH10 to nitrogen fertilizer rate and time of application (2.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/19/2012	8/6/2012		8/6/2012	8/6/2012	8/6/2012
Rating Type					50% HD	50% HD	Height	Lodge		Moist	Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	%	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	100 a	92 a	42 f			20.7 cde	43.4 abc	7322 e
2	UREA	30	lb ai/A	4-5 leaf	98 a	90 a	45 e	51 e	1 d	17.8 de	44.1 ab	10044 bcd
3	UREA	60	lb ai/A	4-5 leaf	99 a	91 a	46 de	75 cd	1 d	17.2 e	44.5 a	10967 abc
4	UREA	90	lb ai/A	4-5 leaf	99 a	91 a	47 cde	78 bcd	2 cd	18.8 de	43.9 ab	11166 abc
5	UREA	120	lb ai/A	4-5 leaf	99 a	91 a	48 abc	93 abc	3 bc	22.1 b-e	43.0 a-d	11828 a
6	UREA	150	lb ai/A	4-5 leaf	98 a	90 a	49 abc	96 ab	4 a	24.5 a-d	41.9 bcd	11405 ab
7	UREA	180	lb ai/A	4-5 leaf	99 a	91 a	50 a	99 a	4 a	22.3 b-e	42.8 a-d	11038 abc
8	UREA	210	lb ai/A	4-5 leaf	99 a	91 a	48 abc	98 ab	4 a	29.7 a	40.8 d	8801 de
9	UREA	45	lb ai/A	4-5 leaf	98 a	90 a	48 bcd	70 de	2 cd	26.2 abc	41.5 cd	9588 cd
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	98 a	90 a	48 a-d	75 cd	2 cd	18.2 de	44.0 ab	11104 abc
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	98 a	90 a	48 a-d	70 de	3 bc	29.0 ab	40.8 d	11017 abc
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	98 a	90 a	49 ab	93 abc	4 ab	23.6 a-e	42.4 a-d	10192 bcd
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.7	1.7	2.2	20.6	1.1	7.2	2.3	1603.5
Standard Deviation					1.2	1.2	1.3	14.2	0.8	5.0	1.6	1110.5
CV					1.2	1.3	2.7	17.4	29.3	22.3	3.7	10.7
Treatment F					1.3	1.3	9.3	4.6	9.0	2.9	2.7	5.3
Treatment Prob(F)					0.2668	0.2668	0.0001	0.0007	0.0001	0.0094	0.0129	0.0001

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

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

Rice Variety by Nitrogen Experiments at Vermilion Parish

Experiment number	Vermilion Parish VxN Studies
Site and design	
Location/Cooperator	Vermilion Parish / Kent Lounsberry
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Kaplan silt loam
% organic matter	1.23
pH	4.78
Extractable nutrients ppm	Ca-963; Cu-1.3; Mg-240; P-11.5; K-197; Na-82; S-22.7; Zn-2.2
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / March 28
Seeding rate/depth	40 seeds/ft^2 / .5 inch
Emergence date	April 3
Harvest date	August 2
Ratoon Harvest date	October 25
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	60 lb/A P_2O_5 with Command, Preplant 90 lb N/A 46-0-0, August 8
Water management	
Flush	None
Flood	April 26
Drain	July 18
Ratoon flood	August 9
Ratoon drain	October 12
Pest management	
Herbicides	2 qt/A Propanil + 2 qt/A Rice Beaux + 1.5 oz/A Londax, April 19 2 pt/A Basagran + 1% COC, August 3
Insecticides	None
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt + 1 pt/A Headset, June 15

Table 4. Determine the agronomic response of drill-seeded CL152 to nitrogen fertilizer rate and time of application (2.2). Evaluate greenseeker technology. Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emerg-hd						
Rating Date							7/25/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	82 f	76 f	33 c	47.8 a	6942 b	45.3 a	1809 a	8752 a-d
2	UREA	30	lb ai/A	4-5 leaf	83 f	77 f	34 bc	47.7 ab	7102 ab	45.4 a	1763 a	8865 abc
3	UREA	60	lb ai/A	4-5 leaf	86 cde	80 cde	35 abc	47.5 abc	7286 ab	45.4 a	1777 a	9063 ab
4	UREA	90	lb ai/A	4-5 leaf	85 e	79 e	35 ab	47.1 bcd	7538 a	45.1 a	1794 a	9332 a
5	UREA	120	lb ai/A	4-5 leaf	86 cde	80 cde	36 a	47.0 cd	6977 ab	45.4 a	1620 a	8598 a-d
6	UREA	150	lb ai/A	4-5 leaf	87 cd	81 cd	36 ab	46.9 cd	6738 bc	45.8 a	1824 a	8562 bcd
7	UREA	180	lb ai/A	4-5 leaf	89 ab	83 ab	35 abc	45.6 g	5798 de	45.2 a	1412 a	7210 e
8	UREA	210	lb ai/A	4-5 leaf	89 a	83 a	36 a	46.2 ef	5520 e	45.1 a	1394 a	6914 e
9	UREA	240	lb ai/A	4-5 leaf	89 a	83 a	36 a	45.7 fg	5398 e	46.0 a	1676 a	7074 e
10	UREA	45	lb ai/A	4-5 leaf	85 e	79 e	33 c	47.7 ab	7116 ab	46.1 a	1705 a	8821 a-d
	UREA	45	lb ai/A	PD								
11	UREA	75	lb ai/A	4-5 leaf	86 cde	80 cde	35 ab	47.2 a-d	7122 ab	45.7 a	1791 a	8913 abc
	UREA	45	lb ai/A	PD								
12	UREA	105	lb ai/A	4-5 leaf	87 cd	81 cd	35 ab	46.7 de	6710 bc	45.1 a	1453 a	8163 cd
	UREA	45	lb ai/A	PD								
13	UREA	135	lb ai/A	4-5 leaf	88 bc	82 bc	35 abc	46.7 de	6355 cd	45.8 a	1725 a	8080 d
	UREA	45	lb ai/A	PD								
14	UREA	75	lb ai/A	4-5 leaf	86 de	80 de	35 abc	47.1 a-d	6984 ab	45.5 a	1693 a	8678 a-d
	SBNR-UREA	0	lb ai/A	PD								
15	UREA	105	lb ai/A	4-5 leaf	87 cde	81 cde	35 abc	46.9 cd	7043 ab	45.7 a	1770 a	8812 a-d
	SBNR-UREA	0	lb ai/A	PD								
LSD (P=.05)					1.4	1.4	1.7	0.6	582.6	0.9	319.9	767.5
Standard Deviation					1.0	1.0	1.0	0.4	407.7	0.6	223.9	537.0
CV					1.1	1.2	2.9	0.9	6.1	1.3	13.3	6.4
Treatment F					16.1	16.1	2.5	9.6	10.2	1.3	1.7	7.9
Treatment Prob(F)					0.0001	0.0001	0.0190	0.0001	0.0001	0.2764	0.0918	0.0001

Continued.

Table 4. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue	Grain	N Uptake	N Uptake
Part Rated					Abvgrd -	Abvgrd -	@Harv -	Total -	Total -
Rating Date					6/26/2012	6/26/2012		6/26/2012	
Rating Type					Biomass	N	N	N	N
Rating Unit					lb/A	%	%	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Crop Stage Scale					50% HD	50% HD	Grain	50% HD	Grain
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	9906 c	1.15 e	1.03 f	115 g	72 d
2	UREA	30	lb ai/A	4-5 leaf	10478 bc	1.33 de	1.13 def	140 fg	81 a-d
3	UREA	60	lb ai/A	4-5 leaf	11569 abc	1.35 de	1.15 cde	156 d-g	84 abc
4	UREA	90	lb ai/A	4-5 leaf	11540 abc	1.39 de	1.20 b-e	161 def	90 a
5	UREA	120	lb ai/A	4-5 leaf	10939 bc	1.80 bc	1.22 bcd	198 bcd	85 abc
6	UREA	150	lb ai/A	4-5 leaf	11287 bc	1.77 bc	1.21 bcd	200 bcd	81 a-d
7	UREA	180	lb ai/A	4-5 leaf	12025 ab	1.92 b	1.23 bcd	228 bc	71 d
8	UREA	210	lb ai/A	4-5 leaf	12272 ab	2.28 a	1.45 a	281 a	80 a-d
9	UREA	240	lb ai/A	4-5 leaf	11661 abc	2.45 a	1.45 a	286 a	78 cd
10	UREA	45	lb ai/A	4-5 leaf	11051 bc	1.52 cd	1.10 ef	164 def	78 cd
	UREA	45	lb ai/A	PD					
11	UREA	75	lb ai/A	4-5 leaf	11324 bc	1.72 bc	1.18 b-e	193 cde	84 abc
	UREA	45	lb ai/A	PD					
12	UREA	105	lb ai/A	4-5 leaf	13226 a	1.82 b	1.21 b-e	242 ab	81 a-d
	UREA	45	lb ai/A	PD					
13	UREA	135	lb ai/A	4-5 leaf	9871 c	1.87 b	1.25 bc	185 cde	79 bcd
	UREA	45	lb ai/A	PD					
14	UREA	75	lb ai/A	4-5 leaf	10059 c	1.51 cd	1.13 def	152 efg	78 cd
	SBNR-UREA	0	lb ai/A	PD					
15	UREA	105	lb ai/A	4-5 leaf	11310 bc	1.51 cd	1.27 b	170 def	89 ab
	SBNR-UREA	0	lb ai/A	PD					
LSD (P=.05)					1840.0	0.3	0.1	45.0	10.6
Standard Deviation					1287.6	0.2	0.1	31.5	7.4
CV					11.5	12.1	6.1	16.5	9.2
Treatment F					2.0	11.9	9.4	9.9	2.0
Treatment Prob(F)					0.0391	0.0001	0.0001	0.0001	0.0466

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. Determine the agronomic response of drill-seeded CL162 to nitrogen fertilizer rate and time of application (2.2). Evaluate greenseeker technology. Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/25/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	79 i	73 i	35 a	47.9 abc	6186 ab	62.5 a	1817 a	8003 a
2	UREA	30	lb ai/A	4-5 leaf	80 hi	74 hi	36 a	48.1 a	6306 a	62.8 a	1764 ab	8070 a
3	UREA	60	lb ai/A	4-5 leaf	82 g	76 g	38 a	47.7 abc	5625 a-d	63.0 a	1542 b-e	7248 a-d
4	UREA	90	lb ai/A	4-5 leaf	83 efg	77 efg	37 a	47.7 abc	6073 ab	62.5 a	1605 abc	7678 ab
5	UREA	120	lb ai/A	4-5 leaf	83 def	77 def	38 a	47.5 bcd	5745 a-d	62.8 a	1515 b-e	7260 a-d
6	UREA	150	lb ai/A	4-5 leaf	84 de	78 de	37 a	47.4 cde	5287 cde	62.4 a	1444 c-f	6731 cde
7	UREA	180	lb ai/A	4-5 leaf	85 bc	79 bc	39 a	46.4 g	4452 fgh	62.3 a	1222 f	5674 fg
8	UREA	210	lb ai/A	4-5 leaf	86 a	80 a	38 a	46.6 fg	4144 gh	62.3 a	1314 def	5459 g
9	UREA	240	lb ai/A	4-5 leaf	85 ab	79 ab	38 a	46.4 g	4012 h	62.4 a	1298 ef	5310 g
10	UREA	45	lb ai/A	4-5 leaf	80 h	74 h	36 a	47.9 ab	5849 abc	62.8 a	1557 bcd	7405 abc
	UREA	45	lb ai/A	PD								
11	UREA	75	lb ai/A	4-5 leaf	83 def	77 def	37 a	47.7 abc	5495 b-e	62.6 a	1410 c-f	6905 b-e
	UREA	45	lb ai/A	PD								
12	UREA	105	lb ai/A	4-5 leaf	84 de	78 de	39 a	47.1 def	5131 def	62.7 a	1376 c-f	6507 def
	UREA	45	lb ai/A	PD								
13	UREA	135	lb ai/A	4-5 leaf	84 cd	78 cd	37 a	47.0 ef	4812 efg	62.7 a	1343 def	6155 efg
	UREA	45	lb ai/A	PD								
14	UREA	75	lb ai/A	4-5 leaf	83 fg	77 fg	37 a	47.6 abc	5489 b-e	62.5 a	1413 c-f	6902 b-e
	SBNR-UREA	0	lb ai/A	PD								
15	UREA	105	lb ai/A	4-5 leaf	83 def	77 def	37 a	47.4 b-e	5573 bcd	62.7 a	1479 cde	7052 bcd
	SBNR-UREA	0	lb ai/A	PD								
LSD (P=.05)					0.9	0.9	2.6	0.5	705.0	0.6	251.0	892.4
Standard Deviation					0.7	0.7	1.6	0.4	493.3	0.4	175.7	624.4
CV					0.8	0.9	4.2	0.8	9.2	0.6	11.9	9.2
Treatment F					32.3	32.3	1.5	9.5	8.3	1.2	3.6	7.7
Treatment Prob(F)					0.0001	0.0001	0.1758	0.0001	0.0001	0.3316	0.0007	0.0001

Continued.

Table 5. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue	Grain	N Uptake	N Uptake
Part Rated					Abvgrd -	Abvgrd -	@Harv -	Total -	Total -
Rating Date					6/19/2012	6/19/2012		6/19/2012	
Rating Type					Biomass	N	N	N	N
Rating Unit					lb/A	%	%	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Crop Stage Scale					50% HD	50% HD	Grain	50% HD	Grain
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	6110 c	1.06 h	1.04 a	65 i	64 a
2	UREA	30	lb ai/A	4-5 leaf	8659 b	1.13 gh	1.14 a	96 hi	72 a
3	UREA	60	lb ai/A	4-5 leaf	8790 ab	1.57 ef	1.07 a	139 fg	58 a
4	UREA	90	lb ai/A	4-5 leaf	9707 ab	1.71 de	1.17 a	167 def	70 a
5	UREA	120	lb ai/A	4-5 leaf	9051 ab	1.77 cde	1.09 a	160 ef	62 a
6	UREA	150	lb ai/A	4-5 leaf	8436 b	1.92 cd	1.10 a	162 def	58 a
7	UREA	180	lb ai/A	4-5 leaf	10175 a	2.19 b	1.23 a	222 bc	55 a
8	UREA	210	lb ai/A	4-5 leaf	9792 ab	2.46 a	4.30 a	240 ab	201 a
9	UREA	240	lb ai/A	4-5 leaf	9900 ab	2.61 a	1.15 a	258 a	46 a
10	UREA	45	lb ai/A	4-5 leaf	8521 b	1.38 fg	1.05 a	118 gh	61 a
	UREA	45	lb ai/A	PD					
11	UREA	75	lb ai/A	4-5 leaf	9410 ab	1.57 ef	1.10 a	147 fg	60 a
	UREA	45	lb ai/A	PD					
12	UREA	105	lb ai/A	4-5 leaf	9616 ab	2.03 bc	1.17 a	195 cd	60 a
	UREA	45	lb ai/A	PD					
13	UREA	135	lb ai/A	4-5 leaf	9488 ab	1.97 bc	1.11 a	188 de	53 a
	UREA	45	lb ai/A	PD					
14	UREA	75	lb ai/A	4-5 leaf	9211 ab	1.62 ef	1.06 a	150 fg	58 a
	SBNR-UREA	0	lb ai/A	PD					
15	UREA	105	lb ai/A	4-5 leaf	8833 ab	1.65 e	1.02 a	146 fg	57 a
	SBNR-UREA	0	lb ai/A	PD					
LSD (P=.05)					1468.4	0.3	2.3	33.7	114.1
Standard Deviation					1027.5	0.2	1.6	23.6	79.9
CV					11.4	10.2	120.5	14.4	115.6
Treatment F					3.6	23.5	1.1	19.3	0.9
Treatment Prob(F)					0.0007	0.0001	0.3986	0.0001	0.6092

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

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

Table 6. Determine the agronomic response of drill-seeded CL261 to nitrogen fertilizer rate and time of application (3.2). Evaluate greenseeker technology. Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/25/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	87 fg	81 fg	34 de	47.5 ab	6693 a-d	44.6 a	2117 a	8811 a-d
2	UREA	30	lb ai/A	4-5 leaf	86 g	80 g	34 e	47.5 a	6879 ab	44.5 a	2164 a	9043 ab
3	UREA	60	lb ai/A	4-5 leaf	87 efg	81 efg	36 cde	47.2 a-d	6806 abc	44.3 a	1980 a	8786 a-e
4	UREA	90	lb ai/A	4-5 leaf	88 cde	82 cde	37 abc	46.7 c-f	6788 abc	44.6 a	2134 a	8922 a-d
5	UREA	120	lb ai/A	4-5 leaf	88 bcd	82 bcd	38 abc	46.5 efg	6662 a-d	44.7 a	2012 a	8673 b-f
6	UREA	150	lb ai/A	4-5 leaf	89 ab	83 ab	38 ab	46.7 c-f	6202 ef	44.5 a	2191 a	8394 ef
7	UREA	180	lb ai/A	4-5 leaf	89 abc	83 abc	39 a	45.9 hi	5870 f	44.2 a	2013 a	7882 g
8	UREA	210	lb ai/A	4-5 leaf	89 ab	83 ab	38 abc	46.1 ghi	5448 g	44.5 a	2046 a	7494 g
9	UREA	240	lb ai/A	4-5 leaf	90 a	84 a	38 ab	45.8 i	4954 h	44.0 a	2036 a	6990 h
10	UREA	45	lb ai/A	4-5 leaf	87 d-g	81 d-g	36 bcd	47.3 abc	6994 a	44.8 a	2166 a	9160 a
	UREA	45	lb ai/A	PD								
11	UREA	75	lb ai/A	4-5 leaf	88 bcd	82 bcd	36 cde	46.8 cde	6649 bcd	44.8 a	2067 a	8715 b-f
	UREA	45	lb ai/A	PD								
12	UREA	105	lb ai/A	4-5 leaf	89 ab	83 ab	37 abc	46.5 e-h	6448 de	44.3 a	2061 a	8509 def
	UREA	45	lb ai/A	PD								
13	UREA	135	lb ai/A	4-5 leaf	89 ab	83 ab	38 abc	46.2 f-i	6231 e	44.5 a	2087 a	8317 f
	UREA	45	lb ai/A	PD								
14	UREA	75	lb ai/A	4-5 leaf	88 def	82 def	37 abc	46.9 b-e	6874 ab	44.1 a	2118 a	8991 abc
	SBNR-UREA	0	lb ai/A	PD								
15	UREA	105	lb ai/A	4-5 leaf	88 bcd	82 bcd	37 abc	46.6 d-g	6526 cde	44.8 a	2102 a	8628 c-f
	SBNR-UREA	0	lb ai/A	PD								
LSD (P=.05)					1.1	1.1	2.1	0.6	334.5	0.8	192.3	414.0
Standard Deviation					0.8	0.8	1.3	0.4	234.1	0.5	134.6	289.7
CV					0.9	0.9	3.4	0.9	3.7	1.2	6.5	3.4
Treatment F					8.4	8.4	3.7	6.2	24.5	0.8	0.9	17.5
Treatment Prob(F)					0.0001	0.0001	0.0014	0.0001	0.0001	0.6837	0.5913	0.0001

Continued.

Table 6. Continued.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					Tissue		Tissue		Grain		N Uptake		N Uptake	
Part Rated					Abvgrd -		Abvgrd -		@Harv -		Total -		Total -	
Rating Date					6/26/2012		6/26/2012				6/26/2012			
Rating Type					Biomass		N		N		N		N	
Rating Unit					lb/A		%		%		lb/A		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main	
Crop Stage Scale					50% HD		50% HD		Grain		50% HD		Grain	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	UREA	0	lb ai/A	4-5 leaf	8067	a	1.05	j	1.18	ef	84	i	79	b-e
2	UREA	30	lb ai/A	4-5 leaf	9360	a	1.12	ij	1.13	f	103	hi	78	cde
3	UREA	60	lb ai/A	4-5 leaf	9362	a	1.29	hij	1.17	ef	121	ghi	79	a-e
4	UREA	90	lb ai/A	4-5 leaf	11597	a	1.42	e-h	1.31	bcd	165	d-g	89	ab
5	UREA	120	lb ai/A	4-5 leaf	9154	a	1.78	cd	1.34	ab	164	d-g	89	a
6	UREA	150	lb ai/A	4-5 leaf	10135	a	1.76	cd	1.26	b-e	176	cde	77	cde
7	UREA	180	lb ai/A	4-5 leaf	10522	a	2.20	ab	1.31	abc	234	a	77	cde
8	UREA	210	lb ai/A	4-5 leaf	10371	a	2.14	ab	1.35	ab	219	abc	74	de
9	UREA	240	lb ai/A	4-5 leaf	9378	a	2.38	a	1.43	a	223	ab	71	e
10	UREA	45	lb ai/A	4-5 leaf	8775	a	1.38	f-i	1.21	c-f	124	f-i	85	abc
	UREA	45	lb ai/A	PD										
11	UREA	75	lb ai/A	4-5 leaf	10848	a	1.65	def	1.21	c-f	179	b-e	81	a-e
	UREA	45	lb ai/A	PD										
12	UREA	105	lb ai/A	4-5 leaf	10728	a	1.58	d-g	1.28	b-e	170	def	83	a-d
	UREA	45	lb ai/A	PD										
13	UREA	135	lb ai/A	4-5 leaf	10326	a	1.98	bc	1.33	abc	208	a-d	83	a-d
	UREA	45	lb ai/A	PD										
14	UREA	75	lb ai/A	4-5 leaf	10631	a	1.35	ghi	1.19	def	143	e-h	82	a-d
	SBNR-UREA	0	lb ai/A	PD										
15	UREA	105	lb ai/A	4-5 leaf	9918	a	1.67	de	1.25	b-f	164	d-g	81	a-d
	SBNR-UREA	0	lb ai/A	PD										
LSD (P=.05)					2044.1		0.3		0.1		46.9		10.0	
Standard Deviation					1430.4		0.2		0.1		32.8		7.0	
CV					14.4		12.1		6.8		19.9		8.7	
Treatment F					1.7		15.9		3.7		7.4		2.0	
Treatment Prob(F)					0.1038		0.0001		0.0006		0.0001		0.0426	

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

Table 7. Determine the agronomic response of drill-seeded Caffey to nitrogen fertilizer rate and time of application (2.2). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/25/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	90 g	84 g	32 e	45.6 a	7282 cde	42.5 b-e	2736 ab	10017 cd
2	UREA	30	lb ai/A	4-5 leaf	90 fg	84 fg	34 d	45.4 ab	8033 a-d	42.1 e	2598 abc	10632 abc
3	UREA	60	lb ai/A	4-5 leaf	91 efg	85 efg	36 cd	44.8 bc	8550 a	42.2 de	2853 a	11403 a
4	UREA	90	lb ai/A	4-5 leaf	92 def	86 def	36 bcd	44.5 cd	8453 a	42.0 e	2659 abc	11112 ab
5	UREA	120	lb ai/A	4-5 leaf	93 bcd	87 bcd	38 abc	44.2 cd	8072 abc	42.4 b-e	2802 a	10873 abc
6	UREA	150	lb ai/A	4-5 leaf	95 ab	89 ab	39 a	43.8 d	6942 e	42.8 b	2528 bcd	9470 d
7	UREA	180	lb ai/A	4-5 leaf	95 a	89 a	39 a	44.6 c	6905 e	42.7 bcd	2447 cd	9353 d
8	UREA	210	lb ai/A	4-5 leaf	94 abc	88 abc	38 ab	44.5 c	5779 f	43.4 a	2298 d	8077 e
9	UREA	45	lb ai/A	4-5 leaf	91 d-g	85 d-g	35 d	45.3 ab	8465 a	42.3 cde	2841 a	11306 a
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	93 bcd	87 bcd	36 cd	44.4 cd	8196 ab	42.0 e	2767 ab	10963 ab
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	93 cde	87 cde	38 abc	44.5 c	7427 b-e	42.8 bc	2831 a	10258 bcd
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	95 ab	89 ab	39 a	43.8 d	7239 de	42.9 ab	2794 ab	10033 cd
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.9	1.9	2.3	0.7	809.1	0.6	269.3	923.5
Standard Deviation					1.3	1.3	1.3	0.5	560.3	0.4	186.5	639.5
CV					1.4	1.5	3.7	1.1	7.4	0.9	7.0	6.2
Treatment F					7.9	7.9	7.7	5.9	8.8	4.9	3.6	9.3
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0020	0.0001

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

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

Table 8. Determine the agronomic response of drill-seeded Jazzman-2 to nitrogen fertilizer rate and time of application (3.2). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/25/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	87 d	81 d	30 e	44.8 a	5030 f	43.4 a	2367 a	7398 e
2	UREA	30	lb ai/A	4-5 leaf	88 cd	82 cd	31 de	44.2 a-d	5533 de	43.4 a	2183 a	7717 de
3	UREA	60	lb ai/A	4-5 leaf	87 d	81 d	33 abc	44.3 abc	6238 a	43.9 a	2381 a	8619 a
4	UREA	90	lb ai/A	4-5 leaf	88 bcd	82 bcd	32 bcd	43.8 cde	6197 ab	43.7 a	2253 a	8449 ab
5	UREA	120	lb ai/A	4-5 leaf	89 ab	83 ab	32 bcd	43.6 de	6085 abc	43.3 a	2345 a	8430 ab
6	UREA	150	lb ai/A	4-5 leaf	90 a	84 a	33 ab	42.5 f	5506 e	43.7 a	2264 a	7770 cde
7	UREA	180	lb ai/A	4-5 leaf	89 ab	83 ab	33 ab	43.4 e	5977 a-d	43.8 a	2305 a	8282 abc
8	UREA	210	lb ai/A	4-5 leaf	90 a	84 a	34 a	43.3 e	5644 cde	43.6 a	2361 a	8005 bcd
9	UREA	45	lb ai/A	4-5 leaf	87 d	81 d	32 cde	44.5 ab	5752 b-e	43.5 a	2479 a	8231 a-d
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	89 bc	83 bc	32 bcd	43.9 b-e	5998 abc	43.5 a	2366 a	8364 ab
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	88 bcd	82 bcd	33 bc	43.8 b-e	5956 a-e	43.6 a	2429 a	8385 ab
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	90 a	84 a	33 ab	43.5 e	5863 a-e	43.6 a	2309 a	8172 a-d
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.2	1.2	1.5	0.7	458.1	0.5	276.0	537.9
Standard Deviation					0.8	0.8	0.9	0.5	317.3	0.3	191.1	372.5
CV					0.9	1.0	2.7	1.0	5.5	0.7	8.2	4.6
Treatment F					7.2	7.2	4.7	7.1	4.7	1.1	0.7	3.8
Treatment Prob(F)					0.0001	0.0001	0.0009	0.0001	0.0003	0.4218	0.7232	0.0015

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

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

Table 9. Determine the agronomic response of drill-seeded Della2 to nitrogen fertilizer rate and time of application (3.2). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/25/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	88 cd	82 cd	34 f	44.9 a	5270 f	43.9 a	2638 a	7908 e
2	UREA	30	lb ai/A	4-5 leaf	88 cd	82 cd	34 ef	44.9 ab	5979 de	44.0 a	2489 a	8468 cd
3	UREA	60	lb ai/A	4-5 leaf	89 cd	83 cd	35 cde	44.6 abc	6604 abc	43.9 a	2571 a	9175 a
4	UREA	90	lb ai/A	4-5 leaf	90 abc	84 abc	35 def	44.4 c	6454 abc	43.6 a	2569 a	9022 ab
5	UREA	120	lb ai/A	4-5 leaf	89 bcd	83 bcd	36 cd	43.8 d	6618 ab	43.3 a	2432 a	9050 ab
6	UREA	150	lb ai/A	4-5 leaf	91 ab	85 ab	37 ab	43.3 e	6277 b-e	43.7 a	2542 a	8819 a-d
7	UREA	180	lb ai/A	4-5 leaf	91 ab	85 ab	37 ab	43.7 de	6445 a-d	43.8 a	2533 a	8978 abc
8	UREA	210	lb ai/A	4-5 leaf	91 a	85 a	38 a	43.5 de	5861 e	43.9 a	2559 a	8420 de
9	UREA	45	lb ai/A	4-5 leaf	88 d	82 d	34 f	44.9 ab	6373 a-d	44.0 a	2552 a	8925 a-d
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	89 bcd	83 bcd	35 cde	44.5 bc	6377 a-d	43.7 a	2646 a	9023 ab
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	90 abc	84 abc	36 cd	44.2 c	6757 a	43.9 a	2526 a	9283 a
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	90 ab	84 ab	36 bc	43.5 de	6135 cde	43.9 a	2494 a	8629 bcd
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.3	1.3	1.6	0.4	472.8	0.5	228.8	528.0
Standard Deviation					0.9	0.9	1.0	0.3	327.4	0.4	158.5	365.7
CV					1.0	1.1	2.7	0.7	5.2	0.8	6.2	4.2
Treatment F					4.5	4.5	7.3	17.8	6.2	1.2	0.6	4.5
Treatment Prob(F)					0.0004	0.0004	0.0001	0.0001	0.0001	0.3508	0.8387	0.0004

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

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

Table 10. Determine the agronomic response of drill-seeded Mermentau to nitrogen fertilizer rate and time of application (3.2). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/25/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	80 h	74 h	33 ef	45.7 a	6707 e	43.9 a	2731 a	9438 e
2	UREA	30	lb ai/A	4-5 leaf	81 gh	75 gh	32 f	45.6 ab	7551 d	43.9 a	2888 a	10440 d
3	UREA	60	lb ai/A	4-5 leaf	82 fg	76 fg	34 cde	45.1 bc	8305 ab	43.3 a	2933 a	11238 abc
4	UREA	90	lb ai/A	4-5 leaf	83 de	77 de	35 bcd	45.0 cde	8364 ab	43.4 a	2812 a	11176 abc
5	UREA	120	lb ai/A	4-5 leaf	84 cd	78 cd	35 bcd	45.0 cd	8446 a	43.2 a	2982 a	11428 a
6	UREA	150	lb ai/A	4-5 leaf	85 bc	79 bc	37 ab	44.5 ef	8458 a	43.8 a	3024 a	11481 a
7	UREA	180	lb ai/A	4-5 leaf	86 a	80 a	36 bc	44.5 def	8470 a	44.0 a	3010 a	11480 a
8	UREA	210	lb ai/A	4-5 leaf	86 abc	80 abc	38 a	44.3 f	7813 cd	44.0 a	2882 a	10695 cd
9	UREA	45	lb ai/A	4-5 leaf	82 efg	76 efg	34 def	44.7 c-f	7971 bc	43.5 a	2847 a	10818 bcd
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	83 de	77 de	35 cde	45.2 abc	8531 a	43.8 a	2924 a	11455 a
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	83 ef	77 ef	35 bcd	45.1 bc	8677 a	43.4 a	2863 a	11540 a
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	86 ab	80 ab	36 bc	44.3 f	8280 ab	43.9 a	3037 a	11318 ab
	UREA	45	lb ai/A	PD								
LSD (P=.05)					1.3	1.3	1.9	0.5	406.7	0.6	291.0	559.8
Standard Deviation					0.9	0.9	1.1	0.4	281.6	0.4	201.5	387.7
CV					1.1	1.2	3.3	0.8	3.5	1.0	6.9	3.5
Treatment F					19.7	19.7	5.6	6.5	15.5	1.8	0.8	10.1
Treatment Prob(F)					0.0001	0.0001	0.0003	0.0001	0.0001	0.0976	0.6000	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 11. Determine the agronomic response of drill-seeded LA2128 to nitrogen fertilizer rate and time of application (1.2). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd						
Rating Date							7/25/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	UREA	0	lb ai/A	4-5 leaf	81 d	75 d	33 d	47.2 a	7360 de	44.7 a	2759 a	10119 fg
2	UREA	30	lb ai/A	4-5 leaf	83 d	77 d	33 cd	46.9 ab	7841 abc	44.4 abc	2902 a	10743 abc
3	UREA	60	lb ai/A	4-5 leaf	86 c	80 c	35 bcd	46.6 ab	8153 a	44.5 abc	2912 a	11064 a
4	UREA	90	lb ai/A	4-5 leaf	86 c	80 c	35 abc	46.4 bc	8056 ab	44.5 abc	2946 a	11002 a
5	UREA	120	lb ai/A	4-5 leaf	88 abc	82 abc	35 abc	46.1 cd	7818 bc	44.3 a-d	2936 a	10754 abc
6	UREA	150	lb ai/A	4-5 leaf	89 ab	83 ab	35 abc	45.5 de	7479 d	44.1 cd	2844 a	10324 def
7	UREA	180	lb ai/A	4-5 leaf	87 bc	81 bc	36 ab	45.6 de	7525 cd	44.4 abc	2969 a	10494 cde
8	UREA	210	lb ai/A	4-5 leaf	90 a	84 a	38 a	45.3 e	7135 e	44.7 a	2760 a	9895 g
9	UREA	45	lb ai/A	4-5 leaf	86 c	80 c	35 bcd	46.9 ab	8043 ab	44.2 bcd	2830 a	10872 ab
	UREA	45	lb ai/A	PD								
10	UREA	75	lb ai/A	4-5 leaf	87 bc	81 bc	36 abc	46.4 bc	7948 ab	44.6 ab	2917 a	10865 abc
	UREA	45	lb ai/A	PD								
11	UREA	105	lb ai/A	4-5 leaf	88 abc	82 abc	34 bcd	46.4 bc	7862 ab	44.0 d	2738 a	10600 bcd
	UREA	45	lb ai/A	PD								
12	UREA	135	lb ai/A	4-5 leaf	88 abc	82 abc	36 abc	45.5 e	7260 de	44.5 abc	2917 a	10177 efg
	UREA	45	lb ai/A	PD								
LSD (P=.05)					2.3	2.3	2.4	0.6	329.4	0.4	233.1	374.5
Standard Deviation					1.6	1.6	1.4	0.4	228.1	0.3	161.4	259.3
CV					1.8	2.0	4.0	0.8	3.0	0.7	5.6	2.5
Treatment F					9.2	9.2	2.5	10.6	8.9	2.1	1.0	8.4
Treatment Prob(F)					0.0001	0.0001	0.0349	0.0001	0.0001	0.0500	0.4708	0.0001

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

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

Rice Hybrid (LAH10) by Nitrogen Experiment at Vermilion Parish

Experiment number ....: 12-VP-14

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

Soil type ....: Kaplan silt loam
- **% organic matter** ....: 1.23
- **pH** ....: 4.78
- **Extractable nutrients** ppm ....: Ca-963; Cu-1.3; Mg-240; P-11.5; K-197; Na-82; S-22.7; Zn-2.2

Crop/Variety ....: Rice / LAH10
- **Planting method/date** ....: Drill seeded / March 28
- **Seeding rate/depth** ....: 14 seeds/ft^2 / .5 inch
- **Emergence date** ....: April 3
- **Harvest date** ....: August 2
- **Ratoon Harvest date** ....: October 25

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

Fertilization ....: 60 lb/A P_2O_5 with Command, Preplant
90 lb N/A 46-0-0, August 8

Water management ....:
- **Flush** ....: None
- **Flood** ....: April 26
- **Drain** ....: July 18
- **Ratoon flood** ....: August 9
- **Ratoon drain** ....: October 12

Pest management ....:
- **Herbicides** ....: 2 qt/A Propanil + 2 qt/A Rice Beaux + 1.5 oz/A Londax, April 19
2 pt/A Basagran + 1% COC, August 3
- **Insecticides** ....: None
- **Fungicides** ....: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt + 1 pt/A Headset, June 15

Table 12. Determine the agronomic response of drill-seeded LAH10 to nitrogen fertilizer rate and time of application (2.2). Vermilion Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd								
Rating Date							7/25/2012	8/2/2012		8/2/2012	8/2/2012	10/25/2012	10/25/2012	
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	UREA	0	lb ai/A	4-5 leaf	93 a	87 a	47 a	39 a	2 a	43.5 a	8966 d	45.3 a	2928 a	11894 d
2	UREA	30	lb ai/A	4-5 leaf	93 a	87 a	46 a	69 a	2 a	42.7 a	9925 cd	45.2 a	3007 a	12931 cd
3	UREA	60	lb ai/A	4-5 leaf	92 a	86 a	47 a	69 a	2 a	42.9 a	10822 abc	45.0 a	2959 a	13781 abc
4	UREA	90	lb ai/A	4-5 leaf	93 a	87 a	48 a	53 a	2 a	42.5 a	10890 abc	45.2 a	3010 a	13901 abc
5	UREA	120	lb ai/A	4-5 leaf	92 a	86 a	49 a	47 a	1 a	42.2 a	11422 a	44.3 a	3321 a	14743 a
6	UREA	150	lb ai/A	4-5 leaf	92 a	86 a	48 a	57 a	1 a	42.5 a	11034 ab	44.6 a	3353 a	14387 ab
7	UREA	180	lb ai/A	4-5 leaf	93 a	87 a	49 a	43 a	2 a	42.4 a	10379 bc	44.7 a	3219 a	13598 bc
8	UREA	210	lb ai/A	4-5 leaf	92 a	86 a	46 a	60 a	3 a	42.9 a	10929 abc	44.7 a	3284 a	14213 ab
9	UREA	45	lb ai/A	4-5 leaf	94 a	88 a	48 a	19 a	1 a	43.4 a	10657 abc	45.3 a	2950 a	13606 abc
	UREA	45	lb ai/A	PD										
10	UREA	75	lb ai/A	4-5 leaf	93 a	87 a	47 a	43 a	2 a	43.0 a	11501 a	45.3 a	3105 a	14605 ab
	UREA	45	lb ai/A	PD										
11	UREA	105	lb ai/A	4-5 leaf	93 a	87 a	49 a	9 a	1 a	42.3 a	11052 ab	45.4 a	3205 a	14257 ab
	UREA	45	lb ai/A	PD										
12	UREA	135	lb ai/A	4-5 leaf	93 a	87 a	49 a	40 a	3 a	42.9 a	10904 abc	44.9 a	3215 a	14119 ab
	UREA	45	lb ai/A	PD										
LSD (P=.05)					1.7	1.7	2.8	56.5	2.3	1.2	1027.1	0.8	396.5	1145.0
Standard Deviation					1.2	1.2	1.7	31.4	1.3	0.9	711.3	0.6	274.6	793.0
CV					1.3	1.4	3.5	69.0	70.6	2.0	6.6	1.3	8.8	5.7
Treatment F					0.5	0.5	1.3	1.0	1.0	0.9	3.8	1.5	1.3	3.9
Treatment Prob(F)					0.8583	0.8583	0.2744	0.51	0.51	0.5387	0.0015	0.1893	0.2834	0.0011

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

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

Rice Variety by Nitrogen Experiments at Franklin Parish

Experiment number	: Franklin Parish VxN Studies
Site and design	:
Location/Cooperator	: Franklin Parish/John Owens
Tillage type	: Spring Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Sharkey Clay
% organic matter	: 1.2
pH	: 6.1
Extractable nutrients ppm	: Ca-4,111; Cu-4.5; Mg-931; P-44; K-266; Na-54.5; S-8.1; Zn-2.4
Crop/Variety	: Rice / See Data Sheet
Planting method/date	: Drill seeded / April 11
Seeding rate/depth	: 40 seeds/ft^2 / .5 inch
Emergence date	: April 18
Harvest date	: August 21
Seed treatment/cwt	: Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	: None
Water management	:
Flush	: None
Flood	: May 17
Drain	: August 3
Pest management	:
Herbicides	: 1.5 qt/A Glyphosate, April 11 .67 lb/A Facet DF + 2 pt/A Prowl H_2O + 2 pt/A COC, May 1 .5 gal/A Rice Beaux + .5 gal/A Propanil, May 15 .75 oz/A Permit + 1 oz/A Londax, May 15
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: None

Table 13. Determine the agronomic response of drill-seeded CL152 to nitrogen fertilizer rate and time of application (2.4). Evaluate greenseeker technology. Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emerg-hd					
Rating Date							8/21/2012	8/21/2012		8/21/2012	8/21/2012
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	85 e	78 e	31 h	0 a	0 a	45.8 a	4137 h
2	UREA	30	lb ai/A	4-5 leaf	85 e	78 e	35 g	0 a	0 a	45.4 ab	4426 h
3	UREA	60	lb ai/A	4-5 leaf	88 cde	81 cde	39 ef	0 a	0 a	45.4 ab	7029 fg
4	UREA	90	lb ai/A	4-5 leaf	91 abc	84 abc	41 cde	0 a	0 a	45.2 abc	8001 def
5	UREA	120	lb ai/A	4-5 leaf	89 bcd	82 bcd	41 bcd	0 a	0 a	44.8 b-f	9329 abc
6	UREA	150	lb ai/A	4-5 leaf	92 ab	85 ab	43 a-d	0 a	0 a	44.6 def	9215 a-d
7	UREA	180	lb ai/A	4-5 leaf	93 ab	86 ab	44 a	0 a	0 a	44.8 c-f	9851 a
8	UREA	210	lb ai/A	4-5 leaf	93 ab	86 ab	43 ab	0 a	0 a	44.3 ef	9700 ab
9	UREA	240	lb ai/A	4-5 leaf	94 a	87 a	44 a	20 a	1 a	44.2 f	9268 a-d
10	UREA	45	lb ai/A	4-5 leaf	86 de	79 de	38 f	0 a	0 a	45.8 a	6612 g
	UREA	45	lb ai/A	PD							
11	UREA	75	lb ai/A	4-5 leaf	89 bcd	82 bcd	41 de	0 a	0 a	44.9 b-e	8459 b-e
	UREA	45	lb ai/A	PD							
12	UREA	105	lb ai/A	4-5 leaf	91 abc	84 abc	43 a-d	0 a	0 a	45.0 bcd	8923 a-e
	UREA	45	lb ai/A	PD							
13	UREA	135	lb ai/A	4-5 leaf	93 ab	86 ab	43 abc	0 a	0 a	45.2 a-d	9536 abc
	UREA	45	lb ai/A	PD							
14	UREA	75	lb ai/A	4-5 leaf	90 bc	83 bc	41 de	0 a	0 a	45.0 bcd	7648 efg
	SBNR-UREA	0	lb ai/A	PD							
15	UREA	105	lb ai/A	4-5 leaf	88 cde	81 cde	43 ab	0 a	0 a	44.8 c-f	8274 c-f
	SBNR-UREA	0	lb ai/A	PD							
LSD (P=.05)					3.8	3.8	2.2	14.8	0.7	0.6	1319.3
Standard Deviation					2.6	2.6	1.5	10.3	0.5	0.4	923.2
CV					2.9	3.2	3.7	774.6	774.6	1.0	11.5
Treatment F					5.2	5.2	21.6	1.0	1.0	4.6	15.2
Treatment Prob(F)					0.0001	0.0001	0.0001	0.4708	0.4708	0.0001	0.0001

Continued.

Table 13. Continued.

					Rice		Rice		Rice		Rice		Rice	
Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					Tissue		Tissue		Grain		N Uptake		N Uptake	
Part Rated					Abvgrd -		Abvgrd -		@Harv -		Total -		Total -	
Rating Date					7/12/2012		7/12/2012				7/12/2012			
Rating Type					Biomass		N		N		N		N	
Rating Unit					lb/A		%		%		lb/A		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main	
Crop Stage Scale					50% HD		50% HD		Grain		50% HD		Grain	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	UREA	0	lb ai/A	4-5 leaf	7763	d	0.84	g	1.19	de	65	f	49	g
2	UREA	30	lb ai/A	4-5 leaf	10386	c	0.94	fg	1.16	e	98	ef	52	g
3	UREA	60	lb ai/A	4-5 leaf	12548	bc	1.16	b-g	1.18	de	142	cde	83	ef
4	UREA	90	lb ai/A	4-5 leaf	14993	a	1.12	c-g	1.21	de	166	bcd	97	de
5	UREA	120	lb ai/A	4-5 leaf	13743	ab	1.16	b-g	1.24	bcd	160	b-e	116	abc
6	UREA	150	lb ai/A	4-5 leaf	13858	ab	1.29	b-f	1.23	cd	176	bcd	113	abc
7	UREA	180	lb ai/A	4-5 leaf	12249	bc	1.36	b-e	1.27	abc	163	bcd	125	a
8	UREA	210	lb ai/A	4-5 leaf	13400	ab	1.57	b	1.31	a	210	ab	127	a
9	UREA	240	lb ai/A	4-5 leaf	12339	bc	2.18	a	1.30	ab	265	a	121	ab
10	UREA	45	lb ai/A	4-5 leaf	11915	bc	0.98	efg	1.18	de	118	def	78	f
	UREA	45	lb ai/A	PD										
11	UREA	75	lb ai/A	4-5 leaf	13507	ab	1.51	bc	1.22	cde	213	ab	103	cd
	UREA	45	lb ai/A	PD										
12	UREA	105	lb ai/A	4-5 leaf	12547	bc	1.31	b-f	1.22	cde	163	bcd	109	bcd
	UREA	45	lb ai/A	PD										
13	UREA	135	lb ai/A	4-5 leaf	14052	ab	1.50	bc	1.24	bcd	210	ab	118	abc
	UREA	45	lb ai/A	PD										
14	UREA	75	lb ai/A	4-5 leaf	12636	b	1.08	d-g	1.22	cde	137	cde	93	def
	SBNR-UREA	0	lb ai/A	PD										
15	UREA	105	lb ai/A	4-5 leaf	13435	ab	1.42	bcd	1.24	bcd	190	bc	102	cd
	SBNR-UREA	0	lb ai/A	PD										
LSD (P=.05)					2233.4		0.4		0.1		62.8		16.3	
Standard Deviation					1562.8		0.3		0.0		43.9		11.4	
CV					12.4		22.5		3.8		26.6		11.5	
Treatment F					4.9		5.1		3.3		5.2		18.5	
Treatment Prob(F)					0.0001		0.0001		0.0012		0.0001		0.0001	

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

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

Table 14. Determine the agronomic response of drill-seeded CL162 to nitrogen fertilizer rate and time of application (2.4). Evaluate greenseeker technology. Franklin Parish.

Crop Name					Rice		Rice		Rice		Rice				Rice		Rice	
Description					plant-hd		emerg-hd											
Rating Date									8/21/2012		8/21/2012				8/21/2012		8/21/2012	
Rating Type					50% HD		50% HD		Height		Lodge				Test Wt.		Yield	
Rating Unit					days		days		in		% plot		rate		lb/bu		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main		Main		Main	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage														
1	UREA	0	lb ai/A	4-5 leaf	83	h	76	h	35	f	.		.		45.9	a	5852	d
2	UREA	30	lb ai/A	4-5 leaf	83	gh	76	gh	37	e	32	cd	2	cd	45.6	a	6747	cd
3	UREA	60	lb ai/A	4-5 leaf	85	ef	78	ef	44	abc	.		.		45.5	a	8441	ab
4	UREA	90	lb ai/A	4-5 leaf	86	def	79	def	43	cd	22	d	2	d	46.6	a	8778	ab
5	UREA	120	lb ai/A	4-5 leaf	86	c-f	79	c-f	44	abc	61	abc	3	ab	46.7	a	8852	ab
6	UREA	150	lb ai/A	4-5 leaf	88	abc	81	abc	44	abc	48	bcd	3	ab	43.8	a	9061	ab
7	UREA	180	lb ai/A	4-5 leaf	87	a-d	80	a-d	46	a	68	ab	3	ab	45.6	a	8942	ab
8	UREA	210	lb ai/A	4-5 leaf	88	a	81	a	46	a	73	ab	3	a	44.5	a	9210	a
9	UREA	240	lb ai/A	4-5 leaf	88	ab	81	ab	46	a	80	ab	3	ab	43.6	a	8171	abc
10	UREA	45	lb ai/A	4-5 leaf	85	fg	78	fg	41	d	.		.		46.5	a	7431	bcd
	UREA	45	lb ai/A	PD														
11	UREA	75	lb ai/A	4-5 leaf	85	efg	78	efg	43	bc	19	d	2	d	45.0	a	8518	ab
	UREA	45	lb ai/A	PD														
12	UREA	105	lb ai/A	4-5 leaf	86	b-f	79	b-f	46	a	73	ab	3	ab	45.9	a	9044	ab
	UREA	45	lb ai/A	PD														
13	UREA	135	lb ai/A	4-5 leaf	87	a-e	80	a-e	45	ab	62	abc	3	bc	46.6	a	9660	a
	UREA	45	lb ai/A	PD														
14	UREA	75	lb ai/A	4-5 leaf	86	c-f	79	c-f	42	cd	85	a	3	ab	45.7	a	8433	ab
	SBNR-UREA	0	lb ai/A	PD														
15	UREA	105	lb ai/A	4-5 leaf	87	a-e	80	a-e	44	abc	77	ab	3	ab	45.9	a	8184	abc
	SBNR-UREA	0	lb ai/A	PD														
LSD (P=.05)					1.8		1.8		2.1		34.1		0.6		2.7		1638.5	
Standard Deviation					1.3		1.3		1.5		22.4		0.4		1.9		1146.6	
CV					1.5		1.6		3.4		38.4		15.1		4.1		13.7	
Treatment F					6.5		6.5		19.5		4.2		6.0		1.1		3.0	
Treatment Prob(F)					0.0001		0.0001		0.0001		0.0086		0.0017		0.3965		0.0027	

Continued.

Table 14. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue	Grain	N Uptake	N Uptake
Part Rated					Abvgrd -	Abvgrd -	@Harv -	Total -	Total -
Rating Date					7/12/2012	7/12/2012		7/12/2012	
Rating Type					Biomass	N	N	N	N
Rating Unit					lb/A	%	%	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Crop Stage Scale					50% HD	50% HD	Grain	50% HD	Grain
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	9863 f	0.77 d	1.14 a	76 f	67 e
2	UREA	30	lb ai/A	4-5 leaf	11533 ef	0.74 d	1.17 a	86 ef	79 de
3	UREA	60	lb ai/A	4-5 leaf	13818 a-e	0.94 cd	1.23 a	128 def	104 ab
4	UREA	90	lb ai/A	4-5 leaf	14759 abc	1.09 bcd	1.16 a	160 b-e	102 abc
5	UREA	120	lb ai/A	4-5 leaf	13009 b-e	1.10 bcd	1.16 a	144 c-f	102 abc
6	UREA	150	lb ai/A	4-5 leaf	13987 a-d	1.11 bcd	1.21 a	156 b-f	110 ab
7	UREA	180	lb ai/A	4-5 leaf	15915 a	1.61 ab	1.31 a	255 a	118 a
8	UREA	210	lb ai/A	4-5 leaf	15262 ab	1.65 a	1.20 a	257 a	110 ab
9	UREA	240	lb ai/A	4-5 leaf	12878 cde	1.76 a	1.21 a	226 ab	97 bcd
10	UREA	45	lb ai/A	4-5 leaf	12257 de	1.29 abc	1.11 a	158 b-f	83 cde
	UREA	45	lb ai/A	PD					
11	UREA	75	lb ai/A	4-5 leaf	13456 b-e	1.07 cd	1.13 a	145 b-f	96 bcd
	UREA	45	lb ai/A	PD					
12	UREA	105	lb ai/A	4-5 leaf	14030 a-d	1.41 abc	1.21 a	200 a-d	109 ab
	UREA	45	lb ai/A	PD					
13	UREA	135	lb ai/A	4-5 leaf	14015 a-d	1.60 ab	1.22 a	223 abc	118 a
	UREA	45	lb ai/A	PD					
14	UREA	75	lb ai/A	4-5 leaf	14598 abc	0.94 cd	1.18 a	137 def	100 abc
	SBNR-UREA	0	lb ai/A	PD					
15	UREA	105	lb ai/A	4-5 leaf	14917 abc	0.64 d	1.16 a	101 ef	95 bcd
	SBNR-UREA	0	lb ai/A	PD					
LSD (P=.05)					2293.1	0.5	0.1	82.2	20.1
Standard Deviation					1604.6	0.4	0.1	57.5	14.0
CV					11.8	30.8	7.6	35.2	14.1
Treatment F					3.7	3.9	1.2	4.0	4.1
Treatment Prob(F)					0.0005	0.0003	0.3218	0.0002	0.0002

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

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

Table 15. Determine the agronomic response of drill-seeded CL261 to nitrogen fertilizer rate and time of application (3.4). Evaluate greenseeker technology. Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emerg-hd					
Rating Date							8/22/2012	8/22/2012		8/22/2012	8/22/2012
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	89 cd	82 cd	36 f	.	.	47.4 a	6879 f
2	UREA	30	lb ai/A	4-5 leaf	88 d	81 d	38 ef	.	.	47.6 a	7171 ef
3	UREA	60	lb ai/A	4-5 leaf	89 cd	82 cd	40 de	.	.	47.2 a	7557 c-f
4	UREA	90	lb ai/A	4-5 leaf	90 bc	83 bc	40 de	.	.	46.0 b-e	7520 c-f
5	UREA	120	lb ai/A	4-5 leaf	91 ab	84 ab	43 abc	.	.	46.2 b-e	8403 bcd
6	UREA	150	lb ai/A	4-5 leaf	91 ab	84 ab	44 ab	.	.	46.0 cde	8174 b-e
7	UREA	180	lb ai/A	4-5 leaf	92 a	85 a	44 ab	20 a	3 a	46.2 b-e	9041 ab
8	UREA	210	lb ai/A	4-5 leaf	93 a	86 a	44 ab	23 a	3 a	45.8 cde	9690 a
9	UREA	240	lb ai/A	4-5 leaf	92 a	85 a	45 a	50 a	3 a	45.4 e	8955 ab
10	UREA	45	lb ai/A	4-5 leaf	89 cd	82 cd	39 de	.	.	47.0 ab	7434 def
	UREA	45	lb ai/A	PD							
11	UREA	75	lb ai/A	4-5 leaf	89 cd	82 cd	41 cd	.	.	46.8 abc	7569 c-f
	UREA	45	lb ai/A	PD							
12	UREA	105	lb ai/A	4-5 leaf	90 bc	83 bc	43 abc	.	.	46.6 a-d	8674 abc
	UREA	45	lb ai/A	PD							
13	UREA	135	lb ai/A	4-5 leaf	91 ab	84 ab	44 ab	.	.	46.1 b-e	8638 abc
	UREA	45	lb ai/A	PD							
14	UREA	75	lb ai/A	4-5 leaf	90 bc	83 bc	42 bc	.	.	47.3 a	8362 bcd
	SBNR-UREA	0	lb ai/A	PD							
15	UREA	105	lb ai/A	4-5 leaf	90 bc	83 bc	43 abc	.	.	45.7 de	7941 b-f
	SBNR-UREA	0	lb ai/A	PD							
LSD (P=.05)					1.5	1.5	2.2	33.4	2.2	1.0	1173.4
Standard Deviation					1.1	1.1	1.5	11.0	0.7	0.7	821.1
CV					1.2	1.3	3.6	35.4	25.4	1.5	10.1
Treatment F					6.0	6.0	11.9	9.1	0.2	3.9	3.7
Treatment Prob(F)					0.0001	0.0001	0.0001	0.099	0.824	0.0003	0.0005

Continued.

Table 15. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue	Grain	N Uptake	N Uptake
Part Rated					Abvgrd -	Abvgrd -	@Harv -	Total -	Total -
Rating Date					7/12/2012	7/12/2012		7/12/2012	
Rating Type					Biomass	N	N	N	N
Rating Unit					lb/A	%	%	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Crop Stage Scale					50% HD	50% HD	Grain	50% HD	Grain
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	7719 c	0.87 g	1.19 bcd	67 e	83 ef
2	UREA	30	lb ai/A	4-5 leaf	10842 ab	0.89 fg	1.10 d	96 de	79 f
3	UREA	60	lb ai/A	4-5 leaf	10512 b	1.00 efg	1.16 cd	106 de	87 def
4	UREA	90	lb ai/A	4-5 leaf	10970 ab	1.08 d-g	1.20 a-d	120 d	90 def
5	UREA	120	lb ai/A	4-5 leaf	12688 ab	1.45 b	1.29 ab	184 b	109 abc
6	UREA	150	lb ai/A	4-5 leaf	12154 ab	1.46 b	1.24 abc	178 b	102 bcd
7	UREA	180	lb ai/A	4-5 leaf	12121 ab	1.92 a	1.29 ab	230 a	117 ab
8	UREA	210	lb ai/A	4-5 leaf	12469 ab	1.88 a	1.30 a	236 a	126 a
9	UREA	240	lb ai/A	4-5 leaf	12397 ab	1.88 a	1.28 ab	232 a	114 abc
10	UREA	45	lb ai/A	4-5 leaf	10863 ab	1.10 def	1.16 cd	120 d	86 def
	UREA	45	lb ai/A	PD					
11	UREA	75	lb ai/A	4-5 leaf	12336 ab	1.33 bc	1.20 bcd	167 bc	91 def
	UREA	45	lb ai/A	PD					
12	UREA	105	lb ai/A	4-5 leaf	12836 a	1.27 bcd	1.27 ab	163 bc	110 abc
	UREA	45	lb ai/A	PD					
13	UREA	135	lb ai/A	4-5 leaf	12789 a	1.28 bcd	1.16 cd	164 bc	100 b-e
	UREA	45	lb ai/A	PD					
14	UREA	75	lb ai/A	4-5 leaf	11300 ab	1.14 cde	1.19 bcd	128 cd	100 b-e
	SBNR-UREA	0	lb ai/A	PD					
15	UREA	105	lb ai/A	4-5 leaf	13055 a	1.39 b	1.22 abc	181 b	97 c-f
	SBNR-UREA	0	lb ai/A	PD					
LSD (P=.05)					2260.5	0.2	0.1	42.6	18.2
Standard Deviation					1581.8	0.2	0.1	29.8	12.8
CV					13.6	11.8	6.0	18.9	12.8
Treatment F					3.0	19.1	2.7	12.0	4.6
Treatment Prob(F)					0.0027	0.0001	0.0067	0.0001	0.0001

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

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

Table 16. Determine the agronomic response of drill-seeded Caffey to nitrogen fertilizer rate and time of application (2.4). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emerg-hd					
Rating Date							8/22/2012	8/22/2012		8/22/2012	8/22/2012
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					Days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	93 A	86 a	35 c	0 a	0 a	47.0 a	7395 g
2	UREA	30	lb ai/A	4-5 leaf	94 A	87 a	35 c	0 a	0 a	46.9 ab	9131 f
3	UREA	60	lb ai/A	4-5 leaf	94 A	87 a	37 bc	0 a	0 a	46.2 bcd	9926 e
4	UREA	90	lb ai/A	4-5 leaf	93 A	86 a	41 ab	0 a	0 a	45.9 cde	10933 cd
5	UREA	120	lb ai/A	4-5 leaf	94 A	87 a	42 a	0 a	0 a	45.8 def	11276 bcd
6	UREA	150	lb ai/A	4-5 leaf	95 A	88 a	42 a	20 a	1 a	45.2 fg	11786 ab
7	UREA	180	lb ai/A	4-5 leaf	95 A	88 a	43 a	20 a	1 a	45.4 efg	11887 ab
8	UREA	210	lb ai/A	4-5 leaf	94 A	87 a	40 ab	20 a	1 a	45.1 g	11543 abc
9	UREA	45	lb ai/A	4-5 leaf	93 A	86 a	37 bc	0 a	0 a	46.6 abc	10594 de
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	94 A	87 a	40 ab	0 a	0 a	45.9 cde	11350 bc
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	94 A	87 a	42 a	0 a	0 a	45.4 efg	11485 abc
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	95 A	88 a	42 a	0 a	0 a	45.4 efg	12122 a
	UREA	45	lb ai/A	PD							
LSD (P=.05)					2.0	2.0	4.0	28.6	0.9	0.7	741.4
Standard Deviation					1.4	1.4	2.8	19.8	0.6	0.5	513.5
CV					1.4	1.6	7.1	395.9	402.2	1.0	4.8
Treatment F					0.9	0.9	4.6	0.8	0.9	7.6	28.5
Treatment Prob(F)					0.5475	0.5475	0.0003	0.6077	0.5915	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 17. Determine the agronomic response of drill-seeded Jazzman-2 to nitrogen fertilizer rate and time of application (3.4). Franklin Parish.

Crop Name						Rice	Rice	Rice	Rice	Rice
Description						plant-hd	emerg-hd			
Rating Date								8/21/2012	8/21/2012	8/21/2012
Rating Type						50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit						days	days	in	lb/bu	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage	Appl Description					
1	UREA	0	lb ai/A	4-5 leaf	Preflood	92 cd	85 cd	30 g	45.5 abc	3895 f
2	UREA	30	lb ai/A	4-5 leaf	Preflood	92 d	85 d	36 f	45.9 a	5048 e
3	UREA	60	lb ai/A	4-5 leaf	Preflood	92 cd	85 cd	38 e	45.9 a	5881 d
4	UREA	90	lb ai/A	4-5 leaf	Preflood	93 bcd	86 bcd	41 bcd	46.0 a	6371 cd
5	UREA	120	lb ai/A	4-5 leaf	Preflood	94 ab	87 ab	40 cd	45.3 abc	7216 ab
6	UREA	150	lb ai/A	4-5 leaf	Preflood	93 abc	86 abc	42 ab	44.9 cd	7583 a
7	UREA	180	lb ai/A	4-5 leaf	Preflood	94 a	87 a	43 a	44.9 cd	7249 ab
8	UREA	210	lb ai/A	4-5 leaf	Preflood	95 a	88 a	42 abc	44.4 d	7886 a
9	UREA	45	lb ai/A	4-5 leaf	Preflood	92 bcd	85 bcd	38 e	45.5 abc	6017 cd
	UREA	45	lb ai/A	PD	Midseason					
10	UREA	75	lb ai/A	4-5 leaf	Preflood	93 abc	86 abc	40 d	45.8 ab	6654 bc
	UREA	45	lb ai/A	PD	Midseason					
11	UREA	105	lb ai/A	4-5 leaf	Preflood	93 bcd	86 bcd	41 bcd	45.7 abc	7325 ab
	UREA	45	lb ai/A	PD	Midseason					
12	UREA	135	lb ai/A	4-5 leaf	Preflood	93 bcd	86 bcd	42 ab	45.0 bcd	7348 ab
	UREA	45	lb ai/A	PD	Midseason					
LSD (P=.05)						1.7	1.7	1.4	0.8	749.3
Standard Deviation						1.2	1.2	1.0	0.6	518.9
CV						1.3	1.4	2.5	1.2	7.9
Treatment F						2.8	2.8	50.0	3.4	20.4
Treatment Prob(F)						0.0101	0.0101	0.0001	0.0035	0.0001

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

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

Table 18. Determine the agronomic response of drill-seeded Della-2 to nitrogen fertilizer rate and time of application (3.4). Franklin Parish.

Crop Name						Rice	Rice	Rice	Rice	Rice
Description						plant-hd	emerg-hd			
Rating Date								8/21/2012	8/21/2012	8/21/2012
Rating Type						50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit						days	days	in	lb/bu	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage	Appl Description					
1	UREA	0	lb ai/A	4-5 leaf	Preflood	91 e	84 e	34 f	46.7 a	4474 g
2	UREA	30	lb ai/A	4-5 leaf	Preflood	91 e	84 e	39 e	46.2 a	4616 g
3	UREA	60	lb ai/A	4-5 leaf	Preflood	93 d	86 d	41 de	45.9 a	5487 f
4	UREA	90	lb ai/A	4-5 leaf	Preflood	94 cd	87 cd	43 cd	46.3 a	6592 d
5	UREA	120	lb ai/A	4-5 leaf	Preflood	95 ab	88 ab	45 ab	45.9 a	7669 bc
6	UREA	150	lb ai/A	4-5 leaf	Preflood	95 ab	88 ab	45 abc	45.8 a	7663 bc
7	UREA	180	lb ai/A	4-5 leaf	Preflood	95 ab	88 ab	46 a	45.6 a	8076 ab
8	UREA	210	lb ai/A	4-5 leaf	Preflood	96 a	89 a	47 a	45.7 a	8453 a
9	UREA	45	lb ai/A	4-5 leaf	Preflood	93 d	86 d	41 de	45.4 a	5889 ef
	UREA	45	lb ai/A	PD	Midseason					
10	UREA	75	lb ai/A	4-5 leaf	Preflood	94 cd	87 cd	43 bcd	46.4 a	6503 de
	UREA	45	lb ai/A	PD	Midseason					
11	UREA	105	lb ai/A	4-5 leaf	Preflood	94 bc	87 bc	45 abc	45.9 a	7435 c
	UREA	45	lb ai/A	PD	Midseason					
12	UREA	135	lb ai/A	4-5 leaf	Preflood	95 ab	88 ab	47 a	45.8 a	7932 abc
	UREA	45	lb ai/A	PD	Midseason					
LSD (P=.05)						1.1	1.1	2.6	0.7	638.9
Standard Deviation						0.8	0.8	1.8	0.5	442.5
CV						0.8	0.9	4.3	1.1	6.6
Treatment F						17.1	17.1	15.8	2.1	37.8
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0542	0.0001

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

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

Table 19. Determine the agronomic response of drill-seeded Mermentau to nitrogen fertilizer rate and time of application (3.4). Franklin Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emerg-hd							
Rating Date									8/21/2012		8/21/2012		8/21/2012	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		in		lb/bu		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage	Appl Description									
1	UREA	0	lb ai/A	4-5 leaf	Preflood	89	e	82	e	30	d	44.4	ab	3623	d
2	UREA	30	lb ai/A	4-5 leaf	Preflood	89	e	82	e	34	c	44.1	abc	5686	c
3	UREA	60	lb ai/A	4-5 leaf	Preflood	90	de	83	de	38	b	44.2	abc	6464	c
4	UREA	90	lb ai/A	4-5 leaf	Preflood	91	bcd	84	bcd	39	b	44.4	ab	8001	b
5	UREA	120	lb ai/A	4-5 leaf	Preflood	91	bcd	84	bcd	41	a	44.4	ab	8680	ab
6	UREA	150	lb ai/A	4-5 leaf	Preflood	92	ab	85	ab	42	a	43.0	d	9337	a
7	UREA	180	lb ai/A	4-5 leaf	Preflood	92	ab	85	ab	43	a	43.7	bcd	9342	a
8	UREA	210	lb ai/A	4-5 leaf	Preflood	93	a	86	a	42	a	43.8	a-d	9764	a
9	UREA	45	lb ai/A	4-5 leaf	Preflood	89	e	82	e	37	b	44.6	a	6411	c
	UREA	45	lb ai/A	PD	Midseason										
10	UREA	75	lb ai/A	4-5 leaf	Preflood	90	cde	83	cde	38	b	43.4	cd	7786	b
	UREA	45	lb ai/A	PD	Midseason										
11	UREA	105	lb ai/A	4-5 leaf	Preflood	91	bc	84	bc	41	a	44.2	abc	8840	ab
	UREA	45	lb ai/A	PD	Midseason										
12	UREA	135	lb ai/A	4-5 leaf	Preflood	92	ab	85	ab	41	a	44.1	abc	8884	ab
	UREA	45	lb ai/A	PD	Midseason										
LSD (P=.05)						1.7		1.7		2.2		0.9		1125.1	
Standard Deviation						1.2		1.2		1.5		0.6		779.2	
CV						1.3		1.4		3.9		1.4		10.1	
Treatment F						5.6		5.6		24.9		2.4		22.3	
Treatment Prob(F)						0.0001		0.0001		0.0001		0.0275		0.0001	

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

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

Table 20. Determine the agronomic response of drill-seeded LA2128 to nitrogen fertilizer rate and time of application (1.4). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emerg-hd					
Rating Date							8/21/2012	8/21/2012		8/21/2012	8/21/2012
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	91 a	84 a	32 g	0 a	0 a	46.2 a	4292 f
2	UREA	30	lb ai/A	4-5 leaf	91 a	84 a	35 f	0 a	0 a	45.8 a	5428 e
3	UREA	60	lb ai/A	4-5 leaf	90 a	83 a	39 de	10 a	1 a	44.7 a	6387 d
4	UREA	90	lb ai/A	4-5 leaf	91 a	84 a	40 cd	0 a	0 a	45.6 a	8109 bc
5	UREA	120	lb ai/A	4-5 leaf	91 a	84 a	43 ab	0 a	0 a	45.5 a	9181 a
6	UREA	150	lb ai/A	4-5 leaf	90 a	83 a	43 a	0 a	0 a	45.8 a	9645 a
7	UREA	180	lb ai/A	4-5 leaf	92 a	85 a	43 ab	0 a	0 a	45.0 a	10005 a
8	UREA	210	lb ai/A	4-5 leaf	91 a	84 a	45 a	3 a	1 a	44.7 a	9932 a
9	UREA	45	lb ai/A	4-5 leaf	91 a	84 a	37 ef	0 a	0 a	46.4 a	7330 c
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	90 a	83 a	41 bc	0 a	0 a	46.0 a	8277 b
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	93 a	86 a	43 a	0 a	0 a	45.6 a	9196 a
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	89 a	82 a	44 a	0 a	0 a	45.4 a	9248 a
	UREA	45	lb ai/A	PD							
LSD (P=.05)					4.7	4.7	2.0	8.4	0.6	1.6	856.0
Standard Deviation					3.3	3.3	1.4	5.8	0.4	1.1	592.8
CV					3.6	3.9	3.5	559.0	467.1	2.4	7.3
Treatment F					0.3	0.3	31.0	1.0	1.0	1.0	39.6
Treatment Prob(F)					0.9691	0.9691	0.0001	0.4671	0.4671	0.4817	0.0001

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

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

Rice Hybrid (LAH10) by Nitrogen Experiment at Franklin Parish

Experiment number ....: 12-FP-14

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

Soil type ....: Sharkey Clay
- **% organic matter**........................: 1.2
- **pH**...: 6.1
- **Extractable nutrients** ppm ....: Ca-4,111; Cu-4.5; Mg-931; P-44; K-266; Na-54.5; S-8.1; Zn-2.4

Crop/Variety ....: Rice / LAH10
- **Planting method/date** ....: Drill seeded / April 11
- **Seeding rate/depth**......................: 14 seeds/ft^2 / .5 inch
- **Emergence date**...........................: April 18
- **Harvest date** ....: August 21

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

Fertilization..: None

Water management ....:
- **Flush** ....: None
- **Flood** ....: May 17
- **Drain**...: August 3

Pest management ....:
- **Herbicides**....................................: 1.5 qt/A Glyphosate, April 11
.67 lb/A Facet DF + 2 pt/A Prowl H_2O + 2 pt/A COC, May 1
.5 gal/A Rice Beaux + .5 gal/A Propanil, May 15
.75 oz/A Permit + 1 oz/A Londax, May 15
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides**....................................: None

Table 21. Determine the agronomic response of drill-seeded LAH10 to nitrogen fertilizer rate and time of application (1.4). Franklin Parish.

Crop Name						Rice		Rice		Rice		Rice				Rice		Rice	
Description						plant-hd		emerg-hd											
Rating Date										8/21/2012		8/21/2012				8/22/2012		8/22/2012	
Rating Type						50% HD		50% HD		Height		Lodge				Test Wt.		Yield	
Rating Unit						days		days		in		% plot		rate		lb/bu		lb/A	
Crop Stage Majority						Main		Main		Main		Main		Main		Main		Main	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage	Appl Description														
1	UREA	0	lb ai/A	4-5 leaf	Preflood	94	a	87	a	42	d	.		.		47.9	a	5963	d
2	UREA	30	lb ai/A	4-5 leaf	Preflood	95	a	88	a	50	c	.		.		45.9	a	7866	c
3	UREA	60	lb ai/A	4-5 leaf	Preflood	95	a	88	a	51	abc	.		.		45.4	a	9297	bc
4	UREA	90	lb ai/A	4-5 leaf	Preflood	95	a	88	a	51	abc	40	d	2	c	47.2	a	10061	ab
5	UREA	120	lb ai/A	4-5 leaf	Preflood	94	a	87	a	52	ab	63	bc	3	abc	45.8	a	10384	ab
6	UREA	150	lb ai/A	4-5 leaf	Preflood	95	a	88	a	51	abc	50	cd	2	c	44.5	a	11049	ab
7	UREA	180	lb ai/A	4-5 leaf	Preflood	95	a	88	a	52	a	75	ab	3	ab	45.7	a	11659	a
8	UREA	210	lb ai/A	4-5 leaf	Preflood	94	a	87	a	53	a	84	a	4	a	43.9	a	9494	bc
9	UREA	45	lb ai/A	4-5 leaf	Preflood	95	a	88	a	50	c	.		.		45.5	a	9906	ab
	UREA	45	lb ai/A	PD	Midseason														
10	UREA	75	lb ai/A	4-5 leaf	Preflood	94	a	87	a	50	bc	70	abc	2	c	46.3	a	10614	ab
	UREA	45	lb ai/A	PD	Midseason														
11	UREA	105	lb ai/A	4-5 leaf	Preflood	95	a	88	a	52	a	60	bc	2	bc	46.4	a	10533	ab
	UREA	45	lb ai/A	PD	Midseason														
12	UREA	135	lb ai/A	4-5 leaf	Preflood	95	a	88	a	51	abc	70	abc	2	bc	45.1	a	11318	a
	UREA	45	lb ai/A	PD	Midseason														
LSD (P=.05)						1.6		1.6		1.8		20.1		1.0		3.3		1793.4	
Standard Deviation						1.1		1.1		1.2		13.2		0.6		2.3		1242.1	
CV						1.2		1.3		2.5		20.6		26.1		5.0		12.6	
Treatment F						0.9		0.9		20.7		4.6		4.1		0.9		6.5	
Treatment Prob(F)						0.5521		0.5521		0.0001		0.0090		0.0133		0.5477		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.

Bayer CropScience Rice Hybrid (01H10010) by Nitrogen Experiment at Franklin Parish

Experiment number ....: 12-FP-16

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

Soil type ....: Sharkey Clay
- **% organic matter**........................: 1.2
- **pH**...: 6.1
- **Extractable nutrients** ppm ....: Ca-4,111; Cu-4.5; Mg-931; P-44; K-266; Na-54.5; S-8.1; Zn-2.4

Crop/Variety ....: Rice / Bayer Hybrid Clay (01H10010)
- **Planting method/date** ....: Drill seeded / April 11
- **Seeding rate/depth**......................: 35 lb/A / .5 inch
- **Emergence date**...........................: April 18
- **Harvest date** ....: August 21

Seed treatment/cwt ....: N-LARGE – Plant Growth Regulator – 1.0 to 2.0 g ai/cwt.
Zinc St.-32.5%

Fertilization..: None

Water management ....:
- **Flush** ....: None
- **Flood**...: May 17
- **Drain**...: August 3

Pest management...............................:
- **Herbicides**...................................: 1.5 qt/A Glyphosate, April 11
.67 lb/A Facet DF + 2 pt/A Prowl H_2O + 2 pt/A COC, May 1
.5 gal/A Rice Beaux + .5 gal/A Propanil, May 15
.75 oz/A Permit + 1 oz/A Londax, May 15
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides**....................................: None

Table 22. Determine the agronomic response of Bayer CropScience Rice Hybrid (01H10010) to nitrogen fertilizer rate and time of application (1.4). Franklin Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emerg-hd					
Rating Date							8/21/2012	8/21/2012		8/21/2012	8/21/2012
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					Days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	0 lb N/A				93 Bc	86 bc	37 d	.	.	44.8 a	7156 bc
2	0 lb N/A	0	lb ai/A	PF	92 C	85 c	39 c	.	.	47.2 a	6936 c
	30 lb N/A	30	lb ai/A	HD							
3	60 lb N/A	60	lb ai/A	PF	92 C	85 c	46 b	.	.	45.7 a	9376 ab
	30 lb N/A	30	lb ai/A	HD							
4	90 lb N/A	90	lb ai/A	PF	94 Ab	87 ab	46 b	68.7 a	1.9 c	46.2 a	9844 a
	30 lb N/A	30	lb ai/A	HD							
5	120 lb N/A	120	lb ai/A	PF	94 A	87 a	47 a	75.3 a	2.4 bc	44.6 a	10523 a
	30 lb N/A	30	lb ai/A	HD							
6	150 lb N/A	150	lb ai/A	PF	95 A	88 a	48 a	80.0 a	3.0 a	43.6 a	9742 a
	30 lb N/A	30	lb ai/A	HD							
7	180 lb N/A	180	lb ai/A	PF	95 A	88 a	48 a	87.5 a	2.8 ab	43.5 a	10973 a
	30 lb N/A	30	lb ai/A	HD							
LSD (P=.05)					1.4	1.4	1.5	14.8	0.6	2.7	2246.0
Standard Deviation					1.0	1.0	1.0	8.5	0.4	1.8	1511.8
CV					1.0	1.1	2.2	11.0	14.1	4.0	16.4
Treatment F					7.2	7.2	81.1	3.4	7.7	2.3	4.4
Treatment Prob(F)					0.0005	0.0005	0.0001	0.0930	0.0178	0.0830	0.0069

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

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

Rice Variety by Nitrogen Experiments at St. Landry Parish

Experiment number	St. Landry Parish VxN Studies
Site and design	
Location/Cooperator	St. Landry Parish/John Owens
Tillage type	Spring Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Tensas – Sharkey Complex
% organic matter	2.07
pH	7.4
Extractable nutrients ppm	Ca-4,977; Cu-2.6; Mg-1,085; P-125; K-334; Na-38; S-7.9; Zn-2.07
Crop/Variety	Rice / See Data Sheet
Planting method/date	Drill seeded / March 27
Seeding rate/depth	40 seeds/ft^2 / .5 inch
Emergence date	April 3
Harvest date	August 8
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	None
Water management	
Flush	None
Flood	May 1
Drain	July 16
Pest management	
Herbicides	.5 oz/A Regiment + .25 oz/A Permit + Surfactant, 1 pt/A Command, April 10 2.5 qt/A Rice Beaux + .33 oz/A Permit, April 26
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	None

Table 23. Determine the agronomic response of drill-seeded CL152 to nitrogen fertilizer rate and time of application (2.5). Evaluate greenseeker technology. St. Landry Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emerg-hd							
Rating Date									8/1/2012		8/8/2012		8/8/2012	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		in		lb/bu		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	UREA	0	lb ai/A	4-5 leaf	86	d	79	d	33	e	49.6	ab	8140	g
2	UREA	30	lb ai/A	4-5 leaf	89	bc	82	bc	34	e	50.1	a	8917	f
3	UREA	60	lb ai/A	4-5 leaf	88	cd	81	cd	36	d	49.5	abc	10363	e
4	UREA	90	lb ai/A	4-5 leaf	90	abc	83	abc	37	d	49.2	bcd	10513	de
5	UREA	120	lb ai/A	4-5 leaf	91	ab	84	ab	38	bcd	48.2	fgh	11011	cde
6	UREA	150	lb ai/A	4-5 leaf	91	ab	84	ab	40	ab	48.5	d-h	11430	abc
7	UREA	180	lb ai/A	4-5 leaf	91	ab	84	ab	40	ab	48.1	gh	11308	abc
8	UREA	210	lb ai/A	4-5 leaf	92	a	85	a	42	a	48.3	e-h	11132	bcd
9	UREA	240	lb ai/A	4-5 leaf	92	a	85	a	40	bc	48.0	h	11687	ab
10	UREA	45	lb ai/A	4-5 leaf	90	abc	83	abc	37	d	49.0	b-f	10548	de
	UREA	45	lb ai/A	PD										
11	UREA	75	lb ai/A	4-5 leaf	91	ab	84	ab	38	bcd	48.1	gh	11234	bc
	UREA	45	lb ai/A	PD										
12	UREA	105	lb ai/A	4-5 leaf	90	abc	83	abc	38	bcd	48.9	b-g	11545	abc
	UREA	45	lb ai/A	PD										
13	UREA	135	lb ai/A	4-5 leaf	91	ab	84	ab	40	bc	48.1	gh	11904	a
	UREA	45	lb ai/A	PD										
14	UREA	75	lb ai/A	4-5 leaf	91	ab	84	ab	37	d	48.7	c-h	11118	bcd
	SBNR-UREA	0	lb ai/A	PD										
15	UREA	105	lb ai/A	4-5 leaf	90	abc	83	abc	37	cd	49.2	b-e	10968	cde
	SBNR-UREA	0	lb ai/A	PD										
LSD (P=.05)					2.4		2.4		2.4		0.9		660.4	
Standard Deviation					1.7		1.7		1.7		0.6		462.1	
CV					1.9		2.0		4.5		1.2		4.3	
Treatment F					3.0		3.0		8.3		4.6		19.6	
Treatment Prob(F)					0.0028		0.0028		0.0001		0.0001		0.0001	

Continued.

Table 23. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue	Grain	N Uptake	N Uptake
Part Rated					Abvgrd -	Abvgrd -	@Harv -	Total -	Total -
Rating Date					7/3/2012	7/3/2012		7/3/2012	
Rating Type					Biomass	N	N	N	N
Rating Unit					lb/A	%	%	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Crop Stage Scale					50% HD	50% HD	Grain	50% HD	Grain
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	8341 e	1.12 a	1.16 a-e	94 c	94 f
2	UREA	30	lb ai/A	4-5 leaf	9528 de	1.00 a	1.14 b-e	96 c	102 f
3	UREA	60	lb ai/A	4-5 leaf	12218 abc	1.18 a	1.13 cde	144 bc	117 e
4	UREA	90	lb ai/A	4-5 leaf	13678 a	1.14 a	1.12 de	155 ab	118 e
5	UREA	120	lb ai/A	4-5 leaf	12185 abc	1.42 a	1.15 a-e	170 ab	126 cde
6	UREA	150	lb ai/A	4-5 leaf	12152 abc	1.40 a	1.22 ab	168 ab	140 ab
7	UREA	180	lb ai/A	4-5 leaf	12987 ab	1.50 a	1.20 a-d	196 a	136 abc
8	UREA	210	lb ai/A	4-5 leaf	13478 a	1.41 a	1.21 abc	189 ab	134 a-d
9	UREA	240	lb ai/A	4-5 leaf	11803 abc	1.56 a	1.21 ab	185 ab	142 ab
10	UREA	45	lb ai/A	4-5 leaf	10264 cde	1.38 a	1.17 a-e	142 bc	123 de
	UREA	45	lb ai/A	PD					
11	UREA	75	lb ai/A	4-5 leaf	12433 ab	1.37 a	1.18 a-e	170 ab	133 bcd
	UREA	45	lb ai/A	PD					
12	UREA	105	lb ai/A	4-5 leaf	13341 a	1.27 a	1.19 a-d	169 ab	138 abc
	UREA	45	lb ai/A	PD					
13	UREA	135	lb ai/A	4-5 leaf	12597 ab	1.48 a	1.23 a	190 ab	146 a
	UREA	45	lb ai/A	PD					
14	UREA	75	lb ai/A	4-5 leaf	13004 ab	1.27 a	1.10 e	163 ab	123 de
	SBNR-UREA	0	lb ai/A	PD					
15	UREA	105	lb ai/A	4-5 leaf	11126 bcd	1.36 a	1.13 cde	153 ab	124 de
	SBNR-UREA	0	lb ai/A	PD					
LSD (P=.05)					2111.4	0.3	0.1	51.9	11.9
Standard Deviation					1477.5	0.2	0.1	36.3	8.4
CV					12.4	17.9	4.9	22.9	6.6
Treatment F					4.3	1.7	2.0	2.8	12.1
Treatment Prob(F)					0.0001	0.0827	0.0470	0.0045	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 24. Determine the agronomic response of drill-seeded CL162 to nitrogen fertilizer rate and time of application (2.5). Evaluate greenseeker technology. St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd			
Rating Date							8/1/2012	8/8/2012	8/8/2012
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	86 f	78 f	37 f	49.5 a	8413 e
2	UREA	30	lb ai/A	4-5 leaf	86 ef	78 ef	38 ef	49.9 a	9394 d
3	UREA	60	lb ai/A	4-5 leaf	87 def	79 def	40 de	49.3 a	9874 bcd
4	UREA	90	lb ai/A	4-5 leaf	87 c-f	79 c-f	42 cd	49.1 a	9746 cd
5	UREA	120	lb ai/A	4-5 leaf	87 c-f	79 c-f	41 cd	48.8 a	10581 ab
6	UREA	150	lb ai/A	4-5 leaf	89 a-d	81 a-d	43 abc	48.9 a	10782 a
7	UREA	180	lb ai/A	4-5 leaf	91 ab	83 ab	43 abc	48.9 a	10758 a
8	UREA	210	lb ai/A	4-5 leaf	91 a	83 a	44 ab	48.7 a	10758 a
9	UREA	240	lb ai/A	4-5 leaf	91 ab	83 ab	45 a	48.9 a	9927 bcd
10	UREA	45	lb ai/A	4-5 leaf	87 def	79 def	38 ef	49.4 a	9992 bcd
	UREA	45	lb ai/A	PD					
11	UREA	75	lb ai/A	4-5 leaf	89 b-e	81 b-e	43 abc	49.2 a	11080 a
	UREA	45	lb ai/A	PD					
12	UREA	105	lb ai/A	4-5 leaf	90 abc	82 abc	43 abc	48.5 a	10565 ab
	UREA	45	lb ai/A	PD					
13	UREA	135	lb ai/A	4-5 leaf	90 abc	82 abc	42 cd	49.1 a	10800 a
	UREA	45	lb ai/A	PD					
14	UREA	75	lb ai/A	4-5 leaf	89 a-d	81 a-d	42 bcd	49.2 a	10589 ab
	SBNR-UREA	0	lb ai/A	PD					
15	UREA	105	lb ai/A	4-5 leaf	88 b-f	80 b-f	40 de	49.5 a	10468 abc
	SBNR-UREA	0	lb ai/A	PD					
LSD (P=.05)					2.5	2.5	2.4	1.0	732.9
Standard Deviation					1.8	1.8	1.7	0.7	512.9
CV					2.0	2.2	4.1	1.5	5.0
Treatment F					4.1	4.1	7.7	1.0	7.4
Treatment Prob(F)					0.0002	0.0002	0.0001	0.4466	0.0001

Continued.

Table 24. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue	Grain	N Uptake	N Uptake
Part Rated					Abvgrd -	Abvgrd -	@Harv -	Total -	Total -
Rating Date					7/3/2012	7/3/2012		7/3/2012	
Rating Type					Biomass	N	N	N	N
Rating Unit					lb/A	%	%	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Crop Stage Scale					50% HD	50% HD	Grain	50% HD	Grain
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	8036 e	0.97 ef	1.11 ef	77 h	93 g
2	UREA	30	lb ai/A	4-5 leaf	10196 de	0.92 f	1.10 ef	95 gh	104 fg
3	UREA	60	lb ai/A	4-5 leaf	11234 bcd	0.96 ef	1.08 f	108 fgh	107 ef
4	UREA	90	lb ai/A	4-5 leaf	12419 a-d	1.06 def	1.11 ef	132 d-g	108 def
5	UREA	120	lb ai/A	4-5 leaf	13033 abc	1.13 c-f	1.11 ef	148 b-f	118 b-e
6	UREA	150	lb ai/A	4-5 leaf	12360 a-d	1.29 a-d	1.17 b-e	160 b-e	125 ab
7	UREA	180	lb ai/A	4-5 leaf	13791 a	1.39 abc	1.20 bc	192 ab	129 a
8	UREA	210	lb ai/A	4-5 leaf	13423 ab	1.27 a-d	1.21 ab	170 a-d	130 a
9	UREA	240	lb ai/A	4-5 leaf	13536 a	1.54 a	1.27 a	207 a	126 ab
10	UREA	45	lb ai/A	4-5 leaf	11025 cd	1.12 c-f	1.13 def	123 efg	113 c-f
	UREA	45	lb ai/A	PD					
11	UREA	75	lb ai/A	4-5 leaf	10890 cd	1.13 c-f	1.14 b-f	125 efg	127 ab
	UREA	45	lb ai/A	PD					
12	UREA	105	lb ai/A	4-5 leaf	11994 a-d	1.21 b-e	1.20 bc	145 c-f	127 ab
	UREA	45	lb ai/A	PD					
13	UREA	135	lb ai/A	4-5 leaf	12711 abc	1.44 ab	1.19 bcd	185 abc	130 a
	UREA	45	lb ai/A	PD					
14	UREA	75	lb ai/A	4-5 leaf	11886 a-d	1.11 def	1.14 b-f	128 d-g	121 abc
	SBNR-UREA	0	lb ai/A	PD					
15	UREA	105	lb ai/A	4-5 leaf	12417 a-d	0.98 ef	1.14 c-f	122 efg	119 a-d
	SBNR-UREA	0	lb ai/A	PD					
LSD (P=.05)					2291.0	0.3	0.1	44.5	11.1
Standard Deviation					1603.2	0.2	0.0	31.1	7.8
CV					13.4	16.2	4.1	22.1	6.6
Treatment F					3.5	3.8	4.8	5.5	8.3
Treatment Prob(F)					0.0009	0.0003	0.0001	0.0001	0.0001

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

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

Table 25. Determine the agronomic response of drill-seeded CL261 to nitrogen fertilizer rate and time of application (3.5). Evaluate greenseeker technology. St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emerg-hd			
Rating Date							8/1/2012	8/8/2012	8/8/2012
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	93 a	86 a	35 d	49.3 a	8189 d
2	UREA	30	lb ai/A	4-5 leaf	93 a	86 a	36 d	49.4 a	9403 c
3	UREA	60	lb ai/A	4-5 leaf	93 a	86 a	39 bc	49.4 a	10236 ab
4	UREA	90	lb ai/A	4-5 leaf	93 a	86 a	38 c	49.5 a	10097 abc
5	UREA	120	lb ai/A	4-5 leaf	93 a	86 a	39 bc	49.4 a	10556 a
6	UREA	150	lb ai/A	4-5 leaf	93 a	86 a	40 abc	49.1 a	10574 a
7	UREA	180	lb ai/A	4-5 leaf	93 a	86 a	40 ab	49.1 a	10139 ab
8	UREA	210	lb ai/A	4-5 leaf	94 a	87 a	42 a	49.2 a	10366 a
9	UREA	240	lb ai/A	4-5 leaf	93 a	86 a	42 a	49.4 a	9522 bc
10	UREA	45	lb ai/A	4-5 leaf	93 a	86 a	38 c	49.1 a	10232 ab
	UREA	45	lb ai/A	PD					
11	UREA	75	lb ai/A	4-5 leaf	94 a	87 a	40 abc	49.3 a	10427 a
	UREA	45	lb ai/A	PD					
12	UREA	105	lb ai/A	4-5 leaf	93 a	86 a	40 abc	49.4 a	10525 a
	UREA	45	lb ai/A	PD					
13	UREA	135	lb ai/A	4-5 leaf	92 a	85 a	40 abc	49.2 a	10476 a
	UREA	45	lb ai/A	PD					
14	UREA	75	lb ai/A	4-5 leaf	94 a	87 a	39 bc	49.4 a	10634 a
	SBNR-UREA	0	lb ai/A	PD					
15	UREA	105	lb ai/A	4-5 leaf	93 a	86 a	39 bc	49.5 a	10515 a
	SBNR-UREA	0	lb ai/A	PD					
LSD (P=.05)					1.8	1.8	2.0	0.5	731.6
Standard Deviation					1.2	1.3	1.4	0.3	512.0
CV					1.3	1.5	3.7	0.6	5.1
Treatment F					0.7	0.7	6.2	0.8	6.4
Treatment Prob(F)					0.7242	0.7242	0.0001	0.6788	0.0001

Continued.

