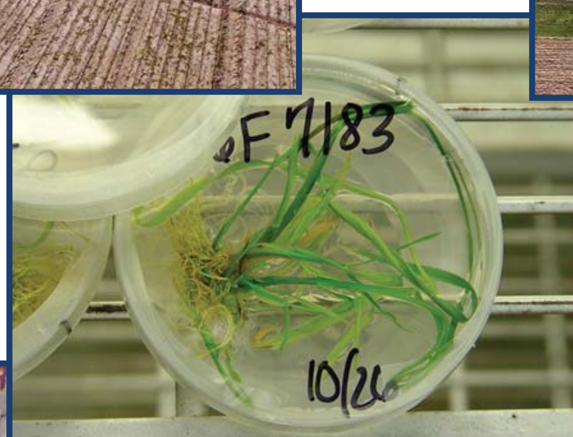
108th Annual Research Report

H. Rouse Caffey Rice Research Station

Crowley, Louisiana
2016



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Cover Photos

First day of harvest of the 2016 Agronomy Project's flood timing studies.

Crawfish hatchlings used to stock grow-out tanks.

Planting a Clearfield Preliminary Yield test (drone photo).

2016 Field Day at the Rice Breeding stop (drone photo).

Regenerated rice plant from Anther Culture from breeding line samples.

One very important function of the HRCRRS is the production and distribution of foundation seed.

108th Annual Research Report

H. ROUSE CAFFEY
RICE RESEARCH STATION

Crowley, Louisiana

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

William B. Richardson, LSU Vice President for Agriculture

Southwest Region/H. Rouse Caffey Rice Research Station

Steven D. Linscombe, Regional Director/Resident Coordinator

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INTRODUCTION

Research at the H. Rouse Caffey Rice Research Station (HRCRRS), Crowley, LA, is conducted by scientists with the LSU AgCenter's Louisiana Agricultural Experiment Station. The 2016 rice research program included breeding/variety development, biotechnology, variety testing, fertilization, soil and water management, cultural practices, weed control, insect control, disease investigations, rice economics, and agronomy extension programs. Crops grown in rotation with rice were evaluated relative to increasing the efficiency of land use. The aquaculture research program places emphasis upon production practices, forages, and multi-cropping of crawfish with agronomic crops. Another important area of work is the production and distribution of foundation seed. The HRCRRS also conducts research studies in improving species for coastal restoration. In addition, the statewide rice extension agronomist conducts numerous educational programs from the HRCRRS. Although most research work was performed by members of the Rice Station faculty, several faculty members from the Baton Rouge campus conducted research at this station.

The research activities of this station include both fundamental and applied research, although the latter predominates because of the mission of the HRCRRS. Research accomplishments and general progress of the HRCRRS during 2016 are presented in this report representing the 108th Annual Research Report of the H. Rouse Caffey Rice Research Station, Louisiana Agricultural Experiment Station, and LSU Agricultural Center. It is significant that this research facility has been providing new technology to the Louisiana rice industry for more than 100 years.

In addition to research responsibilities of the HRCRRS faculty and cooperators, a large number of farmers, extension personnel, and others were trained and otherwise contacted during 2016. Approximately 500 people attended the annual HRCRRS 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 RRS during 2016.

Projects at this station are conducted under the supervision of research scientists from the HRCRRS and also by cooperating personnel from certain departments of the Louisiana Agricultural Experiment Station. Following the reports, station personnel and cooperators in 2016 are listed.

MONTHLY RAINFALL DATA
H. ROUSE CAFFEY RICE RESEARCH STATION - CROWLEY, LA
2016

DATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR TOTAL
1	.18			.04	6.58								
2	.02	.06		.49	1.92	.30							
3	.02	.69				.19						.30	
4						.89						3.60	
5						1.99			.05			.63	
6						.12		.30	.72			1.23	
7	.38					.48			.51		.22		
8								1.02			.99	.03	
9	.51							.36			.02	.02	
10			.50										
11			4.45	.02		.41	.07	.21	.11				
12				.05		.06	.30	.27	.10				
13				1.73		.25		11.96	.10			.26	
14			1.51	.38		.31		4.52					
15	.68	.13		1.27	.07			.02					
16		.90							.60				
17	.51				.61		.02	.17	.26				
18									1.28			.34	
19			.97	.34			.05	.64	.03		.19	.41	
20	.04				2.98					.50			
21	.40			2.34		1.38				.09			
22	.17			.62			.23	.60					
23		.17							.07				
24		.65				.11	.07				.80		
25			.06				.26						
26	.02						.20	2.75					
27	.21												
28			.16	.87	.96		.39	.12				.04	
29						.05	.11	.14			.05		
30								.05			.64		
31			.03										
2016 MONTH TOTAL	3.14	2.60	7.68	8.15	13.12	6.54	1.70	23.13	3.83	.59	2.91	6.86	80.25
2015	5.04	2.51	4.38	11.69	8.57	8.51	3.16	7.15	4.13	4.41	12.37	4.17	76.09

RICE BREEDING

GENETIC IMPROVEMENT OF RICE FOR LOUISIANA PRODUCTION

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

INTRODUCTION

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

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 2016 rice breeding nursery included more than 74,000 breeding rows, 60 F_1 transplant populations, and 194 space-planted F_2 populations. About 155 new crosses were made. On- and off-station testing included more than 5,000 yield plots. Yield testing included the Cooperative Uniform Regional Rice Nursery, which contained 200 experimental lines and checks (49 Louisiana entries). The Commercial-Advanced Test was conducted at the H. Rouse Caffey Rice Research Station (HRCRRS) and six off-station locations.

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

COMMERCIAL-ADVANCED TEST

The Commercial-Advanced Test (CA) is a multi-location test conducted by the Rice Breeding Project in the major rice growing regions in Louisiana. The objective of this test 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 2016 included the H. Rouse Caffey Rice Research Station (HRCRRS) at Crowley and six on-farm test sites in Jefferson Davis, Evangeline, Vermilion, Acadia, St. Landry, and Tensas parishes.

Sixty entries were tested in a randomized complete block design with three replications. Varieties and hybrids were seeded at 90 lb/A and 38 lb/A, respectively. Planting dates were: HRCRRS, March 28; Acadia, April 11; Evangeline, March 30; Jefferson Davis, March 18; St. Landry, April 5; Vermilion, March 21; and Tensas, May 9. Harvest dates were: HRCRRS, Aug. 3; Acadia, Sept.7; Evangeline, Aug. 23; Jefferson Davis, July 29; St. Landry, Aug. 29; Vermilion, Aug. 22; and Tensas, Sept. 13. Results from these trials are shown in Tables 1-8.

Table 1. Entry number, pedigree, grain type, and source information for entries in the Commercial-Advanced Test, 2016.

Entry	Pedigree	Grain Type†	Source‡
201	CL111	L	LAES
202	CL151	L	LAES
203	CL152	L	LAES
204	CL161	L	LAES
205	CL163	L	LAES
206	CL172	L	LAES
207	CL153	L	LAES
208	CL272	L	LAES
209	CL261	M	LAES
210	CL271	M	LAES
211	COCODRIE	L	LAES
212	CHENIERE	L	LAES
213	CATAHOULA	L	LAES
214	CYPRESS	L	LAES
215	MERMENTAU	L	LAES
216	LAKAST	L	AAES
217	ROY J	L	AAES
218	ANTONIO	L	TAES
219	PRESIDIO	L	TAES
220	JAZZMAN	L(A)	LAES
221	JAZZMAN-2	L(A)	LAES
222	DELLA-2	L(A)	LAES
223	JUPITER	M	LAES
224	CAFFEY	M	LAES
225	TITAN	M	AAES
226	DIAMOND	L	AAES
227	CL111/3/CCDR//9502008/LGRU	L	AAES
228	BNGL/CL161/4/9502065/3/MERC//MERC/…	M	AAES

Continued.

Table 1. Continued.

Entry	Pedigree	Grain Type[†]	Source[‡]
229	THAD	L	MAES
230	CL131/PSCL	L	MAES
231	CL151//COLUMBIA2/BENGAL	L	MAES
232	CLXL729	L	RICE TEC
233	CLXL745	L	RICE TEC
234	XL753	L	RICE TEC
235	XL760	L	RICE TEC
236	GEMINI 210	L	RICE TEC
237	XP766	L	RICE TEC
238	CLH161	L	LAES
239	LAH169	L	LAES
240	09A/R608	L	LAES
241	PVL 24A	L	LAES
242	PVL 24B	L	LAES
243	CL131/3/CPRS/KBNT//9502008-A	L	LAES
244	9502008/3/MBLE//LMNT/20001-5/4/WELLS/CFX18/5/ TAGGART	L	LAES
245	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	L	LAES
246	9502008-A/DREW//CLR 20/3/CL111	L	LAES
247	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	L	LAES
248	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/ CFX 29//AR 1142/…	L	LAES
249	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	L	LAES
250	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	M	LAES
251	CPRS/BASF 1-13	L	LAES
252	TRNS/BASF 1-10	L	LAES
253	CHENIERE/BASF 1-2	L	LAES
254	CHENIERE/BASF 1-2	L	LAES
255	CHENIERE/BASF 1-6	L	LAES
256	CCDR/5/9502008/3/MBLE//LMNT/20001-5/4/CFX-18//CCDR /9770532 DH2	L	LAES
257	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//CCDR/9770532 DH2/5/CATAHOULA	L	LAES
258	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/…	L	LAES
259	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/KATY/3/ 9502008/4/…	L	LAES
260	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	L	LAES

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

[‡] AAES – Rice Research and Extension Center, Arkansas Agricultural Experiment Station, Stuttgart, AR; LAES – H. Rouse Caffey Rice Research Station, Louisiana Agricultural Experiment Station, LSU Agricultural Center, Crowley, LA; MAES – Delta Research and Extension Center, Stoneville, MS; TAES – Texas A&M Research and Education Center, Texas Agricultural Experiment Station, Beaumont, TX.

Table 2. Grain and agronomic performance of entries in the 2016 Commercial-Advanced Test, Acadia Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
236	RICE TEC	GEMINI 210 (hybrid)	4	82	52	10747
234	RICE TEC	XL753 (hybrid)	6	77	46	10584
233	RICE TEC	CLXL745 (hybrid)	5	74	47	10179
235	RICE TEC	XL760 (hybrid)	7	82	50	9775
237	RICE TEC	XP766 (hybrid)	6	74	46	8800
260	1602195	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	79	41	8358
244	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/ TAGGART	4	80	41	8334
239	OARD HY	LAH169	6	72	48	7710
216	LKST	LAKAST	3	74	40	7652
207	CL153	CL153 (15URN 034)	5	79	39	7518
206	CL172	CL172	4	77	40	7503
223	JPTR	JUPITER	6	80	37	7497
245	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/ CHENIERE	5	80	43	7484
225	AR 1021	M206/STG99F5-07-118//JPTR	5	73	38	7464
208	CL272	CL272	5	78	36	7188
232	RICE TEC	CLXL729 (hybrid)	5	76	45	7187
257	1602177	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/ CATAHOULA	4	76	37	7146
213	CTHL	CATAHOULA	4	76	42	7084
250	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	5	79	38	7076
249	1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	79	40	7053
248	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/…	4	81	42	7003
204	CL161	CL161	4	82	41	6936
212	CHNR	CHENIERE	4	77	39	6885
228	AR 1111	BNGL/CL161/4/9502065/3/MERC//MERC/…	5	76	37	6847
210	CL271	CL271	6	80	39	6791
224	CFFY	CAFFEY	6	82	39	6698
246	1502082	9502008-A/DREW//CLR 20/3/CL111	4	77	42	6670
255	PVL 108	CHENIERE/BASF 1-6	5	73	44	6615
242	PVL 24B	PVL 24B	5	81	42	6599
238	OARD HY	CLH161 (hybrid)	6	77	49	6575
256	1602174	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	3	73	39	6552
218	ANTO	ANTONIO	4	76	39	6466
240	OARD HY	09A/R608 (hybrid)	4	75	52	6404

Continued.

Table 2. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
219	PSDO	PRESIDIO	4	73	40	6390
215	MRMT	MERMENTAU	5	75	39	6292
243	1402091	CL131/3/CPRS/KBNT//9502008-A	4	75	37	6260
226	AR 1084	STG03AC-37-042(FRAN AC LINE)/RU0801076…	6	78	43	6206
247	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	7	79	37	6193
202	CL151	CL151	5	78	39	6166
230	MS 4083	CL131/PSCL	5	76	38	6124
222	DLLA2	DELLA-2	6	84	43	6085
201	CL111	CL111	4	72	39	5990
227	AR 1024	CL111/3/CCDR//9502008/LGRU	6	78	41	5970
259	1602192	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT /…/3/…/6/…	4	77	37	5890
211	CCDR	COCODRIE	7	76	40	5847
241	PVL 24A	PVL 24A	5	81	42	5814
209	CL261	CL261	4	77	39	5737
205	CL163	CL163	4	82	40	5730
217	ROY J	ROY J	3	82	44	5639
214	CPRS	CYPRESS	5	79	40	5596
258	1602189	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/9502008-A//…	4	71	41	5526
221	JZMN2	JAZZMAN-2	5	77	36	5517
229	MS 4077	8603006//3/MARS/NWRX//TBNT	7	80	42	5358
220	JZMN	JAZZMAN	6	88	40	5293
252	PVL 038	TRNS/BASF 1-10	6	73	40	5084
251	PVL 013	CPRS/BASF 1-13	5	71	40	4966
253	PVL 080	CHENIERE/BASF 1-2	7	70	41	4790
231	MS 4122	CL151//COLUMBIA2/BENGAL	8	78	40	4751
254	PVL 081	CHENIERE/BASF 1-2	6	89	46	4625
203	CL152	CL152	7	85	41	4136

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2016 Commercial-Advanced Test, Evangeline Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
235	RICE TEC	XL760 (hybrid)	6	79	48	11759	57.6	73.7
236	RICE TEC	GEMINI 210 (hybrid)	5	78	46	11754	60.8	72.1
234	RICE TEC	XL753 (hybrid)	6	76	43	11212	66.5	75.4
232	RICE TEC	CLXL729 (hybrid)	5	76	39	11056	61.6	74.1
237	RICE TEC	XP766 (hybrid)	6	75	44	10969	62.0	73.1
225	AR 1021	M206/STG99F5-07-118//JPTR	5	77	37	10031	67.5	70.8
228	AR 1111	BNGL/CL161/4/9502065/3/MERC//MERC/…	4	80	38	9967	63.7	71.8
233	RICE TEC	CLXL745 (hybrid)	6	75	44	9871	65.4	75.6
259	1602192	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/…	5	77	36	9672	61.0	73.2
223	JPTR	JUPITER	5	82	37	9637	68.2	70.3
250	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	5	80	38	9440	67.2	72.3
260	1602195	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	79	39	9402	68.1	73.9
202	CL151	CL151	4	78	40	9342	67.1	75.6
208	CL272	CL272 (15URN 025)	5	81	37	9342	66.5	71.0
226	AR 1084	STG03AC-37-042(FRAN AC LINE)/RU0801076…	6	75	40	9314	43.4	71.8
210	CL271	CL271	5	81	37	9248	67.0	70.5
217	ROY J	ROY J	5	84	40	9218	51.0	72.8
245	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	6	79	41	9216	56.1	73.9
224	CFFY	CAFFEY	4	83	38	9204	66.9	71.2
246	1502082	9502008-A/DREW//CLR 20/3/CL111	4	78	38	9112	66.7	74.4
216	LKST	LAKAST	5	77	42	9102	53.3	72.4
248	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/…	3	80	38	9094	57.0	72.1
215	MRMT	MERMENTAU	6	77	36	9072	57.7	72.3
249	1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	79	39	9044	58.0	71.9
213	CTHL	CATAHOULA	5	78	38	9006	66.2	74.9
258	1602189	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//…	4	72	35	8952	69.3	75.9
239	OARD HY	LAH169	6	74	42	8850	63.7	74.5
207	CL153	CL153 (15URN 034)	5	75	37	8829	67.9	74.5
238	OARD HY	CLH161	6	76	47	8813	65.2	73.7
243	1402091	CL131/3/CPRS/KBNT//9502008-A	5	77	35	8726	64.0	73.9
230	MS 4083	CL131/PSCL	5	77	35	8724	57.8	72.9
247	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	76	35	8694	62.7	75.0
241	PVL 24A	PVL 24A	6	80	37	8591	59.9	73.5

Continued.