Table 25. Continued.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					Tissue		Tissue		Grain		N Uptake		N Uptake	
Part Rated					Abvgrd -		Abvgrd -		@Harv -		Total -		Total -	
Rating Date					7/3/2012		7/3/2012				7/3/2012			
Rating Type					Biomass		N		N		N		N	
Rating Unit					lb/A		%		%		lb/A		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main	
Crop Stage Scale					50% HD		50% HD		Grain		50% HD		Grain	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	UREA	0	lb ai/A	4-5 leaf	7931	e	1.18	c-g	1.20	d	94	g	98	e
2	UREA	30	lb ai/A	4-5 leaf	10459	d	1.04	g	1.22	d	108	g	115	d
3	UREA	60	lb ai/A	4-5 leaf	12668	abc	1.28	b-f	1.24	bcd	163	b-f	127	bc
4	UREA	90	lb ai/A	4-5 leaf	11160	bcd	1.11	fg	1.27	a-d	124	efg	128	abc
5	UREA	120	lb ai/A	4-5 leaf	11571	bcd	1.14	fg	1.24	cd	132	d-g	131	abc
6	UREA	150	lb ai/A	4-5 leaf	12101	a-d	1.37	a-d	1.25	bcd	165	b-e	132	abc
7	UREA	180	lb ai/A	4-5 leaf	13165	ab	1.43	ab	1.32	ab	191	ab	134	abc
8	UREA	210	lb ai/A	4-5 leaf	13943	a	1.56	a	1.34	a	220	a	139	a
9	UREA	240	lb ai/A	4-5 leaf	12687	abc	1.35	b-e	1.32	ab	171	bcd	125	cd
10	UREA	45	lb ai/A	4-5 leaf	11012	cd	1.17	d-g	1.27	a-d	128	efg	129	abc
	UREA	45	lb ai/A	PD										
11	UREA	75	lb ai/A	4-5 leaf	10672	cd	1.15	efg	1.24	cd	123	fg	129	abc
	UREA	45	lb ai/A	PD										
12	UREA	105	lb ai/A	4-5 leaf	11536	bcd	1.30	b-f	1.24	cd	150	c-f	130	abc
	UREA	45	lb ai/A	PD										
13	UREA	135	lb ai/A	4-5 leaf	13179	ab	1.38	abc	1.30	abc	181	abc	137	ab
	UREA	45	lb ai/A	PD										
14	UREA	75	lb ai/A	4-5 leaf	11299	bcd	1.16	d-g	1.26	bcd	132	d-g	134	abc
	SBNR-UREA	0	lb ai/A	PD										
15	UREA	105	lb ai/A	4-5 leaf	11779	bcd	1.30	b-f	1.30	abc	152	b-f	137	ab
	SBNR-UREA	0	lb ai/A	PD										
LSD (P=.05)					2078.5		0.2		0.1		41.1		11.2	
Standard Deviation					1454.4		0.1		0.1		28.8		7.8	
CV					12.5		11.5		4.2		19.3		6.1	
Treatment F					3.9		3.8		2.3		5.5		6.7	
Treatment Prob(F)					0.0003		0.0004		0.0179		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 26. Determine the agronomic response of drill-seeded Jazzman-2 to nitrogen fertilizer rate and time of application (2.5). St. Landry Parish.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emer-hd							
Rating Date									8/1/2012		8/14/2012		8/14/2012	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		in		lb/bu		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	UREA	0	lb ai/A	4-5 leaf	96	abc	88	abc	33	e	48.2	a	7059	d
2	UREA	30	lb ai/A	4-5 leaf	94	de	86	de	36	d	48.3	a	8257	c
3	UREA	60	lb ai/A	4-5 leaf	93	e	85	e	36	d	48.6	a	9239	abc
4	UREA	90	lb ai/A	4-5 leaf	94	cde	86	cde	37	bcd	48.5	a	9060	bc
5	UREA	120	lb ai/A	4-5 leaf	95	b-e	87	b-e	38	abc	48.8	a	9963	ab
6	UREA	150	lb ai/A	4-5 leaf	96	ab	88	ab	39	a	48.2	a	9695	ab
7	UREA	180	lb ai/A	4-5 leaf	95	a-d	87	a-d	40	a	48.5	a	10183	a
8	UREA	210	lb ai/A	4-5 leaf	98	a	90	a	39	a	47.7	a	9706	ab
9	UREA	45	lb ai/A	4-5 leaf	95	b-e	87	b-e	37	cd	48.6	a	9142	bc
	UREA	45	lb ai/A	PD										
10	UREA	75	lb ai/A	4-5 leaf	94	cde	86	cde	36	d	48.4	a	10205	a
	UREA	45	lb ai/A	PD										
11	UREA	105	lb ai/A	4-5 leaf	96	a-d	88	a-d	38	ab	48.2	a	9726	ab
	UREA	45	lb ai/A	PD										
12	UREA	135	lb ai/A	4-5 leaf	97	ab	89	ab	39	a	47.2	a	9946	ab
	UREA	45	lb ai/A	PD										
LSD (P=.05)					2.5		2.5		1.7		1.3		984.2	
Standard Deviation					1.7		1.7		1.2		0.9		681.6	
CV					1.8		2.0		3.2		1.8		7.3	
Treatment F					2.8		2.8		10.1		1.0		7.1	
Treatment Prob(F)					0.0115		0.0115		0.0001		0.4429		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 27. Determine the agronomic response of drill-seeded LA2128 to nitrogen fertilizer rate and time of application (1.5). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emer-hd			
Rating Date							8/1/2012	8/14/2012	8/14/2012
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage					
1	UREA	0	lb ai/A	4-5 leaf	92 g	85 g	39 a	48.9 a	7348 f
2	UREA	30	lb ai/A	4-5 leaf	93 efg	86 efg	37 a	49.5 a	8899 e
3	UREA	60	lb ai/A	4-5 leaf	94 d-g	87 d-g	39 a	48.7 a	9776 d
4	UREA	90	lb ai/A	4-5 leaf	94 c-f	87 c-f	39 a	49.2 a	10123 cd
5	UREA	120	lb ai/A	4-5 leaf	93 fg	86 fg	39 a	48.8 a	10598 bc
6	UREA	150	lb ai/A	4-5 leaf	96 abc	89 abc	40 a	48.8 a	10914 ab
7	UREA	180	lb ai/A	4-5 leaf	96 ab	89 ab	41 a	48.5 a	10839 ab
8	UREA	210	lb ai/A	4-5 leaf	95 a-d	88 a-d	40 a	48.5 a	11279 a
9	UREA	45	lb ai/A	4-5 leaf	96 abc	89 abc	38 a	48.9 a	10484 bc
	UREA	45	lb ai/A	PD					
10	UREA	75	lb ai/A	4-5 leaf	95 b-e	88 b-e	39 a	48.8 a	10636 bc
	UREA	45	lb ai/A	PD					
11	UREA	105	lb ai/A	4-5 leaf	97 a	90 a	39 a	48.5 a	10831 ab
	UREA	45	lb ai/A	PD					
12	UREA	135	lb ai/A	4-5 leaf	96 abc	89 abc	39 a	48.7 a	10924 ab
	UREA	45	lb ai/A	PD					
LSD (P=.05)					1.9	1.9	3.1	0.7	602.5
Standard Deviation					1.3	1.3	2.1	0.5	417.3
CV					1.4	1.5	5.5	0.9	4.1
Treatment F					5.4	5.4	0.8	1.7	28.1
Treatment Prob(F)					0.0001	0.0001	0.6483	0.1192	0.0001

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

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

Rice Hybrid (LAH10) by Nitrogen Experiment at St. Landry Parish

Experiment number ....: 12-SLP-14

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

Soil type ....: Tensas – Sharkey Complex
- **% organic matter** ....: 2.07
- **pH** ....: 7.4
- **Extractable nutrients** ppm ....: Ca-4,977; Cu-2.6; Mg-1,085; P-125; K-334; Na-38; S-7.9; Zn-2.07

Crop/Variety ....: Rice / LAH10
- **Planting method/date** ....: Drill seeded / March 27
- **Seeding rate/depth** ....: 14 seeds/ft^2 / .5 inch
- **Emergence date** ....: April 3
- **Harvest date** ....: August 8

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

Fertilization ....: None

Water management ....:
- **Flush** ....: None
- **Flood** ....: May 1
- **Drain** ....: July 16

Pest management ....:
- **Herbicides** ....: .5 oz/A Regiment + .25 oz/A Permit + Surfactant,
1 pt/A Command, April 10
2.5 qt/A Rice Beaux + .33 oz/A Permit, April 26
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: None

Table 28. Determine the agronomic response of drill-seeded LAH10 to nitrogen fertilizer rate and time of application (1.5). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emerg-hd					
Rating Date							8/1/2012	8/8/2012		8/14/2012	8/14/2012
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	UREA	0	lb ai/A	4-5 leaf	101 a	94 a	47 b	37 d	2 de	47.7 a	7413 f
2	UREA	30	lb ai/A	4-5 leaf	100 a	93 a	51 a	23 d	1 e	46.0 a	8638 ef
3	UREA	60	lb ai/A	4-5 leaf	100 a	93 a	51 a	43 cd	3 cd	45.9 a	9117 cde
4	UREA	90	lb ai/A	4-5 leaf	100 a	93 a	51 a	60 bc	3 cd	46.0 a	10583 ab
5	UREA	120	lb ai/A	4-5 leaf	100 a	93 a	52 a	70 ab	4 bc	45.2 a	9858 b-e
6	UREA	150	lb ai/A	4-5 leaf	100 a	93 a	52 a	88 a	5 ab	45.8 a	10220 a-d
7	UREA	180	lb ai/A	4-5 leaf	100 a	93 a	52 a	88 a	5 a	45.6 a	10507 abc
8	UREA	210	lb ai/A	4-5 leaf	100 a	93 a	52 a	83 a	5 a	44.4 a	9610 b-e
9	UREA	45	lb ai/A	4-5 leaf	100 a	93 a	52 a	60 bc	3 cd	45.9 a	9204 b-e
	UREA	45	lb ai/A	PD							
10	UREA	75	lb ai/A	4-5 leaf	100 a	93 a	52 a	80 ab	3 cd	44.9 a	10138 bcd
	UREA	45	lb ai/A	PD							
11	UREA	105	lb ai/A	4-5 leaf	100 a	93 a	51 a	78 ab	5 ab	46.3 a	11609 a
	UREA	45	lb ai/A	PD							
12	UREA	135	lb ai/A	4-5 leaf	100 a	93 a	52 a	85 a	5 a	45.0 a	8940 de
	UREA	45	lb ai/A	PD							
LSD (P=.05)					1.2	1.2	2.3	20.5	1.2	2.3	1429.2
Standard Deviation					0.8	0.9	1.6	14.2	0.8	1.6	989.8
CV					0.9	0.9	3.1	21.5	23.1	3.5	10.3
Treatment F					1.3	1.3	2.9	9.4	8.8	1.1	4.8
Treatment Prob(F)					0.2595	0.2595	0.0087	0.0001	0.0001	0.3925	0.0002

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

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

Bayer CropScience Rice Hybrid (01H10010) by Nitrogen Experiment at St. Landry Parish

Experiment number ....: 12-SLP-16

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

Soil type ....: Tensas – Sharkey Complex
% organic matter........................: 2.07
pH...: 7.4
Extractable nutrients ppm ....: Ca-4,977; Cu-2.6; Mg-1,085; P-125; K-334; Na-38; S-7.9; Zn-2.07

Crop/Variety ....: Rice / Bayer Hybrid Clay (01H10010)
Planting method/date ....: Drill seeded / March 27
Seeding rate/depth......................: 35 lb/A / .5 inch
Emergence date...........................: April 3
Harvest date ....: August 8

Seed treatment/cwt ....: N-LARGE – Plant Growth Regulator – 1.0 to 2.0 g ai/cwt.
Zinc St.-32.5 %

Fertilization..: None

Water management ....:
Flush ....: None
Flood ....: May 1
Drain...: July 16

Pest management ....:
Herbicides....................................: .5 oz/A Regiment + .25 oz/A Permit + Surfactant,
1 pt/A Command, April 10
2.5 qt/A Rice Beaux + .33 oz/A Permit, April 26
Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides....................................: None

Table 29. Determine the agronomic response of Bayer CropScience Rice Hybrid (10H10010) to nitrogen fertilizer rate and time of application (1.5). St. Landry Parish.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emer-hd					
Rating Date							8/1/2012	8/8/2012		8/14/2012	8/14/2012
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					Days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	0 lb N/A				95 C	88 c	41 c	27 bc	1 c	47.7 ab	9278 a
2	0 lb N/A	0	lb ai/A	PF	95 C	88 c	42 c	20 c	1 c	47.7 ab	9637 a
	30 lb N/A	30	lb ai/A	HD							
3	60 lb N/A	60	lb ai/A	PF	93 D	86 d	43 bc	48 abc	2 bc	48.1 ab	11449 a
	30 lb N/A	30	lb ai/A	HD							
4	90 lb N/A	90	lb ai/A	PF	95 C	88 c	47 a	60 ab	3 ab	48.6 a	10929 a
	30 lb N/A	30	lb ai/A	HD							
5	120 lb N/A	120	lb ai/A	PF	96 Bc	89 bc	46 ab	60 ab	4 ab	47.4 ab	11543 a
	30 lb N/A	30	lb ai/A	HD							
6	150 lb N/A	150	lb ai/A	PF	97 Ab	90 ab	47 a	80 a	4 ab	46.3 bc	10847 a
	30 lb N/A	30	lb ai/A	HD							
7	180 lb N/A	180	lb ai/A	PF	98 A	91 a	48 a	73 a	4 a	45.0 c	10540 a
	30 lb N/A	30	lb ai/A								
LSD (P=.05)					1.8	1.8	3.1	36.0	1.5	2.1	1873.8
Standard Deviation					1.2	1.2	2.1	24.1	1.0	1.4	1255.9
CV					1.3	1.4	4.7	45.9	37.2	3.0	11.8
Treatment F					7.6	7.6	7.3	3.4	5.1	2.9	1.9
Treatment Prob(F)					0.0004	0.0004	0.0005	0.0209	0.0037	0.0378	0.1423

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.

Agronomic Response of Rice to Zinc Fertilizer Sources and Application Rates

Experiment number	: 12-SLP-15
Site and design	:
Location/Cooperator	: St. Landry Parish/John Owens
Tillage type	: Spring Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Tensas – Sharkey Complex
% organic matter	: 2.07
pH	: 7.4
Extractable nutrients ppm	: Ca-4,977; Cu-2.6; Mg-1,085; P-125; K-334; Na-38; S-7.9; Zn-2.07
Crop/Variety	: Rice / CL151
Planting method/date	: Drill seeded / March 27
Seeding rate/depth	: 40 seeds/ft^2 / .5 inch
Emergence date	: April 3
Harvest date	: August 8
Seed treatment/cwt	: Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	: 120 lb N/A 46-0-0, April 27
Water management	:
Flush	: None
Flood	: May 1
Drain	: July 16
Pest management	:
Herbicides	: .5 oz/A RegIment + .25 oz/A Permit + Surfactant, 1 pt/A Command, April 10 2.5 qt/A Rice Beaux + .33 oz/A Permit, April 26
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: None

Table 30. Agronomic response of rice to zinc fertilizer sources and application rates. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice		Rice	Rice
Description				plant-hd	emerg-hd					
Rating Date						8/1/2012	8/8/2012		8/9/2012	8/9/2012
Rating Type				50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit				days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit							
1	DAP	80	lb ai/A	89 a	82 a	41 a	3 a	1 a	48.0 a	12186 a
	AS	20	lb ai/A							
2	DAP	80	lb ai/A	89 a	82 a	42 a	0 a	0 a	47.4 a	12412 a
	AS	20	lb ai/A							
	ZnSO4	2	lb ai/A							
3	DAP	80	lb ai/A	90 a	83 a	42 a	8 a	1 a	48.1 a	12140 a
	AS	20	lb ai/A							
	ZnSO4	5	lb ai/A							
4	DAP	80	lb ai/A	89 a	82 a	40 a	0 a	0 a	47.9 a	12662 a
	AS	20	lb ai/A							
	ZnSO4	8	lb ai/A							
5	DAP	80	lb ai/A	89 a	82 a	41 a	5 a	1 a	47.9 a	12747 a
	AS	20	lb ai/A							
	ZnSO4	10	lb ai/A							
6	MESZ @ 2 lb Zn/A	80	lb ai/A	90 a	83 a	42 a	0 a	0 a	47.6 a	12683 a
7	DAP	80	lb ai/A	89 a	82 a	41 a	3 a	0 a	47.0 a	12492 a
	AS	20	lb ai/A							
	EZ20	2	lb ai/A							
8	MESZ @ 2 lb Zn/A	80	lb ai/A	89 a	82 a	42 a	0 a	0 a	47.8 a	12900 a
	EM- 2	100	lb ai/A							
9	MESZ @ 2 lb Zn/A	80	lb ai/A	89 a	82 a	40 a	0 a	0 a	47.0 a	12688 a
	ZnSO4	3	lb ai/A							
10	MESZ @ 2 lb Zn/A	80	lb ai/A	89 a	82 a	42 a	5 a	0 a	46.9 a	12645 a
	ZnSO4	6	lb ai/A							
LSD (P=.05)				1.0	1.0	1.9	7.5	1.0	1.2	1025.3
Standard Deviation				0.7	0.7	1.3	5.2	0.7	0.8	705.2
CV				0.8	0.9	3.2	229.1	242.2	1.8	5.6
Treatment F				0.9	0.9	1.1	1.1	1.2	1.0	0.5
Treatment Prob(F)				0.5317	0.5317	0.4010	0.3707	0.3443	0.4312	0.8713

Continued.

Table 30. Continued.

Crop Name				Rice		Rice											
Description				Tissue		Tissue											
Part Rated				Abvgrd -		Abvgrd -											
Rating Date				5/14/2012		5/14/2012											
Rating Type				Biomass		Al		B		Ca		Cu		Fe		Mg	
Rating Unit				lb/A		ppm		ppm		%		ppm		ppm		%	
Crop Stage Majority				Main		Main		Main		Main		Main		Main		Main	
Crop Stage Scale				Midtill		Midtill		Midtill		Midtill		Midtill		Midtill		Midtill	
Trt No.	Trt Name	Rate	Rate Unit														
1	DAP	80	lb ai/A	1712	b	420.360	a	7.125	a	0.700	a	8.758	a	771.375	a	0.210	a
	AS	20	lb ai/A														
2	DAP	80	lb ai/A	1690	b	541.225	a	6.818	a	0.713	a	9.258	a	778.635	a	0.218	a
	AS	20	lb ai/A														
	ZnSO4	2	lb ai/A														
3	DAP	80	lb ai/A	1874	b	547.863	a	7.478	a	0.588	a	8.553	a	849.653	a	0.210	a
	AS	20	lb ai/A														
	ZnSO4	5	lb ai/A														
4	DAP	80	lb ai/A	1983	b	800.375	a	8.158	a	0.718	a	9.180	a	1112.455	a	0.235	a
	AS	20	lb ai/A														
	ZnSO4	8	lb ai/A														
5	DAP	80	lb ai/A	2330	a	1424.590	a	9.440	a	0.703	a	9.983	a	1711.685	a	0.250	a
	AS	20	lb ai/A														
	ZnSO4	10	lb ai/A														
6	MESZ @ 2 lb Zn/A	80	lb ai/A	1786	b	627.270	a	7.548	a	0.863	a	8.485	a	1014.688	a	0.230	a
7	DAP	80	lb ai/A	1814	b	584.023	a	8.245	a	0.688	a	9.890	a	934.738	a	0.230	a
	AS	20	lb ai/A														
	EZ20	2	lb ai/A														
8	MESZ @ 2 lb Zn/A	80	lb ai/A	1776	b	597.315	a	7.575	a	0.738	a	8.300	a	983.625	a	0.203	a
	EM- 2	100	lb ai/A														
9	MESZ @ 2 lb Zn/A	80	lb ai/A	1966	b	573.378	a	8.090	a	0.728	a	8.080	a	965.165	a	0.240	a
	ZnSO4	3	lb ai/A														
10	MESZ @ 2 lb Zn/A	80	lb ai/A	1856	b	589.553	a	8.230	a	0.753	a	8.595	a	976.325	a	0.235	a
	ZnSO4	6	lb ai/A														
LSD (P=.05)				336.4		873.531		2.469		0.300		1.479		940.166		0.030	
Standard Deviation				231.8		602.027		1.701		0.207		1.020		647.951		0.020	
CV				12.3		89.780		21.620		28.760		11.450		64.160		9.050	
Treatment F				2.6		0.871		0.748		0.427		1.623		0.687		2.235	
Treatment Prob(F)				0.0285		0.5615		0.6627		0.9086		0.1586		0.7145		0.0514	

Continued.

Table 30. Continued.

Crop Name				Rice													
Description				Tissue													
Part Rated				Abvgrd -													
Rating Date				5/14/2012													
Rating Type				Mn		Mo		P		K		Na		S		Zn	
Rating Unit				ppm		ppm		%		%		ppm		%		ppm	
Crop Stage Majority				Main		Main		Main		Main		Main		Main		Main	
Crop Stage Scale				Midtill		Midtill		Midtill		Midtill		Midtill		Midtill		Midtill	
Trt No.	Trt Name	Rate	Rate Unit														
1	DAP	80	lb ai/A	514.790	a	1.643	b-e	0.475	a	3.030	a	1039.105	bc	0.375	a	29.235	c
	AS	20	lb ai/A														
2	DAP	80	lb ai/A	531.578	a	1.005	e	0.460	a	3.200	a	1147.278	ab	0.378	a	29.238	c
	AS	20	lb ai/A														
	ZnSO4	2	lb ai/A														
3	DAP	80	lb ai/A	495.248	a	1.523	cde	0.455	a	3.188	a	969.993	bc	0.365	a	33.695	bc
	AS	20	lb ai/A														
	ZnSO4	5	lb ai/A														
4	DAP	80	lb ai/A	603.353	a	2.160	abc	0.493	a	3.255	a	1146.848	ab	0.385	a	42.445	ab
	AS	20	lb ai/A														
	ZnSO4	8	lb ai/A														
5	DAP	80	lb ai/A	569.460	a	1.428	de	0.483	a	3.150	a	1140.805	ab	0.395	a	49.320	a
	AS	20	lb ai/A														
	ZnSO4	10	lb ai/A														
6	MESZ @ 2 lb Zn/A	80	lb ai/A	594.745	a	2.280	ab	0.493	a	3.133	a	1305.595	ab	0.365	a	32.365	bc
7	DAP	80	lb ai/A	507.075	a	1.438	de	0.505	a	3.285	a	1216.048	ab	0.400	a	29.908	c
	AS	20	lb ai/A														
	EZ20	2	lb ai/A														
8	MESZ @ 2 lb Zn/A	80	lb ai/A	548.443	a	2.108	a-d	0.453	a	3.383	a	694.083	c	0.348	a	28.790	c
	EM- 2	100	lb ai/A														
9	MESZ @ 2 lb Zn/A	80	lb ai/A	593.998	a	2.510	a	0.508	a	3.148	a	1517.858	a	0.358	a	38.090	bc
	ZnSO4	3	lb ai/A														
10	MESZ @ 2 lb Zn/A	80	lb ai/A	564.023	a	2.270	ab	0.495	a	3.050	a	1252.763	ab	0.370	a	34.878	bc
	ZnSO4	6	lb ai/A														
LSD (P=.05)				135.576		0.705		0.058		0.368		395.109		0.051		10.678	
Standard Deviation				93.437		0.486		0.040		0.254		272.305		0.035		7.359	
CV				16.920		26.450		8.350		7.970		23.820		9.380		21.150	
Treatment F				0.699		4.090		1.016		0.703		2.557		0.869		3.358	
Treatment Prob(F)				0.7041		0.0021		0.4518		0.7011		0.0286		0.5633		0.0070	

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.

Comparison of N Uptake Efficiency of Seven Rice Varietes

Experiment number	12-CM-19
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.36
pH	7.35
Extractable nutrients ppm	Ca-1,542; Cu-2.0; Mg-382; P-14; K-79; Na-102; S-13.5; Zn-6.3
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / March 19
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 28
Harvest date	August 1
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19
Water management	
Flush	None
Flood	April 26
Drain	July 10
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 31. Comparison of N uptake efficiency of seven rice varietes (2.1). Rice Research Station.

Crop Name						Rice		Rice		Rice		Rice				Rice		Rice	
Description						plant-hd		emerg-hd											
Rating Date										7/19/2012		8/1/2012				8/1/2012		8/1/2012	
Rating Type						50% HD		50% HD		Height		Lodge				Test Wt.		Yield	
Rating Unit						days		days		in		% plot		rate		lb/bu		lb/A	
Crop Stage Majority						Main		Main		Main		Main		Main		Main		Main	
Trt No.	Variety	Trt Name	Rate	Rate Unit	Growth Stage														
1	CL151	0 N	0	lb ai/A		90	i	81	i	31	hi	0	c	0	b	48.1	a-d	3300	lm
2	CL111	0 N	0	lb ai/A		86	j	77	j	31	ghi	0	c	0	b	47.6	def	3252	lm
3	CL181	0 N	0	lb ai/A		91	hi	82	hi	27	j	0	c	0	b	48.4	a	3968	k
4	LAH10	0 N	0	lb ai/A		102	a	93	a	38	b	0	c	0	b	45.5	i	5457	j
5	Jazzman-2	0 N	0	lb ai/A		93	g	84	g	29	ij	0	c	0	b	46.4	h	3070	m
6	CL261	0 N	0	lb ai/A		92	ghi	83	ghi	30	i	0	c	0	b	48.1	a-d	3529	klm
7	Caffey	0 N	0	lb ai/A		96	de	87	de	30	i	0	c	0	b	47.4	efg	3568	kl
8	CL151	90 N SPF	90	lb ai/A	4-5 leaf	93	g	84	g	36	bcd	0	c	0	b	48.1	a-d	6693	hi
9	CL111	90 N SPF	90	lb ai/A	4-5 leaf	90	i	81	i	37	bc	0	c	0	b	48.2	ab	8660	de
10	CL181	90 N SPF	90	lb ai/A	4-5 leaf	94	f	85	f	33	fgh	0	c	0	b	48.2	abc	7945	f
11	LAH10	90 N SPF	90	lb ai/A	4-5 leaf	100	b	91	b	46	a	13	b	0	b	44.3	j	11346	b
12	Jazzman-2	90 N SPF	90	lb ai/A	4-5 leaf	95	ef	86	ef	34	d-g	0	c	0	b	47.0	g	7031	gh
13	CL261	90 N SPF	90	lb ai/A	4-5 leaf	90	i	81	i	35	c-f	0	c	0	b	48.1	a-d	5649	j
14	Caffey	90 N SPF	90	lb ai/A	4-5 leaf	96	de	87	de	35	c-f	0	c	0	b	47.1	fg	8916	d
15	CL151	150 N SPF	150	lb ai/A	4-5 leaf	95	ef	86	ef	38	b	0	c	0	b	47.9	a-d	7328	g
16	CL111	150 N SPF	150	lb ai/A	4-5 leaf	92	gh	83	gh	38	b	0	c	0	b	47.6	def	9558	c
17	CL181	150 N SPF	150	lb ai/A	4-5 leaf	97	cd	88	cd	33	efg	0	c	0	b	47.6	c-f	8762	de
18	LAH10	150 N SPF	150	lb ai/A	4-5 leaf	99	b	90	b	47	a	45	a	2	a	43.5	k	12505	a
19	Jazzman-2	150 N SPF	150	lb ai/A	4-5 leaf	97	cd	88	cd	35	c-f	0	c	0	b	46.2	h	8301	ef
20	CL261	150 N SPF	150	lb ai/A	4-5 leaf	92	ghi	83	ghi	36	b-e	0	c	0	b	47.7	b-e	6418	i
21	Caffey	150 N SPF	150	lb ai/A	4-5 leaf	98	c	89	c	34	c-f	0	c	0	b	45.9	hi	10028	c
LSD (P=.05)						1.4		1.4		2.7		12.0		0.4		0.5		479.5	
Standard Deviation						1.0		1.0		1.9		8.5		0.3		0.4		339.0	
CV						1.1		1.2		5.5		308.7		364.1		0.8		4.9	
Treatment F						58.8		58.8		27.9		5.7		4.7		49.1		274.6	
Treatment Prob(F)						0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001	

Continued.

Table 31. Continued.

Crop Name						Rice	Rice	Rice	Rice	Rice
Description						Tissue	Tissue	N Uptake	Grain	N Uptake
Part Rated						Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Type						Biomass	N	N	N	N
Rating Unit						lb/A	%	lb/A	%	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main
Crop Stage Scale						50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Variety	Trt Name	Rate	Rate Unit	Growth Stage					
1	CL151	0 N	0	lb ai/A		3935 f	0.87 jk	34 g	0.91 ij	30 l
2	CL111	0 N	0	lb ai/A		3820 f	0.82 k	31 g	0.94 hij	31 kl
3	CL181	0 N	0	lb ai/A		4114 f	0.94 ijk	38 g	1.01 f-i	40 jk
4	LAH10	0 N	0	lb ai/A		5254 f	0.99 h-k	54 g	0.90 j	49 j
5	Jazzman-2	0 N	0	lb ai/A		4130 f	0.88 jk	36 g	1.05 d-g	32 kl
6	CL261	0 N	0	lb ai/A		4373 f	0.88 jk	38 g	1.05 d-h	37 kl
7	Caffey	0 N	0	lb ai/A		4864 f	0.82 k	40 g	1.00 g-j	35 kl
8	CL151	90 N SPF	90	lb ai/A	4-5 leaf	10970 cd	1.19 e-h	131 ef	1.05 d-h	70 hi
9	CL111	90 N SPF	90	lb ai/A	4-5 leaf	9446 de	1.17 f-i	110 f	1.13 b-e	97 e
10	CL181	90 N SPF	90	lb ai/A	4-5 leaf	12781 abc	1.22 d-h	156 de	1.18 abc	94 ef
11	LAH10	90 N SPF	90	lb ai/A	4-5 leaf	12843 abc	1.28 c-g	165 cde	1.03 e-h	117 bc
12	Jazzman-2	90 N SPF	90	lb ai/A	4-5 leaf	13513 ab	1.23 d-h	164 cde	1.15 a-d	81 g
13	CL261	90 N SPF	90	lb ai/A	4-5 leaf	8554 e	1.23 d-h	105 f	1.15 a-d	65 i
14	Caffey	90 N SPF	90	lb ai/A	4-5 leaf	10917 cde	1.09 g-j	118 f	1.11 c-f	99 de
15	CL151	150 N SPF	150	lb ai/A	4-5 leaf	13739 ab	1.46 bcd	198 abc	1.17 abc	85 fg
16	CL111	150 N SPF	150	lb ai/A	4-5 leaf	11542 bcd	1.42 b-e	161 de	1.23 ab	117 b
17	CL181	150 N SPF	150	lb ai/A	4-5 leaf	14035 a	1.52 abc	214 a	1.23 ab	108 cd
18	LAH10	150 N SPF	150	lb ai/A	4-5 leaf	13390 ab	1.56 ab	207 ab	1.14 a-d	143 a
19	Jazzman-2	150 N SPF	150	lb ai/A	4-5 leaf	10076 de	1.75 a	176 bcd	1.23 a	102 de
20	CL261	150 N SPF	150	lb ai/A	4-5 leaf	9891 de	1.62 ab	159 de	1.23 a	79 gh
21	Caffey	150 N SPF	150	lb ai/A	4-5 leaf	12569 abc	1.42 b-f	177 bcd	1.22 ab	122 b
LSD (P=.05)						2378.6	0.3	35.2	0.1	9.5
Standard Deviation						1681.9	0.2	24.9	0.1	6.7
CV						18.1	14.8	20.8	6.9	8.7
Treatment F						21.0	10.2	27.3	8.1	107.4
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	0.0001

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

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

Determine the Effect of N Source, Rate, and Variety on Ratoon Yields

Experiment number	12-CM-20
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.31
pH	7.0
Extractable nutrients ppm	Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0
Crop/Variety	Rice / CL111, CL151
Planting method/date	Drill seeded / March 19
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 28
Harvest date	July 31
Ratoon harvest date	October 22
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19 150 lb N/A 46-0-0, April 25
Water management	
Flush	None
Flood	April 26
Drain	July 10
Ratoon flood	August 7
Ratoon drain	October 12
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24 2 pt/A Basagran + 1% COC, August 6
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 32. Determine the effect of N source, rate, and variety (CL151 and CL111) on ratoon yields (3.1). Rice Research Station.

Crop Name						Rice		Rice		Rice		Rice		Rice		Rice	
Description						plant-hd		emerg-hd									
Rating Date										7/19/2012		7/31/2012		7/31/2012		7/31/2012	
Rating Type						50% HD		50% HD		Height		Lodge		Test Wt.		Yield	
Rating Unit						days		days		in		% plot	rate	lb/bu		lb/A	
Crop Stage Majority						Main		Main		Main		Main	Main	Main		Main	
Trt No.	Variety	Trt Name	Rate	Rate Unit	Growth Stage												
1	CL111	Urea	45	lb ai/A	Harvest	90	b	81	b	40	bc	.	.	46.2	a	10135	a
2	CL151	Urea	45	lb ai/A	Harvest	92	a	83	a	40	bc	.	.	46.5	a	7642	b
3	CL111	Amm Sulfate	45	lb ai/A	Harvest	90	b	81	b	42	a	20	3	46.4	a	9856	a
4	CL151	Amm Sulfate	45	lb ai/A	Harvest	92	a	83	a	39	bc	.	.	46.3	a	7594	b
5	CL111	Blend	45	lb ai/A	Harvest	90	b	81	b	41	ab	10	4	46.3	a	10041	a
6	CL151	Blend	45	lb ai/A	Harvest	92	a	83	a	39	bc	.	.	46.5	a	7683	b
7	CL111	Urea	90	lb ai/A	Harvest	91	b	82	b	41	ab	.	.	46.3	a	10126	a
8	CL151	Urea	90	lb ai/A	Harvest	92	a	83	a	39	c	.	.	46.3	a	7536	b
9	CL111	Amm Sulfate	90	lb ai/A	Harvest	90	b	81	b	39	bc	.	.	46.4	a	10241	a
10	CL151	Amm Sulfate	90	lb ai/A	Harvest	92	a	83	a	39	bc	.	.	46.4	a	7769	b
11	CL111	Blend	90	lb ai/A	Harvest	90	b	81	b	40	abc	.	.	46.3	a	10289	a
12	CL151	Blend	90	lb ai/A	Harvest	92	a	83	a	40	bc	.	.	46.5	a	7751	b
13	CL111	Urea	135	lb ai/A	Harvest	91	b	82	b	41	ab	.	.	46.4	a	10367	a
14	CL151	Urea	135	lb ai/A	Harvest	92	a	83	a	40	bc	.	.	46.3	a	7239	b
15	CL111	Amm Sulfate	135	lb ai/A	Harvest	90	b	81	b	41	ab	.	.	46.3	a	10120	a
16	CL151	Amm Sulfate	135	lb ai/A	Harvest	92	a	83	a	39	bc	.	.	46.5	a	7486	b
17	CL111	Blend	135	lb ai/A	Harvest	90	b	81	b	41	ab	.	.	46.2	a	10015	a
18	CL151	Blend	135	lb ai/A	Harvest	92	a	83	a	39	bc	.	.	46.3	a	7538	b
LSD (P=.05)						0.6		0.6		1.6		.	.	0.3		568.8	
Standard Deviation						0.4		0.4		1.1		.	.	0.2		402.2	
CV						0.5		0.5		2.7		.	.	0.4		4.5	
Treatment F						16.8		16.8		1.8				0.9		43.1	
Treatment Prob(F)						0.0001		0.0001		0.0499				0.5763		0.0001	

Continued.

Table 32. Continued.

Crop Name						Rice		Rice		Rice		Rice	
Rating Date								10/22/2012		10/22/2012			
Rating Type						50% HD		Test Wt.		Yield		Total Yield	
Rating Unit						days		lb/bu		lb/A		lb/A	
Crop Stage Majority						Ratoon		Ratoon		Ratoon		MC+RC	
Trt No.	Variety	Trt Name	Rate	Rate Unit	Growth Stage								
1	CL111	Urea	45	lb ai/A	Harvest	42	a	41.4	cde	1929	j	12064	bc
2	CL151	Urea	45	lb ai/A	Harvest	37	b	42.7	ab	2941	fg	10583	g
3	CL111	Amm Sulfate	45	lb ai/A	Harvest	42	a	41.0	e	2118	ij	11974	c
4	CL151	Amm Sulfate	45	lb ai/A	Harvest	37	b	43.1	a	3181	ef	10775	efg
5	CL111	Blend	45	lb ai/A	Harvest	42	a	41.1	de	2042	j	12083	bc
6	CL151	Blend	45	lb ai/A	Harvest	37	b	43.0	ab	2917	fg	10600	fg
7	CL111	Urea	90	lb ai/A	Harvest	42	a	41.5	cde	2557	h	12683	ab
8	CL151	Urea	90	lb ai/A	Harvest	37	b	43.1	ab	3641	bc	11176	d-g
9	CL111	Amm Sulfate	90	lb ai/A	Harvest	42	a	41.6	cde	2670	gh	12911	a
10	CL151	Amm Sulfate	90	lb ai/A	Harvest	37	b	43.2	a	3524	cd	11293	de
11	CL111	Blend	90	lb ai/A	Harvest	42	a	41.0	e	2382	hi	12671	ab
12	CL151	Blend	90	lb ai/A	Harvest	37	b	42.4	abc	3319	de	11071	d-g
13	CL111	Urea	135	lb ai/A	Harvest	42	a	41.5	cde	2935	fg	13302	a
14	CL151	Urea	135	lb ai/A	Harvest	37	b	43.1	a	3925	ab	11165	d-g
15	CL111	Amm Sulfate	135	lb ai/A	Harvest	42	a	40.9	e	2996	f	13116	a
16	CL151	Amm Sulfate	135	lb ai/A	Harvest	37	b	43.2	a	4063	a	11549	cd
17	CL111	Blend	135	lb ai/A	Harvest	42	a	42.0	bcd	3049	ef	13065	a
18	CL151	Blend	135	lb ai/A	Harvest	37	b	42.6	ab	3683	bc	11221	def
LSD (P=.05)						0.0		1.0		298.9		633.5	
Standard Deviation						0.0		0.7		211.3		447.9	
CV						0.0		1.7		7.1		3.8	
Treatment F						0.0		6.0		35.9		16.9	
Treatment Prob(F)						1.0000		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.

Ratoon Response to Nitrogen Fertilizer Rates

Experiment number	12-CM-21
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.31
pH	7.0
Extractable nutrients ppm	Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0
Crop/Variety	Rice / CL111, CL151
Planting method/date	Drill seeded / March 19
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 28
Harvest date	July 31
Ratoon harvest date	October 22
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19 150 lb N/A 46-0-0, April 25
Water management	
Flush	None
Flood	April 26
Drain	July 10
Ratoon flood	August 7
Ratoon drain	October 12
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24 2 pt/A Basagran + 1% COC, August 6
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 33. Ratoon response of CL111 and CL151 to nitrogen fertilizer rates (3.1). Rice Research Station.

Crop Name					Rice		Rice		Rice		Rice				Rice	
Description					plant-hd		emerg-hd									
Rating Date									7/19/2012		7/31/2012				7/31/2012	
Rating Type					50% HD		50% HD		Height		Lodge				Test Wt.	
Rating Unit					days		days		in		% plot		rate		lb/bu	
Crop Stage Majority					Main		Main		Main		Main		Main		Main	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage												
1	CL111				90	b	81	b	41	ab	6	a	3	a	46.0	a
	Urea	0	lb ai/A	Postharv												
2	CL111				90	b	81	b	41	ab	10	a	3	a	46.4	a
	Urea	30	lb ai/A	Postharv												
3	CL111				90	b	81	b	41	a	20	a	3	a	46.3	a
	Urea	60	lb ai/A	Postharv												
4	CL111				90	b	81	b	41	ab	27	a	3	a	46.7	a
	Urea	90	lb ai/A	Postharv												
5	CL111				90	b	81	b	40	a-d	6	a	3	a	46.4	a
	Urea	120	lb ai/A	Postharv												
6	CL111				90	b	81	b	41	abc	15	a	3	a	46.7	a
	Urea	150	lb ai/A	Postharv												
7	CL151				92	a	83	a	39	b-e	.		.		46.8	a
	Urea	0	lb ai/A	Postharv												
8	CL151				92	a	83	a	39	b-e	.		.		46.8	a
	Urea	30	lb ai/A	Postharv												
9	CL151				92	a	83	a	40	b-e	.		.		46.7	a
	Urea	60	lb ai/A	Postharv												
10	CL151				92	a	83	a	39	de	.		.		46.7	a
	Urea	90	lb ai/A	Postharv												
11	CL151				92	a	83	a	39	cde	.		.		46.7	a
	Urea	120	lb ai/A	Postharv												
12	CL151				92	a	83	a	39	e	.		.		46.8	a
	Urea	150	lb ai/A	Postharv												
LSD (P=.05)					0.0		0.0		1.7		214.8		13.0		0.6	
Standard Deviation					0.0		0.0		1.2		23.9		1.4		0.4	
CV					0.0		0.0		2.9		172.3		54.7		0.9	
Treatment F					0.0		0.0		2.6		0.5		0.0		1.4	
Treatment Prob(F)					1.0000		1.0000		0.0176		0.790		0.999		0.2292	

Continued.

Table 33. Continued.

					Rice		Rice		Rice		Rice		Rice	
Crop Name					Rice		Rice		Rice		Rice		Rice	
Rating Date					7/31/2012									
Rating Type					Yield		50% HD		Test Wt.		Yield		Total Yield	
Rating Unit					lb/A		days		lb/bu		lb/A		lb/A	
Crop Stage Majority					Main		Ratoon		Ratoon		Ratoon		MC+RC	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	CL111				10064	a	42	a	40.6	b-e	1745	h	11808	cd
	Urea	0	lb ai/A	Postharv										
2	CL111				9935	a	42	a	40.6	cde	2154	g	12088	cd
	Urea	30	lb ai/A	Postharv										
3	CL111				10105	a	42	a	40.3	e	2501	f	12606	bc
	Urea	60	lb ai/A	Postharv										
4	CL111				10280	a	42	a	40.3	e	2846	de	13126	ab
	Urea	90	lb ai/A	Postharv										
5	CL111				9970	a	42	a	41.0	a-e	3218	c	13189	ab
	Urea	120	lb ai/A	Postharv										
6	CL111				10417	a	42	a	40.5	de	3153	c	13569	a
	Urea	150	lb ai/A	Postharv										
7	CL151				7332	b	37	b	41.8	abc	2790	ef	10122	g
	Urea	0	lb ai/A	Postharv										
8	CL151				7427	b	37	b	41.7	a-d	3113	cd	10540	fg
	Urea	30	lb ai/A	Postharv										
9	CL151				7483	b	37	b	41.8	abc	3372	c	10855	efg
	Urea	60	lb ai/A	Postharv										
10	CL151				7097	b	37	b	42.2	a	3783	b	10880	efg
	Urea	90	lb ai/A	Postharv										
11	CL151				7321	b	37	b	41.9	ab	3953	ab	11275	def
	Urea	120	lb ai/A	Postharv										
12	CL151				7350	b	37	b	42.2	a	4106	a	11456	de
	Urea	150	lb ai/A	Postharv										
LSD (P=.05)					787.2		0.0		1.3		290.3		874.1	
Standard Deviation					545.2		0.0		0.9		201.1		605.4	
CV					6.2		0.0		2.1		6.6		5.1	
Treatment F					29.0		0.0		2.9		49.7		14.0	
Treatment Prob(F)					0.0001		1.0000		0.0094		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 and Comparison of Agronomic Response of CL111 Ratoon Crop to Post-Harvest N Application Source and Rate

Experiment number	12-CM-22
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.31
pH	7.0
Extractable nutrients ppm	Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0
Crop/Variety	Rice / CL111
Planting method/date	Drill seeded / March 19
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 28
Harvest date	July 31
Ratoon harvest date	October 22
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19 150 lb N/A 46-0-0, April 25
Water management	
Flush	None
Flood	April 26
Drain	July 10
Ratoon flood	August 7
Ratoon drain	October 12
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24 2 pt/A Basagran + 1% COC, August 6
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 34. Evaluation and comparison of the agronomic response of CL111 ratoon rice crop to post-harvest N application source and rate (3.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice		Rice	Rice
Description					plant-hd	emerg-hd					
Rating Date							7/19/2012	7/31/2012		7/31/2012	7/31/2012
Rating Type					50% HD	50% HD	Height	Lodge		Test Wt.	Yield
Rating Unit					days	days	in	% plot	rate	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	Agrotain-urea 0 lb/A	0	lb ai/A	PostHarv	90 a	81 a	42 ab	5 a	1 a	46.9 a	10397 a
2	Agrotain-urea 30 lb/A	30	lb ai/A	PostHarv	90 a	81 a	42 abc	0 a	0 a	47.1 a	10407 a
3	Agrotain-urea 60 lb/A	60	lb ai/A	PostHarv	90 a	81 a	41 a-d	3 a	1 a	46.8 a	10209 a
4	Agrotain-urea 90 lb/A	90	lb ai/A	PostHarv	90 a	81 a	40 d	5 a	1 a	46.8 a	9900 a
5	Agrotain-urea 120 lb/A	120	lb ai/A	PostHarv	90 a	81 a	40 d	0 a	0 a	46.9 a	10376 a
6	Agrotain-urea 150 lb/A	150	lb ai/A	PostHarv	90 a	81 a	41 a-d	0 a	0 a	46.8 a	10465 a
7	Urea 0 lb/A	0	lb ai/A	PostHarv	90 a	81 a	41 bcd	1 a	1 a	46.6 a	10374 a
8	Urea 30 lb/A	30	lb ai/A	PostHarv	90 a	81 a	40 d	0 a	0 a	46.9 a	10389 a
9	Urea 60 lb/A	60	lb ai/A	PostHarv	90 a	81 a	40 d	3 a	1 a	46.8 a	10409 a
10	Urea 90 lb/A	90	lb ai/A	PostHarv	90 a	81 a	41 bcd	0 a	0 a	46.8 a	10588 a
11	Urea 120 lb/A	120	lb ai/A	PostHarv	90 a	81 a	42 a	1 a	1 a	47.1 a	10423 a
12	Urea 150 lb/A	150	lb ai/A	PostHarv	90 a	81 a	40 cd	0 a	0 a	46.7 a	10367 a
LSD (P=.05)					0.0	0.0	1.5	6.4	1.6	0.4	353.7
Standard Deviation					0.0	0.0	1.0	4.4	1.1	0.3	245.0
CV					0.0	0.0	2.5	303.8	271.8	0.5	2.4
Treatment F					0.0	0.0	2.2	0.7	0.6	1.1	1.9
Treatment Prob(F)					1.0000	1.0000	0.0360	0.691	0.809	0.3753	0.0810

Continued.

Table 34. Continued.

Crop Name				Rice		Rice		Rice		Rice	
Description											
Rating Date						10/22/2012		10/22/2012			
Rating Type				50% HD		Test Wt.		Yield		Total Yield	
Rating Unit				days		lb/bu		lb/A		lb/A	
Crop Stage Majority				Ratoon		Ratoon		Ratoon		MC+RC	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	Agrotain-urea			42	a	39.9	a	1547	f	11944	e
	0 lb/A	0	lb ai/A	PostHarv							
2	Agrotain-urea			42	a	40.5	a	2006	d	12412	cde
	30 lb/A	30	lb ai/A	PostHarv							
3	Agrotain-urea			42	a	40.0	a	2174	d	12383	cde
	60 lb/A	60	lb ai/A	PostHarv							
4	Agrotain-urea			42	a	40.2	a	2634	bc	12533	cd
	90 lb/A	90	lb ai/A	PostHarv							
5	Agrotain-urea			42	a	40.5	a	3050	a	13426	a
	120 lb/A	120	lb ai/A	PostHarv							
6	Agrotain-urea			42	a	40.7	a	3049	a	13514	a
	150 lb/A	150	lb ai/A	PostHarv							
7	Urea			42	a	40.5	a	1701	ef	12075	de
	0 lb/A	0	lb ai/A	PostHarv							
8	Urea			42	a	40.4	a	1913	de	12302	de
	30 lb/A	30	lb ai/A	PostHarv							
9	Urea			42	a	40.8	a	2469	c	12878	bc
	60 lb/A	60	lb ai/A	PostHarv							
10	Urea			42	a	41.0	a	2711	bc	13298	ab
	90 lb/A	90	lb ai/A	PostHarv							
11	Urea			42	a	40.3	a	2806	ab	13229	ab
	120 lb/A	120	lb ai/A	PostHarv							
12	Urea			42	a	40.8	a	3058	a	13426	a
	150 lb/A	150	lb ai/A	PostHarv							
LSD (P=.05)				0.0		1.1		283.8		498.0	
Standard Deviation				0.0		0.8		196.5		344.9	
CV				0.0		1.9		8.1		2.7	
Treatment F				0.0		0.7		30.6		11.1	
Treatment Prob(F)				1.0000		0.7070		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.

Yield Benefit and Optimum Application Timing of HM0715 (Headset)

Experiment number ....: 12-CM-30

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

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.31
- **pH**...: 7.0
- **Extractable nutrients** ppm ....: Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0

Crop/Variety ....: Rice / CL151
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth**......................: 33 seeds/ft^2 / .5 inch
- **Emergence date**...........................: March 28
- **Harvest date** ....: July 31
- **Ratoon harvest date**....................: October 22

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

Fertilization..: 260 lb/A 0-24-24-2.8, March 19
120 lb N/A 46-0-0, April 25
90 lb N/A 46-0-0, August 6

Water management ....:
- **Flush** ....: None
- **Flood**..: April 26
- **Drain**..: July 10
- **Ratoon flood**.................................: August 7
- **Ratoon drain** ....: October 12

Pest management ....:
- **Herbicides**....................................: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
2 pt/A Basagran + 1% COC, August 6
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides**....................................: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 35. Yield benefit and optimum application timing of HM0715 (Headset) (3.1) Rice Research Station.

Crop Name					Rice		Rice		Rice		Rice		Rice	
Description					plant-hd		emerg-hd							
Rating Date									7/19/2012		7/31/2012		7/31/2012	
Rating Type					50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit					days		days		in		lb/bu		lb/A	
Crop Stage Majority					Main		Main		Main		Main		Main	
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	Grower Standard - Check				93	a	84	a	39	a	47.6	a	7104	a
2	HM-0715	1.0	pt/A	LP/PREFL	93	a	84	a	38	a	47.6	a	7044	a
	HM-9110	0.25	% v/v	LP/PREFL										
3	HM-0715	1.0	pt/A	PI	93	a	84	a	38	a	47.7	a	7184	a
	HM-9110	0.25	% v/v	PI										
4	HM-0715	1.0	pt/A	PD + 7 D	93	a	84	a	38	a	47.5	a	7062	a
	HM-9110	0.25	% v/v	PD + 7 D										
5	HM-0715	1.0	pt/A	BOOT SPL	93	a	84	a	38	a	47.7	a	7196	a
	HM-9110	0.25	% v/v	BOOT SPL										
6	HM-0715	1.0	pt/A	10% HEAD	93	a	84	a	38	a	47.7	a	6921	a
	HM-9110	0.25	% v/v	10% HEAD										
7	HM-0715	1.0	pt/A	MILK	93	a	84	a	37	a	47.7	a	7090	a
	HM-9110	0.25	% v/v	MILK										
LSD (P=.05)					0.0		0.0		1.6		0.3		335.7	
Standard Deviation					0.0		0.0		1.1		0.2		226.0	
CV					0.0		0.0		2.8		0.4		3.2	
Treatment F					0.0		0.0		0.8		0.7		0.7	
Treatment Prob(F)					1.0000		1.0000		0.5727		0.6519		0.6720	

Continued.

Table 35. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice	
Rating Date						10/22/2012	10/22/2012			
Rating Type					50% HD	Test Wt.	Yield	Total Yield	Milling	
Rating Unit					days	lb/bu	lb/A	lb/A	head	total
Sample Size, Unit									g	g
Collection Basis, Unit									100g	100g
Crop Stage Majority					Ratoon	Ratoon	Ratoon	MC+RC	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage						
1	Grower Standard - Check				35 a	41.0 a	3604 a	10708 a	53.8 a	67.8 a
2	HM-0715	1.0	pt/A	LP/PREFL	35 a	42.2 a	3689 a	10733 a	50.8 a	66.7 a
	HM-9110	0.25	% v/v	LP/PREFL						
3	HM-0715	1.0	pt/A	PI	35 a	42.0 a	3590 a	10774 a	51.1 a	67.2 a
	HM-9110	0.25	% v/v	PI						
4	HM-0715	1.0	pt/A	PD + 7 D	35 a	41.6 a	3722 a	10784 a	51.6 a	67.2 a
	HM-9110	0.25	% v/v	PD + 7 D						
5	HM-0715	1.0	pt/A	BOOT SPL	35 a	41.5 a	3607 a	10803 a	52.4 a	67.5 a
	HM-9110	0.25	% v/v	BOOT SPL						
6	HM-0715	1.0	pt/A	10% HEAD	35 a	42.4 a	3790 a	10711 a	53.0 a	67.6 a
	HM-9110	0.25	% v/v	10% HEAD						
7	HM-0715	1.0	pt/A	MILK	35 a	41.5 a	3676 a	10766 a	52.5 a	67.4 a
	HM-9110	0.25	% v/v	MILK						
LSD (P=.05)					0.0	1.1	239.1	424.0	2.6	0.9
Standard Deviation					0.0	0.8	160.9	285.4	1.8	0.6
CV					0.0	1.8	4.4	2.7	3.4	0.9
Treatment F					0.0	1.7	0.8	0.1	1.5	1.6
Treatment Prob(F)					1.0000	0.1850	0.5635	0.9986	0.2359	0.2131

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 ProGibb Rate on Ratoon Yield When Applied at the Soft Dough Stage of Main Crop Rice

Experiment number ....: 12-CM-31

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

Soil type ....: Crowley silt loam
% organic matter........................: 1.31
pH...: 7.0
Extractable nutrients ppm ....: Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0

Crop/Variety ....: Rice / CL151
Planting method/date ....: Drill seeded / March 19
Seeding rate/depth......................: 33 seeds/ft^2 / .5 inch
Emergence date...........................: March 28
Harvest date ....: July 31
Ratoon harvest date....................: October 22

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

Fertilization..: 260 lb/A 0-24-24-2.8, March 19
120 lb N/A 46-0-0, April 25
90 lb N/A 46-0-0, August 6

Water management ....:
Flush ....: None
Flood ....: April 26
Drain..: July 10
Ratoon flood ....: August 7
Ratoon drain ....: October 12

Pest management ....:
Herbicides....................................: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
2 pt/A Basagran + 1% COC, August 6
Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides....................................: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 36. Evaluation of ProGibb rate on ratoon yield when applied at the soft dough stage of main crop rice. Rice Research Station.

Crop Name									Rice	Rice	Rice	Rice	Rice	Rice
Description									plant-hd	emerg-hd	Tip of panicle			
Rating Date											7/19/2012	7/31/2012	7/31/2012	7/31/2012
Rating Type									50% HD	50% HD	Height	Moist	Test Wt.	Yield
Rating Unit									days	days	in	%	lb/bu	lb/A
Crop Stage Majority									Main	Main	Main	Main	Main	Main
Trt No.	Type	Treatment Name	Form Conc	Form Unit	Description	Rate	Rate Unit	Growth Stage						
1	PGR	ProGibb	40	%	ProGibb	0	g ai/A	sftdgh	93 a	84 a	38.0 a	11.1 a	47.7 a	7103 a
	INSE	Pyrethoid	2.08	lb/gal	Karate Z	2	fl oz/A							
	ADJ	NIS												
2	PGR	ProGibb	40	%	ProGibb	5	g ai/A	sftdgh	93 a	84 a	37.6 a	11.6 a	47.3 a	6855 b
	INSE	Pyrethoid	2.08	lb/gal	Karate Z	2	fl oz/A							
	ADJ	NIS												
3	PGR	ProGibb	40	%	ProGibb	10	g ai/A	sftdgh	93 a	84 a	38.5 a	11.5 a	47.3 a	6776 b
	INSE	Pyrethoid	2.08	lb/gal	Karate Z	2	fl oz/A							
	ADJ	NIS												
LSD (P=.05)									0.2	0.2	1.5	0.59	0.39	245
Standard Deviation									0.2	0.2	1.4	0.55	0.37	228
CV									0.2	0.2	3.6	4.8	0.8	3.3

Continued.

Table 36. Continued.

Crop Name									Rice	Rice	Rice	Rice	Rice
Description									harvest-hd				
Rating Date										10/22/2012	10/22/2012	10/22/2012	
Rating Type									50% HD	Moist	Test Wt.	Yield	Total Yield
Rating Unit									days	%	lb/bu	lb/A	lb/A
Crop Stage Majority									Ratoon	Ratoon	Ratoon	Ratoon	MC+RC
Trt No.	Type	Treatment Name	Form Conc	Form Unit	Description	Rate	Rate Unit	Growth Stage					
1	PGR	ProGibb	40	%	ProGibb	0	g ai/A	sftdgh	35 a	13.8 a	42.0 a	3761 a	10864 a
	INSE	Pyrethoid	2.08	lb/gal	Karate Z	2	fl oz/A						
	ADJ	NIS											
2	PGR	ProGibb	40	%	ProGibb	5	g ai/A	sftdgh	35 a	14.2 a	41.6 a	3792 a	10647 a
	INSE	Pyrethoid	2.08	lb/gal	Karate Z	2	fl oz/A						
	ADJ	NIS											
3	PGR	ProGibb	40	%	ProGibb	10	g ai/A	sftdgh	35 a	14.0 a	41.8 a	3825 a	10601 a
	INSE	Pyrethoid	2.08	lb/gal	Karate Z	2	fl oz/A						
	ADJ	NIS											
LSD (P=.05)									0.0	1.99	1.29	194.2	273
Standard Deviation									0.0	1.86	1.20	181.1	255
CV									0.0	13.3	2.9	4.8	2.4

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

Evaluation of Brandt Rice Program

Experiment number ....:	12-CM-33
Site and design ....:	
Location/Cooperator ....:	Rice Research Station (Crowley Main)
Tillage type ....:	Fall Stale
Experimental design ....:	Randomized complete block
Number of reps ....:	4
Plot size ....:	4.66 x 16 ft
Row width/rows per plot ....:	8 in / 7
Soil type ....:	Crowley silt loam
% organic matter ....:	1.33
pH ....:	7.36
Extractable nutrients ppm ....:	Ca-1,191; Cu-1.6; Mg-330; P-9; K-76; Na-84; S-10.6; Zn-4.9
Crop/Variety ....:	Rice / CL151
Planting method/date ....:	Drill seeded / March 18
Seeding rate/depth ....:	33 seeds/ft^2 / .5 inch
Emergence date ....:	March 26
Harvest date ....:	July 30
Ratoon harvest date ....:	October 23
Seed treatment/cwt ....:	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization ....:	260 lb/A 0-24-24-2.8, March 19 120 lb N/A 46-0-0, May 1 90 lb N/A 46-0-0, August 6
Water management ....:	
Flush ....:	None
Flood ....:	May 3
Drain ....:	July 10
Ratoon flood ....:	August 7
Ratoon drain ....:	October 9
Pest management ....:	
Herbicides ....:	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24 2 pt/A Basagran + 1% COC, August 6
Insecticides ....:	0.137 lb ai/cwt Dermacor seed treatment
Fungicides ....:	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 37. Evaluation of Brandt Rice Program. Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emerg-hd						
Rating Date							7/19/2012	7/30/2012	7/30/2012		10/23/2012	10/23/2012
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	50% HD	Test Wt.	Yield
Rating Unit					Days	days	in	lb/bu	lb/A	days	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	Untreated check				97 A	89 a	37 a	42.5 a	7328 a	38 a	45.9 a	3476 a
	Urea	120	lb ai/A	Preflood								
2	Urea	120	lb ai/A	Preflood	97 A	89 a	36 a	42.4 a	7252 a	38 a	45.9 a	3483 a
	Manniplex Cal/Zn	2	qt/A	3 tiller								
	Converge (30% N)	1	gal/A	5% HD								
	Manniplex Cal/Zn	1	qt/A	5% HD								
	Nboost	2	qt/A	100%HD								
	Manniplex K	2	qt/A	100%HD								
3	Urea	120	lb ai/A	Preflood	97 A	89 A	37 a	41.6 a	7148 a	38 a	46.1 a	3622 a
	Manniplex Cal/Zn	2	qt/A	3 tiller								
	NBoost	2	qt/A	5% HD								
	Manniplex Cal/Zn	1	qt/A	5% HD								
	Nboost	2	qt/A	100%HD								
	Manniplex K	2	qt/A	100%HD								
LSD (P=.05)					0.0	0.0	2.4	1.5	691.4	0.0	0.5	246.0
Standard Deviation					0.0	0.0	1.4	0.9	399.6	0.0	0.3	142.2
CV					0.0	0.0	3.8	2.1	5.5	0.0	0.7	4.0
Treatment F					0.0	0.0	1.1	1.3	0.2	0.0	0.9	1.3
Treatment Prob(F)					1.0000	1.0000	0.4045	0.3513	0.8210	1.0000	0.4517	0.3285

Continued.

Table 37. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Tissue	Tissue	Tissue	Tissue	N Uptake	N Uptake
Part Rated						Abvgrd -	Abvgrd -	Abvgrd -	Abvgrd -	Total -	Total -
Rating Date						5/14/2012	7/10/2012	5/14/2012	7/10/2012	5/14/2012	7/10/2012
Rating Type					Total Yield	Biomass	Biomass	N	N	N	N
Rating Unit					lb/A	lb/A	lb/A	%	%	lb/A	lb/A
Crop Stage Majority					MC+RC	Main	Main	Main	Main	Main	Main
Crop Stage Scale						Midtill	100% HD	Midtill	100% HD	Midtill	100% HD
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	Untreated check				10804 a	1821 a	30043 a	3.86 a	1.19 a	71 a	356 a
	Urea	120	lb ai/A	Preflood							
2	Urea	120	lb ai/A	Preflood	10735 a	2057 a	29710 a	3.93 a	1.19 a	81 a	351 a
	Manniplex Cal/Zn	2	qt/A	3 tiller							
	Converge (30% N)	1	gal/A	5% HD							
	Manniplex Cal/Zn	1	qt/A	5% HD							
	Nboost	2	qt/A	100%HD							
	Manniplex K	2	qt/A	100%HD							
3	Urea	120	lb ai/A	Preflood	10770 a	1783 a	27609 a	3.79 a	1.21 a	67 a	334 a
	Manniplex Cal/Zn	2	qt/A	3 tiller							
	NBoost	2	qt/A	5% HD							
	Manniplex Cal/Zn	1	qt/A	5% HD							
	Nboost	2	qt/A	100%HD							
	Manniplex K	2	qt/A	100%HD							
LSD (P=.05)					889.9	555.5	4102.1	0.5	0.2	28.0	64.0
Standard Deviation					514.3	321.0	2370.8	0.3	0.1	16.2	37.0
CV					4.8	17.0	8.1	7.9	10.8	22.1	10.7
Treatment F					0.0	0.9	1.2	0.2	0.0	0.7	0.4
Treatment Prob(F)					0.9821	0.4720	0.3544	0.8273	0.9587	0.5127	0.6811

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 AvGro Crop/Turf on CL151 Rice Yield

Experiment number	12-CM-36
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.31
pH	7.0
Extractable nutrients ppm	Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0
Crop/Variety	Rice / CL151
Planting method/date	Drill seeded / March 19
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 28
Harvest date	July 31
Ratoon harvest date	October 22
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19 90 lb N/A 46-0-0, August 6
Water management	
Flush	None
Flood	April 26
Drain	July 10
Ratoon flood	August 7
Ratoon drain	October 12
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24 2 pt/A Basagran + 1% COC, August 6
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 38. Evaluation of AvGro Crop/Turf on CL151 rice yield (1.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emerg-hd							
Rating Date							7/19/2012	7/31/2012	7/31/2012		10/22/2012	10/22/2012	10/22/2012
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	50% HD	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	days	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage									
1	AvGro Crop/Turf	0	lb/A	ATPLAN	93 a	84 a	37 a	46.8 d	7822 a	37 a	43.2 a	3382 a	11204 b
	120 N	120	lb ai/A	preflood									
2	AvGro Crop/Turf	125	lb/A	ATPLAN	93 a	84 a	38 a	47.0 bcd	7857 a	37 a	44.2 a	3278 a	11135 b
	120 N	120	lb ai/A	preflood									
3	AvGro Crop/Turf	250	lb/A	ATPLAN	93 a	84 a	38 a	46.9 bcd	8089 a	37 a	44.5 a	3618 a	11707 a
	120 N	120	lb ai/A	preflood									
4	AvGro Crop/Turf	500	lb/A	ATPLAN	93 a	84 a	38 a	46.9 cd	7999 a	37 a	44.1 a	3407 a	11406 ab
	120 N	120	lb ai/A	preflood									
5	AvGro Crop/Turf	1000	lb/A	ATPLAN	93 a	84 a	38 a	47.1 abc	7965 a	37 a	43.9 a	3512 a	11477 ab
	120 N	120	lb ai/A	preflood									
6	AvGro Crop/Turf	250	lb/A	ATPLAN	88 b	79 b	30 b	47.1 ab	3562 b	37 a	44.4 a	2729 b	6291 c
	0 N	0	lb ai/A	preflood									
7	AvGro Crop/Turf	0	lb/A	ATPLAN	88 b	79 b	31 b	47.2 a	3848 b	37 a	43.8 a	2686 b	6534 c
	0 N	0	lb ai/A	preflood									
LSD (P=.05)					1.2	1.2	1.8	0.3	464.4	0.0	1.1	402.1	482.6
Standard Deviation					0.8	0.8	1.2	0.2	312.6	0.0	0.7	270.6	324.8
CV					0.9	1.0	3.5	0.4	4.6	0.0	1.7	8.4	3.3
Treatment F					32.7	32.7	34.8	3.5	176.0	0.0	1.4	7.6	224.8
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0171	0.0001	1.0000	0.2562	0.0004	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 the Interaction of SumaGrow and N Rate on Neptune Agronomics and Yield

Experiment number ....: 12-CM-38

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.31
- **pH** ....: 7.0
- **Extractable nutrients** ppm ....: Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0

Crop/Variety ....: Rice / Neptune
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 28
- **Harvest date** ....: August 1
- **Ratoon harvest date** ....: October 23

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

Fertilization ....: 260 lb/A 0-24-24-2.8, March 19
90 lb N/A 46-0-0, August 6

Water management ....:
- **Flush** ....: None
- **Flood** ....: April 26
- **Drain** ....: July 10
- **Ratoon flood** ....: August 7
- **Ratoon drain** ....: October 12

Pest management ....:
- **Herbicides** ....: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
  2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
  2 pt/A Basagran + 1% COC, August 6
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 39. Evaluation of the interaction of SumaGrow and N rate on Neptune agronomics and yield (1.1). Rice Research Station.

Trt No.	Trt Name	Rate	Rate Unit	Growth Stage									
Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emerg-hd							
Rating Date							7/19/2012	8/1/2012	8/1/2012		10/23/2012	10/23/2012	
Rating Type					50% HD	50% HD	Height	Test Wt.	Yield	50% HD	Test Wt.	Yield	Total Yield
Rating Unit					days	days	in	lb/bu	lb/A	days	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC+RC
1	UTC	0	gal/A	preflood	99 a	90 a	26 d	46.3 b	1024 c	34 b	45.8 a	2124 b	3148 c
	UTC	0	lb ai/A	preflood									
2	No SumaGrow	1	gal/A	preflood	98 bc	89 bc	30 bcd	46.7 a	5327 b	40 a	44.9 b	2720 a	8047 b
	Urea (1/2 rate; 60 lb/A)	60	lb ai/A	preflood									
3	SumaGrow @ 1 gal/A	1	gal/A	preflood	98 c	89 c	32 abc	46.9 a	5439 b	40 a	45.0 b	2808 a	8248 b
	Urea (1/2 rate; 60 lb/A)	60	lb ai/A	preflood									
4	No SumaGrow	0	gal/A	preflood	99 b	90 b	33 ab	45.7 c	7971 a	40 a	44.5 c	2739 a	10710 a
	Urea (full rate; 120 lb/A)	120	lb ai/A	preflood									
5	SumaGrow @ 1 gal/A	1	gal/A	preflood	99 b	90 b	35 a	45.9 c	8287 a	40 a	44.0 d	2781 a	11067 a
	Urea (full rate; 120 lb/A)	120	lb ai/A	preflood									
6	SumaGrow @ 1.5 gal/A	1.5	gal/A	preflood	99 b	90 b	29 cd	46.7 a	1591 c	34 b	45.7 a	2288 b	3879 c
	No Urea	0	lb ai/A	preflood									
LSD (P=.05)					0.5	0.5	4.2	0.3	746.9	0.0	0.4	250.8	887.5
Standard Deviation					0.3	0.3	2.8	0.2	495.7	0.0	0.3	166.4	589.0
CV					0.3	0.4	9.0	0.4	10.0	0.0	0.6	6.5	7.8
Treatment F					4.1	4.1	5.7	21.8	154.1	0.0	30.4	12.4	129.0
Treatment Prob(F)					0.0155	0.0155	0.0038	0.0001	0.0001	1.0000	0.0001	0.0001	0.0001

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

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

Evaluation of Phosphorus and Potassium Fertilizer Sources in Rice Production

Experiment number ....: 12-CM-39

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

Soil type ....: Crowley silt loam
% organic matter........................: 1.33
pH...: 7.36
Extractable nutrients ppm ....: Ca-1,191; Cu-1.6; Mg-330; P-9; K-76; Na-84; S-10.6; Zn-4.9

Crop/Variety ....: Rice / CL151
Planting method/date ....: Drill seeded / March 18
Seeding rate/depth......................: 33 seeds/ft^2 / .5 inch
Emergence date...........................: March 26
Harvest date ....: July 30
Ratoon harvest date....................: October 23

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

Fertilization..: 120 lb N/A 46-0-0, May 1
90 lb N/A 46-0-0, August 6

Water management ....:
Flush ....: None
Flood...: May 3
Drain...: July 10
Ratoon flood.................................: August 7
Ratoon drain ....: October 9

Pest management ....:
Herbicides....................................: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
2 pt/A Basagran + 1% COC, August 6
Insecticides ....: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides....................................: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 40. Evaluation of phosphorus and potassium fertilizer sources in rice production (1.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant population	plant-hd	emerg-hd							
Rating Date					4/12/2012			7/19/2012	7/30/2012	7/30/2012				
Rating Type					plants	50% HD	50% HD	Height	Test Wt.	Yield	50% HD	Test Wt.	Yield	Total Yield
Rating Unit					pl/sq ft	Days	days	in	lb/bu	lb/A	days	lb/bu	lb/A	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC+RC
Crop Stage Scale					2-3 leaf									
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage										
1	DAP	40	lb ai/A	ATPLAN	17 a	98 A	90 a	37 b	43.3 a	7931 a	38 a	43.4 a	3141 a	11072 a
2	MOP	60	lb ai/A	ATPLAN	19 a	98 A	90 a	37 ab	43.3 a	7890 a	38 a	42.7 a	2849 a	10740 a
3	DAP	40	lb ai/A	ATPLAN	18 a	98 A	90 a	37 ab	43.3 a	7711 a	38 a	44.8 a	3111 a	10822 a
	MOP	60	lb ai/A	ATPLAN										
4	DAP	40	lb ai/A	ATPLAN	17 a	98 A	90 a	37 b	43.2 a	7768 a	38 a	44.5 a	3314 a	11082 a
	ZnSO4	5	lb ai/A	ATPLAN										
	MOP	60	lb ai/A	ATPLAN										
5	DAP	40	lb ai/A	ATPLAN	17 a	98 A	90 a	37 ab	43.1 a	7504 a	38 a	43.3 a	3063 a	10567 a
	ZnSO4	10	lb ai/A	ATPLAN										
	MOP	60	lb ai/A	ATPLAN										
6	MESZ	40	lb ai/A	ATPLAN	19 a	98 A	90 a	35 c	43.1 a	7429 a	38 a	44.3 a	2992 a	10421 a
7	MESZ	40	lb ai/A	ATPLAN	16 a	98 A	90 a	38 a	43.0 a	7710 a	38 a	45.6 a	3109 a	10819 a
	MOP	60	lb ai/A	ATPLAN										
8	MESZ	40	lb ai/A	ATPLAN	19 a	98 A	90 a	37 ab	43.1 a	7600 a	38 a	45.8 a	3259 a	10859 a
	ZnSO4	4	lb ai/A	ATPLAN										
	MOP	60	lb ai/A	ATPLAN										
9	DAP	40	lb ai/A	ATPLAN	20 a	97 A	89 a	37 ab	43.4 a	7489 a	38 a	44.3 a	2846 a	10335 a
	EM- 2	100	lb/A	ATPLAN										
10	DAP	40	lb ai/A	ATPLAN	18 a	98 A	90 a	38 ab	43.3 a	7745 a	38 a	44.5 a	2975 a	10720 a
	EM- 4	100	lb/A	ATPLAN										
11	MESZ	40	lb ai/A	ATPLAN	19 a	98 A	90 a	37 ab	43.1 a	8013 a	38 a	45.8 a	3218 a	11231 a
	EM- 2	100	lb/A	ATPLAN										
12	MESZ	40	lb ai/A	ATPLAN	18 a	98 A	90 a	38 ab	43.0 a	7691 a	38 a	44.5 a	3226 a	10917 a
	EM- 4	100	lb/A	ATPLAN										
LSD (P=.05)					3.20	0.50	0.51	1.40	0.44	476.20	0.00	3.68	472.80	619.40
Standard Deviation					2.20	0.40	0.36	1.00	0.31	329.80	0.00	2.55	327.40	428.90
CV					12.34	0.36	0.40	2.66	0.71	4.28	0.00	5.73	10.59	3.97
Treatment F					1.13	1.56	1.56	3.05	0.80	1.20	0.00	0.59	0.88	1.54
Treatment Prob(F)					0.3728	0.1574	0.1574	0.0065	0.6398	0.3225	1.0000	0.8222	0.5724	0.1626

Continued.

Table 40. Continued

Crop Name					Rice							
Description					Tissue							
Part Rated					Abvgrd -							
Rating Date					5/14/2012							
Rating Type					Biomass	N	C	Al	B	Ca	Cu	Fe
Rating Unit					lb/A	%	%	ppm	ppm	%	ppm	ppm
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale					Midtill	Midtill	Midtill	Midtill	Midtill	Midtill	Midtill	Midtill
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	DAP	40	lb ai/A	ATPLAN	1208 a	1.74 a	40.30 a	181.8 a	6 a	0.29 b	6.67 abc	227.93 a
2	MOP	60	lb ai/A	ATPLAN	735 c	1.72 a	40.05 a	230.0 a	5 a	0.33 a	7.00 a	249.16 a
3	DAP	40	lb ai/A	ATPLAN	1181 a	1.63 a	40.30 a	239.6 a	5 a	0.26 bc	6.25 cd	240.98 a
	MOP	60	lb ai/A	ATPLAN								
4	DAP	40	lb ai/A	ATPLAN	1275 a	1.67 a	40.00 a	528.2 a	5 a	0.25 c	6.73 abc	541.21 a
	ZnSO4	5	lb ai/A	ATPLAN								
	MOP	60	lb ai/A	ATPLAN								
5	DAP	40	lb ai/A	ATPLAN	1292 a	1.72 a	39.63 a	231.5 a	5 a	0.28 bc	6.72 abc	240.10 a
	ZnSO4	10	lb ai/A	ATPLAN								
	MOP	60	lb ai/A	ATPLAN								
6	MESZ	40	lb ai/A	ATPLAN	900 bc	1.79 a	40.35 a	208.8 a	5 a	0.30 ab	6.31 cd	224.35 a
7	MESZ	40	lb ai/A	ATPLAN	1069 ab	1.67 a	39.73 a	245.1 a	5 a	0.27 bc	6.57 a-d	246.36 a
	MOP	60	lb ai/A	ATPLAN								
8	MESZ	40	lb ai/A	ATPLAN	1117 ab	1.46 a	40.10 a	252.1 a	6 a	0.26 bc	6.87 ab	297.07 a
	ZnSO4	4	lb ai/A	ATPLAN								
	MOP	60	lb ai/A	ATPLAN								
9	DAP	40	lb ai/A	ATPLAN	1297 a	1.51 a	39.55 a	255.6 a	5 a	0.28 bc	6.54 a-d	257.59 a
	EM- 2	100	lb/A	ATPLAN								
10	DAP	40	lb ai/A	ATPLAN	1278 a	1.61 a	40.05 a	269.0 a	5 a	0.28 bc	6.42 bcd	270.97 a
	EM- 4	100	lb/A	ATPLAN								
11	MESZ	40	lb ai/A	ATPLAN	1288 a	1.50 a	39.90 a	227.9 a	5 a	0.26 bc	6.09 d	229.72 a
	EM- 2	100	lb/A	ATPLAN								
12	MESZ	40	lb ai/A	ATPLAN	1118 ab	1.49 a	40.18 a	234.6 a	5 a	0.28 bc	6.31 cd	233.42 a
	EM- 4	100	lb/A	ATPLAN								
LSD (P=.05)					258.50	0.38	0.73	217.72	0.60	0.04	0.53	224.43
Standard Deviation					179.00	0.26	0.50	150.79	0.40	0.03	0.37	155.43
CV					15.61	16.22	1.25	58.29	8.17	9.71	5.65	57.23
Treatment F					3.86	0.71	1.12	1.36	1.10	2.63	2.16	1.26
Treatment Prob(F)					0.0012	0.7242	0.3786	0.2390	0.3931	0.0158	0.0429	0.2875

Continued.

Table 40. Continued

					Mg	Mn	Mo	P	K	Na	S	Zn
Crop Name					Rice							
Description					Tissue							
Part Rated					Abvgrd -							
Rating Date					5/14/2012							
Rating Type					Mg	Mn	Mo	P	K	Na	S	Zn
Rating Unit					%	ppm	ppm	%	%	ppm	%	ppm
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale					Midtill	Midtill	Midtill	Midtill	Midtill	Midtill	Midtill	Midtill
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	DAP	40	lb ai/A	ATPLAN	0.22 a	553.61 cd	8.40 ab	0.26 ab	2.22 d	2852.46 ab	0.29 ab	35.15 c
2	MOP	60	lb ai/A	ATPLAN	0.21 abc	554.95 cd	8.93 a	0.17 f	2.30 cd	1906.94 e	0.25 c	35.59 c
3	DAP	40	lb ai/A	ATPLAN	0.20 cd	582.20 abc	7.03 b-e	0.25 abc	2.54 bc	2470.38 bcd	0.27 bc	34.59 c
	MOP	60	lb ai/A	ATPLAN								
4	DAP	40	lb ai/A	ATPLAN	0.19 d	614.85 ab	5.83 ef	0.25 abc	2.78 ab	2314.10 cde	0.28 ab	39.98 a
	ZnSO4	5	lb ai/A	ATPLAN								
	MOP	60	lb ai/A	ATPLAN								
5	DAP	40	lb ai/A	ATPLAN	0.20 cd	632.63 a	5.48 ef	0.25 bcd	2.91 a	2067.29 cde	0.29 ab	40.38 a
	ZnSO4	10	lb ai/A	ATPLAN								
	MOP	60	lb ai/A	ATPLAN								
6	MESZ	40	lb ai/A	ATPLAN	0.22 ab	513.86 d	7.65 abc	0.24 b-e	2.02 d	3060.26 a	0.29 ab	33.82 c
7	MESZ	40	lb ai/A	ATPLAN	0.19 d	631.34 a	6.56 c-f	0.23 de	2.75 ab	2012.04 de	0.28 ab	37.06 abc
	MOP	60	lb ai/A	ATPLAN								
8	MESZ	40	lb ai/A	ATPLAN	0.20 cd	623.69 ab	5.57 ef	0.23 e	2.76 ab	1978.58 de	0.30 a	39.12 ab
	ZnSO4	4	lb ai/A	ATPLAN								
	MOP	60	lb ai/A	ATPLAN								
9	DAP	40	lb ai/A	ATPLAN	0.20 cd	590.74 abc	8.18 ab	0.27 a	2.70 ab	2367.39 b-e	0.26 bc	34.35 c
	EM- 2	100	lb/A	ATPLAN								
10	DAP	40	lb ai/A	ATPLAN	0.20 bcd	573.14 bc	7.51 a-d	0.25 abc	2.60 b	2558.65 abc	0.27 bc	34.70 c
	EM- 4	100	lb/A	ATPLAN								
11	MESZ	40	lb ai/A	ATPLAN	0.20 cd	595.67 abc	6.02 def	0.23 e	2.68 ab	2224.47 cde	0.28 ab	36.39 bc
	EM- 2	100	lb/A	ATPLAN								
12	MESZ	40	lb ai/A	ATPLAN	0.20 cd	588.00 abc	5.19 f	0.24 cde	2.57 bc	2329.07 b-e	0.29 ab	35.01 c
	EM- 4	100	lb/A	ATPLAN								
LSD (P=.05)					0.02	53.62	1.58	0.02	0.28	533.41	0.03	3.52
Standard Deviation					0.01	37.13	1.09	0.01	0.19	369.42	0.02	2.43
CV					6.16	6.32	15.95	5.36	7.56	15.75	6.98	6.70
Treatment F					2.77	3.68	5.38	16.74	7.27	3.63	2.43	3.54
Treatment Prob(F)					0.0116	0.0018	0.0001	0.0001	0.0001	0.0020	0.0240	0.0024

Continued.

Table 40. Continued

Crop Name					Rice			Rice
Description					Tissue			N-Uptake
Part Rated					Abvgrd -			total -
Rating Date					6/29/2012			6/29/2012
Rating Type					Biomass	N	C	N Uptake
Rating Unit					lb/A	%	%	lb/A
Crop Stage Majority					Main	Main	Main	Main
Crop Stage Scale					50% HD	50% HD	50% HD	50% HD
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage				
1	DAP	40	lb ai/A	ATPLAN	11191 a	1.74 a	40.3 a	193 a
2	MOP	60	lb ai/A	ATPLAN	11686 a	1.72 a	40.1 a	202 a
3	DAP	40	lb ai/A	ATPLAN	11946 a	1.63 a	40.3 a	195 a
	MOP	60	lb ai/A	ATPLAN				
4	DAP	40	lb ai/A	ATPLAN	10824 a	1.67 a	40.0 a	180 a
	ZnSO4	5	lb ai/A	ATPLAN				
	MOP	60	lb ai/A	ATPLAN				
5	DAP	40	lb ai/A	ATPLAN	12237 a	1.72 a	39.6 a	208 a
	ZnSO4	10	lb ai/A	ATPLAN				
	MOP	60	lb ai/A	ATPLAN				
6	MESZ	40	lb ai/A	ATPLAN	11343 a	1.79 a	40.4 a	202 a
7	MESZ	40	lb ai/A	ATPLAN	12231 a	1.67 a	39.7 a	203 a
	MOP	60	lb ai/A	ATPLAN				
8	MESZ	40	lb ai/A	ATPLAN	12172 a	1.46 a	40.1 a	178 a
	ZnSO4	4	lb ai/A	ATPLAN				
	MOP	60	lb ai/A	ATPLAN				
9	DAP	40	lb ai/A	ATPLAN	12136 a	1.51 a	39.6 a	182 a
	EM- 2	100	lb/A	ATPLAN				
10	DAP	40	lb ai/A	ATPLAN	10862 a	1.61 a	40.1 a	176 a
	EM- 4	100	lb/A	ATPLAN				
11	MESZ	40	lb ai/A	ATPLAN	11841 a	1.50 a	39.9 a	178 a
	EM- 2	100	lb/A	ATPLAN				
12	MESZ	40	lb ai/A	ATPLAN	12015 a	1.49 a	40.2 a	179 a
	EM- 4	100	lb/A	ATPLAN				
LSD (P=.05)					1903.80	0.38	0.72	55.10
Standard Deviation					1318.50	0.26	0.50	38.10
CV					11.26	16.22	1.25	20.10
Treatment F					0.63	0.71	1.12	0.40
Treatment Prob(F)					0.7891	0.7242	0.3786	0.9458

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 CruiserMaxx and Nitrogen Rate on Rice Agronomics and Yield

Experiment number ....: 12-CM-42

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

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.31
- **pH**...: 7.0
- **Extractable nutrients** ppm ....: Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0

Crop/Variety ....: Rice / CL151
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth**......................: 33 seeds/ft^2 / .5 inch
- **Emergence date**...........................: March 28
- **Harvest date** ....: August 1
- **Ratoon harvest date**....................: October 22

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

Fertilization..: 260 lb/A 0-24-24-2.8, March 19
90 lb N/A 46-0-0, August 6

Water management ....:
- **Flush** ....: None
- **Flood**...: April 26
- **Drain**..: July 10
- **Ratoon flood**.................................: August 7
- **Ratoon drain** ....: October 12

Pest management ....:
- **Herbicides**...................................: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
2 pt/A Basagran + 1% COC, August 6
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides**...................................: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 41. Evaluation of CruiserMaxx and nitrogen rate on rice agronomics and yield (1.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Description						plant-hd	emerg-hd			
Rating Date					4/25/2012			7/19/2012	8/1/2012	8/1/2012
Rating Type					Height	50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					cm	days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main
Crop Stage Scale					3-4 leaf					
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage						
1	0 Untreated				18 a	90 cd	81 cd	29 e	46.5 a	2795 f
2	0 CruiserMaxx Rice	 7	 fl oz/cwt		17 a	90 de	81 de	30 e	46.8 a	3243 e
3	45 lb N/A Untreated	45	lb ai/A	PF	17 a	91 bc	82 bc	32 d	47.3 a	5249 d
4	45 lb N/A CruiserMaxx Rice	45 7	lb ai/A fl oz/cwt	PF	17 a	89 e	80 e	33 d	47.4 a	5481 d
5	90 lb N/A Untreated	90	lb ai/A	PF	17 a	94 a	85 a	36 c	46.8 a	6903 b
6	90 lb N/A CruiserMaxx Rice	90 7	lb ai/A fl oz/cwt	PF	18 a	91 b	82 b	36 bc	47.1 a	6565 c
7	90 lb N/A 45 lb N/A Untreated	90 90	lb ai/A lb ai/A	PF PD	18 a	94 a	85 a	36 c	47.0 a	7127 ab
8	90 lb N/A 45 lb N/A CruiserMaxx Rice	90 90 7	lb ai/A lb ai/A fl oz/cwt	PF PD	17 a	91 b	82 b	37 bc	47.3 a	7016 ab
9	135 lb N/A 45 lb N/A Untreated	135 45	lb ai/A lb ai/A	PF PD	17 a	94 a	85 a	38 ab	46.8 a	7275 a
10	135 lb N/A 45 lb N/A CruiserMaxx Rice	135 45 7	lb ai/A lb ai/A fl oz/cwt	PF PD	17 a	94 a	85 a	39 a	46.7 a	6978 ab
LSD (P=.05)					1.3	0.6	0.6	1.6	0.7	325.8
Standard Deviation					0.9	0.4	0.4	1.1	0.5	224.5
CV					5.1	0.5	0.5	3.3	1.0	3.8
Treatment F					1.2	85.4	85.4	36.8	1.7	216.3
Treatment Prob(F)					0.3504	0.0001	0.0001	0.0001	0.1356	0.0001

Continued.

Table 41. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description									Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	Total -
Rating Date									6/15/2012	6/15/2012	6/15/2012
Rating Type					50% HD	Test Wt.	Yield	Total Yield	Biomass	N	N
Rating Unit					days	lb/bu	lb/A	lb/A	lb/A	%	lb/A
Crop Stage Majority					Ratoon	Ratoon	Ratoon	MC+RC	Main	Main	Main
Crop Stage Scale									10% HD	10% HD	10% HD
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	0				34 a	42.3 a	2656 c	5452 d	1443 c	0.93 d	13 d
	Untreated										
2	0				34 a	41.5 a	2705 c	5948 d	.	.	
	CruiserMaxx Rice	7	fl oz/cwt								
3	45 lb N/A	45	lb ai/A	PF	34 a	42.5 a	3175 b	8424 c	3008 b	1.02 cd	31 c
	Untreated										
4	45 lb N/A	45	lb ai/A	PF	34 a	42.2 a	2772 c	8253 c	3753 ab	1.16 bc	43 b
	CruiserMaxx Rice	7	fl oz/cwt								
5	90 lb N/A	90	lb ai/A	PF	34 a	42.4 a	3447 ab	10350 b	3896 ab	1.45 a	56 a
	Untreated										
6	90 lb N/A	90	lb ai/A	PF	34 a	42.6 a	3455 ab	10021 b	4091 a	1.33 ab	55 ab
	CruiserMaxx Rice	7	fl oz/cwt								
7	90 lb N/A	90	lb ai/A	PF	34 a	41.2 a	3372 b	10499 ab	.	.	.
	45 lb N/A	90	lb ai/A	PD							
	Untreated										
8	90 lb N/A	90	lb ai/A	PF	34 a	42.8 a	3425 ab	10441 b	.	.	.
	45 lb N/A	90	lb ai/A	PD							
	CruiserMaxx Rice	7	fl oz/cwt								
9	135 lb N/A	135	lb ai/A	PF	34 a	42.0 a	3753 a	11028 a	.	.	.
	45 lb N/A	45	lb ai/A	PD							
	Untreated										
10	135 lb N/A	135	lb ai/A	PF	34 a	42.0 a	3461 ab	10439 b	.	.	.
	45 lb N/A	45	lb ai/A	PD							
	CruiserMaxx Rice	7	fl oz/cwt								
LSD (P=.05)					0.0	1.2	337.8	544.8	896.6	0.2	11.4
Standard Deviation					0.0	0.9	232.8	375.4	581.9	0.1	7.4
CV					0.0	2.0	7.2	4.1	18.0	9.6	18.7
Treatment F					0.0	1.4	10.7	113.8	13.9	14.5	23.4
Treatment Prob(F)					1.0000	0.2565	0.0001	0.0001	0.0002	0.0002	0.0001

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

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

Comparison of CruiserMaxx and AMS Starter N Application on Early Season Agronomics and Grain Yield

Experiment number ....: 12-CM-43

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.31
- **pH** ....: 7.0
- **Extractable nutrients** ppm ....: Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0

Crop/Variety ....: Rice / CL151
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 28
- **Harvest date** ....: August 1
- **Ratoon harvest date** ....: October 22

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

Fertilization ....: 260 lb/A 0-24-24-2.8, March 19
120 lb N/A 46-0-0, April 25
90 lb N/A 46-0-0, August 6

Water management ....:
- **Flush** ....: None
- **Flood** ....: April 26
- **Drain** ....: July 10
- **Ratoon flood** ....: August 7
- **Ratoon drain** ....: October 12

Pest management ....:
- **Herbicides** ....: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
2 pt/A Basagran + 1% COC, August 6
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 42. Comparison of CruiserMaxx and AMS starter N application on early-season agronomics and grain yield (1.1). Rice Research Station.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Description						plant-hd	emerg-hd			
Rating Date					4/25/2012			7/19/2012	8/1/2012	8/1/2012
Rating Type					Height	50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit					cm	days	days	in	lb/bu	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage						
1	CruiserMaxx	7	fl oz/cwt		19 a	93 b	84 b	38 a	46.9 a	6973 ab
	AMS	21	lb ai/A	ATEMER						
2	CruiserMaxx	7	fl oz/cwt		17 a	93 b	84 b	38 a	46.8 a	6732 b
	No AMS	0	lb ai/A	ATEMER						
3	No CruiserMaxx	0	fl oz/cwt		18 a	94 a	85 a	38 a	46.8 a	7236 a
	AMS	21	lb ai/A	ATEMER						
4	No CruiserMaxx	0	fl oz/cwt		17 a	94 a	85 a	38 a	47.0 a	7103 a
	No AMS	0	lb ai/A	ATEMER						
LSD (P=.05)					1.9	0.5	0.5	1.2	0.3	333.7
Standard Deviation					1.2	0.3	0.3	0.7	0.2	208.6
CV					6.8	0.4	0.4	1.9	0.4	3.0
Treatment F					3.0	13.5	13.5	0.5	0.5	4.2
Treatment Prob(F)					0.0877	0.0011	0.0011	0.7082	0.7227	0.0400

Continued.

Table 42. Continued.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description									Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	Total -
Rating Date									6/21/2012	6/21/2012	6/21/2012
Rating Type					50% HD	Test Wt.	Yield	Total Yield	Biomass	N	N
Rating Unit					days	lb/bu	lb/A	lb/A	lb/A	%	lb/A
Crop Stage Majority					Ratoon	Ratoon	Ratoon	MC+RC	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage							
1	CruiserMaxx	7	fl oz/cwt		34 a	42.8 a	3604 b	10577 b	10354 a	1.35 a	139 a
	AMS	21	lb ai/A	ATEMER							
2	CruiserMaxx	7	fl oz/cwt		34 a	42.3 a	3652 b	10384 b	10123 a	1.36 a	138 a
	No AMS	0	lb ai/A	ATEMER							
3	No CruiserMaxx	0	fl oz/cwt		34 a	42.3 a	3847 a	11083 a	10340 a	1.35 a	140 a
	AMS	21	lb ai/A	ATEMER							
4	No CruiserMaxx	0	fl oz/cwt		34 a	41.6 a	3597 b	10700 b	8268 b	1.49 a	123 a
	No AMS	0	lb ai/A	ATEMER							
LSD (P=.05)					0.0	1.5	164.1	372.0	1204.5	0.3	32.8
Standard Deviation					0.0	1.0	102.6	232.6	753.1	0.2	20.5
CV					0.0	2.2	2.8	2.2	7.7	13.9	15.2
Treatment F					0.0	1.2	5.2	6.4	7.2	0.5	0.6
Treatment Prob(F)					1.0000	0.3686	0.0233	0.0128	0.0093	0.6962	0.6041

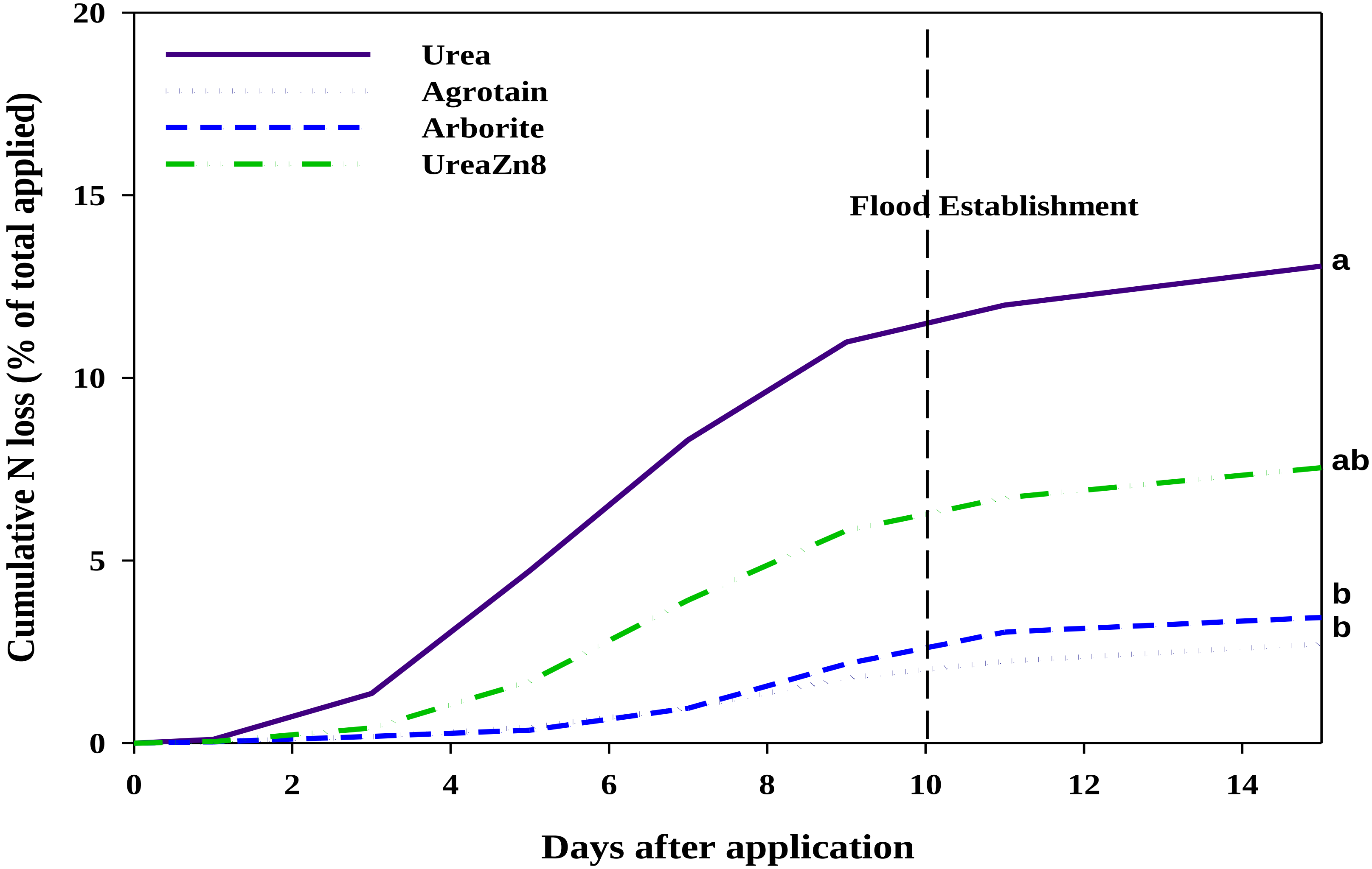
Means followed by same letter do not significantly differ (P=.05, LSD).

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

Ammonia Volatilization Loss of Surface Applied Urea, Agrotain-Treated Urea, Arborite AG-Treated Urea, and an Experimental Zinc Sulfate (8%)-Coated Urea Fertilizer

Experiment number	12-CM-17
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.33
pH	7.12
Extractable nutrients ppm	Ca-1,100; Cu-1.4; Mg-293; P-10; K-69; Na-81; S-9.2; Zn-4.7
Crop/Variety	Rice / CL151
Planting method/date	Drill seeded / March 18
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 26
Harvest date	Did not harvest
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19
Water management	
Flush	None
Flood	May 3
Drain	July 10
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Figure 1. Ammonia volatilization loss of surface applied urea, Agrotain-treated urea, Arborite AG-treated urea, and an experimental zinc sulfate (8%)-coated urea fertilizer over a 15-day period of time on a Crowley silt loam soil in Crowley Louisiana, 2012.



Evaluation of N Source, N Rate, and N Application Timing on CL151 Rice Yield and Volatilization Loss

Experiment number	12-CM-18
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.33
pH	7.12
Extractable nutrients ppm	Ca-1,100; Cu-1.4; Mg-293; P-10; K-69; Na-81; S-9.2; Zn-4.7
Crop/Variety	Rice / CL151
Planting method/date	Drill seeded / March 18
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 26
Harvest date	July 30
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19
Water management	
Flush	None
Flood	May 3
Drain	July 10
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 43. Treatment means for the main effects of N source, N rate, and N application timing.
Evaluation of N source, N rate, and N application timing on CL151 rice yield and volatilization loss.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt No.	Treatment Name	Growth Stage									
Table of N Source Means											
1	Urea		96	88	34	13.0	44.4	6794	9427	1.09	102
2	Agrotain		96	88	35	13.1	44.3	6896	9159	1.14	103
3	Arborite		96	88	35	13.0	44.4	6830	9426	1.21	113
4	UreaZn8 (34-0-0-4S-8Zn)		96	88	35	13.0	44.4	6794	9686	1.32	129
	P		0.462	0.4620	0.1554	0.8887	0.7099	0.7484	0.6639	0.0129	0.0690
	LSD (0.05)		0	0.4	1	0.2	0.1	240	933	0.13	21
Table of N Rate Means											
1	60 lb N/A	PF	95	87	34	12.8	44.5	6401	8850	1.20	105
2	120 lb N/A	PF	97	89	36	13.2	44.2	7256	10000	1.17	118
	P		0.0010	0.0010	0.0036	0.0004	0.0007	0.0075	0.0011	0.6133	0.0833
	LSD (0.05)		1	0.5	1	0.1	0.1	420	294	0.17	17
Table of N Application Timing Means											
1	10 DPF		96	88	35	13.0	44.4	6690	9075	1.12	103
2	5 DPF		96	88	35	13.1	44.3	6890	9543	1.26	121
3	1 DPF		96	88	35	13.0	44.4	6905	9656	1.18	112
	P		0.0254	0.0254	0.0278	0.3733	0.2352	0.0073	0.4349	0.3583	0.2425
	LSD (0.05)		0	0.2	0	0.2	0.1	118	1088	0.22	23

Table 44. Treatment means for the factorial analysis of 2-way interactions.
Evaluation of N source, N rate and N application timing on CL151 rice yield and volatilization loss.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt No.	Treatment Name	Growth Stage									
Table of N Source and N Rate Interaction											
1	PROD	Urea	95	87.0	33	12.8	44.5	6309	9116	1.14	103
1	FERT	60 lb N/A									
2	PROD	Agrotain	95	86.9	34	12.8	44.5	6447	8779	1.08	91
1	FERT	60 lb N/A									
3	PROD	Arborite	95	86.7	34	12.9	44.5	6510	8642	1.22	104
1	FERT	60 lb N/A									
4	PROD	UreaZn8 (34-0-0-4S-8Zn)	95	86.6	33	12.7	44.6	6339	8862	1.37	123
1	FERT	60 lb N/A									
1	PROD	Urea	97	89.0	36	13.2	44.2	7279	9738	1.04	101
2	FERT	120 lb N/A									
2	PROD	Agrotain	97	89.0	36	13.3	44.1	7345	9539	1.19	116
2	FERT	120 lb N/A									
3	PROD	Arborite	97	89.0	36	13.1	44.3	7150	10211	1.19	122
2	FERT	120 lb N/A									
4	PROD	UreaZn8 (34-0-0-4S-8Zn)	97	88.8	36	13.3	44.2	7249	10510	1.26	135
2	FERT	120 lb N/A									
		P	0.6446	0.6446	0.6138	0.2734	0.3007	0.2723	0.5936	0.6109	0.5622
		LSD (0.05)	0	0.5	1	0.3	0.2	268	1478	0.29	31

Continued.

Table 44. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt No.	Treatment Name	Growth Stage									
Table of N Source and Time of Application Interaction											
1 1	PROD CULT	Urea 10 DPF	96	87.9	34	12.9	44.4	6501	9091	1.15	110
2 1	PROD CULT	Agrotain 10 DPF	96	88.1	35	13.0	44.3	6945	8940	1.09	97
3 1	PROD CULT	Arborite 10 DPF	96	87.9	35	13.1	44.3	6711	9649	1.05	102
4 1	PROD CULT	UreaZn8 (34-0-0-4S-8Zn) 10 DPF	96	87.6	35	12.9	44.4	6603	8620	1.20	101
1 2	PROD CULT	Urea 5 DPF	96	87.9	35	13.1	44.3	6976	10169	1.08	104
2 2	PROD CULT	Agrotain 5 DPF	96	87.8	35	13.1	44.3	6921	8845	1.25	112
3 2	PROD CULT	Arborite 5 DPF	96	87.8	35	13.0	44.3	6834	9291	1.25	117
4 2	PROD CULT	UreaZn8 (34-0-0-4S-8Zn) 5 DPF	96	87.6	35	13.1	44.3	6829	9867	1.47	150
1 3	PROD CULT	Urea 1 DPF	96	88.3	34	13.0	44.3	6904	9021	1.05	93
2 3	PROD CULT	Agrotain 1 DPF	96	88.0	34	13.1	44.3	6822	9692	1.07	101
3 3	PROD CULT	Arborite 1 DPF	96	87.9	35	13.0	44.4	6944	9339	1.32	119
4 3	PROD CULT	UreaZn8 (34-0-0-4S-8Zn) 1 DPF	96	87.9	35	13.0	44.4	6948	10572	1.28	135
		P	0.9030	0.9030	0.6023	0.7156	0.6491	0.4910	0.0970	0.4515	0.2372
		LSD (0.05)	1	0.6	1	0.3	0.2	421	1315	0.31	32

Continued.

Table 44. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt No.	Treatment Name	Growth Stage									
Table of N Rate and Time of Application Timing Interaction											
1	FERT	60 lb N/A	95	86.9	33	12.7	44.6	6248	8356	1.09	92
1	CULT	10 DPF									
2	FERT	120 lb N/A	97	88.9	36	13.2	44.2	7132	9794	1.15	114
1	CULT	10 DPF									
1	FERT	60 lb N/A	95	86.5	34	12.9	44.5	6455	9130	1.34	124
2	CULT	5 DPF									
2	FERT	120 lb N/A	97	89.0	36	13.3	44.1	7325	9955	1.19	118
2	CULT	5 DPF									
1	FERT	60 lb N/A	95	87.0	34	12.8	44.5	6499	9063	1.18	100
3	CULT	1 DPF									
2	FERT	120 lb N/A	97	89.0	35	13.2	44.2	7310	10249	1.18	124
3	CULT	1 DPF									
		P	0.1367	0.1367	0.0407	0.7441	0.6352	0.8835	0.8341	0.2121	0.1813
		LSD (0.05)	0	0.4	1	0.2	0.2	266	1746	0.19	27

**Table 45. Table of treatment means for the factorial analysis of the 3-way interaction.
Evaluation of N source, N rate and N application timing on CL151 rice yield and volatilization loss.**

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt No.	Treatment Name	Growth Stage									
Table of N Source x N Rate x Time of Application Interaction											
1	PROD	Urea	95	87	32	12.7	44.6	5917	8970	1.12	100
1	FERT	60 lb N/A									
1	CULT	10 DPF									
2	PROD	Agrotain	95	87	33	12.8	44.5	6514	8389	0.90	76
1	FERT	60 lb N/A									
1	CULT	10 DPF									
3	PROD	Arborite	95	87	34	12.9	44.5	6459	8457	0.99	86
1	FERT	60 lb N/A									
1	CULT	10 DPF									
4	PROD	UreaZn8 (34-0-0-4S-8Zn)	95	87	33	12.6	44.6	6104	7607	1.36	104
1	FERT	60 lb N/A									
1	CULT	10 DPF									
1	PROD	Urea	97	89	35	13.1	44.3	7085	9213	1.18	121
2	FERT	120 lb N/A									
1	CULT	10 DPF									
2	PROD	Agrotain	97	89	37	13.2	44.1	7376	9490	1.27	118
2	FERT	120 lb N/A									
1	CULT	10 DPF									
3	PROD	Arborite	97	89	36	13.2	44.2	6963	10842	1.10	118
2	FERT	120 lb N/A									
1	CULT	10 DPF									
4	PROD	UreaZn8 (34-0-0-4S-8Zn)	97	89	37	13.3	44.1	7102	9633	1.04	98
2	FERT	120 lb N/A									
1	CULT	10 DPF									

Continued.

Table 45. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt No.	Treatment Name	Growth Stage									
Table of N Source x N Rate x Time of Application Interaction											
1	PROD	Urea	95	87	34	12.8	44.6	6445	9502	1.27	122
1	FERT	60 lb N/A									
2	CULT	5 DPF									
2	PROD	Agrotain	95	87	35	12.7	44.6	6410	8230	1.30	107
1	FERT	60 lb N/A									
2	CULT	5 DPF									
3	PROD	Arborite	95	87	34	13.0	44.4	6510	9322	1.11	106
1	FERT	60 lb N/A									
2	CULT	5 DPF									
4	PROD	UreaZn8 (34-0-0-4S-8Zn)	94	86	34	12.8	44.5	6455	9467	1.67	159
1	FERT	60 lb N/A									
2	CULT	5 DPF									
1	PROD	Urea	97	89	37	13.4	44.0	7508	10836	0.88	86
2	FERT	120 lb N/A									
2	CULT	5 DPF									
2	PROD	Agrotain	97	89	36	13.4	44.1	7432	9459	1.19	117
2	FERT	120 lb N/A									
2	CULT	5 DPF									
3	PROD	Arborite	97	89	37	13.0	44.3	7158	9259	1.39	129
2	FERT	120 lb N/A									
2	CULT	5 DPF									
4	PROD	UreaZn8 (34-0-0-4S-8Zn)	97	89	37	13.4	44.0	7204	10267	1.28	140
2	FERT	120 lb N/A									
2	CULT	5 DPF									

Continued.

Table 45. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated									Abvgrd -	Abvgrd -	total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt No.	Treatment Name	Growth Stage									
Table of N Source x N Rate x Time of Application Interaction											
1	PROD	Urea	96	88	34	12.9	44.5	6565	8875	1.03	88
1	FERT	60 lb N/A									
3	CULT	1 DPF									
2	PROD	Agrotain	95	87	33	12.9	44.5	6416	9716	1.04	89
1	FERT	60 lb N/A									
3	CULT	1 DPF									
3	PROD	Arborite	95	87	35	12.8	44.5	6560	8148	1.55	119
1	FERT	60 lb N/A									
3	CULT	1 DPF									
4	PROD	UreaZn8 (34-0-0-4S-8Zn)	95	87	34	12.8	44.5	6456	9513	1.09	104
1	FERT	60 lb N/A									
3	CULT	1 DPF									
1	PROD	Urea	97	89	35	13.2	44.2	7244	9166	1.06	98
2	FERT	120 lb N/A									
3	CULT	1 DPF									
2	PROD	Agrotain	97	89	36	13.3	44.1	7228	9669	1.11	113
2	FERT	120 lb N/A									
3	CULT	1 DPF									
3	PROD	Arborite	97	89	36	13.1	44.3	7328	10531	1.09	118
2	FERT	120 lb N/A									
3	CULT	1 DPF									
4	PROD	UreaZn8 (34-0-0-4S-8Zn)	97	89	36	13.2	44.3	7441	11631	1.47	166
2	FERT	120 lb N/A									
3	CULT	1 DPF									
		P	0.6734	0.6734	0.1354	0.8771	0.8222	0.7349	0.2990	0.0019	0.1235
		LSD (0.05)	1	0.8	1	0.5	0.4	522	1839	0.33	41

Table 46. ANOVA treatment means for all treatments including untereated control which dd not receive N fertilization.
Evaluation of N source, N rate and N application timing on CL151 rice yield and volatilization loss. Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated										Abvgrd -	Abvgrd -	Total -
Rating Date						7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type				50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit				days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale										50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Growth Stage									
1	PROD	Urea		95 b-e	86.8 b-e	32 jk	12.7 hi	44.6 a	5917 e	8970 b-e	1.12 c-f	100 cde
	FERT	60 lb N/A	PF									
	CULT	10 DPF										
2	PROD	Urea		95 b-e	86.8 b-e	34 g-j	12.8 d-i	44.6 ab	6445 d	9502 b-e	1.27 a-f	122 a-e
	FERT	60 lb N/A	PF									
	CULT	5 DPF										
3	PROD	Urea		96 b	87.5 b	34 f-i	12.9 b-i	44.5 abc	6565 cd	8875 b-e	1.03 ef	88 de
	FERT	60 lb N/A	PF									
	CULT	1 DPF										
4	PROD	Urea		97 a	89.0 a	35 b-f	13.1 a-f	44.3 b-e	7085 ab	9213 b-e	1.18 b-f	121 a-e
	FERT	120 lb N/A	PF									
	CULT	10 DPF										
5	PROD	Urea		97 a	89.0 a	37 abc	13.4 a	44.0 e	7508 a	10836 ab	0.88 f	86 de
	FERT	120 lb N/A	PF									
	CULT	5 DPF										
6	PROD	Urea		97 a	89.0 a	35 d-h	13.2 a-f	44.2 cde	7244 ab	9166 b-e	1.06 def	98 cde
	FERT	120 lb N/A	PF									
	CULT	1 DPF										
7	PROD	Agrotain		95 bc	87.3 bc	33 hij	12.8 e-i	44.5 ab	6514 cd	8389 cde	0.90 f	76 e
	FERT	60 lb N/A	PF									
	CULT	10 DPF										
8	PROD	Agrotain		95 cde	86.5 cde	35 c-g	12.7 f-i	44.6 ab	6410 de	8230 c-f	1.30 a-f	107 cde
	FERT	60 lb N/A	PF									
	CULT	5 DPF										
9	PROD	Agrotain		95 bcd	87.0 bcd	33 hij	12.9 c-i	44.5 abc	6416 de	9716 a-d	1.04 ef	89 de
	FERT	60 lb N/A	PF									
	CULT	1 DPF										

Continued.

Table 46. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated										Abvgrd -	Abvgrd -	Total -
Rating Date						7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type				50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit				days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale										50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Growth Stage									
10	PROD	Agrotain		97 a	89.0 a	37 a	13.2 a-d	44.1 de	7376 ab	9490 b-e	1.27 a-f	118 a-e
	FERT	120 lb N/A	PF									
	CULT	10 DPF										
11	PROD	Agrotain		97 a	89.0 a	36 a-d	13.4 a	44.1 e	7432 ab	9459 b-e	1.19 b-f	117 a-e
	FERT	120 lb N/A	PF									
	CULT	5 DPF										
12	PROD	Agrotain		97 a	89.0 a	36 a-e	13.3 ab	44.1 e	7228 ab	9669 a-d	1.11 c-f	113 b-e
	FERT	120 lb N/A	PF									
	CULT	1 DPF										
13	PROD	Arborite		95 b-e	86.8 b-e	34 e-i	12.9 b-i	44.5 abc	6459 cd	8457 cde	0.99 ef	86 de
	FERT	60 lb N/A	PF									
	CULT	10 DPF										
14	PROD	Arborite		95 cde	86.5 cde	34 d-i	13.0 a-i	44.4 a-d	6510 cd	9322 b-e	1.11 c-f	106 cde
	FERT	60 lb N/A	PF									
	CULT	5 DPF										
15	PROD	Arborite		95 b-e	86.8 b-e	35 d-h	12.8 e-i	44.5 ab	6560 cd	8148 def	1.55 ab	119 a-e
	FERT	60 lb N/A	PF									
	CULT	1 DPF										
16	PROD	Arborite		97 a	89.0 a	36 a-e	13.2 a-e	44.2 cde	6963 bc	10842 ab	1.10 c-f	118 a-e
	FERT	120 lb N/A	PF									
	CULT	10 DPF										
17	PROD	Arborite		97 a	89.0 a	37 abc	13.0 a-h	44.3 a-e	7158 ab	9259 b-e	1.39 a-e	129 a-d
	FERT	120 lb N/A	PF									
	CULT	5 DPF										
18	PROD	Arborite		97 a	89.0 a	36 a-d	13.1 a-g	44.3 b-e	7328 ab	10531 ab	1.09 c-f	118 a-e
	FERT	120 lb N/A	PF									
	CULT	1 DPF										

Continued.

Table 46. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd	emerg-hd	Tip of panicle				Tissue	Tissue	N Uptake
Part Rated										Abvgrd -	Abvgrd -	Total -
Rating Date						7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type				50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit				days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale										50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Growth Stage									
19	PROD	UreaZn8 (34-0-0-4S-8Zn)		95 b-e	86.8 b-e	33 ij	12.6 i	44.6 a	6104 de	7607 ef	1.36 a-e	104 cde
	FERT	60 lb N/A	PF									
	CULT	10 DPF										
20	PROD	UreaZn8 (34-0-0-4S-8Zn)		94 de	86.3 de	34 f-i	12.8 c-i	44.5 abc	6455 d	9467 b-e	1.67 a	159 ab
	FERT	60 lb N/A	PF									
	CULT	5 DPF										
21	PROD	UreaZn8 (34-0-0-4S-8Zn)		95 b-e	86.8 b-e	34 f-i	12.8 f-i	44.5 ab	6456 cd	9513 b-e	1.09 c-f	104 cde
	FERT	60 lb N/A	PF									
	CULT	1 DPF										
22	PROD	UreaZn8 (34-0-0-4S-8Zn)		97 a	88.5 a	37 ab	13.3 abc	44.1 de	7102 ab	9633 a-e	1.04 ef	98 cde
	FERT	120 lb N/A	PF									
	CULT	10 DPF										
23	PROD	UreaZn8 (34-0-0-4S-8Zn)		97 a	89.0 a	37 abc	13.4 a	44.0 e	7204 ab	10267 abc	1.28 a-f	140 abc
	FERT	120 lb N/A	PF									
	CULT	5 DPF										
24	PROD	UreaZn8 (34-0-0-4S-8Zn)		97 a	89.0 a	36 a-e	13.2 a-f	44.3 b-e	7441 ab	11631 a	1.47 a-d	166 a
	FERT	120 lb N/A	PF									
	CULT	1 DPF										
25	CHK	0 lb N/A	PF	94 e	86.0 e	31 k	12.7 ghi	44.5 abc	4600 f	6253 f	1.51 abc	98 cde
LSD (P=.05)				0.8	0.77	1.6	0.44	0.31	507.9	2049.1	0.423	50.1
Standard Deviation				0.5	0.55	1.1	0.31	0.22	359.1	1448.9	0.299	35.4
CV				0.57	0.62	3.21	2.4	0.49	5.33	15.58	24.93	31.83

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

Ammonia Volatilization Loss of Surface Applied Urea, Agrotain-Treated Urea, HM1153 (3 qt/ton)-Treated Urea, HM1153 (4 qt/ton)-Treated Urea, HM1002 (3 qt/ton)-Treated Urea, and HM1002 (4 qt/ton)-Treated Urea Fertilizer over a 15-Day Period of Time on a Crowley Silt Loam Soil

Experiment number ....: 12-CM-35

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.33
- **pH** ....: 7.12
- **Extractable nutrients** ppm ....: Ca-1,100; Cu-1.4; Mg-293; P-10; K-69; Na-81; S-9.2; Zn-4.7

Crop/Variety ....: Rice / CL151
- **Planting method/date** ....: Drill seeded / March 18
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 26
- **Harvest date** ....: Did not harvest

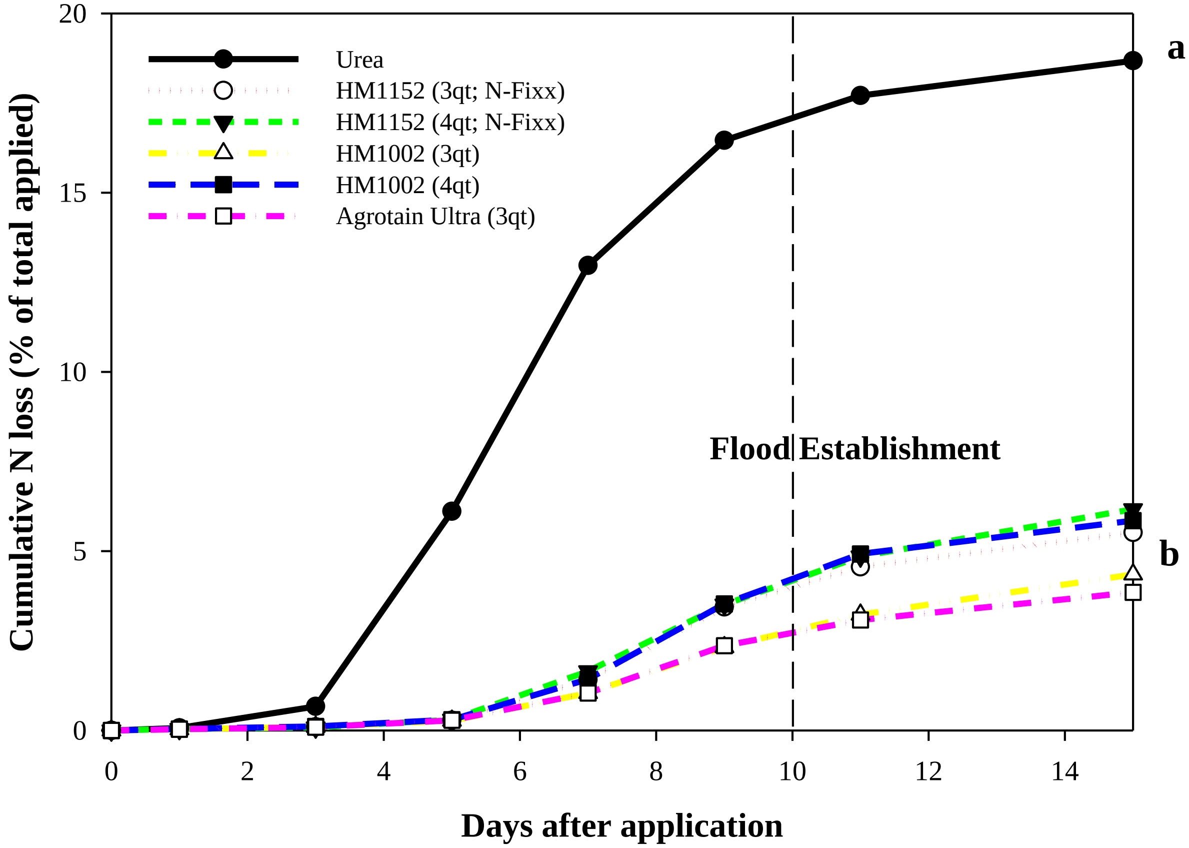
Seed treatment/cwt ....: Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml

Fertilization ....: 260 lb/A 0-24-24-2.8, March 19

Water management ....:
- **Flush** ....: None
- **Flood** ....: May 3
- **Drain** ....: July 10

Pest management ....:
- **Herbicides** ....: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Figure 2. Ammonia volatilization loss of surface applied urea, Agrotain-treated urea, HM1153 (3 qt/ton)-treated urea, HM1153 (4 qt/ton)-treated urea, HM1002 (3 qt/ton)-treated urea, and HM1002 (4 qt/ton)-treated urea fertilizer over a 15-day period of time on a Crowley silt loam soil in Crowley Louisiana, 2012.



Evaluation of Helena N Urea Treatment Products HM1152 and HM1002 on CL151 Rice Yield When Applied at Two N Rates and Three Application Timings

Experiment number	: 12-CM-37
Site and design	:
Location/Cooperator	: Rice Research Station (Crowley Main)
Tillage type	: Fall Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley silt loam
% organic matter	: 1.33
pH	: 7.12
Extractable nutrients ppm	: Ca-1,100; Cu-1.4; Mg-293; P-10; K-69; Na-81; S-9.2; Zn-4.7
Crop/Variety	: Rice / CL151
Planting method/date	: Drill seeded / March 18
Seeding rate/depth	: 33 seeds/ft^2 / .5 inch
Emergence date	: March 26
Harvest date	: July 30
Seed treatment/cwt	: Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	: 260 lb/A 0-24-24-2.8, March 19
Water management	:
Flush	: None
Flood	: May 3
Drain	: July 10
Pest management	:
Herbicides	: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 47. Treatment means for the main effects of N source, N rate, and N application timing.

Evaluation of Helena N urea treatment products HM1152 and HM1002 on CL151 rice yield when applied at two N rates (60 and 120 lb/A) and three application timings (1, 5, and 10 prior to flood establishment). (1.1)

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
Table of N Source Means													
1	FERT	Urea	95	87.5	35	12.8	44.5	6978	9580	1.22	119	1.00	70
2	FERT	HM1152 (3 qt/ton; N-Fixx)	96	87.5	35	12.7	44.6	7057	9794	1.11	110	1.01	71
3	FERT	HM1152 (4 qt/ton; N-Fixx)	96	87.7	35	12.6	44.6	6977	9529	1.26	121	1.00	70
4	FERT	HM1002 (3 qt/ton)	96	87.8	35	12.6	44.6	6893	9254	1.14	107	0.99	69
5	FERT	HM1002 (4 qt/ton)	96	87.9	35	12.6	44.6	6969	9531	1.18	114	1.00	70
6	FERT	Agrotain Ultra	96	87.6	35	12.6	44.7	6899	9318	1.15	108	1.00	69
		P	0.1542	0.1542	0.6879	0.2339	0.2697	0.8794	0.8754	0.2184	0.3171	0.6521	0.4991
		LSD (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Table of N Rate Means													
1	FERT	60 lb N/A	94	86.4	34	12.4	44.8	6470	8816	1.04	91	0.97	63
2	FERT	120 lb N/A	97	88.9	36	12.9	44.4	7455	10186	1.32	135	1.03	77
		P	0.0011	0.0011	0.0008	0.0049	0.0064	0.0079	0.0048	0.0029	0.0053	0.0547	0.0027
		LSD (0.05)	0.6	0.6	0.5	0.2	0.1	495	577	0.10	19	N/A	5
Table of N Application Timing Means													
1	CULT	10 DPF	96	87.7	35	12.6	44.6	6951	9344	1.19	113	0.99	69
2	CULT	5 DPF	96	87.7	35	12.7	44.6	6957	9258	1.18	110	1.00	70
3	CULT	1 DPF	96	87.6	35	12.6	44.6	6978	9901	1.16	116	1.01	71
		P	0.4131	0.4131	0.7012	0.4138	0.5489	0.8587	0.0144	0.6633	0.1831	0.2761	0.0712
		LSD (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	396	N/A	N/A	N/A	N/A

Table 48. Treatment means for the factroial analysis of 2-way interactions.
Evaluation of Helena N urea treatment products HM1152 and HM1002 on CL151 rice yield when applied at two N rates (60 and 120 lb/A) and three application timings (1, 5, and 10 prior to flood establishment). (1.1)

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
Table of N-source and N-rate Interaction													
1	FERT	Urea	94	86.3	34	12.4	44.8	6584	8676	1.05	90	0.97	64
1	FERT	60 lb N/A											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	94	86.3	34	12.5	44.7	6522	9278	0.97	91	0.97	63
1	FERT	60 lb N/A											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	94	86.3	34	12.4	44.8	6438	8859	1.09	96	0.97	63
1	FERT	60 lb N/A											
4	FERT	HM1002 (3 qt/ton)	95	86.6	33	12.5	44.7	6448	8377	0.94	79	0.97	62
1	FERT	60 lb N/A											
5	FERT	HM1002 (4 qt/ton)	95	86.8	34	12.5	44.7	6508	8892	1.09	97	0.98	64
1	FERT	60 lb N/A											
6	FERT	Agrotain	94	86.2	34	12.4	44.8	6318	8814	1.07	94	0.95	60
1	FERT	60 lb N/A											
1	FERT	Urea	97	88.7	36	13.1	44.2	7372	10484	1.40	147	1.02	75
2	FERT	120 lb N/A											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	97	88.8	36	12.9	44.4	7592	10310	1.25	129	1.05	79
2	FERT	120 lb N/A											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	97	89.0	36	12.8	44.5	7515	10200	1.43	146	1.02	76
2	FERT	120 lb N/A											
4	FERT	HM1002 (3 qt/ton)	97	89.0	36	12.8	44.5	7338	10131	1.34	135	1.02	75
2	FERT	120 lb N/A											
5	FERT	HM1002 (4 qt/ton)	97	89.0	36	12.8	44.5	7430	10170	1.28	130	1.03	77
2	FERT	120 lb N/A											
6	FERT	Agrotain	97	89.0	36	12.7	44.6	7480	9822	1.23	122	1.04	78
2	FERT	120 lb N/A											
		P	0.7078	0.7078	0.6788	0.3173	0.3335	0.5657	0.9374	0.5514	0.6819	0.9164	0.6386
		LSD (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Continued.

Table 48. Continued.

Description			plant-hd	emerg-hd	Tip				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
Table of N-source and Time of Application Interaction													
1	FERT	Urea	95	87.3	35	12.7	44.5	6868	9458	1.24	118	0.99	68
1	CULT	10 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	96	87.9	35	12.5	44.7	7060	9569	1.15	111	1.00	71
1	CULT	10 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	96	87.6	35	12.6	44.7	7051	9937	1.19	120	0.97	68
1	CULT	10 DPF											
4	FERT	HM1002 (3 qt/ton)	96	87.6	34	12.6	44.6	6950	8828	1.13	102	0.96	67
1	CULT	10 DPF											
5	FERT	HM1002 (4 qt/ton)	96	88.0	35	12.8	44.5	6943	9165	1.28	118	1.01	70
1	CULT	10 DPF											
6	FERT	Agrotain	96	87.6	35	12.5	44.7	6834	9106	1.17	108	1.01	69
1	CULT	10 DPF											
1	FERT	Urea	96	87.8	35	12.8	44.5	6927	8694	1.25	110	1.00	70
2	CULT	5 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	95	87.4	35	12.8	44.5	7090	10119	1.16	117	0.99	70
2	CULT	5 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	96	87.5	35	12.6	44.6	6910	9410	1.19	113	1.00	70
2	CULT	5 DPF											
4	FERT	HM1002 (3 qt/ton)	96	88.3	35	12.6	44.6	6812	9561	1.21	116	1.03	71
2	CULT	5 DPF											
5	FERT	HM1002 (4 qt/ton)	96	88.0	35	12.7	44.6	7139	8981	1.12	103	0.99	70
2	CULT	5 DPF											
6	FERT	Agrotain	96	87.5	35	12.7	44.6	6866	8785	1.17	102	1.00	69
2	CULT	5 DPF											
1	FERT	Urea	95	87.4	35	12.9	44.5	7137	10588	1.19	128	1.00	71
3	CULT	1 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	95	87.4	36	12.7	44.5	7021	9695	1.03	103	1.04	73
3	CULT	1 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	96	87.9	35	12.6	44.6	6968	9242	1.40	130	1.01	71
3	CULT	1 DPF											
4	FERT	HM1002 (3 qt/ton)	96	87.5	35	12.7	44.6	6916	9373	1.09	103	0.99	69
3	CULT	1 DPF											
5	FERT	HM1002 (4 qt/ton)	96	87.6	35	12.4	44.7	6826	10448	1.16	121	1.02	70
3	CULT	1 DPF											
6	FERT	Agrotain	96	87.6	35	12.5	44.7	6997	10063	1.11	112	0.99	69
3	CULT	1 DPF											
		P	0.2264	0.2264	0.5132	0.4461	0.623	0.482	0.2637	0.2635	0.6023	0.1200	0.7816
		LSD (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Continued.

Table 48. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
Table of N Rate and Time of Application Timing Interaction													
1	FERT	60 lb N/A	94	86.5	34	12.4	44.8	6442	8582	1.06	91	0.97	62
1	CULT	10 DPF											
2	FERT	120 lb N/A	97	88.9	36	12.8	44.5	7460	10106	1.33	134	1.01	75
1	CULT	10 DPF											
1	FERT	60 lb N/A	95	86.5	34	12.5	44.7	6453	8381	1.04	87	0.97	63
2	CULT	5 DPF											
2	FERT	120 lb N/A	97	88.9	36	12.9	44.4	7462	10135	1.32	133	1.04	77
2	CULT	5 DPF											
1	FERT	60 lb N/A	94	86.2	34	12.4	44.8	6514	9485	1.01	96	0.97	63
3	CULT	1 DPF											
2	FERT	120 lb N/A	97	88.9	36	12.9	44.4	7441	10317	1.32	137	1.04	78
3	CULT	1 DPF											
		P	0.3655	0.3655	0.5143	0.4799	0.5636	0.7654	0.2379	0.9205	0.8208	0.3619	0.5744
		LSD (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 49. Table of treatment means for the factorial analysis of the 3-way interaction.
Evaluation of Helena N urea treatment products HM1152 and HM1002 on CL151 rice yield when applied at two N rates (60 and 120 lb/A) and three application timings (1, 5, and 10 prior to flood establishment). (1.1)

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
Table of N Source x N Rate x Time of Application Interaction													
1	FERT	Urea	94	86.0	34	12.4	44.8	6531	8819	1.06	94	0.96	63
1	FERT	60 lb N/A											
1	CULT	10 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	95	87.0	34	12.5	44.8	6416	9339	1.06	100	0.97	62
1	FERT	60 lb N/A											
1	CULT	10 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	94	86.3	35	12.4	44.8	6584	9096	1.05	95	1.00	65
1	FERT	60 lb N/A											
1	CULT	10 DPF											
4	FERT	HM1002 (3 qt/ton)	94	86.3	33	12.5	44.7	6460	7571	0.88	67	0.94	61
1	FERT	60 lb N/A											
1	CULT	10 DPF											
5	FERT	HM1002 (4 qt/ton)	95	87.0	34	12.6	44.7	6427	7969	1.21	96	0.97	62
1	FERT	60 lb N/A											
1	CULT	10 DPF											
6	FERT	Agrotain	94	86.3	33	12.3	44.8	6235	8696	1.09	96	0.96	60
1	FERT	60 lb N/A											
1	CULT	10 DPF											
1	FERT	Urea	97	88.5	36	13.1	44.3	7206	10097	1.42	142	1.02	73
2	FERT	120 lb N/A											
1	CULT	10 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	97	88.8	36	12.6	44.6	7704	9798	1.23	121	1.03	79
2	FERT	120 lb N/A											
1	CULT	10 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	97	89.0	36	12.7	44.6	7518	10777	1.34	146	0.95	71
2	FERT	120 lb N/A											
1	CULT	10 DPF											
4	FERT	HM1002 (3 qt/ton)	97	89.0	36	12.7	44.6	7440	10085	1.38	137	0.98	73
2	FERT	120 lb N/A											
1	CULT	10 DPF											
5	FERT	HM1002 (4 qt/ton)	97	89.0	36	13.0	44.3	7460	10361	1.35	139	1.05	78
2	FERT	120 lb N/A											
1	CULT	10 DPF											
6	FERT	Agrotain	97	89.0	37	12.7	44.6	7433	9516	1.25	121	1.07	79
2	FERT	120 lb N/A											
1	CULT	10 DPF											

Continued.

Table 49. Continued.

Description			plant-hd	emerg-hd	Tip				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
Table of N Source x N Rate x Time of Application Interaction													
1	FERT	Urea	95	86.8	33	12.5	44.8	6506	7454	1.16	88	0.95	63
1	FERT	60 lb N/A											
2	CULT	5 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	94	86.0	34	12.5	44.8	6604	9429	0.98	93	0.96	63
1	FERT	60 lb N/A											
2	CULT	5 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	94	86.0	34	12.3	44.8	6472	8516	1.05	90	0.96	62
1	FERT	60 lb N/A											
2	CULT	5 DPF											
4	FERT	HM1002 (3 qt/ton)	96	87.5	34	12.5	44.7	6309	9037	0.97	88	0.99	63
1	FERT	60 lb N/A											
2	CULT	5 DPF											
5	FERT	HM1002 (4 qt/ton)	95	87.0	34	12.7	44.6	6702	7899	0.99	80	0.97	65
1	FERT	60 lb N/A											
2	CULT	5 DPF											
6	FERT	Agrotain	94	86.0	34	12.5	44.7	6122	7951	1.08	83	0.97	60
1	FERT	60 lb N/A											
2	CULT	5 DPF											
1	FERT	Urea	97	88.8	36	13.1	44.3	7348	9935	1.33	132	1.05	77
2	FERT	120 lb N/A											
2	CULT	5 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	97	88.8	36	13.1	44.3	7575	10808	1.33	140	1.02	77
2	FERT	120 lb N/A											
2	CULT	5 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	97	89.0	36	12.9	44.4	7349	10304	1.32	135	1.05	77
2	FERT	120 lb N/A											
2	CULT	5 DPF											
4	FERT	HM1002 (3 qt/ton)	97	89.0	37	12.8	44.5	7315	10084	1.46	145	1.08	79
2	FERT	120 lb N/A											
2	CULT	5 DPF											
5	FERT	HM1002 (4 qt/ton)	97	89.0	37	12.7	44.5	7575	10063	1.25	126	1.00	76
2	FERT	120 lb N/A											
2	CULT	5 DPF											
6	FERT	Agrotain	97	89.0	37	12.8	44.5	7609	9619	1.26	121	1.03	78
2	FERT	120 lb N/A											
2	CULT	5 DPF											

Continued.

Table 49. Continued.

Description			plant-hd	emerg-hd	Tip				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
Table of N Source x N Rate x Time of Application Interaction													
1	FERT	Urea	94	86.0	34	12.4	44.8	6713	9756	0.92	90	0.99	67
1	FERT	60 lb N/A											
3	CULT	1 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	94	86.0	34	12.6	44.7	6547	9067	0.87	78	0.99	65
1	FERT	60 lb N/A											
3	CULT	1 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	95	86.8	34	12.4	44.8	6257	8965	1.16	104	0.96	60
1	FERT	60 lb N/A											
3	CULT	1 DPF											
4	FERT	HM1002 (3 qt/ton)	94	86.0	33	12.4	44.8	6574	8522	0.98	83	0.96	63
1	FERT	60 lb N/A											
3	CULT	1 DPF											
5	FERT	HM1002 (4 qt/ton)	94	86.3	34	12.2	44.9	6396	10809	1.07	116	0.99	63
1	FERT	60 lb N/A											
3	CULT	1 DPF											
6	FERT	Agrotain	94	86.3	35	12.4	44.8	6596	9794	1.04	102	0.94	62
1	FERT	60 lb N/A											
3	CULT	1 DPF											
1	FERT	Urea	97	88.8	36	13.3	44.2	7562	11421	1.45	167	1.00	76
2	FERT	120 lb N/A											
3	CULT	1 DPF											
2	FERT	HM1152 (3 qt/ton; N-Fixx)	97	88.8	37	12.9	44.4	7496	10323	1.19	127	1.09	82
2	FERT	120 lb N/A											
3	CULT	1 DPF											
3	FERT	HM1152 (4 qt/ton; N-Fixx)	97	89.0	35	12.8	44.4	7679	9519	1.63	156	1.06	81
2	FERT	120 lb N/A											
3	CULT	1 DPF											
4	FERT	HM1002 (3 qt/ton)	97	89.0	36	12.9	44.4	7258	10224	1.20	123	1.02	74
2	FERT	120 lb N/A											
3	CULT	1 DPF											
5	FERT	HM1002 (4 qt/ton)	97	89.0	36	12.6	44.5	7256	10086	1.25	126	1.05	76
2	FERT	120 lb N/A											
3	CULT	1 DPF											
6	FERT	Agrotain	97	89.0	35	12.7	44.6	7398	10331	1.17	123	1.03	76
2	FERT	120 lb N/A											
3	CULT	1 DPF											
		P	0.3273	0.3273	0.9129	0.7385	0.9163	0.8855	0.6022	0.6994	0.7403	0.5539	0.7707
		LSD (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 50. Evaluation of Helena N urea treatment products HM1152and HM1002 on CL151 rice yield when applied at two N rates (60 and 120 lb/A) and three application timings (1, 5, and 10 prior to flood establishment) (1.1). Rice Research Station.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip-				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of Panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
1	FERT FERT CULT	Urea 60 lb N/A 10 DPF	94 d	86.0 d	34 c-f	12.4 i-m	44.8 a-d	6531 d	8819 c-g	1.06 d-i	94 g-n	0.96 g-k	63 g
2	FERT FERT CULT	Urea 60 lb N/A 5 DPF	95 bcd	86.8 bcd	33 ef	12.5 g-l	44.8 a-d	6506 d	7454 gh	1.16 b-i	88 i-n	0.95 ijk	63 fg
3	FERT FERT CULT	Urea 60 lb N/A 1 DPF	94 d	86.0 d	34 def	12.4 i-l	44.8 a-d	6713 bcd	9756 a-e	0.92 ghi	90 h-n	0.99 b-k	67 c-g
4	FERT FERT CULT	Urea 120 lb N/A 10 DPF	97 a	88.5 a	36 abc	13.1 a-d	44.3 jkl	7206 abc	10097 a-d	1.42 ab	142 abc	1.02 a-k	73 bcd
5	FERT FERT CULT	Urea 120 lb N/A 5 DPF	97 a	88.8 a	36 ab	13.1 abc	44.3 kl	7348 a	9935 a-d	1.33 b-e	132 a-g	1.05 a-f	77 ab
6	FERT FERT CULT	Urea 120 lb N/A 1 DPF	97 a	88.8 a	36 abc	13.3 a	44.2 l	7562 a	11421 a	1.45 ab	167 a	1.00 b-k	76 ab
7	FERT FERT CULT	HM1152 (3 qt/ton; N-Fixx) 60 lb N/A 10 DPF	95 bc	87.0 bc	34 def	12.5 g-l	44.8 a-e	6416 d	9339 b-g	1.06 d-i	100 f-m	0.97 e-k	62 g
8	FERT FERT CULT	HM1152 (3 qt/ton; N-Fixx) 60 lb N/A 5 DPF	94 d	86.0 d	34 def	12.5 h-l	44.8 a-d	6604 cd	9429 b-f	0.98 f-i	93 h-n	0.96 ijk	63 fg
9	FERT FERT CULT	HM1152 (3 qt/ton; N-Fixx) 60 lb N/A 1 DPF	94 d	86.0 d	34 c-f	12.6 e-l	44.7 b-i	6547 d	9067 b-g	0.87 i	78 lmn	0.99 b-k	65 efg
10	FERT FERT CULT	HM1152 (3 qt/ton; N-Fixx) 120 lb N/A 10 DPF	97 a	88.8 a	36 abc	12.6 e-l	44.6 b-j	7704 a	9798 a-e	1.23 b-f	121 b-k	1.03 a-j	79 ab

Continued.

Table 50. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip-				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of Panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
11	FERT	HM1152 (3 qt/ton; N-Fixx)	97 a	88.8 a	36 abc	13.1 ab	44.3 jkl	7575 a	10808 ab	1.33 b-e	140 a-d	1.02 a-k	77 ab
	FERT	120 lb N/A											
	CULT	5 DPF											
12	FERT	HM1152 (3 qt/ton; N-Fixx)	97 a	88.8 a	37 a	12.9 a-g	44.4 h-l	7496 a	10323 a-d	1.19 b-g	127 b-h	1.09 a	82 a
	FERT	120 lb N/A											
	CULT	1 DPF											
13	FERT	HM1152 (4 qt/ton; N-Fixx)	94 cd	86.3 cd	35 b-e	12.4 i-l	44.8 abc	6584 d	9096 b-g	1.05 d-i	95 g-m	1.00 b-k	65 d-g
	FERT	60 lb N/A											
	CULT	10 DPF											
14	FERT	HM1152 (4 qt/ton; N-Fixx)	94 d	86.0 d	34 def	12.3 klm	44.8 abc	6472 d	8516 d-g	1.05 d-i	90 h-n	0.96 f-k	62 g
	FERT	60 lb N/A											
	CULT	5 DPF											
15	FERT	HM1152 (4 qt/ton; N-Fixx)	95 bcd	86.8 bcd	34 def	12.4 i-l	44.8 a-d	6257 d	8965 b-g	1.16 b-i	104 d-m	0.96 g-k	60 g
	FERT	60 lb N/A											
	CULT	1 DPF											
16	FERT	HM1152 (4 qt/ton; N-Fixx)	97 a	89.0 a	36 abc	12.7 b-k	44.6 b-k	7518 a	10777 abc	1.34 a-e	146 abc	0.95 jk	71 b-f
	FERT	120 lb N/A											
	CULT	10 DPF											
17	FERT	HM1152 (4 qt/ton; N-Fixx)	97 a	89.0 a	36 abc	12.9 a-h	44.4 g-l	7349 a	10304 a-d	1.32 b-e	135 a-f	1.05 a-h	77 ab
	FERT	120 lb N/A											
	CULT	5 DPF											
18	FERT	HM1152 (4 qt/ton; N-Fixx)	97 a	89.0 a	35 a-d	12.8 b-i	44.4 e-l	7679 a	9519 a-f	1.63 a	156 ab	1.06 a-d	81 a
	FERT	120 lb N/A											
	CULT	1 DPF											
19	FERT	HM1002 (3 qt/ton)	94 cd	86.3 cd	33 f	12.5 g-l	44.7 a-f	6460 d	7571 fgh	0.88 hi	67 mn	0.94 k	61 g
	FERT	60 lb N/A											
	CULT	10 DPF											
20	FERT	HM1002 (3 qt/ton)	96 b	87.5 b	34 def	12.5 f-l	44.7 b-h	6309 d	9037 b-g	0.97 f-i	88 i-n	0.99 b-k	63 g
	FERT	60 lb N/A											
	CULT	5 DPF											

Continued.

Table 50. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip-				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of Panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
21	FERT	HM1002 (3 qt/ton)	94 d	86.0 d	33 ef	12.4 i-l	44.8 abc	6574 d	8522 d-g	0.98 f-i	83 k-n	0.96 f-k	63 fg
	FERT	60 lb N/A											
	CULT	1 DPF											
22	FERT	HM1002 (3 qt/ton)	97 a	89.0 a	36 ab	12.7 c-k	44.6 b-k	7440 a	10085 a-d	1.38 abc	137 a-f	0.98 d-k	73 b-e
	FERT	120 lb N/A											
	CULT	10 DPF											
23	FERT	HM1002 (3 qt/ton)	97 a	89.0 a	37 ab	12.8 b-j	44.5 d-k	7315 ab	10084 a-d	1.46 ab	145 abc	1.08 ab	79 ab
	FERT	120 lb N/A											
	CULT	5 DPF											
24	FERT	HM1002 (3 qt/ton)	97 a	89.0 a	36 abc	12.9 a-f	44.4 f-l	7258 ab	10224 a-d	1.20 b-g	123 b-i	1.02 a-k	74 abc
	FERT	120 lb N/A											
	CULT	1 DPF											
25	FERT	HM1002 (4 qt/ton)	95 bc	87.0 bc	34 def	12.6 e-l	44.7 b-i	6427 d	7969 e-h	1.21 b-g	96 g-m	0.97 f-k	62 g
	FERT	60 lb N/A											
	CULT	10 DPF											
26	FERT	HM1002 (4 qt/ton)	95 bc	87.0 bc	34 def	12.7 c-k	44.6 b-i	6702 bcd	7899 e-h	0.99 f-i	80 lmn	0.97 e-k	65 efg
	FERT	60 lb N/A											
	CULT	5 DPF											
27	FERT	HM1002 (4 qt/ton)	94 cd	86.3 cd	34 def	12.2 lm	44.9 ab	6396 d	10809 ab	1.07 d-i	116 c-l	0.99 c-k	63 fg
	FERT	60 lb N/A											
	CULT	1 DPF											
28	FERT	HM1002 (4 qt/ton)	97 a	89.0 a	36 ab	13.0 a-e	44.3 i-l	7460 a	10361 a-d	1.35 a-d	139 a-e	1.05 a-g	78 ab
	FERT	120 lb N/A											
	CULT	10 DPF											
29	FERT	HM1002 (4 qt/ton)	97 a	89.0 a	37 a	12.7 c-k	44.5 c-k	7575 a	10063 a-d	1.25 b-f	126 b-i	1.00 b-k	76 ab
	FERT	120 lb N/A											
	CULT	5 DPF											
30	FERT	HM1002 (4 qt/ton)	97 a	89.0 a	36 abc	12.6 d-l	44.5 c-k	7256 ab	10086 a-d	1.25 b-f	126 b-i	1.05 a-e	76 ab
	FERT	120 lb N/A											
	CULT	1 DPF											

Continued.

Table 50. Continued.

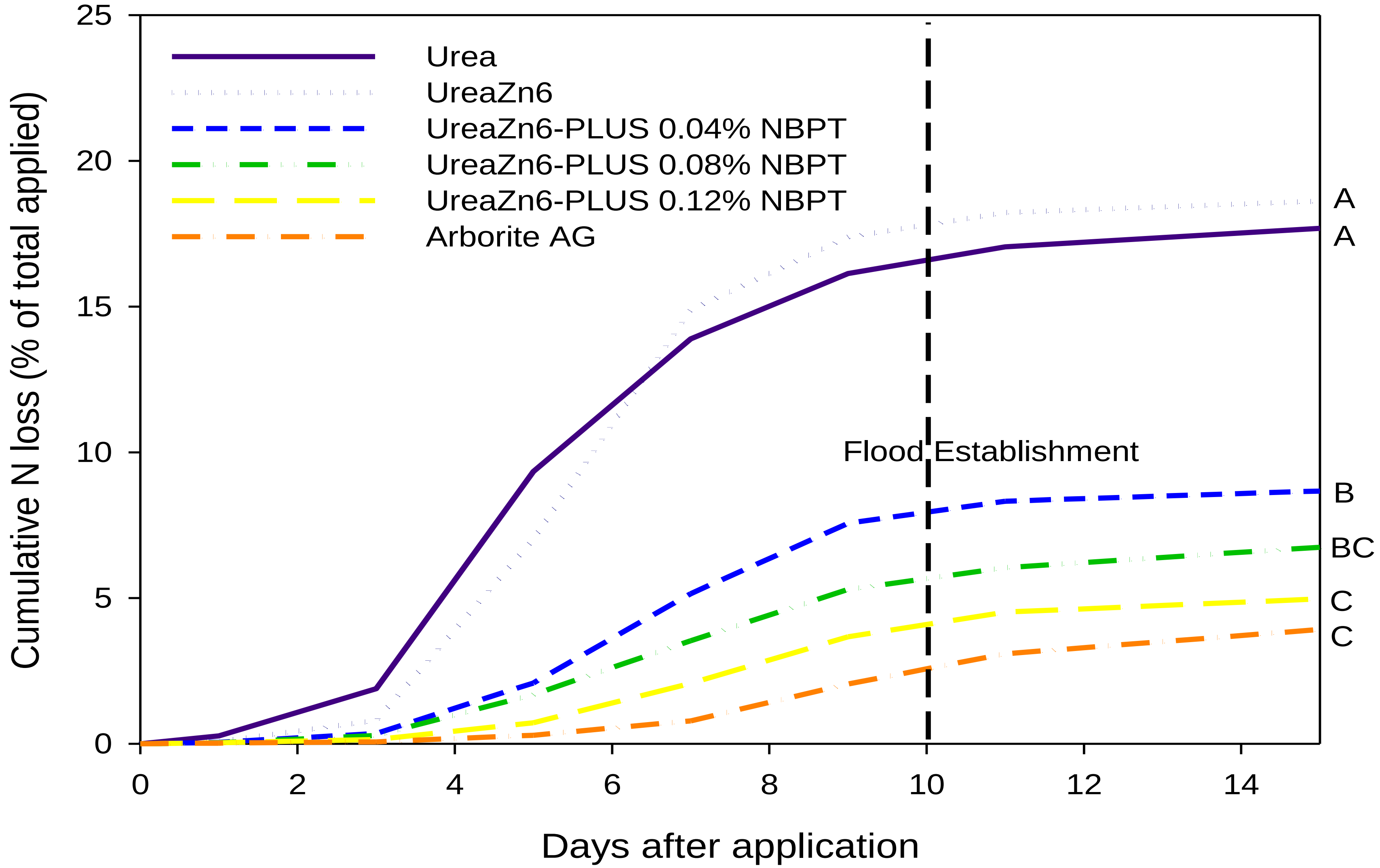
Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip-				Tissue	Tissue	N Uptake	Grain	Grain N
Part Rated					of Panicle				Abvgrd -	Abvgrd -	Total -	@Harv -	Total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012		
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD	Grain	Grain
Trt No.	Type	Treatment Name											
31	FERT	Agrotain	94 cd	86.3 cd	33 ef	12.3 klm	44.8 abc	6235 d	8696 d-g	1.09 c-i	96 g-m	0.96 h-k	60 g
	FERT	60 lb N/A											
	CULT	10 DPF											
32	FERT	Agrotain	94 d	86.0 d	34 def	12.5 f-l	44.7 b-g	6122 d	7951 e-h	1.08 c-i	83 j-n	0.97 f-k	60 g
	FERT	60 lb N/A											
	CULT	5 DPF											
33	FERT	Agrotain	94 cd	86.3 cd	35 b-e	12.4 j-m	44.8 abc	6596 cd	9794 a-e	1.04 e-i	102 e-m	0.94 k	62 g
	FERT	60 lb N/A											
	CULT	1 DPF											
34	FERT	Agrotain	97 a	89.0 a	37 ab	12.7 c-k	44.6 b-i	7433 a	9516 a-f	1.25 b-f	121 b-k	1.07 abc	79 ab
	FERT	120 lb N/A											
	CULT	10 DPF											
35	FERT	Agrotain	97 a	89.0 a	37 a	12.8 b-i	44.5 c-k	7609 a	9619 a-e	1.26 b-f	121 b-j	1.03 a-j	78 ab
	FERT	120 lb N/A											
	CULT	5 DPF											
36	FERT	Agrotain	97 a	89.0 a	35 a-d	12.7 b-k	44.6 b-k	7398 a	10331 a-d	1.17 b-h	123 b-i	1.03 a-i	76 ab
	FERT	120 lb N/A											
	CULT	1 DPF											
37	CHK	UTC (0 N)	94 d	86.0 d	31 g	11.9 m	45.0 a	4753 e	6482 h	0.88 hi	57 n	0.85 l	40 h
LSD (P=.05)			0.9	0.90	1.9	0.44	0.32	620.2	1965.9	0.298	38.2	0.086	8.0
Standard Deviation			0.6	0.64	1.3	0.31	0.23	442.9	1404.1	0.213	27.3	0.061	5.7
CV			0.67	0.74	3.85	2.48	0.51	6.42	14.91	18.19	24.5	6.17	8.33
Replicate F			6.477	6.477	0.686	14.649	10.746	3.949	10.507	1.622	5.095	12.424	4.911
Replicate Prob(F)			0.0005	0.0005	0.5627	0.0001	0.0001	0.0103	0.0001	0.1886	0.0025	0.0001	0.0031
Treatment F			16.848	16.848	5.052	3.256	3.165	8.091	2.376	2.934	3.735	2.439	9.551
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.0002	0.0001

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

Ammonia Volatilization Loss of Surface Applied Urea, ArboriteAG-Treated Urea, Zinc Sulfate-Treated Urea, Zinc Sulfate-Treated Urea + 0.04% NBPT, Zinc Sulfate-Treated Urea + 0.08% NBPT, and Zinc Sulfate-Treated Urea + 0.012% NBPT

Experiment number	: 12-CM-15
Site and design	:
Location/Cooperator	: Rice Research Station (Crowley Main)
Tillage type	: Fall Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley silt loam
% organic matter	: 1.33
pH	: 7.12
Extractable nutrients ppm	: Ca-1,100; Cu-1.4; Mg-293; P-10; K-69; Na-81; S-9.2; Zn-4.7
Crop/Variety	: Rice / CL151
Planting method/date	: Drill seeded / March 18
Seeding rate/depth	: 33 seeds/ft^2 / .5 inch
Emergence date	: March 26
Harvest date	: Did not harvest
Seed treatment/cwt	: Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	: 260 lb/A 0-24-24-2.8, March 19
Water management	:
Flush	: None
Flood	: May 3
Drain	: July 10
Pest management	:
Herbicides	: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment
Fungicides	: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Figure 3. Ammonia volatilization loss of surface applied urea, ArboriteAG-treated urea, zinc sulfate-treated urea, zinc sulfate-treated urea + 0.04% NBPT, zinc sulfate-treated urea + 0.08% NBPT, and zinc sulfate-treated urea + 0.012% NBPT over a 15-day period of time on a Crowley silt loam soil in Crowley Louisiana, 2012.



Evaluation of the Effect of Application Timing of Zinc Sulfate-Coated Urea N Fertilizer Products and the Addition of Various Rates of NBPT on CL151 Rice Yield and Agronomics

Experiment number	12-CM-16
Site and design	
Location/Cooperator	Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.33
pH	7.12
Extractable nutrients ppm	Ca-1,100; Cu-1.4; Mg-293; P-10; K-69; Na-81; S-9.2; Zn-4.7
Crop/Variety	Rice / CL151
Planting method/date	Drill seeded / March 18
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	March 26
Harvest date	July 30
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	260 lb/A 0-24-24-2.8, March 19
Water management	
Flush	None
Flood	May 3
Drain	July 10
Pest management	
Herbicides	3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
Insecticides	0.137 lb ai/cwt Dermacor seed treatment
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 51. Treatment means for the main effects of N source, N rate, and N application timing.
Evaluation of the effect of application timing of zinc sulfate-coated urea N fertilizer products and the addition of various rates of NBPT on CL151 rice yield and agronomics.

Crop Name					Rice	Rice	Rice	Rice			Rice	Rice	Rice
Description					plant-hd	emerg-hd					Biomass	Biomass	N Uptake
Part Rated											Abvgrd -	Abvgrd -	total -
Rating Date							7/19/2012	7/30/2012			6/25/2012	6/25/2012	6/25/2012
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Form Conc	Form Unit									
Table of N Source Means													
1	PROD	Urea	46	%	96	88	35	13.4	45.1	6982	10506	1.08	114
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	96	88	35	13.4	45.1	7047	10646	1.07	115
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	96	88	35	13.5	45.1	6918	10215	1.05	109
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	96	88	35	13.5	45.1	7106	10594	1.10	118
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	96	88	35	13.5	45.1	6963	10711	1.11	121
6	PROD	Arborite AG	46	%	96	88	35	13.2	45.2	7040	10123	1.14	115
		P			0.9239	0.9239	0.6907	0.8144	0.8242	0.7108	0.4844	0.4688	0.4861
		LSD (0.05)			0	0	1	0.6	0.3	266	751	0.09	13
Table of N Rate Means													
1	FERT	60 lb N/A			95	87	34	13.0	45.4	6622	9527	0.96	91
2	FERT	120 lb N/A			97	89	36	13.8	44.8	7397	11404	1.22	139
		P			0.0003	0.0003	0.011	0.003	0.0014	0.002	0.0047	0.011	0.0005
		LSD (0.05)			0	0	1	0.3	0.2	256	785	0.15	9
Table of N Application Timing Means													
1	CULT	10 DPF			96	88	35	13.3	45.2	6945	10697	1.06	115
2	CULT	5 DPF			96	88	35	13.5	45.1	7043	10464	1.16	122
3	CULT	1 DPF			96	88	35	13.5	45.1	7040	10236	1.06	109
		P			0.6422	0.6422	0.7266	0.4893	0.4086	0.1218	0.6241	0.0013	0.1213
		LSD (0.05)			0	0	1	0.3	0.2	110	1116	0.04	15

Continued.

Table 52. Treatment means for the factroial analysis of 2-way interactions.
Evaluation of the effect of application timing of zinc sulfate-coated urea N fertilizer products and the addition of various rates of NBPT on CL151 rice yield and agronomics.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emerg-hd	Tip of panicle				Biomass	Biomass	N Uptake
Part Rated											Abvgrd -	Abvgrd -	total -
Rating Date							7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Form Conc	Form Unit									
Table of N Source and N Rate Interaction													
1	PROD	Urea	46	%	95	87	34	13.2	45.3	6702	9746	0.91	88
1	FERT	60 lb N/A											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	95	87	34	13.0	45.5	6569	9208	0.91	85
1	FERT	60 lb N/A											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	95	87	34	12.9	45.5	6479	9276	0.92	84
1	FERT	60 lb N/A											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	94	86	34	13.1	45.3	6731	9684	0.98	94
1	FERT	60 lb N/A											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	94	86	34	13.0	45.4	6607	9530	0.99	94
1	FERT	60 lb N/A											
6	PROD	Arborite AG	46	%	95	87	35	12.9	45.5	6644	9720	1.07	103
1	FERT	60 lb N/A											
1	PROD	Urea	46	%	96	88	35	13.7	45.0	7261	11267	1.25	140
2	FERT	120 lb N/A											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	97	89	36	13.9	44.8	7525	12084	1.22	146
2	FERT	120 lb N/A											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	97	89	37	14.1	44.7	7358	11153	1.19	133
2	FERT	120 lb N/A											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	97	89	36	13.8	44.9	7481	11505	1.23	143
2	FERT	120 lb N/A											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	97	89	36	14.1	44.7	7319	11892	1.23	147
2	FERT	120 lb N/A											
6	PROD	Arborite AG	46	%	97	89	36	13.5	45.0	7436	10527	1.20	127
2	FERT	120 lb N/A											
		P			0.4809	0.48099	0.0995	0.6887	0.5863	0.5775	0.1354	0.2464	0.0865
		LSD (0.05)			1	1	1	0.7	0.4	332	1064	0.12	18

Continued.

Table 52. Continued.

Description					plant-hd	emerg-hd	Tip of panicle				Biomass	Biomass	N Uptake
Part Rated											Abvgrd -	Abvgrd -	total -
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Scale											50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Form Conc	Form Unit									
Table of N Source and Time of Application Interaction													
1	PROD	Urea	46	%	96	88	35	13.2	45.3	6888	9919	1.02	103
1	CULT	10 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	96	88	35	13.5	45.1	6749	10594	1.08	117
1	CULT	10 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	96	88	35	13.2	45.3	6966	10555	0.99	105
1	CULT	10 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	96	88	35	13.2	45.3	7241	11359	1.06	123
1	CULT	10 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	96	88	35	13.4	45.1	6851	11591	1.14	134
1	CULT	10 DPF											
6	PROD	Arborite AG	46	%	95	87	36	13.5	45.1	6977	10165	1.08	109
1	CULT	10 DPF											
1	PROD	Urea	46	%	96	88	35	13.4	45.2	6970	10592	1.17	123
2	CULT	5 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	96	88	35	13.2	45.3	7288	10815	1.12	121
2	CULT	5 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	96	88	36	13.9	44.9	6890	10199	1.14	117
2	CULT	5 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	95	87	35	13.6	45.0	7021	10974	1.20	134
2	CULT	5 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	96	88	35	13.7	45.0	6965	10197	1.09	112
2	CULT	5 DPF											
6	PROD	Arborite AG	46	%	96	88	35	13.0	45.3	7123	10007	1.23	122
2	CULT	5 DPF											
1	PROD	Urea	46	%	96	88	34	13.7	45.0	7087	11007	1.06	118
3	CULT	1 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	96	88	34	13.5	45.1	7102	10528	1.00	108
3	CULT	1 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	95	87	36	13.4	45.1	6899	9890	1.03	104
3	CULT	1 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	96	88	35	13.7	45.0	7056	9450	1.05	98
3	CULT	1 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	96	88	36	13.4	45.1	7074	10345	1.11	116
3	CULT	1 DPF											
6	PROD	Arborite AG	46	%	96	88	35	13.1	45.4	7020	10198	1.10	113
3	CULT	1 DPF											
		P			0.6918	0.6918	0.2941	0.5600	0.5406	0.3327	0.2169	0.5480	0.0097
		LSD (0.05)			1	1	1	0.8	0.5	374	1424	0.14	17

Continued.

Table 52. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			plant-hd	emerg-hd	Tip of panicle				Biomass	Biomass	N Uptake
Part Rated									Abvgrd -	Abvgrd -	total -
Rating Date					7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type			50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit			days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale									50% HD	50% HD	50% HD
Trt		Treatment									
No.	Type	Name									
Table of N Rate and Time of Application Timing Interaction											
1	FERT	60 lb N/A	94	86	34	12.9	45.5	6561	9426	0.91	86
1	CULT	10 DPF									
2	FERT	120 lb N/A	97	89	36	13.8	44.9	7330	11968	1.21	144
1	CULT	10 DPF									
1	FERT	60 lb N/A	95	87	34	13.0	45.4	6628	9915	1.01	100
2	CULT	5 DPF									
2	FERT	120 lb N/A	97	89	36	13.9	44.8	7457	11013	1.30	143
2	CULT	5 DPF									
1	FERT	60 lb N/A	94	86	34	13.1	45.4	6677	9241	0.96	88
3	CULT	1 DPF									
2	FERT	120 lb N/A	97	89	36	13.9	44.8	7403	11232	1.16	130
3	CULT	1 DPF									
		P	0.5927	0.5927	0.5599	0.9830	0.9195	0.8415	0.0385	0.2393	0.1575
		LSD (0.05)	0	0	1	0.6	0.3	301	735	0.1	14

Table 53. Table of treatment means for the factorial analysis of the 3-way interaction.
Evaluation of the effect of application timing of zinc sulfate-coated urea N fertilizer products and the addition of various rates of NBPT on CL151 rice yield and agronomics.

Trt No.	Type	Treatment Name	Form Conc	Form Unit	plant-hd	emerg-hd	Tip of panicle				Biomass	Biomass	N Uptake
Description					plant-hd	emerg-hd	Tip of panicle				Biomass	Biomass	N Uptake
Part Rated											Abvgrd -	Abvgrd -	total -
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											50% HD	50% HD	50% HD
Table of N Source x N Rate x Time of Application Interaction													
1	PROD	Urea	46	%	95	87	34	13.3	45.3	6636	8642	0.91	78
1	FERT	60 lb N/A											
1	CULT	10 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	95	87	34	12.8	45.5	6206	8209	0.90	74
1	FERT	60 lb N/A											
1	CULT	10 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	94	86	33	12.3	45.8	6572	9956	0.84	83
1	FERT	60 lb N/A											
1	CULT	10 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	94	86	34	12.7	45.6	6915	9724	0.90	87
1	FERT	60 lb N/A											
1	CULT	10 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	94	86	34	13.0	45.4	6521	10334	0.99	101
1	FERT	60 lb N/A											
1	CULT	10 DPF											
6	PROD	Arborite AG	46	%	94	86	35	13.2	45.2	6516	9690	0.95	92
1	FERT	60 lb N/A											
1	CULT	10 DPF											
1	PROD	Urea	46	%	96	88	36	13.1	45.3	7139	11196	1.13	127
2	FERT	120 lb N/A											
1	CULT	10 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	97	89	37	14.2	44.7	7292	12979	1.26	161
2	FERT	120 lb N/A											
1	CULT	10 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	97	89	36	14.0	44.8	7360	11153	1.14	127
2	FERT	120 lb N/A											
1	CULT	10 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	97	89	36	13.7	45.0	7568	12993	1.22	159
2	FERT	120 lb N/A											
1	CULT	10 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	97	89	36	13.9	44.9	7182	12849	1.30	166
2	FERT	120 lb N/A											
1	CULT	10 DPF											
6	PROD	Arborite AG	46	%	97	89	37	13.7	44.9	7439	10640	1.21	127
2	FERT	120 lb N/A											
1	CULT	10 DPF											

Continued.

Table 53. Continued.

Description					plant-hd	emerg-hd	Tip of panicle				Biomass	Biomass	N Uptake
Part Rated											Abvgrd -	Abvgrd -	total -
Rating Date							7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Form Conc	Form Unit									
1	PROD	Urea	46	%	95	87	34	13.1	45.4	6688	10794	0.93	101
1	FERT	60 lb N/A											
2	CULT	5 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	95	87	35	12.9	45.5	6857	10250	0.98	101
1	FERT	60 lb N/A											
2	CULT	5 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	96	88	34	13.6	45.2	6311	9366	1.03	95
1	FERT	60 lb N/A											
2	CULT	5 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	94	86	33	13.1	45.4	6621	10372	1.00	105
1	FERT	60 lb N/A											
2	CULT	5 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	94	86	33	13.0	45.4	6589	9188	0.94	86
1	FERT	60 lb N/A											
2	CULT	5 DPF											
6	PROD	Arborite AG	46	%	95	87	35	12.6	45.6	6702	9521	1.20	111
1	FERT	60 lb N/A											
2	CULT	5 DPF											
1	PROD	Urea	46	%	97	89	35	13.7	45.0	7252	10390	1.41	144
2	FERT	120 lb N/A											
2	CULT	5 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	97	89	36	13.5	45.0	7720	11381	1.26	142
2	FERT	120 lb N/A											
2	CULT	5 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	97	89	37	14.3	44.6	7469	11032	1.26	139
2	FERT	120 lb N/A											
2	CULT	5 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	97	89	37	14.1	44.7	7420	11577	1.41	163
2	FERT	120 lb N/A											
2	CULT	5 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	97	89	37	14.4	44.5	7340	11206	1.24	138
2	FERT	120 lb N/A											
2	CULT	5 DPF											
6	PROD	Arborite AG	46	%	97	89	36	13.5	45.0	7543	10493	1.26	133
2	FERT	120 lb N/A											
2	CULT	5 DPF											

Continued.

Table 53. Continued.

Description					plant-hd	emerg-hd	Tip of panicle				Biomass	Biomass	N Uptake
Part Rated											Abvgrd -	Abvgrd -	total -
Rating Date							7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012	6/25/2012	6/25/2012
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Form Conc	Form Unit									
1	PROD	Urea	46	%	95	87	34	13.1	45.4	6782	9801	0.89	86
1	FERT	60 lb N/A											
3	CULT	1 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	94	86	34	13.1	45.3	6643	9164	0.87	79
1	FERT	60 lb N/A											
3	CULT	1 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	94	86	34	12.9	45.5	6554	8506	0.88	74
1	FERT	60 lb N/A											
3	CULT	1 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	95	87	34	13.6	45.1	6657	8956	1.03	90
1	FERT	60 lb N/A											
3	CULT	1 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	95	87	35	12.9	45.5	6711	9069	1.06	95
1	FERT	60 lb N/A											
3	CULT	1 DPF											
6	PROD	Arborite AG	46	%	95	87	34	12.8	45.6	6714	9949	1.05	106
1	FERT	60 lb N/A											
3	CULT	1 DPF											
1	PROD	Urea	46	%	97	89	35	14.4	44.6	7391	12214	1.23	150
2	FERT	120 lb N/A											
3	CULT	1 DPF											
2	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	97	89	35	13.9	44.8	7562	11891	1.14	136
2	FERT	120 lb N/A											
3	CULT	1 DPF											
3	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	97	89	37	13.9	44.8	7244	11275	1.18	133
2	FERT	120 lb N/A											
3	CULT	1 DPF											
4	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	97	89	36	13.8	44.9	7456	9944	1.07	107
2	FERT	120 lb N/A											
3	CULT	1 DPF											
5	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	97	89	37	14.0	44.7	7436	11620	1.17	136
2	FERT	120 lb N/A											
3	CULT	1 DPF											
6	PROD	Arborite AG	46	%	97	89	36	13.3	45.2	7326	10446	1.15	120
2	FERT	120 lb N/A											
3	CULT	1 DPF											
		P			0.1287	0.1287	0.5437	0.3680	0.4456	0.8616	0.3863	0.3294	0.2356
		LSD (0.05)			1	1	2	1.0	0.5	392	1999	0.20	28

Table 54. ANOVA treatment means for all treatments including untreated control which did not receive N fertilization. Evaluation of the effect of application timing of zinc sulfate-coated urea N fertilizer products and the addition of various rates of NBPT on CL151 rice yield and agronomics.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					plant-hd	emerg-hd					Biomass	Biomass	N Uptake
Part Rated											Abvgrd -	Abvgrd -	total -
Rating Date							7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012		
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Form Conc	Form Unit									
1	PROD	Urea	46	%	95 cde	87 cde	34 e-j	13.3 a-i	45.3 a-j	6636 g-j	8642 jkl	0.91 k-n	78 nop
	FERT	60 lb N/A											
	CULT	10 DPF											
2	PROD	Urea	46	%	95 d-g	87 d-g	34 f-j	13.1 c-j	45.4 a-i	6688 f-j	10794 b-i	0.93 j-n	101 j-o
	FERT	60 lb N/A											
	CULT	5 DPF											
3	PROD	Urea	46	%	95 d-g	87 d-g	34 hij	13.1 c-j	45.4 a-i	6782 e-i	9801 d-l	0.89 k-n	86 l-o
	FERT	60 lb N/A											
	CULT	1 DPF											
4	PROD	Urea	46	%	96 abc	88 abc	36 a-e	13.1 d-j	45.3 a-i	7139 b-g	11196 a-f	1.13 b-j	127 e-j
	FERT	120 lb N/A											
	CULT	10 DPF											
5	PROD	Urea	46	%	97 ab	89 ab	35 b-h	13.7 a-h	45.0 e-l	7252 a-e	10390 b-k	1.41 a	144 a-f
	FERT	120 lb N/A											
	CULT	5 DPF											
6	PROD	Urea	46	%	97 a	89 a	35 c-i	14.4 a	44.6 kl	7391 abc	12214 ab	1.23 a-f	150 a-e
	FERT	120 lb N/A											
	CULT	1 DPF											
7	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	95 def	87 def	34 e-j	12.8 f-j	45.5 a-e	6206 j	8209 lm	0.90 k-n	74 op
	FERT	60 lb N/A											
	CULT	10 DPF											
8	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	95 def	87 def	35 d-j	12.9 f-j	45.5 a-f	6857 d-h	10250 b-k	0.98 h-n	101 j-o
	FERT	60 lb N/A											
	CULT	5 DPF											
9	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	94 efg	86 efg	34 hij	13.1 c-j	45.3 a-i	6643 g-j	9164 h-l	0.87 lmn	79 m-p
	FERT	60 lb N/A											
	CULT	1 DPF											

Continued.

Table 54. Continued.

Description					plant-hd	emerg-hd					Biomass Abvgrd -	Biomass Abvgrd -	N Uptake total -
Part Rated													
Rating Date							7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012		
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Form Conc	Form Unit									
10	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	97 a	89 a	37 abc	14.2 abc	44.7 jkl	7292 a-e	12979 a	1.26 a-d	161 abc
	FERT	120 lb N/A											
	CULT	10 DPF											
11	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	97 a	89 a	36 a-d	13.5 a-h	45.0 d-l	7720 a	11381 a-e	1.26 abc	142 a-f
	FERT	120 lb N/A											
	CULT	5 DPF											
12	PROD	UreaZn6 (37-0-0-3S-6Zn)	37	%	97 a	89 a	35 b-h	13.9 a-f	44.8 i-l	7562 ab	11891 abc	1.14 b-i	136 b-g
	FERT	120 lb N/A											
	CULT	1 DPF											
13	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	94 efg	86 efg	33 ij	12.3 ij	45.8 ab	6572 hij	9956 c-l	0.84 mn	83 l-o
	FERT	60 lb N/A											
	CULT	10 DPF											
14	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	96 bcd	88 bcd	34 g-j	13.6 a-h	45.2 c-k	6311 ij	9366 f-l	1.03 f-m	95 k-o
	FERT	60 lb N/A											
	CULT	5 DPF											
15	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	94 fg	86 fg	34 e-j	12.9 e-j	45.5 a-g	6554 hij	8506 klm	0.88 k-n	74 op
	FERT	60 lb N/A											
	CULT	1 DPF											
16	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	97 a	89 a	36 a-e	14.0 a-d	44.8 i-l	7360 a-d	11153 a-g	1.14 b-j	127 e-j
	FERT	120 lb N/A											
	CULT	10 DPF											
17	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	97 a	89 a	37 a	14.3 ab	44.6 kl	7469 ab	11032 a-h	1.26 a-d	139 a-f
	FERT	120 lb N/A											
	CULT	5 DPF											
18	PROD	UreaZn6-PLUS 0.04% NBPT (37-0-0-3S-6Zn)	37	%	97 a	89 a	37 a	13.9 a-f	44.8 i-l	7244 a-e	11275 a-f	1.18 b-h	133 d-i
	FERT	120 lb N/A											
	CULT	1 DPF											

Continued.

Table 54. Continued.

Description / Part Rated / Rating Date / Rating Type / Rating Unit / Crop Stage Majority / Crop Stage Scale					plant-hd 50% HD days Main		emerg-hd 50% HD days Main		7/19/2012 Height in Main		7/30/2012 Moist % Main		7/30/2012 Test Wt. lb/bu Main		7/30/2012 Yield lb/A Main		Biomass Abvgrd - 6/25/2012 Biomass lb/A Main 50% HD		Biomass Abvgrd - 6/25/2012 N % Main 50% HD		N Uptake total - 6/25/2012 N lb/A Main 50% HD	
Trt No.	Type	Treatment Name	Form Conc	Form Unit																		
19	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	94	fg	86	fg	34	hij	12.7	hij	45.6	a-d	6915	c-h	9724	d-l	0.90	k-n	87	l-o
	FERT	60 lb N/A																				
	CULT	10 DPF																				
20	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	94	fg	86	fg	33	ij	13.1	c-j	45.4	a-i	6621	g-j	10372	b-k	1.00	g-m	105	j-n
	FERT	60 lb N/A																				
	CULT	5 DPF																				
21	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	95	def	87	def	34	f-j	13.6	a-h	45.1	c-l	6657	f-j	8956	i-l	1.03	f-m	90	l-o
	FERT	60 lb N/A																				
	CULT	1 DPF																				
22	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	97	a	89	a	36	a-g	13.7	a-h	45.0	e-l	7568	ab	12993	a	1.22	a-f	159	a-d
	FERT	120 lb N/A																				
	CULT	10 DPF																				
23	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	97	a	89	a	37	a	14.1	a-d	44.7	jkl	7420	abc	11577	a-d	1.41	a	163	ab
	FERT	120 lb N/A																				
	CULT	5 DPF																				
24	PROD	UreaZn6-PLUS 0.08% NBPT (37-0-0-3S-6Zn)	37	%	97	a	89	a	36	a-g	13.8	a-g	44.9	g-l	7456	ab	9944	c-l	1.07	c-k	107	h-l
	FERT	120 lb N/A																				
	CULT	1 DPF																				
25	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	94	efg	86	efg	34	e-j	13.0	d-j	45.4	a-h	6521	hij	10334	b-k	0.99	h-n	101	j-o
	FERT	60 lb N/A																				
	CULT	10 DPF																				
26	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	94	efg	86	efg	33	j	13.0	d-j	45.4	a-h	6589	hij	9188	g-l	0.94	j-n	86	l-o
	FERT	60 lb N/A																				
	CULT	5 DPF																				
27	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	95	d-g	87	d-g	35	d-j	12.9	e-j	45.5	a-g	6711	f-j	9069	h-l	1.06	d-l	95	k-o
	FERT	60 lb N/A																				
	CULT	1 DPF																				

Continued.

Table 54. Continued.