Table 3. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
206	CL172	CL172	5	75	35	8561	62.5	73.2
255	PVL 108	CHENIERE/BASF 1-6	6	76	40	8557	63.7	74.2
201	CL111	CL111	4	74	36	8482	69.4	76.0
227	AR 1024	CL111/3/CCDR//9502008/LGRU	4	76	39	8429	64.9	74.0
212	CHNR	CHENIERE	6	79	36	8368	63.6	74.2
205	CL163	CL163	5	79	37	8311	61.9	73.3
229	MS 4077	8603006//3/MARS/NWRX//TBNT	5	82	38	8282	61.3	72.7
256	1602174	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	4	74	36	8243	67.6	75.0
244	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	5	78	35	8197	49.3	73.1
257	1602177	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/CATAHOULA	4	75	34	8171	68.4	75.3
242	PVL 24B	PVL 24B	5	80	40	8144	69.2	75.0
231	MS 4122	CL151//COLUMBIA2/BENGAL	7	77	38	8115	53.8	72.9
218	ANTO	ANTONIO	6	79	35	7992	59.4	72.7
203	CL152	CL152	8	80	39	7990	61.1	73.4
220	JZMN	JAZZMAN	5	84	39	7883	62.9	73.4
254	PVL 081	CHENIERE/BASF 1-2	5	84	41	7807	58.4	71.5
222	DLLA2	DELLA-2	6	82	40	7646	66.1	73.0
204	CL161	CL161	4	79	38	7627	67.8	74.8
209	CL261	CL261	4	79	39	7596	72.3	74.1
219	PSDO	PRESIDIO	4	76	36	7586	64.4	73.7
214	CPRS	CYPRESS	5	80	37	7560	68.4	74.4
221	JZMN2	JAZZMAN-2	4	77	34	7494	69.6	74.2
240	OARD HY	09A/R608	6	78	51	7355	62.7	70.8
211	CCDR	COCODRIE	8	79	37	7154	62.4	73.4
253	PVL 080	CHENIERE/BASF 1-2	5	74	40	6896	60.2	73.9
252	PVL 038	TRNS/BASF 1-10	4	74	35	6779	61.8	71.5
251	PVL 013	CPRS/BASF 1-13	5	75	38	6485	59.8	71.7

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

Table 4. Grain and agronomic performance of entries in the 2016 Commercial-Advanced Test, Jefferson Davis Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
237	RICE TEC	XP766 (hybrid)	6	79	45	10336
233	RICE TEC	CLXL745 (hybrid)	6	79	46	10209
236	RICE TEC	GEMINI 210 (hybrid)	6	84	46	10051
234	RICE TEC	XL753 (hybrid)	7	80	41	10040
238	OARD HY	CLH161 (hybrid)	5	80	47	9756
232	RICE TEC	CLXL729 (hybrid)	5	82	42	9599
235	RICE TEC	XL760 (hybrid)	7	84	47	9379
225	AR 1021	M206/STG99F5-07-118//JPTR	5	81	38	9191
245	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/ CHENIERE	5	81	41	9140
239	OARD HY	LAH169 (hybrid)	6	79	42	9026
227	AR 1024	CL111/3/CCDR//9502008/LGRU	5	81	39	8992
230	MS 4083	CL131/PSCL	6	80	37	8905
260	1602195	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	82	40	8810
240	OARD HY	09A/R608 (hybrid)	5	88	49	8804
228	AR 1111	BNGL/CL161/4/9502065/3/MERC//MERC/…	5	83	37	8793
202	CL151	CL151	4	83	40	8707
213	CTHL	CATAHOULA	5	84	38	8648
208	CL272	CL272 (15URN 025)	4	85	38	8625
248	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	4	83	37	8614
223	JPTR	JUPITER	4	85	38	8545
210	CL271	CL271	5	84	36	8531
217	ROY J	ROY J	4	85	42	8412
243	1402091	CL131/3/CPRS/KBNT//9502008-A	4	82	35	8401
247	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	80	35	8325
259	1602192	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/ …/6/CHENIERE//…	4	81	36	8323
231	MS 4122	CL151//COLUMBIA2/BENGAL	7	85	41	8307
258	1602189	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/ 9502008-A//AR1188/…	4	81	36	8288
206	CL172	CL172	4	82	37	8243
249	1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	84	35	8203
255	PVL 108	CHENIERE/BASF 1-6	4	80	41	8191
215	MRMT	MERMENTAU	5	83	36	8095
203	CL152	CL152	7	87	40	8082
207	CL153	CL153 (15URN 034)	5	84	37	8014
201	CL111	CL111	4	81	38	8013

Continued.

Table 4. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD
244	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/ TAGGART	5	84	36	7988
212	CHNR	CHENIERE	5	84	35	7986
204	CL161	CL161	4	84	38	7965
222	DLLA2	DELLA-2	5	86	39	7916
246	1502082	9502008-A/DREW//CLR 20/3/CL111	4	82	38	7874
216	LKST	LAKAST	4	82	41	7832
256	1602174	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	4	81	38	7800
218	ANTO	ANTONIO	5	84	38	7754
257	1602177	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/ CATAHOULA	4	83	36	7720
250	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	5	82	38	7696
205	CL163	CL163	4	82	37	7679
226	AR 1084	STG03AC-37-042(FRAN AC LINE)/RU0801076…	5	83	41	7620
224	CFFY	CAFFEY	4	86	36	7569
241	PVL 24A	PVL 24A	5	87	34	7530
219	PSDO	PRESIDIO	5	83	39	7324
220	JZMN	JAZZMAN	5	86	38	7318
252	PVL 038	TRNS/BASF 1-10	5	78	36	7291
221	JZMN2	JAZZMAN-2	4	83	37	7224
214	CPRS	CYPRESS	6	88	37	7166
242	PVL 24B	PVL 24B	5	86	38	6950
229	MS 4077	8603006//3/MARS/NWRX//TBNT	6	84	39	6842
211	CCDR	COCODRIE	7	88	41	6716
253	PVL 080	CHENIERE/BASF 1-2	4	77	41	6716
251	PVL 013	CPRS/BASF 1-13	4	79	38	6688
254	PVL 081	CHENIERE/BASF 1-2	4	87	39	6631
209	CL261	CL261	3	82	38	5057

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2016 Commercial-Advanced Test, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
236	RICE TEC	GEMINI 210 (hybrid)	3	77	46	11771	59.8	70.7
234	RICE TEC	XL753 (hybrid)	3	72	44	11334	65.9	72.6
237	RICE TEC	XP766 (hybrid)	4	73	44	10980	61.6	72.8
233	RICE TEC	CLXL745 (hybrid)	3	70	44	10516	62.7	71.0
232	RICE TEC	CLXL729 (hybrid)	3	73	41	10435	62.6	71.3
240	OARD HY	09A/R608 (hybrid)	3	80	52	10277	54.5	64.5
238	OARD HY	CLH161 (hybrid)	3	73	50	10027	64.4	72.2
239	OARD HY	LAH169 (hybrid)	3	70	42	9913	63.8	73.7
216	LKST	LAKAST	3	73	42	9807	57.0	73.3
235	RICE TEC	XL760 (hybrid)	5	75	46	9805	57.2	68.7
248	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/…	3	77	38	9557	64.0	72.6
224	CFFY	CAFFEY	3	78	36	9496	66.0	68.6
202	CL151	CL151	4	75	37	9465	66.0	73.3
260	1602195	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	77	39	9459	66.4	72.6
250	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	4	76	36	9417	61.5	68.8
244	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	4	75	36	9403	65.2	72.9
245	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	3	76	40	9224	63.8	71.5
226	AR 1084	STG03AC-37-042(FRAN AC LINE)/RU0801076…	3	76	41	9202	56.5	72.6
243	1402091	CL131/3/CPRS/KBNT//9502008-A	3	74	36	9187	61.4	70.4
208	CL272	CL272 (15URN 025)	4	81	38	9186	67.3	69.4
213	CTHL	CATAHOULA	3	76	38	9171	65.9	73.4
258	1602189	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//…	3	70	37	9140	68.2	74.3
228	AR 1111	BNGL/CL161/4/9502065/3/MERC//MERC/…	4	77	38	9012	66.0	69.2
249	1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	3	75	37	9007	63.7	71.1
201	CL111	CL111	3	72	38	8959	68.7	74.1
225	AR 1021	M206/STG99F5-07-118//JPTR	3	75	37	8900	66.1	68.2
206	CL172	CL172	3	73	37	8875	65.4	71.3
247	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	73	37	8848	65.8	73.7
207	CL153	CL153 (15URN 034)	4	75	36	8834	65.6	71.2
230	MS 4083	CL131/PSCL	4	74	38	8751	61.9	71.2
246	1502082	9502008-A/DREW//CLR 20/3/CL111	3	76	38	8743	66.2	72.3

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
212	CHNR	CHENIERE	3	76	37	8708	63.4	70.7
227	AR 1024	CL111/3/CCDR//9502008/LGRU	3	74	39	8691	63.0	72.0
215	MRMT	MERMENTAU	4	73	37	8691	63.2	72.0
223	JPTR	JUPITER	4	80	37	8672	63.8	65.6
210	CL271	CL271	4	81	38	8559	67.9	70.4
217	ROY J	ROY J	3	79	40	8330	56.0	70.5
231	MS 4122	CL151//COLUMBIA2/BENGAL	5	76	38	8265	55.4	68.7
205	CL163	CL163	3	75	40	8245	60.3	71.4
220	JZMN	JAZZMAN	4	80	39	8177	64.8	70.1
204	CL161	CL161	3	76	36	8159	68.1	73.8
203	CL152	CL152	5	77	38	8148	64.5	70.6
256	1602174	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	3	73	37	8106	68.6	73.4
209	CL261	CL261	3	77	38	8090	70.3	72.5
218	ANTO	ANTONIO	4	77	37	8084	66.5	73.2
255	PVL 108	CHENIERE/BASF 1-6	4	73	40	8002	67.2	74.1
257	1602177	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/ CATAHOULA	3	73	35	7910	67.4	72.4
259	1602192	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/… /6/…	4	74	36	7791	64.8	73.1
211	CCDR	COCODRIE	5	75	37	7788	63.3	72.5
229	MS 4077	8603006//3/MARS/NWRX//TBNT	4	75	37	7731	60.2	70.7
219	PSDO	PRESIDIO	3	73	40	7578	65.1	72.7
222	DLLA2	DELLA-2	4	78	40	7571	63.0	70.7
251	PVL 013	CPRS/BASF 1-13	4	71	38	7482	63.6	70.5
214	CPRS	CYPRESS	4	76	36	7423	66.6	72.4
253	PVL 080	CHENIERE/BASF 1-2	4	67	42	7422	64.0	73.1
252	PVL 038	TRNS/BASF 1-10	4	70	38	7186	61.3	68.4
221	JZMN2	JAZZMAN-2	3	76	34	7177	68.9	72.8
254	PVL 081	CHENIERE/BASF 1-2	4	83	41	6709	61.8	70.4
241	PVL 24A	PVL 24A	4	80	38	6649	60.5	71.9
242	PVL 24B	PVL 24B	5	78	38	6001	65.6	71.8

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

Table 6. Grain and milling yields and agronomic performance of entries in the 2016 Commercial-Advanced Test, Vermilion Parish, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
236	RICE TEC	GEMINI 210 (hybrid)	5	85	46	9739	54.5	69.0
237	RICE TEC	XP766 (hybrid)	5	81	44	9457	57.0	69.6
235	RICE TEC	XL760 (hybrid)	7	87	45	9299	51.3	69.6
234	RICE TEC	XL753 (hybrid)	6	81	40	8910	61.4	72.1
232	RICE TEC	CLXL729 (hybrid)	5	81	42	8182	59.7	71.8
233	RICE TEC	CLXL745 (hybrid)	4	78	43	7979	61.3	72.8
231	MS 4122	CL151//COLUMBIA2/BENGAL	7	85	38	7827	48.3	71.3
260	1602195	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	83	39	7560	62.0	70.0
239	OARD HY	LAH169 (hybrid)	6	77	42	7479	54.7	69.9
225	AR 1021	M206/STG99F5-07-118//JPTR	5	85	34	7476	63.3	67.9
238	OARD HY	CLH161 (hybrid)	4	80	47	7376	58.5	70.3
215	MRMT	MERMENTAU	5	79	36	7285	60.2	70.2
202	CL151	CL151	4	84	38	7240	54.9	68.1
247	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	79	33	7207	60.6	72.8
210	CL271	CL271	4	91	35	7097	63.6	68.9
224	CFFY	CAFFEY	5	90	37	7009	62.1	67.6
249	1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	85	36	6993	35.6	72.1
207	CL153	CL153 (15URN 034)	5	84	35	6962	62.1	70.7
223	JPTR	JUPITER	5	91	35	6934	63.8	68.4
250	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	5	88	38	6933	60.6	67.9
228	AR 1111	BNGL/CL161/4/9502065/3/MERC//MERC/…	4	89	37	6796	63.1	69.2
259	1602192	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/…	4	81	35	6662	56.9	69.9
245	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	5	87	38	6659	59.4	71.4
218	ANTO	ANTONIO	7	82	38	6653	59.6	69.6
248	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/…	4	87	36	6650	57.2	71.8
246	1502082	9502008-A/DREW//CLR 20/3/CL111	4	84	35	6622	60.7	71.1
208	CL 272	CL272 (15URN 025)	3	90	36	6500	47.7	67.7
213	CTHL	CATAHOULA	6	82	36	6412	59.5	71.4
230	MS 4083	CL131/PSCL	5	82	34	6340	56.7	70.5
214	CPRS	CYPRESS	6	85	36	6296	60.3	70.8
243	1402091	CL131/3/CPRS/KBNT//9502008-A	4	82	33	6295	58.2	70.6

Continued.

Table 6. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
212	CHNR	CHENIERE	6	85	35	6261	59.8	71.5
219	PSDO	PRESIDIO	4	79	34	6243	57.9	70.9
227	AR 1024	CL111/3/CCDR//9502008/LGRU	3	81	36	6222	59.4	70.5
216	LKST	LAKAST	5	84	40	6172	43.2	68.2
258	1602189	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//…	4	75	35	6156	60.1	71.2
222	DLLA2	DELLA-2	6	87	37	6012	59.5	68.5
229	MS 4077	8603006//3/MARS/NWRX//TBNT	6	81	35	5986	51.0	68.7
204	CL161	CL161	3	85	34	5903	61.6	71.3
205	CL163	CL163	4	86	34	5765	54.5	68.0
251	PVL 013	CPRS/BASF 1-13	6	79	36	5741	53.9	68.0
256	1602174	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	3	75	32	5733	60.0	72.4
211	CCDR	COCODRIE	7	81	36	5659	58.2	69.2
209	CL261	CL261	3	88	35	5563	46.9	67.9
203	CL152	CL152	6	87	34	5556	55.2	69.2
255	PVL 108	CHENIERE/BASF 1-6	5	78	39	5522	57.9	71.0
241	PVL 24A	PVL 24A	6	93	36	5394	51.2	70.3
217	ROY J	ROY J	5	91	40	5377	42.6	65.4
242	PVL 24B	PVL 24B	6	88	38	5319	61.0	71.4
253	PVL 080	CHENIERE/BASF 1-2	6	73	40	5236	60.7	72.0
226	AR 1084	STG03AC-37-042(FRAN AC LINE)/RU0801076…	5	77	36	5062	39.3	64.7
201	CL111	CL111	4	75	30	5043	52.9	67.6
244	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	5	78	33	5011	54.1	68.4
252	PVL 038	TRNS/BASF 1-10	6	75	37	4916	59.9	68.2
257	1602177	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/CATAHOULA	3	74	33	4635	63.5	73.9
221	JZMN2	JAZZMAN-2	6	86	31	4598	64.3	70.3
206	CL172	CL172	3	78	34	4235	43.4	63.7
220	JZMN	JAZZMAN	6	95	38	4107	42.2	64.5
254	PVL 081	CHENIERE/BASF 1-2	6	94	43	3965	39.7	62.5
240	OARD HY	09A/R608 (hybrid)	6	92	53	3955	52.5	64.5

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

Table 7. Grain performance of entries in the 2016 Commercial-Advanced Test, St. Landry Parish, LA.

ENT	SOURCE	PEDIGREE	YIELD
234	RICE TEC	XL753 (hybrid)	10522
236	RICE TEC	GEMINI 210 (hybrid)	10466
232	RICE TEC	CLXL729 (hybrid)	10214
237	RICE TEC	XP766 (hybrid)	10160
258	1602189	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/ CCDR/3/…	10138
235	RICE TEC	XL760 (hybrid)	9902
240	OARD HY	09A/R608 (hybrid)	9369
233	RICE TEC	CLXL745 (hybrid)	9059
239	OARD HY	LAH169 (hybrid)	8653
260	1602195	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	8564
202	CL151	CL151	8338
229	MS 4077	8603006//3/MARS/NWRX//TBNT	8065
216	LKST	LAKAST	8016
213	CTHL	CATAHOULA	7884
212	CHNR	CHENIERE	7739
225	AR 1021	M206/STG99F5-07-118//JPTR	7708
226	AR 1084	STG03AC-37-042(FRAN AC LINE)/RU0801076…	7679
208	CL272	CL272	7668
227	AR 1024	CL111/3/CCDR//9502008/LGRU	7611
210	CL271	CL271	7594
231	MS 4122	CL151//COLUMBIA2/BENGAL	7502
215	MRMT	MERMENTAU	7417
249	1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	7401
230	MS 4083	CL131/PSCL	7391
211	CCDR	COCODRIE	7197
223	JPTR	JUPITER	7192
250	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	7158
206	CL172	CL172	7137
228	AR 1111	BNGL/CL161/4/9502065/3/MERC//MERC/…	7096
201	CL111	CL111	7090
219	PSDO	PRESIDIO	7016
222	DLLA2	DELLA-2	6990
255	PVL 108	CHENIERE/BASF 1-6	6982
259	1602192	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE// CCDR/JEFF	6914
257	1602177	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/CATAHOULA	6820
247	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	6815
238	OARD HY	CLH161 (hybrid)	6773
214	CPRS	CYPRESS	6742
207	CL153	CL153 (15URN 034)	6693
209	CL261	CL261	6657
242	PVL 24B	PVL 24B	6615
243	1402091	CL131/3/CPRS/KBNT//9502008-A	6489
224	CFFY	CAFFEY	6478
254	PVL 081	CHENIERE/BASF 1-2	6443

Continued.

Table 7. Continued.

ENT	SOURCE	PEDIGREE	YIELD
241	PVL 24A	PVL 24A	6408
217	ROY J	ROY J	6397
218	ANTO	ANTONIO	6330
245	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	6318
256	1602174	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	6311
248	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	6283
221	JZMN2	JAZZMAN-2	6214
204	CL161	CL161	6204
244	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	6154
220	JZMN	JAZZMAN	6116
203	CL152	CL152	6088
252	PVL 038	TRNS/BASF 1-10	5830
251	PVL 013	CPRS/BASF 1-13	5829
205	CL163	CL163	5430
246	1502082	9502008-A/DREW//CLR 20/3/CL111	5425
253	PVL 080	CHENIERE/BASF 1-2	3904

Table 8. Grain agronomic performance of entries in the 2016 Commercial-Advanced Test, Tensas Parish, LA.