Description					plant-hd	emerg-hd					Biomass	Biomass	N Uptake
Part Rated											Abvgrd -	Abvgrd -	total -
Rating Date							7/19/2012	7/30/2012	7/30/2012	7/30/2012	6/25/2012		
Rating Type					50% HD	50% HD	Height	Moist	Test Wt.	Yield	Biomass	N	N
Rating Unit					days	days	in	%	lb/bu	lb/A	lb/A	%	lb/A
Crop Stage Majority					Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale											50% HD	50% HD	50% HD
Trt No.	Type	Treatment Name	Form Conc	Form Unit									
28	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	97 a	89 a	36 a-g	13.9 a-f	44.9 h-l	7182 b-f	12849 a	1.30 ab	166 a
	FERT	120 lb N/A											
	CULT	10 DPF											
29	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	97 a	89 a	37 ab	14.4 a	44.5 l	7340 a-d	11206 a-f	1.24 a-e	138 b-f
	FERT	120 lb N/A											
	CULT	5 DPF											
30	PROD	UreaZn6-PLUS 0.012% NBPT (37-0-0-3S-6Zn)	37	%	97 a	89 a	37 abc	14.0 a-e	44.7 jkl	7436 abc	11620 a-d	1.17 b-h	136 b-g
	FERT	120 lb N/A											
	CULT	1 DPF											
31	PROD	Arborite AG	46	%	94 fg	86 fg	35 d-j	13.2 b-i	45.2 b-j	6516 hij	9690 d-l	0.95 i-n	92 l-o
	FERT	60 lb N/A											
	CULT	10 DPF											
32	PROD	Arborite AG	46	%	95 def	87 def	35 c-i	12.6 hij	45.6 abc	6702 f-j	9521 e-l	1.20 b-g	111 g-l
	FERT	60 lb N/A											
	CULT	5 DPF											
33	PROD	Arborite AG	46	%	95 def	87 def	34 e-j	12.8 g-j	45.6 a-d	6714 f-j	9949 c-l	1.05 e-l	106 i-m
	FERT	60 lb N/A											
	CULT	1 DPF											
34	PROD	Arborite AG	46	%	97 a	89 a	37 abc	13.7 a-h	44.9 f-l	7439 abc	10640 b-i	1.21 a-g	127 e-j
	FERT	120 lb N/A											
	CULT	10 DPF											
35	PROD	Arborite AG	46	%	97 a	89 a	36 a-f	13.5 a-h	45.0 e-l	7543 ab	10493 b-j	1.26 a-d	133 c-h
	FERT	120 lb N/A											
	CULT	5 DPF											
36	PROD	Arborite AG	46	%	97 a	89 a	36 a-e	13.3 a-i	45.2 c-k	7326 a-d	10446 b-k	1.15 b-i	120 f-k
	FERT	120 lb N/A											
	CULT	1 DPF											
37	CHK	0 lb N/A			94 g	86 g	31 k	12.1 j	45.8 a	4760 k	6560 m	0.80 n	53 p
LSD (P=.05)					1.0	1.0	1.9	1.10	0.60	526.4	1975.7	0.203	27.5
Standard Deviation					0.7	0.7	1.3	0.78	0.43	376.0	1411.1	0.145	19.6
CV					0.77	0.84	3.82	5.85	0.94	5.41	13.62	13.34	17.27

CULTURAL MANAGEMENT RESEARCH

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Cultural Management Research

During the 2012 season, two trials focused on determining the optimum seeding rates and target plant populations needed to achieve maximum yields in drill-seeded, delayed flood systems for two Clearfield rice varieties, CL162 and CL152. Treatments included nine seeding rates (5, 10, 15, 20, 25, 30, 35, 40, and 45 seed/ft^2; or approximately 10 to 110 pounds of seed per acre depending on variety) and two tillage systems, conventional tillage (CT) and a fall-stale seedbed (FSS). Both varieties received a standard rate of 150 lb N/A. A tillage effect (α=0.05) was not observed for either initial plant population or yield for both CL152 (Table 1) and CL162 (Table 2). Optimum yield was obtained with a corresponding seedling plant population of 13 and 7 plants/ft^2 for CL152 and CL162, respectively. In general, days to 50% heading decreased linearly with increasing seeding rates between 5 and 30 seed/ft^2 and became stable at seeding rates of 30 seed/ft^2 and above.

A seeding rate and plant population trial was established for the experimental hybrid LAH10. Seven seeding rates (3, 6, 9, 12, 15, 18, and 21 seeds/ft^2) were evaluated. The seeding rates equate to approximately 6 to 44 lb seed/A. Results of this trial are presented in Table 3. The plant population at the 2- to 3-leaf stage of rice development was 1, 3, 6, 6, 8, 10, and 10 plants/ ft^2 for the 3, 6, 9, 12, 15, 18, and 21 seed/ft^2 seeding rates, respectively. Rice grain yields ranged from a low of 10,016 lb/A and a high of 13,349 lb/A at the 3 and 21 seed/ft^2 seeding rates, respectively. Optimal yield (11,628 lb/A) was obtained when the seedling plant population was 8 plants/ft^2. Eight plants/ft^2 were obtained at an initial seeding rate of 15 seed/ft^2 or approximately 31 lb seed/A. Ninety pounds of N/A were applied for this trial, and no lodging occurred across all seeding rates.

A study was established in 2011 and continued in 2012 to evaluate the combined effects of stubble management practices and ratoon fungicide applications on ratoon rice grain yield and disease pressure. Two varieties, CL131 and Catahoula, were evaluated in the trial. Stubble management techniques included harvesting at a normal harvest height (approximately 16 inches), harvesting at a low harvest height (approximately 8 inches), post-harvest mowing with a Bush Hog to approximately 2 inches, and harvesting at a normal height followed by rolling the stubble. Two fungicide treatments included applications of QuiltXL at a rate of either 0 or 21 oz/A approximately 4 weeks after main crop harvest. The trial was conducted at the Rice Research Station (RRS) and Vermilion Parish (VP) research locations in 2012.

Results of the main effects of stubble height, fungicide application, and variety for the RRS location are presented in Table 4. All two-way and three-way treatment interactions were not statistically significant for any of the ratoon agronomic characteristics (days to 50% heading, test weight, grain moisture), ratoon yield, or Cercospera presence. Mean ratoon grain yield was greater for CL131 (3,729 lb/A) compared with Catahoula (2,918 lb/A) at the RRS location. Mean ratoon grain yield was statistically affected by ratoon stubble management practices (P = 0.0001, LSD = 246). Low harvest height (8-inch stubble) provided the highest ratoon yields (3,918 lb/A) followed by Bush Hogging to 2 inches (3,541 lb/A), rolling the ratoon stubble (3,101 lb/A), and normal harvesting practice, which leaves approximately a 16-inch stubble (3,736 lb/A). Cercospora foliar disease incidence was also significantly altered due to the main effect of stubble management practice (P = 0.0001, LSD = 0.6). Normal harvest practices leaving a 16-inch stubble had a higher foliar disease rating (4.1) compared with low harvest height (1.9), Bush Hogging to 2 inches (1.8), and rolling the ratoon stubble (1.6). Fungicide application did not have a significant effect on ratoon grain yield or Cercospora disease ratings.

Results of the main effects of stubble height, fungicide application, and variety for the VP location are presented in Table 5a. The two-way interaction between fungicide use and rice variety at the VP location is presented in Table 5b. The three-way interaction of variety, stubble management practice, and fungicide use was not significant. Only the two-way interaction of rice variety and stubble management practice was significant for ratoon grain yield (P = 0.0001, LSD = 154). CL131 ratoon grain yields for normal harvest height, Bush Hogging, low harvest height, and rolling was 2,024, 2,921, 2,759, and 2,768 lb/A, respectively. Catahoula ratoon grain yields for normal harvest height, Bush Hogging, low harvest height, and rolling was 2,451, 2,541, 2,179, and 2,413 lb/A, respectively. Mean ratoon yields and Cercospora disease rating were not affected by fungicide use applied 4 weeks after main crop harvest.

Determination of Optimum Seeding Rate in a Conventional and Stale Seedbed Tillage System for Clearfield Varieties

Experiment number	: 12-CM-24 and 12-CM-25
Site and design	:
Location/Cooperator	: Rice Research Station (Crowley Main)
Tillage type	: Fall Stale vs. Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.66 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley silt loam
% organic matter	: 1.22
pH	: 7.60
Extractable nutrients ppm	: Ca-1,662; Cu-2.0; Mg-394; P-12; K-91; Na-70; S-14.3; Zn-5.6
Crop/Variety	: Rice / See Data Sheet
Planting method/date	: Drill seeded / March 19
Seeding rate/depth	: 5, 10, 15, 20, 25, 30, 35, 40, and 45seeds/ft^2 / .5 inch
Emergence date	: March 28
Harvest date	: Aug. 1
Ratoon harvest date	: October 22
Seed treatment/cwt	: Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	: 260 lb/A 0-24-24-2.8, March 19 150 lb N/A 46-0-0, April 25 90 lb N/A 46-0-0, August 6
Water management	:
Flush	: None
Flood	: April 26
Drain	: July 10
Ratoon flood	: August 7
Ratoon drain	: October 9
Pest management	:
Herbicides	: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10 2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24 2 pt/A Basagran + 1% COC, August 6
Insecticides	: 0.137 lb ai/cwt Dermacor seed treatment ($\geq$ 30 seed/ft^2) 0.274 lb ai/cwt Dermacor seed treatment (< 30 seed/ft^2)
Fungicides	: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 1. Determination of optimum seeding rate in a conventional and stale seedbed tillage system for CL152 (2.1). Rice Research Station.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice	
Description		density		plant-hd		emerg-hd							
Rating Date		4/12/2012						7/19/2012		8/1/2012		8/1/2012	
Rating Type		Stand Cnt		50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit		number		days		days		in		lb/bu		lb/A	
Sample Size, Unit		1 sq ft											
Crop Stage Majority		Main		Main		Main		Main		Main		Main	
Trt No.	Treatment Name												
1	Conventional Till 5 seed/ft^2	3	h	100	ab	91	ab	38	a	46.2	a	5151	f
2	Conventional Till 10 seed/ft^2	6	gh	100	b	91	b	39	a	46.3	a	6074	e
3	Conventional Till 15 seed/ft^2	9	fg	100	b	91	b	38	a	46.0	a	6278	de
4	Conventional Till 20 seed/ft^2	13	ef	98	cd	89	cd	38	a	46.6	a	7252	abc
5	Conventional Till 25 seed/ft^2	13	ef	98	cd	89	cd	38	a	46.6	a	7362	ab
6	Conventional Till 30 seed/ft^2	17	cde	97	cd	88	cd	37	a	45.6	a	6949	a-d
7	Conventional Till 35 seed/ft^2	20	bc	97	d	88	d	37	a	46.6	a	7262	abc
8	Conventional Till 40 seed/ft^2	25	ab	97	d	88	d	36	a	46.5	a	7139	abc
9	Conventional Till 45 seed/ft^2	26	a	96	d	87	d	37	a	46.5	a	7272	abc
10	Stale Seedbed 5 seed/ft^2	3	h	102	a	93	a	39	a	46.0	a	4955	f
11	Stale Seedbed 10 seed/ft^2	6	gh	101	ab	92	ab	38	a	46.4	a	6143	e
12	Stale Seedbed 15 seed/ft^2	11	f	99	bc	90	bc	37	a	46.4	a	6534	cde
13	Stale Seedbed 20 seed/ft^2	12	f	98	cd	89	cd	37	a	46.4	a	7448	ab
14	Stale Seedbed 25 seed/ft^2	14	def	97	cd	88	cd	37	a	44.0	a	6688	b-e
15	Stale Seedbed 30 seed/ft^2	17	cde	98	cd	89	cd	37	a	46.6	a	7189	abc
16	Stale Seedbed 35 seed/ft^2	18	cd	97	d	88	d	37	a	46.2	a	7653	a
17	Stale Seedbed 40 seed/ft^2	18	cd	96	d	87	d	37	a	46.5	a	7565	a
18	Stale Seedbed 45 seed/ft^2	24	ab	97	d	88	d	36	a	46.5	a	7356	ab
LSD (P=.05)		4.9		1.9		1.9		1.7		1.5		760.3	
Standard Deviation		3.4		1.4		1.3		1.2		1.0		537.6	
CV		24.2		1.4		1.5		3.2		2.2		7.9	
Treatment F		16.5		6.5		6.5		1.8		1.4		8.7	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0514		0.1906		0.0001	

Continued.

Table 1. Continued.

Crop Name		Rice		Rice		Rice		Rice	
Rating Type		50% HD		TestWt		Yield		Yield	
Rating Unit		days		lb/bu		lb/A		lb/A	
Crop Stage Majority		Ratoon		Ratoon		Ratoon		MC+RC	
Trt No.	Treatment Name								
1	Conventional Till 5 seed/ft^2	31	a	41.1	a	2576	a	7727	f
2	Conventional Till 10 seed/ft^2	31	a	40.8	a	2750	a	8824	e
3	Conventional Till 15 seed/ft^2	31	a	41.1	a	2888	a	9165	cde
4	Conventional Till 20 seed/ft^2	31	a	40.9	a	2686	a	9938	abc
5	Conventional Till 25 seed/ft^2	31	a	42.2	a	2677	a	10039	ab
6	Conventional Till 30 seed/ft^2	31	a	41.2	a	2721	a	9671	a-d
7	Conventional Till 35 seed/ft^2	31	a	41.1	a	2698	a	9960	abc
8	Conventional Till 40 seed/ft^2	31	a	40.4	a	2577	a	9717	a-d
9	Conventional Till 45 seed/ft^2	31	a	40.9	a	2700	a	9972	abc
10	Stale Seedbed 5 seed/ft^2	31	a	39.9	a	2761	a	7716	f
11	Stale Seedbed 10 seed/ft^2	31	a	42.2	a	2847	a	8990	de
12	Stale Seedbed 15 seed/ft^2	31	a	42.0	a	2733	a	9267	b-e
13	Stale Seedbed 20 seed/ft^2	31	a	41.1	a	2728	a	10176	a
14	Stale Seedbed 25 seed/ft^2	31	a	41.2	a	2911	a	9599	a-e
15	Stale Seedbed 30 seed/ft^2	31	a	41.4	a	2764	a	9953	abc
16	Stale Seedbed 35 seed/ft^2	31	a	41.2	a	2732	a	10385	a
17	Stale Seedbed 40 seed/ft^2	31	a	40.2	a	2695	a	10261	a
18	Stale Seedbed 45 seed/ft^2	31	a	40.3	a	2495	a	9851	abc
LSD (P=.05)		0.0		1.9		334.4		814.7	
Standard Deviation		0.0		1.4		236.5		576.1	
CV		0.0		3.3		8.7		6.1	
Treatment F		0.0		0.9		0.8		7.3	
Treatment Prob(F)		1.0000		0.6222		0.7222		0.0001	

Continued.

Table 1. Continued. Yield component data.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice			
Crop Variety						w/o 10 P gr wt				filled grain					
Rating Date		7/25/2012													
Rating Type		WP dry wt.		Panicle #		PGrain wt.		10 P gr wt.		10 P seed		Milling			
Rating Unit		grams		number		grams		grams		number		head		total	
Sample Size, Unit		1m		1m		1m		1m		1m		g		g	
Collection Basis, Unit		2 row		2 row		2 row		2 row		2 row		100g		100g	
Crop Stage Majority		Main		Main		Main		Main		Main		Main		Main	
Trt No.	Treatment Name														
1	Conventional Till 5 seed/ft^2	759.95	a	137.3	h	280.72	a	19.03	a	1065.0	a	49.4	b-e	67.3	a-d
2	Conventional Till 10 seed/ft^2	760.34	a	149.3	gh	271.06	a	18.62	a	1034.3	a	48.4	cde	67.1	b-e
3	Conventional Till 15 seed/ ft^2	844.46	a	173.7	c-g	275.67	a	16.34	a	931.3	a	48.9	cde	67.4	a-d
4	Conventional Till 20 seed/ft^2	910.68	a	192.0	a-f	315.01	a	17.21	a	984.7	a	49.1	cde	67.5	a-d
5	Conventional Till 25 seed/ft^2	869.90	a	198.7	a-e	299.17	a	16.98	a	973.0	a	51.6	a-e	68.1	ab
6	Conventional Till 30 seed/ft^2	862.14	a	181.7	b-g	290.81	a	18.77	a	1055.0	a	51.6	a-e	67.5	a-d
7	Conventional Till 35 seed/ft^2	812.88	a	180.7	b-g	304.67	a	18.05	a	947.7	a	51.5	a-e	68.2	ab
8	Conventional Till 40 seed/ft^2	906.19	a	211.7	ab	323.39	a	17.73	a	964.7	a	50.9	a-e	67.2	bcd
9	Conventional Till 45 seed/ft^2	882.50	a	205.0	abc	332.18	a	18.86	a	1035.0	a	54.1	a	68.5	a
10	Stale Seedbed 5 seed/ft^2	881.93	a	171.0	d-g	243.42	a	16.30	a	971.7	a	41.4	f	66.3	de
11	Stale Seedbed 10 seed/ft^2	831.86	a	167.3	e-h	269.16	a	17.46	a	995.0	a	48.2	de	65.8	e
12	Stale Seedbed 15 seed/ft^2	889.16	a	189.0	a-f	289.18	a	14.74	a	819.3	a	48.0	e	66.7	cde
13	Stale Seedbed 20 seed/ft^2	788.40	a	160.7	fgh	281.70	a	20.50	a	1094.3	a	52.5	a-d	68.2	ab
14	Stale Seedbed 25 seed/ft^2	874.44	a	202.0	a-d	324.15	a	19.51	a	1035.3	a	53.8	ab	68.1	ab
15	Stale Seedbed 30 seed/ft^2	905.97	a	208.0	ab	315.93	a	17.14	a	935.3	a	49.7	b-e	67.3	a-d
16	Stale Seedbed 35 seed/ft^2	882.14	a	222.3	a	314.37	a	17.01	a	904.7	a	54.5	a	68.0	ab
17	Stale Seedbed 40 seed/ft^2	898.74	a	211.7	ab	319.10	a	19.08	a	1003.7	a	52.7	abc	68.2	ab
18	Stale Seedbed 45 seed/ft^2	822.56	a	202.3	a-d	304.05	a	16.23	a	924.7	a	52.6	a-d	67.9	abc
LSD (P=.05)		132.5		33.4		59.7		3.7		197.9		4.4		1.3	
Standard Deviation		79.5		20.1		35.8		2.2		118.7		2.7		0.8	
CV		9.3		10.7		12.0		12.4		12.1		5.3		1.1	
Treatment F		1.1		4.1		1.3		1.3		1.0		4.1		2.6	
Treatment Prob(F)		0.3749		0.0002		0.2365		0.2730		0.5273		0.0003		0.0086	

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

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

Table 2. Determination of optimum seeding rate in a conventional and stale seedbed tillage system for CL162 (2.1). Rice Research Station.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice	
Crop Variety		Rice Density											
Description		2-3 leaf		plant-hd		emerg-hd							
Rating Date		4/12/2012						7/19/2012		8/1/2012		8/1/2012	
Rating Type		Stand Cnt		50% HD		50% HD		Height		Test Wt.		Yield	
Rating Unit		number		days		days		in		lb/bu		lb/A	
Sample Size, Unit		1 sq ft											
Crop Stage Majority		Main		Main		Main		Main		Main		Main	
Trt No.	Treatment Name												
1	Conventional Till 5 seed/ft^2	4	k	95	a	86.0	a	41	ab	47.0	a	4324	bcd
2	Conventional Till 10 seed/ft^2	7	jk	95	a	86.0	a	41	ab	47.2	a	4576	ab
3	Conventional Till 15 seed/ft^2	8	ij	93	cd	83.5	cd	40	abc	46.9	a	4278	bcd
4	Conventional Till 20 seed/ft^2	13	gh	93	bc	84.0	bc	41	a	46.9	a	4279	bcd
5	Conventional Till 25 seed/ft^2	14	fg	92	de	82.5	de	40	a-d	46.9	a	4273	bcd
6	Conventional Till 30 seed/ft^2	20	de	91	e	82.0	e	38	de	46.7	a	3972	def
7	Conventional Till 35 seed/ft^2	21	cde	91	e	81.5	e	40	a-e	46.8	a	3976	def
8	Conventional Till 40 seed/ft^2	24	bc	91	e	81.8	e	41	ab	46.4	a	3838	fg
9	Conventional Till 45 seed/ft^2	25	b	91	e	81.8	e	39	cde	46.5	a	3505	g
10	Stale Seedbed 5 seed/ft^2	3	k	95	a	85.8	a	40	a-e	47.0	a	4230	b-e
11	Stale Seedbed 10 seed/ft^2	6	jk	94	ab	85.0	ab	41	ab	47.1	a	4707	a
12	Stale Seedbed 15 seed/ft^2	9	hij	94	bc	84.5	bc	39	b-e	47.2	a	4270	bcd
13	Stale Seedbed 20 seed/ft^2	11	ghi	92	de	82.5	de	39	cde	46.9	a	4352	abc
14	Stale Seedbed 25 seed/ft^2	18	e	91	e	82.3	e	39	cde	46.7	a	4307	bcd
15	Stale Seedbed 30 seed/ft^2	18	ef	91	e	81.8	e	40	a-e	46.8	a	3999	c-f
16	Stale Seedbed 35 seed/ft^2	24	bcd	91	e	82.0	e	38	de	46.9	a	4398	ab
17	Stale Seedbed 40 seed/ft^2	23	bcd	91	e	81.5	e	39	b-e	46.7	a	3987	c-f
18	Stale Seedbed 45 seed/ft^2	30	a	91	e	81.8	e	38	e	46.9	a	3886	ef
LSD (P=.05)		4.0		1.1		1.2		2.0		0.5		372.2	
Standard Deviation		2.8		0.8		0.8		1.4		0.4		263.2	
CV		18.4		0.9		1.0		3.6		0.8		6.3	
Treatment F		33.3		16.7		16.7		2.1		1.4		4.8	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0192		0.1580		0.0001	

Continued.

Table 2. Continued.

Crop Name		Rice		Rice		Rice		Rice	
Rating Date				10/22/2012		10/22/2012			
Rating Type		50% HD		TestWt		Yield		Yield	
Rating Unit		days		lb/bu		lb/A		lb/A	
Crop Stage Majority		Ratoon		Ratoon		Ratoon		MC+RC	
Trt No.	Treatment Name								
1	Conventional Till 5 seed/ft^2	24	a	40.59	a	1754	d	6187	b-f
2	Conventional Till 10 seed/ft^2	24	a	40.79	a	2014	abc	6590	ab
3	Conventional Till 15 seed/ft^2	24	a	41.55	a	2157	a	6435	abc
4	Conventional Till 20 seed/ft^2	24	a	40.91	a	2011	abc	6291	b-f
5	Conventional Till 25 seed/ft^2	24	a	40.58	a	2056	abc	6256	b-f
6	Conventional Till 30 seed/ft^2	24	a	40.57	a	2122	ab	6094	c-f
7	Conventional Till 35 seed/ft^2	24	a	40.99	a	2056	abc	5887	fg
8	Conventional Till 40 seed/ft^2	24	a	40.52	a	2145	a	5983	def
9	Conventional Till 45 seed/ft^2	24	a	40.53	a	1960	bc	5491	g
10	Stale Seedbed 5 seed/ft^2	24	a	40.63	a	1941	c	5994	def
11	Stale Seedbed 10 seed/ft^2	24	a	39.90	a	2093	abc	6788	a
12	Stale Seedbed 15 seed/ft^2	24	a	39.79	a	2132	ab	6402	a-d
13	Stale Seedbed 20 seed/ft^2	24	a	40.71	a	2133	ab	6485	abc
14	Stale Seedbed 25 seed/ft^2	24	a	41.59	a	2009	abc	6316	b-e
15	Stale Seedbed 30 seed/ft^2	24	a	40.24	a	2168	a	6167	b-f
16	Stale Seedbed 35 seed/ft^2	24	a	39.93	a	2040	abc	6437	abc
17	Stale Seedbed 40 seed/ft^2	24	a	40.75	a	2092	abc	6153	c-f
18	Stale Seedbed 45 seed/ft^2	24	a	39.77	a	2081	abc	5966	ef
LSD (P=.05)		0.0		1.5		178.1		423.1	
Standard Deviation		0.0		1.0		124.7		296.0	
CV		0.0		2.6		6.1		4.8	
Treatment F		0.0		1.0		2.6		4.1	
Treatment Prob(F)		1.0000		0.4676		0.0062		0.0001	

Continued.

Table 2. Continued. Yield component data.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice			
Crop Variety						w/o 10 P gr wt				filled grain o>					
Rating Date		7/24/2012													
Rating Type		WP dry wt.		Panicle #		PGrain wt.		10 P gr wt.		10 P seed		Milling			
Rating Unit		grams		number		grams		grams		number		head		total	
Sample Size, Unit		1m		1m		1m		1m		1m		g		g	
Collection Basis, Unit		2 row		2 row		2 row		2 row		2 row		100g		100g	
Crop Stage Majority		Main		Main		Main		Main		Main		Main		Main	
Trt No.	Treatment Name														
1	Conventional Till 5 seed/ft^2	780.36	a	130.3	h	224.78	a	22.61	a	1065.7	a	40.75	f	64.14	a
2	Conventional Till 10 seed/ft^2	815.22	a	151.0	fgh	221.59	a	22.22	a	1103.0	a	43.06	def	64.61	a
3	Conventional Till 15 seed/ft^2	834.35	a	168.0	efg	187.83	a	22.37	a	1021.7	a	43.87	b-f	63.49	a
4	Conventional Till 20 seed/ft^2	805.93	a	167.3	efg	199.30	a	19.94	a	898.7	a	47.67	a	65.08	a
5	Conventional Till 25 seed/ft^2	846.14	a	190.3	cde	206.67	a	22.07	a	1009.3	a	46.50	a-d	65.03	a
6	Conventional Till 30 seed/ft^2	750.77	a	170.0	d-g	160.00	a	19.18	a	892.0	a	43.92	b-f	63.66	a
7	Conventional Till 35 seed/ft^2	860.04	a	213.3	abc	164.68	a	21.21	a	987.0	a	45.26	a-e	63.91	a
8	Conventional Till 40 seed/ft^2	889.75	a	246.7	a	169.43	a	17.38	a	826.3	a	46.57	abc	64.79	a
9	Conventional Till 45 seed/ft^2	870.72	a	232.7	ab	170.10	a	18.37	a	807.3	a	47.13	ab	64.63	a
10	Stale Seedbed 5 seed/ft^2	798.53	a	134.0	gh	212.94	a	23.13	a	1070.0	a	41.89	ef	64.51	a
11	Stale Seedbed 10 seed/ft^2	785.87	a	147.7	fgh	191.98	a	20.58	a	980.3	a	43.21	c-f	64.17	a
12	Stale Seedbed 15 seed/ft^2	807.27	a	170.0	d-g	172.98	a	21.80	a	993.3	a	43.55	c-f	63.87	a
13	Stale Seedbed 20 seed/ft^2	842.61	a	181.7	c-f	192.15	a	19.81	a	898.3	a	46.19	a-d	64.91	a
14	Stale Seedbed 25 seed/ft^2	787.39	a	182.7	c-f	172.48	a	24.45	a	1172.0	a	44.03	b-f	64.07	a
15	Stale Seedbed 30 seed/ft^2	863.41	a	205.0	bcd	178.76	a	21.29	a	954.0	a	45.75	a-d	64.34	a
16	Stale Seedbed 35 seed/ft^2	824.24	a	240.0	ab	175.23	a	21.45	a	931.7	a	44.47	a-e	63.57	a
17	Stale Seedbed 40 seed/ft^2	817.16	a	214.0	abc	171.09	a	17.72	a	798.3	a	47.06	ab	64.82	a
18	Stale Seedbed 45 seed/ft^2	854.73	a	214.7	abc	189.30	a	16.27	a	779.7	a	44.60	a-e	63.21	a
LSD (P=.05)		123.1		36.7		48.2		5.6		236.9		3.5		1.8	
Standard Deviation		73.8		22.0		28.9		3.3		142.1		2.1		1.1	
CV		9.0		11.8		15.5		16.1		14.9		4.7		1.6	
Treatment F		0.7		7.7		1.4		1.3		1.8		2.5		0.9	
Treatment Prob(F)		0.7474		0.0001		0.2007		0.2530		0.0654		0.0108		0.6028	

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

Determination of Optimum Seeding Rate for LAH10

Experiment number ....: 12-CM-41

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.22
- **pH** ....: 7.60
- **Extractable nutrients** ppm ....: Ca-1,662; Cu-2.0; Mg-394; P-12; K-91; Na-70; S-14.3; Zn-5.6

Crop/Variety ....: Rice / LAH10
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth** ....: 3, 6, 9, 12, 15, 18, 21 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 28
- **Harvest date** ....: August 6
- **Ratoon harvest date** ....: October 23

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

Fertilization ....: 260 lb/A 0-24-24-2.8, March 19
90 lb N/A 46-0-0, April 25
90 lb N/A 46-0-0, August 6

Water management ....:
- **Flush** ....: None
- **Flood** ....: April 26
- **Drain** ....: July 10
- **Ratoon flood** ....: August 7
- **Ratoon drain** ....: October 9

Pest management ....:
- **Herbicides** ....: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
2 pt/A Basagran + 1% COC, August 6
- **Insecticides** ....: 0.274 lb ai/cwt Dermacor seed treatment (< 30 seed/ft^2)
- **Fungicides** ....: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 3. Determination of optimum seeding rate for LAH10 (2.1). Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				plant-hd (Lee)	emerg-hd (Lee)	plant-hd (Lee)	emerg-hd (Lee)	Dr. Lee -	Dr. Lee -	Dr. Lee -
Part Rated									bottom of pan	Tip of panicle
Rating Type				5% HD	5% HD	50% HD	50% HD	Lodge	height	height
Rating Unit				days	days	days	days	%	cm	cm
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main
Trt No.	Trt Name	Rate	Rate Unit							
1	3 seed/ft^2	130,680	seeds/A	102 a	94 a	105 a	97 a	0.0 c	95 b	117 a
2	6 seed/ft^2	261,360	seeds/A	101 b	93 b	104 ab	96 ab	0.0 c	97 a	116 a
3	9 seed/ft^2	392,040	seeds/A	99 c	91 c	103 bc	95 bc	0.0 c	97 a	117 a
4	12 seed/ft^2	522,720	seeds/A	99 c	91 c	103 bc	95 bc	0.0 c	96 a	116 a
5	15 seed/ft^2	653,400	seeds/A	98 d	90 d	102 cd	94 cd	0.0 c	98 a	117 a
6	18 seed/ft^2	784,080	seeds/A	98 d	90 d	102 d	94 d	5.0 b	97 a	117 a
7	21 seed/ft^2	914,760	seeds/A	97 e	89 e	102 d	94 d	7.8 a	98 a	117 a
LSD (P=.05)				0.3	0.3	0.8	0.8	0.5	1.6	2.1
Standard Deviation				0.2	0.2	0.5	0.5	0.4	1.1	1.4
CV				0.2	0.2	0.5	0.6	19.9	1.1	1.2
Treatment F				379.7	379.7	16.7	16.7	314.8	4.1	0.7
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0092	0.6241

Continued.

Table 3. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Variety				Rice Density									
Description				2-3 leaf	plant-hd	emerg-hd	Tip of panicle						
Rating Date				4/12/2012			7/19/2012	8/6/2012	8/6/2012				
Rating Type				Stand Cnt	50% HD	50% HD	Height	Test Wt.	Yield	50% HD	TestWt	Yield	Yield
Rating Unit				number	days	days	in	lb/bu	lb/A	days	lb/bu	lb/A	lb/A
Sample Size, Unit				1 sq ft									
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC+RC
Trt No.	Trt Name	Rate	Rate Unit										
1	3 seed/ft^2	130,680	seeds/A	1 e	102 a	93 a	47 a	44.1 a	8675 e	26 a	45.93 a	1341 c	10016 d
2	6 seed/ft^2	261,360	seeds/A	3 d	101 b	92 b	47 a	44.3 a	9958 d	26 a	46.60 a	1605 bc	11563 c
3	9 seed/ft^2	392,040	seeds/A	6 c	101 b	92 b	46 a	44.6 a	10333 cd	26 a	45.65 a	1910 a	12244 bc
4	12 seed/ft^2	522,720	seeds/A	6 c	101 b	92 b	47 a	44.5 a	10889 bc	26 a	45.96 a	1630 abc	12519 b
5	15 seed/ft^2	653,400	seeds/A	8 b	101 b	92 b	46 a	44.1 a	11628 ab	26 a	45.33 a	1610 bc	13239 a
6	18 seed/ft^2	784,080	seeds/A	10 a	101 b	92 b	48 a	44.3 a	11614 ab	26 a	45.25 a	1681 ab	13295 a
7	21 seed/ft^2	914,760	seeds/A	10 a	99 c	90 c	46 a	44.3 a	11898 a	26 a	45.17 a	1451 bc	13349 a
LSD (P=.05)				1.7	0.6	0.6	2.2	0.6	781.4	0.0	1.2	297.2	700.7
Standard Deviation				1.1	0.4	0.4	1.5	0.4	526.0	0.0	0.8	200.0	471.7
CV				18.0	0.4	0.5	3.2	0.9	4.9	0.0	1.8	12.5	3.8
Treatment F				34.1	18.8	18.8	0.6	0.9	19.2	0.0	1.5	3.2	26.3
Treatment Prob(F)				0.0001	0.0001	0.0001	0.7457	0.5230	0.0001	1.0000	0.2284	0.0251	0.0001

Continued.

Table 3. Continued. Yield component data.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice		Rice
Crop Variety						w/o 10 P gr wt		filled grain			
Description				Yield Components							Total
Rating Date				8/2/2012							
Rating Type				WP dry wt.	Panicle #	PGrain wt.	10 P gr wt.	10 P seed	Milling		Biomass
Rating Unit				grams	number	grams	grams	number	head	total	lb/A
Sample Size, Unit				1m	1m	1m	1m	1m	g	g	
Collection Basis, Unit				2 row	2 row	2 row	2 row	2 row	100g	100g	
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Main	harvest
Trt No.	Trt Name	Rate	Rate Unit								
1	3 seed/ft^2	130,680	seeds/A	863.62 a	95.7 c	400.95 a	49.57 a	1709.7 a	50.41 a	66.83 a	12595 a
2	6 seed/ft^2	261,360	seeds/A	867.54 a	101.7 c	399.12 a	43.71 a	1918.7 a	50.55 a	67.05 a	12652 a
3	9 seed/ft^2	392,040	seeds/A	987.14 a	118.0 bc	426.80 a	45.38 a	1837.3 a	49.64 a	66.29 a	14396 a
4	12 seed/ft^2	522,720	seeds/A	894.38 a	112.7 c	405.03 a	44.32 a	1785.0 a	46.10 a	65.16 a	13044 a
5	15 seed/ft^2	653,400	seeds/A	988.98 a	127.3 abc	460.66 a	43.65 a	1782.7 a	50.06 a	66.54 a	14423 a
6	18 seed/ft^2	784,080	seeds/A	1104.35 a	158.3 a	532.93 a	45.44 a	1860.0 a	51.84 a	66.80 a	16106 a
7	21 seed/ft^2	914,760	seeds/A	1038.00 a	153.3 ab	488.93 a	42.63 a	1733.7 a	48.89 a	67.06 a	15138 a
LSD (P=.05)				319.2	38.3	150.4	7.7	385.2	5.7	2.2	4654.7
Standard Deviation				179.4	21.5	84.5	4.3	216.5	3.2	1.2	2616.2
CV				18.6	17.4	19.0	9.6	12.0	6.5	1.8	18.6
Treatment F				0.8	3.8	1.1	0.8	0.3	0.9	0.9	0.8
Treatment Prob(F)				0.5976	0.0235	0.4107	0.5726	0.9014	0.5025	0.5305	0.5977

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

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

Evaluation of Stubble Management Practices and Fungicide Use 4WAH on CL131 and Catahoula Ratoon Yields and Disease Pressure in Acadia Parish

Experiment number ....: 12-CM-23

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.31
- **pH** ....: 7.0
- **Extractable nutrients** ppm ....: Ca-1,643; Cu-2.1; Mg-414; P-14; K-98; Na-76; S-12; Zn-6.0

Crop/Variety ....: Rice / CL131, Catahoula
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 inch
- **Emergence date** ....: March 28
- **Harvest date** ....: August 1
- **Ratoon harvest date** ....: October 22

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

Fertilization ....: 260 lb/A 0-24-24-2.8, March 19
150 lb N/A 46-0-0, April 25
90 lb N/A 46-0-0, August 6

Water management ....:
- **Flush** ....: None
- **Flood** ....: April 26
- **Drain** ....: July 10
- **Ratoon flood** ....: August 7
- **Ratoon drain** ....: October 12

Pest management ....:
- **Herbicides** ....: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
  2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
  2 pt/A Basagran + 1% COC, August 6
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides** ....: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Tale 4. Evaluation of stubble management practices and fungicide use 4WAH on CL131 and Catahoula ratoon yields and disease pressure (3.1). Rice Research Station.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description												Disease	Disease
Part Rated												foliar -	foliar -
Rating Date				7/29/2011	8/5/2011	8/5/2011	8/5/2011		11/4/2011	11/4/2011	11/4/2011	10/24/2011	10/24/2011
Rating Type			50% HD	Height	Moist	Test Wt.	Yield	50% HD	Moist	Yield	Total Yield	Cer	BPB
Rating Unit			days	in	%	lb/bu	lb/A	days	%	lb/A	lb/A	0-9	0-9
Crop Stage Majority			Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC+RC	Ratoon	Ratoon
Trt No.	Type	Treatment Name											
TABLE OF A (Stubble Management) MEANS													
1	FUNG	W/O QuiltXL	101	37	12.6	45.7	8353	48	16.1	3285	11638	2.6	2.7
2	FUNG	QuiltXL (21 oz/A)	101	37	12.7	45.7	8361	47	16.7	3363	11724	2.1	2.8
		P	1.0000	0.2486	0.7862	0.7428	0.9374	0.1856	0.0516	0.6878	0.5722	0.3509	0.3910
		LSD	0	1	0.8	0.6	313	1	0.6	558	433	1.3	0.2
TABLE OF B (Fungicide) MEANS													
1	CULT	Norm harv ht (16")	101	37	13.1	45.4	8294	46	15.2	2736	11030	4.1	3.0
2	CULT	Low harv ht (8")	101	37	13.2	45.5	8428	48	16.0	3918	12346	1.9	2.8
3	CULT	Brush Hog (2")	101	38	12.3	45.9	8458	48	16.9	3541	11998	1.8	2.5
4	CULT	Rolled (16")	101	37	12.2	46.0	8249	48	17.4	3101	11350	1.6	2.7
		P	1.0000	0.7392	0.0545	0.1078	0.9462	0.0001	0.0001	0.0001	0.0986	0.0001	0.1097
		LSD	0	2	0.8	0.6	935	1	0.6	246	1138	0.6	0.4
TABLE OF C (Variety) MEANS													
1	VAR	CL131	99	35	12.1	46.0	8996	50	16.3	3729	12725	2.6	2.1
2	VAR	Catahoula	102	39	13.2	45.4	7719	45	16.4	2918	10637	2.1	3.4
		P	1	0.0117	0.0031	0.0271	0.0013	0.0003	0.7926	0.0003	0.0003	0.0773	0.0012
		LSD	0	2	0.4	0.4	344	1	0.8	139	328	0.5	0.3

Evaluation of Stubble Management Practices and Fungicide Use 4WAH on CL131 and Catahoula Ratoon Yields and Disease Pressure in Vermilion Parish

Experiment number	12-VP-23
Site and design	
Location/Cooperator	Vermilion Parish / Kent Lounsberry
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.66 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Kaplan silt loam
% organic matter	1.23
pH	4.78
Extractable nutrients ppm	Ca-963; Cu-1.3; Mg-240; P-11.5; K-197; Na-82; S-22.7; Zn-2.2
Crop/Variety	Rice / CL131, Catahoula
Planting method/date	Drill seeded / March 28
Seeding rate/depth	33 seeds/ft^2 / .5 inch
Emergence date	April 3
Harvest date	August 2
Ratoon Harvest date	October 25
Seed treatment/cwt	Dithane (fungicide)-114 g Release (gibberellic acid)-10 g Zinc Plus (10% Zn & 4.9% combined sulfur)-296 ml
Fertilization	60 lb/A P_2O_5 with Command, Preplant 150 lb N/A 46-0-0, April 23 90 lb N/A 46-0-0, August 8
Water management	
Flush	None
Flood	April 26
Drain	July 18
Ratoon flood	August 9
Ratoon drain	October 12
Pest management	
Herbicides	2 qt/A Propanil + 2 qt/A Rice Beaux + 1.5 oz/A Londax, April 19 2 pt/A Basagran + 1% COC, August 3
Insecticides	None
Fungicides	4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt + 1 pt/A Headset, June 15

Table 5a. Evaluation of stubble management practices and fungicide use 4WAH on CL131 and Catahoula ratoon yields and disease pressure (1.2). Vermilion Parish. Main effects.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				emer-hd									Cercospera
Rating Date					7/25/2012	8/2/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	10/25/2012	10/25/2012	10/25/2012
Rating Type				50% HD	Height	Moist	Test Wt.	Yield	Moist	Test Wt.	Yield	Total Yield	DiseaseRate
Rating Unit				days	in	%	lb/bu	lb/A	%	lb/bu	lb/A	lb/A	0-9
Crop Stage Majority				Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC+RC	Ratoon
Trt No.	Type	Treatment Name											
TABLE OF A (Stubble Management) MEANS													
1	FUNG	w/o QuiltXL		82	35.0	15.1	45.5	8431	20.8	43.7	2440	10871	4.1
2	FUNG	QuiltXL (21 oz/A)		82	35.2	14.7	45.7	8504	21.8	43.5	2574	11078	4.1
			P	0.117	0.7733	0.2684	0.2563	0.5091	0.1447	0.1673	0.0980	0.1304	1.0000
			LSD	0	1.6	0.89	0.47	313	1.61	0.45	179	319	0.4
TABLE OF B (Fungicide) MEANS													
1	CULT	Norm harv ht (16")		83	35.1	15.2	45.3	8202	18.4	44.4	2238	10439	5.4
2	CULT	Low harv ht (8")		82	35.2	14.9	45.6	8518	21.2	43.5	2731	11250	3.6
3	CULT	Bush Hog (=<2")		82	34.9	14.8	45.7	8576	23.9	43.0	2469	11045	3.5
4	CULT	Rolled (16")		82	35.2	14.8	45.7	8574	21.7	43.5	2591	11165	3.9
			P	0.0353	0.9613	0.9017	0.5044	0.3188	0.0001	0.0001	0.0001	0.0137	0.0001
			LSD	0	1.2	1.33	0.68	494	0.77	0.24	133	468	0.5
TABLE OF C (Variety) MEANS													
1	VAR	CL131		83	33.5	14.9	45.5	8036	21.2	43.7	2618	10654	4.8
2	VAR	Catahoula		82	36.8	14.9	45.7	8899	21.3	43.6	2396	11295	3.3
			P	0.1836	0.0008	0.9220	0.3724	0.0002	0.7680	0.4295	0.0061	0.0030	0.0001
			LSD	1	0.8	1.02	0.56	133	1.01	0.31	102	228	0.2

Table 5b. Two-way interactions of stubble management practice and variety.

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	emer-hd									Cercospera
Rating Date		7/25/2012	8/2/2012	8/2/2012	8/2/2012	10/25/2012	10/25/2012	10/25/2012	10/25/2012	10/25/2012
Rating Type	50% HD	Height	Moist	Test Wt.	Yield	Moist	Test Wt.	Yield	Total Yield	DiseaseRate
Rating Unit	days	in	%	lb/bu	lb/A	%	lb/bu	lb/A	lb/A	0-9
Crop Stage Majority	Main	Main	Main	Main	Main	Ratoon	Ratoon	Ratoon	MC+RC	Ratoon
Fungicide X Variety Means										
1 CULT Norm harv ht (16") 1 VAR CL131	83	33.3	14.8	45.3	7762	18.7	44.3	2024	9786	6.5
2 CULT Low harv ht (8") 1 VAR CL131	83	33.6	15.0	45.4	8132	21.5	43.5	2921	11053	4.0
3 CULT Bush Hog (=<2") 1 VAR CL131	82	33.5	14.9	45.6	8230	23.9	43.1	2759	10989	4.1
4 CULT Rolled (16") 1 VAR CL131	82	33.5	14.9	45.6	8021	21.0	43.7	2768	10789	4.8
1 CULT Norm harv ht (16") 2 VAR Catahoula	82	37.0	15.5	45.3	8642	18.2	44.4	2451	11093	4.3
2 CULT Low harv ht (8") 2 VAR Catahoula	82	36.8	14.8	45.7	8905	20.9	43.6	2541	11446	3.3
3 CULT Bush Hog (=<2") 2 VAR Catahoula	82	36.4	14.6	45.9	8922	23.9	43.0	2179	11101	2.9
4 CULT Rolled (16") 2 VAR Catahoula	82	36.9	14.8	45.8	9128	22.4	43.3	2413	11541	3.0
P	0.3464	0.9063	0.6953	0.8360	0.2885	0.0338	0.1658	0.0001	0.0008	0.0832
LSD	1.0	2.0	1.4	0.8	336	1.0	0.33	154	305	0.8

Evaluation of the Combined Effects of N Rate and Seeding Rate on Flower Timing of Three Rice Lines

Experiment number ....: 12-CM-40

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

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.36
- **pH**...: 7.35
- **Extractable nutrients** ppm ....: Ca-1,542; Cu-2.0; Mg-382; P-14; K-79; Na-102; S-13.5; Zn-6.3

Crop/Variety ....: Rice / Multiple
- **Planting method/date** ....: Drill seeded / March 19
- **Seeding rate/depth**......................: 14, 28, 42 seeds/ft^2 / .5 inch
- **Emergence date**...........................: March 28
- **Harvest date** ....: August 6

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

Fertilization..: 260 lb/A 0-24-24-2.8, March 19

Water management ....:
- **Flush** ....: None
- **Flood**...: April 26
- **Drain**...: July 10

Pest management ....:
- **Herbicides**....................................: 3 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 10
2 qt/A Rice Beaux + 2 qt/A Propanil + .5 oz/A Permit + 1 oz/A Londax + .25% NIS, April 24
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor seed treatment
- **Fungicides**....................................: 4.5 oz/A Sercadis + 4.7 oz/A Gem + 6 oz/A Tilt, June 15

Table 6. Evaluation of the combined effects of N rate and seeding rate on flower timing of three rice lines (1.1). Rice Research Station.

Crop Name					Rice		Rice		Rice		Rice	
Description					Stand count		emer-hd		emer-hd		emer-hd	
Rating Date					4/12/2012							
Rating Type					number		10% HD		50% HD		80% HD	
Rating Unit					plants		days		days		days	
Sample Size, Unit					10 ft							
Collection Basis, Unit					1 row							
Crop Stage Majority					Main		Main		Main		Main	
Crop Stage Scale					2-3 leaf							
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
1	08A (MS line, A)				56	k	94	a	95	a	96	a
	14 seed/ft^2	609,840	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
2	08A (MS line, A)				61	jk	92	de	93	ef	94	d
	14 seed/ft^2	609,840	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
3	08A (MS line, A)				58	k	92	ef	93	fg	94	de
	14 seed/ft^2	609,840	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								
4	08A (MS line, A)				129	cde	94	ab	95	abc	96	ab
	28 seed/ft^2	1,219,680	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
5	08A (MS line, A)				140	a-d	91	f-i	93	fgh	93	fg
	28 seed/ft^2	1,219,680	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
6	08A (MS line, A)				103	e-i	91	g-j	92	g-j	93	fg
	28 seed/ft^2	1,219,680	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								
7	08A (MS line, A)				163	ab	94	a	95	ab	96	a
	42 seed/ft^2	1,829,520	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
8	08A (MS line, A)				166	a	91	e-h	92	f-i	93	ef
	42 seed/ft^2	1,829,520	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
9	08A (MS line, A)				158	abc	91	h-k	92	ijk	93	gh
	42 seed/ft^2	1,829,520	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								
10	08B (B)				58	k	93	abc	94	bcd	95	bc
	14 seed/ft^2	609,840	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
11	08B (B)				54	k	91	f-i	92	g-j	93	fg
	14 seed/ft^2	609,840	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
12	08B (B)				58	k	92	efg	93	fgh	93	ef
	14 seed/ft^2	609,840	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								
13	08B (B)				89	ij	93	bc	94	cd	95	c
	28 seed/ft^2	1,219,680	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
14	08B (B)				91	hi	91	h-k	92	hij	93	fgh
	28 seed/ft^2	1,219,680	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
15	08B (B)				102	e-i	90	i-l	91	jkl	92	hi
	28 seed/ft^2	1,219,680	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								

Continued.

Table 6. Continued.

Crop Name					Rice		Rice		Rice		Rice	
Description					Stand count		emer-hd		emer-hd		emer-hd	
Rating Date					4/12/2012							
Rating Type					number		10% HD		50% HD		80% HD	
Rating Unit					plants		days		days		days	
Sample Size, Unit					10 ft							
Collection Basis, Unit					1 row							
Crop Stage Majority					Main		Main		Main		Main	
Crop Stage Scale					2-3 leaf							
Trt No.	Trt Name	Rate	Rate Unit	Growth Stage								
16	08B (B)				129	c-f	93	cd	94	de	95	c
	42 seed/ft^2	1,829,520	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
17	08B (B)				120	d-h	90	j-m	91	jkl	92	hi
	42 seed/ft^2	1,829,520	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
18	08B (B)				126	d-g	90	lm	91	l	92	j
	42 seed/ft^2	1,829,520	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								
19	R609 (R)				54	k	90	i-l	92	ijk	93	gh
	14 seed/ft^2	609,840	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
20	R609 (R)				50	k	89	m	91	l	92	j
	14 seed/ft^2	609,840	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
21	R609 (R)				51	k	90	lm	91	l	92	j
	14 seed/ft^2	609,840	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								
22	R609 (R)				99	f-i	90	i-l	91	jkl	92	hi
	28 seed/ft^2	1,219,680	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
23	R609 (R)				98	ghi	88	no	89	mn	90	kl
	28 seed/ft^2	1,219,680	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
24	R609 (R)				98	ghi	88	n	89	m	90	k
	28 seed/ft^2	1,219,680	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								
25	R609 (R)				138	a-d	90	klm	91	kl	92	ij
	42 seed/ft^2	1,829,520	seeds/A									
	0 lb N/A	0	lb ai/A	preflood								
26	R609 (R)				137	a-d	87	o	88	o	90	l
	42 seed/ft^2	1,829,520	seeds/A									
	90 lb N/A	90	lb ai/A	preflood								
27	R609 (R)				135	bcd	87	o	88	no	90	l
	42 seed/ft^2	1,829,520	seeds/A									
	180 lb N/A	180	lb ai/A	preflood								
LSD (P=.05)					29.5		0.8		0.8		0.7	
Standard Deviation					20.9		0.5		0.5		0.5	
CV					20.8		0.6		0.6		0.6	
Treatment F					13.5		51.3		51.8		52.0	
Treatment Prob(F)					0.0001		0.0001		0.0001		0.0001	

Continued.

Table 6. Continued.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice	
Description		Plant Ht.		Plant Ht.		Plant Ht.		Plant Ht.		Plant Ht.		Plant Ht.	
Part Rated		pos 1 -		pos 2 -		pos 3 -		pos 4 -		pos 5 -		Mean -	
Rating Date		7/19/2012		7/19/2012		7/19/2012		7/19/2012		7/19/2012		7/19/2012	
Rating Type		cm		cm		cm		cm		cm		cm	
Rating Unit		ext. pan		ext. pan		ext. pan		ext. pan		ext. pan		ext. pan	
Crop Stage Majority		Main		Main		Main		Main		Main		Main	
Trt No.	Trt Name												
1	08A (MS line, A) 14 seed/ft^2 0 lb N/A	67	k	68	i	66	i	67	m	68	m	67	l
2	08A (MS line, A) 14 seed/ft^2 90 lb N/A	84	ij	87	h	85	h	86	kl	88	jkl	86	k
3	08A (MS line, A) 14 seed/ft^2 180 lb N/A	87	ghi	91	e-h	91	f	91	hi	90	hij	90	i
4	08A (MS line, A) 28 seed/ft^2 0 lb N/A	66	k	66	i	67	i	65	m	67	m	66	l
5	08A (MS line, A) 28 seed/ft^2 90 lb N/A	85	hij	88	gh	87	fgh	87	jkl	85	kl	86	jk
6	08A (MS line, A) 28 seed/ft^2 180 lb N/A	88	ghi	92	d-g	89	fgh	91	hi	87	jkl	89	i
7	08A (MS line, A) 42 seed/ft^2 0 lb N/A	64	k	67	i	70	i	67	m	69	m	67	l
8	08A (MS line, A) 42 seed/ft^2 90 lb N/A	81	j	88	gh	85	gh	83	l	84	l	84	k
9	08A (MS line, A) 42 seed/ft^2 180 lb N/A	87	ghi	89	gh	88	fgh	89	ijk	89	ijk	89	ij
10	08B (B) 14 seed/ft^2 0 lb N/A	91	efg	90	fgh	91	f	91	hi	89	ij	91	i
11	08B (B) 14 seed/ft^2 90 lb N/A	108	abc	109	bc	109	bcd	109	cde	109	b-e	109	de
12	08B (B) 14 seed/ft^2 180 lb N/A	111	a	116	a	114	ab	117	a	114	a	114	a
13	08B (B) 28 seed/ft^2 0 lb N/A	90	fgh	89	gh	91	f	90	hij	93	hi	90	i
14	08B (B) 28 seed/ft^2 90 lb N/A	106	bc	108	bc	108	cd	107	ef	107	de	107	ef
15	08B (B) 28 seed/ft^2 180 lb N/A	112	a	116	a	115	a	114	ab	111	abc	114	ab

Continued.

Table 6. Continued.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice	
Description		Plant Ht.		Plant Ht.		Plant Ht.		Plant Ht.		Plant Ht.		Plant Ht.	
Part Rated		pos 1 -		pos 2 -		pos 3 -		pos 4 -		pos 5 -		Mean -	
Rating Date		7/19/2012		7/19/2012		7/19/2012		7/19/2012		7/19/2012		7/19/2012	
Rating Type		cm		cm		cm		cm		cm		cm	
Rating Unit		ext. pan		ext. pan		ext. pan		ext. pan		ext. pan		ext. pan	
Crop Stage Majority		Main		Main		Main		Main		Main		Main	
Trt No.	Trt Name												
16	08B (B) 42 seed/ft^2 0 lb N/A	90	gh	89	gh	90	fg	89	ijk	88	jk	89	i
17	08B (B) 42 seed/ft^2 90 lb N/A	109	abc	110	bc	107	d	107	def	106	e	108	def
18	08B (B) 42 seed/ft^2 180 lb N/A	111	a	115	a	112	abc	113	b	112	ab	113	ab
19	R609 (R) 14 seed/ft^2 0 lb N/A	97	d	95	de	98	e	95	g	97	fg	97	g
20	R609 (R) 14 seed/ft^2 90 lb N/A	107	abc	109	bc	108	cd	111	bcd	108	cde	108	de
21	R609 (R) 14 seed/ft^2 180 lb N/A	111	ab	115	a	113	ab	114	ab	111	abc	113	ab
22	R609 (R) 28 seed/ft^2 0 lb N/A	96	de	96	d	91	f	94	gh	98	f	95	gh
23	R609 (R) 28 seed/ft^2 90 lb N/A	104	c	105	c	106	d	106	ef	108	b-e	106	f
24	R609 (R) 28 seed/ft^2 180 lb N/A	110	ab	113	ab	112	abc	111	bc	111	abc	111	bc
25	R609 (R) 42 seed/ft^2 0 lb N/A	95	def	94	def	91	f	96	g	94	gh	94	h
26	R609 (R) 42 seed/ft^2 90 lb N/A	104	c	110	bc	106	d	105	f	105	e	106	f
27	R609 (R) 42 seed/ft^2 180 lb N/A	109	abc	112	ab	107	d	112	bc	110	a-d	110	cd
LSD (P=.05)		5.2		4.6		4.7		3.9		4.0		2.4	
Standard Deviation		3.7		3.3		3.3		2.8		2.8		1.7	
CV		3.8		3.4		3.5		2.9		2.9		1.8	
Treatment F		63.3		84.8		74.6		117.9		100.9		296.6	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001	

Continued.

Table 6. Continued.

Crop Name		Rice		Rice				Rice		Rice		Rice	
Description		Tip of panicle											
Rating Date		7/19/2012		7/30/2012				7/30/2012		7/30/2012		7/30/2012	
Rating Type		Height		Lodge				Moist		Test Wt.		Yield	
Rating Unit		in		% plot		rate		%		lb/bu		lb/A	
Crop Stage Majority		Main		Main		Main		Main		Main		Main	
Trt No.	Trt Name												
1	08A (MS line, A) 14 seed/ft^2 0 lb N/A	27	j	0	c	0	d	23.5	a-g	42.6	c-f	625	i
2	08A (MS line, A) 14 seed/ft^2 90 lb N/A	35	f-i	0	c	0	d	27.1	a	41.7	f	1355	hi
3	08A (MS line, A) 14 seed/ft^2 180 lb N/A	35	f-i	0	c	0	d	24.3	a-e	42.4	c-f	1657	h
4	08A (MS line, A) 28 seed/ft^2 0 lb N/A	26	j	0	c	0	d	23.9	a-f	42.5	c-f	633	i
5	08A (MS line, A) 28 seed/ft^2 90 lb N/A	33	i	0	c	0	d	25.0	a-d	42.4	c-f	1485	h
6	08A (MS line, A) 28 seed/ft^2 180 lb N/A	34	ghi	0	c	0	d	26.0	ab	41.8	f	2800	g
7	08A (MS line, A) 42 seed/ft^2 0 lb N/A	26	j	0	c	0	d	26.1	ab	42.1	ef	631	i
8	08A (MS line, A) 42 seed/ft^2 90 lb N/A	34	hi	18	c	0	d	24.5	a-d	42.1	ef	1574	h
9	08A (MS line, A) 42 seed/ft^2 180 lb N/A	34	hi	0	c	0	d	24.1	a-f	42.4	c-f	1792	h
10	08B (B) 14 seed/ft^2 0 lb N/A	36	efg	0	c	0	d	20.0	d-i	43.4	a-f	4209	ef
11	08B (B) 14 seed/ft^2 90 lb N/A	42	abc	0	c	0	d	19.6	d-i	43.3	a-f	8664	cd
12	08B (B) 14 seed/ft^2 180 lb N/A	42	abc	50	b	1	c	22.6	a-h	42.7	b-f	8938	a-d
13	08B (B) 28 seed/ft^2 0 lb N/A	36	e-h	0	c	0	d	15.6	i	44.9	a	4445	e
14	08B (B) 28 seed/ft^2 90 lb N/A	41	bc	0	c	0	d	18.0	ghi	44.1	abc	9070	abc
15	08B (B) 28 seed/ft^2 180 lb N/A	43	abc	45	b	1	c	22.9	a-g	42.5	c-f	9215	abc

Continued.

Table 6. Continued.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice	
Description		Tip of panicle											
Rating Date		7/19/2012		7/30/2012				7/30/2012		7/30/2012		7/30/2012	
Rating Type		Height		Lodge				Moist		Test Wt.		Yield	
Rating Unit		in		% plot		rate		%		lb/bu		lb/A	
Crop Stage Majority		Main		Main		Main		Main		Main		Main	
Trt No.	Trt Name												
16	08B (B) 42 seed/ft^2 0 lb N/A	34	ghi	0	c	0	d	20.5	c-i	43.1	a-f	4788	e
17	08B (B) 42 seed/ft^2 90 lb N/A	42	abc	0	c	0	d	25.0	a-d	41.7	f	9466	a
18	08B (B) 42 seed/ft^2 180 lb N/A	43	abc	58	ab	2	b	22.5	a-h	42.7	b-f	8665	cd
19	R609 (R) 14 seed/ft^2 0 lb N/A	38	de	0	c	0	d	18.7	f-i	44.0	a-d	3586	f
20	R609 (R) 14 seed/ft^2 90 lb N/A	42	abc	0	c	0	d	17.3	hi	44.5	ab	8309	d
21	R609 (R) 14 seed/ft^2 180 lb N/A	44	a	75	a	2	bc	25.6	abc	41.9	f	9121	abc
22	R609 (R) 28 seed/ft^2 0 lb N/A	38	ef	0	c	0	d	23.4	a-g	42.2	def	4526	e
23	R609 (R) 28 seed/ft^2 90 lb N/A	41	c	0	c	0	d	18.9	e-i	44.0	a-d	9074	abc
24	R609 (R) 28 seed/ft^2 180 lb N/A	44	ab	75	a	3	a	18.7	f-i	43.9	a-e	9473	a
25	R609 (R) 42 seed/ft^2 0 lb N/A	37	ef	0	c	0	d	18.9	e-i	43.7	a-e	4538	e
26	R609 (R) 42 seed/ft^2 90 lb N/A	41	cd	15	c	0	d	20.7	b-i	43.2	a-f	8705	bcd
27	R609 (R) 42 seed/ft^2 180 lb N/A	42	abc	80	a	3	a	23.9	a-f	42.2	def	9452	ab
LSD (P=.05)		2.7		24.5		0.6		5.5		1.8		758.6	
Standard Deviation		1.9		17.3		0.5		3.9		1.3		536.4	
CV		5.1		112.5		112.6		17.7		3.0		9.9	
Treatment F		31.1		10.1		12.0		2.5		2.0		167.9	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0009		0.0127		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.

ROTATIONAL CROP RESEARCH

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

Rotational Crop Research

A trial was conducted to evaluate the soybean yield response to several new and experimental composite phosphorus (P) and potassium (K) fertilizer source combinations when surface broadcast on non-irrigated soybeans. Phosphate sources included MESZ (12-40-0-10S-1Zn), MESB (11-46-0-6S-0.35B), monoammonium phosphate (MAP; 11-52-0), and ACT102L (11-38-0-10S-1Zn-0.35B). Potassium fertilizer sources included potash (MOP; 0-0-60), and K-Mag (0.-0.-22-22S-11Mg). Fertilizer P and K were applied across all treatment combinations at a rate equivalent to 60 and 40 pounds of P_2O_5 and K_2O, respectively. A check was also included in the trial where no P or K fertilizer was applied. Actual treatment combinations and the results of this trial are presented in Table 1. Soybean yields ranged from 39.4 to 47.5 bu/A. Soybean grain yield and plant height at harvest of the check plot (where no fertilizer was applied) were not significantly different than any of the fertilizer treatment combinations.

A trial was conducted to evaluate the soybean yield response to several new and experimental K fertilizer sources when surface applied to non-irrigated soybeans. Fertilizer K sources included potash (MOP; 0-0-60), EM-1 (0-0-56-0.5B), EM-2 (0-0-56-1Zn), EM-3 (0-0-56-1Zn-1Mn), EM-4 (0-0-56-1Zn-2Mn), EM-5 (0-0-56-1Mn), and EM-6 (0-0-56-2Mn). Boron fertilizer sources included Granubr (15.5% B) and manganese sulfate ($MnSO_4$; 0-0-0-19S-32Mn). Zinc was balanced in the trial using zinc sulfate (ZnSO4; 0-0-0-16.5S-36Zn). Potassium was applied at a rate of either 56 or 60 lb K_2O/A. Zinc (Zn) and manganese (Mn) was applied at rates of either 0, 1, or 2 lb/A. Actual fertilizer treatment combinations and the yield and agronomic results are presented in Table 2. A yield or plant height response to the various fertilizer treatments was not observed in this trial.

A trial was established in 2012 in Crowley, Louisiana, to evaluate the agronomic effects of planting date, seeding rate, and variety on yield for non-irrigated Pioneer brand soybeans. Trial treatments included two targeted dates of planting (DOP; mid-April and mid-May), five varieties (94Y40, 94Y70, 94Y80, 95Y01, and 95Y10), and two seeding rates (100,000 and 150,000 seed/A). The trial was set up as a split-plot design, with date of planting as the whole plot and variety and seeding rate, within each date of planting, as the split plot. The soil at the location was a Crowley silt loam. Actual planting dates for the first and second dates of planting were April 19 and May 16, respectively. Analysis of variance results for the trial are presented in Tables 3, 4, and 5 for the main effects, 2-way, and 3-way interactions, respectively. A 3-way interaction was not observed for any of the agronomic parameters recorded: plant height, lodging, moisture at harvest, test weight, or grain yield (Table 5). A highly significant date of planting by variety interaction was observed for grain yield (Table 4, P = 0.0001, LSD = 5.0) when the data were pooled over both seeding rates. In general, a significant increase in grain yield was observed for the mid-May date of planting compared with the mid-April for 94Y40 (40.2 and 19.2 bu/A, respectively), 94Y70 (49.3 and 24.4 bu/A), 94Y80 (53.0 and 40.1 bu/A), and 95Y10 (58.0 and 34.3 bu/A). The grain yield for the variety 95Y01 was numerically increased from the first DOP compared with the second DOP (53.0 and 40.1 bu/A, respectively); however, it was not statistically significant. Test weight was not affected by the 3-way interactions, any of the 2-way interactions, or the main effects of DOP, variety, or seeding rate (Tables 3-5). The test weights for each variety, when pooled over seeding rate and date of planting, ranged from 54.8 to 55.7 lb/bu. A significant interaction between variety and DOP was observed for plant height (P = 0.0106, LSD = 1.6). In general, mean plant height was greater for all mid-May planted soybeans compared with mid-April planted soybeans for 94Y40 (25.3 and 19.1 bu/A, respectively), 94Y70 (32.9 and 23.4 bu/A), 94Y80 (30.5 and 23.8 bu/A), 95Y01 (33.0 and 24.3. bu/A), and 95Y10 (31.4 and 21.8 bu/A); however, many of the mid-April mean plant heights were not statistically different between varieties (Table 3).

A trial was conducted to evaluate the effects of seeding rate on several agronomic and chemical characteristics of two sweet sorghum varieties. Six seeding rates (20,000, 40,000, 60,000, 80,000, 100,000, and 120,000 seed/A) and two sweet sorghum varieties (M81-E and Topper) were included in the trial. Results from this trial are presented in Table 6. The main effect of seeding rate was significant for plant population (P = 0.0001; LSD = 12893). Plant population increased significantly with each incremental seeding rate increase from 13,794 plants/A to 58,153 plants/A for the 20,000 and 120,000 seed/A seeding rates, respectively. Harvestable stalks also increased linearly from 35,792 to 66,647 stalks/A from the lowest to highest seeding rates, respectively. The amount of tillers

produced was determined by subtracting the number of harvestable stalks at harvest from a designated flagged area from the number of plants determined at the 5-leaf stage of the same area. Approximately 59, 32, 24, 17, -1, and 12 tillers were formed per plant at the 20,000, 40,000, 60,000, 80,000, 100,000, and 120,000 seed/A seeding rates, respectively. The 100,000 seed/A seeding rate had an estimate of -1 tillers/plant, indicating that less stalks were harvested than the initial stand count at the 5-leaf stage of development. In this case, we can infer that a stand decline due to plant competition occurred and that in general all harvestable stalks were from non-tillered plants. Stalk biomass was similar across all seeding rates (P = 0.9456) and ranged from a low of 26.1 to a high of 27.9 tons/A. Harvestable stalk diameter decreased from a high of 21 mm to 15.1 mm between the lowest and highest seeding rates, respectively. Fermentable solids were optimized at approximately the 80,000 seed/A seeding rate, which produced an approximate stand at the 5-leaf stage of development of 42471 plants/A.

A multi-year trial was established in 2012 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 and no-till) and two fertilization practices (no fertilization and a maintenance fertilization). The maintenance fertilization 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. Because this is the first year of the trial, all initial tillage was conventional. 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). Plant samples were then dried, ground, and analyzed for total nutrient content. Agronomic and HPLC Sugar analysis results are presented in Tables 7 and 8, respectively. Nutrient analysis results from the seed head, stalk, green leaves, and brown leaves are presented in Tables 9, 10, 11, and 12, respectively. Mean nutrient content of the plant components at the soft dough stage of development is presented in Table 13. Sweet sorghum plant height, total biomass, stalk biomass, stalk diameter, soluble solids, and fermentable solids were not significantly affected by any tillage and fertilization scenario combination in Year 1 of this trial (Table 7). Total biomass ranged from 34 to 38 tons/A while fermentable solids ranged from 3.1 to 3.3 tons/A. In general, nutrient content of the plant components was not altered due to any of the fertilization or tillage practice combinations in Year 1 of this continuing study.

Separate variety trials were conducted for Group III and early Group IVs, mid/late Group IVs, and Group V soybeans. The data are not included in this text, however, it can be found online at www.lsuagcenter.com. Soybean variety trials are conducted annually to evaluate the maturity group (groups 3-6) and varietal response to the environmental and soil conditions in southwest Louisiana. In 2012, the varieties with the highest yield at the Rice Research Station location included S44-D5 Brand (early group IV; 71 bu/A), Pioneer 94Y82 and DeltaGrow 4825R2Y/sts (mid/late group IV; 77 bu/A), and DeltaGrow 5556RR (group V; 72 bu/A).

Wheat varietal and experimental lines are evaluated annually. The trial at the Rice Research Station was lost due to poor seedling emergence and standing water. The data from other locations, however, can be found online at www.lsuagcenter.com.

Grain sorghum hybrids are evaluated annually for their yield response. Fourteen entries were evaluated in 2012. The data from the Crowley location and all other locations can be found online at www.lsuagcenter.com. The highest yielding grain sorghum hybrid at the Crowley location in 2012 was Dyna-Gro 772B, which yielded 92.6 bu/A.

Evaluation of Mosaic Fertilizer Combinations in Dry Land Soybean Production

Experiment number ....: 2012 SoybFRT12LSU

Site and design ....:
- **Location/Cooperator** ....: Rice Research Station (South Unit)
- **Tillage type** ....: Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 5.33 x 20 ft
- **Row width/rows per plot** ....: 16-inch / 4

Soil type ....: Crowley silt loam
- **% organic matter** ....: NA
- **pH** ....: 6.55
- **Extractable nutrients** ppm ....: Ca-1,557; Cu-2.2; Mg-424; P-11; K-82; Na-74; S-8.0; Zn-6.0

Crop/Variety ....: Soybeans / HALO 4:94 S080120
- **Planting method/date** ....: Drill seeded / May 18
- **Seeding rate/depth** ....: 135,000 seed/A / 1 inch
- **Emergence date** ....: May 24
- **Harvest date** ....: September 20

Seed treatment/cwt ....: NA

Fertilization ....: See Data Sheet

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

Pest management ....:
- **Herbicides** ....: 40 oz/A Ignite, June 21
  1 gal/A Sodium Chlorate + 1 oz/A Sharpen, September 10
- **Insecticides** ....: 2 oz/A Karate Z, June 21
  3.2 oz/A Leverage 360, July 27
  2.8 oz/A Leverage 360 + 2 oz/A Belt, August 15
- **Fungicides** ....: 4.3 oz/A Stratego YLD, July 27
  12 oz/A Stratego, August 15

Table 1. Evaluation of Mosaic fertilizer combinations in dry land soybean production (soybFRT12LSU). Rice Research Station.

Crop Code												GLXMA					
BBCH Scale												BSOY					
Crop Scientific Name												Glycine max					
Crop Name												Soybean					
Rating Type								YIELD		MOICON		LODGIN		Height		Test Weight	
Rating Unit								bu/A		%		0-9		in		lb/bu	
Trt No.	Type	Treatment Name	Form Conc	Form Unit	Description	Rate	Rate Unit										
1	FERT	Check			No fertilizer			40.6	ab	14.5	a	0.0	a	22.5	a	55.9	bc
2	FERT	MOP	60	% K_2O	0-0-60	60	lb ai/A	46.0	ab	12.9	b	0.0	a	23.3	a	56.5	ab
3	FERT	K-Mag	22	% K_2O	0-0-22-11Mg-22S	60	lb ai/A	41.5	ab	13.3	ab	0.0	a	23.3	a	56.4	abc
4	FERT	MESZ	40	% P_2O_5	12-40-0-10S-1Zn	40	lb ai/A	43.5	ab	13.3	ab	0.0	a	23.5	a	56.2	abc
5	FERT	MAP	52	% P_2O_5	11-52-0	40	lb ai/A	43.3	ab	13.3	ab	0.0	a	23.5	a	56.4	abc
6	FERT	MESB	46	% P_2O_5	11-46-0, 6S, 0.	40	lb ai/A	39.4	b	13.5	ab	0.0	a	23.5	a	56.3	abc
7	FERT	ACT102L	38	%	11-38-0-10S-1Zn-0.35B	40	lb ai/A	39.6	b	13.3	ab	0.0	a	23.0	a	56.3	abc
8	FERT	MESZ	40	% P_2O_5	12-40-0-10S-1Zn	40	lb ai/A	42.1	ab	14.4	a	0.0	a	23.3	a	55.8	c
	FERT	MOP	60	% K_2O	0-0-60	60	lb ai/A										
9	FERT	MAP	52	% P_2O_5	11-52-0	40	lb ai/A	47.5	a	12.6	b	0.0	a	23.3	a	56.6	a
	FERT	MOP	60	% K_2O	0-0-60	60	lb ai/A										
10	FERT	MESB	46	% P_2O_5	11-46-0, 6S, 0.	40	lb ai/A	45.2	ab	13.4	ab	0.0	a	22.8	a	56.2	abc
	FERT	MOP	60	% K_2O	0-0-60	60	lb ai/A										
11	FERT	ACT102L	38	%	11-38-0-10S-1Zn-0.35B	40	lb ai/A	45.6	ab	12.8	b	0.0	a	23.3	a	56.5	ab
	FERT	MOP	60	% K_2O	0-0-60	60	lb ai/A										
12	FERT	MESZ	40	% P_2O_5	12-40-0-10S-1Zn	40	lb ai/A	42.9	ab	13.4	ab	0.0	a	23.5	a	56.3	abc
	FERT	K-Mag	22	% K_2O	0-0-22-11Mg-22S	60	lb ai/A										
13	FERT	MAP	52	% P_2O_5	11-52-0	40	lb ai/A	44.5	ab	12.7	b	0.0	a	23.8	a	56.6	a
	FERT	K-Mag	22	% K_2O	0-0-22-11Mg-22S	60	lb ai/A										
LSD (P=.05)								7.30		1.36		0.00		1.87		0.64	
Standard Deviation								5.11		0.95		0.00		1.31		0.45	
CV								11.83		7.15		0.0		5.63		0.8	
Treatment F								0.957		1.449		0.000		0.267		1.175	
Treatment Prob(F)								0.5053		0.1898		1.0000		0.9911		0.3365	

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

Mosaic White Bear Soybean Spring Applications – 2012

Experiment number	: 2012 SoybWBS12LSU
Site and design	:
Location/Cooperator	: Rice Research Station (South Unit)
Tillage type	: Spring Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5.33 x 20 ft
Row width/rows per plot	: 16-inch / 4
Soil type	: Crowley silt loam
% organic matter	: 1.59
pH	: 5.3
Extractable nutrients ppm	: Ca-848; Cu-1.6; Mg-271; P-38; K-102; Na-34; S-17.6; Zn-7.1
Crop/Variety	: Soybeans / 95Y10
Planting method/date	: Drill seeded / May 18
Seeding rate/depth	: 135,000 seed/A / 1 inch
Emergence date	: May 26
Harvest date	: September 24
Seed treatment/cwt	: NA
Fertilization	: See Data Sheet
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.67 pt/A Dual Magnum, April 20 1 qt/A Glyphosate + 1.67 pt/A Dual Magnum + 1qt/A Basagran + 1% COC, May 22 1.25 qt/A Glyphosate + 1.33 pt/A Dual Magnum + .35 oz/A Classic + .25% NIS, June 21 16 oz/A Gramoxone + .25% NIS, September 11
Insecticides	: 2 oz/A Karate Z, May 23 2 oz/A Belt SC + 2.8 oz/A Leverage 2.7, August 14
Fungicides	: None

Table 2. Mosaic White Bear Soybean Spring Applications – 2012 (soybWBS12LSU).

Crop Code								GLXMA									
BBCH Scale								BSOY									
Crop Scientific Name								Glycine max									
Crop Name								Soybean									
Rating Type								YIELD		MOICON		LODGIN		WEITES		Height	
Rating Unit								bu/A		%		0-9		lb		in	
Trt No.	Type	Treatment Name	Form Conc	Form Unit	Description	Rate	Rate Unit										
1	FERT	Check			No fertilizer			31.3	a	12.2	a	0	a	54.4	a	23.3	ab
2	FERT	MOP	60	% K_2O	0-0-60	100	lb/A	32.1	a	11.9	a	0	a	54.6	a	22.0	ab
3	FERT	EM-1	56	% K_2O	MOP+0.5%B	100	lb/A	32.3	a	12.0	a	0	a	54.5	a	22.0	ab
4	FERT	EM- 2	56	% K_2O	MOP + 1%Zn	100	lb/A	31.0	a	12.0	a	0	a	54.5	a	22.8	ab
5	FERT	EM- 3	56	% K_2O	MOP + 1Zn + 1Mn	100	lb/A	34.3	a	11.9	a	0	a	54.4	a	22.8	ab
6	FERT	EM- 4	56	% K_2O	MOP + 1Zn + 2Mn	100	lb/A	32.8	a	12.3	a	0	a	54.3	a	21.5	ab
7	FERT	EM-5	56	% K_2O	MOP+1%Mn	100	lb/A	33.6	a	11.9	a	1	a	54.5	a	20.8	b
8	FERT	EM-6	56	% K_2O	MOP+2%Mn	100	lb/A	33.7	a	12.5	a	0	a	54.2	a	21.8	ab
9	FERT	MOP	60	% K_2O	0-0-60	100	lb/A	32.6	a	12.3	a	1	a	54.3	a	24.3	a
	FERT	Granubor	15.5	%	15.5%B	0.5	lb ai/A										
10	FERT	MOP	60	% K_2O	0-0-60	100	lb/A	33.8	a	12.3	a	1	a	54.3	a	22.5	ab
	FERT	ZnSO4	36	%	0-0-0-16.5S-36Z	1	lb ai/A										
11	FERT	MOP	60	% K_2O	0-0-60	100	lb/A	32.1	a	11.9	a	0	a	54.5	a	21.3	ab
	FERT	MnSO4	32.5	%	0-0-0-19S-32Mn	2	lb ai/A										
12	FERT	MOP	60	% K_2O	0-0-60	100	lb/A	33.8	a	11.7	a	0	a	54.6	a	23.3	ab
	FERT	ZnSO4	36	%	0-0-0-16.5S-36Z	1	lb ai/A										
	FERT	MnSO4	32.5	%	0-0-0-19S-32Mn	2	lb ai/A										
LSD (P=.05)								5.15		0.95		0.5		0.39		3.19	
Standard Deviation								3.56		0.66		0.4		0.27		2.21	
CV								10.86		5.47		201.01		0.5		9.9	
Treatment F								0.356		0.542		1.320		0.769		0.794	
Treatment Prob(F)								0.9640		0.8599		0.2573		0.6673		0.6444	

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

Impact of Planting Date and Seeding Rate on Growth, Development, and Yield of Indeterminate Pioneer Soybeans Grown in the Mid-South

Experiment number	: 2012 DOP1_SOY0311
Site and design	:
Location/Cooperator	: 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-inch / 4
Soil type	: Crowley silt loam
% organic matter	: 1.59
pH	: 5.3
Extractable nutrients ppm	: Ca-848; Cu-1.6; Mg-271; P-38; K-102; Na-34; S-17.6; Zn-7.1
Crop/Variety	: Soybeans / See Data Sheet
Planting method/date	: Drill seeded / April 19
Seeding rate/depth	: See Data Sheet / .5 inch
Emergence date	: April 27
Harvest date	: September 21
Seed treatment/cwt	: NA
Fertilization	: 260 lb/A 0-24-24-2.8, May 21
Water management	:
Flush	: NA
Flood	: NA
Drain	: NA
Pest management	:
Herbicides	: 1.67 pt/A Dual Magnum, April 20 1 qt/A Glyphosate + 1.67 pt/A Dual Magnum + 1qt/A Basagran + .25% COC, May 22 16 oz/A Gramoxone + .25% NIS, September 11
Insecticides	: 2 oz/A Karate Z, May 18 2 oz/A Karate Z, May 23 2 oz/A Belt SC + 2.8 oz/A Leverage 2.7, August 14
Fungicides	: None

Impact of Planting Date and Seeding Rate on Growth, Development, and Yield of Indeterminate Pioneer Soybeans Grown in the Mid-South

Experiment number ....: 2012 DOP2_SOY0311

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.59
- **pH** ....: 5.3
- **Extractable nutrients** ppm ....: Ca-848; Cu-1.6; Mg-271; P-38; K-102; Na-34; S-17.6; Zn-7.1

Crop/Variety ....: Soybeans / See Data Sheet
- **Planting method/date** ....: Drill seeded / May 16
- **Seeding rate/depth** ....: See Data Sheet / .75 inch
- **Emergence date** ....: May 23
- **Harvest date** ....: September 24

Seed treatment/cwt ....: NA

Fertilization ....: 260 lb/A 0-24-24-2.8, May 21

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

Pest management ....:
- **Herbicides** ....: 1.67 pt/A Dual Magnum, April 20
  1 qt/A Glyphosate + 1.67 pt/A Dual Magnum + 1 qt/A Basagran + .25% COC, May 22
  16 oz/A Gramoxone + .25% NIS, September 11
- **Insecticides** ....: 2 oz/A Karate Z, May 18
  2 oz/A Karate Z, May 23
  2 oz/A Belt SC + 2.8 oz/A Leverage 2.7, August 14
- **Fungicides** ....: None

Table 3. Evaluation of main effects on soybean agronomics. Impact of planting date and seeding rate on growth, development, and yield of indeterminate Pioneer soybeans grown in the mid-south.

Description				Plant Ht	Lodging	Moisture	Test Weight	Yield
Rating Unit				inches	1-9	%	lb/bu	bu/A
Trt No.	Type	Treatment Name	Description					
Date of Planting Means Table								
1	CULT	DOP1	Mid April	23	9.0	12.3	55.8	33.5
2	CULT	DOP2	Mid May	31	6.7	12.8	54.4	50.9
		P		0.0001	0.0078	0.0274	0.0004	0.0037
		LSD (0.05)		0.9	1.1	0.4	0.3	6.7
Variety Means Table								
1	VAR	94Y40		22	8.5	12.9	54.8	29.7
2	VAR	94Y70		28	7.7	12.6	54.9	36.8
3	VAR	94Y80		27	7.3	11.9	55.7	51.7
4	VAR	95Y01		29	7.8	12.6	55.1	46.6
5	VAR	95Y10		27	8.1	12.9	55.1	46.2
		P		0.0001	0.0001	0.1890	0.3068	0.0001
		LSD (0.05)		1.2	0.3	1.0	0.8	3.5
Seeding Rate Means Table								
1	CULT	100,000 seed/A		26	7.7	12.9	54.9	41.4
2	CULT	150,000 seed/A		27	8.1	12.3	55.4	43.0
		P		0.0204	0.0044	0.0456	0.0945	0.0757
		LSD (0.05)		0.7	0.2	0.5	0.6	1.8

Table 4. Evaluation of 2-way interactions between date of planting, variety, and seeding rate on soybean agronomics. Impact of planting date and seeding rate on growth, development, and yield of indeterminate Pioneer soybeans grown in the mid-south.

Description				Plant Ht	Lodging	Moisture	Test Weight	Yield
Rating Unit				inches	1-9	%	lb/bu	bu/A
Trt No.	Type	Treatment Name	Description					
Date of Planting x Variety Means Interaction								
1	CULT	DOP1	Mid April	19.1	9.0	13.0	55.3	19.2
1	VAR	94Y40						
2	CULT	DOP2	Mid May	25.3	8.0	12.8	54.4	40.2
1	VAR	94Y40						
1	CULT	DOP1	Mid April	23.4	9.0	12.7	55.3	24.4
2	VAR	94Y70						
2	CULT	DOP2	Mid May	32.9	6.4	12.5	54.5	49.3
2	VAR	94Y70						
1	CULT	DOP1	Mid April	23.8	9.0	11.1	56.7	49.4
3	VAR	94Y80						
2	CULT	DOP2	Mid May	30.5	5.5	12.6	54.6	54.1
3	VAR	94Y80						
1	CULT	DOP1	Mid April	24.3	9.0	12.4	55.7	40.1
4	VAR	95Y01						
2	CULT	DOP2	Mid May	33.0	6.5	12.8	54.5	53.0
4	VAR	95Y01						
1	CULT	DOP1	Mid April	21.8	9.0	12.6	56.1	34.3
5	VAR	95Y10						
2	CULT	DOP2	Mid May	31.4	7.3	13.3	54.2	58.0
5	VAR	95Y10						
		P		0.0106	0.0001	0.3837	0.3582	0.0001
		LSD (0.05)		1.6	0.5	1.4	1.2	5.0
Date of Planting x Seeding Rate Interaction								
1	CULT	DOP1	Mid April	21.8	9.0	12.7	55.4	32.6
1	CULT	100,000 seed/A						
2	CULT	DOP2	Mid May	30.5	6.4	13.0	54.3	50.3
1	CULT	100,000 seed/A						
1	CULT	DOP1	Mid April	23.1	9.0	12.0	56.2	34.4
2	CULT	150,000 seed/A						
2	CULT	DOP2	Mid May	30.8	7.1	12.6	54.6	51.6
2	CULT	150,000 seed/A						
		P		0.1363	0.0044	0.4148	0.3361	0.7718
		LSD (0.05)		0.9	0.4	0.77	0.8	2.5

Continued.

Table 4. Continued. Evaluation of 2-way interactions between date of planting, variety, and seeding rate on soybean agronomics.

Description Rating Unit Trt No.	Type	Treatment Name	Description	Plant Ht inches	Lodging 1-9	Moisture %	Test Weight lb/bu	Yield bu/A
Variety by Seeding Rate Means								
1	VAR	94Y40		21.8	8.3	13.5	54.4	29.1
1	CULT	100,000 seed/A						
2	VAR	94Y70		27.6	7.6	12.3	55.1	36.9
1	CULT	100,000 seed/A						
3	VAR	94Y80		26.6	6.8	12.2	55.4	49.1
1	CULT	100,000 seed/A						
4	VAR	95Y01		28.5	7.8	12.8	54.8	46.6
1	CULT	100,000 seed/A						
5	VAR	95Y10		26.1	8.0	13.5	54.8	45.3
1	CULT	100,000 seed/A						
1	VAR	94Y40		22.6	8.8	12.3	55.3	30.3
2	CULT	150,000 seed/A						
2	VAR	94Y70		28.6	7.8	12.9	54.7	36.7
2	CULT	150,000 seed/A						
3	VAR	94Y80		27.6	7.8	11.5	55.9	54.4
2	CULT	150,000 seed/A						
4	VAR	95Y01		28.8	7.8	12.4	55.4	46.5
2	CULT	150,000 seed/A						
5	VAR	95Y10		27.0	8.3	12.4	55.5	47.0
2	CULT	150,000 seed/A						
		P		0.9446	0.1038	0.2345	0.5396	0.2721
		LSD (0.05)		1.5	0.6	1.21	1.3	3.9

Table 5. Evaluation of 3-way interactions between date of planting, variety, and seeding rate on soybean agronomics. Impact of planting date and seeding rate on growth, development, and yield of indeterminate Pioneer soybeans grown in the mid-south.

Description Rating Unit Trt No.	 Type	 Treatment Name	 Description	Plant Ht inches	Lodging 1-9	Moisture %	Test Weight lb/bu	Yield bu/A
Date of Planting x Variety x Seeding Rate Interaction								
1 1 1	CULT VAR CULT	DOP1 94Y40 100,000 seed/A	Mid April	18.8	9.0	14.1	54.5	19.2
2 1 1	CULT VAR CULT	DOP2 94Y40 100,000 seed/A	Mid May	24.8	7.5	12.9	54.3	39.1
1 2 1	CULT VAR CULT	DOP1 94Y70 100,000 seed/A	Mid April	22.8	9.0	11.8	55.8	25.6
2 2 1	CULT VAR CULT	DOP2 94Y70 100,000 seed/A	Mid May	32.5	6.3	12.8	54.5	48.2
1 3 1	CULT VAR CULT	DOP1 94Y80 100,000 seed/A	Mid April	22.8	9.0	11.6	56.3	44.9
2 3 1	CULT VAR CULT	DOP2 94Y80 100,000 seed/A	Mid May	30.5	4.5	12.8	54.5	53.3
1 4 1	CULT VAR CULT	DOP1 95Y01 100,000 seed/A	Mid April	24.0	9.0	12.9	55.1	40.6
2 4 1	CULT VAR CULT	DOP2 95Y01 100,000 seed/A	Mid May	33.0	6.5	12.8	54.5	52.6
1 5 1	CULT VAR CULT	DOP1 95Y10 100,000 seed/A	Mid April	20.8	9.0	13.3	55.6	32.6
2 5 1	CULT VAR CULT	DOP2 95Y10 100,000 seed/A	Mid May	31.5	7.0	13.6	54.0	58.1
1 1 2	CULT VAR CULT	DOP1 94Y40 150,000 seed/A	Mid April	19.5	9.0	11.9	56.1	19.3
2 1 2	CULT VAR CULT	DOP2 94Y40 150,000 seed/A	Mid May	25.8	8.5	12.7	54.6	41.4
1 2 2	CULT VAR CULT	DOP1 94Y70 150,000 seed/A	Mid April	24.0	9.0	13.6	54.8	23.1
2 2 2	CULT VAR CULT	DOP2 94Y70 150,000 seed/A	Mid May	33.3	6.5	12.3	54.6	50.3
1 3 2	CULT VAR CULT	DOP1 94Y80 150,000 seed/A	Mid April	24.8	9.0	10.7	57.2	54.0
2 3 2	CULT VAR CULT	DOP2 94Y80 150,000 seed/A	Mid May	30.5	6.5	12.4	54.7	54.8
1 4 2	CULT VAR CULT	DOP1 95Y01 150,000 seed/A	Mid April	24.5	9.0	11.8	56.4	39.6
2 4 2	CULT VAR CULT	DOP2 95Y01 150,000 seed/A	Mid May	33.0	6.5	12.9	54.5	53.5
1 5 2	CULT VAR CULT	DOP1 95Y10 150,000 seed/A	Mid April	22.8	9.0	11.8	56.6	36.1
2 5 2	CULT VAR CULT	DOP2 95Y10 150,000 seed/A	Mid May	31.3	7.5	12.9	54.5	58.0
		P		0.7061	0.1038	0.1504	0.6361	0.1862
		LSD (0.05)		2.1	0.8	1.7	1.8	5.6

Evaluation of Sweet Sorghum Variety and Seeding Rate on Agronomic and Chemical Characteristics - 2012

Experiment number ....: SS2012 Sweet Sorghum

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

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.74
- **pH**...: 5.2
- **Extractable nutrients** ppm ....: Ca-1,273; Cu-1.6; Mg-364; P-72; K-101; Na-26; S-11.9; Zn-6.0

Crop/Variety ....: Sweet Sorghum / M81-E, Topper
- **Planting method/date** ....: Drill seeded / April 19
- **Seeding rate/depth**......................: See Data Sheet / .5 inch
- **Emergence date**...........................: April 27
- **Harvest date** ....: August 23

Seed treatment/cwt ....: NA

Fertilization..: 260 lb/A 0-24-24-2.8, May 17
90 lb N/A 46-0-0, May 17

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

Pest management ....:
- **Herbicides**....................................: 4 pt/A Atrazine 4L + 1.5 pt/A Dual Magnum, April 20
1.1 pt/A Dual Magnum + 1 pt/A atrazine + .75 oz/A Permit + .3 lb/A Facet, May 22
- **Insecticides** ....: 2 oz/A Karate Z, May 18
2 oz/A Karate Z, May 23
- **Fungicides**....................................: None

Table 6. Evaluation of sweet sorghum variety and seeding rate on agronomic and chemical characteristics, 2012. Crowley, LA.