ENT	SOURCE	PEDIGREE	HDT	HTE	YIELD
234	RICE TEC	XL753 (hybrid)	74	45	11214
236	RICE TEC	GEMINI 210 (hybrid)	74	46	10950
240	OARD HY	09A/R608 (hybrid)	75	53	10558
237	RICE TEC	XP766 (hybrid)	74	44	10442
233	RICE TEC	CLXL745 (hybrid)	72	46	9946
235	RICE TEC	XL760 (hybrid)	76	47	9446
238	OARD HY	CLH161 (hybrid)	76	50	9286
232	RICE TEC	CLXL729 (hybrid)	74	44	9269
228	AR 1111	BNGL/CL161/4/9502065/3/MERC//MERC/…	74	39	8633
245	1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	76	43	8219
239	OARD HY	LAH169 (hybrid)	75	43	8054
249	1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	76	42	7907
248	1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	78	42	7336
208	CL272	CL272 (15URN 025)	75	37	7278
258	1602189	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/…	72	40	7114
244	1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	77	38	7086
243	1402091	CL131/3/CPRS/KBNT//9502008-A	74	36	7078
202	CL151	CL151	76	39	7000
230	MS 4083	CL131/PSCL	74	36	6899
254	PVL 081	CHENIERE/BASF 1-2	80	44	6819
260	1602195	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	76	39	6747
250	1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	76	37	6670
210	CL271	CL271	76	35	6661
225	AR 1021	M206/STG99F5-07-118//JPTR	72	36	6655
226	AR 1084	STG03AC-37-042(FRAN AC LINE)/RU0801076…	78	39	6511
206	CL172	CL172	75	37	6402
201	CL111	CL111	73	38	6369
227	AR 1024	CL111/3/CCDR//9502008/LGRU	74	38	6274
242	PVL 24B	PVL 24B	77	42	6234
257	1602177	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/ CATAHOULA	75	35	6212
207	CL153	CL153 (15URN 034)	77	37	6196
205	CL163	CL163	80	39	6196
216	LKST	LAKAST	79	38	6147
255	PVL 108	CHENIERE/BASF 1-6	75	41	6127
215	MRMT	MERMENTAU	74	38	6111
209	CL261	CL261	74	36	6078
253	PVL 080	CHENIERE/BASF 1-2	72	40	6004
203	CL152	CL152	77	40	5961
246	1502082	9502008-A/DREW//CLR 20/3/CL111	74	38	5945
241	PVL 24A	PVL 24A	79	38	5918
251	PVL 013	CPRS/BASF 1-13	73	37	5914
252	PVL 038	TRNS/BASF 1-10	74	33	5906

Continued.

Table 8. Continued.

ENT	SOURCE	PEDIGREE	HDT	HTE	YIELD
217	ROY J	ROY J	83	42	5896
224	CFFY	CAFFEY	74	35	5830
256	1602174	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	73	39	5819
222	DLLA2	DELLA-2	80	41	5671
247	1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	74	37	5636
213	CTHL	CATAHOULA	79	39	5547
219	PSDO	PRESIDIO	75	37	5527
259	1602192	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/ CHENIERE//CCDR/JEFF	75	36	5496
204	CL161	CL161	79	37	5476
220	JZMN	JAZZMAN	82	39	5357
223	JPTR	JUPITER	77	35	5321
212	CHNR	CHENIERE	78	36	5289
229	MS 4077	8603006//3/MARS/NWRX//TBNT	82	37	5241
214	CPRS	CYPRESS	80	40	4987
211	CCDR	COCODRIE	76	39	4885
231	MS 4122	CL151//COLUMBIA2/BENGAL	78	39	4384
221	JZMN2	JAZZMAN-2	78	34	4328
218	ANTO	ANTONIO	75	36	3877

CLEARFIELD EXPERIMENTAL LINES

Clearfield Multi-Location Test

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

Test locations in 2016 included the H. Rouse Caffey Rice Research Station (HRCRRS) at Crowley and three on-farm test sites in Evangeline, Vermilion, and Richland parishes.

Twenty-one entries were tested in a randomized complete block design with three replications. Varieties were seeded at 90 lb/A. Planting dates were: HRCRRS, March 28; Evangeline, March 30; Vermilion, March 21; and Richland, May 11. Harvest dates were: HRCRRS, Aug. 3; Evangeline, Aug. 23; Vermilion, Aug. 22; and Richland Sept. 19. Results from these trials are shown in Tables 1-4.

Table 1. Grain and milling yields and agronomic performance of entries in the 2016 Clearfield Multi-Location Test, Evangeline Parish, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
005	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	3	79	39	9245	65.2	74.3
013	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	6	75	36	9244	51.1	72.2
002	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	5	78	40	8994	62.5	74.6
012	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	5	75	36	8985	41.4	72.5
020	CL151	4	78	38	8963	52.2	73.5
006	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	79	38	8825	65.1	73.8
003	9502008-A/DREW//CLR 20/3/CL111	4	77	38	8755	68.4	74.2
010	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	4	76	37	8748	61.9	74.4
011	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	5	76	34	8736	48.2	71.2
021	CL153	5	78	37	8719	54.7	73.0
008	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	77	36	8610	57.4	72.9
004	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	6	75	36	8517	64.2	74.9
015	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	5	75	36	8407	58.7	72.8
019	CL111	4	71	36	8371	49.8	72.0
001	CL131/3/CPRS/KBNT//9502008-A	5	76	35	8291	54.6	72.0
014	CCDR/3/CPRS/KBNT//WELLS CFX 18	4	77	37	8290	57.7	72.8
009	JZMN/08CLR004//RU0802146/3/RU0802146	5	79	36	8024	52.3	72.8
007	JZMN/08CLR004//RU1002146*2	4	75	39	7640	67.2	74.1
018	RU1002146*4//JZMN/08CLR004	5	73	36	7401	54.2	72.9
017	JZMN/08CLR004//RU1002146*2	5	74	37	7280	52.1	72.3
016	JZMN/08CLR004//RU0802146/3/JZM2	5	75	33	7205	44.3	72.3

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2016 Clearfield Multi-Location Test, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
021	CL153	3	76	38	9654	65.8	72.9
013	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	72	36	9598	61.2	71.4
020	CL151	3	75	39	9474	63.3	70.7
019	CL111	3	73	39	9261	67.8	73.4
010	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	3	74	39	8968	61.0	70.8
005	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	3	78	39	8947	61.5	70.4
002	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	3	76	41	8895	59.4	67.3
003	9502008-A/DREW//CLR 20/3/CL111	4	75	40	8858	66.7	73.6
011	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	73	35	8807	66.0	72.8
012	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	4	75	38	8791	62.8	73.1
006	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	77	37	8775	61.8	71.5
008	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	3	76	35	8743	62.9	70.0
014	CCDR/3/CPRS/KBNT//WELLS CFX 18	3	75	37	8690	64.2	72.0
004	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	73	38	8558	64.5	72.2
001	CL131/3/CPRS/KBNT//9502008-A	4	73	35	8518	62.3	70.8
017	JZMN/08CLR004//RU1002146*2	3	72	40	8205	68.0	73.7
015	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	4	74	37	8199	63.9	70.5
018	RU1002146*4//JZMN/08CLR004	4	70	37	8187	69.0	73.9
009	JZMN/08CLR004//RU0802146/3/RU0802146	4	77	37	7856	68.7	73.2
007	JZMN/08CLR004//RU1002146*2	3	74	39	7515	67.2	72.5
016	JZMN/08CLR004//RU0802146/3/JZM2	4	72	34	7274	66.4	73.5

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

Table 3. Grain and agronomic performance of entries in the 2016 Clearfield Multi-Location Test, Vermilion Parish, LA.

ENT	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
006	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	84	36	7642	59.9	70.4
012	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	4	79	36	7371	59.9	73.5
021	CL153	3	83	34	7337	57.0	70.3
014	CCDR/3/CPRS/KBNT//WELLS CFX 18	3	82	35	7241	61.7	73.2
008	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	85	35	7140	62.4	73.2
020	CL151	4	83	37	7100	57.1	69.7
002	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	84	38	6877	61.1	72.6
003	9502008-A/DREW//CLR 20/3/CL111	3	85	36	6845	61.1	72.1
013	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	76	32	6648	56.3	71.5
004	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5	79	35	6544	57.1	71.5
007	JZMN/08CLR004//RU1002146*2	3	83	36	6408	63.4	72.3
010	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	3	83	36	6235	54.7	70.7
005	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	4	87	34	6183	55.8	70.8
009	JZMN/08CLR004//RU0802146/3/RU0802146	3	87	33	6028	64.5	73.1
001	CL131/3/CPRS/KBNT//9502008-A	4	79	33	6028	56.9	71.6
011	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	75	31	5866	59.6	72.9
015	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	4	77	33	5561	59.7	71.1
019	CL111	3	76	31	5063	57.3	70.9
018	RU1002146*4//JZMN/08CLR004	4	76	33	5045	58.5	70.6
017	JZMN/08CLR004//RU1002146*2	3	76	33	4285	55.8	69.9
016	JZMN/08CLR004//RU0802146/3/JZM2	3	77	28	3799	53.8	69.3

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

Table 4. Grain and agronomic performance of entries in the 2016 Clearfield Multi-Location Test, Richland Parish, LA.

ENT	PEDIGREE	HTE	YIELD
021	CL153	38	6345
020	CL151	38	6224
001	CL131/3/CPRS/KBNT//9502008-A	34	5855
019	CL111	35	5853
018	RU1002146*4//JZMN/08CLR004	35	5808
009	JZMN/08CLR004//RU0802146/3/RU0802146	35	5771
011	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	33	5651
010	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	38	5623
003	9502008-A/DREW//CLR 20/3/CL111	38	5614
016	JZMN/08CLR004//RU0802146/3/JZM2	32	5606
007	JZMN/08CLR004//RU1002146*2	36	5589
015	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	36	5482
017	JZMN/08CLR004//RU1002146*2	35	5454
012	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	36	5424
014	CCDR/3/CPRS/KBNT//WELLS CFX 18	39	5402
005	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	40	5396
008	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	37	5347
006	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	39	5320
013	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	33	5298
004	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	36	5280
002	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	41	5126

CLEARFIELD PRELIMINARY YIELD TEST

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

Tests were conducted using standard agronomic practices (except that no fungicides were applied) at the H. Rouse Caffey Rice Research Station 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 22 and harvested on Aug. 1-2. Data is presented for Test 1 in Table 1 and for Test 2 in Table 2.

Table 1. Grain and milling yields and agronomic performance of entries in the 2016 Clearfield Preliminary Yield Test 1, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
374	CLXL729	81	38	10286	61.4	73.3
375	CLXL745	80	40	9589	---	---
240	9502008-A/DREW//CLR 20/3/CPRS/KBNT//9502008-A /4/CL131	81	33	9018	60.3	70.4
253	TRNS//TRNS/CL131	79	35	8776	61.1	72.3
073	CL162/3/TRNS//CCDR/JEFF	82	35	8694	58.2	69.4
175	CCDR/JEFF/3/CFX-18//CPRS/KBNT/4/TRNS//CCDR/JEFF	80	38	8653	64.1	71.8
268	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/… /6/TRNS//CCDR/9502008-A	79	39	8576	57.5	72.9
053	TRNS//CCDR/JEFF/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	79	35	8513	59.5	70.0
128	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	36	8428	63.7	71.2
147	CHENIERE/3/CCDR//CFX-29/CCDR	81	36	8418	61.9	72.3
029	9502008-A/DREW//CLR 20/3/CRX-26/9702128	83	33	8418	60.4	71.0
239	9502008-A/DREW//CLR 20/3/CPRS/KBNT//9502008-A /4/CL131	80	34	8409	61.0	70.2
366	CL111	78	36	8304	59.3	72.4
250	TRNS//CCDR/JEFF/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	76	36	8299	64.4	71.9
362	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	81	36	8276	65.1	74.2
136	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	83	36	8266	56.9	71.5
354	TRNS/CL131	77	37	8261	65.7	72.7
315	TRNS//CCDR/9502008-A/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	78	34	8250	66.1	73.4
367	CL151	82	37	8246	61.6	70.9
181	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	76	35	8244	65.8	72.4
182	CCDR/JEFF//CFX-26/9702128/3/WELLS/CFX-18//DREW/CFX-18	81	37	8228	63.5	71.4
358	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2035/4/TRNS	82	35	8227	64.6	73.6
149	CHENIERE/3/CCDR//CFX-29/CCDR	82	37	8223	57.1	71.0
243	CCDR/JEFF//CFX-26/9702128/3/WELLS/CFX-18//DREW/CFX-18	80	36	8218	64.6	72.2
100	TRNS//CCDR/JEFF/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	78	36	8215	62.2	71.1
170	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//CCDR/JEFF	84	37	8209	64.7	74.2
076	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	79	33	8198	63.5	71.5
255	TRNS//TRNS/CL131	81	36	8188	60.7	72.2
236	CCDR//CLPY 003/3/CCDR/JEFF//CPRS	76	36	8179	66.6	74.6
123	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/TRNS//CCDR/JEFF	79	35	8144	64.0	71.4
325	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//…/5/DREW/CFX-18/3/CFX-18//…	80	39	8135	61.1	71.9

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
301	CPRS/KBNT//9502008-A/3/CCDR/4/CL131	82	35	8134	62.1	74.0
238	FRANCIS/CLR 13//9502008-A/DREW/3/MERMENTAU	80	35	8123	59.8	69.8
162	CCDR//CFX-29/CCDR/3/CCDR	82	36	8119	64.5	72.5
233	CATAHOULA/6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	81	36	8112	67.7	74.9
212	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	80	37	8106	61.9	73.4
077	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	79	33	8105	62.7	71.0
085	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	80	35	8103	64.3	73.2
350	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/TRNS//CCDR/9502008-A	79	37	8101	64.4	72.7
218	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	81	34	8099	63.0	73.5
320	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//…/5/CL131/CHENIERE	81	36	8095	60.8	73.2
245	CCDR/JEFF//CFX-26/9702128/3/CL151	82	37	8095	63.5	70.9
203	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	37	8092	66.4	73.6
349	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/TRNS//CCDR/9502008-A	80	37	8091	60.5	73.1
204	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	36	8090	65.1	72.9
318	TRNS//CCDR/9502008-A/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	80	36	8086	63.6	72.5
101	TRNS//CCDR/JEFF/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	80	32	8082	61.1	69.5
235	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	78	36	8076	66.9	75.1
093	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	80	34	8070	61.6	71.4
229	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//...	82	34	8069	63.5	73.6
371	CL172	80	37	8069	68.3	70.0
126	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	80	32	8069	61.8	70.9
242	CCDR/JEFF//CFX-26/9702128/3/WELLS/CFX-18//DREW/CFX-18	80	39	8057	62.8	72.2
092	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	80	34	8048	61.1	71.2
357	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2034/4/CL152	83	35	8045	59.0	72.7
231	CCDR/JEFF/3/CFX-18//CPRS/KBNT/4/TRNS//CCDR/JEFF	78	35	8041	61.7	72.9
270	CL131/TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	76	37	8035	65.1	73.0
163	CCDR//CFX-29/CCDR/3/CCDR	83	38	8026	64.4	72.4
244	CCDR/JEFF//CFX-26/9702128/3/CL151	81	37	8013	63.9	71.4
201	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	77	35	8006	67.0	73.5
120	CCDR/3/CCDR//CFX-29/CCDR	81	35	7992	63.5	74.0
121	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/TRNS//CCDR/JEFF	78	35	7987	64.3	72.3
360	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	78	36	7985	69.2	75.9

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
364	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	79	35	7983	68.3	73.9
164	CCDR//CFX-29/CCDR/3/CCDR	83	37	7983	64.3	72.6
370	CL163	82	39	7978	63.3	73.2
271	CL131/TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	81	33	7976	63.4	73.7
363	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	80	35	7972	68.3	75.9
105	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	80	35	7956	62.6	71.4
155	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	82	37	7956	63.5	72.3
070	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	81	35	7951	63.9	72.9
223	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	82	36	7937	65.8	73.8
213	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	79	35	7930	62.3	73.5
257	TRNS/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	77	35	7925	63.4	71.6
261	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	78	36	7919	62.8	72.6
069	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	81	35	7914	64.7	72.5
355	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	83	36	7909	66.2	73.8
373	CL272	84	36	7903	58.2	71.5
052	TRNS//CCDR/JEFF/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	79	32	7902	61.4	70.9
075	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	76	32	7899	61.9	71.8
254	TRNS//TRNS/CL131	80	35	7897	60.2	70.4
221	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	77	35	7897	63.1	72.9
091	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	81	31	7896	65.8	74.4
103	CL152/3/TRNS//CCDR/JEFF	81	32	7896	65.2	73.0
068	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	81	36	7890	67.3	74.1
326	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//…/5/DREW/CFX-18/3/CFX-18//…	78	37	7889	62.2	72.7
274	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/6/CL161	81	35	7884	63.9	72.1
232	CATAHOULA/6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	80	36	7883	59.3	73.0
113	CCDR/CL131	79	34	7883	60.5	71.7
104	CL152/3/TRNS//CCDR/JEFF	79	34	7882	64.1	73.6
319	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//…/5/CL131/CHENIERE	83	38	7881	63.0	71.1
285	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/DREW//CLR 20/4/…	81	38	7880	63.5	73.4
237	CCDR//CLPY 003/3/CCDR/JEFF//CPRS	77	35	7879	64.8	73.9
256	TRNS//TRNS/CL131	80	35	7872	60.6	73.5

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
063	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CFX-18//CPRS/KBNT/3/CFX-29/CCDR	78	35	7869	65.9	73.6
122	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/TRNS//CCDR/JEFF	80	34	7865	65.4	72.3
224	CCDR//CFX-29/CCDR/3/CCDR	80	34	7861	63.2	72.8
173	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//CCDR/JEFF	83	34	7861	59.6	70.6
251	TRNS//CCDR/JEFF/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	77	35	7860	65.8	73.0
278	CL131/3/CPRS/KBNT//9502008-A /4/9502008-A/DREW//CLR 20/3/9502008-A/DREW//CLR 20	81	34	7859	65.0	72.9
322	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//…/5/CL131/CHENIERE	80	35	7855	62.8	73.4
148	CHENIERE/3/CCDR//CFX-29/CCDR	83	37	7855	61.7	72.7
365	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	80	33	7847	64.4	73.2
290	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/CATAHOULA	83	39	7839	63.0	71.5
369	CL153	82	36	7837	57.2	69.7
049	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	81	33	7830	58.7	70.4
114	CCDR/CL131	82	32	7828	57.0	66.3
252	TRNS//CCDR/JEFF/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	79	36	7822	57.9	67.5
024	CCDR/CFX-18/3/9502008-A/DREW//CLR 20	81	35	7821	62.1	72.8
361	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/TRNS//CCDR/JEFF	81	35	7812	65.7	74.2
337	CL152/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	81	35	7812	62.8	71.3
348	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/TRNS//CCDR/9502008-A	80	37	7810	61.2	70.9
260	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	80	35	7807	64.8	73.8
220	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	83	33	7803	62.1	76.0
144	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	78	36	7802	58.9	73.2
108	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	80	36	7796	63.9	72.8
208	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	81	36	7796	61.3	74.6
142	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	80	34	7792	58.6	72.9
152	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	83	37	7792	57.4	71.7
169	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//CCDR/JEFF	84	33	7788	64.8	73.9
165	CCDR//CFX-29/CCDR/3/CCDR	84	36	7787	65.0	72.5
314	TRNS//CCDR/9502008-A/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	78	35	7785	63.1	71.8
200	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	77	34	7780	65.3	72.1
058	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	81	34	7779	56.2	69.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
127	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	77	34	7771	65.8	73.2
106	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/…	81	33	7770	63.3	72.0
205	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	34	7768	64.8	74.7
273	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/5/9502008-A/DREW/…	81	35	7759	62.4	72.8
241	9502008-A/DREW//CLR 20/3/CPRS/KBNT//9502008-A /4/CL111	81	33	7759	64.8	72.6
317	TRNS//CCDR/9502008-A/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	78	37	7757	59.0	70.3
080	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	80	34	7752	62.9	71.6
139	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	79	35	7749	63.9	74.0
216	CHENIERE/3/CCDR//CFX-29/CCDR	78	34	7748	66.3	74.3
074	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	78	35	7745	61.1	71.5
112	CL131/3/CCDR//CFX-29/CCDR	82	32	7739	62.8	72.2
048	CCDR/CLPY 003/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	79	36	7737	52.3	73.0
202	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	35	7720	65.0	72.8
222	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	79	37	7706	66.5	73.6
159	CCDR//CFX-29/CCDR/3/CCDR	83	37	7705	65.1	73.4
043	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	83	35	7697	61.9	70.5
331	CL131/CHENIERE/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	79	33	7692	64.0	75.0
372	CL271	84	37	7692	67.6	69.6
225	CCDR//CFX-29/CCDR/3/CCDR	80	37	7689	63.9	72.4
056	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/TACAURI	81	34	7686	56.9	69.3
125	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	79	33	7684	65.9	73.5
129	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	35	7657	61.0	71.7
028	9502008-A/DREW//CLR 20/3/CRX-26/9702128	80	36	7656	61.0	70.7
330	CL131/CHENIERE/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	82	37	7654	60.8	72.9
356	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	84	35	7646	55.5	75.2
346	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/TRNS//CCDR/9502008-A	78	35	7646	62.2	71.5
172	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/MBLE	82	35	7643	65.7	73.8
176	CCDR/JEFF/3/CFX-18//CPRS/KBNT/4/TRNS//CCDR/JEFF	77	36	7643	66.1	73.5
336	CL152/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	84	34	7636	62.2	71.0
180	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	82	34	7615	65.0	73.2
094	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	81	34	7614	63.3	72.2
262	CL131//CL131/CHENIERE	82	33	7611	62.0	73.5

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
079	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	78	33	7608	62.9	72.0
228	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//...	80	34	7604	62.2	72.3
234	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	77	36	7601	69.0	76.5
042	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	80	33	7597	63.1	72.9
097	CL111/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	79	37	7597	63.1	72.9
027	9502008-A/DREW//CLR 20/3/CRX-26/9702128	81	34	7594	63.5	72.2
324	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//…/5/CL131/CHENIERE	82	37	7590	65.6	74.3
045	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	79	32	7583	60.8	72.1
146	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	80	34	7581	58.9	71.9
339	CL152/3/DREW//CHENIERE/LMNT	82	36	7576	61.5	73.5
067	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	80	35	7574	64.7	73.0
095	CL111/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	81	36	7568	63.2	72.7
133	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	35	7568	63.5	73.2
161	CCDR//CFX-29/CCDR/3/CCDR	84	38	7566	68.1	74.0
190	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	83	35	7560	63.3	71.7
026	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/	82	34	7554	65.4	73.0
353	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CCDR	78	36	7553	59.9	70.3
287	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/CATAHOULA	81	36	7552	63.7	71.8
124	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	80	34	7547	63.8	71.9
117	CCDR/CL131	80	33	7538	59.6	73.4
187	CHENIERE//CCDR/JEFF/3/CFX-26/9702128//EP 144	81	36	7537	77.5	70.6
135	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	82	36	7536	63.2	71.1
140	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	79	31	7533	58.4	72.7
188	CHENIERE//CCDR/JEFF/3/CFX-26/9702128//EP 144	79	34	7532	62.2	72.2
158	CCDR//CFX-29/CCDR/3/CCDR	82	36	7516	65.7	73.5
197	DREW/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	82	37	7504	65.6	73.0
061	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	79	35	7503	64.7	73.2
150	CHENIERE/3/CCDR//CFX-29/CCDR	81	35	7503	63.1	73.1
300	CL111/CL152	82	37	7499	62.9	74.3
107	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/…	81	34	7491	51.8	70.5
131	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	35	7489	62.4	72.1
226	CCDR//CFX-29/CCDR/3/CCDR	81	36	7489	63.2	72.7
186	CHENIERE//CCDR/JEFF/4/CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	82	35	7486	63.9	72.2
276	CL131/3/CPRS/KBNT//9502008-A /4/9502008-A/DREW//CLR 20/3/9502008-A/DREW//…	79	32	7486	63.1	71.9

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
078	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	79	34	7480	64.0	71.9
044	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	79	32	7470	60.4	71.7
211	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	80	34	7467	64.4	74.5
017	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF/3/CFX-18//CCDR/…	83	32	7466	56.3	72.9
153	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	82	35	7455	57.6	71.8
207	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	83	36	7445	61.4	72.9
171	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/MBLE	82	34	7445	65.8	73.1
099	9502008-A//AR 1188/CCDR/3/CCDR/JEFF/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	81	35	7443	59.8	70.5
143	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	81	35	7440	61.4	72.5
191	9502008-A/TACAURI//CLR 5/3/LGRU/WELLS	84	35	7440	65.3	71.9
333	CL131/CHENIERE/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	81	34	7430	64.2	73.1
168	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//CCDR/JEFF	80	35	7414	63.8	72.8
215	CHENIERE/3/CCDR//CFX-29/CCDR	80	35	7402	62.2	73.5
109	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/…	81	34	7399	64.0	71.4
137	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF//CFX-26/9702128	80	37	7398	61.7	73.2
016	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	80	35	7395	59.8	72.1
328	CL131/CHENIERE/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	82	31	7385	62.1	72.1
246	CHENIERE//CCDR/JEFF/4/CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	81	35	7382	66.1	74.2
277	CL131/3/CPRS/KBNT//9502008-A /4/9502008-A/DREW//CLR 20/3/9502008-A/DREW//…	80	34	7381	64.8	72.2
040	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/CATAHOULA	79	32	7379	63.8	72.5
174	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//CCDR/JEFF	83	36	7377	61.8	72.2
249	CHENIERE//CCDR/JEFF/4/CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	80	33	7369	68.2	75.2
046	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CLPY 003 (CL 006)//CFX-26/9702128	78	35	7356	63.9	73.0
154	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	80	36	7342	66.9	74.2
247	CHENIERE//CCDR/JEFF/4/CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	81	34	7340	66.0	72.7
089	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	80	33	7336	66.2	72.9
306	CPRS/KBNT//9502008-A/3/CCDR/4/CL131	82	34	7326	63.8	72.4
166	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//CCDR/JEFF	81	34	7317	63.4	72.8
283	CL131/CHENIERE/4/CPRS/KBNT//9502008-A /3/CCDR/JEFF	81	35	7308	64.7	73.2
302	CPRS/KBNT//9502008-A/3/CCDR/4/CL131	83	35	7300	63.5	72.2

Continued.

Table 1. Continued

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
281	CL131/3/CPRS/KBNT//9502008-A /6/KATY/CPRS//NWBT/…/3/ 9502008/4/CLR 9/5/KATY/…	82	34	7295	64.6	73.5
368	CL152	85	34	7292	63.5	73.0
279	CL131/3/CPRS/KBNT//9502008-A /6/KATY/CPRS//NWBT/…/3/ 9502008/4/CLR 9/5/KATY/…	81	36	7292	62.9	72.4
206	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	83	35	7290	62.7	72.8
183	CHENIERE//CCDR/JEFF/4/CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	79	32	7288	63.8	75.9
055	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/9502008-A//AR 1188/CCDR/3/CCDR/JEFF	81	34	7284	60.7	70.2
134	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	83	35	7279	64.8	72.5
291	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/DREW/3/NWBT/…	78	35	7278	65.4	73.0
072	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/CPRS/…	78	35	7277	65.0	73.0
335	CL152/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	81	36	7274	62.1	71.6
184	CHENIERE//CCDR/JEFF/4/CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	82	36	7267	65.6	74.1
102	CL152/DREW	81	34	7257	58.6	71.2
060	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/TRNS//CCDR/JEFF	79	35	7253	64.0	72.6
014	CL111/3/CCDR//9502008/LGRU	82	33	7252	59.1	71.7
308	DREW//CHENIERE/LMNT/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	83	37	7249	64.9	73.5
359	CHENIERE/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	80	35	7245	65.3	74.1
327	CL131/CHENIERE/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	78	33	7244	62.5	73.1
343	CL131//DREW/CLR 13/4/9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	79	37	7240	60.6	71.6
275	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/6/CL161	81	36	7233	64.5	72.3
323	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//…/5/CL131/CHENIERE	81	31	7227	63.6	71.6
209	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	81	35	7212	62.5	73.1
340	CL152/3/DREW//CHENIERE/LMNT	84	36	7209	62.6	73.3
087	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	82	33	7194	62.9	72.1
185	CHENIERE//CCDR/JEFF/4/CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	80	34	7190	66.3	73.4
130	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	81	33	7182	56.9	73.1
054	CL152/CL162	80	35	7182	60.8	71.2
352	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CCDR	79	33	7179	64.8	73.5
293	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/DREW/3/NWBT/…	83	36	7179	63.6	72.1
272	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL131/6/9502008-A/DREW//CLR 20/4/…	78	36	7177	63.8	73.3
198	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/TRNS//CCDR/JEFF	78	34	7176	65.2	72.5
299	WELLS//CL131/CHENIERE	81	33	7174	60.5	71.6
081	CCDR/CLPY 003/3/AR 1188/CCDR//9502008/LGRU	81	34	7162	61.4	71.8

Continued.

Table 1. Continued

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
264	CL131//CL131/CHENIERE	81	32	7158	67.0	74.0
037	9502008-A/DREW//CLR 20/3/9502008-A/DREW//CLR 20	80	35	7154	62.7	71.8
118	CCDR/3/CCDR//CFX-29/CCDR	81	35	7146	59.9	71.0
098	TRNS//CCDR/JEFF/3/CCDR/CLPY 003	80	35	7140	54.4	73.4
059	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/TRNS//CCDR/JEFF	78	36	7139	62.6	72.6
050	CL111/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	81	36	7135	52.0	69.0
199	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	78	34	7130	65.3	73.1
156	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	80	39	7126	65.4	73.4
265	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/DREW/CFX-18/3/CFX-18//CCDR/9770532 DH2	81	36	7125	65.8	73.5
178	CATAHOULA/6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	80	33	7123	62.5	71.2
145	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	81	35	7117	59.2	71.8
193	CL131/3/CCDR//CFX-29/CCDR	83	33	7116	62.9	72.4
138	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF//CFX-26/9702128	82	34	7116	62.7	73.5
057	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	80	34	7111	54.8	69.1
160	CCDR//CFX-29/CCDR/3/CCDR	81	36	7108	66.2	73.5
332	CL131/CHENIERE/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	80	33	7107	60.3	72.9
316	TRNS//CCDR/9502008-A/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	79	38	7097	61.9	72.2
157	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	82	35	7095	64.8	72.2
035	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	83	33	7083	62.1	69.9
334	CL131/CHENIERE/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	81	31	7083	60.3	70.4
132	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	81	33	7082	61.9	74.0
111	CL131/3/CCDR//CFX-29/CCDR	82	33	7081	63.7	72.8
288	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/CATAHOULA	82	41	7074	57.5	73.0
034	CCDR/CFX-18/3/CFX-18//CCDR/9770532 DH2	81	34	7074	64.4	72.1
015	CL111/3/CCDR//9502008/LGRU	80	33	7073	60.8	71.1
096	CL111/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	78	33	7070	64.5	72.6
263	CL131//CL131/CHENIERE	81	34	7068	61.1	71.1
321	9502008-A/DREW/3/NWBT/KATY//9902207x2/4/NWBT/KATY//…/5/CL131/CHENIERE	80	35	7068	62.6	72.4
210	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	79	34	7064	62.1	74.5
084	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	82	33	7056	61.1	70.9
110	CL131/3/TRNS//CCDR/JEFF	81	31	7053	63.4	72.6

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
065	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CFX-18//CPRS/KBNT/3/CFX-29/CCDR	79	36	7052	64.5	73.6
025	CCDR/CFX-18/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	82	34	7040	62.8	70.7
267	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/DREW/CFX-18/3/CFX-18//CCDR/9770532 DH2	85	38	7040	57.9	71.7
013	CL111/CHENIERE	80	34	7039	63.3	74.0
329	CL131/CHENIERE/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	81	32	7031	63.0	72.2
292	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/DREW/3/NWBT/ KATY//…	81	35	7014	65.7	72.8
119	CCDR/3/CCDR//CFX-29/CCDR	82	34	7008	63.7	72.5
039	9502008-A/DREW//CLR 2/3/CHENIERE	83	35	7006	60.1	72.1
047	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	79	35	7003	55.9	72.1
088	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/9502008//KATY/9902207x2/3/9502008/CPRS	81	34	6966	65.8	73.4
090	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	77	34	6959	66.8	74.0
338	CL152/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	82	35	6955	59.6	71.8
248	CHENIERE//CCDR/JEFF/4/CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…	82	33	6936	64.8	73.1
294	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/DREW/3/NWBT/ KATY//…	81	35	6934	64.7	72.4
062	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CLPY 003//CFX-26/9702128	80	34	6932	59.9	69.6
230	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//...	82	36	6927	63.7	71.7
219	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	83	35	6920	62.6	73.2
342	CL131//DREW/CLR 13/4/9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	81	37	6912	62.9	72.7
307	DREW//CHENIERE/LMNT/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	83	34	6902	62.6	72.3
032	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	81	34	6895	61.5	71.6
194	CL131/3/CCDR//CFX-29/CCDR	83	33	6893	63.1	72.3
313	DREW//CHENIERE/LMNT/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	84	35	6893	60.2	73.4
195	CL131/CPRS	81	36	6880	65.6	73.5
167	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//CCDR/JEFF	81	32	6878	65.2	73.6
305	CPRS/KBNT//9502008-A/3/CCDR/4/CL131	84	34	6878	61.3	69.3
022	CFX-18//CCDR/9770532 DH2/5/9502008/3/CPRS//82CAY21/…/4/CFX-18	82	35	6869	59.5	70.6
347	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/TRNS//CCDR/9502008-A	79	36	6864	65.1	73.5
295	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18/4/DREW//CHENIERE/LMNT	83	34	6856	63.5	72.4
020	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	82	33	6828	60.0	72.0
280	CL131/3/CPRS/KBNT//9502008-A /6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/ KATY/…	80	31	6826	64.9	72.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
177	CATAHOULA/6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	82	34	6823	64.3	72.9
297	WELLS//CL131/CHENIERE	82	36	6816	63.5	73.4
036	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	81	34	6803	61.8	72.1
214	CHENIERE/3/CCDR//CFX-29/CCDR	79	37	6794	66.4	73.8
189	CPRS/KBNT//CFX 29/CCDR/4/9502008-A//AR1188/CCDR/3/…	85	35	6777	64.5	71.9
082	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/9502008/…	81	35	6777	62.7	72.0
298	WELLS//CL131/CHENIERE	84	35	6767	62.7	71.6
007	CL111/3/CPRS/KBNT//WELLS CFX 18	80	34	6761	59.4	72.3
345	9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18/6/TACAURI/3/CPRS//…	77	36	6756	61.0	71.3
192	CL131/3/TRNS//CCDR/JEFF	82	32	6747	62.5	72.9
312	DREW//CHENIERE/LMNT/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	82	37	6735	64.8	72.6
064	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CFX-18//CPRS/KBNT/3/CFX-29/CCDR	81	33	6732	61.7	70.2
217	CHENIERE/3/CCDR//CFX-29/CCDR	81	34	6729	62.4	74.0
086	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	81	34	6726	63.9	72.5
116	CCDR/CL131	79	32	6693	63.6	74.8
023	CCDR/CFX-18/3/9502008-A/DREW//CLR 20	81	35	6688	60.5	72.4
311	DREW//CHENIERE/LMNT/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	84	38	6671	62.3	71.5
006	CL151/REX	80	31	6670	59.0	71.0
038	CL131/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	82	36	6666	56.1	71.9
018	CATAHOULA/CL111	83	33	6658	64.5	73.0
310	DREW//CHENIERE/LMNT/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	86	35	6653	60.5	72.7
066	CATAHOULA/CL111	80	34	6649	65.1	73.0
289	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/CATAHOULA	79	35	6646	64.1	74.4
009	CL111//CCDR/0502085	80	33	6636	61.6	71.0
286	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/DREW//CLR 20/4/…	81	35	6617	65.0	73.3
083	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/9502008/…	82	35	6611	64.2	72.7
051	CL111/CL152	82	36	6608	65.9	74.4
309	DREW//CHENIERE/LMNT/4/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	84	35	6598	63.8	72.3
269	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CATAHOULA	81	35	6596	61.3	71.5
012	CL111/CHENIERE	81	33	6591	60.1	70.9
227	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//…	83	33	6574	62.8	72.1
008	CL111/3/CPRS/KBNT//WELLS CFX 18	79	32	6566	62.5	71.8
151	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	82	33	6531	61.0	70.6
196	DREW/4/CCDR/JEFF/3/CFX-18//CPRS/KBNT	84	35	6528	64.9	72.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
266	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/DREW/CFX-18/3/CFX-18//CCDR/9770532 DH2	83	37	6510	66.9	74.2
259	TRNS/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	78	37	6507	64.5	72.8
041	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	81	35	6475	62.5	71.6
341	CL131//DREW/CLR 13/4/9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	80	33	6450	54.5	69.0
033	96INT/ARNT/3/9502008-A/DREW//CLR 20	81	32	6446	64.8	70.3
344	CL131//DREW/CLR 13/4/9502008-A/TACAURI//CLR 5/3/DREW/CFX-18	80	36	6432	59.5	72.7
010	CL111//CCDR/0502085	79	31	6427	65.0	73.0
303	CPRS/KBNT//9502008-A/3/CCDR/4/CL131	83	32	6402	63.0	71.1
115	CCDR/CL131	81	34	6397	63.6	71.4
011	CL111/4/CPRS/3/9502008-A//AR 1188/CCDR	82	32	6387	59.7	71.6
296	WELLS/CL111	81	35	6381	63.2	72.7
141	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	80	31	6369	60.8	72.7
304	CPRS/KBNT//9502008-A/3/CCDR/4/CL131	83	33	6364	63.0	72.9
179	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	81	35	6340	67.5	73.4
284	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/DREW//CLR 20/…	83	34	6310	62.2	72.3
005	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	81	33	6285	61.7	71.5
019	CATAHOULA/CL111	82	31	6268	63.3	73.2
021	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	79	32	6259	57.4	72.2
030	9502008-A/DREW//CLR 20/3/9502008-A/DREW//CLR 20	79	32	6259	62.5	74.4
004	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	78	32	6236	63.1	71.5
031	9502008-A/DREW//CLR 20/3/9502008-A/DREW//CLR 20	83	33	6146	60.0	72.5
351	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CPRS/KBNT//WELLS CFX 18	81	36	6129	--	--
258	TRNS/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	80	35	6049	64.4	74.1
002	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	79	32	5959	61.1	71.1
282	CL131/CHENIERE//WELLS	32	32	5945	63.3	73.5
071	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	83	31	5811	63.9	73.0
003	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	81	32	5539	52.7	71.6
001	CPRS/KBNT//WELLS CFX 18/3/FRANCIS	81	34	5014	64.7	71.7