Description	Plant Population	Harvestable Stalks	% Tillers at Harvest	Total Biomass	Stalk Biomass	Stalk Diameter	Plant Height	Sol. Solids Stalk	Fermentable† Solids
Rating Type						at base		BRIX	Stalk
Rating Unit	plants/A	stalks/A	%	tons/A	tons/A	mm	inches	w/w	tons/A
VARIETY (VAR)									
M81-E	43003	53458	22	34.7	28.2	17.4	138	12.2	3.1
Topper	36155	46319	26	33.7	26.3	18.4	124	14.3	3.4
P	0.2059	0.0449	0.5651	0.5830	0.3028	0.1193	0.0001	0.0002	0.1883
LSD	8839	6833	21	5.5	4.9	1.5	1	0.3	0.5
SEEDING RATE (SR)									
20,000 seed/A	13794	35792	59	34.3	27.2	21.0	135	12.4	3.0
40,000 seed/A	32888	45085	32	35.4	27.9	19.4	135	13.0	3.2
60,000 seed/A	32017	41818	24	33.4	26.6	18.7	133	13.5	3.2
80,000 seed/A	42471	50530	17	35.2	27.9	17.7	130	13.3	3.3
100,000 seed/A	58153	59459	-1	33.1	26.1	15.5	127	13.8	3.2
120,000 seed/A	58153	66647	12	33.9	27.5	15.1	126	13.7	3.4
P	0.0001	0.0025	0.0001	0.9384	0.9456	0.0001	0.0701	0.0908	0.7592
LSD	12893	13811	19	5.7	4.8	1.5	8.0	1.0	0.5
VAR x SR									
P	0.0643	0.2938	0.2056	0.7727	0.8603	0.1467	0.1140	0.3343	0.9604
LSD	15310	17305	25	7.3	5.6	1.7	7	0.9	0.7

† This is a rough estimate of fermentable solids determined by: stalk biomass*BRIX*0.90.

‡ NS denotes a non-significant response.

Negative number indicates that the number of harvestable stalks counted from the flagged off area at the 5-leaf stage of development was less than the number of harvestable stalks determined at harvest.

Evaluation of Tillage on Production Agronomics, Nutrient Uptake, and Soil Sustainability of Sweet Sorghum Production

Experiment number ....: SS-CAP-2012

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.74
- **pH** ....: 5.2
- **Extractable nutrients** ppm ....: Ca-1,273; Cu-1.6; Mg-364; P-72; K-101; Na-26; S-11.9; Zn-6.0

Crop/Variety ....: Sweet Sorghum / Dura sweet
- **Planting method/date** ....: Drill seeded / April 19
- **Seeding rate/depth** ....: 60,000 seed/A / .5 inch
- **Emergence date** ....: April 27
- **Harvest date** ....: August 15

Seed treatment/cwt ....: NA

Fertilization ....: 90 lb N/A 46-0-0, May 17

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

Pest management ....:
- **Herbicides** ....: 4 pt/A Atrazine 4L + 1.5 pt/A Dual Magnum, April 20
  1.1 pt/A Dual Magnum + 1 pt/A atrazine + .75 oz/A Permit + .3 lb/A Facet, May 22
- **Insecticides** ....: 2 oz/A Karate Z, May 18
  2 oz/A Karate Z, May 23
- **Fungicides** ....: None

Table 7. Evaluation of tillage on production agronomics, nutrient uptake and soil sustainability of sweet sorghum production: Agronomic results (Year 1 - 2012).

Description			50% D	50% HD	Plant	Harvestable	% Tillers	Height	Total	Stalk	Stalk Diameter	Sol. Solids	Ferm. solids†
Part Rated					Population	Stalks	at Harvest		Biomass	Biomass	@ Base -	Stalk -	Stalk -
Rating Type			plant-hd	emerg-hd				mean			mean	BRIX	
Rating Unit			days	days	plants/A	stalks/A	% Tiller	in	tons/A	tons/A	cm	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.	Type	Treatment Name											
1	CULT	Conventional Tillage	97 a	89 a	36155 a	37462 ab	3 a	157 a	36 a	28 a	20.5 a	12.5 a	3.1 a
	FERT	No Fertilization											
2	CULT	Conventional Tillage	97 a	89 a	34848 a	35719 ab	2 a	160 a	38 a	30 a	20.8 a	12.0 a	3.2 a
	FERT	Maintenance Fertilization											
	FERT	40 lb P_2O_5											
	FERT	60 lb K_2O											
3	CULT	No-Till	97 a	89 a	31799 a	31799 b	1 a	152 a	34 a	28 a	20.3 a	12.9 a	3.3 a
	FERT	No Fertilization											
4	CULT	No-Till	97 a	89 a	40511 a	43124 a	6 a	151 a	36 a	28 a	18.4 a	12.3 a	3.1 a
	FERT	Maintenance Fertilization											
	FERT	40 lb P_2O_5											
	FERT	60 lb K_2O											
LSD (P=.05)			0.0	0.0	13448	11179	16	10	8	6	4.0	0.9	0.8
Standard Deviation			0.0	0.0	7772	6461	9	6	5	3	2.3	0.5	0.5
CV			0.0	0.0	22	17	289	4	13	11	11.6	4.2	14.3

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

Mean separations are based on the complete error term.

† Fermentable solids is a rough estimate determined by: stalk biomass*Brix*0.90.

Table 8. Evaluation of tillage on production agronomics, nutrient uptake and soil sustainability of sweet sorghum production: HPLC sugar analysis results (Year 1 - 2012). Hybrid is Durasweet, drilled at approximately 60,000 seed/A.

Description			Brix % Juice	Sucrose	Glucose	Fructose	Sucrose % Brix	Fructose % Brix	Glucose % Brix	Total Ferm. Purity	F + G % Brix	F/G Ratio % Brix
Part Rated			abvgnd -	abvgnd -	abvgnd -	abvgnd -	abvgnd -	abvgnd -	abvgnd -	abvgnd -	abvgnd -	abvgnd -
Rating Type			HPLC	HPLC	HPLC	HPLC	HPLC	HPLC	HPLC	HPLC	HPLC	HPLC
Rating Unit			%							% Brix		
Trt No.	Type	Treatment Name										
1	CULT	Conventional Tillage	12.5 a	6.3 ab	2.3 a	1.4 a	50.6 ab	11.3 a	18.2 a	80.2 ab	29.5 a	0.6 a
	FERT	No Fertilization										
2	CULT	Conventional Tillage	12.0 a	5.5 b	1.8 b	1.1 b	46.0 b	9.6 a	15.2 a	70.8 b	24.8 a	0.6 a
	FERT	Maintenance Fertilization										
	FERT	40 lb P_2O_5										
	FERT	60 lb K_2O										
3	CULT	No-Till	12.9 a	7.2 a	2.4 a	1.5 a	56.3 a	11.7 a	18.6 a	86.7 a	30.4 a	0.6 a
	FERT	No Fertilization										
4	CULT	No-Till	12.3 a	6.1 ab	2.2 a	1.4 ab	49.0 ab	11.4 a	18.4 a	78.8 ab	29.7 a	0.6 a
	FERT	Maintenance Fertilization										
	FERT	40 lb P_2O_5										
	FERT	60 lb K_2O										
LSD (P=.05)			0.9	1.3	0.4	0.3	9.9	2.7	4.0	13.8	6.7	0.0
Standard Deviation			0.5	0.8	0.2	0.2	5.7	1.6	2.3	8.0	3.9	0.0
CV			4.2	12.1	10.1	11.1	11.4	14.3	13.2	10.1	13.6	2.3

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

Mean separations are based on the complete error term.

Table 9. Nutrient concentration of sweet sorghum seed head, 2012.

Description			Weight %		N		P		K		S		Ca		Mg	
Part Rated			head -		head -		head -		head -		head -		head -		head -	
Rating Unit			%		%		%		%		%		%		%	
Trt No.	Type	Treatment Name														
1	CULT	Conventional Tillage	18.0	a	1.785	a	0.325	a	0.355	a	0.108	a	0.055	a	0.200	a
	FERT	No Fertilization														
2	CULT	Conventional Tillage	17.5	a	1.810	a	0.335	a	0.400	a	0.110	a	0.060	a	0.203	a
	FERT	Maintenance Fertilization														
	FERT	40 lb P_2O_5														
	FERT	60 lb K_2O														
3	CULT	No-Till	17.3	a	1.860	a	0.365	a	0.345	a	0.113	a	0.050	a	0.205	a
	FERT	No Fertilization														
4	CULT	No-Till	17.3	a	1.845	a	0.325	a	0.328	a	0.113	a	0.053	a	0.185	a
	FERT	Maintenance Fertilization														
	FERT	40 lb P_2O_5														
	FERT	60 lb K_2O														
LSD (P=.05)			3.77		0.2305		0.0905		0.0838		0.0228		0.0307		0.0501	
Standard Deviation			2.18		0.1332		0.0523		0.0485		0.0131		0.0177		0.0290	
CV			12.45		7.3		15.49		13.58		11.89		32.62		14.62	
Replicate F			1.018		0.598		0.720		1.926		0.807		1.079		1.595	
Replicate Prob(F)			0.4482		0.6393		0.5758		0.2266		0.5343		0.4261		0.2863	
Treatment F			0.105		0.259		0.524		1.628		0.132		0.232		0.385	
Treatment Prob(F)			0.9540		0.8525		0.6814		0.2795		0.9372		0.8711		0.7684	

Continued.

Table 9. Continued.

Description			Zn		Fe		Mn		Co		Na		Al		B		C	
Part Rated			head -		head -		head -		head -		head -		head -		head -		head -	
Rating Unit			ppm		ppm		ppm		ppm		ppm		ppm		ppm		%	
Trt No.	Type	Treatment Name																
1	CULT	Conventional Tillage	31.53	a	44.5	a	44.5	a	8.63	a	4.5	a	10.3	a	6.13	a	42.85	a
	FERT	No Fertilization																
2	CULT	Conventional Tillage	34.10	a	47.3	a	46.8	a	9.38	a	3.8	a	8.5	a	5.95	a	43.13	a
	FERT	Maintenance Fertilization																
	FERT	40 lb P_2O_5																
	FERT	60 lb K_2O																
3	CULT	No-Till	29.73	a	46.5	a	41.5	a	8.63	a	3.0	a	6.3	a	5.50	a	43.05	a
	FERT	No Fertilization																
4	CULT	No-Till	28.85	a	47.3	a	39.0	a	8.48	a	2.0	a	9.3	a	5.38	a	43.15	a
	FERT	Maintenance Fertilization																
	FERT	40 lb P_2O_5																
	FERT	60 lb K_2O																
LSD (P=.05)			8.967		16.24		19.41		1.920		2.77		9.00		2.547		0.843	
Standard Deviation			5.182		9.39		11.22		1.110		1.60		5.20		1.472		0.487	
CV			16.69		20.24		26.12		12.65		48.33		60.76		25.65		1.13	
Replicate F			1.140		1.675		2.739		1.337		1.455		4.480		1.860		0.310	
Replicate Prob(F)			0.4058		0.2703		0.1357		0.3476		0.3176		0.0564		0.2372		0.8179	
Treatment F			0.800		0.077		0.366		0.536		1.780		0.427		0.236		0.303	
Treatment Prob(F)			0.5373		0.9704		0.7804		0.6746		0.2507		0.7409		0.8684		0.8227	

Table 10. Nutrient concentration of sweet sorghum stalk, 2012.

Description			Weight %	N	P	K	S	Ca	Mg
Part Rated			stalk -	stalk -	stalk -	stalk -	stalk -	stalk -	stalk -
Rating Unit			%	%	%	%	%	%	%
Trt No.	Type	Treatment Name							
1	CULT	Conventional Tillage	69.0 a	0.3805 a	0.100 a	0.630 b	0.065 a	0.170 a	0.165 a
	FERT	No Fertilization							
2	CULT	Conventional Tillage	70.3 a	0.4228 a	0.125 a	0.980 a	0.068 a	0.165 a	0.155 a
	FERT	Maintenance Fertilization							
	FERT	40 lb P_2O_5							
	FERT	60 lb K_2O							
3	CULT	No-Till	71.3 a	0.4090 a	0.093 a	0.730 ab	0.065 a	0.180 a	0.170 a
	FERT	No Fertilization							
4	CULT	No-Till	71.0 a	0.3825 a	0.090 a	0.705 ab	0.050 a	0.150 a	0.145 a
	FERT	Maintenance Fertilization							
	FERT	40 lb P_2O_5							
	FERT	60 lb K_2O							
LSD (P=.05)			4.22	0.19743	0.0429	0.3028	0.0233	0.0722	0.0872
Standard Deviation			2.44	0.11410	0.0248	0.1750	0.0135	0.0417	0.0504
CV			3.47	28.62	24.33	22.99	21.76	25.1	31.76
Replicate F			1.748	1.091	1.447	0.691	1.138	1.459	0.790
Replicate Prob(F)			0.2565	0.4222	0.3195	0.5901	0.4065	0.3167	0.5421
Treatment F			0.685	0.131	1.664	3.014	1.414	0.359	0.193
Treatment Prob(F)			0.5929	0.9382	0.2723	0.1161	0.3278	0.7852	0.8972

Continued.

Table 10. Continued.

Description			Zn	Fe	Mn	Co	Na	Al	B	C
Part Rated			stalk -	stalk -	stalk -	stalk -	stalk -	stalk -	stalk -	stalk -
Rating Unit			ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Trt No.	Type	Treatment Name								
1	CULT	Conventional Tillage	31.93 a	61.0 a	83.3 a	5.03 a	38.0 a	16.3 a	0.33 a	44.90 a
	FERT	No Fertilization								
2	CULT	Conventional Tillage	35.70 a	37.3 a	86.3 a	5.40 a	42.5 a	8.8 a	0.00 a	44.25 a
	FERT	Maintenance Fertilization								
	FERT	40 lb P_2O_5								
	FERT	60 lb K_2O								
3	CULT	No-Till	33.30 a	98.3 a	78.8 a	5.68 a	49.5 a	13.0 a	0.68 a	42.00 a
	FERT	No Fertilization								
4	CULT	No-Till	24.15 a	26.8 a	54.0 a	3.80 a	38.0 a	7.5 a	0.93 a	44.35 a
	FERT	Maintenance Fertilization								
	FERT	40 lb P_2O_5								
	FERT	60 lb K_2O								
LSD (P=.05)			15.099	93.20	40.98	2.669	32.83	18.08	1.291	4.264
Standard Deviation			8.726	53.86	23.69	1.543	18.97	10.45	0.746	2.464
CV			27.91	96.51	31.35	31.01	45.18	91.85	155.0	5.62
Replicate F			2.040	0.736	4.316	3.339	1.337	0.112	0.217	0.603
Replicate Prob(F)			0.2099	0.5678	0.0606	0.0974	0.3477	0.9498	0.8814	0.6365
Treatment F			1.311	1.387	1.541	1.151	0.328	0.590	1.175	1.083
Treatment Prob(F)			0.3547	0.3346	0.2980	0.4024	0.8059	0.6437	0.3946	0.4249

Table 11. Nutrient concentration of sweet sorghum green leaves, 2012.

Description			Weight %	N	P	K	S	Ca	Mg
Part Rated			green -	green -	green -	green -	green -	green -	green -
Rating Unit			%	%	%	%	%	%	%
Trt No.	Type	Treatment Name							
1	CULT	Conventional Tillage	9.3 a	2.060 a	0.328 a	0.738 b	0.128 a	0.638 a	0.438 a
	FERT	No Fertilization							
2	CULT	Conventional Tillage	9.0 a	2.080 a	0.318 a	0.948 a	0.128 a	0.598 a	0.368 b
	FERT	Maintenance Fertilization							
	FERT	40 lb P_2O_5							
	FERT	60 lb K_2O							
3	CULT	No-Till	9.3 a	2.110 a	0.308 a	0.813 b	0.135 a	0.643 a	0.403 ab
	FERT	No Fertilization							
4	CULT	No-Till	9.0 a	2.078 a	0.305 a	0.848 ab	0.125 a	0.613 a	0.395 ab
	FERT	Maintenance Fertilization							
	FERT	40 lb P_2O_5							
	FERT	60 lb K_2O							
LSD (P=.05)			1.54	0.2894	0.0593	0.1177	0.0234	0.0940	0.0580
Standard Deviation			0.89	0.1673	0.0342	0.0680	0.0135	0.0543	0.0335
CV			9.75	8.03	10.89	8.13	10.52	8.73	8.36
Replicate F			0.947	0.238	1.227	0.669	0.591	1.045	2.737
Replicate Prob(F)			0.4749	0.8666	0.3786	0.6016	0.6433	0.4382	0.1359
Treatment F			0.105	0.062	0.361	6.578	0.409	0.610	2.959
Treatment Prob(F)			0.9540	0.9782	0.7840	0.0252	0.7524	0.6326	0.1197

Table 11. Continued.

Description Part Rated Rating Unit			Zn green - ppm	Fe green - ppm	Mn green - ppm	Co green - ppm	Na green - ppm	Al green - ppm	B green - ppm	C green - %
Trt No.	Type	Treatment Name								
1	CULT	Conventional Tillage	29.98 a	85.0 a	133.3 a	6.68 a	11.8 a	26.0 a	4.43 a	42.80 a
	FERT	No Fertilization								
2	CULT	Conventional Tillage	31.10 a	96.5 a	132.8 a	6.88 a	20.0 a	25.3 a	4.55 a	42.28 a
	FERT	Maintenance Fertilization								
	FERT	40 lb P_2O_5								
	FERT	60 lb K_2O								
3	CULT	No-Till	29.98 a	79.5 a	135.8 a	6.90 a	15.5 a	26.5 a	4.88 a	42.45 a
	FERT	No Fertilization								
4	CULT	No-Till	28.80 a	90.5 a	117.3 a	6.95 a	16.5 a	31.3 a	4.93 a	42.15 a
	FERT	Maintenance Fertilization								
	FERT	40 lb P_2O_5								
	FERT	60 lb K_2O								
LSD (P=.05)			9.280	33.77	29.48	1.194	15.61	7.16	1.190	0.679
Standard Deviation			5.363	19.52	17.04	0.690	9.02	4.14	0.688	0.392
CV			17.9	22.21	13.13	10.07	56.61	15.19	14.65	0.93
Replicate F			3.137	2.531	34.007	3.877	0.034	3.241	0.382	4.299
Replicate Prob(F)			0.1085	0.1536	0.0004	0.0743	0.9909	0.1026	0.7701	0.0611
Treatment F			0.123	0.559	0.980	0.123	0.566	1.723	0.505	2.069
Treatment Prob(F)			0.9434	0.6613	0.4621	0.9434	0.6573	0.2612	0.6929	0.2059

Table 12. Nutrient concentration of sweet sorghum brown leaves, 2012.

Description			Weight %	N	P	K	S	Ca	Mg
Part Rated			brown -	brown -	brown -	brown -	brown -	brown -	brown -
Rating Unit			%	%	%	%	%	%	%
Trt No.	Type	Treatment Name							
1	CULT	Conventional Tillage	3.3 a	0.6913 a	0.138 ab	0.248 b	0.075 a	0.678 a	0.413 a
	FERT	No Fertilization							
2	CULT	Conventional Tillage	2.8 a	0.7210 a	0.158 a	0.395 a	0.078 a	0.670 a	0.388 a
	FERT	Maintenance Fertilization							
	FERT	40 lb P_2O_5							
	FERT	60 lb K_2O							
3	CULT	No-Till	2.5 a	0.8610 a	0.140 ab	0.330 a	0.085 a	0.650 a	0.403 a
	FERT	No Fertilization							
4	CULT	No-Till	2.5 a	0.7090 a	0.113 b	0.208 b	0.073 a	0.648 a	0.375 a
	FERT	Maintenance Fertilization							
	FERT	40 lb P_2O_5							
	FERT	60 lb K_2O							
LSD (P=.05)			1.12	0.21565	0.0449	0.0811	0.0209	0.2203	0.1319
Standard Deviation			0.65	0.12463	0.0259	0.0469	0.0121	0.1273	0.0763
CV			23.47	16.72	18.95	15.88	15.58	19.26	19.34
Replicate F			2.000	1.608	3.526	6.960	1.943	0.412	0.159
Replicate Prob(F)			0.2156	0.2836	0.0884	0.0222	0.2241	0.7508	0.9203
Treatment F			1.200	1.564	2.040	12.835	0.800	0.054	0.187
Treatment Prob(F)			0.3869	0.2930	0.2098	0.0051	0.5376	0.9819	0.9012

Continued.

Table 12. Continued.

Description			Zn	Fe	Mn	Co	Na	Al	B	C
Part Rated			brown -	brown -	brown -	brown -	brown -	brown -	brown -	brown -
Rating Unit			ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Trt No.	Type	Treatment Name								
1	CULT	Conventional Tillage	17.33 a	107.0 a	191.3 a	3.40 a	29.0 a	101.5 a	6.28 a	42.23 a
	FERT	No Fertilization								
2	CULT	Conventional Tillage	20.75 a	128.8 a	189.8 a	4.28 a	27.0 a	113.5 a	7.33 a	41.48 a
	FERT	Maintenance Fertilization								
	FERT	40 lb P_2O_5								
	FERT	60 lb K_2O								
3	CULT	No-Till	13.50 a	125.3 a	158.5 a	3.95 a	25.5 a	143.0 a	7.38 a	41.73 a
	FERT	No Fertilization								
4	CULT	No-Till	17.28 a	144.3 a	172.0 a	3.83 a	25.3 a	151.3 a	7.63 a	41.70 a
	FERT	Maintenance Fertilization								
	FERT	40 lb P_2O_5								
	FERT	60 lb K_2O								
LSD (P=.05)			13.871	38.49	91.56	1.466	9.62	80.22	3.975	1.575
Standard Deviation			8.017	22.25	52.92	0.847	5.56	46.36	2.297	0.910
CV			46.58	17.61	29.75	21.94	20.83	36.42	32.13	2.18
Replicate F			2.447	6.275	6.531	3.497	4.145	2.902	0.031	5.546
Replicate Prob(F)			0.1617	0.0279	0.0256	0.0897	0.0655	0.1236	0.9918	0.0364
Treatment F			0.546	1.891	0.347	0.730	0.385	1.040	0.271	0.484
Treatment Prob(F)			0.6688	0.2322	0.7928	0.5706	0.7680	0.4402	0.8444	0.7056

Table 13. Mean nutrient content of the seed head, stalk, and leaves pooled over treatments, 2012.

	N	P	K	S	Ca	Mg	Zn	Fe	Mn	Co	Na	Al	B	C
	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Seed head	1.8	0.34	0.36	0.11	0.05	0.20	31.1	46.4	42.9	8.8	3.3	8.6	5.7	43.0
Stalk	0.4	0.10	0.76	0.06	0.17	0.16	31.3	55.8	75.6	5.0	42.0	11.4	0.5	43.9
Leaves (green)	2.1	0.31	0.84	0.13	0.62	0.40	30.0	87.9	129.8	6.9	15.9	27.3	4.7	42.4
Leaves (brown)	0.7	0.14	0.30	0.08	0.66	0.39	17.2	126.3	177.9	3.9	26.7	127.3	7.2	41.8

FOUNDATION SEED RICE PROGRAM

Lawrence M. White III

INTRODUCTION

Foundation seed rice has been produced by the LSU AgCenter's Rice Research Station for distribution to Louisiana farmers since 1949. The Rice Research Station's seed rice program was instituted in response to the critical shortage of pure planting stocks that existed during and after World War II. Since its inception, the program has made available to Louisiana growers more than 168,800 cwt. of pedigreed stock of 45 rice varieties.

Concurrent with the distribution of pure seed by the Rice Research Station, an industry was developed in Louisiana composed of independent seed dealers for farmers to buy registered and certified classes of pedigreed rice.

Foundation seed rice, the planting stock from which registered and certified seed is produced, is the farmer's link with the work of the plant breeder. It is the product of 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 will be genetically pure and free from mechanical mixtures or contamination by noxious weeds.

Through the Rice Research Station's seed program, Louisiana farmers may obtain seed rice of improved varieties developed through the Rice Research Station's breeding program and established commercial varieties originating either at Crowley or at research centers in neighboring states.

To fulfill the objectives of the seed program, the Rice Research Station uses the personnel, land, machinery, and other facilities needed to plant, harvest, condition, and store its annual seed rice crop. The production of breeder seed, planting stock for the foundation fields, and the maintenance of purity in commercial rice varieties are functions of the seed program. Breeder seed is sometimes grown within fields of foundation rice or in a special nursery set aside for propagating the Rice Research Station's seed stocks. The nursery also serves as a site for evaluating, purifying, and increasing selections from the Rice Research Station's breeding program that show promise as new varieties.

The distribution of pedigreed seed rice produced by the Rice Research Station is done according to a formula adopted by the Louisiana Seed Rice Growers Association. For each rice-producing parish, the amount of seed allotted is determined by the percentage of the state's total rice acreage grown in that parish during the previous crop year.

Personnel with the Louisiana Cooperative Extension Service, in cooperation with parish committees of the Seed Rice Growers Association, assists in the allocation of foundation seed rice. It is at the parish committee level that the allocation of seed to individual growers is decided. The county agents receive applications for seed rice from growers and handle information and publicity for the pure seed program.

In this state, the official seed-certifying agency for all crops is the Louisiana Department of Agriculture and Forestry. The rules and regulations pertaining to the certification of agricultural seeds are part of the Louisiana Seed Law. They are formulated by the Louisiana Seed Commission and enforced by the Agronomic Programs Division of the Louisiana Department of Agriculture and Forestry. Personnel of the Agronomic Programs Division, operating from district offices, conduct field inspections of growing rice and sampling of bagged rice for laboratory analyses, which consist of purity determinations and germination tests.

PRODUCTION PRACTICES

Each year, the Rice Research Station devotes approximately 80 acres of land to the production of foundation seed rice. To eliminate noxious weeds, especially red rice, that can disqualify rice from certification, the fields are fallowed for a 2-year period preceding planting. This also enables the fields to meet the crop history requirements specified in the seed rice regulations.

Seedbed preparation of foundation fields are performed in the fall. Burndown herbicides are applied prior to seeding. The foundation fields are planted into a stale seedbed by means of a 24-runner minimum tillage drill. The breeder stock is planted at rates that may vary from 10 to 100 lb/A. The rice receives a preflood application of urea in

which the rate of N may vary from 45 to 90 lb/A, as well as basic fertilizer applications based on soil test recommendations. A midseason application of N in rates from 21 to 55 lb/A is also applied.

Seedling grasses and weeds are controlled by means of commercially available herbicides applied by airplane or ground rig. Similarly, aerial applications of insecticides are used to protect the fields from outbreaks of harmful insects.

Roguing of the rice fields for the removal of off-types, varietal mixtures, and noxious weeds begins at the onset of heading and continues until the rice is harvested. During this interval, the headed rice is inspected by personnel of the Agronomic Programs Division to determine whether it meets minimum field standards of the certifying agency.

The rice is harvested with a conventional combine and dried in the Rice Research Station's eight 21-foot diameter grain bins, equipped with vented drying floors and centrifugal fans with temperature-controlled heaters. The rice is dried to a moisture level of approximately 12%. During the storage period between drying and cleaning, the rice is treated with an insecticide to protect it from stored-grain insects.

Cleaning of foundation and breeder seed usually starts 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 slender kernels from medium-grain rice.

In the final phase of cleaning, the rice moves through a machine that aspirates the grain, removing any chaff, straw, and other foreign material from the conditioned product.

From the cleaning machines, foundation and breeder seed rice are bagged, assigned lot numbers, and placed in storage in the Rice Research Station's seed rice warehouse where they remain until they are distributed to Louisiana farmers.

The field and laboratory purity standards for foundation seed rice are very strict with regard to varietal mixtures and noxious weeds. In all phases of production, therefore, great care must be exercised to prevent these impurities from contaminating the seed stocks. It is routine procedure at the Rice Research Station to partially disassemble all planting and harvesting equipment and to clean it thoroughly with water and/or compressed air before using it in the field. The dryer and cleaning plant, including all elevators and other conveying equipment, are also subjected to meticulous cleaning and inspection before and after having been used in stubble fields. Therefore, tractors, plows, harrows, and land levelers are carefully washed before they enter land that is in a fallow cycle. These measures, together with the inspection and roguing, which are done during the growing season, help to ensure that foundation seed is genetically pure and free of mechanical mixtures and noxious weed seeds.

2012 ACTIVITIES

Of the 1,712 cwt. of foundation seed rice sold in 2012, the varieties and quantities were as follows: Mermentau, 550 cwt.; Cheniere, 445 cwt.; Jazzman-2, 210 cwt.; Della-2, 135 cwt.; Caffey, 125 cwt.; Jupiter, 111 cwt.; Cocodrie, 62 cwt.; Cypress, 60 cwt.; and Pirogue, 14 cwt.

The Rice Research Station's foundation seed crop in 2012 consisted of 10 acres of Mermentau, 7.4 acres of Jupiter, 6 acres of Jazzman-2, and 1.5 acres each of Toro-2 and Della-2.

Headrows of Mermentau, Cypress, Jupiter, Jazzman-2, Jazzman, Della-2, Toro-2, and Catahoula were grown for replenishment of breeder seed stock.

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, 2011-2012 season, crawfish research project, Rice Research Station, Crowley, LA. The catch consisted exclusively of red swamp crawfish (*Procambarus clarkii*). The production summary is composed of cumulative yield from both experimental units (i.e., traps) and non-experimental trap lifts.

Pond History: Pond was fallow for a period of 10 months following the previous crawfish season of 2010 - 2011.

Pond Area: 13.2 A

Soil Type: Midland silty clay loam

Water Source: Groundwater

Forage Crops: Rice variety 'Jupiter' was drill seeded on 15 April 2011 at 70 lb/A. Grain was harvested by a rice combine on 8 Sept 2011, and a ratoon forage crop was managed for crawfish production.

Fertilizer: Main Crop: 8-24-24 at 250 lb/A post plant application, 46-0-0 at 200 lb/A (topdress) on 1 June, and 46-0-0 100 lb/A (topdress) on 22 June; Ratoon Crop: No additional fertilization.

Herbicide: Super Wham at 1 gal/A and Londax at 1 oz/A as tank mix on 5 May; Command at 22 oz/A, Rice Beaux at 2.5 qt/A, and Permit Plus at ¾ oz/A as tank mix on 31 May.

Insecticide: None

Fungicide: Stratego at 19 oz/A on 13 July

Crawfish Stocking Rate: 70 lb/A from 3 - 16 June

Permanent Flood Date: 13 Oct 2011

Feed: None

Trap Type and Density: 3-funnel pyramid trap: (0.75-inch square mesh); Density = 15 traps/A.

Bait Used: Manufactured bait: *Southern Pride* (Purina Mills, Inc., Shreveport, LA) or fish baits that included gizzard shad or menhaden (pogy).

Crawfish Harvest: 17 Feb - 22 June 2012 (930 total trap-sets/A)

Fields Drained: 25 June 2012

Table 1. Annual environmental conditions and crawfish production (averaged or totaled weekly).

Weeks (2011-2012)	Soil Temp.[1]		Air Temp.		Water Temp.		Avg. D.O.[2]	Total Rainfall	Crawfish Harvest	Total Trapsets
	Min.	Max.	Min.	Max.	Min.	Max.				
	-------------------------deg.F-------------------------						(mg/L)	(inches)	(lb/A)	(#/A)
June 1-4	82.0	89.0	72.0	96.3						
June 5-11	81.4	89.3	71.9	95.4				0.30		
June 12-18	83.1	90.4	73.9	94.6						
June 19-25	81.4	87.1	75.3	89.1				2.94		
June 26-July 2	82.4	90.9	75.4	93.4				0.32		
July 3-9	84.0	92.4	74.7	93.4				1.08		
July 10-16	83.3	88.7	75.0	91.6				1.35		
July 17-23	81.1	84.6	75.1	89.0				3.78		
July 24-30	79.6	82.6	74.7	86.6				4.20		
July 31-Aug 6	82.4	87.4	77.0	94.1						
Aug 7-13	83.6	88.0	76.9	94.6						
Aug 14-20	82.7	88.6	74.9	96.6				0.25		
Aug 21-27	83.3	88.7	75.0	95.6				0.14		
Aug 28-Sept 3	81.3	86.7	72.6	95.1				3.65		
Sept 4-10	72.6	78.6	62.0	81.3				1.85		
Sept 11-17	75.7	83.6	66.0	87.1						
Sept 18-24	75.3	82.7	66.3	86.6				2.12		
Sept 25-Oct 1	74.6	81.9	66.7	87.7				.22		
Oct 2-8	69.4	78.0	55.1	81.6						
Oct 9-15	73.0	80.7	60.9	85.4						
Oct 16-22	67.0	75.7	48.1	78.7	59.2	72.5				
Oct 23-29	68.0	74.0	53.3	79.4	61.4	74.3	1.09	.39		
Oct 30-Nov 5	60.4	66.7	43.0	69.9	54.8	67.6	3.02	.26		
Nov 6-12	60.4	67.0	49.6	72.4	58.2	67.9		.86		
Nov 13-19	59.7	67.0	51.3	75.1	59.5	70.5	0.96	1.50		
Nov 20-26	62.3	67.9	55.0	75.7	62.1	70.6	0.68	1.60		
Nov 27-Dec 3	54.0	60.1	40.0	61.7	48.5	60.6	5.12	.99		
Dec 4-10	54.3	59.3	42.0	60.3	49.6	58.2		.20		
Dec 11-17	54.4	58.9	48.3	64.9	52.8	61.1		.12		
Dec 18-24	56.6	60.4	45.0	63.7	52.7	59.9	2.88	1.47		

Continued.

Table 1. Continued.

Weeks	Soil Temp.[1] Min.	Soil Temp.[1] Max.	Air Temp. Min.	Air Temp. Max.	Water Temp. Min.	Water Temp. Max.	Avg. D.O.[2]	Total Rainfall	Crawfish Harvest	Total Trapsets
	--------------------------deg.F					--------------------------	(mg/L)	(inches)	(lb/A)	(#/A)
Dec 25-31	53.0	57.0	41.9	59.6	50.9	58.3		1.02		
Jan 1-7	53.9	59.3	42.9	65.6	50.5	60.8		.20		
Jan 8-14	55.1	60.9	47.6	65.0	53.6	61.2		5.44		
Jan 15-21	52.4	59.6	46.4	67.0	55.2	63.4		.12		
Jan 22-28	60.6	65.6	54.9	69.6	59.9	66.7		2.10		
Jan 29-Feb 4	57.0	62.9	52.3	69.1	58.4	65.1		.29		
Feb 5-11	54.4	60.7	44.6	59.7	51.5	60.4		1.15		
Feb 12-18	51.6	58.3	44.6	60.0	53.0	60.6		4.72	.9	15
Feb 19-25	57.0	63.7	52.0	66.3	56.8	65.9		.05		
Feb 26-Mar-3	60.9	65.9	57.6	70.9	62.1	70.7		.26	3.2	30
Mar 4-10	58.1	67.4	50.1	70.7	58.0	71.3		1.70	8.2	30
Mar 11-17	64.6	71.0	63.1	76.4	68.2	77.6		1.74	18.4	30
Mar 18-24	66.4	73.7	60.3	76.1	67.4	77.3		2.30	26.5	60
Mar 25-31	67.3	76.9	60.6	80.9	69.6	82.8		.22	27.0	60
Apr 1-7	69.7	78.6	62.6	81.7	70.8	83.0		1.50	38.7	60
Apr 8-14	70.9	81.6	62.7	81.1	71.8	84.5			66.2	75
Apr 15-21	68.9	78.1	60.7	77.9	68.8	80.5		.66	58.6	75
Apr 22-28	66.1	77.0	57.7	76.6	66.6	83.7			44.9	75
Apr 29- May 5	75.3	85.0	68.0	86.1	77.1	89.6		2.90	24.0	45
May 6-12	75.0	82.6	67.1	82.7	75.3	82.9		2.38	34.5	45
May 13-19	72.4	80.1	63.9	83.4	74.4	87.7			37.7	60
May 20-26	78.9	89.1	69.7	87.6	77.7	90.9			43.8	60
May 27-June 2	81.6	92.3	70.0	89.0	79.0	92.0			28.3	45
June 3-9	80.1	91.7	70.7	91.0	79.6	91.4		4.10	30.6	60
June 10-16	77.9	86.1	71.6	86.0	79.7	88.7		1.81	26.7	60
June 17-23	78.7	87.8	61.1	86.8	79.8	91.7		.12	14.5	45
								58.34[3]	**532.7**	**930**

[1] Soil temperature was measured at a depth of 4 inches.
[2] Dissolved oxygen readings were taken about 8:00 a.m.
[3] Rainfall total is for one year only (June 1, 2011 - May 31, 2012) and does not include additional rainfall for the extended harvest period (June 2012).

INVESTIGATION OF TEST INGREDIENTS AS ATTRACTANTS FOR CRAWFISH IN COOL WATER

W.R. McClain, D. Gatlin III, and J.J. Sonnier

INTRODUCTION

Crawfish are harvested in more than 185,000 acres of aquaculture ponds using baited wire-mesh traps that are lifted 3 to 6 days a week beginning as early as November and continuing through May to July of the following year. Traps are typically baited with manufactured formulated bait in warmer weather, but because formulated baits are inferior at cooler water temperatures (less than 70 degrees F), fresh-frozen cut fish is used. Fish for crawfish bait has become expensive, costing twice that of commercially formulated bait, and fish baits are frequently in short supply. In some cases, half of the annual crawfish harvesting effort occurs during cool-water periods (December through late March), and with availability and price issues with fish, as well as the need to transport and store fish baits in a frozen state, fish baits have become problematic for the crawfish industry. Development of an effective, economical cool-water formulated crawfish bait will 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 species.

Few studies have attempted to identify effective attractants for capturing crawfish. Some studies compared behavioral (feeding) responses of crawfish in the lab with various dietary items, chemical extracts, and other potential attractants. With the exception of one field study employing short trap-soak intervals (less than 80 minutes) at 64°F, all trials outside of this research unit were conducted at water temperatures greater than 70°F. Studies with marine crustaceans, such as lobsters, crabs, and shrimp, have observed that amino acids and related biochemical compounds tend to elicit chemo-attraction responses and may act as feeding stimulants. However, detection does not necessarily equal attraction, and an induced feeding response may not equate to attraction over some distance to elicit entry of crawfish into a baited trap.

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. However, an effective protocol and basic bait medium from which to test potential attractants in ponds have been developed and tested in this project. Known attractants and variations of those attractants were included in the test medium – a gelatin-based matrix, and those baits resulted in catch numbers of crawfish equal to cut fish in cool water. Therefore, this protocol was utilized in a preliminary trial to test an amino acid mixture and several feedstuffs for their ability to attract crawfish to traps under commercial pond culture conditions in cool water. While baits containing minced whole fish products worked well and affected a capture rate similar to cut fish in that study, the amino acid mixture and several high protein feedstuffs yielded only about 25 to 75% of the crawfish as cut fish.

With further evidence that the gelatin-based matrix was an appropriate test medium when used under field conditions to evaluate potential attractants, this protocol was again used in the current study. Various feedstuffs and products were tested for their effectiveness as crawfish attractants in cool water, and this protocol was utilized with a proven fish product to test the effects of ingredient quantity in the bait. Capture results were compared with the industry standard (cut fish), as well as a popular (warm water) formulated bait and a non-baited trap.

Test Site: A commercial crawfish pond in Acadia Parish, located north of Crowley, LA.

Crawfish Production Scenario: Rice-crawfish field rotational practice.

Trap Type: Industry standard 3-funnel pyramid traps that were equipped with bait retention wells constructed of 0.75-inch plastic hexagon mesh. Bait wells extended above the water line and were used to position the bait in the center of the trap.

Baits: Various potential attractants were tested in this study, and the resulting baits constituted the experimental treatments. Cut pogy (menhaden) was used as the industry standard (control treatment), and traps without bait were used as a negative control. A commercially available manufactured bait (Southern Pride, Purina Mills, Shreveport, LA) was also used in all trials for comparative results.

Cool Water Experimental Attractants: Various feedstuffs and other products, high in crude protein, and other potential attractants, alone or in combination, were tested as attractants in the five different trials. Fish (menhaden) meal, krill meal, and squid meal were obtained from commercial feedstuff suppliers. Minced fresh pogy, freeze-dried pogy meal, and oven-heated fresh and freeze-dried pogy were also incorporated as attractants in some treatments.

Test Matrix: A gelatin-based matrix was used as a means to test the various attractants in the lab-formulated products (Figure 1). A lab-grade beef gelatin (Sigma-Aldrich, St. Louis, MO), 250 bloom, 40-mm mesh, was utilized and activated with water heated to 103°F. Oatmeal was added to the gelatin baits as an aid to help bind the gelatin and maintain the bait block as a single unit for the duration of the trap-soak interval.

Bait Quantity: All fish and commercially manufactured baits were used at approximately 1/4 lb (115 g) per trap wet weight. Formulations for the gelatin-based test products resulted in an apportionment of the high protein feedstuff based on an approximate attractant dry weight basis (or some predetermined percentage). Sugar, when used, was formulated to represent 20% of the bait quantity. Essential oil, when used, represented 3 or 6% by weight. All baits, whether controls or experimental bait blocks, resulted in relatively large quantities of residuals, largely intact, after the trap-soak duration. Bait quantity was not a limiting factor in this study.

Trap Soak Duration: Approximately 24 hours

Water Temperature: Trials were conducted from 18 January through 17 February. Average daily water temperature ranged from 53 to 64°F.

Experimental Design: Traps were placed in a cordoned-off section of the pond and were isolated from ongoing commercial harvesting activities. All traps were placed in a row within designated trapping lanes and spaced at approximately 50-ft intervals. Bait selection order was randomly assigned for each trial with the exception that no replicates of the same treatment were placed in successive order.

Replicas: A single trap-set or soak constituted a replica for each bait treatment per trial, and there were 16 to 24 replicas per trial. Replication was achieved over 3 or 4 days for each trial.

Parameters: Crawfish catch per unit effort, by numbers of crawfish and weight of crawfish per trap; average weight of individual crawfish; and percentage captured (by numbers and by weight) compared with cut pogy, the industry standard. Results were summarized by trial.

Support: USDA Southern Regional Aquaculture Center

Comments: Due to previous positive results with a gelatin-based medium for testing various attractants in baited crawfish traps, the same method was again used for this study. Various trials were used to test different aspects of attractants to crawfish such as a feeding aid that showed promise in other species (Trial 1), examining decreasing quantities of an attractant in baits (Trial 2), testing aspects of processing on attractant efficacy (Trial 3), evaluating suitability of some commercially available feedstuffs as attractants (Trial 4), and testing a combination of fishmeal and a saccharide for attractant potential (Trial 5). For each trial, cut fish – the industry standard bait for cool weather trapping – was used as a control treatment, and other consistent treatments consisted of a commercially formulated bait (Purina's Southern Pride bait) and a non-baited trap.

These trials were conducted in January and February with average daily water temperatures ranging from 53 to 64°F. It should be noted that the population density of crawfish at the test site was very high, resulting in small crawfish at harvest on average. Average daily catch values are presented in Table 3, and to facility comparisons among treatments of various trials, the results were expressed as the percentage captured obtained with cut fish, the industry standard. Catch results were provided both by weight and number of crawfish caught per trap. It is unknown to what extent the high population density contributed to the relative catch values of the various treatments in this study. Little information exists as to the impact of population density on relative response to attractants, but a strong positive correlation has been documented with regard to catch per unit effort and crawfish density. Overall, it appears that all ingredients tested in this study acted to some extent as an attractant to crawfish at these water temperatures. However, none of the test ingredients proved to be as good, or better, than cut fish at attracting

crawfish to the trap, with the exception of some trials with freeze-dried or minced fish flesh, and most test ingredients resulted in significantly fewer crawfish.

Crawfish catch with the Purina manufactured bait, in comparison to that with cut fish, was very inconsistent, ranging from the low- to mid-40% up to 100%. In general, Purina bait performed better over time – perhaps as a result of increasing numbers of crawfish reaching harvest size and/or decreasing quantity of forage substrate in the pond. Similar trends have been observed in other studies and with anecdotal observations.

Essential oil is a product that has been shown to increase consumption in catfish at levels of 3% in the diet but did not show good promise as a crawfish attractant. In Trial 1, essential oil was tested at 3 and 6%, as well as incorporated in a catfish feed (at 3%), but crawfish catch with those baits were only about 25% of that with cut fish.

In Trial 2, a mince of freeze-dried pogy was incorporated into the bait matrix at different levels. At 100% equivalent (dry weight basis) to cut pogy, the capture rate was only about 85% of that with cut fish. This may have been associated more with physical aspects of the presentation rather than biochemical in nature. It is interesting to note that crawfish catch was not significantly reduced until the level of incorporation of the freeze-dried menhaden meal dropped to 10%; however, a large gap in treatment levels existed between 50% and 10%. Further testing is warranted as it relates to effects of diminished quantity of a quality attractant on crawfish catch under this type of protocol.

Freeze-dried pogy (meal) was again used in Trial 3 at dry weight equivalents to cut fish. Capture rate, in comparison to that with cut fish, was over 90% with unadulterated freeze-dried meal, and roughly the same with oven heated freeze-dried meal. Solvent-extracted freeze-dried meal actually appeared to increase the catch, but it is uncertain whether this was a tangible trend or simply data variation. Minced pogy, however, resulted in an increase over cut fish, perhaps due to increase surface area or possibly due to tissue rupture increasing the attractant aspects of the bait. It should be noted that minced oven-dried pogy, dried at the lower temperature (60°C) resulted in a catch rate similar to the freeze-dried meal (unheated or heated at 60°C), but minced oven-dried pogy dried at 90°C, resulted in a slight decline in catch, although the magnitude was not statistically significant. In a previous trial, drying temperature had a significant effect on catch when fish flesh was oven dried and used intact. Catch was negatively correlated to drying temperature in that trial. More research is needed to determine what, if any, effect processing temperature has on crawfish attractants.

In Trial 4, a number of commercially available feedstuffs were evaluated for their effectiveness as attractants to crawfish and compared with cut fish, Purina bait, and non-baited traps. None of feedstuffs proved as effective as cut fish in catching crawfish, and most were associated with catches that were less than that with Purina bait. Of the feedstuffs tested, poultry by-products performed the best – catching about 60% of that with cut fish. Baits composed of commercial fish meal resulted in less than half the catch with cut fish.

Fish meal baits, with and without added sugar, caught slightly more than half as much as cut fish in Trial 5. Sugar provided no obvious benefit to a fishmeal-based bait, yet sugar alone resulted in approximately twice the catch of non-baited traps.

To obtain relative comparisons of the various baits tested under a similar protocol over both the current and previous year, results of trials with like bait were averaged (to the extent possible) and are presented in Tables 4 and 5. In addition, these results were broken down in an arbitrary manner into best, mediocre, and poor showing categories. Allotments of each bait were analyzed for amino acid composition and the amino acid profiles are found in Tables 6 and 7. A correlation analysis was conducted for amino acid levels in the baits and corresponding mean catch values for those baits. The resulting correlation coefficients (r values) are presented in Table 8. Those amino acids in the highlighted area of the table represent amino acids that exhibited a strong (statistically significant) positive correlation of amino acid level to relative crawfish catch.

A quantitate amino acid profile for cut pogy is presented in Tables 9 and 10. Tables 11, 12, and 13 illustrate the concentration of selected amino acids (or derivatives) in experimental attractants that demonstrated the “Best,” “Mediocre,” or “Poor” showing for crawfish catch in comparison to fresh pogy. The following tables (14, 15, and 16) represent those amino acids expressed in proportion (as % of the sum total). Highlighted cells in Tables 11, 12, and 13 represent amino acids in experimental attractants that are lower in concentration than those in cut pogy. In

summary, taurine, histidine, alanine, serine, leucine, glycine, valine, lysine, and glutamate seem to be found in relatively high concentrations in fish products. These are also among the amino acids that exhibited significant correlation coefficients corresponding to crawfish catch among the attractants tested (Table 8), suggesting that some or all of these, in some combination and/or in similar concentrations, could be important for formulating an effective cool-water bait. Clearly, more research is needed before any one or more amino acids can be identified as key factors in cool water bait efficacy.

Table 1. Amount of attractant ingredient (g), gelatin (g), oats (g), and water (mL) contained in each experimental bait block used for the cool-water crawfish study - 2012.

Treatment (Attractant)	Ingredient	Gelatin	Oats	Water
Trial 1				
Cut frozen menhaden	115	-	-	-
Catfish feed with EO in matrix	32	21	9.5	66.25
EO in matrix (at 3%)	3.9	21	37.6	66.25
EO in matrix (at 6%)	7.8	21	33.8	66.25
Purina bait	115	-	-	-
No bait	-	-	-	-
Trial 2				
Cut frozen menhaden	115	-	-	-
Freeze-dried menhaden meal in matrix (100%)	37.3	21	9.5	66.25
Freeze-dried menhaden meal in matrix (50%)	18.7	21	28.2	66.25
Freeze-dried menhaden meal in matrix (10%)	3.7	21	43.1	66.25
Freeze-dried menhaden meal in matrix (2%)	0.8	21	46.1	66.25
Purina bait	115	-	-	-
No bait	-	-	-	-
Trial 3				
Cut frozen menhaden	115	-	-	-
Minced fresh fish in matrix	115	21	9.5	66.25
Solvent extracted freeze-dried menhaden meal in matrix	38.2	21	9.5	66.25
Freeze-dried menhaden meal in matrix	37.3	21	9.5	66.25
Freeze-dried menhaden meal (heated) in matrix	34.3	21	9.5	66.25
Minced oven dried menhaden (low temp) in matrix	35.6	21	9.5	66.25
Minced oven dried menhaden (high temp) in matrix	34.3	21	9.5	66.25
Purina bait	115	-	-	-
No bait	-	-	-	-
Trial 4				
Cut frozen menhaden	115	-	-	-
Poultry by-products in matrix	35.6	21	9.5	66.25
Dried grains w/solubles in matrix	37.3	21	9.5	66.25
Fish meal 200%	74.6	21	9.5	66.25
Fish meal 100%	37.3	21	9.5	66.25
Fish meal/soybean meal in matrix	18.6/19.9	21	9.5	66.25
Soy protein concentrate in matrix	35.1	21	9.5	66.25
Soybean meal in matrix	39.8	21	9.5	66.25
Purina bait	115	-	-	-
No bait	-	-	-	-
Trial 5				
Cut frozen menhaden	115	-	-	-
Fish meal in matrix	37.3	21	9.5	66.25
Fish meal + sugar (20%) in matrix	37.3/33.6	21	9.5	66.25
Sugar in matrix (0% protein)	24.25	21	9.5	66.25
Purina bait	115	-	-	-
No bait	-	-	-	-

Table 2. Dry matter and crude protein analysis of experimental attractants used for the cool-water crawfish bait study – 2012.

Attractant	**% Dry Matter**	**% Crude Protein (dry-matter basis)[1]**
Soybean meal	86.11	51.2
Soy protein concentrate	97.74	71.8
Menhaden fishmeal	91.89	70.0
Poultry by-product meal	96.22	65.0
Freeze-dried menhaden meal	91.84	57.1
Lipid-extracted freeze-dried menhaden meal	89.63	74.3
Distillers dried grains with solubles	92.00	-
Freeze-dried menhaden meal (heated)	100	-
Minced oven dried menhaden (low temp)	96.3	-
Minced oven dried menhaden (high temp)	100	-
Cut menhaden fish	29.8	-
Catfish feed with EO	90.0	-

[1] – indicates values not determined.

Table 3. Summary of results for each of five experimental trials during the 2012 cool-water crawfish bait study. Values within columns, by trial, with the same superscript were not significantly different (P > 0.05). No significant differences were detected among treatments for mean size.

Treatment (Attractant)	**Avg. Catch (No./Trp)**	**Avg. Catch (lb/Trp)**	**Avg. Size (g)**	**% of Cut Menhaden (by No.)**	**% of Cut Menhaden (by Wt.)**
Trial 1: n=24 traps; Water Temperature = 56.8 min / 63.5 max / 61.0 average					
Cut frozen menhaden	27.6^{A}	.89^{A}	14.1	-	-
Catfish feed with EO*	7.4^{BC}	.23^{B}	13.7	26.8	25.8
EO (at 3%)*	6.5^{BC}	.21^{B}	14.2	23.6	23.6
EO (at 6%)*	5.8^{BC}	.18^{B}	13.9	21.0	20.2
Purina bait	12.2^{B}	.37^{B}	13.6	44.2	41.6
No bait	3.9^{C}	.12^{B}	13.8	14.1	13.5
Trial 2: n=16 traps; Water Temperature = 58.2 min / 62.5 max / 60.8 average					
Cut frozen menhaden	32.1^{A}	1.23^{A}	17.3	-	-
Freeze-dried menhaden meal (100%)*	27.3^{A}	1.01^{AB}	16.8	85.0	82.1
Freeze-dried menhaden meal (50%)*	26.2^{A}	1.01^{AB}	17.4	81.6	82.1
Freeze-dried menhaden meal (10%)*	14.8^{B}	.59^{C}	17.8	46.1	48.0
Freeze-dried menhaden meal (2%)*	12.4^{B}	.47^{CD}	16.7	38.6	38.2
Purina bait	18.6^{B}	.70^{BC}	17.1	57.9	56.9
No bait	5.3^{C}	.19^{D}	16.1	16.5	15.4
Trial 3: n=16 traps; Water Temperature = 60.3 min / 64.1 max / 62.6 average					
Cut frozen menhaden	35.8^{B}	1.45^{AB}	18.2	-	-
Minced fresh fish*	51.2^{A}	2.1^{A}	18.4	143.0	144.8
Solvent extracted freeze-dried menhaden meal*	39.6^{AB}	1.61^{AB}	18.1	110.6	111.0
Freeze-dried menhaden meal*	32.3^{B}	1.39^{B}	19.4	90.2	95.9
Freeze-dried menhaden meal (heated)*[1]	32.9^{B}	1.36^{B}	18.6	91.9	93.8
Minced oven dried menhaden (low temp)*[2]	32.9^{B}	1.37^{B}	18.8	91.9	94.5
Minced oven dried menhaden (high temp)*[1]	24.9^{BC}	1.04^{BC}	18.7	69.6	71.7
Purina bait	31.6^{B}	1.31^{B}	18.8	88.3	90.3
No bait	11.5^{C}	.42^{C}	16.5	32.1	29.0
Trial 4: n=16 traps; Water Temperature = 52.8 min / 58.2 max / 55.9 average					
Cut frozen menhaden	50.9^{A}	2.04^{A}	18.2	-	-
Poultry by-products*	32.1^{B}	1.04^{B}	18.9	63.1	51.0
Dried grains w/solubles*	21.9^{CD}	.92^{B}	19.0	43.0	45.1
Fish meal 200%*	21.9^{CD}	.92^{B}	19.2	43.0	45.1
Fish meal 100%*	19.6^{CD}	.81^{BC}	19.0	38.5	39.7
Fish meal/soybean meal*	16.0^{D}	.63^{C}	17.8	31.4	30.9
Soy protein concentrate*	15.0^{D}	.62^{C}	19.0	29.5	30.4
Soybean meal in matrix*	13.8^{DE}	.54^{C}	17.9	27.1	26.5
Purina bait	26.6^{BC}	1.05^{B}	17.9	52.3	51.5
No bait	5.0^{E}	.20^{D}	17.9	9.8	9.8
Trial 5: n=14 traps; Water Temperature = 56.7 min / 61.7 max / 59.6 average					
Cut frozen menhaden	25.9^{A}	.94^{A}	17.7	-	-
Fish meal*	15.5^{B}	.54^{B}	17.0	59.8	57.4
Fish meal + sugar (20%)*	13.8^{BC}	.52^{B}	18.1	53.3	55.3
Sugar*	10.7^{C}	.38^{BC}	17.1	41.3	40.4
Purina bait	26.2^{A}	.96^{A}	17.7	101.2	102.1
No bait	5.9^{D}	.22^{C}	17.0	22.8	23.4

*Indicates attractant was contained within the gelatin matrix

[1] Drying/heating temperature = 90°C.

[2] Drying temperature = 60°C.

Table 4. Mean crawfish catch from selected experimental attractants in cool temperatures over various trials. Results are expressed as a percentage of the catch with cut fish (by **number** of crawfish captured per trap) and sorted by relative performance.

Attractant	Year	No. of Trials	Value Range	Avg. of Trials
Best Showing				
Extracted Pogy	Yr 2	1		110.6
FD Pogy Heated	Yr 2	1		91.9
FD Pogy Meal	Yr 2	2	Range = 85.0 - 90.2	87.6
Mediocre Showing				
Purina Bait	Yr 2	5	Range = 44.2 - 101.2	68.8
Poultry Meal	Yr 2	1		63.1
Fish Meal	Yr 1 & 2	4	Range = 38.5 - 75.1	61.6
Squid Meal	Yr 1	2	Range = 47.9 - 61.3	54.6
Dried Grains	Yr 2	1		43.0
Krill Meal	Yr 1	2	Range = 25.0 - 59.7	42.4
Poor Showing				
Soy Protein Conc.	Yr 2	1		29.5
Soybean Meal	Yr 2	1		27.1
Treated Diet	Yr 2	1		26.8
Essential Oil	Yr 2	1		23.6

Table 5. Mean crawfish catch from selected experimental attractants in cool temperatures over various trials. Results are expressed as a percentage of the catch with cut fish (by **weight** of crawfish captured per trap) and sorted by relative performance.

Attractant	Year	No. of Trials	Value Range	Avg. of Trials
Best Showing				
Extracted Pogy	Yr 2	1		111.0
FD Fish Heated	Yr 2	1		93.8
FD Pogy Meal	Yr 2	2	Range = 82.1 - 95.2	88.7
Mediocre Showing				
Purina Bait		5	Range = 41.6 - 102.1	68.5
Poultry Meal	Yr 2	1		51.0
Fish Meal	Yr 1 & 2	4	Range = 39.7 - 78.3	57.6
Squid Meal	Yr 1	2	Range = 35.0 - 63.0	49.0
Dried Grains	Yr 2	1		45.1
Krill Meal	Yr 1	2	Range = 25.0 - 63.3	44.2
Poor Showing				
Soy Protein Conc	Yr 2	1		30.4
Soybean Meal	Yr 2	1		26.5
Treated Diet	Yr 2	1		25.8
Essential Oil	Yr 2	1		23.6

Table 6. Free pool amino acid profile of experimental attractants (expressed as nmol/mg of wet weight). Analyses include amino acids and some derivatives.

	Extracted Pogy	Poultry Meal	FD Pogy Meal	Fish Meal	Squid Meal	FD Fish Heated	Soy Protein Conc.	Essent. Oil	Soybean Meal	Dried Grains	Krill Meal	Treated Catfish Diet	Purina Bait
Alanine	10.48	11.15	9.42	12.82	16.06	6.33	0.05	0.00	0.77	6.04	2.01	1.45	1.68
Arginine	4.79	1.38	4.68	1.55	3.76	3.35	4.81	0.00	2.20	1.25	5.37	2.44	0.51
Asparagine	0.40	0.47	0.47	0.47	0.05	0.26	0.22	0.00	0.97	1.62	0.05	2.68	4.24
Aspartate	3.12	1.91	2.88	1.34	0.39	2.26	0.10	0.00	1.24	0.94	0.28	1.04	1.91
Citrulline	0.17	0.99	0.15	1.65	0.42	0.05	0.01	0.00	0.02	0.27	0.00	0.00	0.11
Cystine	0.25	0.02	0.25	0.03	0.00	0.10	0.00	0.00	0.02	0.06	0.00	0.04	0.00
Glutamate	3.05	2.13	2.99	2.19	0.32	1.35	0.05	0.00	1.00	1.45	0.24	1.04	0.00
Glutamine	5.69	1.02	5.06	1.02	0.10	1.33	0.00	0.00	0.00	0.15	0.00	0.00	0.76
Glycine	5.02	6.36	4.34	5.38	3.89	2.73	0.03	0.00	0.27	3.08	3.16	0.64	1.32
Histidine	13.87	1.17	12.16	9.44	0.00	6.44	0.10	0.00	0.21	0.57	0.07	0.38	0.18
Isoleucine	2.46	2.51	2.30	3.33	0.45	1.29	0.00	0.00	0.12	0.27	0.15	0.18	0.40
Leucine	5.24	4.36	4.83	6.38	0.82	2.50	0.00	0.00	0.12	1.14	0.15	0.27	0.52
Lysine	5.63	2.27	4.64	3.38	0.25	2.43	0.21	0.00	0.17	0.86	0.09	1.05	0.28
Methionine	0.88	0.87	0.38	0.72	0.38	0.26	0.08	0.00	0.09	0.14	0.00	0.04	0.04
Ornithine	0.54	0.39	0.48	0.82	0.43	0.23	0.02	0.00	0.02	0.64	0.00	0.06	0.06
Phenylalanine	2.73	1.49	2.57	2.60	0.30	1.26	0.00	0.00	0.26	0.68	0.04	0.23	0.21
Phosphoserine	0.00	0.08	0.00	0.00	0.00	0.00	0.01	0.00	0.11	0.00	0.00	0.07	0.11
Proline	3.19	1.56	2.78	2.64	0.00	1.84	0.04	0.00	0.19	9.14	9.43	0.97	0.51
Serine	5.87	3.08	5.52	2.52	0.64	3.61	0.03	0.00	0.16	1.12	0.31	0.38	0.37
Taurine	20.07	17.68	18.14	24.43	13.65	11.71	0.00	0.00	0.01	0.01	2.98	0.67	0.64
Threonine	3.55	1.76	3.18	2.38	0.93	1.94	0.00	0.00	0.10	0.54	0.06	0.36	0.28
Tryptophan	0.50	0.53	0.45	0.46	0.00	0.26	0.05	0.00	0.26	0.03	0.00	0.73	0.49
Tyrosine	2.66	0.95	3.08	1.62	0.45	2.14	0.00	0.00	0.13	0.58	0.11	0.00	0.14
Valine	3.85	4.48	3.55	5.51	0.76	2.15	0.02	0.00	0.19	0.76	0.24	0.32	0.81
Selected Derivatives													
1-Methylhistidine	0.35	0.05	0.32	0.27	0.00	0.18	0.00	0.00	0.08	0.07	0.00	0.08	0.04
3-Methylhistidine	0.86	1.37	1.05	0.86	0.06	0.74	0.05	0.00	0.11	0.22	0.03	0.26	0.06
a-Aminoadipic acid	0.02	0.04	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.10
a-Aminobutyric acid	0.22	1.84	0.21	0.51	0.28	0.21	0.00	0.00	0.03	0.10	0.00	0.06	0.05
Allo-isoleucine	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anserine	0.42	3.32	0.48	1.31	0.00	0.30	0.02	0.00	0.04	0.00	0.00	0.10	0.01
b-Alanine	0.17	2.75	0.12	0.28	0.12	0.11	0.02	0.00	0.24	0.16	9.11	0.22	0.00
b-Aminoisobutyric acid	0.07	0.14	0.05	0.10	8.64	0.01	0.00	0.00	0.16	0.02	0.00	0.09	0.13
Carnosine	0.04	1.18	0.12	0.22	0.00	0.14	0.00	0.00	0.05	0.04	0.00	0.06	0.01

Continued.

Table 6. Continued.

	Extracted Pogy	Poultry Meal	FD Pogy Meal	Fish Meal	Squid Meal	FD Fish Heated	Soy Protein Conc.	Essent. Oil	Soybean Meal	Dried Grains	Krill Meal	Treated Catfish Diet	Purina Bait
Cystathionine	0.19	0.07	0.19	0.09	0.00	0.09	0.04	0.00	0.03	0.04	0.00	0.01	0.00
Ethanolamine	1.30	1.43	1.41	0.99	0.50	0.81	0.09	0.00	0.23	2.30	0.10	0.29	0.08
g-Aminobutyric acid	0.30	0.26	0.30	0.68	0.05	0.13	0.02	0.00	0.26	0.74	0.00	0.49	0.32
Homocysteine	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroxylysine	0.09	0.06	0.13	0.08	0.03	0.07	0.02	0.00	0.68	0.60	0.00	0.35	0.02
Hydroxyproline	0.25	0.54	0.25	0.09	0.04	0.14	0.03	0.00	0.04	0.19	0.02	0.01	0.06
Phosphoethanolamine	0.00	0.53	0.08	0.00	0.00	0.00	0.03	0.00	0.08	0.04	0.00	0.04	0.05
Sarcosine	0.35	0.09	0.34	0.34	0.92	0.21	0.00	0.00	0.09	0.06	14.26	0.10	0.10

Table 7. Protein-bound amino acid profile of experimental attractants (expressed as g/100 g of wet weight).

	Extracted Pogy	Poultry Meal	FD Pogy Meal	Fish Meal	Squid Meal	FD Fish Heated	Soy Protein Conc.	Essent. Oil	Soybean Meal	Dried Grains	Krill Meal	Treated Catfish Diet	Purina Bait
Alanine	3.86	3.51	2.56	4.03	3.30	2.87	2.06	0.00	1.95	1.64	2.67	1.38	0.51
Arginine	3.30	3.48	2.10	3.51	4.23	2.49	3.32	0.00	3.18	0.98	2.80	2.16	0.48
Aspartate + Asparagine	3.66	3.17	2.57	4.23	4.16	2.79	3.84	0.00	3.51	1.09	3.61	2.10	0.48
Cystine	0.12	0.15	0.08	0.15	0.18	0.08	0.16	0.00	0.17	0.11	0.08	0.12	0.02
Glutamate + Glutamine	4.92	4.58	3.37	5.64	5.53	3.76	6.11	0.00	5.59	2.58	4.38	3.65	1.29
Glycine	5.14	5.20	2.98	4.53	3.74	3.75	2.07	0.00	1.98	1.02	2.19	1.55	0.63
Histidine	1.29	1.09	0.79	1.36	1.42	0.93	1.19	0.00	1.21	0.60	0.96	0.75	0.24
Isoleucine	2.22	2.13	1.55	2.67	2.61	1.79	2.09	0.00	2.01	0.87	2.61	1.21	0.34
Leucine	3.98	3.93	2.82	4.64	4.60	3.15	3.59	0.00	3.49	2.59	4.08	2.20	0.67
Lysine	3.90	3.25	2.80	4.60	3.98	2.52	2.87	0.00	2.49	0.75	3.39	1.64	0.34
Methionine	1.48	1.13	0.95	1.70	1.85	1.14	0.58	0.00	0.55	0.29	1.46	0.38	0.09
Phenylalanine	2.33	2.27	1.49	2.55	2.44	1.87	2.33	0.00	2.45	1.17	2.44	1.51	0.49
Proline	3.17	3.45	1.96	3.02	2.67	2.33	2.57	0.00	2.49	1.94	1.86	1.63	0.70
Serine	2.13	2.12	1.44	2.38	2.43	1.69	2.30	0.00	2.24	1.10	2.03	1.43	0.41
Threonine	2.31	2.14	1.58	2.66	2.60	1.80	1.86	0.00	1.83	0.93	2.24	1.17	0.34
Tryptophan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
Tyrosine	1.57	1.68	0.87	2.11	1.97	1.36	1.50	0.00	1.62	0.75	2.01	0.78	0.22
Valine	2.72	2.64	1.89	3.14	2.65	2.15	2.21	0.00	2.14	1.18	2.59	1.40	0.50

Table 8. Correlation coefficients (r) for amino acid levels in various baits and corresponding catch values for those baits. Catch values represent mean number (No.) or pounds (Lb.) expressed as percentage of the catch with cut fish (fresh frozen pogy). The prefix "P-" indicates protein-bound amino acids. Results are sorted by r value of catch by number. Shaded areas represent significant correlations.

AA (or Derivative)	r value (by No.)	P value (No.)	r value (by Lb.)	P value (lb)
Serine	.88897	<.0001	.87240	.0001
Tyrosine	.87619	<.0001	.87739	<.0001
Threonine	.87169	.0001	.84204	.0003
Aspartate	.87139	.0001	.85982	.0002
Glutamine	.82951	.0005	.83708	.0004
Lysine	.82459	.0005	.80851	.0008
Histidine	.81087	.0008	.82088	.0006
Cystathionine	.78869	.0014	.79012	.0013
Phenylalanine	.77874	.0017	.74824	.0033
1-Methylhistidine	.76106	.0025	.77293	.0019
Cystine	.76051	.0025	.79096	.0013
Leucine	.72484	.0051	.67054	.0121
Taurine	.72445	.0051	.65320	.0155
Isoleucine	.69781	.0080	.63193	.0205
Glutamate	.6815	.0103	.65066	.0160
Valine	.67707	.0110	.60553	.0283
3-Methylhistidine	.66849	.0125	.59695	.0312
Glycine	.65795	.0145	.57795	.0386
Methionine	.64992	.0162	.55650	.0482
P-Glycine	.64607	.0170	.56348	.0449
Homocysteine	.58684	.0350	.59181	.0331
Alanine	.57872	.0382	.49642	.0844
P-Alanine	.55423	.0494	.49089	.0885
Hydroxyproline	.51843	.0695	.43363	.1388
Ornithine	.51470	.0719	.47224	.1032
P-Methionine	.47909	.0976	.42529	.1474
Ethanolamine	.46244	.1116	.43942	.1330
Tryptophan	.38017	.2004	.33467	.2637
P-Lysine	.37674	.2045	.32064	.2855
P-Proline	.37579	.2057	.30469	.3114
P-Valine	.34678	.2457	.29181	.3333
P-Threonine	.31882	.2884	.26383	.3838
Arginine	.31674	.2917	.35353	.2360
P-Leucine	.24962	.4108	.19921	.5140
Anserine	.23725	.4351	.11802	.7010
P-Histidine	.23351	.4426	.18222	.5513
a-Aminobutyric acid	.22847	.4528	.10198	.7402
P-Isoleucine	.22523	.4594	.17785	.5610
P-Aspartate + Asparagine	.19822	.5162	.15428	.6148
P-Arginine	.18742	.5398	.12050	.6950
Citrulline	.16957	.5797	.07532	.8068

Continued.

Table 8. Continued.

AA (or Derivative)	r value (by No.)	P value (No.)	r value (by Lb.)	P value (lb)
P-Phenylalanine	.16357	.5934	.11850	.6998
P-Tyrosine	.15862	.6047	.10670	.7286
Carnosine	.15637	.6100	.03934	.8985
P-Serine	.15110	.6222	.10134	.7418
g-Aminobutyric acid	.09204	.7649	.08633	.7791
P-Glutamate + Glutamine	.08197	.7901	.04080	.8947
Allo-isoleucine	.07443	.8090	-.04233	.8908
Proline	.06702	.8278	.11395	.7109
Phosphoethanolamine	.04119	.8937	-.06844	.8242
a-Aminoadipic acid	.03842	.9005	.05479	.8589
b-Aminoisobutyric acid	-.01573	.9593	-.06424	.8348
Asparagine	-.07186	.8155	-.05469	.8591
P-Cystine	-.08576	.7806	-.14816	.6291
b-Alanine	-.12334	.6881	-.12484	.6845
Sarcosine	-.12548	.6829	-.09459	.7585
P-Tryptophan	-.14887	.6274	-.11542	.7073
Phosphoserine	-.2376	.4344	-.27955	.3550
Hydroxylysine	-.33756	.2593	-.30776	.3063

Table 9. Protein-bound amino acid profile of fresh-frozen pogy, sorted by quantity (g/100 g of wet weight).

Glutamate + Glutamine	1.49
Leucine	1.23
Glycine	1.20
Lysine	1.19
Aspartate + Asparagine	1.05
Alanine	1.02
Arginine	0.88
Valine	0.84
Proline	0.78
Phenylalanine	0.75
Isoleucine	0.73
Threonine	0.69
Serine	0.62
Tyrosine	0.54
Methionine	0.47
Histidine	0.38
Cystine	0.04
Tryptophan	0.00

Table 10. Free pool amino acids (and some derivatives) of fresh-frozen pogy, sorted by quantity (nmol/mg of wet weight).

Taurine	8.46
Histidine	5.27
Alanine	2.86
Serine	1.69
Leucine	1.45
Glycine	1.34
Valine	1.02
Lysine	0.91
Arginine	0.88
Glutamate	0.84
Proline	0.78
Threonine	0.77
Phenylalanine	0.71
Glutamine	0.65
Tyrosine	0.58
Isoleucine	0.57
Methionine	0.33
Tryptophan	0.12
Ornithine	0.09
Asparagine	0.07
Aspartate	0.07
Cystine	0.04
Citrulline	0.00
Phosphoserine	0.00
Selected Derivatives	
Ethanolamine	0.33
3-Methylhistidine	0.18
Sarcosine	0.13
Anserine	0.11
g-Aminobutyric acid	0.08
1-Methylhistidine	0.07
a-Aminoadipic acid	0.05
Carnosine	0.05
b-Aminoisobutyric acid	0.04
Cystathionine	0.04
Hydroxyproline	0.04
a-Aminobutyric acid	0
Allo-isoleucine	0
b-Alanine	0
Homocysteine	0
Hydroxylysine	0
Phosphoethanolamine	0

Table 11. Amount of selected (key) amino acids or derivatives (italicized) in baits with the "Best Showing" in comparison to catch with cut pogy. Test baits were extracted freeze-dried (FD) pogy, FD pogy heated, and non-heated FD pogy. Values for free amino acids and derivatives are nmol/mg of wet weight and values for protein bound amino acids are g/100 g wet weight. The prefix "P-" indicates protein-bound amino acids. Highlighted cell indicates an amount less than that in cut pogy.

AA	Cut Pogy	Extracted FD Pogy	FD Pogy Heated	FD Pogy
Taurine	**8.46**	20.07	11.71	18.14
Histidine	**5.27**	13.87	6.44	12.16
Alanine	**2.86**	10.48	6.33	9.42
Serine	**1.69**	5.87	3.61	5.52
Leucine	**1.45**	5.24	2.50	4.83
Glycine	**1.34**	5.02	2.73	4.34
Valine	**1.02**	3.85	2.15	3.55
Lysine	**0.91**	5.63	2.43	4.64
Glutamate	**0.84**	3.05	1.35	2.99
Threonine	**0.77**	3.55	1.94	3.18
Phenylalanine	**0.71**	2.73	1.26	2.57
Glutamine	**0.65**	5.69	1.33	5.06
Tyrosine	**0.58**	2.66	2.14	3.08
Isoleucine	**0.57**	2.46	1.29	2.30
Methionine	**0.33**	.88	.26	.38
Aspartate	**0.07**	3.12	2.26	2.88
Cystine	**0.04**	.25	.10	.25
1-Methylhistidine	**.07**	.35	.08	.32
3-Methylhistidine	**.18**	.86	.26	1.05
Cystathionine	**.04**	.19	.09	.19
P-Glycine	**1.2**	5.14	3.75	2.98
P-Alanine	**1.02**	3.86	2.87	2.56

Table 12. Amount of selected (key) amino acids or derivatives (italicized) in baits with a "Mediocre Showing" in comparison to catch with cut pogy. Values for free amino acids and derivatives are nmol/mg of wet weight and values for protein bound amino acids are g/100 g wet weight. The prefix "P-" indicates protein-bound amino acids. Highlighted cells indicate an amount less than that in cut pogy.

AA	Fresh Pogy	Purina Bait	Poultry Meal	Fish Meal	Squid Meal	Dried Grains	Krill Meal
Taurine	**8.46**	.64	17.68	24.43	13.65	.01	2.98
Histidine	**5.27**	.18	1.17	9.44	0	.57	.07
Alanine	**2.86**	1.68	11.15	12.82	16.06	6.04	2.01
Serine	**1.69**	.37	3.08	2.52	.64	1.12	.31
Leucine	**1.45**	.52	4.36	6.38	.82	1.14	.15
Glycine	**1.34**	1.32	6.36	5.38	3.89	3.08	3.16
Valine	**1.02**	.81	4.48	5.51	.76	.76	.24
Lysine	**0.91**	.28	2.27	3.38	.25	.86	.09
Glutamate	**0.84**	0	2.13	2.19	.32	1.45	.24
Threonine	**0.77**	.28	1.76	2.38	.93	.54	.06
Phenylalanine	**0.71**	.21	1.49	2.60	.30	.68	.04
Glutamine	**0.65**	.76	1.02	1.02	.10	.15	0
Tyrosine	**0.58**	.14	.95	1.62	.45	.58	.11
Isoleucine	**0.57**	.40	2.51	3.33	.45	.27	.15
Methionine	**0.33**	.04	.87	.72	.38	.14	0
Aspartate	**0.07**	1.91	1.91	1.34	.39	.94	.28
Cystine	**0.04**	0	.02	.03	0	.06	0
1-Methylhistidine	**.07**	.04	.05	.27	0	.07	0
3-Methylhistidine	**.18**	.06	1.37	.86	.06	.22	.03
Cystathionine	**.04**	0	.07	.09	0	.04	0
P-Glycine	**1.2**	.63	5.2	4.53	3.74	1.02	2.19
P-Alanine	**1.02**	.51	3.51	4.03	3.30	1.64	2.67

Table 13. Amount of selected (key) amino acids or derivatives (italicized) in baits with a "Poor Showing" in comparison to catch with cut pogy. Values for free amino acids and derivatives are nmol/mg of wet weight and values for protein bound amino acids are g/100 g wet weight. The prefix "P-" indicates protein-bound amino acids. Highlighted cells indicate an amount less than that in cut pogy.

AA	Fresh Pogy	SoyProtein Conc.	Soybean Meal	Treated Diet	Essential Oils
Taurine	**8.46**	0	.01	.67	0
Histidine	**5.27**	.10	.21	.38	0
Alanine	**2.86**	.05	.77	1.45	0
Serine	**1.69**	.03	.16	.38	0
Leucine	**1.45**	0	.12	.27	0
Glycine	**1.34**	.03	.27	.64	0
Valine	**1.02**	.02	.19	.32	0
Lysine	**0.91**	.21	.17	1.05	0
Glutamate	**0.84**	.05	1.00	1.04	0
Threonine	**0.77**	0	.10	.36	0
Phenylalanine	**0.71**	0	.26	.23	0
Glutamine	**0.65**	0	0	0	0
Tyrosine	**0.58**	0	.13	0	0
Isoleucine	**0.57**	0	.12	.18	0
Methionine	**0.33**	.08	.09	.04	0
Aspartate	**0.07**	.10	1.24	1.04	0
Cystine	**0.04**	0	.02	.04	0
1-Methylhistidine	**.07**	0	.08	.08	0
3-Methylhistidine	**.18**	.05	.11	.26	0
Cystathionine	**.04**	.04	.03	.01	0
P-Glycine	**1.20**	2.07	1.98	1.55	0
P-Alanine	**1.02**	2.06	1.95	1.38	0

Table 14. Proportion of selected (key) amino acids or derivatives (italicized) in baits with the "Best Showing" in comparison to catch with cut pogy. Values are expressed as % of the sum total.

AA	Cut Pogy	Extracted Pogy	FD Fish Heated	FD Pogy
Taurine	**30.4**	20.9	23.3	20.9
Histidine	**18.9**	14.5	12.8	14.0
Alanine	**10.3**	10.9	12.6	10.8
Serine	**6.1**	6.1	7.2	6.4
Leucine	**5.2**	5.5	5.0	5.6
Glycine	**4.8**	5.2	5.4	5.0
Valine	**3.7**	4.0	4.3	4.1
Lysine	**3.3**	5.9	4.8	5.3
Glutamate	**3.0**	3.2	2.7	3.4
Threonine	**2.8**	3.7	3.9	3.7
Phenylalanine	**2.5**	2.8	2.5	3.0
Glutamine	**2.3**	5.9	2.6	5.8
Tyrosine	**2.1**	2.8	4.3	3.5
Isoleucine	**2.0**	2.6	2.6	2.6
Methionine	**1.2**	0.9	0.5	0.4
Aspartate	**0.3**	3.3	4.5	3.3
Cystine	**0.1**	0.3	0.2	0.3
1-Methylhistidine	**0.3**	0.4	0.2	0.4
3-Methylhistidine	**0.6**	0.9	0.5	1.2
Cystathionine	**0.1**	0.2	0.2	0.2

Table 15. Proportion of selected (key) amino acids or derivatives (italicized) in baits with a "Mediocre Showing" in comparison to catch with cut pogy. Values are expressed as % of the sum total.

AA	Fresh Pogy	Purina Bait	Poultry Meal	Fish Meal	Squid Meal	Dried Grains	Krill Meal
Taurine	**30.4**	6.6	27.3	28.3	34.6	0.1	30.0
Histidine	**18.9**	1.9	1.8	10.9	0.0	3.0	0.7
Alanine	**10.3**	17.4	17.2	14.9	40.7	32.3	20.3
Serine	**6.1**	3.8	4.8	2.9	1.6	6.0	3.1
Leucine	**5.2**	5.4	6.7	7.4	2.1	6.1	1.5
Glycine	**4.8**	13.7	9.8	6.2	9.9	16.5	31.9
Valine	**3.7**	8.4	6.9	6.4	1.9	4.1	2.4
Lysine	**3.3**	2.9	3.5	3.9	0.6	4.6	0.9
Glutamate	**3.0**	0.0	3.3	2.5	0.8	7.7	2.4
Threonine	**2.8**	2.9	2.7	2.8	2.4	2.9	0.6
Phenylalanine	**2.5**	2.2	2.3	3.0	0.8	3.6	0.4
Glutamine	**2.3**	7.9	1.6	1.2	0.3	0.8	0.0
Tyrosine	**2.1**	1.5	1.5	1.9	1.1	3.1	1.1
Isoleucine	**2.0**	4.1	3.9	3.9	1.1	1.4	1.5
Methionine	**1.2**	0.4	1.3	0.8	1.0	0.7	0.0
Aspartate	**0.3**	19.8	3.0	1.6	1.0	5.0	2.8
Cystine	**0.1**	0.0	0.0	0.0	0.0	0.3	0.0
1-Methylhistidine	**0.3**	0.4	0.1	0.3	0.0	0.4	0.0
3-Methylhistidine	**0.6**	0.6	2.1	1.0	0.2	1.2	0.3
Cystathionine	**0.1**	0.0	0.1	0.1	0.0	0.2	0.0

Table 16. Proportion of selected (key) amino acids or derivatives (italicized) in baits with a "Poor Showing" in comparison to catch with cut pogy. Values are expressed as % of the sum total.

AA	Fresh Pogy	SoyProtein Conc.	Soybean Meal	Treated Diet	Essential Oils
Taurine	**30.4**	0.0	0.2	7.9	-
Histidine	**18.9**	13.2	4.1	4.5	-
Alanine	**10.3**	6.6	15.2	17.2	-
Serine	**6.1**	3.9	3.1	4.5	-
Leucine	**5.2**	0.0	2.4	3.2	-
Glycine	**4.8**	3.9	5.3	7.6	-
Valine	**3.7**	2.6	3.7	3.8	-
Lysine	**3.3**	27.6	3.3	12.4	-
Glutamate	**3.0**	6.6	19.7	12.3	-
Threonine	**2.8**	0.0	2.0	4.3	-
Phenylalanine	**2.5**	0.0	5.1	2.7	-
Glutamine	**2.3**	0.0	0.0	0.0	-
Tyrosine	**2.1**	0.0	2.6	0.0	-
Isoleucine	**2.0**	0.0	2.4	2.1	-
Methionine	**1.2**	10.5	1.8	0.5	-
Aspartate	**0.3**	13.2	24.4	12.3	-
Cystine	**0.1**	0.0	0.4	0.5	-
1-Methylhistidine	**0.3**	0.0	1.6	0.9	-
3-Methylhistidine	**0.6**	6.6	2.2	3.1	-
Cystathionine	**0.1**	5.3	0.6	0.1	-

INVESTIGATION OF TEST INGREDIENTS AS ATTRACTANTS FOR CRAWFISH IN WARM WATER

W.R. McClain and J.J. Sonnier

INTRODUCTION

Commercially available manufactured crawfish baits are relatively effective late in the season when water temperatures warm to 70°F or above. These grain-based pelleted baits are typically equally effective as cut fish in mild temperatures and catch more crawfish when temperatures reach the mid-80s (°F) or higher. Manufactured baits are roughly half the price of fresh-frozen fish and do not need refrigeration or further processing before use. Therefore, few efforts have been directed at investigating attractants that might increase the effectiveness of baits for use in warm water.

A previous study conducted in this research project documented that the efficacy of a warm-water bait could be increased by employing a water-stable binder that prevented the passive breakdown of the bait pellet. In that study, bait residuals (from previous baitings) were used for up to 3 days or until crawfish action upon the bait reduced the quantity substantially. When residual pieces of manufactured bait were used in that study, compared with the common practice of rebaiting with fresh bait daily, average crawfish yield increased 6.3% and the amount of large, high-value crawfish increased 7.1%; however, those differences were not statistically significant. Nonetheless, that study provided evidence for the value of sparing fresh bait daily with the use of residual stable formulated bait pieces, for up to several consecutive days, when bait integrity remains intact.

Given that premise, this study was designed to test large bait residuals of experimental formulation (bait remaining after a 24-hr trap soak at cool water temperatures) for their effectiveness in warmer water. Bait residuals and formulations were from the study "INVESTIGATION OF TEST INGREDIENTS AS ATTRACTANTS FOR CRAWFISH IN COOL WATER" conducted weeks earlier. The main objective of this study was to evaluate those attractants, used for cool water trapping, on crawfish catch in warm water. Capture results in this trial were compared with a popular (warm water) formulated bait and a non-baited trap.

Test Site: 13.2-acre experimental research pond, Rice Research Station South Unit, Crowley, LA

Crawfish Production Scenario: Rice-crawfish field rotational practice.

Trap Type: Industry standard 3-funnel pyramid traps that were equipped with bait retention wells constructed of 0.75-inch plastic hexagon mesh. Bait wells extended above the water line and were used to position the bait in the center of the trap.

Baits: Test baits consisted of bait residuals (following a 24-hr trap soak duration) from the study described above "INVESTIGATION OF TEST INGREDIENTS AS ATTRACTANTS FOR CRAWFISH IN COOL WATER." A commercially available manufactured bait (Southern Pride, Purina Mills, Shreveport, LA) served as the control for comparative purposes, and a non-bait trap was also included as one treatment.

Experimental Attractants: Various feedstuffs and products, alone or in combination, were tested as attractants in a bait matrix.

Test Matrix: A gelatin-based matrix was used as a means to test the various attractants in the lab-formulated products. A lab-grade beef gelatin (Sigma-Aldrich, St. Louis, MO), 250 bloom, 40-mm mesh, was utilized and activated with water heated to 103°F. Oatmeal was added to the gelatin baits as an aid to help bind the gelatin and maintain the bait block as a single unit for the duration of the trap-soak interval. Test baits for this study were individual bait residuals (blocks) from the previous cool water trials (Figure 1) and were preserved by storage at -18°F.

Bait Quantity: Commercially manufactured baits were used at approximately 1/4 lb (115 g) per trap wet weight. Gelatin-based bait blocks ranged in size from 57 to 115 g. Some portion of each bait block remained after a 24-hr trap soak, and bait quantity was not a likely limiting factor in this study. Fresh residuals were used at each baiting.

Trap Soak Duration: Approximately 24 hrs

Water Temperature: Average daily water temperature was 75, 73, 72, and 66°F for days 1, 2, 3, and 4 of the trial.

Experimental Design: Traps were randomly placed in a designated section of the experimental pond. All traps were placed in a row within designated trapping lanes and spaced at approximately 50-ft intervals. Bait selection order was randomly assigned to each trap with the exception that no replicates of the same treatment were placed in successive order.

Replicas: A single trap-set or soak constituted a replica for each bait treatment per day, and there were 8 or 28 replicas per trial. Replication was achieved over 2 or 4 days.

Parameters: Crawfish catch per unit effort, by numbers of crawfish and weight of crawfish per trap; average weight of individual crawfish; and percentage captured (by numbers and by weight) compared with cut pogy, the industry standard. Results were summarized by 2- or 4-day baiting trials.

Support: USDA Southern Regional Aquaculture Center

Comments: Average daily water temperature was above 70°F with the exception of the last 24-hr period where it was only 66°F. Crawfish catch was relatively good each day and ranged more so by bait type than water temperature. Results of the 2- and 4-day baiting trials are presented in Table 1. Baits composed of fish or fish products generally resulted in crawfish catches of at least 90% or better of those with the industry standard manufactured bait (Purina). The level of fish meal (commercial or lab-minced) in the bait seemed to have had an impact on catch, indicating a required threshold quantity for best results. Since the commercially manufactured crawfish bait (Purina) is of proprietary composition, it is unknown what quantity of fish products, if any, it contains. However, it appears to be largely grain based. The results of these trials differ little from those of the cool-water testing; however, the water temperatures were not considerably higher although for the most part, water temperatures exceeded 70°F.

Of the non-fish based experimental attractants, poultry by-products seemed to perform best as an alternative attractant for crawfish. Soybean products and dried distillers grains with solubles consistently caught better than non-baited traps, although not by much. Further testing in warmer and cooler waters is needed to distinguish what, if any, differences exist between attractants preferred by crawfish in cool versus warm water.

Table 1. Summary of results for residual baits (from trials 1-5) used in a warm-water trial, 2012. Values within columns, by trial, with the same superscript were not significantly different (P > 0.05). The 2-day summary included some treatments with limited quantity of bait available for testing, but all values represented the same 2-day duration. The 4-day summary included only treatments with enough quantity of bait for 4 days duration of testing. Note: traps were emptied after 24 h and rebaited with fresh residual bait. Average size among treatments was not significantly different for the 2-day summary.