Table 2. Grain and milling yields and agronomic performance of entries in the 2016 Clearfield Preliminary Yield Test 2, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
749	CLXL729	81	40	9258	57.5	72.5
750	CLXL745	78	42	9134	59.4	73.3
512	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/CPRS/…	79	37	8995	64.1	73.3
621	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	83	33	8890	61.0	72.8
497	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CLPY 003//CFX-26/9702128	80	36	8738	60.0	73.0
519	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	79	36	8738	61.1	71.0
474	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	82	36	8725	65.4	73.9
478	CL162/CATAHOULA	81	34	8614	62.2	73.5
517	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	79	35	8601	63.1	72.7
492	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/AR 1188/CCDR//9502008/LGRU	80	36	8571	64.3	73.2
741	CL111	80	36	8543	64.2	73.2
557	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	81	34	8499	59.5	71.7
491	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/AR 1188/CCDR//9502008/LGRU	81	36	8435	66.3	73.8
612	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF//CFX-26/9702128	84	35	8432	58.9	72.4
490	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/TRNS//CCDR/JEFF	80	37	8403	64.5	72.5
615	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	84	35	8380	61.2	74.6
628	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	82	36	8378	65.9	74.6
511	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/CPRS/…	80	37	8356	64.4	72.4
501	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CFX-18//CPRS/KBNT/3/CFX-29/CCDR	78	36	8346	66.8	74.9
389	TRNS//TRNS/CL131	77	36	8339	61.8	70.9
568	CL152/DREW	85	36	8328	58.9	72.0
493	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/AR 1188/CCDR//9502008/LGRU	81	33	8327	57.9	74.2
618	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	84	37	8323	65.7	74.1
556	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	80	34	8319	57.7	70.9
494	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	79	34	8304	50.2	73.1
496	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CLPY 003//CFX-26/9702128	78	36	8295	61.5	73.3
558	CL111/3/'9502008-A/DREW//CLR 20	77	33	8231	55.5	70.2
559	CL111/3/'9502008-A/DREW//CLR 20	81	33	8224	62.9	72.5
572	CL152/3/TRNS//CCDR/JEFF	83	35	8210	65.1	74.6

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
518	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	79	36	8202	61.4	71.5
521	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	79	36	8198	60.6	71.5
581	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/…	78	38	8197	66.3	74.1
413	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CATAHOULA	80	36	8171	38.7	73.9
578	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	31	38	8166	64.1	72.5
543	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/9502008//KATY/9902207x2/3/9502008/CPRS	80	35	8161	65.8	74.2
463	9502008-A/DREW//CLR 20/3/CRX-26/9702128	82	35	8161	60.6	70.9
462	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/	85	35	8157	64.4	72.2
417	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	79	38	8157	62.1	71.8
522	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	79	36	8146	61.7	72.1
607	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	34	8113	58.6	72.5
642	CATAHOULA/6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	81	34	8110	55.4	69.2
524	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	81	35	8092	64.6	74.3
554	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	79	35	8091	61.9	73.5
527	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	80	34	8089	63.5	71.5
500	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CFX-18//CPRS/KBNT/3/CFX-29/CCDR	78	34	8066	64.2	74.3
484	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	82	38	8063	64.6	73.3
515	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	79	36	8053	64.6	72.2
566	TRNS//CCDR/JEFF/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	82	35	8014	60.9	73.2
626	CHENIERE/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	83	35	8010	47.4	74.4
495	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CLPY 003//CFX-26/9702128	79	34	7996	63.1	74.0
641	CATAHOULA/6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	79	36	7994	52.5	70.5
431	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	83	37	7993	63.9	72.8
627	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	80	39	7989	64.2	73.3
738	BNGL/CL161/3/NEPTUNE//BNGL/CL161	86	38	7988	71.9	73.8
709	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	82	35	7986	62.8	72.6
506	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	81	38	7982	59.7	74.4
594	CCDR/CL131	81	34	7980	61.5	73.5
538	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/9502008/…	80	36	7979	63.0	73.8
625	CHENIERE/3/CCDR//CFX-29/CCDR	82	37	7976	59.5	73.2
636	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/MBLE	82	35	7968	58.9	71.2

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
620	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	80	35	7960	59.6	73.0
597	CCDR/3/CCDR//CFX-29/CCDR	80	33	7960	62.6	72.4
404	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/CL161	82	37	7958	62.8	72.8
540	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	83	34	7957	64.6	75.2
721	BNGL//MERC/RICO/3/EARL/4/BNGL/CL161	82	35	7957	69.7	72.5
546	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	80	35	7952	64.5	74.0
725	CAFFEY/CL261	81	37	7949	69.9	73.0
502	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CFX-18//CPRS/KBNT/3/CFX-29/CCDR	79	34	7947	63.9	74.1
635	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/MBLE	82	38	7937	62.8	72.4
664	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	83	36	7937	64.5	72.9
647	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	77	35	7934	66.8	73.4
737	BNGL/CL161/3/NEPTUNE//BNGL/CL161	84	38	7906	71.2	73.2
505	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	82	34	7900	63.5	73.7
520	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	80	35	7896	47.5	71.4
510	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/CPRS/…	80	36	7892	64.1	72.3
434	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	83	37	7890	63.1	72.7
571	CL152/3/RU0401067/IRAT 13//STG03F5-04-062	80	36	7883	55.6	72.2
548	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…/6/MBLE//TQNG/MBLE (MCR02YT-1534)	80	34	7881	60.9	74.4
575	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	78	38	7879	61.5	71.5
645	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	78	34	7872	66.3	72.1
553	KATY/CPRS//JKSN/3/AR 1188/CCDR/4/CFX-26/9702128/5/CLPY 003 (CL 006)//CFX-26/…	80	36	7864	62.5	72.4
544	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/9502008//KATY/9902207x2/3/9502008/CPRS	81	37	7856	66.3	75.0
541	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	82	34	7850	62.4	73.3
483	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/9502008-A//AR 1188/CCDR/3/CCDR/JEFF	81	37	7848	62.9	73.1
489	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/TRNS//CCDR/JEFF	80	35	7847	64.2	73.3
433	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	82	38	7843	64.6	73.2
550	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	79	37	7842	64.0	73.6
509	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	81	38	7841	64.6	73.7
730	NEPTUNE//BNGL/CL161/3/RICO	82	38	7840	70.1	72.7
619	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	82	34	7837	54.2	72.7
406	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/CL161	84	39	7821	65.3	73.7
707	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	82	37	7818	61.0	72.1
716	JPTR//BNGL/CFX18	82	39	7814	67.6	70.0

Continued.

Table 2. Continued

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
545	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	79	33	7810	64.8	73.7
710	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	82	37	7808	64.6	73.6
564	9502008-A//AR 1188/CCDR/3/CCDR/JEFF/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	82	38	7805	63.0	73.8
534	CCDR/CLPY 003/3/AR 1188/CCDR//9502008/LGRU	82	34	7802	61.4	71.8
482	CL111/CL152	82	36	7793	66.1	73.4
537	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/9502008/…	83	34	7791	64.6	74.4
438	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	83	36	7784	63.4	71.9
464	9502008-A/DREW//CLR 20/3/CRX-26/9702128	82	36	7781	59.1	69.8
516	CPRS//82CAY21/TBNT/3/CFX 29//…/4/CATHOULA	79	34	7770	63.6	72.2
613	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR/JEFF//CFX-26/9702128	81	38	7769	57.6	71.9
416	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	80	36	7758	61.1	75.0
459	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	83	35	7758	62.7	73.7
547	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…/6/MBLE//TQNG/MBLE (MCR02YT-1534)	80	36	7750	61.7	73.5
569	CL152/DREW	82	34	7749	58.0	71.4
644	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	77	36	7744	65.4	73.9
600	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/TRNS//CCDR/JEFF	81	35	7739	61.8	74.5
582	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/…	81	36	7735	62.5	71.5
412	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CATAHOULA	81	33	7731	62.6	72.4
525	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	79	34	7728	63.4	71.9
562	TRNS//CCDR/JEFF/3/CCDR/CLPY 003	81	35	7714	55.8	73.0
513	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/CCDR/3/CPRS/…	80	32	7708	62.6	73.3
713	BNGL/CL161/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	83	37	7708	66.9	70.2
638	CCDR/JEFF/3/CFX-18//CPRS/KBNT/4/TRNS//CCDR/JEFF	79	38	7703	62.6	73.7
660	RU1002146*4//JZMN/08CLR004	79	40	7703	68.4	74.8
466	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9	82	37	7702	63.7	72.4
488	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	82	34	7676	56.9	69.5
729	NEPTUNE//BNGL/CL161/3/RICO	84	37	7675	67.6	74.7
643	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	78	35	7674	65.5	74.4
499	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CFX-18//CPRS/KBNT/3/CFX-29/CCDR	79	35	7673	63.2	73.8
595	CCDR/3/CCDR//CFX-29/CCDR	82	34	7671	49.7	72.8

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
391	TRNS/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	80	34	7669	60.5	72.6
419	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CATAHOULA	80	37	7651	59.9	72.6
719	BNGL/CL161//CAFFEY	81	38	7646	67.3	70.9
477	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	83	35	7639	63.0	72.6
608	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	81	34	7634	60.1	73.4
593	CCDR/CL131	83	35	7633	53.9	73.2
609	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	83	35	7632	56.5	71.8
432	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	81	37	7628	63.6	72.3
533	CCDR/CLPY 003/3/AR 1188/CCDR//9502008/LGRU	79	36	7622	61.4	72.0
748	CL272	83	37	7622	68.8	73.1
634	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//CCDR/JEFF	84	34	7618	65.3	75.0
514	CL162/3/TRNS//CCDR/JEFF	82	34	7613	63.4	73.9
632	CCDR//CFX-29/CCDR/3/CCDR	80	36	7607	62.7	72.7
742	CL151	82	35	7594	60.6	72.3
705	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	81	35	7594	62.3	73.0
410	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/DREW//CHENIERE/LMNT	85	37	7593	64.5	73.4
561	CL111/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	82	35	7591	54.3	70.5
529	CCDR/CLPY 003//CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CFX18/LM-1/3/9502008-A/..	81	35	7591	60.1	71.9
606	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CCDR//CFX-29/CCDR	82	37	7587	62.6	72.0
614	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	82	38	7586	59.1	73.1
549	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…/6/MBLE//TQNG/MBLE (MCR02YT-1534)	79	34	7586	59.5	73.0
437	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	82	38	7580	64.2	73.4
637	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE//CCDR/JEFF	81	35	7566	61.1	73.6
671	JZMN/08CLR004//RU0802146/3/JZM2	80	37	7564	67.0	74.7
454	9502008/LGRU/3/CPRS//82CAY21/TBNT/4/9502008-A/DREW//CLR 20	79	34	7558	61.5	73.4
733	BNGL/CL161//CAFFEY	83	36	7551	70.3	72.4
531	CCDR/CLPY 003/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	80	34	7547	63.3	72.2
539	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/9502008/…	82	35	7546	64.4	73.5
633	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/ 6/CHENIERE//CCDR/JEFF	81	35	7546	66.9	74.8
528	CCDR/CLPY 003//TRNS	81	33	7529	59.2	71.0
439	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/…	86	38	7523	63.3	72.5

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
731	BNGL/CL161//CAFFEY	82	35	7523	70.5	72.4
455	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	83	35	7509	53.9	71.9
552	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	79	35	7507	63.9	73.3
380	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	78	32	7505	62.6	71.1
584	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/…	81	35	7503	65.0	73.8
530	CCDR/CLPY 003/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	81	34	7502	63.0	72.1
458	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	82	34	7498	63.6	73.7
649	CL162/3/CFX-26/9702128//EP 144	78	35	7496	62.0	73.8
376	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	79	32	7489	65.5	73.6
457	CATAHOULA/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	83	33	7487	57.3	70.5
712	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	81	37	7485	65.0	73.3
631	CCDR//CFX-29/CCDR/3/CCDR	82	36	7478	63.4	72.9
744	CL153	84	36	7474	63.0	73.0
408	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/CL161	82	39	7468	65.3	73.7
498	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/CLPY 003//CFX-26/9702128	77	34	7461	62.2	74.0
580	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	79	35	7452	62.3	73.6
390	TRNS//TRNS/CL131	78	36	7452	60.1	71.5
536	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/9502008/…	83	34	7446	51.2	76.5
604	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	77	33	7445	66.4	74.4
745	CL163	83	39	7444	58.1	70.5
508	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CL162	82	36	7433	67.5	75.1
747	CL271	83	35	7430	70.6	73.2
479	CPRS//82CAY21/TBNT/3/CFX 29//…/4/TRNS//CCDR/JEFF	79	33	7428	62.5	72.1
409	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/DREW//CHENIERE/LMNT	84	37	7424	64.3	74.0
589	CL131/3/CCDR//CFX-29/CCDR	83	32	7421	62.4	72.8
599	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/TRNS//CCDR/JEFF	79	37	7418	62.1	73.4
428	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	83	37	7417	60.4	71.9
395	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	80	36	7415	61.3	73.8
670	JZMN/08CLR004//RU0802146/3/JZM2	83	35	7412	66.1	72.2
486	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	81	35	7411	57.9	72.7
579	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	81	36	7409	57.2	71.4
440	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/5/9502008-A/…	83	36	7408	64.0	73.0
487	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	80	33	7406	61.4	72.5

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
551	CLPY 003 (CL 006)//CFX-26/9702128/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	79	36	7402	64.8	73.5
591	CL131/CPRS	83	35	7402	63.9	72.3
377	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/CATAHOULA	79	32	7401	67.9	75.5
555	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	80	32	7399	59.9	72.5
503	CATAHOULA/CL111	81	34	7398	61.1	72.2
718	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18 (XC 065)	84	39	7396	69.1	71.2
603	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	77	34	7394	65.0	74.5
381	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/'9502008/3/MBLE//LMNT/20001-5/4/…	80	33	7392	66.9	74.9
639	CCDR/JEFF/3/CFX-18//CPRS/KBNT/4/TRNS//CCDR/JEFF	78	36	7389	64.6	73.3
526	CCDR/JEFF//CFX-26/9702128/3/WELLS/CFX-18//DREW/CFX-18	83	37	7387	63.1	71.6
420	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX-18/5/CL131/6/9502008-A/…	82	37	7387	59.1	71.9
379	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	78	32	7381	66.2	73.8
480	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/9502008//KATY/9902207x2/3/9502008/CPRS	82	36	7363	50.5	69.6
383	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/CCDR	80	34	7361	64.7	74.2
598	DREW/4/CCDR/JEFF/3/CFX-18//CPRS/KBNT	82	33	7357	61.8	73.6
601	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	77	33	7343	66.2	73.5
704	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	83	37	7338	65.0	73.8
656	JZMN*3/08CLR004	78	35	7316	67.3	74.8
436	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	85	38	7316	64.4	73.0
435	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	84	37	7309	62.8	72.2
475	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/AR 1188/CCDR//9502008/LGRU	80	34	7306	44.7	73.4
418	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	80	38	7305	57.9	72.4
630	CCDR//CFX-29/CCDR/3/CCDR	82	35	7303	63.9	72.6
481	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A/5/CCDR	81	33	7282	61.2	72.4
736	BNGL/CL161/3/NEPTUNE//BNGL/CL161	84	35	7277	68.8	70.6
485	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/LGRU	82	32	7277	63.1	72.2
456	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2032/4/CL152	83	32	7267	66.4	74.4
654	JZMN/08CLR004//RU0802146/3/JZM2	81	35	7265	61.8	73.1
577	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	79	34	7258	65.1	73.9
453	CL111/CHENIERE	81	34	7256	61.4	71.5
659	RU1002146*4//JZMN/08CLR004	79	35	7253	69.1	75.8
648	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	77	34	7248	66.3	71.9