Treatment (Attractant) and Original Trial[1]	Avg. Catch (No./Trp)	Avg. Catch (lb/Trp)	Avg. Size (g)	% of Purina (by No.)	% of Purina (by Wt.)
2-Day Trial: n=8 traps[2]; Water Temperature = 70.2 min / 79.9 max / 74.2 average					
Fish meal 200%* T3	13.1^{A}	.84^{A}	29.1	120	138
Purina bait	10.9^{AB}	.61^{BCD}	24.8	-	-
Freeze-dried menhaden meal in matrix (50%)* T2	10.8^{AB}	.68^{AB}	28.5	99	111
Minced oven dried menhaden (high temp)* T1	10.8^{AB}	.67^{AB}	28.5	99	110
Freeze-dried menhaden meal (100%)* T2	10.1^{AB}	.66^{AB}	29.6	93	108
Fish meal + sugar (20%)* T4	9.9^{AB}	.64^{ABC}	29.6	91	105
Freeze-dried menhaden meal (heated)* T1	9.9^{AB}	.64^{ABC}	29.6	91	105
Fish meal 100%* T3&4	9.8^{ABC}	.61^{BCD}	28.4	90	100
Poultry by-products* T3	9.6^{ABC}	.53^{BCD}	25.2	88	87
Freeze-dried menhaden meal (2%)* T2	9.1^{BC}	.49^{BCD}	24.7	83	80
Freeze-dried menhaden meal* T1	8.9^{BC}	.53^{BCD}	27.7	82	87
Freeze-dried menhaden meal (10%)* T2	8.8^{BC}	.54^{BCD}	27.7	81	89
Dried grains w/solubles* T3	8.5^{BCD}	.51^{BCD}	27.2	78	84
Cut frozen menhaden	8.0^{BCDE}	.48^{BCDE}	27.5	73	79
Fish meal/soybean meal* T3	7.8^{BCDE}	.47^{BCDE}	27.7	72	77
Soybean meal in matrix* T3	7.5^{BCDE}	.43^{CDEF}	25.8	69	70
Soy protein concentrate* T3	7.3^{BCDE}	.46^{BCDE}	29.1	67	75
Minced oven dried menhaden (low temp)* T1	5.9^{CDE}	.39^{DEF}	30.2	54	64
Sugar* T4	4.8^{DE}	.27^{EF}	26.1	44	44
No bait	4.4^{E}	.23^{F}	24.1	40	38
4-Day Trial: n=16 traps[2]; Water Temperature = 68.4 min / 75.3 max / 71.4 average					
Fish meal 200%* T3	11.9^{A}	.78^{A}	29.7^{AB}	116	132
Freeze-dried menhaden meal in matrix (50%)* T2	11.1^{AB}	.71^{AB}	29.0^{AB}	108	120
Minced oven dried menhaden (high temp)* T1	10.9^{AB}	.72^{AB}	30.1^{A}	106	122
Cut frozen menhaden	10.5^{AB}	.68^{ABC}	29.2^{AB}	102	115
Purina bait	10.3^{AB}	.59^{BCDE}	26.0^{ABC}	-	-
Freeze-dried menhaden meal* T1	9.7^{ABC}	.62^{ABCD}	29.3^{AB}	94	105
Fish meal 100%* T3	9.5^{ABC}	.61^{BCDE}	29.2^{AB}	92	103
Freeze-dried menhaden meal (2%)* T2	8.8^{BCD}	.50^{DEF}	25.7^{ABC}	85	85
Freeze-dried menhaden meal (10%)* T2	8.7^{BCD}	.53^{CDEF}	27.6^{ABC}	84	90
Poultry by-products* T3	8.5^{BCD}	.52^{CDEF}	28.0^{ABC}	83	88
Soybean meal in matrix* T3	7.3^{CDE}	.40^{FG}	25.4^{BC}	71	68
Dried grains w/solubles* T3	7.3^{CDE}	.45^{EF}	28.0^{ABC}	71	76
Fish meal/soybean meal* T3	7.2^{CDE}	.47^{DEF}	29.8^{AB}	70	80
Soy protein concentrate* T3	6.2^{DE}	.38^{FG}	27.6^{ABC}	60	64
No bait	4.7^{E}	.25^{G}	23.9^{C}	46	42

* Indicates attractant was contained within the gelatin matrix.

[1] Indicates original trial number (cool water trials) that bait originated from; eg., T1, T2, T3, etc.

[2] The exception to number of trap runs (n) was the Fish meal 100% treatment, where n=16 for the 2-day trial and n=28 for the 4-day trail.

ASSESSMENT OF CRAWFISH GROWTH IN MESOCOSMS WITH AND WITHOUT SUPPLEMENTAL AERATION

W.R. McClain and J.J. Sonnier

INTRODUCTION

Dissolved oxygen (DO) has long been considered one of the most important factors affecting crawfish production; however, little documentation exists regarding its specific effects on production. It has been suggested that production of procambarid crawfish is optimized at DO concentrations of 3 mg/L or higher. Dissolved oxygen concentrations in forage-based ponds are often below 2.0 mg L^{-1} and may be as low as 0.5 mg L^{-1} for varying periods of time. Acute toxicity levels for DO for hatchling crawfish have been reported to be between 0.75 and 1.10 mg/L and about 0.5 mg/L for juveniles. However, previous work in this laboratory has shown that as long as crawfish can reach the surface, they can withstand DO levels of below 0.25 mg/L for prolong periods with minimal mortality. However, growth rate suffered for crawfish exposed to such hypoxic conditions. Nonetheless, it was shown in that study that compensatory growth was possible with environmental conditions shifted to normoxic levels. Little is known, however, how well crawfish are able to cope with normal diurnal fluctuations of DO levels and to what extent this affects growth rates.

Because of vegetative decomposition that occurs in flooded crawfish impoundments, it is difficult and expensive to maintain high DO concentrations. Procambarid crawfish have evolved physiological mechanisms to cope with low DO conditions and, therefore, may be less affected by mild hypoxia than other aquatic animals. Oxygen levels above that which is necessary to sustain optimum growth rates and acceptable survival are unnecessary. The critical oxygen concentration for optimum growth of P. clarkii has not been clearly established and effects of sublethal levels on production have not been determined.

Implementation of management strategies that substantially increase DO concentrations in forage-based crawfish ponds are difficult and expensive. Therefore, attempts to increase DO concentrations beyond what is necessary to achieve satisfactory crawfish survival and growth are unnecessary. This study was initiated to obtain some preliminary information when crawfish are grown in simulated environments with and without supplemental aeration.

Experimental Units: Six, 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 crawfish habitat mesocosms and were utilized as experimental units.

Water Source: Ground water that was aerated and filtered prior to discharge into tanks. Water levels in tanks were maintained at approximately 1 foot deep.

Forage Crop: Neptune rice planted 29 Aug 2011 at 120 lb/A. Green standing rice was observed throughout the study.

Crawfish: Stocker crawfish were red swamp (*Procambarus clarkii*) juveniles that were captured with a dip net from areas surrounding a commercial crawfish pond and segregated by size. All crawfish were drawn from a single size class ranging in weight from 0.34 to 0.44 g. Mean weight of stocked crawfish per tank ranged from 0.38 to 0.39 g.

Crawfish Stocking Rate: 126 crawfish per tank ($12/m^2$)

Stocking Date: 5 March 2012

Experimental Design: Completely randomized design with three replicated mesocosms per treatment.

Experimental Treatments: Supplemental aeration or no aeration

Supplemental Aeration: A Sweetwater® regenerative blower provided supplemental aeration (according to treatment) via four shop-build diffusers (3-inch PVC pipe, 1 ft long) per tank. Aeration was provided continuously for the duration of the study.

Dissolved Oxygen Monitoring: Dissolved oxygen was measured periodically (weekly or biweekly) to ensure a DO gradient between treatments. A YSI model 50B oxygen meter (Yellow Spring Instrument Corp., Yellow Springs, Ohio) was used.

Temperature Monitoring: Water temperature was recorded every 4 hours by temperature data-loggers (Hobo®, 104 Onset Computers, Pocasset, Massachusetts, USA, model TEMP) randomly placed in two tanks. Mean daily (24-hour) temperatures were used to calculate the cumulative Fahrenheit degree-days for the duration of the growth study based on 41°F as the thermal minimum for growth.

Crawfish Sampling: Crawfish populations in each tank were sampled biweekly by baited traps to assess growth and maturity. Captured crawfish were immediately returned to the population with the exception of the final sampling event. When 50% of the captured crawfish were mature, the study was terminated and all crawfish were retrieved.

Study Termination: 30 May 2012

Parameters: Individual crawfish weight, survival, maturity, number of intact chelae, dissolved oxygen, and water temperature

Comments: The DO readings for the non-aerated tanks averaged 1.8 mg/L for the duration of the study with the lowest single day observation of 0.11 mg/L and the highest single day observation of 4.8 mg/L. Dissolved oxygen readings for aerated tanks averaged 6.6 mg/L (range 5.2-7.6 mg/L). Clearly, there was a differential in DO levels among treatments with several daily readings well below 0.5 mg/L, but monitoring levels in this study were not stringent enough to draw conclusions regarding the effects of long-term hypoxia. However, the growth data did not reveal any advantage for continuous aeration under the conditions of this study.

Table 1 provides data for the parameters of interest. It should be noted that the survival in one replicate tank (aeration treatment) was only 2% (from unknown causes); therefore, this observation was not included in the summary. Survival in the other tanks was not exceptionally good – ranging from 25 to 52% – but such survival rates for studies in mesocosms are not unprecedented. There were no significant differences in survival due to treatment. Likewise, there was no significant difference in mean final weight due to treatment. Supplemental aeration provided no obvious benefit for survival or growth in this study.

There was no significant difference in percentage maturity or the proportion of males to females due to treatment. However, the mature proportion of the population for every tank was less than 50% and was not indicative of the average maturity as determined from the sampled individuals (i.e., threshold for termination of the study). Nearly every individual in both treatments had both chelae, indicating no disproportionate level of aggression. In summation, this study, although preliminary, provided no indication that mild or short-term hypoxia was detrimental to crawfish production under the conditions of this study. Additional research is needed, with more stringent DO monitoring, before firm conclusions can be drawn regarding tolerances of growing crawfish to low DO conditions under commercial conditions.

Based on the DD-41^{o}F model for calculating cumulative degree days, this study yielded 2,989 cumulative Fahrenheit degree days for growth. With an initial crawfish weight of 0.385 g and an average final weight of 15.4 g, growth in the mesocosms appeared to be slower than crawfish confined to cages in experimental crawfish ponds in a previous study. In that study, it was calculated that the confined crawfish (initial weight = 0.5 g) required a DD-41^{o}F of between 1,532 and 1,803 for 50% of the crawfish to reach 15 g in size. It is unclear if other factors were present which may have contributed to slower growth and relative high mortality in this study. More research is needed to determine if mesocosms offer a disadvantage in growth, and clearly, more research is needed to precisely identify the relationship between cumulative degree days and optimal crawfish growth.

Table 1. Percentage crawfish survival, maturity, males, and average weight and number of intact chelae at termination of the 86-day study by replicate and by treatment. Cumulative Fahrenheit degree-days for growth were 2,989.

Treatment	**Tank No.**	**% Surv.**	**% Mature**	**% Males**	**Weight (g)**	**No. Chelae**
Aeration	2	42.1	45.3	52.8	17.86	1.98
Non-Aeration	3	52.4	28.8	48.5	16.76	1.92
Non-Aeration	7	33.3	28.6	42.9	18.87	1.98
Aeration	9	25.4	12.5	59.4	9.49	1.97
Non-Aeration	8	26.2	12.1	39.4	14.23	1.88
Treatment Averages						
Non-Aeration (DO=1.8)		37.3	23.2	43.6	16.62	1.93
Aeration (DO=6.6)		34.1	28.9	56.1	13.67	1.97

RICE DISEASE CONTROL RESEARCH

RICE DISEASE CONTROL STUDIES, 2012[1]

D.E. Groth, C.W. Dischler, L.L. Monte, and M.J. Frey

Rice diseases pose a major threat to rice production. The two most important fungal diseases, sheath blight and blast, cause significant yield and quality reductions that cost farmers millions of dollars each year. Diseases caused by the fungus *Cercospora* have also become major problems in recent years. Bacterial panicle blight is also a major rice disease, but fungicides have no activity against this disease. Disease resistance is the best control option, but often, it is not available. Cultural control can reduce disease development but usually involves reducing inputs – especially nitrogen and seeding rates, which can limit yield. As a result, rice farmers often rely on fungicides to control diseases. Several rice fungicides are available, but timing is critical for maximum return. Fungicide timing, rate, and efficiency trials have been conducted at the LSU AgCenter Rice Research Station and in Louisiana growers' fields for a number of years.

Fungicide timing and rate trials have been conducted since the early 1980's. Fungicides were applied at either 7 days after panicle differentiation, 2- to 4-inch boot, 50 to 70% heading (heads emerging from the boot but not completely emerged), or 5, 10, or 15 days after heading. Varieties selected were susceptible to sheath blight, blast, or *Cercospora* and were managed to favor disease, i.e. inoculated, fertilized with high N rates, planted late, and planted in high disease pressure fields.

The studies demonstrated that fungicide timing was important in sheath blight, blast, and *Cercospora* control. Boot stage appeared to be the best timing for *Cercospora* and sheath blight control. Earlier applications were not as effective or higher rates were needed to provide season-long control. Heading applications were effective. However, this allowed more sheath blight to spread up the plant, and in one of three years, *Cercospora* control was weak. Blast control was best when fungicides were applied at heading. Post-heading applications for both sheath blight and blast lost effectiveness when delayed by as little as 5 days after heading. Fungicides also differed in their effectiveness against different diseases. Propiconazole was most effective against *Cercospora* but was weak against sheath blight and had no activity against blast when used alone. Azoxystrobin-containing fungicides were more effective against sheath blight than trifloxystrobin-containing fungicides. But, trifloxystrobin fungicides were more effective against blast. Effective fungicide use must be based on the presence of damaging disease in a field and when it starts to develop. This is determined by knowing the varietal susceptibility, field disease history, weather conditions in your area, and most importantly by scouting for disease in the field multiple times during the growing season. If sheath blight and *Cercospora* are present in a field, boot applications would be best. Earlier applications would only be advisable if sheath blight started earlier and was causing significant damage before the boot growth stage. If blast is present, delaying fungicide application to heading would be best because blast can be more damaging than other diseases, and heading applications can be effective against sheath blight. Most importantly, fungicides must be applied no later than by when 50 to 70% of the heads have emerged to maximize disease control and yields. Remember, if there is little or no disease, there is little or no loss.

Rice disease resistance screening has been conducted for many years at the LSU AgCenter Rice Research Station and at off-station trials. Typically, it takes three years of data to accurately determine the resistance of a variety because of environmental differences, erratic disease development, and absence of some diseases in some years. This screening includes current varieties, potential releases, the Uniform Regional Rice Nursery, breeding lines in the preliminary yield, single plot, and early generation populations. The primary diseases screened include sheath blight, bacterial panicle blight, blast, Cercospora, and several minor diseases. Screening for resistance is conducted in disease nurseries, which consist of rice planted in rows in the field, with each row being a different entry. Each entry is replicated two to four times and randomized within the experiment to increase accuracy and eliminate cross interference between rows. Sheath blight and bacterial panicle blight plots are inoculated to create

[1] This research is supported in part by funds provided by rice producers through the Louisiana Rice Research Board and various agricultural chemical companies.

severe and uniform disease development because these diseases do not spread extensively within the plots. All other diseases, including blast and Cercospora, which spread rapidly through windblown spores, depend on natural inoculum. Off-station trials depend on natural inoculum since inoculations are only done on station. All of the tests are culturally managed to favor disease. At maturity, rows are rated on 0-9 severity scales, where 0 indicates no disease development (immunity) and 9 indicates maximum disease development possible (very susceptible). Data are analyzed and used by the breeders in line advancement decisions and in varietal recommendations. In general, there is a high correlation between on- and off-station disease reactions.

The disease resistance screening program has been successful over the years in maintaining disease resistance levels in released varieties and increasing resistance levels to certain diseases. Some of the sources of this resistance include current varieties, introduced foreign germplasm, and the USDA rice collection. One of the major difficulties in determining disease resistance levels is that the pathogen populations have multiple races or genetic types that have developed to overcome resistant varieties, making them susceptible. Determining which race or races to use is one of the most important decisions a plant pathologist makes. One way to overcome this is to allow the rice to be infected by the natural populations in an area. Even with all of this work, we do not always get a good indication of a variety's resistance level until it is planted in commercial fields. The problem with this is that a variety may be susceptible to a rare race that will become the most prevalent race when the variety becomes popular and is exposed to many different environments. Usually, this happens over time, and a variety stays resistant over several years. The end result of varietal resistance development is that every variety will become susceptible to diseases over time and screening for new resistant varieties will be a nonstop ongoing process.

Table 1. List of fungicides tested in 2012.

	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

2012 Uniform Rice Regional Nursery and Variety Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: Various, 100 lb/A

Plot Size: 1 row x 6 ft

Planting Method/Date: Drill seeded, Mar 19

Fertilization: Preplant 0-60-60, Oct 3; Preflood 92-0-0, Apr 18; Topdress 46-0-0, May 23

Experimental Design: Randomized complete block design with two to four replications

Water Management: Flushed, Mar 29; Flooded, Apr 19; Drained, July 9

Herbicides: Propanil 4 qt/A, Apr 9; Tank-Mix RiceBeaux 3 qt/A and Prowl EC 2.4 pt/A, Apr 18

Insecticides: Dermacor seed treatment

Fungicides: None

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 22

Application Equipment: N/A

Application Dates: N/A

Disease Ratings: Various, see Tables 2-8

Drained: July 9

Harvest: N/A

Results: See Tables 2-8

Comments: Sheath blight and blast severities were very high; other diseases were moderate in severity. Key: LB Flooded is leaf blast under flooded conditions, RNB is rotten neck blast under flooded conditions, LB Upland is leaf blast under unflooded conditions, SB is sheath blight, BPB is bacterial panicle blight, and NBLS is narrow brown leaf spot.

Table 2. Disease reaction of various rice varieties and experimental lines to flooded field leaf blast (LB), rotten neck blast (RNB), upland leaf blast, sheath blight (SB), bacterial panicle blight (BPB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2012. (Variety Trial).

Character Rated		LB Flooded		RNB		LB Upland		SB		BPB		NBLS	
Rating Date		5/8/2012		6/26/2012		6/16/2012		7/12/2012		8/27/2012		9/5/2012	
Rating Unit		0-9		%		0-9		0-9		0-9		0-9	
Trt No.	Treatment Name												
1	Experimental	2.8	a-d	70	c	5.3	bcd	8.5	ab	7.5	abc	3.5	abc
2	Bengal	3	a-d	6.3	h-k	5.8	bc	6.3	e-i	6.3	cde	0.5	g
3	Bowman	1	e	11.3	hi	5.3	bcd	7.5	a-e	7.8	ab	3.8	abc
4	Caffey	2	d	2.5	ijk	4	de	5.5	hij	4	ghi	0.3	g
5	Catahoula	0	e	0	k	0.8	ij	7.8	a-d	3.5	hij	0	g
6	Cheniere	0.5	e	7.5	h-k	5	cd	7	c-g	4	ghi	3.5	abc
7	CL111	0	e	6.3	h-k	1.3	hij	8.5	ab	7.8	ab	3.5	abc
8	CL131	0	e	2.5	ijk	0	j	8	abc	5.8	ef	4.3	a
9	CL142	0	e	26.3	g	4.8	cd	6.5	d-h	6.5	b-e	0	g
10	CL151	2.3	cd	62.5	d	5.3	bcd	8	abc	7.5	abc	3.5	abc
11	CL152	2.5	bcd	13.8	h	5.3	bcd	8	abc	2.3	jk	1.5	ef
12	CL162	3.5	ab	82.5	b	5.3	bcd	8.5	ab	8	a	0.5	g
13	CL181	2.3	cd	7.5	h-k	4.5	cd	8	abc	7	a-d	3.3	abc
14	CL261	3.5	ab	52.5	e	6.5	b	6.5	d-h	8	a	2	de
15	Cocodrie	0.3	e	6.3	h-k	2.8	fg	7.5	a-e	5	fg	2.8	cd
16	Cypress	2.8	a-d	6.3	h-k	5.3	bcd	7.8	a-d	5	fg	3	bc
17	Jazzman	0	e	0	k	1.8	ghi	5	ij	3.3	hij	4	ab
18	Jazzman 2	0	e	6.3	h-k	2	fgh	7	c-g	6	def	3.5	abc
19	JES	0	e	0	k	0.3	j	6	f-j	1.3	l	0	g
20	Jupiter	2.3	cd	0	k	4.5	cd	4.8	j	3	ij	0.3	g
21	LAH10	0	e	0	k	0	j	5	ij	1.5	kl	0	g
22	LM-1	0.5	e	1.3	jk	4.3	d	5.8	g-j	1	l	0	g
23	Mermentau	0	e	10	hij	0	j	7.3	b-f	3.3	hij	2.8	cd
24	M202	3.8	a	100	a	9	a	8.8	a	7.5	abc	1	fg
25	Neptune	1	e	0	k	4.8	cd	5.3	hij	3	ij	0	g
26	Presido	0	e	6.3	h-k	1	hij	7	c-g	6.5	b-e	0	g
27	Purple Marker	0	e	0	k	0	j	2	k	0	m	0	g
28	Rex	2.3	cd	33.8	f	4	de	8.8	a	7.3	abc	0	g
29	Roy J	0	e	6.3	h-k	2	fgh	6	f-j	4.5	gh	0	g
30	Taggart	0	e	1.3	jk	3	ef	5	ij	2.5	j	0	g
31	Templeton	0	e	0	k	0	j	5.5	hij	4.5	gh	0	g
32	Wells	3.3	abc	22.5	g	5	cd	5.5	hij	5	fg	0	g
33	Della 2	0	e	0	k	2.8	fg	7.3	b-f	3.5	hij	3	bc
LSD (P=.05)		0.72		5.32		0.84		0.84		0.82		0.62	
Standard Deviation		0.51		3.8		0.6		0.6		0.59		0.44	
CV		43.16		22.73		17.75		8.89		12.17		29.2	
Replicate F		0.565		0.223		0.737		6.834		4.472		10.56	
Replicate Prob(F)		0.6392		0.88		0.5325		0.0003		0.0055		0.0001	
Treatment F		28.279		193.443		60.465		25.402		61.523		53.361	
Treatment Prob(F)		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).

Table 3. Disease reaction of various rice varieties and experimental lines to flooded field leaf blast (LB), rotten neck blast (RNB), upland leaf blast, sheath blight (SB), bacterial panicle blight (BPB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2012. URN Group I.

Trt. #	Treatment Name	5/23/12 Leaf Blast		6/26/12 RNB		7/9/12 LB upland		7/12/12 SB		8/27/12 BPB		9/6/12 NBLS	
1	BASMATI70/KATY/4/VSNTLM//….	2.3	b	0	d	0.3	e	5.5	b	4.8	def	0	e
2	9502008-A//AR1188/CCDR/3/CFX 29…	1.5	bc	0	d	1.0	cde	6.5	ab	5.5	c-f	2.5	bcd
3	CF4-69/CCDR	0.8	bc	0	d	1.5	cde	7.5	ab	4	f	1.3	de
4	BRAZ/TBNT/3/1649864/NV66//NTAI/…	0.8	bc	0	d	0.5	de	6.3	ab	6	cde	0.5	e
5	TRNS//CCDR/JEFF	5.5	a	26.3	c	6.3	a	6	ab	7	abc	1.8	cde
6	CPRS/CCDR	4.8	a	10	d	5.3	ab	7	ab	4.5	ef	3.8	ab
7	LGRU//KATY/STBN/3/LGRU	0.3	c	10	d	2.8	c	6.5	ab	6.3	bcd	1.8	cde
8	TRNS//CCDR/JEFF	4.8	a	7.5	d	5.0	ab	6.8	ab	5.3	def	1.8	cde
9	CPRS/9901081	1.5	bc	5	d	1.8	cde	5.5	b	5	def	1.5	cde
10	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/…	0.8	bc	2.5	d	2.3	cd	5.5	b	5	def	0	e
11	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	4.5	a	8.8	d	4.5	b	7.8	ab	7	abc	1.3	de
12	LCSN/LGRU	1.8	bc	0	d	1.0	cde	7.5	ab	5.3	def	1	de
13	LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT	4	a	40	b	4.3	b	7.3	ab	6.5	a-d	0	e
14	RSMT//8403113/3/KCAL/LEAH//LEAH	5	a	45	b	5.8	ab	8	a	5.3	def	4	ab
15	CL161/PSCL	0.5	bc	10	d	1.8	cde	6.5	ab	6.5	a-d	1.3	de
16	GFMT//NWBT/KATY	0.8	bc	6.3	d	2.8	c	7.5	ab	6.5	a-d	4.5	a
17	CL111	0	c	6.3	d	0.3	e	7.8	ab	8	a	3.8	ab
18	CL151	5	a	55	a	5.5	ab	7.3	ab	7.8	ab	3	abc
19	PRESIDIO	1.3	bc	0	d	1.0	cde	7.5	ab	5.8	cde	0.3	e
20	MERMENTAU	0.3	c	6.3	d	1.3	cde	7	ab	4	f	3	abc
LSD (P=.05)		1.15		5.72		1.14		1.25		1.01		1.05	
Standard Deviation		0.81		4.05		0.80		0.88		0.72		0.74	
CV		35.51		33.89		29.47		12.88		12.37		40.4	
Replicate F		3.858		1.241		1.163		0.043		1.976		0.809	
Replicate Prob(F)		0.0139		0.3033		0.3318		0.9881		0.1279		0.4941	
Treatment F		23.54		65.225		25.547		3.223		10.181		14.721	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0003		0.0001		0.0001	

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

Table 4. Disease reaction of various rice varieties and experimental lines to flooded field leaf blast (LB), rotten neck blast (RNB), upland leaf blast, sheath blight (SB), bacterial panicle blight (BPB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2012. URN Group II.

Rating Date		5/23/2012		6/26/2012		7/9/2012		7/12/2012		8/27/2012		9/6/2012	
Rating Data Type		LB Flood		RNB		LB Upland		SB		BPB		NBLS	
Rating Unit		0-9		%		0-9		0-9		0-9		0-9	
Trt No.	Treatment Name	1		2		3		4		5		6	
21	MERMENTAU	3.3	cd	15	def	3.8	abc	4.8	bc	5	cd	3.5	b
22	STG03L-50-045/…	1.5	e	5	ef	1	d	7.8	a	5.8	bc	4.8	ab
23	CCDR//9502008/…												
24	LGRU/LSCN/…	3.8	a-d	0	f	4.8	a	4.3	c	2.5	f	0	c
25	RU0301041/…	0.5	e	5	ef	2	bcd	5.8	b	3.3	ef	1.3	c
26	JZMN/08CLR004…	1.3	e	0	f	1	d	7.8	a	5	cd	0	c
27	SABR/CCDR	3	d	23.8	d	4	ab	5.3	bc	3.5	ef	0.5	c
28	TMPL/ RU0401164	3.3	cd	8.8	def	2	bcd	7.8	a	6	bc	3.3	b
29	CPRS/KBNT//…	0.8	e	6.3	ef	1.8	cd	7.5	a	5	cd	3.5	b
30	CPRS/CCDR	1.3	e	0	f	1.8	cd	5.3	bc	4.3	de	0.3	c
31	STG03L-50-045/…	0.8	e	16.3	def	1.5	d	7.3	a	7.8	a	4.3	b
32	RU0602103/3/…	4.8	abc	75	a	5.5	a	8.5	a	8	a	5.5	a
33	CCDR/L202	4.8	abc	13.8	def	4.8	a	7.3	a	6.5	b	3.8	b
34	CFX-18(CL161)/…	1	e	1.3	f	2	bcd	8	a	5	cd	0	c
35	CPRS/KBNT//…	5	ab	82.5	a	5.3	a	8.5	a	6.8	ab	0	c
36	8603006//3/…	5.3	a	65	b	5	a	8	a	5	cd	0.3	c
37	CFX-18(CL161)/…	3	d	22.5	d	5	a	4.8	bc	3.5	ef	1	c
38	JUPITER	4	a-d	20	de	2.5	bcd	7	a	4.3	de	0.3	c
39	WELLS	4.8	abc	77.5	a	5.8	a	8.3	a	8	a	1.3	c
40	CL162	3.5	bcd	50	c	2.8	bcd	7	a	7	ab	1.3	c
LSD (P=.05)		1.06		9.79		1.34		0.98		0.92		1.02	
Standard Deviation		0.75		6.92		0.95		0.7		0.65		0.72	
CV		25.7		26.99		29.1		10.13		12.05		39.79	
Replicate F		0.652		0.339		0.117		1.268		1.509		0.84	
Replicate Prob(F)		0.5853		0.7975		0.9499		0.2947		0.2227		0.4777	
Treatment F		19.408		69.39		12.308		16.135		25.903		27.028	
Treatment Prob(F)		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).

Table 5. Disease reaction of various rice varieties and experimental lines to flooded field leaf blast (LB), rotten neck blast (RNB), upland leaf blast, sheath blight (SB), bacterial panicle blight (BPB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2012. URN Group III.

Rating Date		5/23/2012		7/6/2012		7/9/2012		7/12/2012		8/27/2012		9/6/2012	
Rating Data Type		LB Flooded		RNB		LB Upland		SB		BPB		NBLS	
Rating Unit		0-9		%		0-9		0-9		0-9		0-9	
Trt No.	Treatment Name	1		2		3		4		5		6	
41	STG00F5-07-007/…	0.3	c	7.5	ghi	1.5	de	7.8	ab	8.3	a	0.5	e
42	TRNS//CCDR/JEFF	5	ab	47.5	b	5.5	abc	8.3	a	8.5	a	1.5	b-e
43	CPRS/CCDR	0.5	c	15	e-h	2.3	de	7.8	ab	5.5	d-g	3.8	ab
44	FRNS// WLLS/…	5	ab	37.5	bc	5	bc	8	ab	4.8	fgh	0.5	e
45	CPRS/KBNT//…	5	ab	37.5	bc	6.8	a	8	ab	6.3	b-e	3	a-d
46	CPRS/CCDR	1.8	c	11.3	f-i	2.3	de	7.3	ab	4.8	fgh	1.5	b-e
47	STG01L-64-105/..	0.8	c	0	i	0.8	e	5.5	de	3.5	ij	0	e
48	CPRS/KBNT//…	4.5	ab	32.5	cd	4.5	c	8	ab	6.5	bcd	4.3	a
49	CCDR/L202	0.5	c	21.3	d-g	2.8	d	7.8	ab	6.8	bc	5	a
50	STG03L-50-045/…	0.5	c	0	i	2	de	5.3	e	3	j	0	e
51	CCDR//CFX-29/…	0.8	c	8.8	f-i	1.3	de	6.5	bcd	6.8	bc	4.3	a
52	CPRS/CCDR	1	c	8.8	f-i	0.8	e	7.3	ab	5.8	c-f	3	a-d
53	CFX-18(CL161)/…	1	c	27.5	cde	3	d	7.5	ab	6.5	bcd	3.8	ab
54	LMNT//TBNT/…	4.8	ab	75	a	6.3	ab	7.8	ab	7.3	b	4.3	a
55	RSMT//RXMT/IR36	5.8	a	32.5	cd	6.5	ab	6	cde	5.3	efg	1	de
56	TAGGART	1	c	5	hi	2.8	d	5.5	de	3	j	1.3	cde
57	REX	5.3	a	72.5	a	5	bc	8	ab	8.5	a	5	a
58	CHENIERE	4.3	ab	22.5	def	5.8	abc	7.5	ab	4.5	gh	4.5	a
59	COCODRIE	0.5	c	8.8	f-i	2.5	d	7	abc	4	hi	3.5	abc
60	CL181 AR	3.5	b	21.3	d-g	5	bc	8	ab	6	cde	3.3	a-d
LSD (P=.05)		1.02		9.22		1.1		0.87		0.74		1.48	
Standard Deviation		0.72		6.52		0.78		0.61		0.53		1.04	
CV		28.1		26.47		21.58		8.51		9.14		38.87	
Replicate F		0.095		0.52		1.16		1.278		2.328		0.317	
Replicate Prob(F)		0.9622		0.6703		0.333		0.2905		0.0841		0.8131	
Treatment F		33.925		43.43		26.398		9.599		41.12		10.895	
Treatment Prob(F)		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).

Table 6. Disease reaction of various rice varieties and experimental lines to flooded field leaf blast (LB), rotten neck blast (RNB), upland leaf blast, sheath blight (SB), bacterial panicle blight (BPB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2012. URN Group IV.

Rating Date	5/23/2012	7/6/2012	7/9/2012	7/12/2012	8/27/2012
Rating Data Type	LB Flooded	RNB	LB Upland	SB	BPB
Rating Unit	0-9	%	0-9	0-9	0-9
Trt Treatment					
No. Name	1	2	3	4	5
61 TMPL/ RU0401164	4.3 abc	28.8 cd	4.5 abc	5.3 cde	3.5 e-i
62 BNGL/CL161	5 a	20 d	6 a	5.3 cde	7.8 a
63 CPRS/CCDR	0.3 f	8.8 e	2.5 c-f	7.5 ab	3.5 e-i
64 JES	0 f	0 e	2.5 c-f	5.5 cde	2 ij
65 NEPTUNE//BNGL/CL 161	3.5 bcd	0 e	4.5 abc	4.8 de	6 bc
66 SABR/CCDR	0.8 f	3.8 e	2.3 c-f	7.3 abc	3.5 e-i
67 IRGA409/RXMT/5/NWBT/3/LBNT.9902/…	2.5 d	0 e	2.3 c-f	4.8 de	3.3 f-i
68 NEPTUNE//BNGL/CL 161	3 cd	0 e	3.5 cde	5 de	5 cde
69 CF4-69/CCDR	0.3 f	0 e	0.5 f	7.3 abc	4.5 c-g
70 STG01L-64-105/RU0101133	1 ef	0 e	3 cde	5.8 b-e	3 g-j
71 LAH10	0.3 f	0 e	1.8 def	4.5 de	1.8 j
72 CPRS/NWBT//KATY/3/CCDR	1.3 ef	22.5 cd	1.8 def	6.5 a-d	5.3 bcd
73 L201//TBNT/BLMT/3/8403113/4/…	4.8 ab	45 b	5.5 ab	6.3 a-d	3.5 e-i
74 RSMT//3/MARS/NWRX//TBNT	5.3 a	70 a	6.3 a	8 a	6.5 b
75 CPRS/CCDR	0.8 f	8.8 e	2.5 c-f	7 abc	2.8 hij
76 WLLS/CL161	4.5 ab	0 e	4 bcd	7.3 abc	4.8 c-f
77 L201//TBNT/BLMT/3/8403113/4/MILL	5.3 a	30 c	5.8 ab	6.3 a-d	5.3 bcd
78 L201/SABR	1 ef	0 e	1.3 ef	6.5 a-d	4 d-h
79 ROY J	2.3 de	22.5 cd	2.3 c-f	5.3 cde	3.3 f-i
80 CAFFEY	3.5 bcd	0 e	3.5 cde	4.3 e	4.5 c-g
LSD (P=.05)	0.99	6.63	1.35	1.16	0.99
Standard Deviation	0.7	4.69	0.96	0.82	0.7
CV	28.37	36.06	29.03	13.68	16.8
Replicate F	0.299	1.1	0.254	0.792	0.643
Replicate Prob(F)	0.8261	0.3568	0.858	0.5036	0.5902
Treatment F	29.947	65.641	12.034	7.5	18.241
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001

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

Table 7. Disease reaction of various rice varieties and experimental lines to flooded field leaf blast (LB), rotten neck blast (RNB), upland leaf blast, sheath blight (SB), bacterial panicle blight (BPB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2012. URN Group V.

Rating Date		5/23/2012	7/6/2012	7/9/2012	7/12/2012	8/27/2012	9/6/2012
Rating Data Type		LB Flooded	RNB	LB Upland	SB	BPB	NBLS
Rating Unit		0-9	%	0-9	0-9	0-9	0-9
Trt No	Treatment Name	1	2	3	4	5	6
81	WLLS/ZHE733//19981434	2.5 e	10.0 fg	1.0 fg	7.5 ab	4.5 c-g	5.5 ab
82	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	3.0 de	15.0 d-g	3.5 b-g	7.5 ab	5.5 b-f	2.5 b-g
83	CPRS/3/L201/TBNT/BLMT	5.5 abc	70.0 b	6.5 b	7.0 ab	8.5 a	3.5 a-f
84	STG05IMI-02-028/STG03L-10-047	4.0 b-e	25.0 c-g	4.0 b-g	6.5 ab	6.0 a-e	3.5 a-f
85	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	3.0 de	50.0 bcd	4.5 b-f	8.0 a	7.5 ab	2.5 b-g
86	CCDR/L202	2.5 e	12.5 efg	2.5 c-g	8.0 a	4.5 c-g	5.0 abc
87	STG05IMI-02-028/STG03L-10-047	0.0 f	17.5 d-g	1.5 efg	7.0 ab	5.5 b-f	1.5 d-g
88	CFX-26/9702128//CCDR/JEFF	5.0 a-d	50.0 bcd	4.0 b-g	6.5 ab	7.0 abc	3.5 a-f
89	CPRS/CCDR	0.5 f	10.0 fg	3.0 b-g	7.5 ab	4.0 d-g	3.0 a-g
90	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/19981429	0.5 f	0.0 g	2.0 d-g	5.0 b	3.5 efg	5.0 abc
91	CCDR/JEFF/3/CFX-18//CPRS/KBNT	4.0 b-e	50.0 bcd	4.0 b-g	8.0 a	8.5 a	2.0 c-g
92	CCDR/L202	0.0 f	7.5 fg	3.0 b-g	7.5 ab	5.5 b-f	5.5 ab
93	19991516/WLLS	0.0 f	0.0 g	1.5 efg	6.5 ab	6.5 a-d	4.5 a-d
94	CCDR/9502008-A/3/CFX-18//CCDR/9770532 DH2	0.0 f	7.5 fg	2.0 d-g	7.5 ab	7.5 ab	4.0 a-e
95	LGRU/LSCN/CF4-85	5.0 a-d	12.5 efg	5.5 bcd	7.0 ab	4.0 d-g	1.5 d-g
96	STG05IMI-02-028/STG03L-10-047	3.0 de	15.0 d-g	2.0 d-g	7.0 ab	6.0 a-e	6.0 a
97	CCDR//CLPY 003	0.0 f	15.0 d-g	2.0 d-g	7.0 ab	8.5 a	4.5 a-d
98	CPRS/NWBT//KATY/3/CCDR	3.0 de	2.5 g	1.5 efg	7.0 ab	6.0 a-e	5.0 abc
99	WLLS/CL161	5.0 a-d	45.0 b-e	5.5 bcd	8.0 a	4.0 d-g	4.0 a-e
100	RSMT/KATY	6.0 ab	55.0 bc	5.5 bcd	8.0 a	5.5 b-f	4.0 a-e
101	CF4-69/CCDR	0.5 f	2.5 g	0.5 g	7.0 ab	2.5 g	2.5 b-g
102	STG05IMI-02-028/STG03L-10-047	0.0 f	0.0 g	0.5 g	7.5 ab	3.5 efg	4.5 a-d
103	CFX-26/9702128//EP 144	5.0 a-d	40.0 b-f	5.0 b-e	7.5 ab	6.5 a-d	5.0 abc
104	MILL/JSMN ?	4.0 b-e	60.0 bc	5.5 bcd	7.5 ab	5.5 b-f	0.0 g
105	FRNS/5/LBNT/9902//NWBT/3/KATY/NWBT/4/LGRU	3.5 cde	45.0 b-e	3.5 b-g	6.5 ab	4.0 d-g	0.0 g
106	WELLS/CFX-18//DREW/CFX-18	4.0 b-e	70.0 b	3.5 b-g	8.0 a	8.0 ab	1.0 efg
107	MILL/JSMN ?	4.5 a-e	45.0 b-e	5.0 b-e	6.0 ab	5.5 b-f	0.5 fg
108	STG01P-18-011/ RU9701151	0.0 f	2.5 g	2.5 c-g	5.0 b	3.0 fg	0.0 g
109	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4.5 a-e	50.0 bcd	4.0 b-g	7.5 ab	7.5 ab	3.5 a-f
110	MILL/JSMN ?	4.5 a-e	50.0 bcd	5.5 bcd	7.0 ab	4.5 c-g	0.0 g
111	STG03L-50-045/RU0401164	4.5 a-e	45.0 b-e	4.0 b-g	6.0 ab	3.5 efg	1.0 efg
112	FRANCIS/CLR 13/5/TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18	4.0 b-e	45.0 b-e	5.0 b-e	7.0 ab	7.5 ab	4.5 a-d
113	CPRS/CCDR	0.0 f	0.0 g	2.5 c-g	6.5 ab	3.5 efg	2.0 c-g
114	248CO13E-1	0.0 f	55.0 bc	3.0 b-g	8.0 a	4.5 c-g	3.0 a-g
115	FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	4.5 a-e	50.0 bcd	5.0 b-e	6.5 ab	8.0 ab	3.5 a-f
116	CPRS/CCDR	0.0 f	10.0 fg	3.0 b-g	7.0 ab	3.0 fg	2.5 b-g
117	JAZZMAN-2	0.0 f	2.5 g	2.0 d-g	7.5 ab	4.5 c-g	5.0 abc
118	CL 142 AR	4.5 a-e	50.0 bcd	3.5 b-g	6.5 ab	7.0 abc	1.0 efg
119	M206	6.5 a	100.0 a	9.0 a	8.5 a	8.0 ab	0.0 g
120	CL261	5.5 abc	50.0 bcd	6.0 bc	6.5 ab	8.0 ab	1.0 efg
LSD (P=.05)		1.18	19.21	2.03	1.50	1.46	1.79
Standard Deviation		0.59	9.51	1.00	0.74	0.72	0.89
CV		20.83	30.6	27.94	10.47	12.8	30.26
Replicate F		0.328	0.418	0.311	0.023	0.024	0.574
Replicate Prob(F)		0.5703	0.5215	0.5803	0.8810	0.8782	0.4530
Treatment F		27.689	14.149	6.530	2.182	12.270	8.463
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0084	0.0001	0.0001

Rating Unit - 0-9 = 0-9 index/scale; % = percent.

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

Table 8. Disease reaction of various rice varieties and experimental lines to flooded field leaf blast (LB), rotten neck blast (RNB), upland leaf blast, sheath blight (SB), bacterial panicle blight (BPB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2012. URN Group VI.

Rating Date	May-23-12	Jul-6-12	Jul-31-12	Jul-12-12	Aug-27-12	Sep-6-12
Rating Data Type	LB Flooded	RNB	LB Upland	SB	BPB	NBLS
Rating Unit	0-9	%	0-9	0-9	0-9	0-9
Trt No. Treatment Name	1	2	3	4	5	6
121 RU0401084/IRAT 13//STG03F5-04-062	2.0 b-f	2.5 ef	3.0 c-i	4.5 de	4.5 c-g	0.0 f
122 248CO13E-1	0.5 ef	20.0 c-f	0.0 i	8.0 a	3.0 fg	2.5 b-f
123 CPRS/CCDR	1.0 def	7.5 def	0.0 i	6.5 a-d	4.5 c-g	4.0 a-d
124 M206/STG03AC-25-109//RU0401127	4.5 abc	0.0 f	6.0 abc	4.0 e	8.0 a	0.0 f
125 CCDR/JEFF/3/9502008//AR1142/MBLE	0.5 ef	7.5 def	0.5 hi	5.5 b-e	6.0 a-e	5.0 abc
126 MILL/JSMN	4.0 a-d	70.0 a	5.0 a-e	6.5 a-d	7.0 abc	1.0 def
127 TMPL/ RU0401164	1.5 c-f	0.0 f	2.0 e-i	5.5 b-e	4.0 d-g	3.5 a-e
128 9502008//AR1188/CCDR/3/CCDR	1.5 c-f	15.0 c-f	0.5 hi	7.5 ab	4.5 c-g	3.5 a-e
129 CPRS/CCDR	1.0 def	0.0 f	2.0 e-i	6.0 a-e	5.0 b-g	3.0 a-f
130 STG05IMI-01-021/TMPL	1.5 c-f	5.0 ef	1.0 ghi	6.5 a-d	4.5 c-g	0.0 f
131 CCDR/AC919	0.0 f	30.0 c-f	1.0 ghi	7.5 ab	6.0 a-e	4.0 a-d
132 CPRS/9901081	0.0 f	7.5 def	2.5 d-i	8.0 a	4.5 c-g	4.5 abc
133 STG05-IMI-02-055/CL142-AR	4.5 abc	30.0 c-f	4.5 a-f	5.5 b-e	5.5 a-f	1.0 def
134 CCDR//CCDR/JEFF	1.5 c-f	20.0 c-f	2.0 e-i	7.0 abc	6.0 a-e	4.5 abc
135 CPRS/CCDR	4.5 abc	45.0 bc	6.0 abc	7.0 abc	5.5 a-f	3.0 a-f
136 RU0301041/STG01L-37-069	4.0 a-d	20.0 c-f	6.0 abc	5.5 b-e	2.5 g	0.0 f
137 9502008-A//AR1188/CCDR/3/CCDR/JEFF	3.0 a-f	40.0 bcd	1.5 f-i	8.0 a	7.0 abc	4.5 abc
138 CCDR/L202	4.5 abc	75.0 a	7.0 a	7.0 abc	6.5 a-d	6.0 a
139 STG03L-50-045/RU0401164	0.5 ef	0.0 f	1.0 ghi	4.5 de	3.5 efg	0.0 f
140 DLMT/5/DLMT 8462…/4/DMSI	3.5 a-e	5.0 ef	3.0 c-i	7.5 ab	6.5 a-d	0.0 f
141 CPRS/CCDR	3.5 a-e	2.5 ef	1.5 f-i	6.5 a-d	5.0 b-g	2.0 c-f
142 KBNT/Q36194	4.5 abc	60.0 ab	4.0 a-g	5.5 b-e	6.0 a-e	1.0 def
143 FRANCIS/CLR 13//9502008-A/DREW	5.0 ab	35.0 b-e	5.5 a-d	8.0 a	7.0 abc	4.5 abc
144 CCDR/L202	0.0 f	25.0 c-f	2.0 e-i	7.5 ab	5.0 b-g	5.5 ab
145 STG03L-22-134/STG03L-60-070	0.0 f	0.0 f	2.5 d-i	7.0 abc	4.5 c-g	0.5 ef
146 JZM2//07PY824/08CLR003	5.0 ab	45.0 bc	5.0 a-e	8.0 a	7.0 abc	5.0 abc
147 FRAN/WELLS	5.5 a	10.0 def	5.0 a-e	6.5 a-d	3.0 fg	0.5 ef
148 TMPL/ RU0401164	4.5 abc	25.0 c-f	5.5 a-d	5.0 cde	4.5 c-g	1.0 def
149 FRANCIS/CLR 13/3/9502008-A/DREW//CFX 26/WELLS	4.5 abc	35.0 b-e	3.5 b-h	7.0 abc	8.0 a	5.0 abc
150 (JEFF//JEFF/O. RUFIPOGON)43_1-2	1.0 def	12.5 c-f	0.5 hi	8.0 a	3.5 efg	0.0 f
151 STG05-IMI-02-055/CL142-AR	4.5 abc	2.5 ef	3.5 b-h	5.0 cde	3.0 fg	0.0 f
152 FRANCIS/CLR 13/3/9502008-A/TACAURI//CFX-18	5.0 ab	40.0 bcd	6.5 ab	7.0 abc	6.0 a-e	3.5 a-e
153 CPRS/CCDR	4.5 abc	20.0 c-f	4.5 a-f	8.0 a	5.0 b-g	3.0 a-f
154 CPRS//NWBT/KATY	0.0 f	2.5 ef	3.5 b-h	8.0 a	5.0 b-g	5.0 abc
155 FRANCIS/CLR 13//CCDR	0.0 f	22.5 c-f	1.0 ghi	8.0 a	7.5 ab	5.0 abc
156 CFX-18(CL 161)/0004054	4.0 a-d	2.5 ef	4.5 a-f	7.0 abc	4.5 c-g	2.5 b-f
157 DXBL//A301/RSMT	4.0 a-d	20.0 c-f	6.5 ab	7.0 abc	4.5 c-g	3.0 a-f
158 DELLA-2	1.0 def	2.5 ef	1.5 f-i	7.0 abc	4.5 c-g	3.5 a-e

Continued.

Table 8. Continued.

Rating Date	May-23-12	Jul-6-12	Jul-31-12	Jul-12-12	Aug-27-12	Sep-6-12
Rating Data Type	LB Flooded	RNB	LB Upland	SB	BPB	NBLS
Rating Unit	0-9	%	0-9	0-9	0-9	0-9
Trt Treatment No. Name	1	2	3	4	5	6
159 ANTONIO	0.0 f	15.0 c-f	1.5 f-i	7.5 ab	5.5 a-f	4.5 abc
160 TEMPLETON	0.0 f	0.0 f	0.0 i	6.0 a-e	4.0 d-g	1.0 def
LSD (P=.05)	1.82	18.03	1.80	1.19	1.55	1.74
Standard Deviation	0.90	8.92	0.89	0.59	0.77	0.86
CV	35.76	45.9	29.06	8.79	14.77	32.51
Replicate F	0.015	4.809	0.773	2.928	1.044	0.067
Replicate Prob(F)	0.9016	0.0343	0.3846	0.0950	0.3133	0.7966
Treatment F	9.543	9.812	11.370	7.465	6.671	10.404
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Table 9. Disease reaction of various rice varieties and experimental lines to flooded field leaf blast (LB), rotten neck blast (RNB), upland leaf blast, sheath blight (SB), bacterial panicle blight (BPB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2012. URN Group VII.

Rating Date	5/23/2012		7/6/2012		7/31/2012		7/12/2012		8/27/2012		9/6/2012	
Rating Data Type	LB Flooded		RNB		LB Upland		SB		BPB		NBLS	
Rating Unit	0-9		%		0-9		0-9		0-9		0-9	
Trt Treatment No. Name	1		2		3		4		5		6	
161 LGRU//IRGA409/…	3.5	bc	15	cde	1.5	ghi	8	ab	5.5	a-d	0	g
162 CCDR/9502008-A/..	5	bc	60	a	4.5	c-g	8	ab	8.5	a	4.5	abc
163 SABR/CCDR	0	d	0	e	3	d-i	7.5	abc	4	b-f	4	a-d
164 TWO LINE HYBRID, …	0	d	0	e	0	i	4	e	5	b-e	0	g
165 CCDR/JEFF//…	0	d	12.5	de	2.5	e-i	7.5	abc	7	ab	4	a-d
166 CPRS/NWBT//…	0	d	7.5	de	5	c-f	6.5	a-d	4.5	b-f	3.5	a-e
167 TWO LINE HYBRID, …	0	d	0	e	0	I	5.5	b-e	5.5	a-d	0	g
168 NEPTUNE//…	3.5	bc	0	e	5	c-f	6	a-e	4.5	b-f	0	g
169 SABR/CCDR	0.5	d	0	e	2.5	e-i	7	a-d	4	b-f	0	g
170 TWO LINE HYBRID…	0	d	0	e	2	f-i	4.5	de	5.5	a-d	0.5	fg
171 CPRS/KBNT//…	4.5	bc	40	bc	5.5	b-e	8	ab	5.5	a-d	0	g
172 (MARS/CM101)…	7	a	15	cde	8.5	a	7.5	abc	4	b-f	0	g
173 TWO LINE HYBRID, …	0	d	0	e	1.5	ghi	5.5	b-e	5.5	a-d	0	g
174 CCDR/JEFF//CPRS	5	bc	25	cde	6	bcd	8	ab	5.5	a-d	0	g
175 CCDR/L202	1	d	27.5	cd	2.5	e-i	7	a-d	5.5	a-d	2.5	b-g
176 TWO LINE HYBRID, …	0	d	0	e	0	i	5.5	b-e	7	ab	0	g
177 CHNR/3/NWBT/…	5	bc	20	cde	4	c-h	7	a-d	5.5	a-d	4.5	abc
178 (MARS/CM101)/…	7	a	0	e	8	ab	7	a-d	4.5	b-f	1	efg
179 THREE-LINE HYBRID, …	0.5	d	0	e	0.5	i	4.5	de	2	ef	0.5	fg
180 LGRU//CCDR/…	4.5	bc	20	cde	5.5	b-e	7	a-d	1.5	f	1	efg
181 CPRS/CCDR	5	bc	25	cde	5	c-f	8	ab	3	def	3.5	a-e
182 THREE-LINE HYBRID, …	1	d	0	e	1.5	ghi	4	e	2.5	def	0	g

Continued.

Table 9. Continued.

Rating Date		5/23/2012		7/6/2012		7/31/2012		7/12/2012		8/27/2012		9/6/2012	
Rating Data Type		LB Flooded		RNB		LB Upland		SB		BPB		NBLS	
Rating Unit		0-9		%		0-9		0-9		0-9		0-9	
Trt No.	Treatment Name	1		2		3		4		5		6	
183	CHENIERE//CCDR/JEFF	3.5	bc	25	cde	2.5	e-i	7.5	abc	4	b-f	5	ab
184	CPRS/NWBT//KATY/…	4	bc	30	bcd	4.5	c-g	7.5	abc	3.5	c-f	4	a-d
185	STG03L-16-028/…	1.5	d	7.5	de	2	f-i	5	cde	2.5	def	1	efg
186	DXBL//A301/RSMT	4	bc	65	a	4.5	c-g	7.5	abc	5	b-e	2	c-g
187	Carolina Gold/IR64//…	3	c	0	e	4	c-h	6	a-e	4.5	b-f	0.5	fg
188	THREE-LINE HYBRID, …	0	d	5	de	1.5	ghi	5.5	b-e	6.5	abc	0	g
189	CHENIERE//CCDR/JEFF	4.5	bc	10	de	4.5	c-g	5.5	b-e	5	b-e	4	a-d
190	CPRS/NWBT//KATY…	0	d	25	cde	1.5	ghi	8	ab	4	b-f	3	a-f
191	CL151/JSMN85	5	bc	50	ab	4.5	c-g	8	ab	7	ab	5.5	a
192	CPRS/KBNT//9502008-A…	4	bc	40	bc	4.5	c-g	8.5	a	5.5	a-d	4	a-d
193	CFX-18(CL161)/RSMT/…	5	bc	30	bcd	5.5	b-e	8	ab	4	b-f	0	g
194	CFX-18(CL161)/RSMT/…	4.5	bc	20	cde	4.5	c-g	8	ab	4.5	b-f	1.5	d-g
195	DREW/CFX-18//…	5	bc	30	bcd	5	c-f	7	a-d	3.5	c-f	4.5	abc
196	LMNT//TBNT/…	5	bc	50	ab	6.5	abc	8.5	a	4.5	b-f	2.5	b-g
197	RSMT//8203035/…	0	d	25	cde	1.5	ghi	7.5	abc	5	b-e	5	ab
198	RSMT/KATY	5.5	b	65	a	5.5	b-e	7.5	abc	8.5	a	2	c-g
199	RONDO	0	d	0	e	1	hi	4.5	de	3	def	0	g
200	CL152	5	bc	25	cde	4.5	c-g	7	a-d	4.5	b-f	3	a-f
LSD (P=.05)		1.1		14.06		1.71		1.41		1.75		1.5	
Standard Deviation		0.54		6.96		0.85		0.7		0.87		0.74	
CV		19.3		36.15		23.74		10.29		18.12		38.62	
Replicate F		0.042		0.232		0.857		1.265		1.068		0.814	
Replicate Prob(F)		0.8379		0.6325		0.3604		0.2676		0.3077		0.3724	
Treatment F		37.666		15.542		12.808		7.147		6.368		13.158	
Treatment Prob(F)		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).

2012 AY, CLPY, PY, and SP Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: Various, 100 lb/A

Plot Size: 1 row x 6 ft

Planting Method/Date: Drill seeded, Mar 19

Fertilization: Preplant 0-60-60, Oct 3; Preflood 92-0-0, Apr 18; Topdress 46-0-0, May 23

Experimental Design: Randomized complete block design with two to four replications

Water Management: Flushed, Mar 29; Flooded, Apr 19; Drained, July 9

Herbicides: Propanil 4 qt/A, Apr 9; Tank-Mix RiceBeaux 3 qt/A and Prowl EC 2.4 pt/A, Apr 18

Insecticides: Dermacor seed treatment

Fungicides: None

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 22

Application Equipment: N/A

Application Dates: N/A

Disease Ratings: See Table 2.

Drained: July 9

Harvest: N/A

Results: Not shown. See breeding results.

Comments: Sheath blight and blast severities were very high; other diseases were moderate in severity. Key: LB Flooded is leaf blast under flooded conditions, RNB is rotten neck blast under flooded conditions, LB Upland is leaf blast under unflooded conditions, SB is sheath blight, BPB is bacterial panicle blight, and NBLS is narrow brown leaf spot.

2012 Jefferson Davis Variety by Fungicide Trial

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

Soil Type: Crowley silt loam

Variety/Seed Rate: CL152 and CL161, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, Mar 8

Fertilization: Preplant 20-60-60, Mar 8; Preflood 126-0-0, Apr 20

Experimental Design: Randomized complete block design with four replications.

Water Management: Flooded, April 21; Drained, July 9

Herbicides: Tank-Mix Stam 4 qt/A + Permit 1 oz/A, Mar 30; RiceStar HT 24 oz/A, Apr 20; Tank-Mix Basagran 12 oz/A + Crop Oil 2 oz/A, May 17

Insecticides: Dermacor seed treatment

Fungicides: Various (Quadris, Quilt Xcel, Tilt, Stratego, Sercadis, and untreated check)

Inoculation Dates: All natural inoculums

Application Equipment: CO_2 backpack sprayer, 3 tip (TJ8002) hand wand, 20 gal/A

Application Dates:

	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 11	Boot	10:30	85 F	8 mph	76%	70%	Light
June 19	Heading	12:00	86 F	9 mph	74%	80%	None

Disease Ratings: July 16

Drained: July 9

Harvest: July 27

Results: See Table 10

Comments: Sheath blight was moderate in severity, and there was some late blast that was not rated.

Table 10. Effect of varietal resistance and fungicide application on sheath blight development and rice yield and milling. Jimmy Hoppe Farm, Fenton, LA. 2012.

Description					SB		SB		Yield		Head		Total	
Rating Date					7/16/2012		7/16/2012		7/20/2012		9/24/2012		9/24/2012	
Rating Unit					0-9		%		lb/A		%		%	
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage										
1	CL161				7	a	68.8	ab	9635	a-d	62	ab	69.2	a
	Unsprayed													
2	CL161				4.3	ef	26.3	c	10059	ab	63	ab	69.4	a
	Quilt Xcel	21	fl oz/A	B										
3	CL161				5	def	37.5	c	9831	abc	61.9	ab	69.9	a
	Sercadis	4.5	fl oz/A	B										
4	CL161				4.5	ef	32.5	c	9867	abc	63	ab	69.9	a
	Sercadis	4.5	fl oz/A	B & H										
5	CL161				4.3	ef	25	c	9996	ab	63.1	ab	69.6	a
	Quadris	12	fl oz/A	B										
6	CL161				5.5	cde	42.5	bc	10296	a	64.6	a	71.1	a
	Stratego	19	fl oz/A	B										
7	CL161				6.3	abc	66.3	ab	9903	ab	61.9	ab	69.1	a
	Tilt	10	fl oz/A	B										
8	CL161				3.8	f	31.3	c	10058	ab	63	ab	69.9	a
	Quadris	12	fl oz/A	B & H										
9	CL152				7	a	73.8	a	8421	f	61.3	ab	69.5	a
	Unsprayed													
10	CL152				3.8	f	23.8	c	9703	a-d	63	ab	70.4	a
	Quilt Xcel	21	fl oz/A	B										
11	CL152				5.8	bcd	47.5	bc	8761	ef	58.4	b	68.2	a
	Sercadis	4.5	fl oz/A	B										
12	CL152				4.3	ef	38.8	c	9052	de	61.3	ab	69.8	a
	Sercadis	4.5	fl oz/A	B & H										
13	CL152				4.3	ef	33.8	c	9113	cde	63.6	a	70.8	a
	Quadris	12	fl oz/A	B										
14	CL152				5.5	cde	46.3	bc	9453	bcd	63.9	a	71.3	a
	Stratego	19	fl oz/A	B										
15	CL152				6.8	ab	68.8	ab	9383	b-e	63	ab	70.1	a
	Tilt	10	fl oz/A	B										
16	CL152				4	f	28.8	c	9495	a-d	63.9	a	70.9	a
	Quadris	12	fl oz/A	B & H										
LSD (P=.05)					0.85		18.39		487.1		2.72		2.32	
Standard Deviation					0.6		12.87		340.8		1.27		1.09	
CV					11.65		29.79		3.56		2.04		1.55	
Replicate F					11.092		10.274		2.026		6.316		1.571	
Replicate Prob(F)					0.0001		0.0001		0.1238		0.0239		0.2292	
Treatment F					15.135		7.09		9.138		2.589		1.095	
Treatment Prob(F)					0.0001		0.0001		0.0001		0.0376		0.4316	

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

2012 Sheath Blight Trial (Off-Station)

Location: Kim Frey Farm, Mowata, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: ~60 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, Mar 15

Fertilization: Unknown

Experimental Design: Randomized complete block design with four replications.

Water Management: Unknown

Herbicides: Unknown

Insecticides: Unknown

Fungicides: Various

Inoculation Dates: Uninoculated natural infestation

Application Equipment: CO_2 backpack sprayer, 3 tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 1	Mid Boot	09:30	78 F	10 mph	56%	25%	Slight
June 11	Heading	12:30	89 F	8 mph	71%	50%	None

Stand Ratings/Date: Sheath blight severity and incidence, July 6

Drained: July 1

Harvest: July 19

Results: See Table 11

Comments: Sheath blight severity was very high, other diseases were very low. All treatments reduced sheath blight severity and incidence except the Quilt, which had little or no activity against the strobilurin-resistant *Rhizoctonia* in this field. Higher rates of Sercadis or two applications controlled sheath blight better. Yields were more erratic due to trial in a commercial rice field.

Table 11. Effect of varietal resistance and fungicide application on sheath blight development and rice yield and milling with the strobilurin-resistant *Rhizoctonia solani* population. Kim Frey Farm, Mowata LA. 2012.

Description				SB	SB	Yield	Head	Total
Rating Date				Jul-6-12	Jul-6-12	Jul-20-12	Sep-21-12	Sep-21-12
Rating Unit				0-9	%	lb/A	%	%
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage				
1	Untreated Check				7.5 a	90 a	5269 b	57.297 bc	69.507 a
2	BASF 70004F	4.56	fl oz/A	B	5.0 c	33 c	7089 ab	59.433 abc	69.560 a
3	BASF 70004F	6.85	fl oz/A	B	4.3 cd	21 c	7572 a	61.333 a	69.260 a
4	BASF 70004F	4.56	fl oz/A	B	4.8 c	26 c	6549 ab	59.190 abc	69.773 a
	Caramba	7.6	fl oz/A	B					
5	BASF 70004F	4.56	fl oz/A	B	4.5 cd	25 c	7649 a	61.373 a	69.327 a
	Tilt	6	fl oz/A	B					
6	Quilt Xcel	21	fl oz/A	B	6.3 b	66 b	6264 ab	60.200 ab	69.497 a
7	Untreated Check				7.0 ab	85 a	6495 ab	59.047 abc	69.447 a
8	BASF 70004F	4.56	fl oz/A	B	3.8 d	13 c	6968 ab	61.200 a	69.097 a
	BASF 70004F	4.56	fl oz/A	H					
9	Rovral	16	fl oz/A	B	6.3 b	64 b	6120 ab	56.393 c	68.933 a
LSD (P=.05)					0.72	15.9	1226.1	2.1608	1.1087
Standard Deviation					0.50	10.9	840.1	1.2483	0.6405
CV					9.05	23.25	12.61	2.1	0.92
Replicate F					5.245	9.699	2.723	5.039	12.471
Replicate Prob(F)					0.0063	0.0002	0.0667	0.0201	0.0005
Treatment F					28.132	29.457	3.196	6.032	0.480
Treatment Prob(F)					0.0001	0.0001	0.0129	0.0012	0.8525

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

2012 Variety by Fungicide Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL152 and CL161, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, Mar 19

Fertilization: Preplant 0-60-60, Oct 3; Preflood 92-0-0, Apr 18; Topdress 46-0-0, May 23

Experimental Design: Randomized complete block design with four replications.

Water Management: Flushed, Mar 29; Flooded, Apr 19; Drained, July 9

Herbicides: Propanil 4 qt/A, Apr 9; Tank-Mix RiceBeaux 3 qt/A and Prowl EC 2.4 pt/A, Apr 18

Insecticides: Dermacor seed treatment

Fungicides: Various (Sercadis, Stratego, Tilt, Quadris, Quilt Xcel, and untreated check)

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 18

Application Equipment: CO_2 backpack sprayer, 3 tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 7	Boot	13:30	93 F	5 mph	64%	50%	None
June 15	Heading	13:30	87 F	2 mph	68%	75%	None

Disease Ratings: July 17

Drained: July 9

Harvest: July 24

Results: See Table 12

Comments: Sheath blight severity was high; blast disease was very high on CL151 and CL161.

Table 12. Effect of varietal resistance and fungicide application on sheath blight and blast development and rice yield and milling. Rice Research Station, Rayne, LA. 2012.

Description					SB		SB		NB		Yield		Head		Total	
Rating Date					7/13/2012		7/13/2012		7/13/2012		7/24/2012		10/12/2012		10/12/2012	
Rating Unit					0-9		%		%		lb/A		%		%	
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage												
1	CL161 Unsprayed				7.5	ab	95	a	16.3	f	4317	de	51.228	bcd	65.2	abc
2	CL161 Quilt Xcel	21	fl oz/A	B	4.8	ghi	43.8	de	12.5	f	6412	bcd	56.515	ab	67.3	ab
3	CL161 Sercadis	4.5	fl oz/A	B	6.3	c-f	81.3	ab	13.8	f	4475	cde	52.588	a-d	65.9	abc
4	CL161 Sercadis	4.5	fl oz/A	B & H	4.3	hi	28.8	e	15	f	6613	abc	54.973	abc	66.0	abc
5	CL161 Quadris	12	fl oz/A	B	5.3	fgh	42.5	de	6.3	fg	6862	ab	56.723	ab	67.0	abc
6	CL161 Stratego	19	fl oz/A	B	6.8	a-d	60	cd	13.8	f	5227	b-e	54.103	a-d	66.8	abc
7	CL161 Tilt	10	fl oz/A	B	7.5	ab	96.3	a	17.5	f	5616	b-e	54.833	abc	66.5	abc
8	CL161 Quadris	12	fl oz/A	B & H	4	i	26.3	e	1	g	8318	a	58.675	a	68.4	a
9	CL152 Unsprayed				7.3	abc	95	a	63.8	a	4064	e	53.043	a-d	66.1	abc
10	CL152 Quilt Xcel	21	fl oz/A	B	5.3	fgh	56.3	cd	45	de	5476	b-e	51.095	bcd	64.41	bc
11	CL152 Sercadis	4.5	fl oz/A	B	7.3	abc	90	ab	60	ab	3420	e	49.8	bcd	64.5	bc
12	CL152 Sercadis	4.5	fl oz/A	B & H	5.5	efg	51.3	cd	51.3	bcd	4527	cde	48.02	cd	63.4	c
13	CL152 Quadris	12	fl oz/A	B	5.8	d-g	52.5	cd	47.5	cde	4622	cde	49.823	bcd	64.6	bc
14	CL152 Stratego	19	fl oz/A	B	6.5	b-e	71.3	bc	38.8	e	5497	b-e	48.34	cd	64.2	bc
15	CL152 Tilt	10	fl oz/A	B	7.8	a	97.5	a	57.5	abc	3678	e	47.083	d	64.2	bc
16	CL152 Quadris	12	fl oz/A	B & H	4	i	25	e	7.5	fg	6844	ab	53.945	a-d	66.4	abc
LSD (P=.05)					0.76		16.6		8.4		1329		4.4		2.11	
Standard Deviation					0.53		11.66		5.88		930		3.1262		1.48	
CV					8.9		18.42		20.13		17.31		5.95		2.25	
Replicate F					0.961		0.632		1.458		0.507		0.213		2.223	
Replicate Prob(F)					0.4196		0.5981		0.2386		0.6792		0.8866		0.0989	
Treatment F					24.222		20.664		55.255		8.44		4.729		3.469	
Treatment Prob(F)					0.0001		0.0001		0.0001		0.0001		0.0001		0.0007	

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

2012 Variety by Fungicide Trial Yield Loss

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL151, CL152, Caffey, Catahoula, and Mermentau, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, Mar 19

Fertilization: Preplant 0-60-60, Oct 3; Preflood 92-0-0, Apr 18; Topdress 46-0-0, May 23

Experimental Design: Randomized complete block design with four replications.

Water Management: Flushed, Mar 29; Flooded, Apr 19; Drained, July 9

Herbicides: Propanil 4 qt/A, Apr 9; Tank-Mix RiceBeaux 3 qt/A and Prowl EC 2.4 pt/A, Apr 18

Insecticides: Dermacor seed treatment

Fungicides: Various (Sercadis, Quadris, and untreated check)

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 22

Application Equipment: CO_2 backpack sprayer, 3 tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 7	Boot	10:00	84 F	2 mph	81%	60%	Light

Disease Ratings: July 17

Drained: July 9

Harvest: July 27

Results: See Table 13

Comments: Sheath blight and blast severity was very high.

Table 13. Effect of varietal resistance and fungicide application on sheath blight and blast development and rice yield and milling. Rice Research Station, Rayne, LA. 2012.

Description					SB		SB		RNB		Yield		Head	
Rating Date					7/17/2012		7/17/2012		7/17/2012		7/27/2012		10/4/2012	
Rating Unit					0-9		%		%		lb/A		%	
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage										
1	CL151 Uninoculated				4.2	gh	11	d	90	a	4320	f	48	de
2	CL151 Unsprayed				7.2	abc	94	a	90	a	4232	f	45.8	e
3	CL151 Sercadis	4.5	fl oz/A	B	6	b-e	49	bc	90	a	4329	f	46	e
4	CL151 Quadris	12	fl oz/A	B	4.4	fgh	27	cd	88	a	5975	e	50.3	b-e
5	CL152 Uninoculated				5.8	c-f	49	bc	56	b	4807	f	49.5	cde
6	CL152 Unsprayed				8	a	98	a	54	b	4470	f	47.9	de
7	CL152 Sercadis	4.5	fl oz/A	B	7.4	ab	86	a	48	b	4705	f	48.5	cde
8	CL152 Quadris	12	fl oz/A	B	4.6	e-h	33	bcd	54	b	5680	e	50.8	b-e
9	Mermantau Uninoculated				4	gh	20	cd	3.4	c	8665	bcd	55.1	a-e
10	Mermantau Unsprayed				6.8	abc	61	b	4.2	c	7833	d	55.9	a-e
11	Mermantau Sercadis	4.5	fl oz/A	B	6	b-e	47	bc	4.2	c	7963	cd	54.1	a-e
12	Mermantau Quadris	12	fl oz/A	B	4.8	d-h	36	bcd	4	c	9025	abc	56.9	a-d
13	Caffey Uninoculated				3.8	gh	15.4	d	4.2	c	8687	bcd	59.5	ab
14	Caffey Unsprayed				5.2	d-g	38	bcd	4.2	c	9020	abc	60.1	ab
15	Caffey Sercadis	4.5	fl oz/A	B	4	gh	22	cd	5.2	c	8826	bcd	59.7	ab
16	Caffey Quadris	12	fl oz/A	B	3.4	h	16.4	d	2.6	c	9564	ab	62.1	a
17	Catahoula Uninoculated				4.2	gh	18	d	0	c	10069	a	58.2	abc
18	Catahoula Unsprayed				7.4	ab	92	a	1	c	8440	bcd	50.4	b-e
19	Catahoula Sercadis	4.5	fl oz/A	B	6.2	bcd	56	b	0	c	9023	abc	50.7	b-e
20	Catahoula Quadris	12	fl oz/A	B	5.2	d-g	37	bcd	0.2	c	9574	ab	55.6	a-e
LSD (P=.05)					0.97		17.86		10.14		717.3		5.79	
Standard Deviation					0.77		14.12		8.02		567.1		4.09	
CV					14.13		31.18		26.58		7.81		7.69	
Replicate F					0.535		1.344		2.338		4.274		1.736	
Replicate Prob(F)					0.7103		0.2613		0.0628		0.0036		0.1699	
Treatment F					16.496		19.666		103.458		71.56		6.159	
Treatment Prob(F)					0.0001		0.0001		0.0001		0.0001		0.0001	

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

2012 Sheath Blight Fungicide Trial (SB1)

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: Cocodrie, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, Mar 19

Fertilization: Preplant 0-60-60, Oct 3; Preflood 92-0-0, Apr 18; Topdress 46-0-0, May 23

Experimental Design: Randomized complete block design with four replications.

Water Management: Flushed, Mar 29; Flooded, Apr 19; Drained, July 9

Herbicides: Propanil 4 qt/A, Apr 9; Tank-Mix RiceBeaux 3 qt/A and Prowl EC 2.4 pt/A, Apr 18

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 22

Application Equipment: CO_2 backpack sprayer, 3-tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 9	Boot	08:30	80 F	1 mph	95%	100%	Heavy
June 18	Heading	13:00	86 F	7 mph	76%	70%	None

Disease Ratings: July 16

Drained: July 9

Harvest: July 27

Results: See Table 14

Comments: Sheath blight severity was very high.

Table 14. Effect of fungicide application on sheath blight and blast development and rice yield and milling. Rice Research Station, Rayne, LA. 2012

Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage	SB 7/16/2012 0-9		SB %		RNB 7/16/2012		Yield 7/30/2012 lb/A		Head 9/27/2012		Total 9/27/2012	
1	Unsprayed				8	a	98.8	a	12.5	a	6962	def	57.2	a	69	a
2	Rovral	16	fl oz/A	B	7	abc	68.8	bcd	11.3	ab	7935	a-e	57.2	a	68.7	a
3	Rovral	16	fl oz/A	B	6.3	cd	53.8	d	10	ab	8321	abc	56	a	68.9	a
	Tilt	6	fl oz/A	B												
4	Rovral	16	fl oz/A	B	7.3	abc	72.5	bc	10	ab	7885	a-e	56.5	a	68.5	a
	Regalia Maxx	4	fl oz/A	B												
5	Regalia Maxx	4	fl oz/A	B	8	a	92.5	a	12.5	a	7100	def	57.3	a	69.4	a
6	Regalia Maxx	8	fl oz/A	B	7.5	ab	85	ab	12.5	a	7432	b-f	56.6	a	68.9	a
7	Regalia Maxx	4	fl oz/A	B	6.3	cd	62.5	cd	10	ab	8148	a-d	55.1	a	68.6	a
	Tilt	6	fl oz/A	B												
8	Regalia Maxx	8	fl oz/A	B	6.8	bc	70	bcd	11.3	ab	8124	a-d	55.6	a	68.3	a
	Tilt	6	fl oz/A	B												
9	Tilt	6	fl oz/A	B	7	abc	81.3	ab	10	ab	7746	a-f	55.3	a	68.5	a
10	Quilt Xcel	21	fl oz/A	B	4.5	fg	30	ef	7.5	ab	8642	ab	55.8	a	67.9	a
11	MBI-10620	32	fl oz/A	B	7.8	ab	87.5	ab	11.3	ab	6908	ef	53.1	a	67.5	a
12	MBI-10620	16	fl oz/A	B	7.5	ab	85	ab	11.3	ab	6653	f	57	a	69.1	a
13	MBI-10620	8	fl oz/A	B	7.8	ab	88.8	ab	8.8	ab	7087	def	55.3	a	69.4	a
14	MBI-10620	8	fl oz/A	B	4.3	g	28.3	ef	6.3	b	8652	ab	58	a	69.5	a
	Quadris	9	fl oz/A	B												
15	MBI-10620	4	fl oz/A	B	4.5	fg	21.3	f	7.5	ab	8513	ab	54.9	a	68.2	a
	Quadris	9	fl oz/A	B												
16	Quadris	12	fl oz/A	B	4.8	efg	28.8	ef	7.5	ab	8529	ab	58.5	a	69.2	a
17	Proact	0.5	fl oz/A	B+H	7.3	abc	82.5	ab	10	ab	7299	c-f	55.3	a	68.4	a
18	Proact	0.5	fl oz/A	B+H	5.5	de	40.5	e	11.3	ab	8906	a	57.9	a	69.3	a
	Bumper	6	fl oz/A	B+H												
19	Bumper	6	fl oz/A	B+H	5.3	ef	36.8	ef	11.3	ab	8921	a	57.6	a	68.9	a
20	Unsprayed check				7.8	ab	93.3	a	9.5	ab	6813	ef	57.8	a	69.3	a
LSD (P=.05)					0.69		12.62		2.9		732.2		3.22		1.67	
Standard Deviation					0.49		8.92		2.05		517.8		2.28		1.18	
CV					7.5		13.65		20.33		6.61		4.04		1.71	
Replicate F					2.13		1.847		40.852		13.463		15.403		18.507	
Replicate Prob(F)					0.1064		0.1489		0.0001		0.0001		0.0001		0.0001	
Treatment F					27.706		33.215		3.122		8.353		1.385		0.816	
Treatment Prob(F)					0.0001		0.0001		0.0005		0.0001		0.1713		0.6801	

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

2012 Blast 1 Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: M202, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, May 21

Fertilization: Preplant 0-60-60, Oct 3; Preflood 193-0-0, June 19

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, May 23: Flooded, June 22; Drained, Sept. 5

Herbicides: Propanil 3 qt/A, May 30; Propanil 3 qt/A, June 6; Tank-Mix RiceBeaux 3 qt/A and Prowl EC 2.4 pt/A, June 18

Insecticides: Dermacor seed treatment

Fungicides: Various (Beam, Gem, Quadris, Quilt Excel, Stratego, and untreated check)

Inoculation Dates: NA

Application Equipment: CO_2 backpack sprayer, 3 tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
July 27	Boot	07:30	82 F	1 mph	87%	80%	Heavy
Aug 02	Heading	08:30	86 F	2 mph	85%	30%	Heavy

Disease Ratings: Aug 23

Drained: Sept. 5

Harvest: Sept. 14

Results: See Table 15

Comments: Leaf blast was very severe. Due to the risk of losing all plots, Gem @ 4.7 oz/A was applied on all plots.

Table 15. Effect of varietal resistance and fungicide application on blast development and rice yield and milling. Rice Research Station, Rayne, LA. 2012.

Crop Variety												
									Milling		Milling	
Description					RNB		Yield		Head		Total	
Rating Date					8/23/2012		9/17/2012		10/30/2012		10/30/2012	
Rating Unit					%		lb/A		%		%	
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage								
1	Untreated Check				63.8	a	2186	c	44.3	a	60.8	a
2	Stratego	19	fl oz/A	H	43.8	abc	2751	abc	44	a	61.4	a
3	Stratego	19	fl oz/A	B	18.3	e	3652	ab	59.8	a	64.8	a
	Stratego	19	fl oz/A	H								
4	Stratego	19	fl oz/A	H	42.3	a-d	2853	abc	50.6	a	64.1	a
	GEM	2	fl oz/A	H								
5	Quadris	12	fl oz/A	H	55.3	a	2365	bc	47	a	61.4	a
6	Quadris	12	fl oz/A	B	27.5	b-e	3445	abc	54.2	a	64.9	a
	Quadris	12	fl oz/A	H								
7	Beam	16	oz wt/A	H	47.5	ab	2883	abc	47.1	a	60.5	a
8	Beam	16	oz wt/A	B	19.3	de	3205	abc	56.4	a	65	a
	Beam	16	oz wt/A	H								
9	Quilt Excel	21	fl oz/A	H	42.8	a-d	3152	abc	44.1	a	61.2	a
10	Quilt Excel	21	fl oz/A	B	24.8	b-e	3457	abc	54	a	49.1	a
	Quilt Excel	21	fl oz/A	H								
11	Quilt Excel	21	fl oz/A	B	20.5	cde	3743	a	55.8	a	65.4	a
	Quadris	12	fl oz/A	H								
12	Beam	11	oz wt/A	H	42	a-d	2561	abc	44	a	58.4	a
13	GEM	4.7	fl oz/A	H	60	a	2528	abc	45	a	60.9	a
14	GEM	4.7	fl oz/A	B	24.8	b-e	3582	ab	42.1	a	60.5	a
	GEM	4.7	fl oz/A	H								
LSD (P=.05)					15.02		786.9		13.92		13.69	
Standard Deviation					10.51		550.6		6.45		6.34	
CV					27.64		18.2		13.11		10.33	
Replicate F					8.619		2.172		5.045		0.008	
Replicate Prob(F)					0.0002		0.1068		0.0427		0.9281	
Treatment F					8.732		3.407		1.628		0.852	
Treatment Prob(F)					0.0001		0.0015		0.1954		0.6111	

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

2012 Blast Management Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL152, CL261, Caffey, Catahoula, Cheniere, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded, May 21

Fertilization: Preplant 0-60-60, Oct 3; Preflood 193-0-0, June 19

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, May 23: Flooded June 22; Drained, Sept. 5

Herbicides: Propanil 3 qt/A, May 30; Propanil 3 qt/A, June 6; Tank-Mix RiceBeaux 3 qt/A and Prowl EC 2.4 pt/A, June 18

Insecticides: Dermacor seed treatment

Fungicides: Gem and untreated check

Inoculation Dates: NA

Application Equipment: CO_2 backpack sprayer, 3 tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
July 30	Boot	08:30	86 F	3 mph	79%	25%	Mod.
Aug 10	Heading	08:30	85 F	2 mph	85%	50%	Mod.

Disease Ratings: Aug 28

Drained: Sept. 5

Harvest: Sept. 13

Results: See Table 16

Comments: Blast was severe in the plot area.

Table 16. Effect of varietal resistance and fungicide application on sheath blight and blast development and rice yield and milling. Rice Research Station, Rayne, LA. 2012.

Description					RNB		Yield		Head		Total	
Rating Date					8/28/2012		9/14/2012		10/29/2012		10/29/2012	
Rating Unit					%		lb/A		%		%	
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage								
1	Catahoula Unsprayed				1.3	d	7446	ab	59	a	68.6	abc
2	Catahoula GEM	4.7	fl oz/A	H	2	d	8173	a	61.6	a	70.3	a
3	Catahoula GEM	4.7	fl oz/A	B & H	1	d	8058	a	61.4	a	69.7	ab
4	Caffey Unsprayed				5	d	7532	ab	62	a	68	abc
5	Caffey GEM	4.7	fl oz/A	H	1.8	d	8065	a	62.2	a	67.6	abc
6	Caffey GEM	4.7	fl oz/A	B & H	1.3	d	7869	a	63.5	a	68.6	abc
7	CL152 Unsprayed				16.5	c	5468	c	53.7	b	66.9	bc
8	CL152 GEM	4.7	fl oz/A	H	1.5	d	7098	ab	59.3	a	67.9	abc
9	CL152 GEM	4.7	fl oz/A	B & H	1.8	d	7269	ab	59.5	a	67.5	abc
10	Cheniere Unsprayed				6	d	6834	ab	58.5	a	67.8	abc
11	Cheniere GEM	4.7	fl oz/A	H	3	d	7669	a	60.4	a	69	abc
12	Cheniere GEM	4.7	fl oz/A	B & H	2.3	d	7428	ab	60.3	a	68.5	abc
13	CL261 Unsprayed				37	a	4397	d	59	a	66.4	c
14	CL261 GEM	4.7	fl oz/A	H	28.8	b	5488	c	62.6	a	68.3	abc
15	CL261 GEM	4.7	fl oz/A	B & H	11.3	cd	6285	bc	61.6	a	67.3	abc
LSD (P=.05)					7.02		842.6		3.61		1.81	
Standard Deviation					4.92		589.6		2.53		1.26	
CV					61.32		8.42		4.19		1.86	
Replicate F					0.034		3.132		0.143		0.276	
Replicate Prob(F)					0.9915		0.0357		0.9335		0.8421	
Treatment F					20.362		14.404		3.553		2.673	
Treatment Prob(F)					0.0001		0.0001		0.0008		0.0072	

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

GENETIC MAPPING AND BREEDING OF RICE TO IMPROVE RICE DISEASE RESISTANCE TO BACTERIAL PANICLE BLIGHT AND SHEATH BLIGHT

J.H. Ham, B.K. Shrestha, H.S. Karki, and D.E. Groth

Overview

The main goal of this program is to develop new disease-resistant rice varieties and breeding lines having high levels of disease resistance to bacterial panicle blight (BPB) and sheath blight (SB) based on better understanding of the genetic backgrounds determining resistance to these important rice diseases. Research activities to achieve this goal include:

1. To conduct genetic mapping of rice disease resistance traits against BPB and SB.

2. To generate new breeding lines showing high levels of disease resistance.

Jupiter (a medium-grain variety) and LM-1 (a mutant line derived from the long-grain and semidwarf variety Lemont) were used as the genetic sources of disease resistance traits because they have high levels of partial resistance to both BPB and SB.

Progress

<u>Genetic mapping of disease resistance</u>

For genetic mapping of the genes associated with the partial disease resistance to SB and BPB, Jupiter and LM-1 were crossed with Trenasse and Bengal, which are both highly susceptible to BPB and highly susceptible and moderately susceptible to SB, respectively. In the 2012 season, four mapping populations from LM-1/Trenasse, Jupiter/Trenasse, LM-1/Bengal, and Jupiter/Bengal crosses were grown in the field at the Rice Research Station. Each population was comprised of 300 F_5 recombinant inbred lines (RILs) derived from each cross. A total of 1,091 random simple sequence repeat (SSR) markers has been tested to screen enough numbers of polymorphic markers (~200) for each parental pair to perform a genetic linkage mapping. Among the four mapping populations developed, two mapping populations from Jupiter/Trenasse and LM-1/Bengal crosses were grown in two replications and individual RILs were examined for their phenotypes in disease resistance to BPB (Figures 1 and 3) and SB (Figures 2 and 4), as well as plant height, days to heading, and panicle length/shape. For genetic linkage mapping of these disease resistance and other agronomic traits, genotypes of individual RILs of the Jupiter/Trenasse mapping population have been characterized with SSR markers that are polymorphic between Jupiter and Trenasse. Genetic linkage mapping based on the genotypic and phenotypic traits of the RILs is underway using the mapping software MapMaker/QTL1.1. In addition, whole genomes of the four parental varieties/line (Jupiter, Trenasse, Bengal, and LM-1) were sequenced using a high-throughput sequencing technique to increase the quantity and quality of genetic mapping data in cost-efficient ways.

<u>Breeding disease-resistant lines</u>

For breeding new disease-resistant lines, 30 F_4 progenies descended from cross combinations between two resistant (Jupiter and LM-1) and three susceptible (Trenasse, Bengal, and Cocodrie) parents had been screened as disease-resistant lines through consecutive challenges of SB and BPB pathogens for three years until 2011. In 2012, F_5 progenies of the 30 resistant lines were grown as panicle rows in two replications to test disease resistance phenotypes for SB and BPB separately.

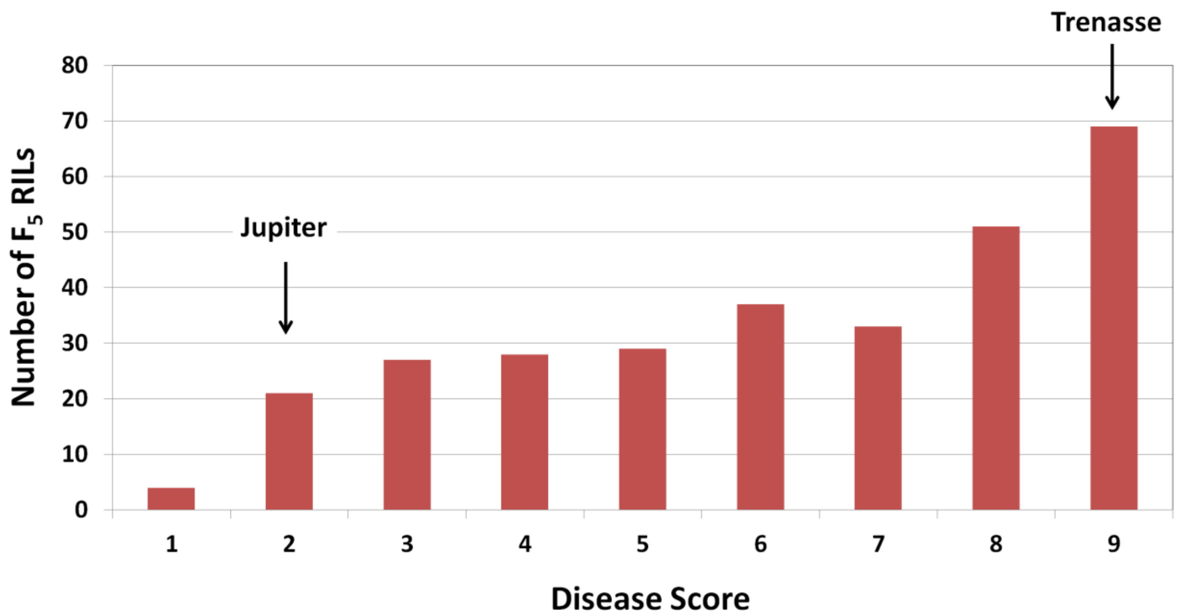


Figure 1. Distribution of the 300 F_5 recombinant inbred lines from the cross between Trenasse and Jupiter in disease resistance to bacterial panicle blight. Disease scores: 1 = less than 10% of panicle area is symptomatic, 2 = 10 – 20% is symptomatic, 3 = 21 – 30% is symptomatic, 4 = 31 – 40% is symptomatic, 5 = 41 – 50% is symptomatic, 6 = 51 - 60% is symptomatic, 7 = 61 – 70% is symptomatic, 8 = 71 – 80% is symptomatic, and 9 = more than 81% is symptomatic.