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
560	CL111/4/CFX18/LM-1/3/9502008-A//AR 1188/CCDR	80	37	7246	65.6	72.8
622	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	82	38	7242	56.1	73.3
610	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	82	36	7236	63.7	73.2
605	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	79	35	7231	65.1	73.9
590	CL131/3/CCDR//CFX-29/CCDR	82	34	7230	60.7	72.5
476	CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2/4/AR 1188/CCDR//9502008/LGRU	80	34	7230	64.1	73.3
422	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…	83	34	7228	57.8	72.3
703	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	82	34	7216	65.9	74.1
532	CCDR/CLPY 003/3/AR 1188/CCDR//9502008/LGRU	80	34	7212	63.9	73.0
586	CL131/3/TRNS//CCDR/JEFF	83	32	7200	64.1	73.6
415	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	79	38	7188	57.1	72.8
472	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	84	37	7181	63.0	72.1
722	BNGL/CL161//CAFFEY	81	35	7178	70.9	74.2
679	JZMN/08CLR004//RU1002146*3	80	35	7176	66.8	73.9
678	JZMN/08CLR004//RU1002146*3	79	34	7172	66.5	74.0
629	MERMENTAU/3/FRANCIS/CLR 13//9502008-A/DREW	82	31	7169	64.9	73.2
706	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	82	33	7167	63.6	73.0
542	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/CL142	82	34	7167	64.9	75.4
683	JZMN/08CLR004//07SP160/3/RU1002146	83	35	7165	68.8	73.8
602	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CCDR/JEFF//CFX-26/9702128	76	33	7163	56.5	71.8
623	CHENIERE/3/CCDR//CFX-29/CCDR	84	34	7158	55.7	73.1
460	CFX-18//CCDR/9770532 DH2/5/9502008/3/CPRS//82CAY21/…/4/CFX-18	82	35	7157	65.4	73.5
421	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…	82	35	7157	58.5	73.2
461	9502008-A/TACAURI//CLR 5/3/TACAURI	82	33	7153	63.4	72.5
429	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	81	36	7142	62.8	73.1
470	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/KATY/CPRS//NWBT/…	82	35	7131	61.8	72.3
468	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/9502008-A/…	81	34	7121	57.5	72.6
570	CL152/DREW	82	38	7115	53.3	71.7
563	9502008-A//AR 1188/CCDR/3/CCDR/JEFF/4/'CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	83	35	7112	64.4	74.3
587	CL131/3/TRNS//CCDR/JEFF	83	33	7109	60.9	72.6
661	RU1002146*4//JZMN/08CLR004	79	33	7108	69.7	75.2
735	BNGL/CL161/3/NEPTUNE//BNGL/CL161	85	35	7106	71.0	73.2
646	9502008-A//AR 1188/CCDR/3/CFX-26/9702128 /4/TRNS	78	34	7106	66.1	75.1

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
640	CATAHOULA/6/KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	81	35	7103	58.3	72.1
734	BNGL/CL161/3/NEPTUNE//BNGL/CL161	82	37	7101	69.3	71.8
691	RU1002146*4//JZMN/08CLR004	79	37	7093	62.9	66.9
425	CL131/CHENIERE/4/CPRS/KBNT//9502008-A /3/CCDR/JEFF	84	34	7091	56.1	73.7
523	CPRS//82CAY21/TBNT/3/CFX 29//…/4/LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2	80	33	7088	63.3	72.4
565	TRNS//CCDR/JEFF/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	85	31	7086	61.3	74.4
592	CCDR/CL131	82	35	7073	62.4	73.2
746	CL172	82	34	7061	62.9	73.2
732	BNGL/CL161//CAFFEY	83	34	7056	38.4	75.3
507	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	83	34	7047	62.7	73.0
711	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	84	34	7046	63.6	73.0
407	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/CL161	83	39	7031	68.1	75.0
692	RU1002146*4//JZMN/08CLR004	79	36	7015	64.2	69.8
452	CL111/4/CPRS/3/9502008-A//AR 1188/CCDR	82	34	7012	63.3	73.7
658	JZMN/08CLR004//07SP160/3/RU1002146	82	37	7007	67.5	72.3
504	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	82	34	7001	65.5	75.0
392	TRNS/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	79	34	6981	62.1	70.3
535	CFX-18//CCDR/9770532 DH2/3/9502008-A//…/4/9502008//KATY/9902207x2/3/9502008/…	84	36	6976	62.8	74.6
739	BNGL/CL161/3/NEPTUNE//BNGL/CL161	84	35	6970	67.2	73.0
396	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	80	36	6966	56.5	72.9
715	BNGL/CL161/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	83	34	6960	71.1	73.4
588	CL131/3/TRNS//CCDR/JEFF	83	32	6959	61.7	72.1
695	RU1002146*4//JZMN/08CLR004	79	35	6949	67.9	74.0
469	CPRS/KBNT//WELLS CFX 18/3/CPRS	85	32	6946	61.4	70.8
576	9502008//AR 1188/CCDR/3/0302005/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	82	34	6939	61.0	71.9
697	RU1002146*4//JZMN/08CLR004	78	36	6937	67.0	73.4
449	CL151/REX	82	34	6935	60.7	71.6
427	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	80	36	6925	60.9	71.9
653	JZM2*2//07PY824/08CLR003	80	37	6922	60.6	72.0
583	9502008//KATY/9902207x2/3/9502008/CPRS/4/9502008-A//AR 1188/CCDR/3/CFX-26/…	81	32	6921	62.5	72.3
450	CL151/REX	82	33	6903	37.4	71.3
573	CL152/3/TRNS//CCDR/JEFF	81	33	6896	65.9	74.6

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
665	JZMN/08CLR004//RU0802146/3/JZM2	82	33	6892	59.0	73.5
473	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	83	34	6887	65.3	75.2
662	RU1002146*4//JZMN/08CLR004	79	33	6885	69.5	75.6
651	JZMN/08CLR004//RU0802146/3/JZM2	78	34	6879	64.1	71.8
676	JZMN/08CLR004//RU0802146/3/JZM2	83	36	6878	63.4	72.6
611	CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031/4/CPRS	85	36	6867	53.9	71.2
387	MBLE/3/CL131//DREW/CLR 13	81	34	6856	63.9	71.8
668	JZMN*3/08CLR004	85	39	6845	64.8	73.1
471	CHENIERE/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	86	35	6839	65.3	72.9
441	9502008-A/TACAURI//CLR 5/3/DREW/CFX-18/4/CL152	85	35	6831	62.5	71.3
650	CCDR/JEFF//CFX-26/9702128/3/WELLS/CFX-18//DREW/CFX-18	78	33	6830	61.7	74.6
617	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	86	37	6830	62.5	73.5
701	RU1002146*4//JZMN/08CLR004	79	37	6830	65.3	71.8
702	RU1002146*4//JZMN/08CLR004	78	35	6827	65.8	71.6
726	CAFFEY/CL261	83	32	6826	64.0	67.4
681	JZMN/08CLR004//RU1002146*3	82	37	6822	67.7	74.2
690	RU1002146*4//JZMN/08CLR004	79	37	6821	67.7	74.3
382	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/CHENIERE	76	31	6818	63.1	74.3
663	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	84	37	6814	66.0	74.0
403	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/CL161	84	34	6798	58.6	72.0
424	CL131/3/CPRS/KBNT//9502008-A /6/KATY/CPRS//NWBT/…/3/…	83	35	6798	61.9	71.6
689	JZMN/08CLR004//RU1002146*2	81	33	6798	65.8	72.5
708	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/JZMN/08CLR004//JZMN	83	36	6791	65.0	73.5
669	JZMN*3/08CLR004	86	40	6791	64.2	72.1
682	JZMN*3/08CLR004	79	36	6767	68.7	74.9
388	TRNS//TRNS/CL131	78	37	6761	66.1	72.8
672	JZM2*2//07PY824/08CLR003	81	36	6757	63.1	72.1
399	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	81	30	6753	54.7	70.4
728	NEPTUNE//BNGL/CL161/3/NEPTUNE//BNGL/CL161	84	36	6752	71.9	73.7
467	KATY/CPRS//NWBT/…/3/9502008/4/CLR 9/5/…	84	34	6747	60.9	69.9

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
727	BNGL/CL161/3/NEPTUNE//BNGL/CL161	84	37	6744	70.9	73.3
430	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/9502008-A/…	83	34	6737	62.4	73.6
698	RU1002146*4//JZMN/08CLR004	78	36	6720	69.1	74.9
740	RICO/5/BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//…	86	34	6694	69.6	71.7
596	CCDR/3/CCDR//CFX-29/CCDR	83	33	6692	59.2	72.8
411	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/DREW//CHENIERE/LMNT	87	35	6673	61.0	70.2
402	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/CL161	84	34	6652	64.6	73.2
675	JZMN/08CLR004//RU0802146/3/JZM2	83	35	6651	59.8	71.6
693	RU1002146*4//JZMN/08CLR004	83	35	6625	65.8	74.6
680	JZMN/08CLR004//RU1002146*3	78	33	6621	65.0	70.2
397	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	79	33	6618	58.3	68.5
585	CL131/3/TRNS//CCDR/JEFF	82	32	6612	64.2	75.4
384	MBLE/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	81	35	6605	59.1	72.6
465	CFX-26/9702128/5/AR 1142/JODN/4/NWBT/KATY/3/82CAY21/…	84	35	6600	62.1	73.7
574	CL152/3/TRNS//CCDR/JEFF	83	33	6586	62.9	73.2
743	CL152	87	37	6585	61.4	72.4
616	CHENIERE/6/CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…	85	35	6579	60.6	73.2
696	RU1002146*4//JZMN/08CLR004	79	36	6556	60.8	65.3
657	RU1002146/3/JZM2//07PY824/08CLR003	81	34	6525	65.9	73.4
624	CHENIERE/3/CCDR//CFX-29/CCDR	86	34	6523	64.1	73.2
667	JZMN/08CLR004//RU0802146/3/JZM2	81	35	6515	61.1	71.9
655	JZMN/08CLR004//RU0802146/3/JZM2	80	37	6511	67.6	73.6
451	CL111//CCDR/0502085	80	34	6502	65.5	72.6
447	CL151/REX	83	33	6483	57.9	71.2
723	CL261/3/BNGL/SHORT RICO//MERC	84	38	6465	65.4	69.8
448	CL151/REX	82	33	6448	63.2	73.6
652	JZMN/08CLR004//RU0802146/3/JZM2	84	34	6439	70.3	75.4
700	RU1002146*4//JZMN/08CLR004	79	36	6412	67.2	74.1
694	RU1002146*4//JZMN/08CLR004	77	35	6406	66.1	72.8
717	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/CFX18 (XC 065)	85	34	6388	68.3	70.5

Continued.

Table 2. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
400	CPRS/5/9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	83	36	6388	58.2	72.8
423	CL131/3/CPRS/KBNT//9502008-A /4/9502008-A/DREW//CLR 20/3/…	80	33	6365	59.3	70.9
393	TRNS/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	82	32	6352	58.3	71.6
685	JZM2*2//07PY824/08CLR003	82	37	6345	64.2	72.0
426	CL131/CHENIERE/4/CPRS/KBNT//9502008-A /3/CCDR/JEFF	85	36	6295	55.2	72.3
666	JZMN/08CLR004//RU0802146/3/JZM2	80	35	6279	62.3	73.5
688	JZMN/08CLR004//RU1002146*2	82	32	6279	68.1	74.1
724	CL261/3/BNGL/SHORT RICO//MERC	84	37	6269	66.7	69.7
674	JZMN/08CLR004//RU0802146/3/JZM2	84	36	6264	60.5	71.3
405	DREW/CFX-18/3/CPRS/KBNT//CFX 18/4/CL161	83	39	6226	65.9	74.2
714	BNGL/CL161/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	84	38	6190	69.7	71.4
677	JZMN*4/08CLR004	84	34	6027	68.3	74.9
394	TRNS/9/9602097/...//JAF4/…/6/CCDR/…/7/JAF4/8/FRANCIS/CLR 13	80	36	6004	58.3	71.3
684	JZMN/08CLR004//07SP160/3/RU1002146	82	35	5997	63.4	71.5
567	CL152/DREW	84	34	5948	65.4	73.2
442	CPRS/KBNT//9502008-A/3/CFX-18//CCDR/…/4/CL162	85	40	5902	60.1	70.9
699	RU1002146*4//JZMN/08CLR004	79	33	5888	67.9	74.3
401	CPRS/5/9502008-A/DREW/3/NWBT/KATY//9902207x2/4/CFX-18//CCDR/…	84	37	5834	63.4	71.4
446	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//AR 1142/LA 2031	84	34	5821	61.7	71.8
686	JZM2*2//07PY824/08CLR003	83	36	5799	67.0	73.5
378	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	83	31	5764	63.6	71.5
414	TACAURI/4/CPRS/KBNT//9502008-A/3/CCDR	82	32	5759	57.9	71.8
385	MBLE/4/DREW/CFX-18/3/CFX-18//CCDR/9770532 DH2	82	31	5680	56.3	73.2
386	MBLE/4/DREW/CFX-18/3/CFX-18//CCDR/9770532 DH2	83	30	5655	58.8	73.1
673	JZMN*2/08CLR004	85	32	5618	66.0	73.1
720	CL261/3/BNGL/SHORT RICO//MERC	79	37	5597	68.8	71.0
443	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	83	36	5533	34.4	71.4
687	JZMN/08CLR004//RU0802146/3/RU0802146	83	33	5505	64.1	73.5
398	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	78	35	5485	60.2	71.2
445	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	83	34	5058	54.4	71.2
444	CPRS/9502008-A//CFX 26/WELLS/4/CPRS//82CAY21/TBNT/3/CFX 29//…	82	32	4770	61.1	71.9

PRELIMINARY YIELD TEST

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

Tests were conducted using standard agronomic practices (except that no fungicides were applied) at the H. Rouse Caffey Rice Research Station 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 28 and harvested on Aug. 8. Data is presented in Table 1.

Table 1. Grain and milling yields and agronomic performance of entries in the 2016 Preliminary Yield Test, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
660	MERMENTAU/CPRS	76	38	10078	59.4	71.1
773	LFTE/BNGL/5/EARL/4/BNGL/3/SMARS/MARS//MARS	75	37	9517	68.9	73.8
682	TRNS//CCDR/JEFF/4/CHNR/3/NWBT/KATY//9902207X2	75	39	9407	64.1	72.6
868	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	75	33	9261	60.3	74.1
803	CAFFEY/3/BNGL/9502065//EARL	76	34	9231	67.2	72.4
802	CAFFEY/3/BNGL/9502065//EARL	75	35	9208	66.0	69.5
940	CL272	79	37	9196	68.7	74.1
902	9502008-A//AR1188/CCDR/3/CFX29//AR 1142/LA 2031/4/TAGGERT	73	37	9185	66.9	75.2
698	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	71	37	9166	65.0	75.6
683	TRNS//CCDR/JEFF/4/CHNR/3/NWBT/KATY//9902207X2	75	35	9155	60.6	72.4
726	JPTR/S-102	78	34	9149	68.7	71.0
810	CAFFEY/3/BNGL/9502065//EARL	76	36	9131	67.9	71.8
589	11AY022/CTHL	76	33	9115	64.8	74.4
590	11AY023/MRMT	76	34	9107	61.6	73.5
650	TAGGART/4/9502008-A//AR1188/CCDR/3/CFX29//AR 1142/LA 2031	78	44	9086	55.6	72.6
691	CHNR/3/NWBT/KATY//9902207X2/4/9502008-A//AR1188/CCDR/3/CFX29//AR 1142/LA 2031	75	35	9085	59.3	71.4
652	TAGGART/4/9502008-A//AR1188/CCDR/3/CFX29//AR 1142/LA 2031	79	44	9076	57.1	74.4
886	TRNS/CATAHOULA	74	38	9067	60.1	74.7
804	9502065/3/MERC//MERC/…/4/BNGL//MERC/RICO/3/EARL	75	38	9063	67.4	75.4
536	CHNR/MRMT	76	36	9062	63.0	72.4
918	CCDR/MRMT	73	36	9057	65.5	75.6
776	LFTE/BNGL//CAFFEY	75	35	9056	65.4	67.9
693	CHNR/3/NWBT/KATY//9902207X2/4/9502008-A//AR1188/CCDR/3/CFX29//AR 1142/LA 2031	74	37	9012	62.4	74.2
859	RU0401182/RU0902134	75	36	8992	64.7	75.6
576	RU1102034/MRMT	75	35	8990	63.8	73.3
937	CAFFEY	78	36	8986	70.6	73.7
833	LFTE/BNGL/5/EARL/4/BNGL/3/SMARS/MARS//MARS	74	37	8953	70.1	73.5
750	CAFFEY/3/BNGL/9502065//EARL	77	36	8951	66.7	71.4
836	9502008/3/MBLE//LMNT/20001-5/4/WELLS/CFX18/6/TAGGART	75	36	8933	67.0	73.7