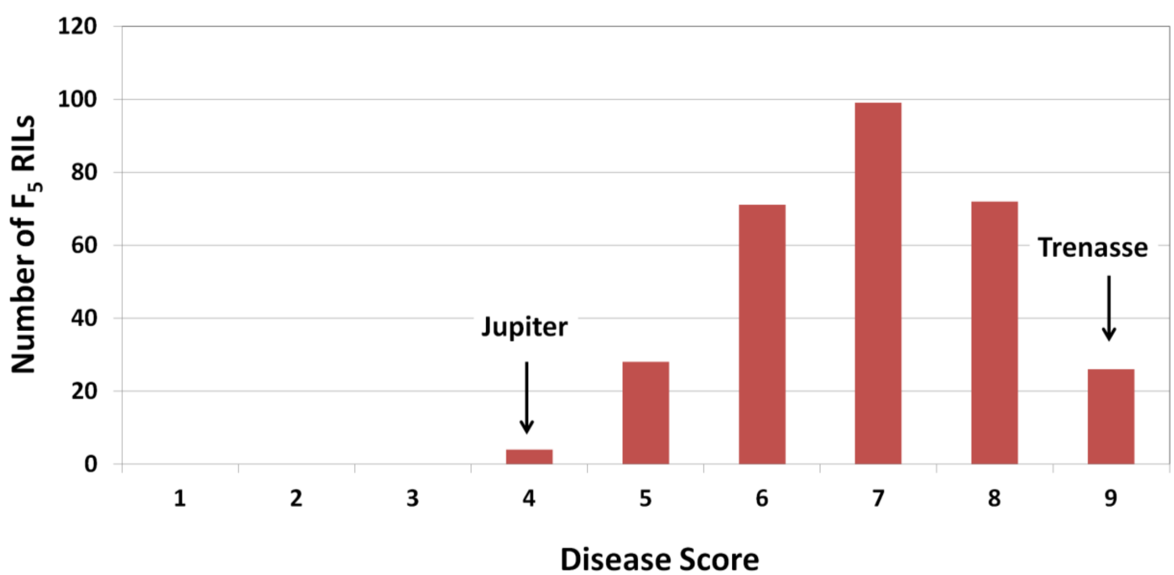


Figure 2. Distribution of the 300 F_5 recombinant inbred lines from the cross between Trenasse and Jupiter in disease resistance to sheath blight. Disease scores: 1 = less than 10% of sheath is symptomatic, 2 = 10 – 20% is symptomatic, 3 = 21 – 30% is symptomatic, 4 = 31 – 40% is symptomatic, 5 = 41 – 50% is symptomatic, 6 = 51 - 60% is symptomatic, 7 = 61 – 70% is symptomatic, 8 = 71 – 80% is symptomatic, and 9 = more than 81% is symptomatic.

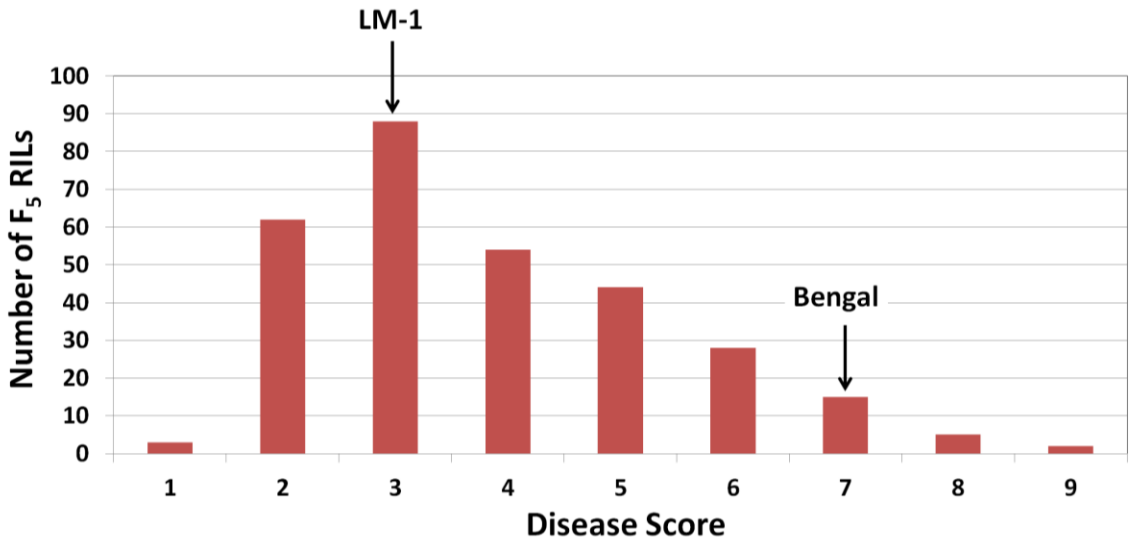


Figure 3. Distribution of the 300 F_5 recombinant inbred lines from the cross between Bengal and LM-1 in disease resistance to bacterial panicle blight. Disease scores: 1 = less than 10% of panicle area is symptomatic, 2 = 10 – 20% is symptomatic, 3 = 21 – 30% is symptomatic, 4 = 31 – 40% is symptomatic, 5 = 41 – 50% is symptomatic, 6 = 51 - 60% is symptomatic, 7 = 61 – 70% is symptomatic, 8 = 71 – 80% is symptomatic, and 9 = more than 81% is symptomatic.

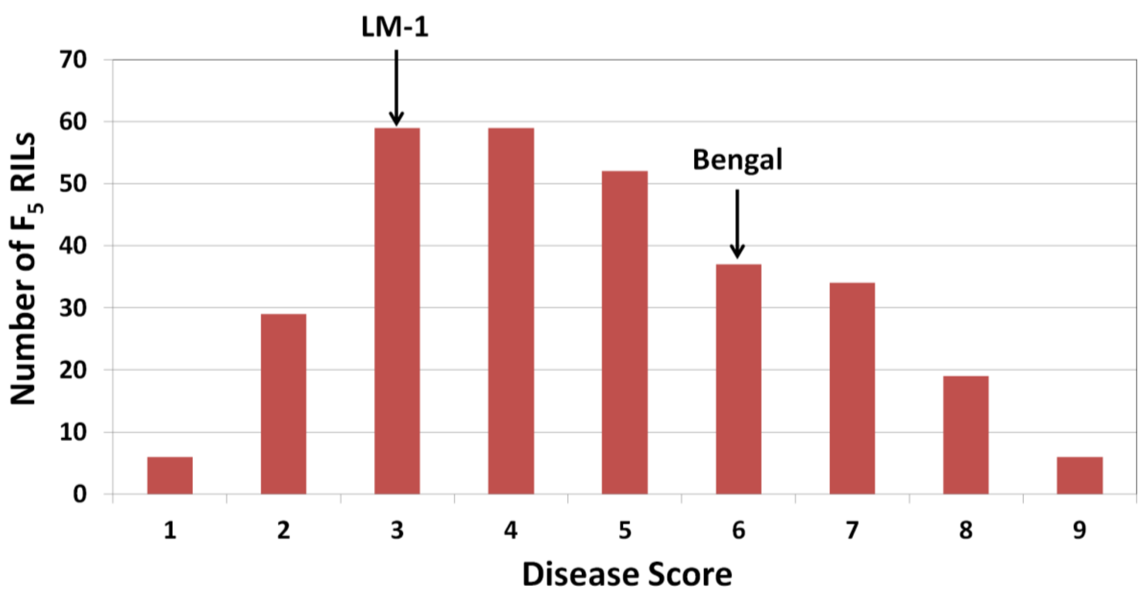


Figure 4. Distribution of the 300 F_5 recombinant inbred lines from the cross between Bengal and LM-1 in disease resistance to sheath blight. Disease scores: 1 = less than 10% of panicle area is symptomatic, 2 = 10 – 20% is symptomatic, 3 = 21 – 30% is symptomatic, 4 = 31 – 40% is symptomatic, 5 = 41 – 50% is symptomatic, 6 = 51 - 60% is symptomatic, 7 = 61 – 70% is symptomatic, 8 = 71 – 80% is symptomatic, and 9 = more than 81% is symptomatic.

Among the 30 lines tested, eight lines showed promising disease-resistant phenotypes to BPB and SB. Two of these lines were resistant to both BPB and SB. Especially, one line, LB-33 derived from the Bengal/LM-1 cross, showed a much higher level of disease resistance to both BPB and SB than the parents (Figure 5). These promising disease-resistant lines will be further tested for yield and other agronomic traits next year. In addition, 100 rice germplasms from the Rice Research Station and Dr. Milton Rush's germplasm collection were initially tested for disease resistance to SB in the greenhouse in an attempt to find additional genetic sources of disease resistance. In this initial trial, nine out of the 100 germplasms tested showed comparable or higher levels of disease resistance to SB compared with the partially resistant cultivar, Jupiter, and 32 germplasms produced symptom-less grains even though their leaf sheaths were symptomatic (Figure 6). These SB-resistant and SB-tolerant lines will be tested again for their resistance/tolerance to SB and BPB and will be used as new mapping and breeding materials.

	BPB rating (0-9 scale)	SB rating (0-9 scale)	Height (cm)	Heading days
Bengal	6.6	5.6	85.5	78
LM-1	2.5	3.1	80.5	85
LB-33	**1.5**	**2**	**112**	**82**

Figure 5. Phenotypes of LB-33, a promising disease-resistant line showing resistance to both bacterial panicle blight (BPB) and sheath blight (SB). Disease scores (0-9 scale): 0 = no disease, 1 = less than 10% of panicle area is symptomatic, 2 = 10 – 20% is symptomatic, 3 = 21 – 30% is symptomatic, 4 = 31 – 40% is symptomatic, 5 = 41 – 50% is symptomatic, 6 = 51 -60% is symptomatic, 7 = 61 – 70% is symptomatic, 8 = 71 – 80% is symptomatic, 9 = more than 81% is symptomatic.

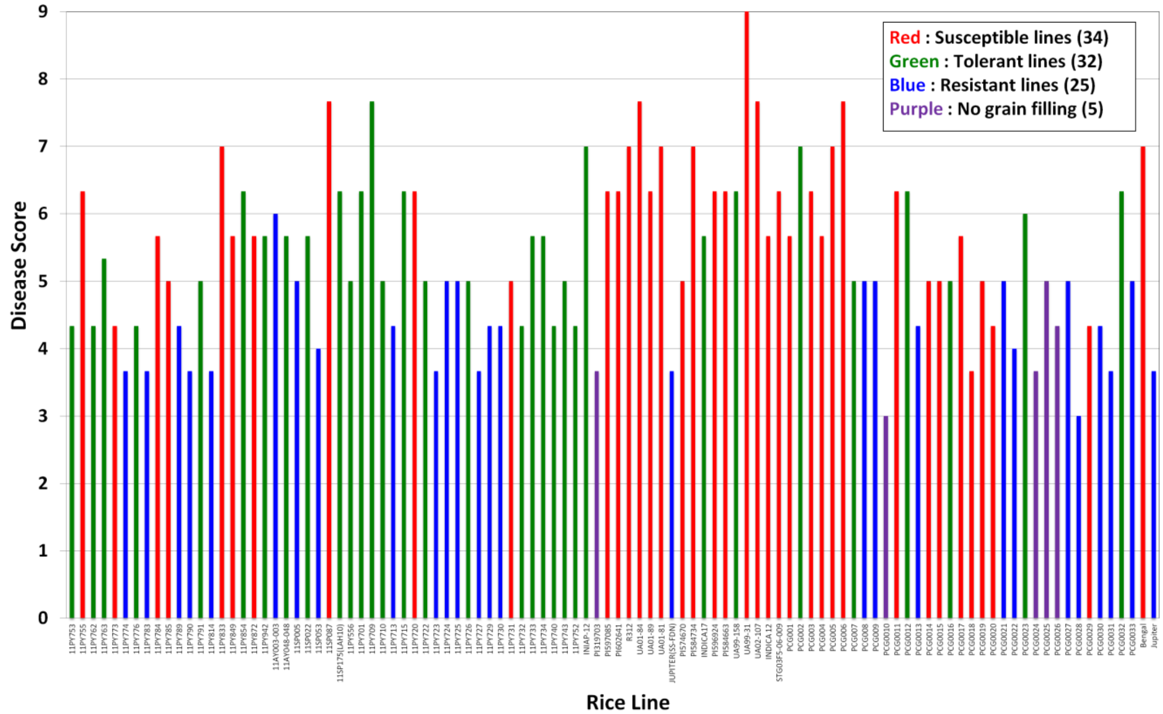


Figure 6. Disease scores of new rice germplasms tested in greenhouse for disease resistance to sheath blight.

Supplementary Tables

Table 1. Disease scores* of F_5 RILs derived from the Trenasse/Jupiter and Bengal/LM-1 crosses.

	BPB		SB				BPB		SB	
Trenasse / Jupiter	**Replication**		**Replication**			**Bengal / LM-1**	**Replication**		**Replication**	
RIL	**1**	**2**	**1**	**2**		**RIL**	**1**	**2**	**1**	**2**
TJF5001	7	6	2	2		LB_1	7	7	4	3
TJF5002	6	8	4	5		LB_2	7	7	6	7
TJF5003	4	4	2	4		LB_3	2	2	3	4
TJF5004	6	5	3	3		LB_4	5	5	5	6
TJF5005	7	6	4	5		LB_5	4	5	5	5
TJF5006	9	9	8	9		LB_6	8	9	8	8
TJF5007	4	7	8	8		LB_7	3	3	4	3
TJF5008	5	7	9	9		LB_8	5	5	7	7
TJF5009	6	8	9	9		LB_9	4	4	3	2
TJF5010	6	7	8	9		LB_10	6	6	3	6
TJF5011	5	6	5	3		LB_11	3	4	4	4
TJF5012	7	7	5	6		LB_12	2	2	4	3
TJF5013	4	6	4	4		LB_13	3	3	3	5
TJF5014	5	6	3	3		LB_14	3	4	5	3
TJF5015	5	6	5	4		LB_15	2	2	3	3
TJF5016	4	7	1	2		LB_16	4	5	7	7
TJF5017	5	5	7	8		LB_17	3	3	6	6
TJF5018	4	6	8	9		LB_18	2	2	5	4
TJF5019	4	4	0	0		LB_19	2	3	5	4
TJF5020	6	5	9	9		LB_20	6	5	8	8
TJF5021	5	6	0	2		LB_21	3	3	6	5
TJF5022	7	4	9	9		LB_22	5	5	7	5
TJF5023	5	7	9	9		LB_23	4	4	8	7
TJF5024	5	4	9	8		LB_24	3	3	4	8
TJF5025	4	6	6	8		LB_25	3	2	2	2
TJF5026	9	7	7	8		LB_26	3	3	4	4
TJF5027	9	7	8	9		LB_27	2	3	3	4
TJF5028	7	5	8	9		LB_28	4	6	7	7
TJF5029	7	7	8	9		LB_29	5	4	5	6
TJF5030	8	6	2	1		LB_30	5	5	4	6
TJF5031	8	8	3	3		LB_31	5	5	8	7
TJF5032	7	6	5	8		LB_32	4	5	7	7
TJF5033	6	8	6	9		LB_33	2	1	2	2
TJF5034	8	7	1	4		LB_34	3	3	2	3

Continued.

Table 1. Continued.

	BPB		SB				BPB		SB	
Trenasse/ Jupiter	**Replication**		**Replication**			**Bengal/ LM-1**	**Replication**		**Replication**	
RIL	**1**	**2**	**1**	**2**		**RIL**	**1**	**2**	**1**	**2**
TJF5035	6	8	4	5		LB_35	2	2	2	2
TJF5036	8	6	6	6		LB_36	3	3	3	4
TJF5037	7	6	5	6		LB_37	7	5	9	9
TJF5038	5	6	1	2		LB_38	5	3	4	4
TJF5039	6	8	5	7		LB_39	3	3	8	8
TJF5040	5	5	1	1		LB_40	6	5	9	9
TJF5041	9	7	6	5		LB_41	5	4	5	5
TJF5042	9	7	8	8		LB_42	5	7	4	7
TJF5043	9	8	7	9		LB_43	3	2	7	4
TJF5044	7	6	2	3		LB_44	6	6	9	4
TJF5045	8	7	5	5		LB_45	4	4	6	3
TJF5046	6	8	4	7		LB_46	5	5	6	6
TJF5047	6	7	2	3		LB_47	3	3	4	4
TJF5048	9	6	9	8		LB_48	2	2	6	4
TJF5049	7	4	8	8		LB_49	6	4	5	6
TJF5050	8	5	9	9		LB_50	3	4	7	5
TJF5051	8	5	8	7		LB_51	3	3	3	5
TJF5052	7	4	9	8		LB_52	2	2	2	2
TJF5053	8	7	7	8		LB_53	2	2	4	8
TJF5054	9	5	6	6		LB_54	4	3	8	6
TJF5055	6	7	5	7		LB_55	3	4	7	5
TJF5056	6	6	5	6		LB_56	4	6	8	8
TJF5057	8	6	1	2		LB_57	3	3	3	3
TJF5058	5	6	1	2		LB_58	8	5	2	8
TJF5059	5	5	6	6		LB_59	3	3	2	3
TJF5060	9	4	6	7		LB_60	2	5	3	6
TJF5061	8	4	7	8		LB_61	5	4	1	3
TJF5062	8	5	8	8		LB_62	6	5	3	2
TJF5063	6	5	2	2		LB_63	3	5	2	2
TJF5064	6	6	9	9		LB_64	5	5	3	4
TJF5065	5	7	9	9		LB_65	4	4	5	7
TJF5066	8	9	6	9		LB_66	6	6	2	2
TJF5067	7	8	5	6		LB_67	3	3	4	5
TJF5068	4	6	3	5		LB_68	2	2	8	7
TJF5069	4	6	2	6		LB_69	2	2	1	3

Continued.

Table 1. Continued.

	BPB		SB				BPB		SB	
Trenasse/ Jupiter	**Replication**		**Replication**			**Bengal/ LM-1**	**Replication**		**Replication**	
RIL	**1**	**2**	**1**	**2**		**RIL**	**1**	**2**	**1**	**2**
TJF5070	4	5	9	8		LB_70	6	6	4	1
TJF5071	7	7	9	9		LB_71	3	3	5	5
TJF5072	6	8	9	9		LB_72	5	5	5	5
TJF5073	4	5	4	5		LB_73	4	4	6	4
TJF5074	8	6	2	5		LB_74	3	3	4	6
TJF5075	5	5	8	8		LB_75	4	4	3	5
TJF5076	7	7	4	7		LB_76	1	2	4	3
TJF5077	7	6	9	9		LB_77	2	2	2	2
TJF5078	7	7	5	9		LB_78	2	3	9	6
TJF5079	6	7	7	7		LB_79	3	5	6	7
TJF5080	9	8	9	9		LB_80	6	5	3	4
TJF5081	4	4	2	9		LB_81	3	3	1	3
TJF5082	6	7	5	8		LB_82	5	5	3	2
TJF5083	8	8	8	8		LB_83	3	2	2	2
TJF5084	9	7	6	6		LB_84	2	2	6	3
TJF5085	9	8	6	5		LB_85	7	6	3	6
TJF5086	8	6	9	9		LB_86	3	5	6	3
TJF5087	7	5	2	3		LB_87	4	3	8	5
TJF5088	5	6	1	1		LB_88	3	3	8	7
TJF5089	6	7	1	2		LB_89	3	4	6	5
TJF5090	7	7	5	8		LB_90	6	6	8	8
TJF5091	6	7	7	8		LB_91	5	5	5	7
TJF5092	7	5	7	7		LB_92	3	3	7	6
TJF5093	6	5	6	8		LB_93	3	5	5	5
TJF5094	5	5	5	6		LB_94	6	5	8	8
TJF5095	6	5	3	4		LB_95	5	6	8	7
TJF5096	6	5	7	9		LB_96	6	6	8	8
TJF5097	8	6	6	7		LB_97	3	3	4	6
TJF5098	6	5	3	3		LB_98	3	3	4	5
TJF5099	8	6	8	8		LB_99	2	3	3	4
TJF5100	9	9	9	9		LB_100	5	4	4	3
TJF5101	8	8	9	9		LB_101	2	2	3	3
TJF5102	7	8	9	9		LB_102	4	4	7	7
TJF5103	6	8	8	9		LB_103	3	3	4	4
TJF5104	7	8	8	8		LB_104	2	3	8	5

Continued.

Table 1. Continued.

	BPB		SB				BPB		SB	
Trenasse/ Jupiter	Replication		Replication			Bengal/ LM-1	Replication		Replication	
RIL	1	2	1	2		RIL	1	2	1	2
TJF5105	7	7	7	9		LB_105	8	8	9	9
TJF5106	6	5	7	7		LB_106	3	3	7	6
TJF5107	7	5	6	8		LB_107	1	2	3	2
TJF5108	7	6	5	7		LB_108	3	4	4	4
TJF5109	7	5	1	2		LB_109	6	6	8	6
TJF5110	8	5	7	7		LB_110	3	3	4	4
TJF5111	6	5	2	2		LB_111	4	3	2	2
TJF5112	9	6	8	8		LB_112	5	4	7	5
TJF5113	8	8	3	3		LB_113	3	3	3	4
TJF5114	8	8	5	6		LB_114	7	8	7	3
TJF5115	8	8	9	9		LB_115	2	4	4	5
TJF5116	7	8	5	6		LB_116	3	5	5	4
TJF5117	9	9	6	5		LB_117	2	3	4	6
TJF5118	9	9	7	9		LB_118	5	5	3	3
TJF5119	6	6	7	7		LB_119	1	2	5	4
TJF5120	6	6	4	3		LB_120	6	7	2	5
TJF5121	8	8	5	5		LB_121	4	5	4	5
TJF5122	8	8	8	9		LB_122	5	4	5	4
TJF5123	7	8	8	9		LB_123	6	6	5	7
TJF5124	6	8	8	9		LB_124	4	4	7	7
TJF5125	8	8	9	9		LB_125	3	3	5	7
TJF5126	8	6	3	3		LB_126	2	2	1	1
TJF5127	9	9	3	7		LB_127	3	3	4	4
TJF5128	8	4	1	2		LB_128	4	3	2	3
TJF5129	4	5	9	9		LB_129	3	4	6	6
TJF5130	8	7	6	7		LB_130	3	4	2	5
TJF5131	8	5	7	9		LB_131	7	7	6	5
TJF5132	8	8	8	8		LB_132	2	2	2	2
TJF5133	8	6	6	9		LB_133	2	2	4	3
TJF5134	8	7	3	7		LB_134	4	4	5	4
TJF5135	7	7	7	9		LB_135	3	3	4	5
TJF5136	8	7	7	9		LB_136	2	3	7	7
TJF5137	7	6	4	5		LB_137	5	4	2	2
TJF5138	8	6	5	2		LB_138	3	4	3	3
TJF5139	7	6	7	7		LB_139	5	5	2	4

Continued.

Table 1. Continued.

	BPB		SB				BPB		SB	
Trenasse/ Jupiter	Replication		Replication			Bengal/ LM-1	Replication		Replication	
RIL	1	2	1	2		RIL	1	2	1	2
TJF5140	5	8	8	8		LB_140	3	3	5	3
TJF5141	5	6	8	9		LB_141	5	5	7	6
TJF5142	8	8	9	8		LB_142	2	2	3	2
TJF5143	9	7	8	9		LB_143	7	7	9	8
TJF5144	5	8	6	8		LB_144	3	3	6	5
TJF5145	7	7	5	3		LB_145	2	2	4	3
TJF5146	5	6	7	8		LB_146	3	4	5	5
TJF5147	9	9	4	5		LB_147	6	5	4	6
TJF5148	8	5	7	3		LB_148	4	3	6	6
TJF5149	8	6	8	7		LB_149	5	5	8	8
TJF5150	6	5	1	2		LB_150	2	2	3	4
TJF5151	7	6	5	2		LB_151	2	3	6	3
TJF5152	7	6	2	3		LB_152	7	7	6	4
TJF5153	6	7	4	4		LB_153	9	8	7	8
TJF5154	6	6	2	1		LB_154	3	3	2	2
TJF5155	8	6	6	8		LB_155	3	3	5	5
TJF5156	7	5	2	4		LB_156	2	3	5	5
TJF5157	6	4	1	2		LB_157	6	6	6	6
TJF5158	7	7	6	7		LB_158	2	4	3	4
TJF5159	8	7	5	5		LB_159	4	4	4	3
TJF5160	6	7	2	3		LB_160	3	3	3	1
TJF5161	6	5	2	4		LB_161	2	3	5	3
TJF5162	6	7	3	8		LB_162	3	4	3	5
TJF5163	9	8	7	9		LB_163	3	5	2	3
TJF5164	8	5	8	7		LB_164	4	5	5	4
TJF5165	7	6	5	6		LB_165	5	3	6	4
TJF5166	6	6	5	5		LB_166	3	2	4	3
TJF5167	6	4	7	9		LB_167	4	6	3	3
TJF5168	7	5	5	6		LB_168	6	6	7	8
TJF5169	8	5	3	5		LB_169	7	6	5	7
TJF5170	7	7	4	6		LB_170	4	5	3	4
TJF5171	6	7	7	2		LB_171	4	4	7	5
TJF5172	9	5	7	8		LB_172	4	4	2	2
TJF5173	7	4	1	1		LB_173	2	2	5	4
TJF5174	4	4	5	6		LB_174	2	3	6	3

Continued.

Table 1. Continued.

	BPB		SB				BPB		SB	
Trenasse/ Jupiter	**Replication**		**Replication**			**Bengal/ LM-1**	**Replication**		**Replication**	
RIL	**1**	**2**	**1**	**2**		**RIL**	**1**	**2**	**1**	**2**
TJF5175	6	6	7	8		LB_175	2	2	4	2
TJF5176	8	7	3	4		LB_176	3	3	2	4
TJF5177	9	6	8	8		LB_177	4	4	6	4
TJF5178	8	6	8	9		LB_178	5	5	4	7
TJF5179	5	5	3	3		LB_179	2	2	3	3
TJF5180	6	5	7	7		LB_180	6	7	2	6
TJF5181	7	5	3	2		LB_181	4	4	5	5
TJF5182	7	4	9	9		LB_182	6	6	4	6
TJF5183	8	6	7	7		LB_183	3	2	5	4
TJF5184	8	7	2	2		LB_184	2	2	4	3
TJF5185	6	7	3	3		LB_185	5	5	6	6
TJF5186	7	7	4	5		LB_186	6	6	6	6
TJF5187	9	9	8	8		LB_187	3	5	5	5
TJF5188	8	6	7	7		LB_188	3	3	4	4
TJF5189	7	6	7	6		LB_189	3	3	6	4
TJF5190	6	7	5	5		LB_190	3	3	3	6
TJF5191	8	8	8	9		LB_191	2	2	2	3
TJF5192	7	7	2	2		LB_192	4	4	3	3
TJF5193	5	7	2	2		LB_193	1	2	3	3
TJF5194	7	7	3	2		LB_194	2	3	3	3
TJF5195	8	6	3	7		LB_195	3	3	4	4
TJF5196	7	6	6	6		LB_196	6	6	6	4
TJF5197	8	8	9	9		LB_197	4	4	6	6
TJF5198	8	8	8	7		LB_198	6	6	7	6
TJF5199	4	6	5	3		LB_199	3	3	3	3
TJF5200	9	9	4	5		LB_200	4	7	7	7
TJF5201	9	9	9	7		LB_201	2	4	6	5
TJF5202	9	9	9	9		LB_202	3	4	7	6
TJF5203	7	6	5	6		LB_203	4	3	5	6
TJF5204	7	6	2	3		LB_204	6	7	7	7
TJF5205	6	7	6	9		LB_205	7	6	9	8
TJF5206	4	6	3	5		LB_206	2	2	4	4
TJF5207	4	7	3	3		LB_207	7	7	7	7
TJF5208	6	8	2	2		LB_208	2	5	3	3
TJF5209	8	8	7	9		LB_209	3	3	9	5

Continued.

Table 1. Continued.

	BPB		SB				BPB		SB	
Trenasse/ Jupiter	Replication		Replication			Bengal/ LM-1	Replication		Replication	
RIL	1	2	1	2		RIL	1	2	1	2
TJF5210	7	6	6	8		LB_210	2	2	3	3
TJF5211	7	8	5	7		LB_211	2	3	6	5
TJF5212	9	9	8	9		LB_212	5	4	6	7
TJF5213	7	9	9	9		LB_213	5	5	7	4
TJF5214	5	6	6	7		LB_214	2	2	3	3
TJF5215	5	5	9	9		LB_215	3	5	5	5
TJF5216	6	5	3	3		LB_216	2	2	4	3
TJF5217	7	7	3	5		LB_217	3	1	6	4
TJF5218	6	4	1	4		LB_218	3	4	3	5
TJF5219	7	8	1	2		LB_219	3	4	5	5
TJF5220	5	7	1	3		LB_220	2	2	3	3
TJF5221	5	7	5	8		LB_221	6	7	3	3
TJF5222	6	6	5	4		LB_222	5	5	6	3
TJF5223	7	7	8	9		LB_223	2	2	3	4
TJF5224	8	8	9	9		LB_224	4	4	5	4
TJF5225	8	8	6	7		LB_225	2	2	3	2
TJF5226	6	8	7	9		LB_226	7	7	10	10
TJF5227	6	7	3	5		LB_227	2	2	4	3
TJF5228	6	6	3	5		LB_228	2	2	3	4
TJF5229	8	8	3	8		LB_229	2	2	2	3
TJF5230	7	7	5	6		LB_230	4	5	3	5
TJF5231	6	6	3	4		LB_231	2	3	5	3
TJF5232	4	7	7	5		LB_232	4	5	5	6
TJF5233	7	8	7	9		LB_233	3	3	7	7
TJF5234	8	7	7	9		LB_234	3	2	3	3
TJF5235	8	7	5	3		LB_235	4	5	5	5
TJF5236	4	6	8	8		LB_236	2	2	4	3
TJF5237	9	7	4	3		LB_237	4	5	3	5
TJF5238	6	7	5	5		LB_238	3	2	0	1
TJF5239	5	5	3	6		LB_239	3	3	6	4
TJF5240	8	8	8	9		LB_240	2	3	7	6
TJF5241	8	8	9	9		LB_241	4	5	4	5
TJF5242	5	7	5	6		LB_242	5	5	4	5
TJF5243	6	8	8	9		LB_243	2	2	5	4
TJF5244	6	5	2	3		LB_244	3	2	4	4

Continued.

Table 1. Continued.

	BPB		SB				BPB		SB	
Trenasse/ Jupiter	**Replication**		**Replication**			**Bengal/ LM-1**	**Replication**		**Replication**	
RIL	**1**	**2**	**1**	**2**		**RIL**	**1**	**2**	**1**	**2**
TJF5245	9	7	9	5		LB_245	7	6	2	4
TJF5246	7	5	2	5		LB_246	3	4	3	2
TJF5247	7	7	9	7		LB_247	3	3	4	4
TJF5248	9	9	9	7		LB_248	4	3	3	3
TJF5249	5	6	3	6		LB_249	4	4	5	5
TJF5250	9	8	5	8		LB_250	3	2	2	4
TJF5251	4	7	5	9		LB_251	4	4	2	2
TJF5252	6	7	4	7		LB_252	3	3	0	0
TJF5253	8	8	4	5		LB_253	6	6	7	7
TJF5254	5	6	3	3		LB_254	3	2	2	2
TJF5255	8	7	9	9		LB_255	6	6	6	7
TJF5256	8	7	3	4		LB_256	4	5	5	6
TJF5257	8	8	9	9		LB_257	2	2	2	3
TJF5258	8	8	9	9		LB_258	2	2	1	2
TJF5259	8	7	4	4		LB_259	7	7	7	7
TJF5260	8	8	2	2		LB_260	3	3	4	5
TJF5261	7	8	6	6		LB_261	5	4	4	7
TJF5262	7	7	4	5		LB_262	4	4	3	7
TJF5263	7	8	4	4		LB_263	3	3	5	5
TJF5264	9	8	9	9		LB_264	8	8	3	3
TJF5265	5	6	3	2		LB_265	5	4	6	6
TJF5266	4	5	5	4		LB_266	3	3	3	3
TJF5267	7	8	6	6		LB_267	2	2	3	4
TJF5268	7	8	4	4		LB_268	4	4	6	5
TJF5269	7	7	5	7		LB_269	4	4	7	7
TJF5270	6	7	8	8		LB_270	4	3	5	5
TJF5271	8	9	7	7		LB_271	4	3	7	6
TJF5272	8	9	8	7		LB_272	4	4	8	7
TJF5273	4	6	4	3		LB_273	5	5	8	8
TJF5274	5	7	5	4		LB_274	3	3	4	4
TJF5275	9	7	8	9		LB_275	2	2	3	5
TJF5276	8	8	8	9		LB_276	2	2	5	5
TJF5277	8	9	9	9		LB_277	4	4	3	5
TJF5278	6	4	5	4		LB_278	3	3	5	4
TJF5279	6	5	9	9		LB_279	3	3	5	3

Continued.

Table 1. Continued.

	BPB		SB				BPB		SB	
Trenasse/ Jupiter	**Replication**		**Replication**			**Bengal/ LM-1**	**Replication**		**Replication**	
RIL	**1**	**2**	**1**	**2**		**RIL**	**1**	**2**	**1**	**2**
TJF5280	6	7	7	9		LB_280	5	5	4	4
TJF5281	8	7	8	9		LB_281	4	3	4	3
TJF5282	6	5	6	7		LB_282	6	6	8	8
TJF5283	6	5	2	3		LB_283	6	6	8	6
TJF5284	7	8	8	7		LB_284	3	3	4	3
TJF5285	9	9	6	5		LB_285	2	3	3	4
TJF5286	6	5	7	8		LB_286	2	2	2	2
TJF5287	4	6	8	9		LB_287	2	3	5	5
TJF5288	9	9	9	9		LB_288	5	6	7	7
TJF5289	8	8	4	3		LB_289	3	3	4	2
TJF5290	6	7	8	9		LB_290	4	4	5	4
TJF5291	7	8	7	6		LB_291	3	3	4	4
TJF5292	7	9	9	9		LB_292	2	2	3	4
TJF5293	7	6	5	7		LB_293	9	7	5	7
TJF5294	6	6	8	9		LB_294	3	3	4	3
TJF5295	7	6	9	9		LB_295	3	3	5	4
TJF5296	7	7	8	9		LB_296	5	4	6	6
TJF5297	7	8	9	9		LB_297	4	4	3	3
TJF5298	8	8	9	9		LB_298	8	8	5	5
TJF5299	8	8	9	9		LB_299	3	2	4	3
TJF5300	4	6	9	8		LB_300	3	3	4	4

* Each disease score represents average score of one panicle row containing 12 to 15 plants.

Table 2. Disease scores* of parents for mapping and breeding.

	Bacterial Panicle Blight		**Sheath Blight**	
	Replication		**Replication**	
Parents	**1**	**2**	**1**	**2**
Jupiter	5	5	1	2
Jupiter	4	5	2	1
Jupiter	4	4	2	2
Jupiter	5	4	1	2
Jupiter	4	4	2	1
Jupiter	4	5	1	2
Trenasse	8	9	9	9
Trenasse	8	9	9	9
Trenasse	9	8	9	9
Trenasse	9	9	9	9
Trenasse	9	9	9	9
Trenasse	9	9	8	9
LM-1	6	4	0	1
LM-1	5	6	0	2
LM-1	6	4	1	1
LM-1	5	4	2	1
LM-1	6	5	2	1
LM-1	5	5	1	2
Bengal	6	6	7	8
Bengal	6	6	7	6
Bengal	5	7	8	8
Bengal	6	6	6	8
Bengal	6	7	7	9
Bengal	7	7	6	7
Cocodrie	7	7	9	7
Cocodrie	7	7	9	8
Cocodrie	7	6	8	8
Cocodrie	7	7	9	8
Cocodrie	7	7	9	8
Cocodrie	7	7	8	8

* Each disease score represents average score of one panicle row containing 12 to 15 plants.

DEVELOPMENT OF NEW DISEASE CONTROL STRATEGIES FOR BACTERIAL PANICLE BLIGHT AND SHEATH BLIGHT

J.H. Ham, H.S. Karki, B.K. Shrestha, and D.E. Groth

Overview of this program

The main goal of this program is to develop new disease control strategies to reduce damages from bacterial panicle blight (BPB) and sheath blight (SB). Research activities to achieve this goal include testing various chemical and biological treatments to identify new control agents that can suppress BPB and/or SB, as well as other major rice diseases.

Pretreatment of chemicals to suppress BPB development

Enhancement of rice resistance to BPB by pretreatments with various chemicals was tested with Trenasse and CL-145 for greenhouse and field tests, respectively. Ascorbic acid frequently showed a significant protective effect against BPB development in greenhouse tests (Figures 1 and 2). However, the same chemical showed little effect on the suppression of BPB development in the field unlike previous tests in 2010 and 2011 (Figure 3). Continuous efforts will be made to optimize the condition for the disease suppression activity of ascorbic acid.

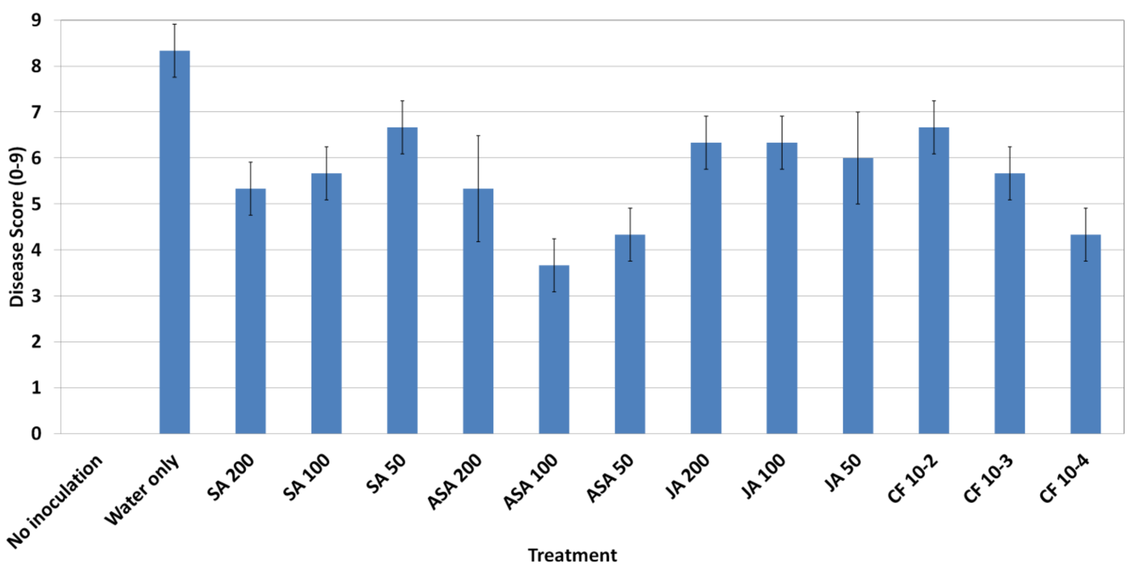


Figure 1. Effect of pretreatment with various chemicals on suppression of BPB development in the greenhouse. Each chemical was sprayed on rice panicles 24 hrs prior to inoculation with the BPB pathogen, *Burkholderia glumae*. Chemicals: SA = salicylic acid, ASA = ascorbic acid, JA = jasmonic acid, CF = culture filtrate of *B. glumae*. Numbers: 50, 100, and 200 indicate 50 µM, 100 µM, and 200 µM, respectively. 10-2, 10-3 and 10-4 indicate 10^{-2}, 10^{-3} and 10^{-4} dilutions, respectively. The disease susceptible rice variety Trenasse was used in this test.

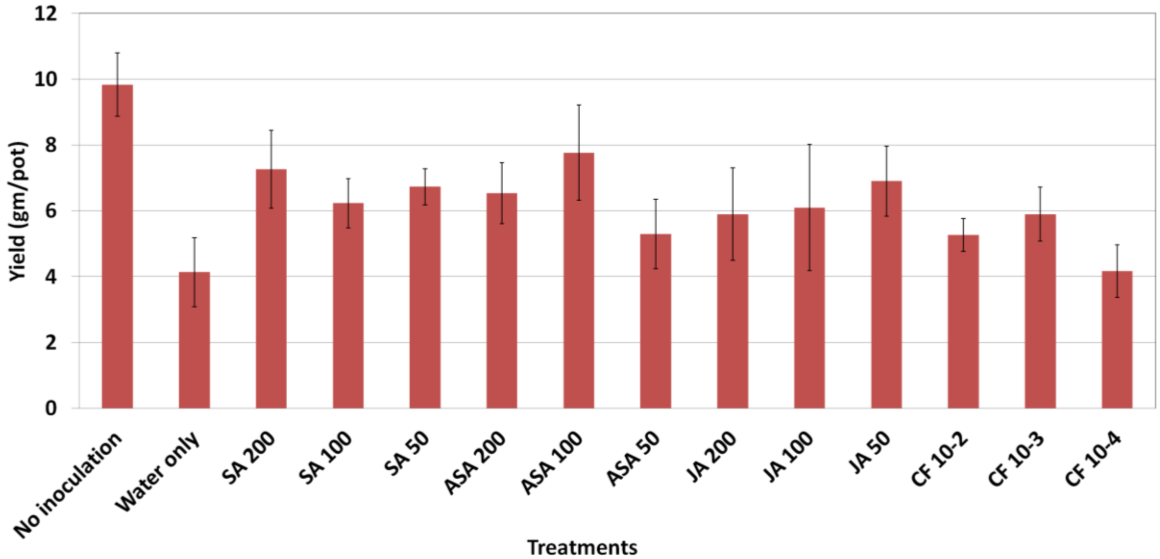


Figure 2. Effect of pretreatment with various chemicals on yields of infected rice plants in the greenhouse. Each chemical was sprayed on rice panicles 24 hrs prior to inoculation with the BPB pathogen, *Burkholderia glumae.* Chemicals: SA = salicylic acid, ASA = ascorbic acid, JA = jasmonic acid, CF = culture filtrate of *B. glumae*. Numbers: 50, 100, and 200 indicate 50 µM, 100 µM, and 200 µM, respectively. 10-2, 10-3, and 10-4 indicate 10^{-2}, 10^{-3}, and 10^{-4} dilutions, respectively. The disease susceptible rice variety Trenasse was used in this test.

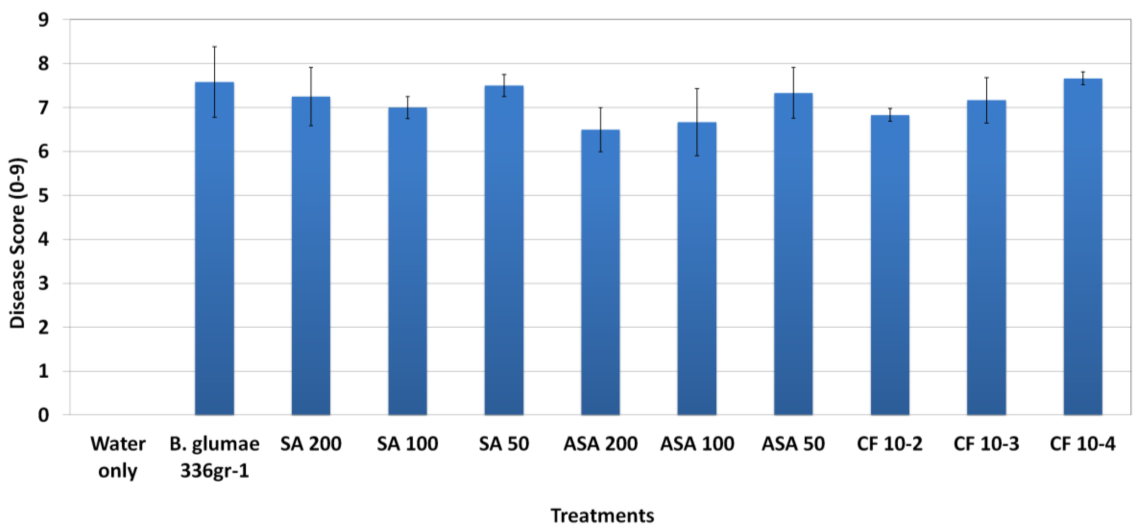


Figure 3. Effect of pretreatment with various chemicals on suppression of BPB development in rice field. Each chemical was sprayed on rice panicles 24 hrs prior to inoculation with the BPB pathogen, *Burkholderia glumae.* Chemicals: SA = salicylic acid, ASA = ascorbic acid, JA = jasmonic acid, CF = culture filtrate of *B. glumae*. Numbers: 50, 100, and 200 indicate 50 µM, 100 µM, and 200 µM, respectively. 10-2, 10-3, and 10-4 indicate 10^{-2}, 10^{-3}, and 10^{-4} dilutions, respectively. The disease susceptible Clearfield variety CL-145 was used in this test.

Biological control of BPB and SB

In addition, we have identified several rice-associated strains of *Bacillus* sp. and naturally non-pathogenic strains of *B. glumae* that have strong antifungal activities against *R. solani*. Strikingly, some of them showed excellent biological control activities against BPB in field trials. *Bacillus* sp. strain RAB 9 significantly reduced the development of SB (Figure 4) in spite of no significant effect on yield (Figure 5), while the non-pathogenic strains of *B. glumae*, 257sh-1 and 396gr-2, showed promising biological control activities against both BPB (Figure 6) and SB (Figure 7). More comprehensive studies will be conducted next year with these potential biological control agents.

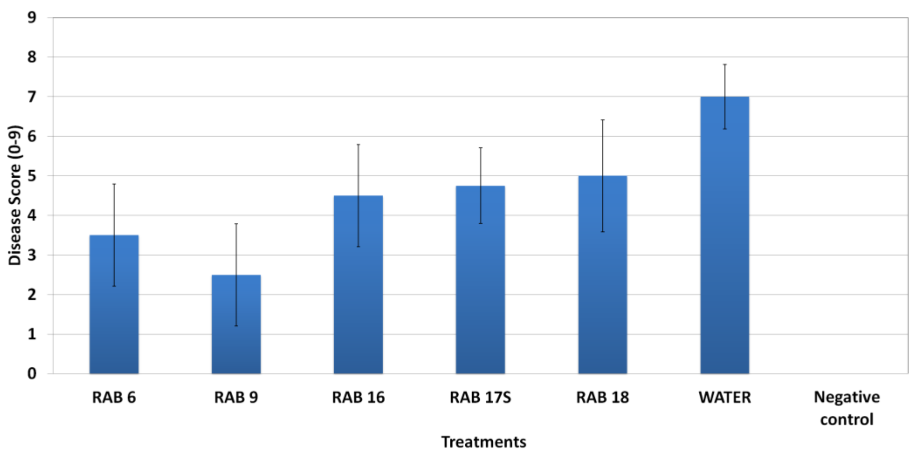


Figure 4. Effect of pretreatment with rice-associated *Bacillus* sp. strains on suppression of SB development in a field trial. Each *Bacillus* sp. strain was sprayed to rice panicles 24 hrs prior to inoculation with the SB pathogen, *Rhizoctonia solani*. 'WATER' indicates pretreatment with water instead of a *Bacillus* sp. strain. 'Negative control' indicates no inoculation.

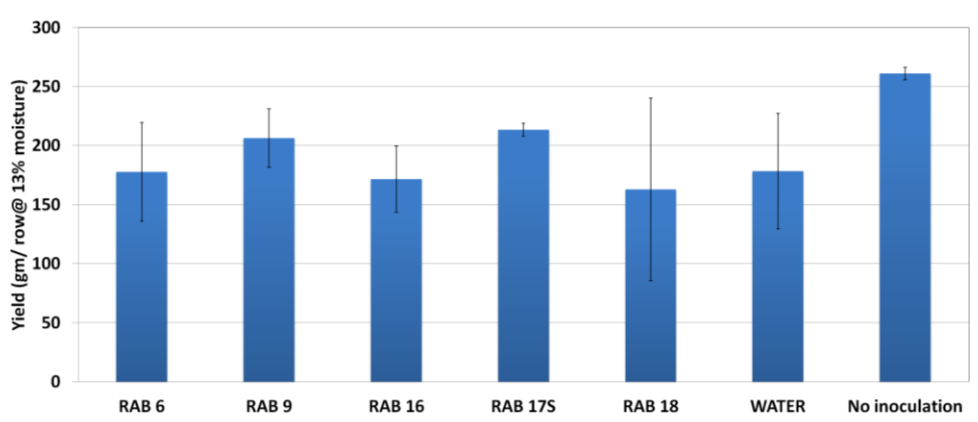


Figure 5. Effect of pretreatment with rice-associated *Bacillus* sp. strains on yields of SB-infected rice plants in a field trial. Each *Bacillus* sp. strain was sprayed to rice panicles 24 hrs prior to inoculation with the SB pathogen, *Rhizoctonia solani*. 'WATER' indicates pretreatment with water instead of a *Bacillus* sp. strain. 'Negative control' indicates no inoculation.

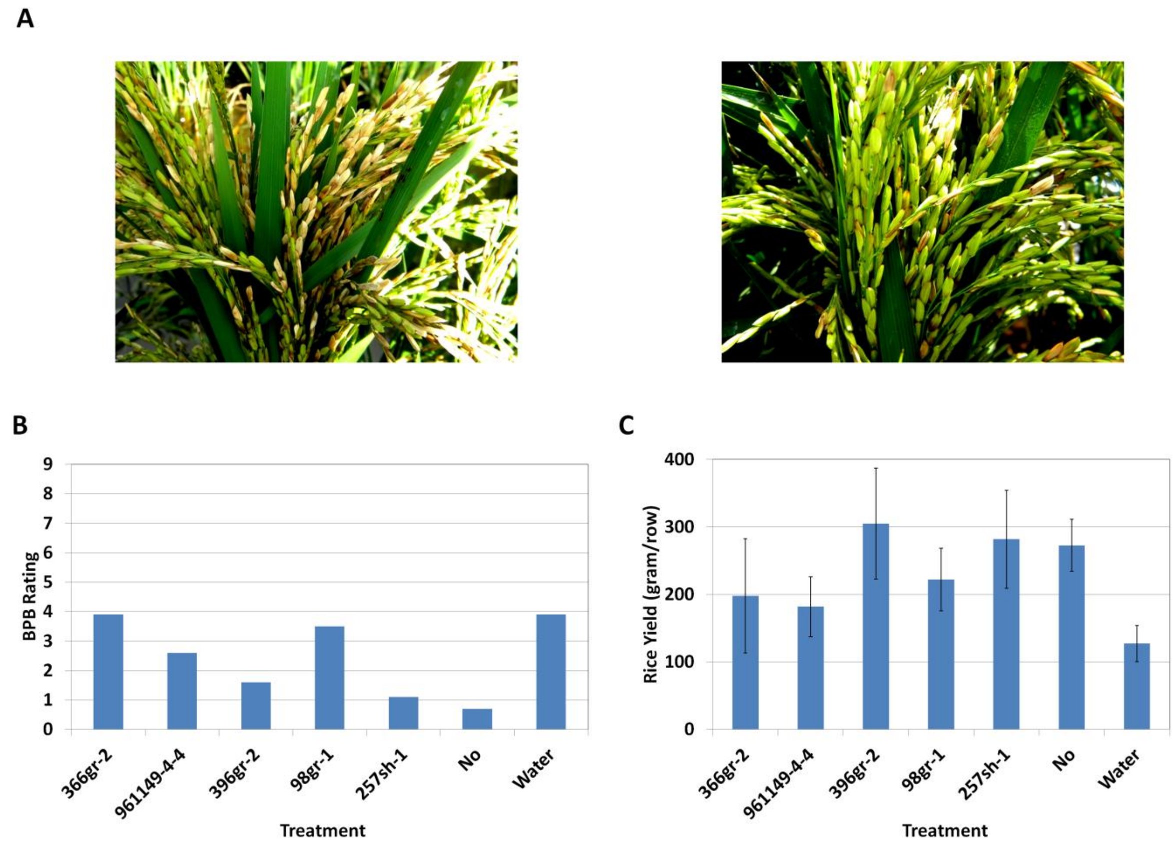


Figure 6. Effect of pretreatment with non-pathogenic strains of *Burkholderia glumae* on suppression of BPB development (A and B) and yields of BPB-infected rice plants (C) in a field trial. In panel A, BPB symptoms on rice panicles pretreated with water and *B. glumae* 257sh-1 are left and right pictures, respectively. Each non-pathogenic strain of *B. glumae* was sprayed to rice panicles 24 hrs prior to inoculation with the virulent *B. glumae* strain 336gr-1. 'Water' indicates pretreatment with water instead of a non-pathogenic *B. glumae* strain. 'No' indicates no inoculation.

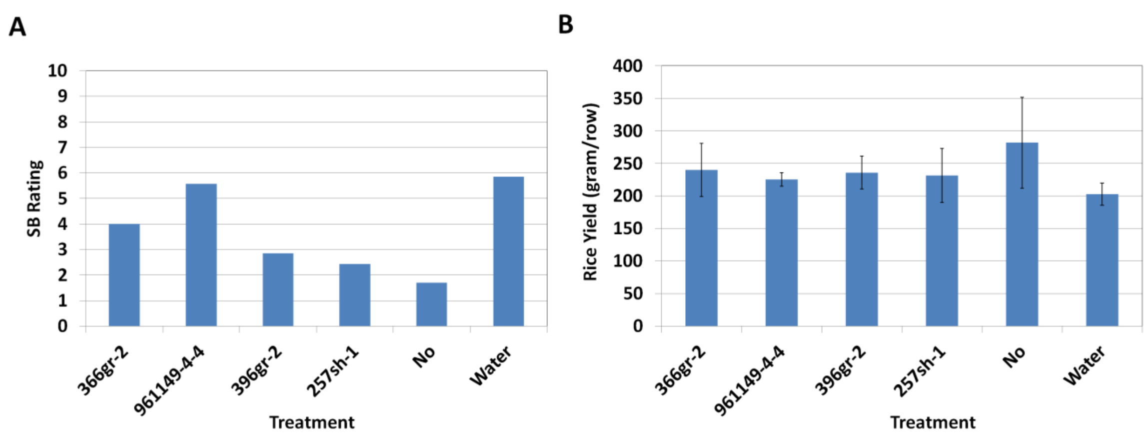


Figure 7. Effect of pretreatment with non-pathogenic strains of *Burkholderia glumae* on suppression of SB development (A) and yields of SB-infected rice plants (B) in a field trial. Each non-pathogenic strain of *B. glumae* was sprayed to rice panicles 24 hrs prior to inoculation with *Rhizoctonia solani*. 'Water' indicates pretreatment with water instead of a non-pathogenic *B. glumae* strain. 'No' indicates no inoculation.

RICE PRODUCTION ECONOMICS RESEARCH IN 2012

Michael E. Salassi

Rice enterprise production cost budget projections for 2012 were developed in the fall of 2011 for alternative rice production systems in Louisiana. A summary of the enterprise budgeting analysis for rice production systems in Southwest Louisiana is presented in Table 1. Values presented represent rice break-even prices to cover direct (variable) costs and total estimated rice production costs per hundredweight of rice produced for selected yield levels. Direct production costs include expenses for seed, fertilizer, chemicals, fuel, labor, repairs, custom charges, and interest on operating capital. Total specified expenses include direct expenses plus fixed costs on machinery and equipment. These values can also be interpreted as the break-even price or income per output unit required to cover total production costs. Tenant-operator situations shown in the tables were budgeted for each enterprise with a 70/30 share rent arrangement with the landlord/waterlord paying the irrigation pumping costs.

Rice production costs were estimated for the following types of rice production systems: water planted, drill planted, conventional variety, Clearfield variety, conventional tillage, stale seedbed, in rotation, and fallow land. Base yield level for Southwest Louisiana was 65.0 cwt/A for water- and drill-planted rice. Variable production costs ranged from $10.44 to $11.57/cwt for water-planted rice and from $9.51 to $10.79/cwt for drill-planted rice at the base yield level of 65.0 cwt/A. Cost differences were influenced by use of conventional or herbicide-resistant variety, conventional versus stale seedbed tillage system, and rice production in rotation or on fallow land. A 10% change in yield per harvested acre resulted in a $0.86 to $1.04/cwt change in variable cost for water-planted rice and a $0.81 to $0.98/cwt change in variable cost for drill-planted rice. Total projected rice production costs for 2012 ranged from $11.38 to $12.85/cwt for water-planted rice and from $10.61 to $11.82/cwt for drill-planted rice at the base yield level of 65.0 cwt/A.

The Projected 2012 Rice Farm Cash Flow Model was developed to assist producers in planning for the 2012 crop year. The model is an Excel spreadsheet that allows rice producers to enter projected acreage, yield, market price, and production cost data for 2012 to estimate net returns above variable production costs and to easily evaluate the impact of changing percent of base planted on net returns. The primary purpose of the model is to evaluate the impact on net returns above variable production costs for alternative rice rental arrangements and percent of base acreage planted. The model also includes entry cells for whole farm fixed expenses to estimate projected returns from rice production over all costs.

A study was continued in 2012 for the purpose of determining the impact on rough rice milling yield and the resulting rough rice market price resulting from downed/lodged rice. The general purpose of this project is to develop estimates of milling yield and market price impacts of lodged rice which might be used to develop crop insurance products covering this harvest situation. Tests were conducted on the Rice Research Station, as well as locations in Arkansas, Mississippi and Texas. Samples were taken from lodged and standing rice for seven varieties (CL151, Jupiter, Wells, Cocodrie, Cheniere, Presidio, and LAH10) at the Rice Research Station. Three rice crop harvest condition treatments were evaluated: a) lodged 5 to 7 days prior to field drainage, b) lodged approximately 1 week prior to harvest, and c) standing. Two planting dates were also evaluated: an early planting date (March 7) and a later planting date (April 25). Milling tests were conducted on the samples taken, and rough rice market prices were estimated based on milling yields. Results indicated significant reduction in whole grain milling yield for lodged rice; proportional to the length of time, the plant was lodged prior to harvest.

Table 1. Estimated Rice Breakeven Prices to Cover Variable and Total Production Costs, Southwest Louisiana, 2012.

	Yield Level in cwt/A				
	-10%	-5%	Base	+5%	+10%
Crop Description	58.5	61.8	65.0	68.3	71.5
	Variable Rice Production Costs				
	------$/cwt------				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	11.71	11.16	10.67	10.22	9.81
(ii) Stale Seedbed:					
- In Rotation	11.46	10.93	10.44	10.01	9.61
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	12.71	12.11	11.57	11.08	10.63
(ii) Stale Seedbed:					
- In Rotation	12.44	11.85	11.32	10.85	10.41
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	10.43	9.94	9.51	9.12	8.76
(ii) Stale Seedbed:					
- In Rotation	10.69	10.20	9.75	9.34	8.98
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	11.44	10.91	10.42	9.99	9.59
(ii) Stale Seedbed:					
- In Rotation	11.85	11.30	10.79	10.34	9.93
	Total Rice Production Costs				
	------$/cwt------				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	13.14	12.51	11.95	11.44	10.98
(ii) Stale Seedbed:					
- In Rotation	12.50	11.91	11.38	10.89	10.46
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	14.13	13.46	12.85	12.29	11.79
(ii) Stale Seedbed:					
- In Rotation	13.48	12.83	12.26	11.73	11.26
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	11.65	11.10	10.61	10.17	9.76
(ii) Stale Seedbed:					
- In Rotation	11.87	11.31	10.81	10.35	9.94
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	12.53	11.93	11.40	10.92	10.48
(ii) Stale Seedbed:					
- In Rotation	12.99	12.37	11.82	11.32	10.86

Table 2. Lodged Rice Impacts on Milling Yield and Estimated Market Price, Rice Research Station, 2012.

Rice Variety	Crop Condition	Planting Date	Whole Grain Yield	Broken Grain Yield	Total Milling Yield	Estimated Rough Rice Market Price[1]
CL151	Early[2]	Early	--	--	--	--
	Late[3]		37.92	24.97	62.89	$11.52
	Standing		43.25	22.96	66.21	$12.43
Jupiter	Early[2]	Early	60.67	7.33	68.00	$14.27
	Late[3]		56.03	10.33	66.35	$13.63
	Standing		59.80	7.20	67.00	$14.06
Wells	Early[2]	Early	28.83	35.73	64.55	$10.89
	Late[3]		37.2	28.90	66.10	$11.86
	Standing		43.15	23.85	67.00	$12.52
Cocodrie	Early[2]	Early	42.95	24.03	66.98	$12.50
	Late[3]		48.85	19.25	68.10	$13.19
	Standing		54.48	15.03	69.50	$13.89
Cheniere	Early[2]	Early	41.38	26.00	67.38	$12.41
	Late[3]		50.00	20.28	70.28	$13.57
	Standing		53.18	17.70	70.88	$13.94
Presidio	Early[2]	Early	42.98	24.48	67.40	$12.55
	Late[3]		47.45	21.25	68.70	$13.14
	Standing		57.78	13.40	71.18	$14.41
LAH10	Early[2]	Early	57.08	10.65	67.73	$13.90
	Late[3]		54.33	11.30	65.63	$13.38
	Standing		60.28	8.13	68.40	$14.28
CL151	Early[2]	Late	48.20	17.00	65.20	$12.76
	Late[3]		42.40	19.60	62.00	$11.82
	Standing		49.60	16.50	66.10	$13.00
Jupiter	Early[2]	Late	59.40	6.60	66.00	$13.90
	Late[3]		60.40	5.90	66.30	$14.03
	Standing		59.40	6.10	65.50	$13.83
Wells	Early[2]	Late	44.70	21.50	66.20	$12.56
	Late[3]		44.80	19.80	64.60	$12.37
	Standing		44.30	21.50	65.80	$12.48
Cocodrie	Early[2]	Late	46.20	19.00	65.20	$12.58
	Late[3]		44.40	19.30	63.70	$12.22
	Standing		50.90	17.20	68.10	$13.38
Cheniere	Early[2]	Late	54.10	15.70	69.80	$13.89
	Late[3]		56.10	13.60	69.70	$14.06
	Standing		57.80	13.70	71.50	$14.45
Presidio	Early[2]	Late	52.80	13.50	66.30	$13.33
	Late[3]		54.90	11.40	66.30	$13.52
	Standing		58.70	11.00	69.70	$14.30
LAH10	Early[2]	Late	58.20	9.50	67.70	$14.00
	Late[3]		57.30	9.10	66.40	$13.75
	Standing		62.00	6.40	68.40	$14.44

[1] Based on a $14.00/cwt rough rice market price for 55/70.
[2] Lodged 5-7 days prior to field drainage.
[3] Lodged approximately 1 week prior to harvest.

RICE INSECTS RESEARCH

EFFICACY OF NEONICOTINOID INSECTICIDES AGAINST THE RICE WATER WEEVIL IN WATER-SEEDED RICE, 2012

S. Lanka, M. Stout, and M. Frey

Belay is an insecticide containing the neonicotinoid active ingredient clothianidin. Belay was recently granted registration in rice for use against the rice water weevil. Tenchu 20 SG is an insecticide containing the neonicotinoid active ingredient dinotefuran that is registered in rice against the rice stink bug. Both are potential alternatives to pyrethroids for control of rice water weevil in water-seeded rice. The purpose of this experiment was to evaluate foliar applications of Belay and Tenchu against the rice water weevil in water-seeded rice.

Location: Rice Research Station, Crowley, LA

Variety: CL261

Seeding Rate: 100 lb/A (pre-germinated)

Date of Water Seeding: May 23, 2012

Date of Permanent Flood: June 12, 2012 (3- to 4-leaf stage)

Plot Size: 5 x 15 ft. Plots were surrounded by metal flashing to prevent movement of water and insecticide among plots. Plots were separated by at least 10 ft on all sides.

Treatments:

1. Control
2. **Belay early** (2 d post-flood) @ 4.5 fl oz product/A
3. **Belay late** (8 d post-flood) @ 4.5 fl oz product/A
4. **Tenchu 20 SG** (8 d post flood) @ 300 g ai/ha
5. **Karate early** (2 d post-flood) @ 0.04 lb ai/A

Plots were cultivated following recommendations of the LSU Ag Center for water-seeded rice (with exception of insect control; see above). Insecticides were applied to plots using a CO_2-powered sprayer calibrated to deliver 15 gal of carrier (water)/A.

Larval Sampling: 21, 30, and 41 days after permanent flood, two to three core samples/plot/sampling date

Date of Harvest: Sept. 19, 2012

Design and Analysis: Randomized complete block design with four replications. Data were analyzed using PROC MIXED in SAS.

Results and Conclusions: The effects of insecticide treatments on larval densities were not significant on any of the three sampling dates, but at the third sampling date, statistically marginal effects were found (F = 2.7 df = 4, 12 P = 0.08). Larval densities tended to be lower in neonicotinoid-treated plots than in untreated or Karate-treated plots. Reductions in insect densities in neonicotinoid-treated plots were approximately 40 to 50%. Similarly, plot yields tended to be higher from insecticide-treated plots than in control plots, although again the effect was statistically marginal (P = 0.06).

Treatment	Mean no. of larvae/pupae per core sample[a] ± s.e. @			Adjusted yield[b] (kg/ha)
	21 dpf[c]	30 dpf	41 dpf	
Control	10.1 ± 1.3	13.3 ± 1.8	4.0 ± 0.6	1462.2 ± 12.2
Belay (2 dpf)	5.8 ± 2.2	10.9 ± 3.5	7.0 ± 0.9	2468.3 ± 160.7
Belay (8 dpf)	5.6 ± 2.7	6.5 ± 2.2	5.3 ± 1.2	1941.6 ± 296.8
Tenchu (8 dpf)	6.4 ± 3.1	6.9 ± 2.6	2.9 ± 0.7	2457.7 ± 356.1
Karate (2 dpf)	10.4 ± 1.3	7.2 ± 2.0	5.4 ± 1.3	1870.1 ± 185.7

[a] Larval numbers from 2-3 core samples per plot were averaged to obtain mean larval densities per plot.
[b] Yields were adjusted to 12% moisture.
[c] dpf = Days post-flood.

EVALUATION OF DERMACOR X-100 IN WATER-SEEDED RICE, 2012

S. Lanka, M. Stout, and M. Frey

Dry, unsprouted rice was treated with Dermacor X-100 and sown into flooded plots to evaluate the efficacy of Dermacor X-100 against the rice water weevil in a water-seeded cultural system. This use pattern was approved in 2012 in Louisiana under a 24(c) ("Special Local Need") label and will again be available in 2013. Two varieties and several rates of Dermacor were used.

Location: Rice Research Station, Crowley, LA

Date of Planting: April 25, 2012

Date of Permanent Flooding: May 16, 2012

Treatments:

1. Cocodrie, 100 lb/A seeding rate, Dermacor @ 2 fl oz product/100 lb seed
2. Cocodrie, 100 lb/A seeding rate, Dermacor @ 1.75 fl oz product/100 lb seed
3. Cocodrie, 100 lb/A seeding rate, Karate @ 0.03 lb ai/A
4. Cocodrie, 100 lb/A seeding rate, untreated check
5. CL151, 70 lb/A seeding rate, Dermacor @ 3 fl oz product/100 lb seed
6. CL151, 70 lb/A seeding rate, Dermacor @ 2.5 fl oz product/100 lb seed
7. CL151, 70 lb/A seeding rate, untreated check

Rice seed was treated in small batches by combining appropriate amounts of seed and formulated insecticide in water and mixing together in a Ziploc bag. Foliar application of Karate was made to appropriate plots immediately before permanent flooding using a CO_2-powered sprayer calibrated to deliver 15 gal/A.

Plot Size: 5 x 15 ft. Plots were separated by at least 10 ft on all sides

Larval Sampling: 21 and 28 days after permanent flood (June 6 and 13). Four core samples were taken from each plot.

Design and Analysis: Randomized complete block design with four replications. Data were analyzed using PROC MIXED in SAS. Post hoc mean comparisons were made using LSD mean separation.

Harvest: Entire plots were harvested on August 22.

Results and Conclusions: Dermacor X-100 seed treatment effectively controlled rice water weevils in this experiment. Effects of insecticide treatments were significant on both core sampling dates (First sampling: $F = 5.5$; df = 6, 18; $P = 0.002$. Second sampling: $F = 22.2$; df = 6, 18; $P < 0.0001$). No significant impact of Karate was found on larval numbers whereas Dermacor provided >85% larval reduction compared with the untreated controls at both sampling dates. Dermacor X-100 was equally effective at both rates in both varieties of rice. Dermacor treatment also increased plots yields significantly ($F = 8.9$ df = 6, 18 $P < 0.0001$).

Treatment #	Mean no. of larvae/pupae per core sample ± SE[a] @		Adjusted yield (kg ha^{-1})[b]
	I coring (21 DPF[c])	II coring (28 DPF)	
1 (Dermacor, 2.0 fl oz)	1.5 ± 0.6 b	0.4 ± 0.2 c	4791.3 ± 320.0 a
2 (Dermacor, 1.75 fl oz)	0.6 ± 0.5 b	0.5 ± 0.2 c	4662.4 ± 394.3 a
3 (Karate)	10.6 ± 2.8 a	8.9 ± 1.6 b	3452.2 ± 441.4 b
4 (untreated check)	10.3 ± 1.0 a	11.5± 2.3 b	3107.4 ± 243.0 b
5 (Dermacor, 3 fl oz))	0.9 ± 0.2 b	0.6 ± 0.4 c	3481.9 ± 332.3 b
6 (Dermacor, 2.5 fl oz)	0.8 ± 0.5 b	0.4 ± 0.1 c	3315.8 ± 369.5 b
7 (untreated check)	14.9 ± 6.0 a	16.1 ± 2.4 a	2041.0 ± 257.9 c

[a] larval numbers from 4 cores were averaged to obtain mean larval densities for each plot; [b] yields were adjusted to 12% moisture; [c] DPF = Days post-flood.

COMPARISON OF MALATHION, KARATE Z, AND TENCHU 20SG AGAINST RICE STINK BUG

B.D. Blackman, M.J. Stout, and M.J. Frey

The efficacies of malathion (organophosphate, Gowan Malathion 8F), Karate Z (pyrethroid, Syngenta Crop Protection), and Tenchu 20SG (neonicotinoid, Mitsui Chemicals, Inc.) were compared in small plot studies against the rice stink bug (RSB). Treatments in the first experiment were applied at the 75% headed stage and swept at 1, 3, and 6 days after treatment. Treatments in the second experiment were applied to plots adjacent to those used in the first experiment. Rice in the second experiment was treated at the milk stage and swept at 1, 4, and 6 days after treatment.

Location: Rice Research Station, Crowley, LA

Variety/Seeding Rate: CL151 @ 33 seed/sq ft

Plot Size: 4.1 x 16 ft

Planting Method/Date: Drill-seeded / March 18, 2012. Second-crop rice was used for these experiments.

Fertilization/Weed Control: Standard practices for drill-seeded rice

Experimental Design: Randomized complete block, four treatments, and four replicates; repeated twice

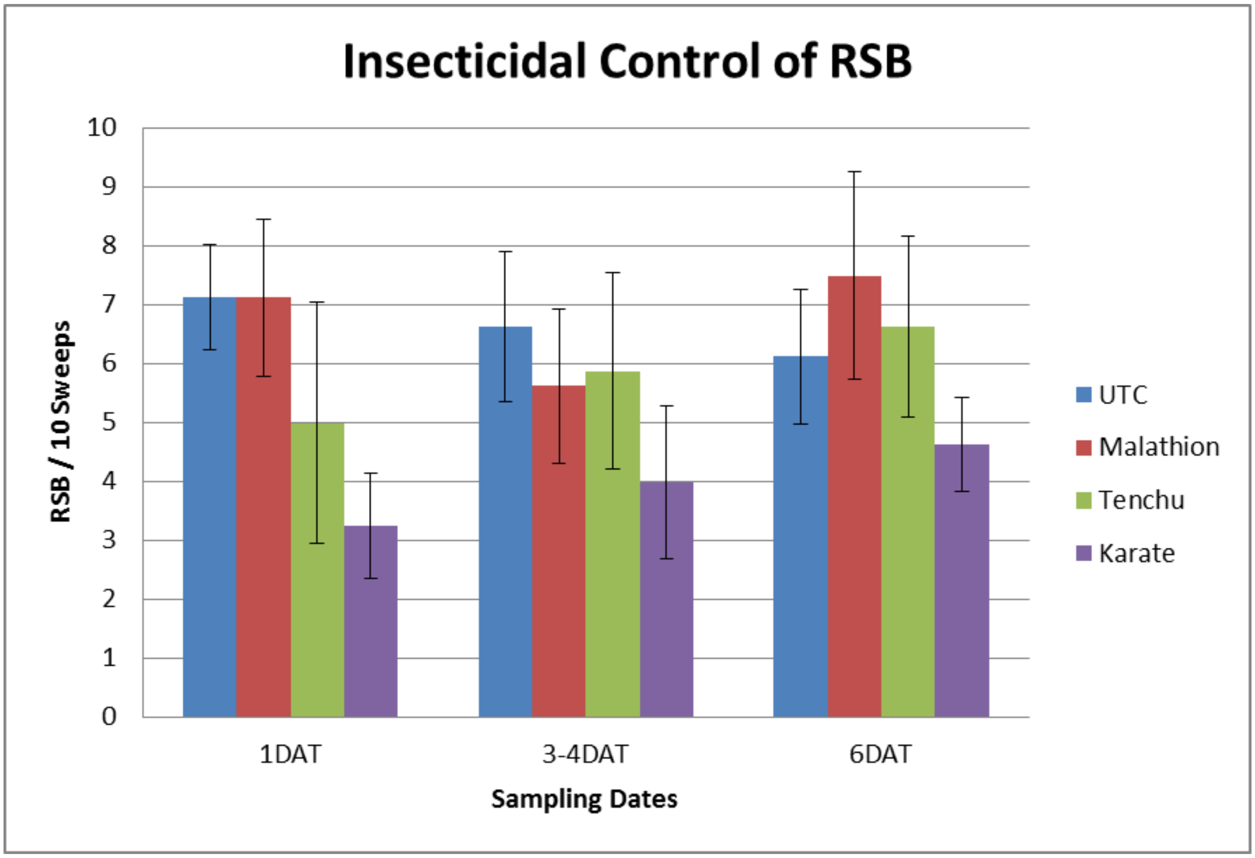
Treatments:
1. Non-treated control
2. Karate Z foliar application, 0.04 lb ai/A (highest labeled rate)
3. Tenchu 20SG foliar application, 9 oz ai/A (label recommends 7.5-10.5 oz/A)
4. Malathion 0.9 lb ai/A (highest labeled rate)

Sampling: 10 sweeps per plot covering the width of the plot using a 15-inch diameter sweep net

Sampling Dates: Bugs were sampled at three time points after treatment: early (1 day after treatment), mid (3 and 4 days after treatment in experiments 1 and 2, respectively), and late (6 days after treatment).

Harvested: First crop, July 30

Data Analysis: Data from the two experiments were pooled and analyzed by mixed model ANOVA using PROC GLIMMX in SAS. Treatment and time were fixed effects and experiment and block were random effects in the model. In addition, data from each sampling point were analyzed individually using PROC GLIMMX with treatment as a fixed and block as random effect. Means were separated using Tukey.



Effect of treatment was significant at the P<0.1 value, (P=0.07; DF= 3,21; F=2.69), but effects of DAT (P=0.69; DF= 2,56; F=0.37), and treatment x DAT (P=0.88; DF= 6,56; F=0.40) were not significant.

Treatment	**Mean RSB in 10 Sweeps over three sampling dates**
Untreated Control	**6.63 ± 3.03AB**
Karate Z, 0.04 lb ai/A	**3.96 ± 2.82B**
Malathion, 0.9 lb ai/A	**6.75 ± 4.10A**
Tenchcu 20SG, 9.0 oz ai/A	**5.83 ± 4.81AB**

None of the treatment sample totals were significantly different from the control sample totals.

Treatment	**1 DAT**	**3-4 DAT**	**6 DAT**
Untreated Control	**7.13 ± 0.90**	**6.63 ± 1.27**	**6.13 ± 1.14**
Karate Z, 0.04 lb ai/A	**3.25 ± 0.90**	**4.00 ± 1.30**	**4.63 ± 0.80**
Malathion, 0.9 lb ai/A	**7.13 ± 1.33**	**5.63 ± 1.31**	**7.50 ± 1.77**
Tenchu 20SG, 9.0 oz ai/A	**5.00 ± 2.04**	**5.88 ± 1.67**	**6.63 ± 1.54**

Conclusion: Karate was the only treatment that resulted in a significant reduction in total numbers of RSB sampled compared with the worst performing treatment, Malathion. No treatments were significantly different from the control. Previous studies in Arkansas have produced similar results, suggesting that malathion is not effective in reducing RSB populations in rice.

COASTAL PLANT PROJECT

AMENDING SMOOTH CORDGRASS SEED TO IMPROVE ITS SURVIVAL IN DIRECT PLANTING

H.S. Utomo and I. Wenefrida

Direct seeding of smooth cordgrass (*Spartina alterniflora*) using a fixed-wing airplane or other aerial applicators, such as boat and airboat, can be used to establish healthy vegetation to help reduce the rates of coastal marsh loss. Since critical growing conditions during planting and early plant establishment cannot be optimized, the ability of seed to adapt to these conditions needs to be improved. Important seed properties that can help seed against the spikes of adverse micro temperatures, prolonged lack of moisture, prolonged inundation, high wind, and wave energy were studied. The long-term goal is to improve the physiological and physical properties including seedling synchronization, faster stem elongation, rapid root anchoring, and improved seedling vigor. Summary of the results are as follows.

Seed Pelleting and Coating:

1. Coating smooth cordgrass seed using clay compounds supplemented with 5% tackifier reduced seed drift during direct aerial planting. The coating not only changed the physical properties of the seed by adding weight to the seed but also provides functional support that benefit seedling growth. Natural smooth cordgrass seed is light, chaffy, and floats on the water. De-husked seed (i.e. its chaff or lemma and palea removed) has specific gravity of 1.1, heavier than saline water. The chaff made of dry pericarp has a low specific gravity and therefore makes the smooth cordgrass seed float. The majority of mature seeds remains afloat on the water for 4 to 8 hours while a small portion of full seeds remains floating for 18 hours. For planting precision, this natural seed characteristic poses a problem since the seed will drift to other places. Coating seed to increase its weight to approximately four fold provided retaining capability of the seeds to stay in their place by an average of 60%. Incorporation of a tackifier into the coating materials helped the seed to stick better to the moist soil surface resulting in better anchoring and helped produce better stands.
2. Physical integrity of the pelleted seed was tested for its strength against continuous water movements using laboratory shakers to simulate wave actions. Initial assessment indicated that the physical integrity of pelleted seed was not strong enough to resist continuous high energy. However, the integrity of the pelleted seed was adequately maintained under simulated tidal movements with low direct wave energy. Currently, a combination of stronger coating and pelleting is being tested to better endure high wave energy. Different clay types and stronger coating binder formulations are being tested to improve this specific property.
3. Greenhouse studies indicated that adding insoluble polyacryamid (PAM) in the seed pelleted materials enhanced seedling growth. The cross-linked PAM helped retain moisture since it can absorb water to swell many times their original size, and water is slowly released as they dry, providing favorable conditions for seedlings to grow. This specific property will be further tested in the field to address problems for seed that landed on the higher soil elevation with less exposure to water during low tidal cycles.
4. Incorporation of pesticides into the seed coat was also effective in controlling mold-induced diseases and the pests causing them, promoting better seedling growth and increasing seedling establishment rates.
5. Both coating and pelleting reduced seed palatability. This will help protect seed from birds that feed on smooth cordgrass seed. The seed is not hard coated and will not survive the bird's digestive process. Therefore, they can cause a tremendous seed loss if the seed is not protected by coating or pelleting.

Seed Priming:

1. Simple seed priming by pre-germinating seed prior to seed coating had an effective impact on producing rapid and synchronized germination. Pre-germinated treatment was carried out by soaking the seed for 6 hours, removing the excess water, placing the seed in clear plastic bags, and incubating in the regulated growth incubator at 25^{o}C with a 16:8 hour day:night cycle for 4 days. The average effect of the treatment varied among genotypes tested.
2. Research is in progress to test eight priming compounds, ethephon in a concentration range of 0-30 mM, fusicoccin of 0-5 μM, gibberellic acid of 0-5 mM, proline of 0-0.5 mM, betaine of 0-0.5 mM, nitrate of 0-20 mM, thiourea of 0-10 mM, and kinetin of 0-0.05 mM.

AERIAL SEEDING OF POLYC15 SMOOTH CORDGRASS ON NEWLY CONSTRUCTED MARSH IN MARSH ISLAND – LATE FALL PLANTING

H.S. Utomo

Aerial Planting Experiment:

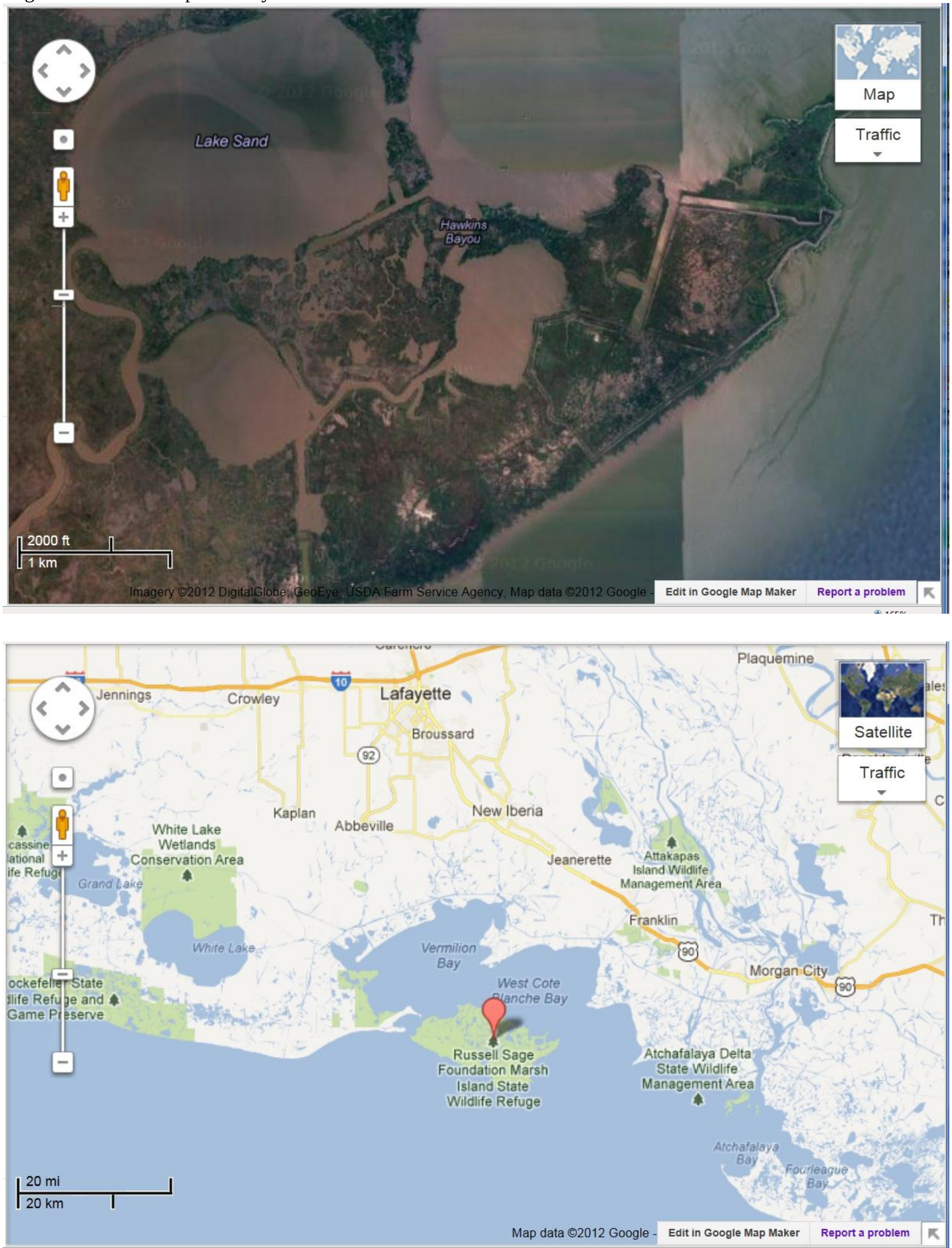
1. An aerial seeding of smooth cordgrass was conducted on Nov. 8, 2012, using a fixed-wing airplane (crop duster) on newly constructed marsh in Marsh Island off the coast of Iberia Parish. The results of the studies include positive effects of seed coating on reducing seed drift as reported above. Other data will be collected for 1) plant vigor that will be accessed during the peak of the growing period (mid-October to the first week of November 2013), 2) stem density, 3) stem height, 4) stem diameter, 5) seed production, 6) total biomass, 7) percent cover by species, 8) relative abundance, 9) aboveground biomass, and 10) seed production.

2. Seed Supply*:*
   The PolyC15 seed production plots are currently being maintained at the Rice Research Station, and the seed harvested is used for all aerial seeding experiments. PolyC15 is produced from random crosses of 15 genetically different smooth cordgrass parental lines. In addition to their capability to produce a high amount of seed, these lines were selected for characteristics that will enhance coastal restoration efforts. A small portion of PolyC15 seed was harvested from PolyC15 plots grown at the Belle Chase and Lake Pontchartrain sites. Production of PolyC15 can be carried out in a wide range of salinity from freshwater to sea water. A total of 200 lb of cleaned seed was used. The average germination rate of PolyC15 seed was 70%. Prior to loading PolyC15 seed onto the airplane, it was mixed with clay absorbent as a spreader.

3. Seeding Rate and Plot Size
   Three seeding rates (10, 20, and 30 lb/A) were used in the study. The hopper opening in the airplane was adjusted according to the given air speed to deliver smooth cordgrass seed at 10 lb/A. The 20- and 30-lb/A treatments were accomplished, respectively, by flying over the target plots two and three times. Each seeded area was a 40- x 2,000-ft strip separated by a 56-ft unplanted area. Following aerial application, seed counting was conducted inside a 2- x 2-ft quadrat from three randomly selected spots from each treated area to determine the consistency of the aerial application.

Figure 1. Aerial application of smooth cordgrass seed using a crop duster over newly constructed marsh in Marsh Island. Note the soil fluidity of the newly constructed site.

Figure 2A and B. Map of newly created site.



DNA FINGERPRINTING OF SMOOTH CORDGRASS ELITE LINES USED TO DEVELOP FOUNDATION MATERIAL

H.S. Utomo

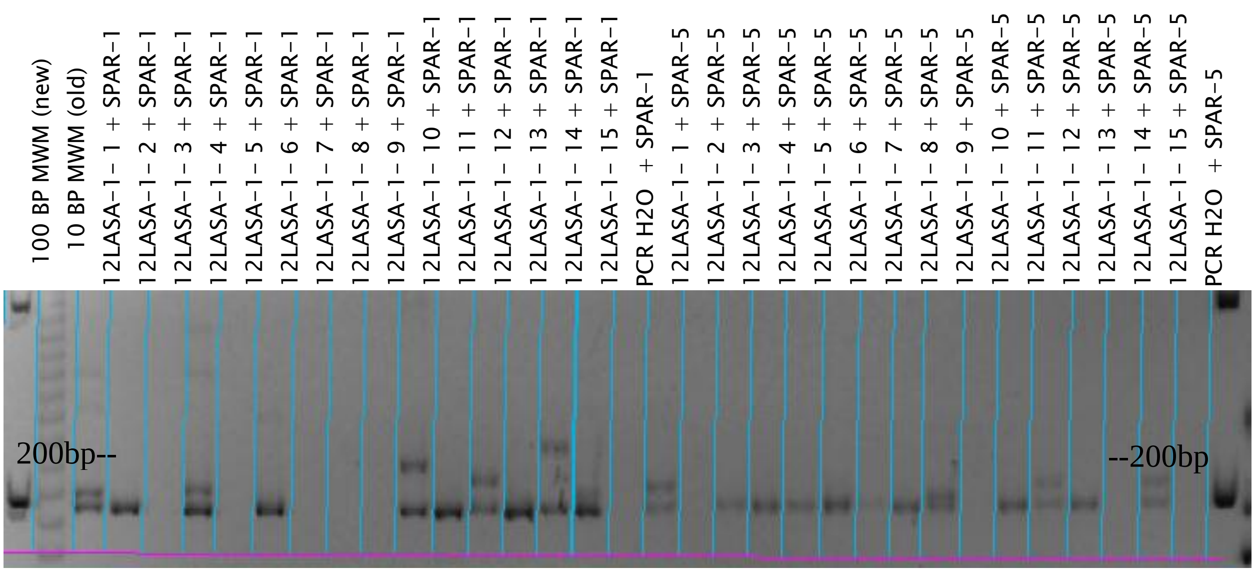
Genetically improved coastal plant varieties with great adaptation to coastal environments can help improve the efficiency of coastal restoration and erosion control. Varietal certification is a key protection in the sale, tracked after distribution, and delivery of planting materials to the point of restoration. The certification program ensures a variety's genetic identity, purity, and performance characteristics. The certification standards will provide quality assurance and consumer protection in obtaining coastal plant varieties as specified by the breeders to get maximum benefits in coastal restoration programs. The certification standards will provide a critical path to highly efficient coastal plant restoration efforts that will benefit all parties involved in coastal plant restoration programs. As the industry and the technology evolve, the standards will be adjusted to best suit the industry needs. DNA fingerprinting can be used as one of the methods to ensure a varietal purity.

DNA fingerprinting was applied to selected lines for genetic identity purposes and assisting in developing pure lines. Promising lines were subjected to DNA analyses.