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
844	MRMT/RU0602025	74	38	8926	59.1	72.3
580	RU1102137/CTHL	76	36	8925	68.1	75.6
867	CATAHOULA/3/TRNS//CCDR/JEFF	73	34	8906	62.6	72.1
801	CAFFEY/3/BNGL/9502065//EARL	76	36	8903	70.2	72.4
692	CHNR/3/NWBT/KATY//9902207X2/4/9502008-A//AR1188/CCDR/3/CFX29//AR 1142/LA 2031	72	37	8891	62.8	74.9
775	LFTE/BNGL//MARS	75	36	8888	67.7	73.3
523	TRNS//CCDR/JEFF/4/9502008-A//AR 1188/CCDR/3/CCDR/JEFF	76	36	8865	64.4	74.0
922	CCDR/RU0502068	74	33	8862	64.9	74.9
648	TAGGART/4/9502008-A//AR1188/CCDR/3/CFX29//AR 1142/LA 2031	78	43	8825	54.5	71.4
751	CAFFEY/3/BNGL/9502065//EARL	76	35	8816	69.1	73.4
551	CHNR/11AY026	75	37	8812	59.1	73.9
939	CL153	76	38	8795	66.1	75.3
740	NEPTUNE/4/9502065/3/MERC//MERC/…	76	36	8794	68.2	72.8
772	LFTE/BNGL/3/BNGL/9502065//EARL	76	36	8794	70.6	73.1
888	CCDR/3/TRNS//CCDR/JEFF	70	34	8791	57.7	74.7
686	TRNS//CCDR/JEFF/3/CCDR/JEFF//CPRS	76	36	8790	65.2	74.5
643	TAGGART/3/TRNS//CCDR/JEFF	74	37	8788	63.7	73.2
915	ROYJ/RU0902137	75	36	8770	63.5	73.3
910	9502008-A//AR 1188/CCDR/3/CCDR/JEFF/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT// 9502008-A	74	36	8765	67.6	74.6
832	LFTE/BNGL/3/BNGL/9502065//EARL	76	36	8765	72.1	74.4
521	TRNS//CCDR/JEFF/4/9502008-A//AR 1188/CCDR/3/CCDR/JEFF	74	34	8764	62.9	73.0
798	CAFFEY/BNGL	76	36	8762	66.9	73.8
703	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	74	35	8760	67.3	76.2
912	9502008//AR 1188/CCDR/3/0302005/4/MBLE//TQNG/MBLE (MCR02YT-1534)	71	34	8750	59.7	75.6
543	CHNR/RU0902137	75	34	8739	57.4	75.3
752	NEPTUNE/4/9502065/3/MERC//MERC/…	79	33	8739	70.8	75.2
921	CCDR/MRMT	75	35	8733	64.1	73.1
694	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	74	38	8732	62.1	73.8
767	BNGL//MERC/RICO/3/MERC/RICO//BNGL /5/EARL/4/BNGL/3/SMARS/…	78	33	8725	68.9	73.6

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
862	RU0802134/RU0802031	74	38	8709	64.2	75.6
651	TAGGART/4/9502008-A//AR1188/CCDR/3/…	79	44	8700	52.2	71.7
649	TAGGART/4/9502008-A//AR1188/CCDR/3/…	78	41	8697	57.0	73.4
808	BNGL/SHORT RICO//MERC/3/BNGL/9502065//EARL	75	35	8681	68.0	75.1
591	11AY023/MRMT	75	35	8665	60.8	72.5
690	CHNR/3/NWBT/KATY//9902207X2/4/9502008-A//AR1188/CCDR/3/…	73	36	8662	55.2	76.3
800	CAFFEY/BNGL	75	34	8659	69.4	72.2
574	RU1102031/MRMT	76	38	8651	65.8	74.0
834	9502008-A//AR1188/CCDR/3/…/4/AR 1188/CCDR//9502008/LGRU	76	37	8643	64.8	75.2
575	RU1102034/MRMT	76	35	8642	62.7	74.6
909	9502008-A//AR 1188/CCDR/3/CCDR/JEFF/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT// 9502008-A	74	38	8641	66.2	75.8
737	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	77	31	8639	67.5	72.8
838	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/6/TAGGART	75	36	8631	58.1	75.1
877	RU0702085/RU0802134	75	37	8614	61.7	73.2
670	9502008-A//AR1188/CCDR/3/…/4/CPRS	75	38	8607	62.9	74.9
529	CCDR/MRMT	73	35	8591	64.9	75.9
578	RU1102137/MRMT	74	35	8578	66.7	76.6
695	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	73	35	8565	64.0	76.3
860	RU0401182/RU0902134	75	37	8545	61.5	75.2
699	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	75	36	8544	64.1	75.3
841	CCDR/RU1002177	72	35	8535	60.3	72.5
705	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	74	36	8534	61.5	75.3
584	11AY016/CCDR	74	38	8511	62.8	74.6
769	BNGL//MERC/RICO/3/MERC/RICO//BNGL /4/BNGL/9502065//EARL	77	34	8511	64.6	72.0
599	RU0801093/MRMT	77	36	8511	62.2	75.0
872	RU0401067/IRAT 13//STG03F5-04-062 /4/LGRU//KATY/STBN/3/LGRU	69	35	8505	63.1	74.6
702	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	72	37	8504	67.0	76.6
704	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	71	35	8503	62.8	74.9
869	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	75	37	8495	62.6	74.2
647	TAGGART/3/TRNS//CCDR/JEFF	72	40	8494	61.7	74.3
914	ROYJ/RU0902137	73	36	8492	66.3	75.5

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
901	AR 1188/CCDR//9502008/LGRU/3/MBLE	74	37	8490	63.9	75.9
789	EARL/4/BNGL/3/SMARS/MARS//MARS/5/BNGL//MERC/RICO/3/MERC/…	74	35	8489	61.9	73.4
539	CHNR/CTHL	78	34	8470	65.8	73.8
545	CHNR/RU1002125	77	34	8465	64.3	75.7
605	RU1102034/MRMT	75	35	8455	61.6	73.8
842	MRMT/RU0602025	75	38	8454	64.2	75.3
811	NEPTUNE/JPTR	77	36	8431	68.9	72.6
681	9502008-A//AR1188/CCDR/3/…/4/CPRS	76	37	8424	62.9	73.7
799	CAFFEY/BNGL	76	35	8419	68.8	72.9
935	MERMENTAU	75	37	8417	62.5	73.2
582	RU1102137/CTHL	74	37	8409	64.5	74.4
777	BNGL/9502065//EARL/6/MARS//M201/MARS/5/STRN//MERC/…	76	35	8408	69.2	72.5
522	TRNS//CCDR/JEFF/4/9502008-A//AR 1188/CCDR/3/CCDR/JEFF	75	34	8407	64.0	75.1
594	11AY023/MRMT	76	39	8404	62.5	72.2
553	MRMT/RU1102128	74	37	8403	62.1	73.9
796	CAFFEY/3/BNGL/9502065//EARL	76	36	8398	69.1	73.5
674	9502008-A//AR1188/CCDR/3/…/4/CPRS	74	35	8395	65.1	76.2
588	11AY022/CTHL	77	36	8395	56.7	75.2
813	NEPTUNE/JPTR	77	38	8391	68.6	72.0
697	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	74	37	8390	66.1	74.1
520	CATAHOULA/3/TRNS//CCDR/JEFF	75	35	8389	62.8	74.5
861	RU0401182/RU0902134	76	36	8379	55.7	76.2
908	TRNS//CCDR/JEFF/4/9502008-A//AR 1188/CCDR/3/CCDR/JEFF	70	35	8375	65.9	75.7
758	MARS/6/MARS//M201/MARS/5/STRN//MERC/…	76	35	8374	70.6	72.5
850	RU0602025/RU0902155	72	36	8364	62.1	75.1
809	BNGL/SHORT RICO/4/9502065/3/…/5/RICO	70	34	8361	69.4	73.9
593	11AY023/MRMT	77	34	8357	60.5	74.6
534	CCDR/RU0502068	75	35	8357	61.7	73.2
763	BNGL//MERC/RICO/3/MERC/RICO//BNGL /4/BNGL	77	34	8346	69.5	73.2
725	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	76	32	8341	69.9	74.0
835	9502008-A//AR1188/CCDR/3/…/4/AR 1188/CCDR//9502008/LGRU	77	37	8337	63.5	75.3
866	CATAHOULA/3/TRNS//CCDR/JEFF	76	37	8337	67.3	76.3

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
645	TAGGART/3/TRNS//CCDR/JEFF	74	40	8334	66.6	75.1
573	RU1102031/MRMT	76	38	8319	62.2	72.7
530	CCDR/MRMT	77	35	8314	67.2	75.5
749	CAFFEY/BNGL	77	36	8308	69.5	72.8
911	9502008//AR 1188/CCDR/3/0302005/4/MBLE//TQNG/MBLE (MCR02YT-1534)	72	34	8285	59.8	73.3
768	BNGL//MERC/RICO/3/MERC/RICO//BNGL /5/EARL/4/BNGL/3/SMARS/…	76	34	8283	69.0	73.6
700	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	74	35	8279	58.7	74.8
812	NEPTUNE/JPTR	77	35	8279	69.8	72.0
913	9502008//AR 1188/CCDR/3/0302005/4/MBLE//TQNG/MBLE (MCR02YT-1534)	72	35	8277	63.3	75.5
646	TAGGART/3/TRNS//CCDR/JEFF	74	33	8268	67.0	75.1
904	CATAHOULA/3/TRNS//CCDR/JEFF	73	31	8264	62.9	75.7
585	11AY016/CCDR	75	37	8263	61.3	75.2
807	EARL/4/BNGL/3/SMARS/MARS//MARS/5/CAFFEY	73	34	8257	70.9	74.1
895	LMNT/CCDR	70	35	8240	60.8	76.6
671	9502008-A//AR1188/CCDR/3/…/4/CPRS	74	38	8234	66.4	75.3
906	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	75	35	8228	64.8	75.9
532	CCDR/RU0502068	75	33	8224	63.9	73.3
587	11AY022/CTHL	77	35	8222	65.7	75.5
680	9502008-A//AR1188/CCDR/3/…/4/CPRS	76	38	8213	62.5	72.2
889	CCDR/3/TRNS//CCDR/JEFF	70	37	8208	64.7	74.5
858	RU0902128/RU0902028	72	35	8204	61.2	75.8
849	RU0902155/RU0802031	73	35	8201	63.8	76.4
863	RU0802134/RU0802031	75	37	8188	65.7	75.4
701	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	69	34	8179	58.4	76.4
706	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	74	35	8176	62.1	75.2
728	JPTR/S-102	76	33	8165	68.9	73.2
533	CCDR/RU0502068	75	32	8158	63.0	72.9
666	MERMENTAU/JPTR	75	37	8154	63.6	75.3
851	RU0602025/RU0902155	72	35	8152	61.0	74.1
519	CATAHOULA/3/TRNS//CCDR/JEFF	74	35	8152	61.7	75.1
684	TRNS//CCDR/JEFF/4/CHNR/3/NWBT/KATY//9902207X2	73	32	8152	62.2	73.0
848	CTHL/RU0902125	72	35	8148	63.1	76.7

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
747	BNGL//MERC/RICO/3/MERC/RICO//BNGL /4/BNGL/9502065//EARL	77	31	8147	60.7	71.9
857	MRMT/RU0902125	75	34	8146	70.5	76.5
583	11AY016/CCDR	75	36	8145	65.2	75.0
879	RU0902140/CTHL	75	39	8141	62.6	76.1
641	CCDR/TAGGART	75	33	8135	59.5	74.7
586	11AY016/CCDR	75	36	8133	64.3	73.9
550	CHNR/11AY026	76	36	8132	64.3	75.7
745	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL//MERC/RICO/3/...	76	33	8132	54.9	72.4
717	TRNS//CCDR/JEFF/3/MERMENTAU	73	36	8132	66.2	74.5
760	NEPTUNE/5/BNGL/SHORT RICO/4/9502065/3/…	77	32	8132	71.4	73.4
608	CCDR x JEFF (STOUT LATE)	76	36	8128	62.7	73.8
672	9502008-A//AR1188/CCDR/3/…/4/CPRS	76	38	8126	63.3	75.7
518	CATAHOULA/3/TRNS//CCDR/JEFF	73	32	8090	62.7	74.0
669	9502008-A//AR1188/CCDR/3/…/4/CPRS	77	36	8088	60.8	73.6
919	CCDR/MRMT	74	35	8087	68.3	77.0
563	RU0902028/CTHL	73	36	8079	62.5	75.1
840	CPRS/3/9502008-A//AR 1188/CCDR/4/TACAURI/3/CPRS//82CAY21/TBNT/…	74	34	8067	63.2	73.8
566	RU0902137/MRMT	75	37	8066	67.4	74.9
907	TRNS//CCDR/JEFF/4/9502008-A//AR 1188/CCDR/3/CCDR/JEFF	73	36	8057	67.3	76.2
562	RU0902028/CCDR	73	36	8053	60.8	75.9
541	CHNR/RU0901121	74	37	8052	65.0	74.8
565	RU0902137/MRMT	75	38	8044	66.0	76.1
735	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	75	32	8043	69.3	74.2
831	RU0401067/IRAT 13//STG03F5-04-062 /4/LGRU//KATY/STBN/3/LGRU	72	37	8040	64.3	75.4
878	RU0902125/10AY027	76	37	8037	62.6	76.4
774	LFTE/BNGL//MARS	76	35	8033	68.9	72.6
581	RU1102137/CTHL	74	35	8031	64.8	74.3
741	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	80	34	8030	70.5	73.1
837	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/6/TAGGART	76	37	8027	67.2	75.1
720	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/6/TAGGART	75	37	8027	64.2	72.8
887	TRNS/CATAHOULA	73	37	8021	59.3	74.8

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
761	NEPTUNE/5/BNGL/SHORT RICO/4/9502065/3/…	77	33	8019	71.7	73.6
567	RU0902137/MRMT	75	35	8010	61.7	72.1
778	BNGL/9502065//EARL/4/9502065/3/MERC//MERC/…	76	36	8009	68.5	72.7
687	TRNS//CCDR/JEFF/3/CCDR/JEFF//CPRS	71	34	8008	60.0	76.1
936	CHENIERE	76	35	8008	68.2	77.1
790	BNGL/SHORT RICO//MERC/3/BNGL/9502065//EARL	74	36	8005	70.9	74.9
938	JUPITER	79	35	8002	68.8	71.4
713	CHENIERE//CCDR/JEFF/3/9302065	77	33	7998	51.6	73.9
864	RU1002125/MRMT	74	36	7998	63.1	76.3
721	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/6/TAGGART	75	37	7997	66.9	74.3
560	RU0902028/CCDR	74	36	7992	63.3	73.3
544	CHNR/RU1002125	76	33	7989	57.4	74.6
746	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL//MERC/RICO/3/...	77	31	7988	62.0	72.7
781	BNGL/9502065//EARL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	74	32	7976	70.4	73.5
829	RU0602025/RU0902155	74	39	7973	60.7	76.1
748	CAFFEY/BNGL	77	34	7969	68.4	72.6
525	9502008-A//AR 1188/CCDR/3/CCDR/JEFF/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT// 9502008-A	75	33	7963	67.5	75.0
819	NEPTUNE/JPTR	77	36	7957	64.7	72.4
732	NEPTUNE/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	75	32	7955	62.0	74.4
710	CHENIERE//CCDR/JEFF/3/TRNS//CCDR/JEFF	76	36	7949	65.3	76.4
528	ROYJ/11AY026	72	38	7942	58.2	72.6
644	TAGGART/3/TRNS//CCDR/JEFF	77	41	7932	65.7	74.0
743	MERC/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	76	33	7931	65.6	70.2
614	TRNS/3/CHENIERE//CCDR/JEFF	74	36	7931	56.4	68.8
561	RU0902028/CCDR	75	31	7917	61.9	74.1
568	RU0902137/MRMT	75	34	7917	66.0	75.3
663	MERMENTAU/CPRS	75	36	7914	63.4	73.1
537	CHNR/CTHL	76	36	7913	64.2	75.9
805	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/NEPTUNE	76	34	7913	71.5	73.5
920	CCDR/MRMT	74	38	7911	67.1	76.1
923	CCDR/RU0502068	75	34	7906	66.6	77.1
839	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	71	36	7903	66.6	75.9