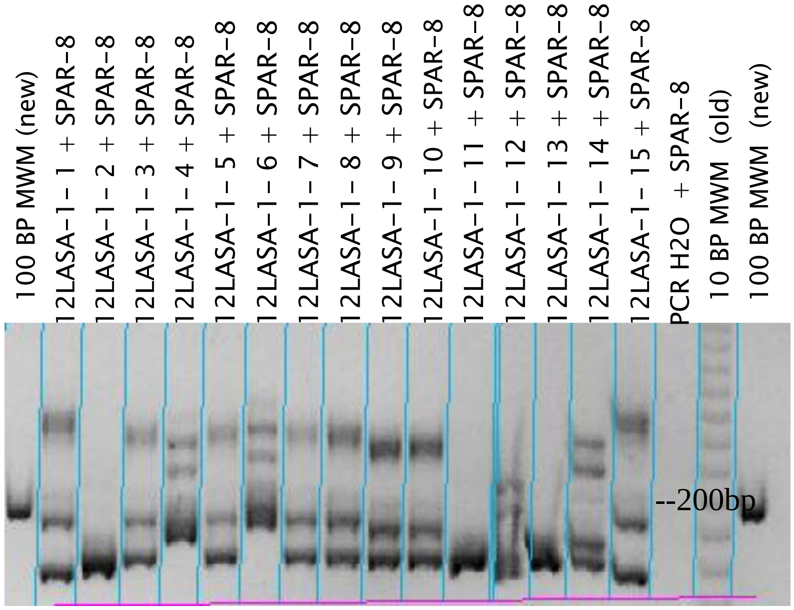
DNA profile of selected group:

Group One : 12LASA-1-1 to 12LASA-1-15 (location: RRS)
Group Two : 12LASA-2-1 to 12LASA-2-15 (location: Marsh Island)
Group Three : 12LASA-3-1 to 12LASA-3-15 (location: Lake Ponchartrain)
Group Four : 12LASA-4-1 to 12LASA-4-15 (location: Belle Chasse)
Group Five : 12LASA-5-1 to 12LASA-5-15 (location: Rockefeller)
Marsh Island Reference Population: MIRP-1 to MIRP-15

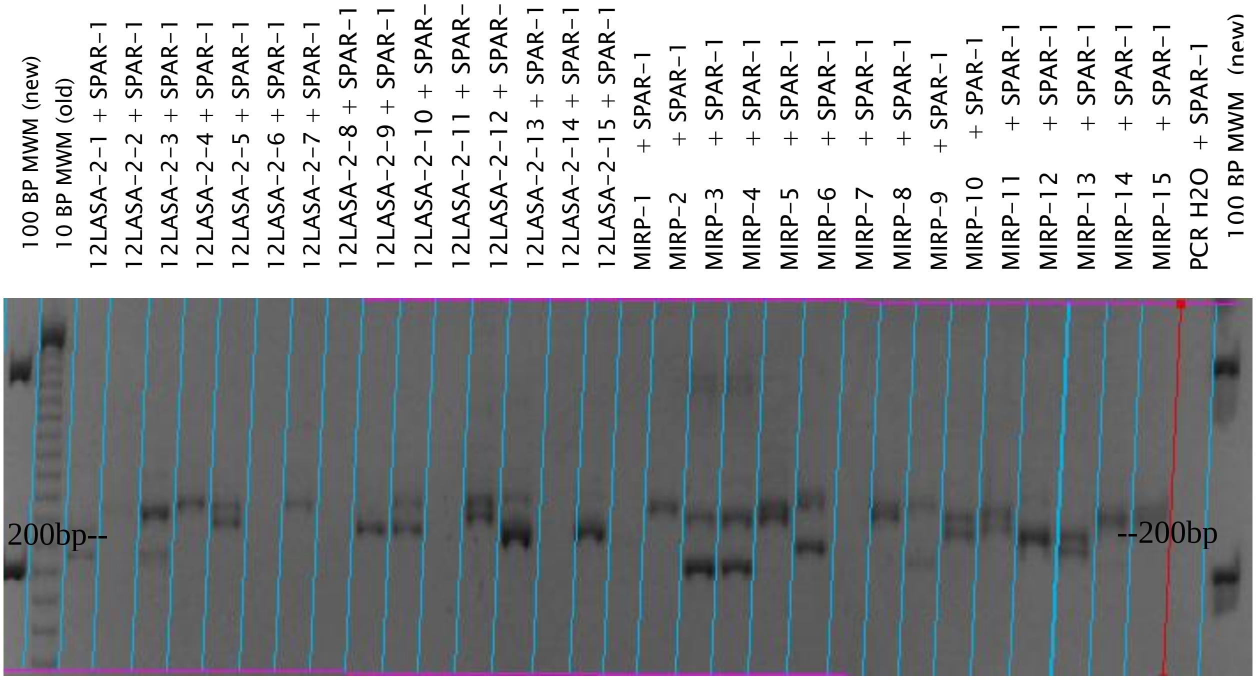
SSR Gel 1 Elite Spartina of 2012 with SPAR-1, 5, and 8 (10-26-12)



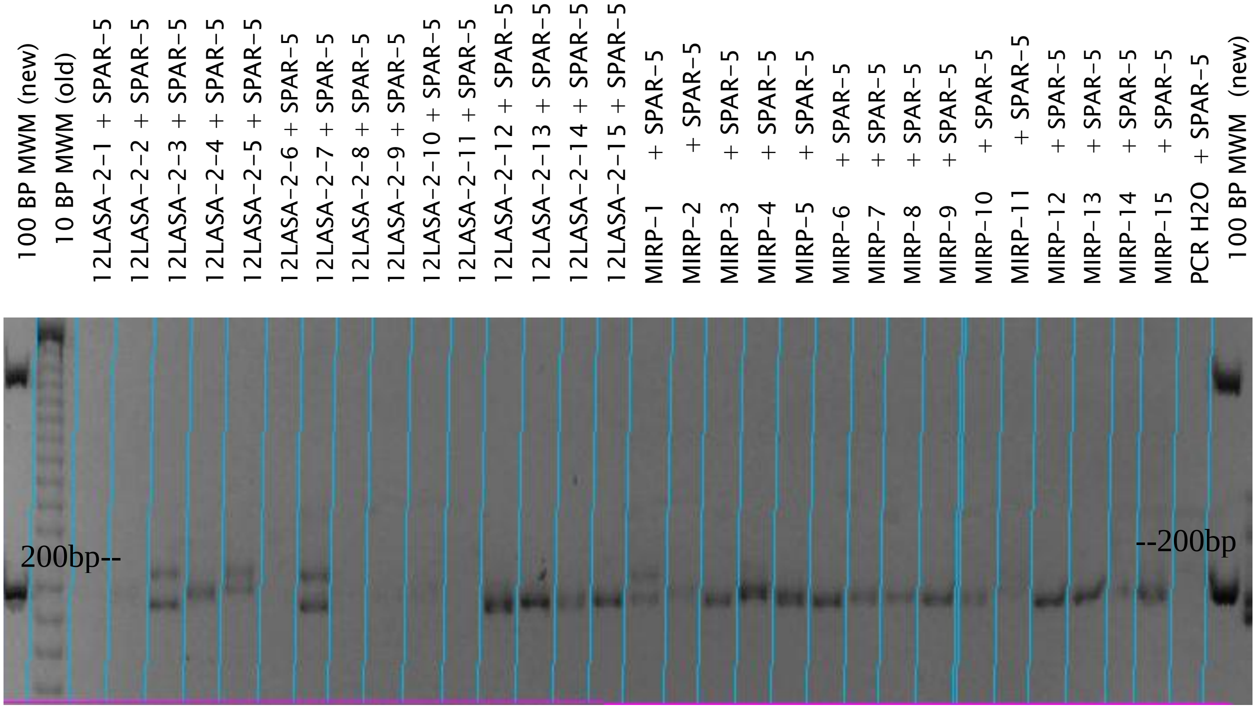
SSR Gel 2 Elite Spartina of 2012 with SPAR-1, 5, and 8 (10-26-12)



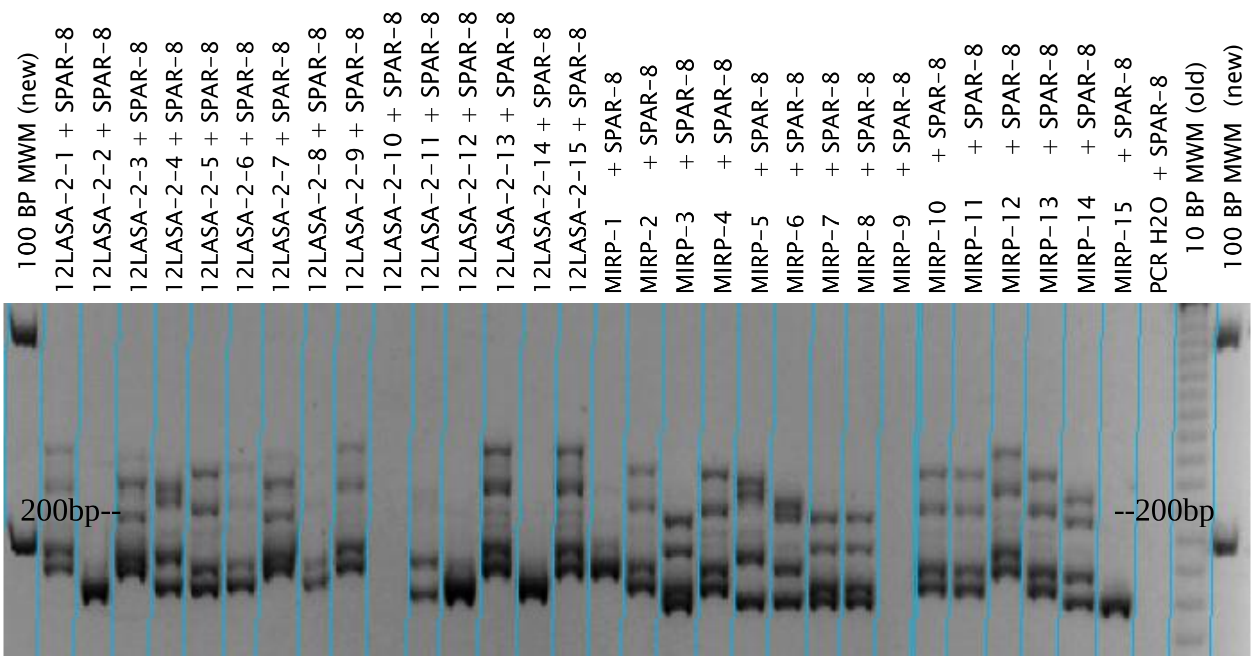
SSR Gel 3 Elite Spartina of 2012 with SPAR-1, 5, and 8 (10-26-12)



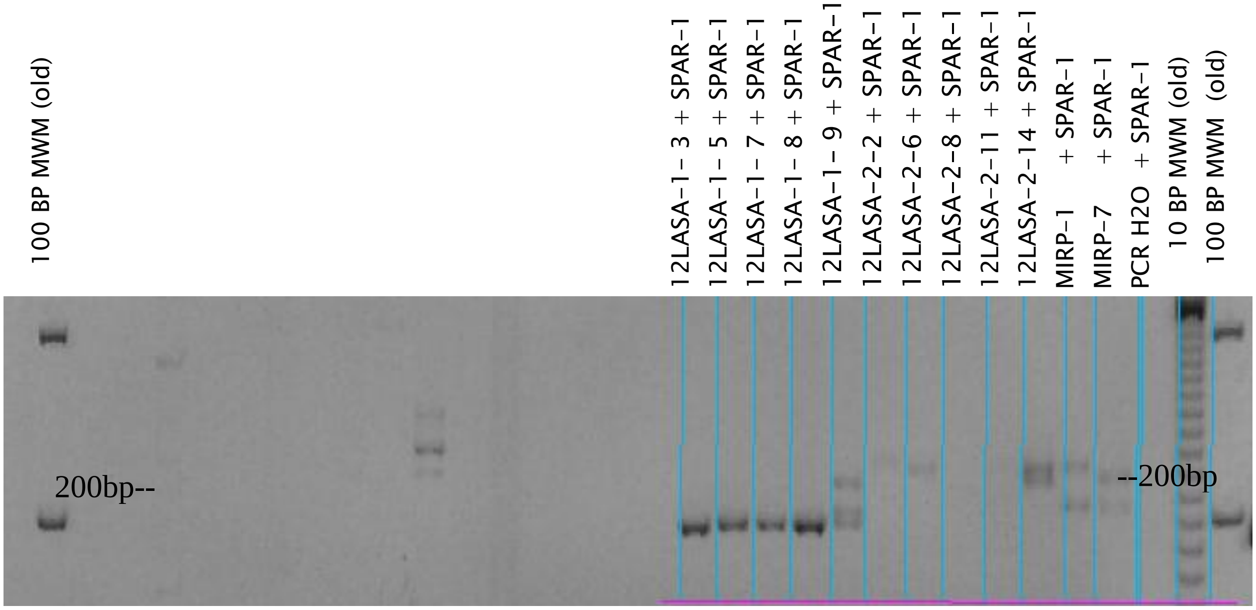
SSR Gel 4 Elite Spartina of 2012 with SPAR-1, 5, and 8 (10-31-12)



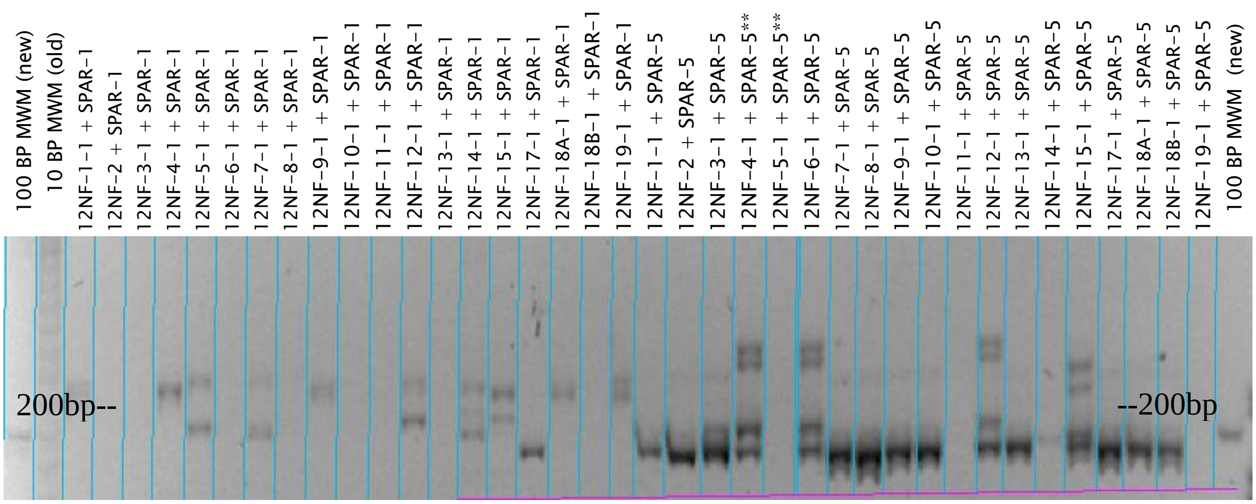
SSR Gel 5 Elite Spartina of 2012 with SPAR-1, 5, and 8 (10-31-12)



SSR Gel 5B Re-do’s Elite Spartina of 2012 with SPAR-1, 5, and 8 (11-7-12)

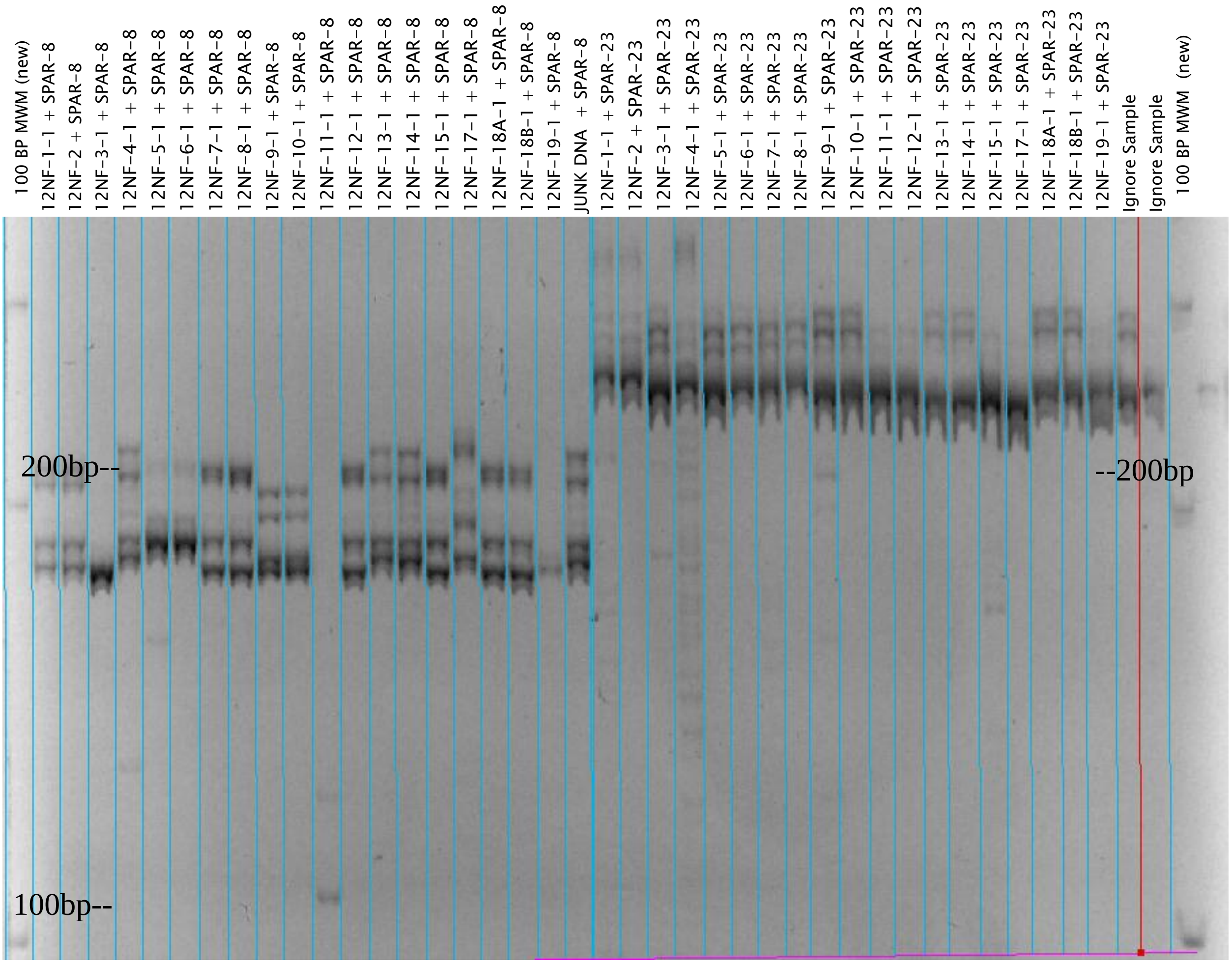


SSR Gel 1 North Field Spartina of 2012 with SPAR-1, 5, and 8 (11-9-12)

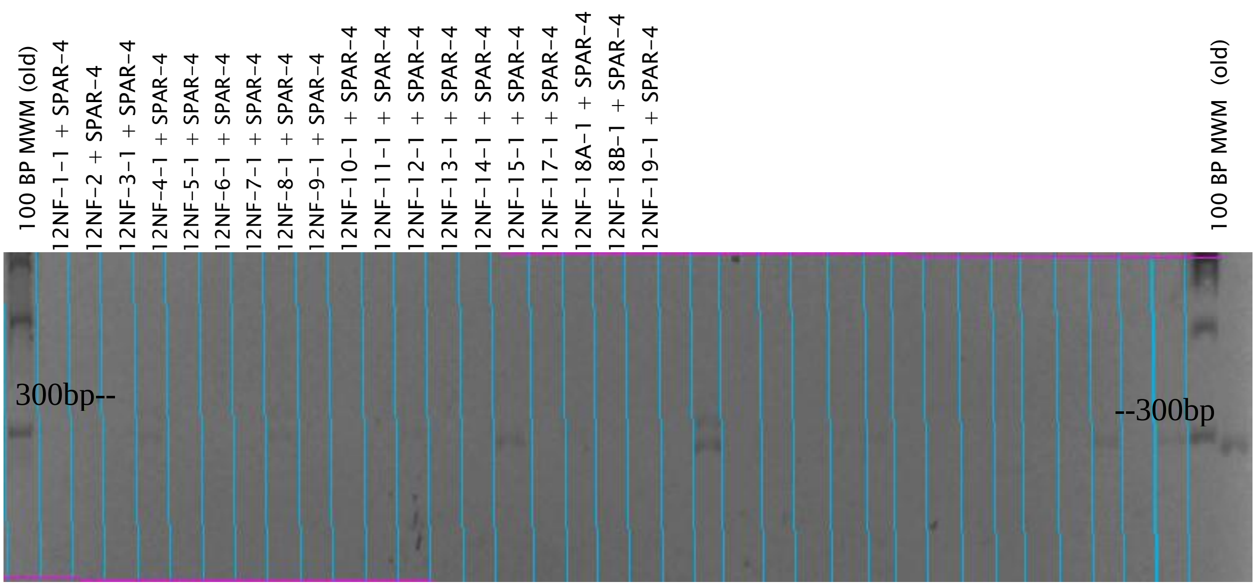


Not sure about the order of loading for the samples: 12NF-4-1 + SPAR-5 and 12NF-5-1 + SPAR-5 may be reversed.

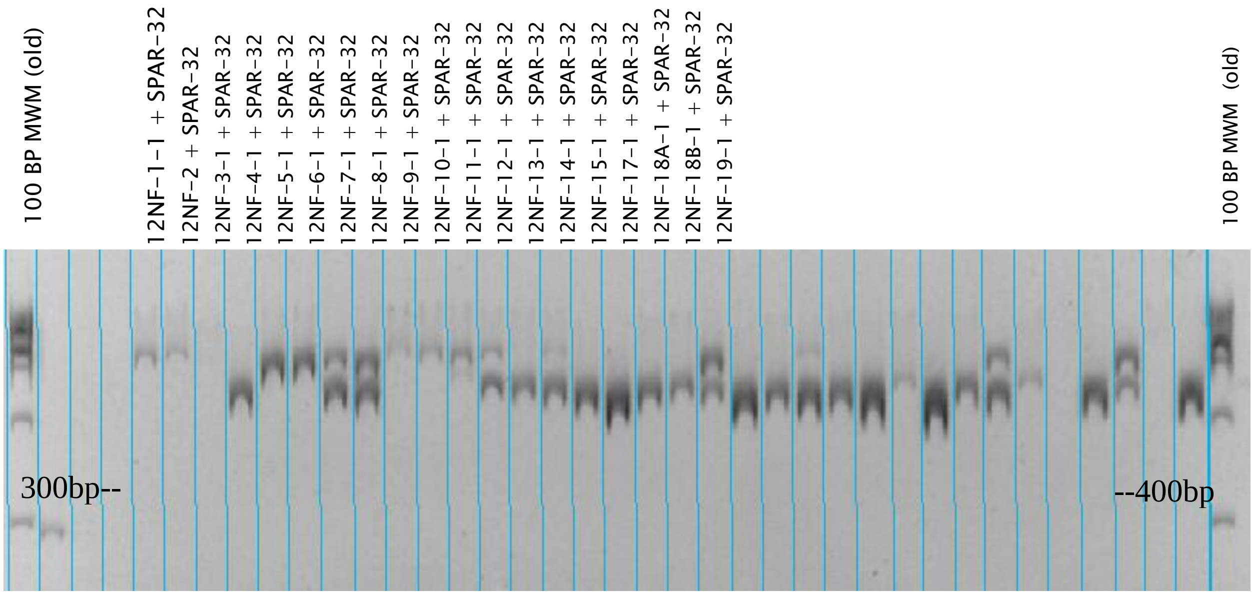
SSR Gel 2 North Field Spartina of 2012 with SPAR-1, 5, & 8 Plus SPAR-23 (11-9-12)



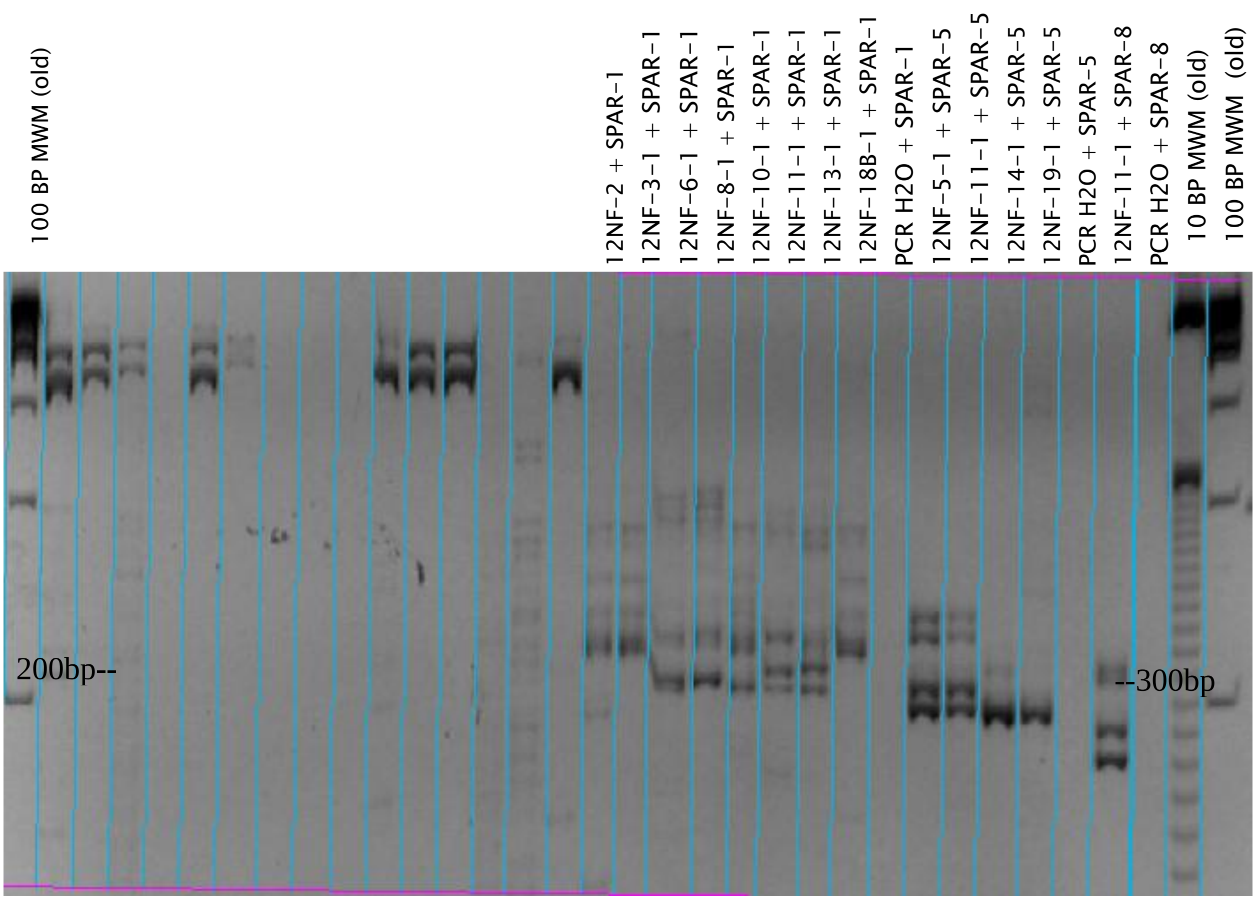
SSR Gel 3 North Field Spartina of 2012 with SPAR-4 (11-14-12)



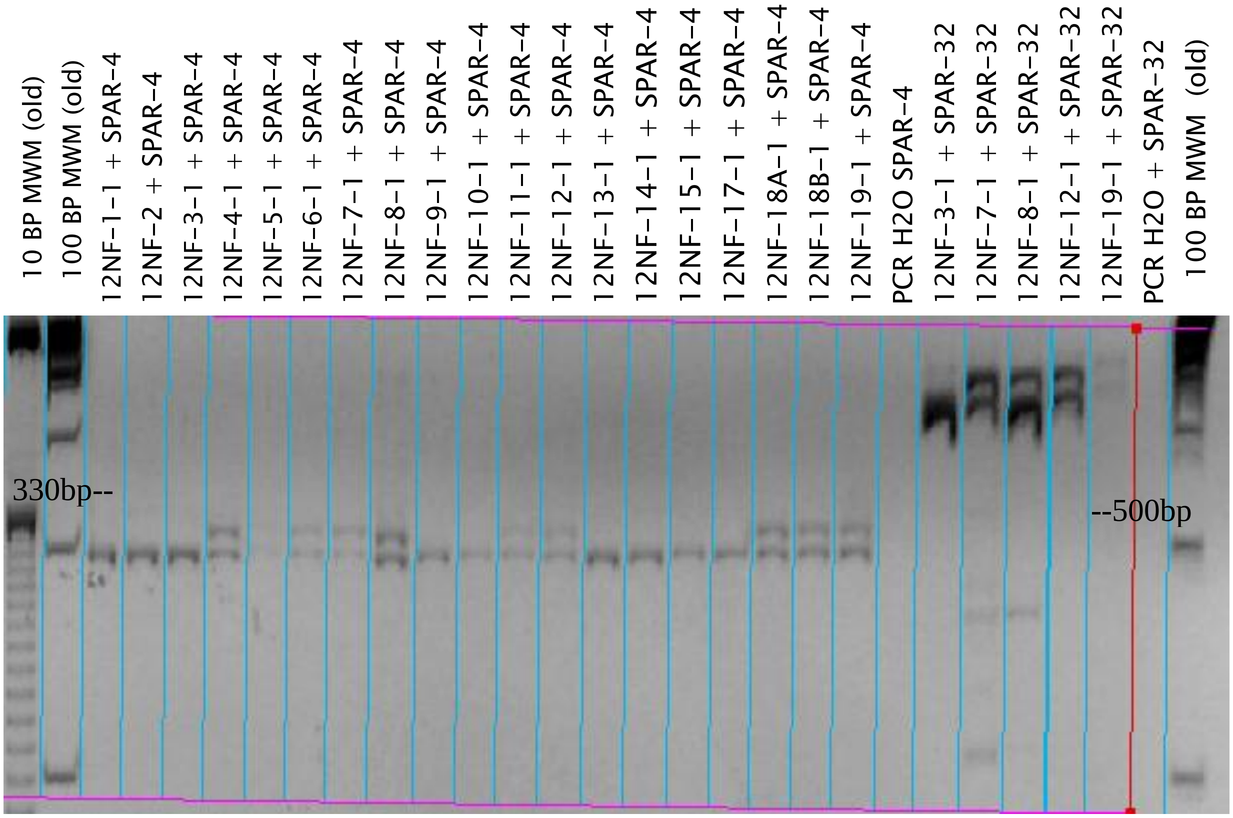
SSR Gel 4 North Field Spartina of 2012 with SPAR-32 (11-14-12)



SSR Gel 5 Re-Do's North Field Spartina of 2012 with SPAR -1, -5, -8, -4, -23, and -32 (11-30-12)

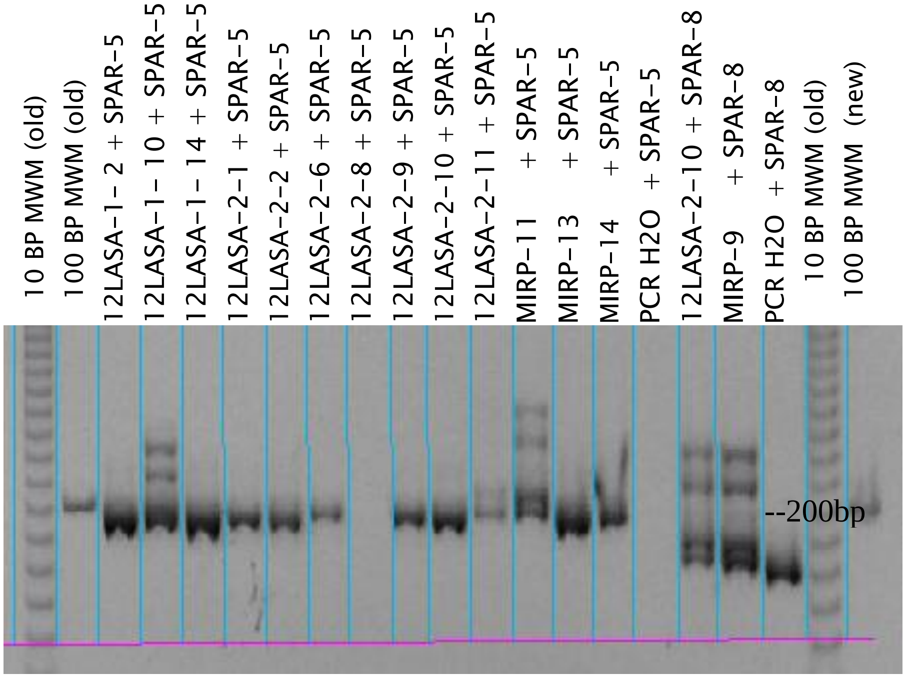


SSR Gel 6 Re-Do's North Field Spartina of 2012 with SPAR -1, -5, -8, -4, -23, and -32 (11-30-12)

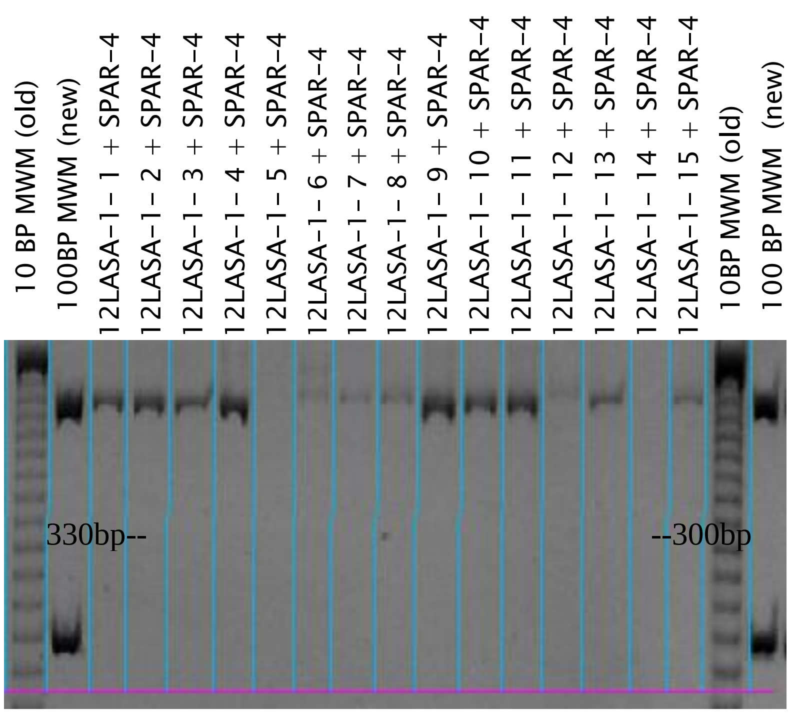


Sample ID	SPAR-1	SPAR-4	SPAR-5	SPAR-8	SPAR-23	SPAR-32
12NF-1-1	215	300	195	180/190	255	490
12NF-2	220	300	195	180/190	255	490
12NF-3-1	220	300	195	180	250	450
12NF-4-1	215	300/310	195/205	185/190	255	470
12NF-5-1	200/220	300/310	195/205	190	250	490
12NF-6-1	210	300/310	195/205	190	250	490
12NF-7-1	200/220	300/310	195	180/190	250	470/500
12NF-8-1	210	300/310	195	180/190	255	470/500
12NF-9-1	215	300	195	180/185	250	490
12NF-10-1	205/220	300	195	180/185	250	490
12NF-11-1	205/210/225	300/310	195/205	180/190	250	490
12NF-12-1	205/220	300/310	195/205	180/190	250	470/500
12NF-13-1	205/210	300	195	185/190	245	470
12NF-14-1	200/220	300	195	185/190	245	470
12NF-15-1	205/215	300	195/205	180/190	245	430
12NF-17-1	195	300	195	185/195	245	430
12NF-18A-1	215	300/310	195	180/190	250	470
12NF-18B-1	220/225	300/310	195	180/190	250	470
12NF-19-1	215/220	300/310	195	180	250	470/500
PCR H2O	No Band	No Band	No Band	No Band	No Band	No Band
				Only had 100bp MWM so had to estimate values	Only had 100bp MWM so had to estimate values	Only had 100bp MWM so had to estimate values

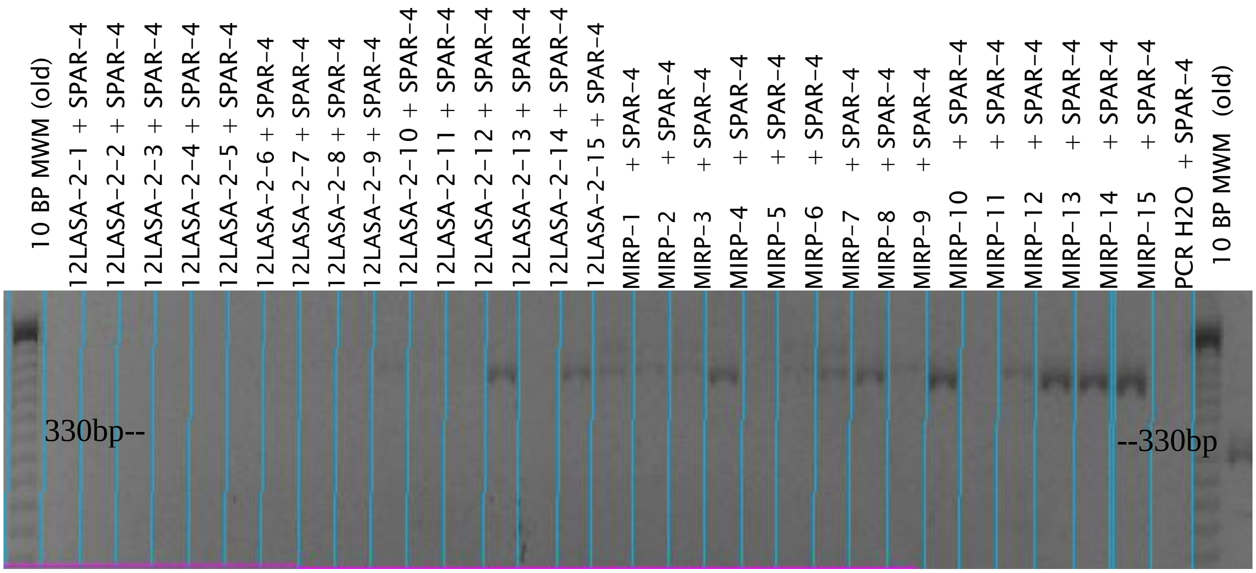
SSR Gel 5C Re-do's Elite Spartina of 2012 with SPAR-1, 5, and 8 (11-7-12)



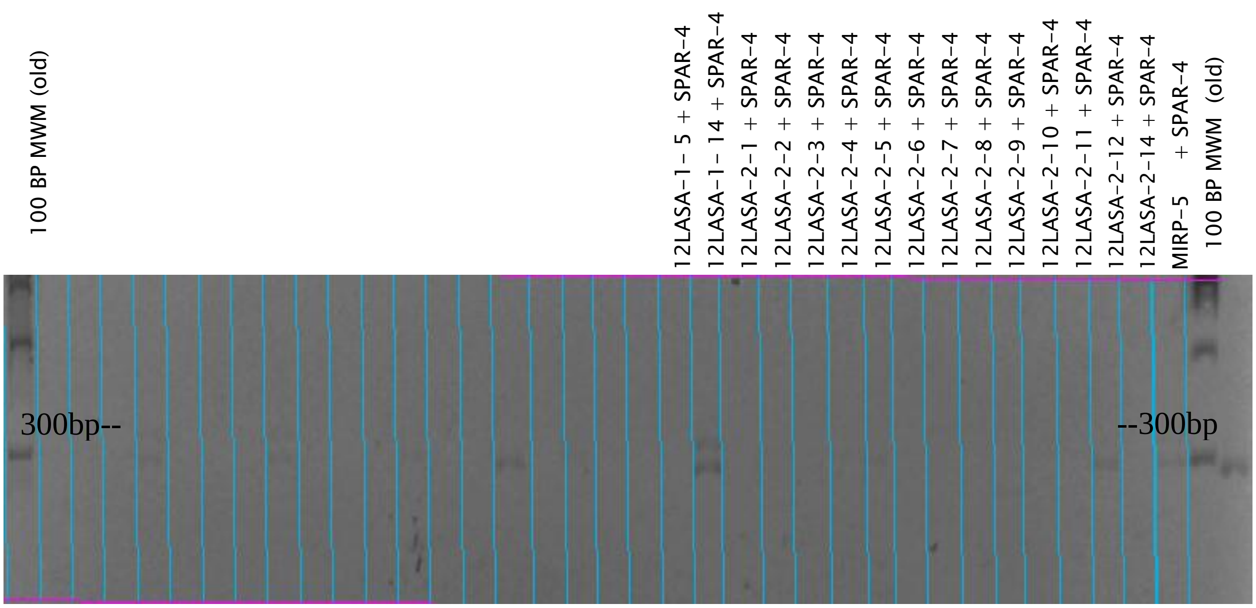
SSR Gel 6 Elite Spartina of 2012 with SPAR-4 (10-31-12)



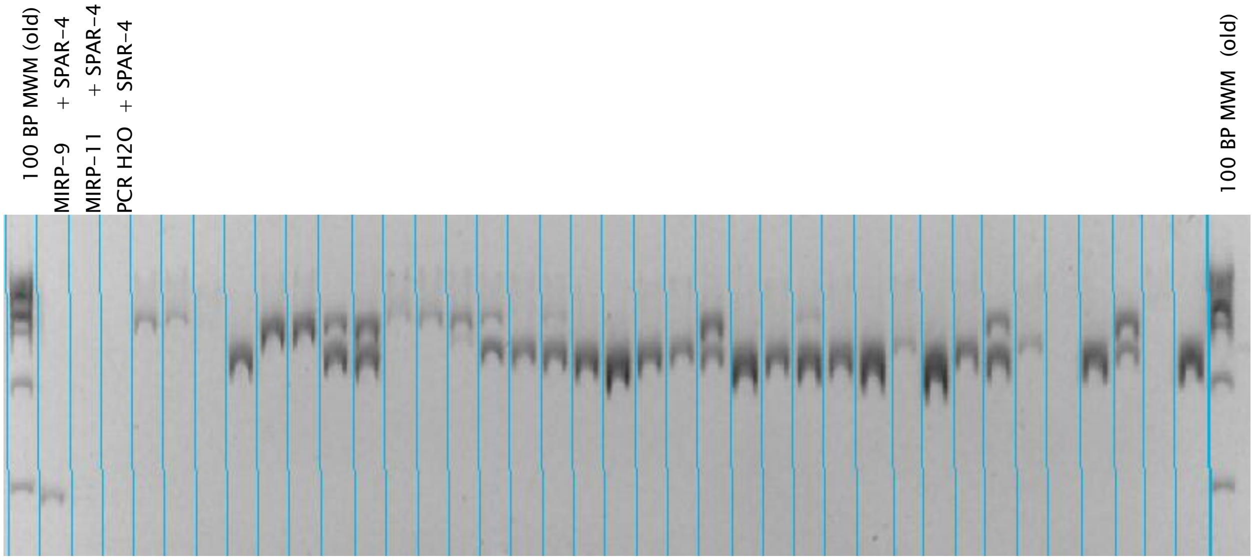
SSR Gel 7 Elite Spartina of 2012 with SPAR-4 (11-1-12)



SSR Gel 7B Elite Spartina of 2012 with SPAR-4 (11-14-12)



SSR Gel 7C Elite Spartina of 2012 with SPAR-4 (11-14-12)



Sample ID	SPAR-1	SPAR-4	SPAR-5	SPAR-8	SPAR-23	SPAR-32
12LASA-1- 1	195/200	300	195/202	180/193	250	470/550
12LASA-1- 2	195	300	195	182	245	470
12LASA-1- 3	200	300	195	184/193	245	470
12LASA-1- 4	195/200	300	195	192	245	470
12LASA-1- 5	200	300	195	184/193	250	470
12LASA-1- 6	195	300	195	200	245	470
12LASA-1- 7	200	300	195	184/193	250	470
12LASA-1- 8	200	300	195	184/193	245	470
12LASA-1- 9	200/205/218	300	195/200	184/190	250	430
12LASA-1- 10	195/210	300	195	184/190	245	430
12LASA-1- 11	195	300	195	184	245	470
12LASA-1- 12	195/205	300	195/202	180/185	245	470
12LASA-1- 13	195	300	195	184	245	430
12LASA-1- 14	195/220	300/310	195	184/190	250	470/550
12LASA-1- 15	195/200	300	195/202	180/193	250	470/550
12LASA-2-1	203/218	300	195	190/200	250	470
12LASA-2-2	205/218/223	300	195	184	255/262	No Band
12LASA-2-3	203/223	300	195/206	190	255	470
12LASA-2-4	230	300	200	184/192	255	490
12LASA-2-5	220/230	No Band	200/206	184/190	255	470/550
12LASA-2-6	223	300	195	184/190	250	470/550

Continued.

Continued.

Sample ID	SPAR-1	SPAR-4	SPAR-5	SPAR-8	SPAR-23	SPAR-32
12LASA-2-7	**230**	**300**	**195/204**	**190**	**250**	**470**
12LASA-2-8	210/220	No Band	200	184/190	250	No Band
12LASA-2-9	220	300	195	190/200	255	470
12LASA-2-10	220/230	300	195	184/190	245	490
12LASA-2-11	210/220	300	200/206	184/190	255	No Band
12LASA-2-12	223/230	300	195	184	250/262	550
12LASA-2-13	218/230	300	195	190/200	245	490
12LASA-2-14	218/223	300	195	184	135/250	No Band
12LASA-2-15	218	300	195	190/200	250	470/550
MIRP-1	205/223	300	200/204	190	250	550
MIRP-2	230	300	200	184/190	255	490
MIRP-3	203/223	300	195	180/184	245	550
MIRP-4	203/223	300	200	184/190	290	490
MIRP-5	223/230	300/310 Faint	195	180/192	255	470/550
MIRP-6	212/230	300	195	180/190	250	470/550
MIRP-7	205/218	300	200	180/184	255	490
MIRP-8	223/230	300	200	180/184	250/262	No Band
MIRP-9	203/230	300	200	184/190	245	470
MIRP-10	220/223	300	200	184/190	250	600
MIRP-11	220/230	300	200/206	184/190	255	490
MIRP-12	218	300	200	190/200	250	470
MIRP-13	212/218	300	200	184/190	255	450
MIRP-14	223	300	200	180/190	262	600
MIRP-15	223	300	200	180	250	430
PCR H2O	No Band	No Band	No Band	No Band	No Band	No Band

LOUISIANA RICE RESEARCH VERIFICATION PROGRAM - 2012[1]

J.K. Saichuk

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 2011, 113 fields had been included in the verification program. In 2012, the program included five fields (Figure 1).

The fields were visited on at least a weekly basis by a Specialist, County Agent, or the Extension Associate. 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 7,563 lb/A (168.1 bu/A or 46.7 bbl/A) at 12% moisture. Second crop was harvested in Cameron and St. Landry parishes, adding another 508 lb/A to the total, for a final average of 8,071 lb/A (179.3 bu/A or 49.8 bbl/A). This yield exceeded that of the parishes participating in the program by 2,027 lb/A.

Economic data continue to reveal large production cost differences between growers. It also is clear that more needs to be done to help farmers reduce production costs (Table 2).

The program continues to provide an accurate evaluation of current recommendations and insight into other areas of research. The educational value of the program to all concerned (farmers, researchers, and extension personnel) increases each year.

Budget reductions have reduced the number of experienced rice county agents and the scope of the verification program. In 2013, it is anticipated that the program will include five or six fields.

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[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 2012.

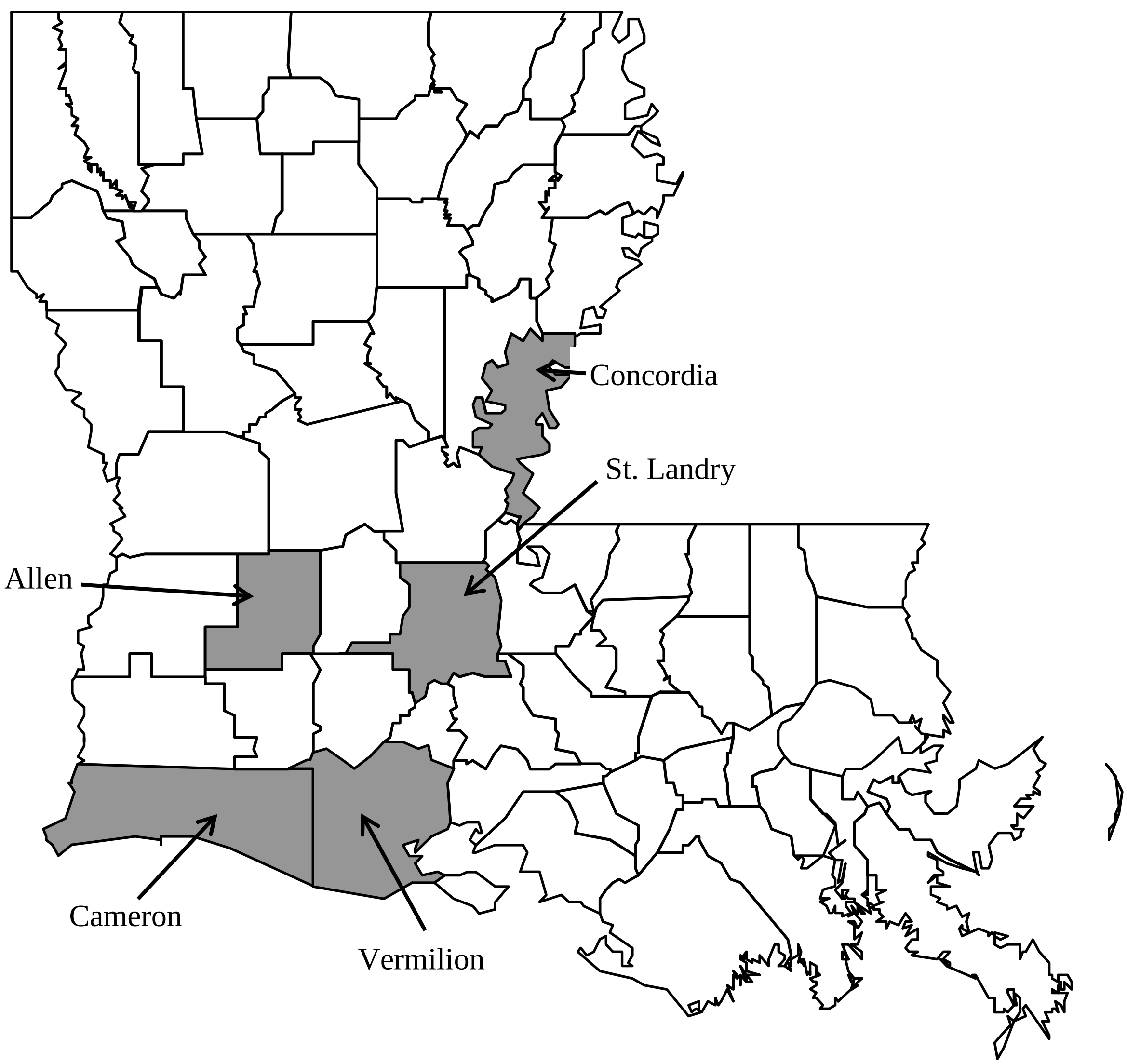

Table 1. 2012 Louisiana Rice Research Verification Program Yield Summary.

Parish	Acres in Verification Program	Verification Yield @ 12% Moisture (cwt/A)		Verification Program			Average Parish Yield[1]	Parish Acreage	Total Parish Production
		First Crop Alone	Second Crop	Total Yield/A	First Crop Production	Total Production			
Allen	30.7	73.91	0.0	73.91	2,269.04	2,269.04	66.42	13,961	927,290
Cameron	35.7	55.78	12.80	68.58	1,991.35	2,448.31	56.10	15,402	864,052
Concordia	37.4	73.21	0.0	73.21	2,738.05	2,738.05	68.00	10,608	721,344
St. Landry	44.1	81.42	23.68	105.10	3,590.62	4634.91	68.00	23,661	1,608,948
Vermilion	16.5	71.37	0.0	71.37	1,177.60	1,177.60	54.45	46,191	2,515,100
TOTAL	**164.4**	**75.63**	**7.92**	**80.71**	**11,766.67**	**13,267.91**		**109,823**	**6,636,734**
						Verif. Avg.	**Parish Avg.**		**Difference**
Average yield (cwt/A)						**80.71**	**60.43**		**20.27**

[1]Average Parish Yield (1^{st} and 2^{nd} Crop): cwt/A.

Table 2. 2012 Louisiana Rice Research Verification Program Yield, Milling and Economic Summary.

Parish	Variety	Yield @ 12% Moisture (cwt/A)[1]	Milling (% Whole / % Total)	Variable Costs ($/A)[2]	Cost of Production ($/cwt)[2]	Return on Variable Costs ($/A)[2,3]
Allen	CLXL745	73.91	51.04/67.74	714.11	9.66	335.41
Cameron	Cheniere	68.58	59.71/70.48	539.69	7.86	434.15
Concordia	CL111	73.21	58.20/68.95	437.52	5.98	602.06
St. Landry	CL152	105.10	60.49/68.60	481.93	4.58	1010.49
Vermilion	Cheniere	71.37	60.26/71.35	0	0	0

1 - Figure includes ratoon crop yield.

2 - Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transporting, drying, storing, or fixed costs.

3 - This value was obtained using a selling price of $14.20 per cwt for long grain and $17.00 for medium grain.

ALLEN PARISH

The field in Allen Parish is the only one planted with a hybrid variety in 2012. The field had a burndown herbicide applied to a very smooth surface with intentions of drill seeding directly into this seedbed. Persistent rain delayed planting. Once the showers stopped, the field was cultivated with a Vibra Shank to hasten drying. On April 12, 19 pounds of seed treated with fungicide and zinc, but no insecticide, was drilled.

Four days after emergence, we recommended the first application of Newpath. The farmer wanted to add Stealth and crop oil concentrate to the mix. We recommended against including the crop oil because Stealth is an emulsifiable concentrate, the weeds were small, and the hybrids are a little sensitive to Newpath. The second application of Newpath was recommended three weeks later. In addition to the Newpath, 0.75 oz of Permit plus crop oil concentrate were recommended to control hemp sesbania and sedges.

Well problems delayed flooding for another 10 days. During this period, the field was monitored for rice water weevils because no seed treatment had been used. The fertilizer recommendation of 230 lb of 38-0-0/A was withheld until flooding immediately following the application could be assured.

Rice water weevils were not detected until the field had been flooded for a little over a week. At that time, Karate was recommended and was applied.

Topdressing was delayed because of weather. This application of nitrogen was made between the ½-inch internode elongation and panicle differentiation growth stages.

Rigorous scouting revealed no disease in the field. Regardless of the disease resistance characteristics of the hybrids and the fact that no disease was detected, the farmer insisted on an application of fungicide because he felt fungicide would help preserve forage for a subsequent crawfish crop.

Throughout flowering, about 9 inches of rain fell on the field. During this period, stink bugs were monitored carefully and never reached treatable levels.

The field was harvested on August 13. Yields had been expected to be very good based on crop appearance but were very disappointing. It is believed that the rain during flowering probably contributed to poor grain filling and reduced yields. We harvested 7,969 lb/A (49.2 bbl/A or 177 bu/A) at 18.4% moisture which when adjusted to 12% moisture was 7391 lb/A (45.6 bbl/A or 164 bu/A). Milling was 51/68.

ALLEN PARISH

Cooperator: Ben Leonards
Agent: Barrett Courville and Randy Bellon
Field Size: 30.7 acres

Cultural Practices

Variety: CLXL745
Method of Planting: Drill
Water Management: Delayed flood

Seeding Rate: 19 lb/A
Date of Planting: 4/12/12
Date of Emergence: 4/21/12

Growth and Development

Stage	Observation Date	DD50 Date
Green Ring	6/4	
PD	6/15	
50% Heading	6/30	
Drain for Harvest	7/27	
Harvest	8/13	

Yield, Milling, and Economic Data

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole / % total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	73.91	51/68	714.11	9.66	335.41
2nd Crop	--	--	--	--	--

[1]Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.
[2]This value was obtained using a selling price of $15.50/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)
4/10	9-23-30	300	27	69	90
5/9	38-0-0	230	87	0	0
5/23	46-0-0			0	0
Total				69	90

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Various	3/28	Glyphosate + Aim + Choice
Broadleaf Signalgrass, Panicum	4/25	4 oz. Newpath + pendimethalin
Broadleaf Signalgrass, Sedges	4/19	4 oz Newpath + .75 oz Permit

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
None	6/20	propiconazole

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil	5/25	Karate

CAMERON PARISH

The intention in Cameron Parish was to drill seed into a stale seedbed; however, rainy weather caused a change in plans. A Vibra Shank was pulled over the field then Cheniere seed was dry broadcasted into it on April 3. Command herbicide was applied followed by phosphorus and potassium fertilizer then the field was flushed. Heavy blackbird feeding prompted the use of an additional 1,000 pounds of Cheniere seed treated with AV-1011 bird repellent. This treated seed was flown into the field and dispersed the birds.

When rice plants were in the 3- to 4-leaf stage, the field was flushed and a mixture of Permit and Londax herbicides was applied. While the field was still very wet, Clincher herbicide was applied to suppress Creeping Rivergrass. Once the field surface had dried sufficiently, 140 pounds of urea fertilizer (to supply 65 lb/A of actual nitrogen) were applied, then permanent flood was established.

The low rate of nitrogen fertilizer was used here because this field had been chosen for the N-ST*R nitrogen test developed by the University of Arkansas. The field had been sampled according to prescribed guidelines by the specialist and county agent. By midseason, it appeared this was too little nitrogen to produce high yields. It was decided to remain with the original recommendation rather than add more nitrogen. At harvest, it was clear this was insufficient nitrogen and that a rate of 90 pounds of actual nitrogen would probably have been the correct amount.

The presence of high numbers of adult rice water weevils more than justified the use of Dermacor seed treatment. No root system damage was observed later in the season.

One consequence of the low nitrogen rate was reduced tillering, another was shorter plants, and a third effect was drastically reduced disease pressure. The field was extremely clean. Six ounces of Bumper (propiconazole) fungicide was applied as a preventative of Cercospora, which is common in the area, especially on second crop production. Second crop production was planned for the field.

Stink bug pressure never reached treatment levels.

The field was drained on July 18 and harvested on August 3. Yield was a disappointing 5,775 lb/A (35.6 bbl/A or 128 bu/A) at 15% moisture. Yield adjusted to 12% moisture was 5,578 lb/A (34.4 bbl/A or 124 bu/A). Grain quality was excellent with some of the highest test weights ever recorded in the Verification Program, averaging 48.5 lb/bu. Milling was 59.71/96.73. Low harvest moisture likely reduced milling a little.

The field was fertilized with nitrogen and flooded for ratoon crop production. Harvest of the second crop began November 1 and was completed the next day. Considering yields reported in the surrounding area, this field yielded a respectable 1,352 lb/A (8.4 bbl/A or 30.1 bu/A) at 16.75 moisture. Adjusted to 12% moisture, yield was 1,280 lb/A (7.9 bbl/A or 28.44 bu/A). This brought the total yield at 12% moisture to 7,127 lb/A (44.0 bbl/A or 158.38 bu/A).

CAMERON PARISH

Cooperator: Paul Johnson
Agent: Barrett Courville
Field Size: 35.7 acres

Cultural Practices

Variety: Cheniere
Method of Planting: Broadcast seeded dry seed
Water Management: Delayed flood

Seeding Rate: 80 lb/A
Date of Planting: 4/3
Date of Emergence: 4/10

Growth and Development

Stage	Observation Date	DD50 Date
Green Ring	5/26	
PD	6/9	
50% Heading	6/24	
Drain for Harvest	7/18	
Harvest	8/3	

Yield, Milling, and Economic Data

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole / % total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	55.78	59.71/70.48	447.39	7.61	344.69
2nd Crop	12.80		92.30	11.05	26.27

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $14.20/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)
4/10/12			0	40	60
5/5/12	0-46-0	141	65	0	0
8/3/12	0-46-0	100	46	0	0
Total			111	40	60

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
None (pre-emerge)	4/10/12	Command
Creeping rivergrass, fall Panicum, barnyardgrass	5/2/12	15 oz. Clincher + COC
Nutsedge, alligatorweed, bladderpod, Texasweed	5/5/12	0.25 oz. Permit + 1.0 oz. Londax

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
None – preventative	6/24/12	6 oz. propiconazole

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
RWW preventative	At seed purchase	Dermacor

CONCORDIA PARISH

The field in Concordia Parish represented one of only a few true no-till fields we have had in the verification program. Soybeans had been grown and harvested in 2011 with minimal disturbance of the surface thus no tillage was needed prior to planting. Existing vegetation was removed with an application of glyphosate plus First Shot, then, seed of CL111 was drill planted.

The first problem became apparent when seedlings began to emerge. Two outside runners on the drill had plugged, creating a pattern of two empty drill rows alternating with four empty drill rows, depending on turning direction. Seed was broadcasted using a small spin spreader to fill in the gaps, but the difference in emergence and the density of the stand did not compensate for a good stand at the correct population that should have been there.

Shortly after planting, Command herbicide was applied as a pre-emergence treatment to control sprangletop. One hundred pounds of ammonium sulfate was applied as a starter fertilizer, then Newpath herbicide was applied and the field was flushed. Twelve days later, the second application of Newpath was made. Even though some sprangletop had emerged on one side of the field, there was so little weed pressure that the decision was made to use only Newpath at this time and to evaluate again in a couple of weeks. Two-thirds of the total intended nitrogen was applied, and the field was flooded.

Three weeks later, the field was topdressed with the remaining intended nitrogen. The seed had been treated with NipsIt Inside, and no rice water weevils were detected. Sheath blight was found on the next visit to the field. Clincher herbicide was applied to the spot where sprangletop had survived. It was speculated that because that area was high and was also the site of entrance of water into the field that it was likely that the soil may have dried at some point and Command herbicide may have been flushed out of the area.

Sheath blight pressure increased, justifying an application of fungicide just prior to heading. Although stink bugs never reached threshold, because adjacent fields were sprayed, this field was included in the application. Just before draining the field, the field was hit with a drift rate of paraquat applied as a harvest aid to nearby soybeans.

On August 17, we harvested 7,771 lb/A (48 bbl/A or 173 bu/A) at 17% moisture. When adjusted to 12% moisture, the yield was 7,321 lb/A (45 bbl/A or 163 bu/A). This yield was a little disappointing because the field appeared capable of producing 8,000 lb/A. The skips in planting were deemed to be an important reason for the lower-than-expected yield. It is doubtful the paraquat drift affected yield. Milling was 58.20/68.95.

CONCORDIA PARISH

Cooperator: Leo Green and Arty Person
Agent:
Field Size: 37.4 acres

Cultural Practices

Variety: CL111
Method of Planting: Drill seeded
Water Management: Delayed flood

Seeding Rate: 65 lb/A
Date of Planting: 4/19
Date of Emergence: 4/28

Growth and Development

Stage	Observation Date	DD50 Date
Green Ring	6/3	
PD	6/20	
50% Heading	7/6	
Drain for Harvest	7/30	
Harvest	8/17	

Yield, Milling, and Economic Data

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole / % total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	73.21	58.2/69.0	437.52	5.98	602.06
2nd Crop					

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $14.20/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)
4/25	21-0-0-24S	100	21*	0	0
5/18	46-0-0	225	105	0	0
6/5	46-0-0	100	46		
Total			151	0	0

*Not counted in total nitrogen.

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Various	Prior to planting	Roundup + First Shot
None, pre-emergence	4/25	Command
Sprangletop, few sedges	5/9	Newpath (4.0 oz/A)
Sprangletop	5/18	Newpath (4.0 oz/A)
Sprangletop in spots	7/2	Clincher (spot treatment)

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Sheath blight, blast	7/3	Quilt (21 oz.) + Quadris (4 oz.)

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil	At seed purchase	NipsitInside
Stink bugs	7/19	pyrethroid

ST. LANDRY PARISH

The St. Landry Parish verification field was planted to the relatively new Clearfield variety, CL152. It was the first look at this variety by the verification team. Dermacor insecticide plus fungicide-treated seed was drill seeded into a prepared seedbed at 67 lb/A. Phosphorus and potassium fertilizers were applied following planting. Dry conditions necessitated flushing to promote even germination and emergence. Because the grower planned to apply herbicide with a ground rig, wet conditions following flushing resulted in simultaneous rice and weed emergence and cancelled the planned application of glyphosate herbicide.

The mixed soil textures of the field required careful application of Command herbicide with the first application of Newpath herbicide. In the light textured areas, 8 oz/A of Command were used, while on the areas of heavier texture, 10 oz/A Command were used along with 4 oz/A of Newpath. Continued dry weather resulted in a second flushing.

When the rice was of sufficient size to apply the permanent flood, a mixture of .75 oz/A of Londax herbicide plus .25 oz/A of Permit herbicide plus 4 oz/A of Newpath was applied. This was followed by 200 lb/A of urea (two-thirds of the intended total nitrogen) and the field was flooded. At internode elongation, 140 lb/A of a blend of ammonium sulfate and urea (33-0-0) were made. A few blast disease lesions were detected at this time.

In the next few weeks, blast continued to develop and sheath blight was also discovered. We recommended an application of 18 oz/A of Stratego fungicide just prior to heading. This rate of fungicide held the diseases in check until harvest. Stink bugs never reached treatable levels.

Two weeks after draining, harvest began on July 31 and continued through August 1. During the 2 weeks post draining, hot dry conditions led to more rapid dry down than expected. Moisture at harvest averaged 17.1%, a little lower than we would have liked. Green yield was a very good 8,560 lb/A (52.8 bbl/A or 190.2 bu/A), which when adjusted to 12% moisture was 8,142 lb/A (50.3 bbl/A or 180.9 bu/A). Milling was 60.49/68.60.

Flail mowing of the stubble began as soon as the combine had established enough lead time to allow the equipment to operate efficiently. Urea was applied at 150 lb/A and the field flooded for second crop production.

The ratoon crop was harvested November 19. Green yield was 2,599 lb/A (16 bbl/A or 57.8 bu/A), which when adjusted to 12% moisture was 2,368 lb/A (14.6 bbl/A or 52.6 bu/A). Milling was not run on second crop. Total yield for the field was 10,501 lb/A (64.8 bbl/A or 233.4 bu/A).

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ST. LANDRY PARISH

Cooperator: Anthony Plattsmier
Agent: Vince Deshotel
Field Size: 44.1 acres

Cultural Practices

Variety: CL152
Method of Planting: Drill seeded
Water Management: Delayed Flood

Seeding Rate: 67 lb/A
Date of Planting: 4/1
Date of Emergence: 4/11

Growth and Development

Stage	Observation Date	DD50 Date
Green Ring	5/22	
PD	6/2	
50% Heading	6/24	
Drain for Harvest	7/17	
Harvest	7/31	

Yield, Milling, and Economic Data

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole / % total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	81.42	60.49/68.60	481.93	5.92	674.23
2nd Crop	25.99		101.29	3.90	267.77

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $14.20/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)
3/27	0-27.5-13.8	145	0	40	20
4/30	46-0-0	200	92	0	0
5/26	33-0-0	140	46	0	0
Total			138	40	20

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Pre-emergence to weeds	4/9	Command 8 oz on lt soil and 10 oz on heavy + 4 oz Newpath
Texasweed, jointvetch, dayflower, southern watergrass	4/30	4 oz Newpath + .75 oz Londax +.25 oz Permit + 1% COC

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Blast, sheath blight	6/16	18 oz Stratego

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil preventative	At seed purchase	Dermacor

VERMILION PARISH

The Vermilion Parish verification field posed special problems before it was planted. In the 2010 crop season, rice resistant to Newpath herbicide had been confirmed. The population of resistant rice was so intense the farmer was advised to abandon the field and destroy everything. He did not. Knowing that he would plant the field in 2012, he plowed the field several times during the summer of 2011, each time destroying a population of weedy rice. It was not determined if this rice was the result of an outcross of red rice with white rice or some other source. The population segregated into every possible combination of purple tinted, straw colored, pubescent, glabrous, awned and awnless plant types. At harvest, differences in maturity of the weedy types became readily apparent with some ripening along with the cultivated rice and other plants that had not formed panicles.

Some field preparation was done in the fall of 2011 but did not produce an acceptable seedbed. The field was flooded and worked in the flooded state in March of 2012 then allowed to stand until planting on April 5. Water was held about 48 hours then the field was drained to allow seed to germinate and emerge. At that time, some of the weedy rice was already emerged and growing as a consequence of not having flooded the field soon enough and mild winter conditions

All of the phosphorus and potassium fertilizers and two thirds of the nitrogen fertilizer were applied during the brief drain interval following seeding and prior to establishing permanent flood. At the 2-leaf stage of development, ducks, primarily Black Bellied Whistling ducks, foraged heavily in the field reducing the stand significantly in some areas. An additional 50 lb seed/A treated with the bird repellant AV1011 were flown into the field to deter further damage. This seed did germinate and emerge through standing water because draining was deemed too risky given the heavy expected weed pressure from Newpath-resistant rice.

Sesbania, nutsedge, dayflower, Texasweed, resistant rice, creeping rivergrass, and a little barnyardgrass made up the weed population. The team chose to control the broadleaf weeds with a mixture of Londax and Permit then evaluate the grass situation. As a result, no additional herbicide was applied using the logic that the resistant rice could not be controlled and the other grasses did not pose a significant problem.

Nearby fields had significant blast disease and sheath blight, prompting an application of Stratego fungicide despite the fact that disease pressure at the time was not especially heavy.

Stink bugs built up slowly, requiring an application of Karate insecticide.

The two different populations of rice caused some concern about when to drain the field in anticipation of harvest. The field was drained about 1 week after the oldest rice was deemed ready to drain and about 1 week too soon for the younger rice.

At harvest on Aug. 9, surprisingly, the yield was 7,540 lb/A (46.5 bbl/A or 167.6 bu/A) at 16.7% moisture. When adjusted to 12% moisture, the result was 7,137 lb/A (44.1 bbl/A or 158.6 bu/A). This exceeded expectations by about 1,500 lb/A. Milling was 60.26/71.35, the best total milled rice and second best head rice in the program in 2012.

VERMILION PARISH

Cooperator: Josh and Angel Newman
Agent: Stuart Gauthier
Field Size: 16.5 acres

Cultural Practices

Variety: Cheniere
Method of Planting: Water seeded, dry seed
Water Management: Pinpoint flood
Seeding Rate: 120 lb/A
Date of Planting: 4/5
Date of Emergence: 4/11

Growth and Development

Stage	Observation Date	DD50 Date
Green Ring	5/23	
PD	6/3	
50% Heading	6/23	
Drain for Harvest	7/18	
Harvest	8/7	

Yield, Milling, and Economic Data

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole / % total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	71.37	60.26/71.35			
2nd Crop					

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $14.20/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)
4/10	46-0-0	200	92	0	0
4/10			0	?	?
5/19	46-0-0	100	46	0	0
Total			138		

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Newpath-resistant rice	Prior to planting	Pinpoint flood water management
Sesbania, nutsedge, dayflower, Texasweed, creeping rivergrass	5/5	.5 oz Londax + .5 oz Permit + 1% COC

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Sheath blight, blast	6/20	17 oz Stratego

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice water weevil preventative	At seed purchase	Dermacor
Stink bugs	6/29	2 oz Karate

Table 3. Fifteen-Year Louisiana Rice Research Verification Summary.

1998 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	53.0	32.8	118.1	5,314
Avoyelles	32.5	42.9	154.4	6,950
Calcasieu*	60.0	34.1	122.8	5,524
East Carroll	33.9	41.1	148.0	6,658
Evangeline	33.0	42.9	154.4	6,950
Jefferson Davis*	61.8	37.3	134.3	6,043
Madison	36.6	39.0	140.4	6,318
Morehouse	63.0	33.8	121.7	5,476
St. Landry	37.1	38.2	137.5	6,188
Vermilion	16.7	29.4	105.8	4,763
TOTALS	**427.6**	**37.2**	**133.7**	**6,018**

* Yields include second crop.

1999 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	31.1	37.4	134.6	6,059
Avoyelles	32.5	46.6	167.8	7,549
Calcasieu	49.3	34.6	124.6	5,605
Catahoula	30.4	33.4	120.2	5,411
East Carroll	36.1	47.0	169.2	7,614
Evangeline	22.3	43.1	155.2	6,982
Jefferson Davis*	26.6	30.8	110.9	4,990
Madison	38.1	39.0	140.4	6,318
St. Landry	30.1	38.8	139.7	6,286
Vermilion	23.8	36.5	131.4	5,913
TOTALS	**320.3**	**38.7**	**139.4**	**6,273**

* Yields include second crop.

2000 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	53.3	39.4	141.8	6,383
Avoyelles	63.2	36.7	132.1	5,945
Calcasieu	22.1	25.1	90.4	4,066
Catahoula	39.6	36.4	131.0	5,897
East Carroll	45.1	49.1	176.8	7,956
Evangeline	19.9	38.2	137.5	6,188
Jefferson Davis	30.6	26.7	96.1	4,325
Morehouse	27.7	28.3	101.9	4,585
St. Landry	70.7	39.2	141.1	6,350
Vermilion*	21.6	37.7	135.7	6,107
TOTALS	**393.8**	**35.7**	**128.4**	**5,780**

* Yields include second crop.

Table 3. Continued.

2001 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	60.6	50.8	182.9	8,230
Allen	41.6	35.1	126.4	5,686
Avoyelles	63.2	38.1	137.2	6,172
Calcasieu*	61.9	39.4	142.0	6,388
Concordia	79.6	36.1	130.1	5,853
Evangeline*	20.8	52.7	189.7	8,538
Jefferson Davis*	21.6	57.3	206.4	9,289
Richland	65.9	46.0	165.5	7,447
St. Landry*	40.6	51.1	184.0	8,282
Vermilion*	33.3	52.4	188.7	8,493
TOTALS	**489.1**	**45.9**	**165.3**	**7,438**

* Yields include second crop.

2002 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	38.4	49.8	179.3	8,068
Allen*	25.1	46.0	165.6	7,452
Avoyelles	37.4	49.9	179.6	8,084
Beauregard*	49.5	53.1	191.2	8,602
Calcasieu*	41.4	42.4	152.6	6,869
Concordia	67.6	48.2	173.5	7,808
Evangeline	42.0	37.6	135.4	6,091
Jefferson Davis*	31.7	45.0	162.0	7,290
Richland	35.8	42.1	151.5	6,819
St. Landry	32.7	48.8	175.7	7,906
Vermilion*	32.0	49.8	179.4	8,072
TOTALS	**433.6**	**46.6**	**167.8**	**7,551**

* Yields include second crop.

2003 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	57.2	44.0	158.4	7,128
Allen*	35.7	46.1	166.0	7,469
Avoyelles	37.4	50.1	180.4	8,116
Beauregard*	45.7	48.7	175.2	7,884
Concordia	79.5	49.2	177.1	7,970
Evangeline*	48.4	44.5	160.2	7,209
Jefferson Davis*	52.9	28.7	103.3	4,649
Richland	40.2	44.7	160.8	7,234
St. Landry*	32.7	61.1	220.0	9,898
Vermilion*	33.0	40.0	144.0	6,480
TOTALS	**462.7**	**45.7**	**164.5**	**7,404**

* Yields include second crop.

Table 3. Continued.

2004 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen*	53.2	40.9	147.1	6,620
Avoyelles	33.3	32.8	118.0	5,307
Beauregard*	21.8	42.5	153.3	6,899
Concordia	82.3	36.0	130.0	5,843
East Carroll	54.8	45.8	165.0	7,427
Evangeline	30.7	34.8	125.2	5,638
Jefferson Davis*	42.3	38.5	138.6	6,237
Natchitoches	47.2	44.1	158.8	7,144
St. Landry*	60.1	65.1	234.3	10,543
Vermilion*	30.0	42.1	151.6	6,824
TOTALS	**455.7**	**42.3**	**152.2**	**6,848**

*Yields include second crop.

2005 Verification Acres and Yields

		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	28.9	39.6	143.8	6,427
Allen	76.7	25.6	92.0	4,140
Avoyelles	32.1	35.9	129.3	5,819
Calcasieu	49.0	51.0	184.0	8,282
Concordia	60.5	43.0	156.0	7,003
East Carroll	30.4	47.9	172.7	7,771
Evangeline	30.0	37.1	133.6	6,014
Jefferson Davis	39.2	32.5	117.0	5,264
Natchitoches	30.0	43.3	156.0	7,022
Richland	47.4	49.2	177.2	7,974
St. Landry	61.7	47.5	170.9	7,689
Vermilion	52.8	40.9	147.3	6,631
TOTALS	**538.7**	**41.1**	**148.3**	**6,670**

*Yields include second crop.

2006 Verification Acres and Yields

		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	41.8	43.0	155.0	6,972
Concordia	54.7	50.8	183.0	8,237
East Carroll	60.4	44.5	150.0	7,210
Evangeline	29.4	32.3	116.0	5,227
Jefferson Davis	21.5	43.8	157.8	6,000
St. Landry	40.9	36.8	132.5	5,962
Vermilion	29.6	37.0	133.3	7,100
West Carroll	50.1	53.1	191.2	8,603
TOTALS	**328.4**	**43.4**	**156.4**	**7,040**

Table 3. Continued.

2007 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	40.9	56.7	204	9,187
Concordia	53.8	53.6	193	8,680
East Carroll	23.0	49.0	176	7,917
Evangeline – St. Landry	33.9	50.1	180	8,122
Jefferson Davis*	38.9	55.8	201	9,046
Vermilion*	36.6	46.0	166	7,451
West Carroll	40.2	45.4	164	7,356
TOTALS	**267.3**	**51.2**	**184**	**8,293**

*Yields include second crop

2008 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	40.9	47	170	7,657
Calcasieu*	55.1	51	183	8,247
Concordia	54.7	44	160	7,178
Evangeline	46.4	42	152	6,840
Madison	41.5	51	182	8,208
Jefferson Davis*	37.7	52	189	8,481
St. Landry	60.2	48	173	7,801
Vermilion*	51.1	70	252	11,359
TOTALS	**387.6**	**51**	**183**	**8,228**

*Yields include second crop

2009 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	56.6	70.9	255.3	11,489
Avoyelles	28.6	50.7	182.5	8,214
Calcasieu*	41.7	58.1	209.3	9,418
Concordia	57.0	49.6	178.6	8,035
East Carroll	33.6	41.3	148.7	6,692
Evangeline*	22.5	61.7	222.2	9,999
Madison	29.0	50.4	181.5	8,168
St. Landry	49.4	49.3	177.5	7,987
Vermilion*	41.5	66.9	241.0	10,843
TOTALS	**359.9**	**56.0**	**201.7**	**9,078**

*Yields include second crop

Table 3. Continued.

2010 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	41.8	49.7	179.0	8,057
Jefferson Davis*	35.8	67.5	243.1	10,941
St. Landry	31.3	44.3	159.4	7,171
TOTALS	**108.9**	**54.0**	**194.4**	**8,750**

*Yields include second crop.

2011 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen	23.2	48.1	173.3	7,799
Cameron[1]	17.6	57.6	207.4	9,332[1]
Madison	10.5[2]	57.9	208.5	9,382
St. Landry	45.7	42.5	153.1	6,890
Vermilion	24.0	54.0	194.5	8,754
TOTALS	**121.0**	**49.4**	**177.9**	**8,005**

[1]Yields include second crop.
[2]Yield calculated on 10.5 acres, total field acres 73.4.

2012 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen	30.7	45.6	164.2	7,391
Cameron[1]	35.7	42.3	152.4	6,858
Concordia	37.4	45.2	162.7	7,321
St. Landry[1]	44.1	64.9	233.6	10,510
Vermilion	16.5	44.1	158.6	7,137
TOTALS	**164.4**	**49.8**	**179.3**	**8,071**

[1]Yields include second crop.

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
Totals	**5,259.0**	**7,253**	**4,392,725**	**5,814**	**1,439**

RICE WEED MANAGEMENT

WEED MANAGEMENT IN HERBICIDE-RESISTANT/TOLERANT AND CONVENTIONAL RICE

Eric P. Webster, J. Caleb Fish, Nathanael D. Fickett, and Benjamin M. McKnight
School of Plant, Environmental, and Soil Sciences

RESULTS

Weed management studies were conducted at the Rice Research Station (RRS), Northeast Research Station (NERS), and Macon Ridge Research Station (MRRS), and producer fields in Louisiana in 2012. A total of 73 studies was established, with a total of 1,015 treatments and 4,060 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.

Newpath or Beyond Plus Propanil or RiceBeaux Synergism

This project was initiated in 2011 and repeated in 2012, and it was established to evaluate mixtures of Newpath plus propanil or prepackage mixtures containing propanil. Four studies were established in Louisiana at the RRS, NERS, and MRRS, and one in Mississippi by Dr. Jason Bond in 2011 and 2012. Red rice control increased 20 to 30% when Newpath at 4 oz/A was mixed with RiceBeaux at 2 qt/A. This increased control translated into a yield increase. Similar results were observed with a Beyond plus RiceBeaux mixture. The addition of propanil at 1, 2, 3, or 4 qt/A to Newpath at 4 oz/A increased red rice control by 5, 8, 12, and 20%, respectively, up to 50 days after treatment. This increased control resulted in increased yields. Similar results were observed with a Beyond plus propanil mixture. This research also indicates that the addition of a mixture herbicide can be beneficial when broad spectrum control is needed.

Competitiveness of Hemp Sesbania and Indian Jointvetch

A multiple year study was established in 2011 and repeated in 2012 to evaluate the competitiveness of hemp sesbania and Indian jointvetch with rice. The studies were conducted at the RRS, NERS, and MRRS. Densities of each weed at 0.25 to 8 plants/yd^2 were established. The low density represents 2 plants per plot and the high density is approximately 32 plants. The densities evaluated indicate that 2 plants/yd^2 of hemp sesbania and 3 plant/yd^2 of Indian jointvetch reduced rice yields. Visual observations indicate disease pressure to be higher under the higher weed densities. This higher disease pressure may be due to preventing the fungicide from contacting the rice plants.

Impact of Herbicide Timing on Broadleaf Weeds and Sedges

Four studies were established in 2011 and repeated in 2012 at the RRS and NERS. The trial included 16 broadleaf and sedge herbicides applied at early postemergence, mid-postemergence, late postemergence, and salvage. Each application timing was a separate study. These studies evaluated control of hemp sesbania, Indian jointvetch, yellow nutsedge, and rice flatsedge. Halomax and Permit Plus provided the most consistent control and yields for the early timing. Halomax, Permit Plus, Regiment, Strada, and Grasp were the most effective at the mid-postemergence timing, and the same herbicides plus League for the late timing. All of the herbicides provided a management level of control and improved yield when applied at the salvage timing. Yields decreased as initial timing was delayed past the mid-postemergence timing. The mid-postemergence timing appeared to be the most consistent of all the studies in 2012.

Managing Hybrid Rice Volunteers

A long-term study was established on a grower location to evaluate the management of red rice outcrosses and/or hybrid dormancy. This study indicates that a 3-year rotation of fallow in combination with soybean production can significantly reduce populations of these weed problems. During the fallow period, tillage and herbicides should be used to control escapes. During soybean production the use of preemergence herbicides Outlook or Dual can be used in combination with Roundup or Liberty to manage these weeds. If resistant red rice or hybrid escapes are present in fields, these can be managed, but a long-term rotation will need to be established.

Sharpen as a Rice Herbicide

This project has been evaluating Sharpen as a postemergence herbicide in rice. Sharpen is currently labeled as a preplant burndown herbicide in rice with a 14-day preplant interval. Sharpen has similar activity to Aim and Blazer. It has excellent activity on hemp sesbania, Texasweed, and Indian jointvetch. Sharpen also has activity on rice flatsedge and several grass species. Sharpen is being evaluated at 1 and 2 oz/A. The adjuvant also plays an important role in the activity of this herbicide. The most consistent adjuvant is methylated seed oil (MSO); however, when applied at 2 oz/A plus MSO, moderate crop injury can occur. Two rice variety tolerance trials were conducted this year. The long and medium grains appear to have similar tolerance to Sharpen. Sharpen at 1 oz/A resulted in injury of 10 to 20%; however, at 2 oz/A injury increased to above 30%. This injury was transient, and by 2 to 3 weeks after treatment, injury decreased below 15%. Sharpen has potential for use in Louisiana's production; however, this herbicide will need to be used with caution due to potential injury to rice.

New Pre-package Mixtures

This project continues to evaluate prepackage mixtures. FMC recently received a full federal label for Obey. This mix contains Command plus quinclorac. FMC also has an experimental premix of Aim plus halosulfuron (Permit). Each one of these herbicides will be useful in Louisiana rice production. Isagro has a pre-package mixture called Strada-Pro, which is a mixture of Strada plus Halomax. The addition of Halomax broadens the activity of Strada on nutsedge species.

Evaluation of Experimental Herbicides

This project continues to evaluate several experimental herbicides and adjuvants. As previously discussed, several of the new products are pre-package mixtures of currently labeled rice herbicides. The most promising of these herbicides is an experimental compound from Gowan. This herbicide appears to need water to be active. The herbicide has some soil activity but must be activated within a few hours of application. The herbicide seems to be more consistent if a flood is present prior to application. This herbicide probably has the most activity on ducksalad of any product this project has ever evaluated. It has activity on sedges, grasses, and broadleaf weeds. Initial observations indicate that the product has activity on Amazon sprangletop.

This is a summary of the research that was conducted in 2012. To see the complete weed management annual report, please go to:

http://www.lsuagcenter.com/MCMS/RelatedFiles/%7B9CF8B5B7-6472-4816-A2E6-B5F272939C94%7D/2012-Annual-Report-%28Eric-Webster%29.pdf.

STATION PERSONNEL

Steve Linscombe, Professor ----------------------------	**Resident Coordinator**
Kimberly G. Guidry	Accounting Specialist I
Carol D. LeDoux	Administrative Program Specialist-A
Darlene M. Regan	Administrative Coordinator IV
Donna L. Sonnier	Custodian I
Glenn J. Schexnayder, Research Farm Maintenance Manager ----------------------	**Maintenance Department**
Ted R. Trahan	Maintenance Repairer II
Donald E. Groth, Professor/Research Coordinator----------------------------	**Rice Pathology**
Carl W. Dischler	Research Associate/Specialist
Marty J. Frey (25%)	Research Associate/Specialist
Laura L. Monte	Research Farm Assistant I
Dustin Harrell, Associate Professor ----------------------------	**Rice Agronomy/Rotational Crops**
Jacob S. Fluitt	Research Associate/Specialist
James P. Leonards	Research Associate/Specialist
Ronald P. Regan	Research Associate/Specialist
William J. Leonards, Jr., Research Associate/Coordinator/Manager ----------------------------	**Farm Management**
Nathan Breaux	Research Farm Assistant I
Brian D. Broussard	Research Farm Supervisor
Paul A. Miller	Research Farm Assistant II
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[1]	Research Farm Specialist I
Herman L. Hoffpauir	Research Farm Specialist II
Brent W. Theunissen	Research Associate/Specialist
Richard E. Zaunbrecher	Research Associate/Specialist
Mona M. Meche, Research Associate/Coordinator ----------------------	**Rice Anther Culture/Tissue Culture**
Jennifer P. Dartez	Research Farm Assistant II
Xue Jin[2]	Research Farm Specialist I
W. Ray McClain, Professor----------------------------	**Aquaculture**
John J. Sonnier	Research Farm Specialist II

[1] Appointed 11/19/2012.
[2] Separated 11/02/2012.

STATION PERSONNEL
(Continued)

John K. Saichuk, Professor -- **Rice Agronomy/Extension**

Xueyan Sha[3], Associate Professor -- **Rice Breeding**
James Oard[4], Professor --- **Rice Breeding**

Blake J. Henry	Research Farm Specialist II
John E. Richard[5]	Research Associate/Specialist
Shane J. Theunissen[6]	Research Associate/Specialist

Herry Utomo, Associate Professor------------------------------- **Marker-Assisted Selection Breeding/Biotechnology**

Anna L. McClain[7]	Research Farm Specialist II
Gretchen M. Zaunbrecher	Research Associate/Specialist

Ida Wenefrida, Assistant Professor/Research -- **Biotechnology**

Lawrence M. White, III, Research Associate/Coordinator -------------------------------------- **Foundation Seed Rice**

LSU AGCENTER CAMPUS PERSONNEL

LSU AgCenter personnel conducting research at the Rice Research Station include the following:

Jong Hyun Ham -- **Rice Diseases**
Department of Plant Pathology and Crop Physiology

Clayton A. Hollier -- **Rice and Soybean Diseases**
Department of Plant Pathology and Crop Physiology

Michael E. Salassi --- **Economics**
Department of Agricultural Economics and Agribusiness

Michael J. Stout --- **Rice Insect Control**
Department of Entomology

Marty J. Frey (75%) (Rice Research Station)	Research Associate/Specialist

Eric Webster -- **Weed Control**
School of Plant, Environmental and Soil Sciences

J. Caleb Fish	Research Associate/Specialist
Benjamin McKnight	Research Associate/Specialist

[3] Separated 10/12/2012.
[4] Transferred from Baton Rouge 10/01/2012.
[5] Appointed 11/12/2012.
[6] Separated 09/03/2012.
[7] Retired 10/24/2012.

COOPERATING PERSONNEL

Cooperating personnel on research projects at the Rice Research Station include the following:

Lucas Aviles --- Rice Breeding
University of Puerto Rico Research & Extension Center
Lajas, Puerto Rico

Niranjan Baisakh-- Coastal Erosion Control
School of Plant, Environmental and Soil Sciences
Louisiana State University Agricultural Center

Delbert M. Gatlin, III-- Aquaculture
Department of Wildlife and Fisheries Sciences
Texas A & M University

Ronald J. Levy -- Soybeans
Dean Lee Research and Extension Center
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

Carrie Knott--- Coastal Erosion Control
School of Plant, Environmental and Soil Sciences
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Cassidy Lejeune--- Coastal Erosion Control
Coastal and Nongame Resources Division
Louisiana Department of Wildlife and Fisheries

Rick Mascagni --- Grain Sorghum
Northeast Research Station
Louisiana State University Agricultural Center

Mike Materne --- Coastal Erosion Control
School of Plant, Environmental and Soil Sciences
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Anthony Rivera --- Rice Breeding
University of Puerto Rico Research & Extension Center
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Cindy S. Steyer--- Coastal Erosion Control
USDA-NRCS, Water Resources
Baton Rouge, Louisiana

Prasanta Subudhi---Rice Breeding and Coastal Erosion Control
School of Plant, Environmental and Soil Sciences
Louisiana State University Agricultural Center

COOPERATING PERSONNEL
(Continued)

Brenda Tubaña -- **Rice Fertilization**
School of Plant, Environmental and Soil Sciences
Louisiana State University Agricultural Center

Sonny Viator -- **Sweet Sorghum**
Iberia Research Station
Louisiana State University Agricultural Center

E. Allen Wilson--**Bird Control**
USDA Animal Damage Control
Crowley, Louisiana