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
711	CHENIERE//CCDR/JEFF/3/TRNS//CCDR/JEFF	75	35	7890	65.5	75.7
540	CHNR/RU0803147	77	35	7889	63.3	75.1
716	TRNS//CCDR/JEFF/3/MERMENTAU	75	36	7887	62.3	74.6
843	MRMT/RU0602025	73	38	7881	65.4	75.4
517	CHENIERE/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	74	33	7880	61.5	75.0
524	TRNS//CCDR/JEFF/3/CPRS	77	35	7876	---	---
899	CHENIERE/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	75	36	7874	63.8	77.6
677	9502008-A//AR1188/CCDR/3/…/4/CPRS	75	36	7874	64.7	72.3
527	ROYJ/RU0902137	77	35	7873	62.0	73.8
826	CHNR/RU0902152	75	36	7871	61.2	76.3
542	CHNR/RU0902137	77	34	7867	64.4	74.2
675	9502008-A//AR1188/CCDR/3/…/4/CPRS	76	37	7864	62.6	72.0
894	LMNT/CCDR	73	36	7863	63.9	74.9
555	MRMT/RU1102128	75	36	7856	62.3	72.2
782	BNGL/9502065//EARL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	75	34	7856	72.0	74.4
554	MRMT/RU1102128	75	35	7853	58.8	72.0
598	RU0801093/MRMT	77	35	7847	64.3	75.6
718	TRNS//CCDR/JEFF/3/MERMENTAU	74	36	7837	65.0	74.0
719	TRNS//CCDR/JEFF/3/MERMENTAU	74	36	7836	65.5	74.1
766	BNGL//MERC/RICO/3/MERC/RICO//BNGL /5/EARL/4/BNGL/3/SMARS/…	78	34	7833	68.3	72.4
785	BNGL/9502065//EARL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	75	39	7832	69.9	73.4
828	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/6/TAGGART	79	34	7830	65.2	74.7
925	CHNR/JEFF	74	34	7828	67.5	76.1
724	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/9502065/3/MERC//MERC/…	75	33	7822	63.1	74.7
512	CCDR/3/TRNS//CCDR/JEFF	72	32	7822	62.8	75.9
771	LFTE/BNGL/3/BNGL/9502065//EARL	74	37	7821	70.6	73.5
756	MARS/6/MARS//M201/MARS/5/STRN//MERC/…	77	39	7807	70.3	72.7
816	NEPTUNE/JPTR	77	36	7804	64.6	74.2
722	9502065/3/MERC//MERC/…/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	74	33	7797	71.1	74.2
592	11AY023/MRMT	75	39	7796	62.5	73.6
547	CHNR/11AY024	76	36	7795	63.4	73.6
846	CTHL/CPRS	74	34	7790	67.4	76.0
794	CAFFEY/3/BNGL/9502065//EARL	77	36	7785	67.3	73.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
791	BNGL/SHORT RICO/4/9502065/3/…/5/RICO	78	38	7776	67.7	75.2
696	CHNR/3/NWBT/KATY//9902207X2/4/CATAHOULA	74	38	7769	62.7	76.7
933	CHNR/RU0901121	75	35	7764	58.7	74.8
538	CHNR/CTHL	76	34	7759	62.8	77.4
742	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	79	32	7759	64.9	72.2
854	CHNR/RU0902028	74	31	7755	63.3	74.1
548	CHNR/11AY024	76	34	7751	58.6	74.7
546	CHNR/RU1002125	73	36	7746	52.4	75.7
559	CTHL/RU1102134	77	36	7743	62.4	75.3
880	RU0802134/RU0902034	70	33	7741	47.9	75.5
855	CHNR/RU0802031	74	35	7733	67.6	74.5
865	DREW/MBLE	76	32	7728	68.0	76.1
814	NEPTUNE/JPTR	77	35	7723	68.5	71.0
770	BNGL//MERC/RICO/3/MERC/RICO//BNGL /4/BNGL/9502065//EARL	76	34	7719	69.6	73.9
744	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	77	34	7716	65.2	72.2
818	NEPTUNE/JPTR	78	37	7716	69.2	72.0
824	AR1188/CCDR//9502008/LGRU/3/AC1073	73	37	7711	64.5	74.0
531	CCDR/RU0502068	75	34	7704	64.5	74.7
679	9502008-A//AR1188/CCDR/3/…/4/CPRS	75	38	7702	64.2	72.1
526	ROYJ/RU0902137	72	30	7701	61.7	75.3
653	CPRS/DREW	76	35	7700	68.2	74.4
673	9502008-A//AR1188/CCDR/3/…/4/CPRS	76	37	7695	64.6	75.3
597	RU0801093/MRMT	77	35	7694	59.2	74.2
793	CAFFEY/3/BNGL/9502065//EARL	74	35	7694	68.0	70.7
730	JPTR/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	78	33	7691	67.0	71.7
929	CHNR/RU0803147	76	38	7690	64.2	75.8
797	CAFFEY/BNGL	76	34	7679	66.6	72.4
570	RU0902137/WLLS	75	34	7670	62.9	75.5
714	CHENIERE//CCDR/JEFF/3/9302065	77	34	7670	52.1	73.8
640	CCDR/9302065	74	37	7669	65.2	75.8
723	9502065/3/MERC//MERC/…/5/ORIN/3/MERC/CAM9/MARS/4/BNGL	75	34	7669	70.1	73.1

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
754	KOKOHUROSE/M-401	75	35	7661	67.2	70.3
564	RU0902034/CCDR	120	32	7652	59.5	75.1
892	CCDR/CPRS	75	34	7650	61.3	73.5
688	TRNS//CCDR/JEFF/3/TAGGART	74	34	7648	62.7	73.8
685	TRNS//CCDR/JEFF/3/CCDR/JEFF//CPRS	74	35	7642	63.7	75.4
890	CCDR/3/TRNS//CCDR/JEFF	74	37	7638	63.0	71.9
762	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/BNGL/SHORT RICO//MERC	77	35	7638	70.6	74.3
664	MERMENTAU/CPRS	75	34	7627	65.7	74.4
784	BNGL/9502065//EARL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	74	35	7627	69.2	71.6
900	CHENIERE/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	74	34	7621	61.7	75.7
579	RU1102137/CTHL	77	35	7617	65.8	74.0
871	TRNS//CCDR/JEFF/3/CPRS	75	34	7600	65.2	74.4
930	CHNR/RU0803147	74	37	7598	48.2	74.0
827	9502008-A//AR1188/CCDR/3/…/4/AR 1188/CCDR//9502008/LGRU	75	37	7588	65.9	75.3
876	CHNR/RU0902137	75	32	7578	60.4	75.6
661	MERMENTAU/CPRS	76	35	7574	62.3	74.0
870	TRNS//CCDR/JEFF/3/CPRS	75	38	7565	58.9	73.9
731	MERC/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	75	33	7556	64.0	72.8
727	JPTR/S-102	78	35	7539	69.0	70.7
708	CHENIERE//CCDR/JEFF/3/MBLE	70	34	7537	63.4	76.4
535	CHNR/MRMT	76	35	7506	65.8	75.5
668	9502008-A//AR1188/CCDR/3/…/4/CPRS	75	38	7499	66.9	70.3
856	MRMT/RU1002189	76	34	7498	30.1	75.1
729	JPTR/4/9502065/3/MERC//MERC/…	77	34	7492	68.4	72.6
642	DREW/CATAHOULA	75	38	7487	64.8	76.9
757	MARS/6/MARS//M201/MARS/5/STRN//MERC/…	76	35	7485	60.9	73.1
707	CHENIERE//CCDR/JEFF/3/MBLE	72	32	7482	61.3	74.9
654	CPRS/DREW	77	35	7475	68.4	75.6
928	CHNR/CTHL	76	35	7466	55.0	75.1
549	CHNR/11AY026	75	36	7466	63.6	74.4

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
817	NEPTUNE/JPTR	77	36	7463	69.0	71.4
934	CHNR/RU0902137	74	38	7460	62.9	76.1
715	CHENIERE//CCDR/JEFF/3/9302065	77	35	7458	55.7	74.4
609	CCDR x JEFF (STOUT LATE)	77	37	7455	63.9	76.3
689	CHNR/3/NWBT/KATY//9902207X2/4/9502008-A//AR1188/CCDR/3/…	73	33	7449	54.4	76.1
601	CHNR/11AY001	75	35	7447	63.0	73.5
738	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	79	29	7445	68.2	73.2
917	TRNS/RU0502068	72	35	7438	67.1	75.1
765	BNGL//MERC/RICO/3/MERC/RICO//BNGL /4/BNGL	77	34	7437	64.7	72.0
676	9502008-A//AR1188/CCDR/3/…/4/CPRS	76	36	7426	63.5	72.4
510	MRMT/RU0802134	74	32	7407	60.7	73.4
787	EARL/4/BNGL/3/SMARS/MARS//MARS/5/BNGL//MERC/RICO/3/MERC/…	75	39	7405	70.7	73.5
847	CTHL/CHNR	72	33	7397	65.0	76.3
569	RU0902137/WLLS	76	36	7384	63.8	75.6
571	RU0902137/WLLS	73	36	7382	58.9	71.2
822	TRNS/CPRS/KBNT//9502008-A	72	36	7380	64.3	74.6
667	MERMENTAU/JPTR	76	37	7376	47.3	71.5
821	NEPTUNE/JPTR	75	38	7374	70.0	72.8
572	RU0902137/WLLS	73	38	7369	61.0	73.3
556	MRMT/RU0801167	75	36	7369	63.3	74.6
739	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	77	32	7369	68.9	73.9
795	CAFFEY/3/BNGL/9502065//EARL	73	36	7368	68.5	72.1
577	RU1102137/MRMT	76	36	7367	66.6	74.9
853	CHNR/RU1002183	74	38	7364	60.5	73.0
516	CHENIERE/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	75	34	7362	46.2	76.3
815	NEPTUNE/JPTR	79	34	7358	67.9	71.6
916	ROYJ/11AY026	72	35	7356	57.3	72.9
626	9302065/3/CHENIERE//CCDR/JEFF	78	34	7347	63.7	73.7
820	NEPTUNE/JPTR	76	33	7326	68.2	70.8
506	CATAHOULA/3/TRNS//CCDR/JEFF	73	35	7325	64.1	75.1
658	CPRS/DREW	77	35	7317	60.4	72.8
734	NEPTUNE/4/9502065/3/MERC//MERC/…	77	32	7317	71.3	73.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
874	CHNR/RU0902137	77	36	7316	63.0	71.2
759	MARS/6/MARS//M201/MARS/5/STRN//MERC/…	76	32	7314	69.2	71.8
622	9302065/3/CHENIERE//CCDR/JEFF	79	35	7314	54.3	73.3
733	NEPTUNE/4/ORIN/3/MERC/CAM9/MARS/4/BNGL	72	32	7301	62.3	73.7
503	RU0902155/RU0802031	74	33	7300	56.9	74.4
786	EARL/4/BNGL/3/SMARS/MARS//MARS/5/BNGL//MERC/RICO/3/MERC/…	75	36	7299	66.8	70.1
783	BNGL/9502065//EARL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	75	35	7293	69.5	74.0
780	BNGL/9502065//EARL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	77	33	7271	67.1	72.8
893	CCDR/CPRS	74	33	7266	66.5	74.9
607	CCDR x JEFF (STOUT EARLY)	76	35	7264	55.0	73.3
891	CCDR/CPRS	75	37	7264	67.3	75.3
883	08PY755/FRNS	74	35	7262	53.7	70.1
662	MERMENTAU/CPRS	78	37	7258	64.3	74.6
612	TRNS/3/CHENIERE//CCDR/JEFF	77	33	7256	58.5	69.5
602	CHNR/11AY001	73	36	7255	66.0	76.1
558	MRMT/RU0801167	76	43	7250	64.6	76.0
504	RU0902128/RU0902140	73	35	7231	60.4	75.4
764	BNGL//MERC/RICO/3/MERC/RICO//BNGL /4/BNGL	76	32	7217	68.2	72.0
678	9502008-A//AR1188/CCDR/3/…/4/CPRS	75	37	7211	67.7	76.1
932	CHNR/RU0901121	75	32	7200	60.1	77.3
505	RU0802134/RU0802031	74	34	7197	61.1	74.4
613	TRNS/3/CHENIERE//CCDR/JEFF	75	36	7182	59.6	70.6
624	9302065/3/CHENIERE//CCDR/JEFF	75	38	7182	62.2	76.0
788	EARL/4/BNGL/3/SMARS/MARS//MARS/5/BNGL//MERC/RICO/3/MERC/…	76	34	7182	66.8	71.7
931	CHNR/RU0901121	74	35	7151	58.3	76.7
852	CPRS/RU0602025	73	38	7151	64.9	73.3
896	LMNT/CCDR	73	36	7144	55.3	74.8
753	NEPTUNE/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	81	32	7134	66.6	72.0
755	MARS/6/MARS//M201/MARS/5/STRN//MERC/…	76	39	7128	68.9	71.6
905	CATAHOULA/3/AR 1188/CCDR//9502008/LGRU	75	35	7127	60.5	75.1
604	RU1102031/CCDR	74	35	7109	65.6	75.3
617	9302065/GFMT	75	36	7100	60.8	75.2

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
779	BNGL/9502065//EARL/4/BNGL//MERC/RICO/3/MERC/RICO//BNGL	74	33	7096	70.3	73.5
511	CCDR/3/TRNS//CCDR/JEFF	73	33	7091	59.7	72.4
898	DREW/MBLE	75	35	7075	67.7	76.0
882	MRMT/RU0802134	75	33	7068	60.8	74.2
792	BNGL/SHORT RICO/4/9502065/3/…/5/RICO	76	32	7067	68.3	71.0
881	CHNR/RU0902028	74	36	7043	65.7	75.7
508	RU0902155/RU0802031	74	33	7034	63.1	75.0
875	CHNR/RU0902137	77	37	7024	66.9	75.3
513	CCDR/CPRS	76	35	7020	63.1	73.8
830	9502008-A//AR1188/CCDR/3/…/4/TAGGERT	75	32	7020	58.5	75.4
659	CHENIERE/TAGGART	76	38	7004	60.1	73.4
665	MERMENTAU/JPTR	76	35	6977	47.4	72.2
606	RU1102137/CTHL	76	35	6970	68.5	75.8
552	MRMT/RU0902137	76	35	6969	60.3	73.6
515	DREW/MBLE	75	33	6959	62.7	74.9
885	10AY002/10AY032	75	34	6947	61.3	75.3
884	08PY755/FRNS	76	35	6925	45.5	71.9
924	CHNR/JEFF	71	32	6922	66.3	76.2
596	11AY025/WLLS	77	37	6920	56.7	72.9
825	CBNT/3/CPRS/KBNT//9502008-A	77	40	6912	65.4	74.8
600	11AY033/WLLS	76	35	6889	61.7	75.0
823	RU0902125/TGRT	75	33	6868	63.9	74.6
509	MRMT/RU0802134	74	31	6855	52.6	71.5
927	CHNR/MRMT	74	32	6844	59.3	76.0
619	9302065/GFMT	79	35	6834	63.5	72.1
501	CCDR/TRNS	71	34	6800	58.1	74.2
709	CHENIERE//CCDR/JEFF/3/MBLE	70	34	6797	64.5	76.8
712	CHENIERE//CCDR/JEFF/3/9302065	77	36	6793	50.4	74.5
903	CATAHOULA/3/TRNS//CCDR/JEFF	74	34	6747	59.3	74.6
639	9302065/DREW	79	33	6742	59.4	75.1
595	11AY025/WLLS	77	35	6662	54.2	73.4
845	CTHL/CPRS	75	34	6637	67.6	75.9

Continued.

Table 1. Continued.

ENT	PEDIGREE	HDT	HTE	YIELD	WHOLE	TOTAL
655	CPRS/DREW	77	35	6624	67.8	74.8
603	RU1102028/RU1102112	75	37	6619	65.5	75.8
502	CTHL/RU0902137	76	36	6610	29.2	75.3
736	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/LFTE	76	35	6600	70.6	72.5
873	FRNS/RU0902137	77	34	6592	52.5	75.3
631	9302065/MERMENTAU	78	32	6584	58.4	75.0
657	CPRS/DREW	77	37	6569	64.7	74.0
611	TRNS/MBLE	69	33	6555	63.1	74.8
623	9302065/3/CHENIERE//CCDR/JEFF	78	33	6538	55.8	73.9
621	9302065/3/CHENIERE//CCDR/JEFF	77	33	6529	58.2	75.1
926	CHNR/MRMT	73	33	6529	65.4	77.1
629	9302065/MERMENTAU	79	31	6503	59.3	75.1
628	9302065/MERMENTAU	80	33	6503	59.8	74.3
514	CCDR/CPRS	75	33	6494	65.4	74.3
615	9302065/GFMT	78	34	6491	59.5	72.3
806	ORIN/3/MERC/CAM9/MARS/4/BNGL/5/BNGL//MERC/RICO/3/EARL	75	33	6471	70.8	73.3
656	CPRS/DREW	76	35	6468	66.0	73.8
633	9302065/MERMENTAU	80	32	6377	60.2	75.3
632	9302065/MERMENTAU	80	32	6374	58.1	74.4
618	9302065/GFMT	76	34	6371	63.2	75.7
627	9302065/MERMENTAU	79	34	6291	56.7	75.2
507	RU0902155/RU0802031	72	32	6168	61.9	75.6
610	TRNS/MBLE	66	41	6163	59.5	74.3
637	9302065/DREW	77	31	6158	55.8	74.9
634	9302065/MERMENTAU	77	33	6154	59.2	75.0
638	9302065/DREW	78	33	6124	58.5	75.4
625	9302065/3/CHENIERE//CCDR/JEFF	79	34	6001	57.5	72.7
630	9302065/MERMENTAU	79	32	5972	47.0	75.0
636	9302065/DREW	78	31	5898	52.0	74.8
557	MRMT/RU0801167	79	37	5886	65.2	74.4
620	9302065/GFMT	78	35	5868	65.4	75.2
897	LMNT/TAGGERT	76	33	5747	65.1	74.9
635	9302065/DREW	78	33	5638	47.5	75.3
616	9302065/GFMT	78	33	5471	63.8	74.0

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 2016 URN test included 200 experimental lines and varieties planted in six states. The randomized complete block design was applied, with three replications for groups 1-4 and two replications for groups 5-7. Seeding rates were 90 lb/A for varieties.

The 2016 URN results from the H. Rouse Caffey Rice Research Station will be reported. All plots were drill seeded on March 28. The tests was harvested on Aug. 3. Tests were conducted using standard agronomic practices (except that no fungicides were applied). Tables 1-7 show grain and milling yield and agronomic performance (seedling vigor, days to 50% heading, and plant height) of entries in the 2016 URN at the H. Rouse Caffey Rice Research Station.

Table 1. Grain and milling yields and agronomic performance of entries in the 2016 Uniform Regional Rice Nursery, Group 1, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
018	CL153	CL153	4	78	37	9388	65.3	71.2
011	RU 1402174	9502008/3/MBLE//LMNT/20001-5/4/WELLS/…/5/TAGGART	5	78	36	9055	65.2	72.4
002	RU 1602002	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	4	73	35	8994	60.0	69.4
020	MRMT	MERMENTAU	4	77	38	8979	62.6	70.6
008	RU 1402091	CL131/3/CPRS/KBNT//9502008-A	5	76	33	8863	62.4	70.9
017	CL111	CL111	3	75	38	8797	67.0	74.9
010	RU 1601010	91642//KATY/NWBT/5/RU9201176/4/KATY/NWBT/3/LBNT/STBN//NWBT/6/ CYBT/7/FRNS	3	75	39	8513	59.8	72.2
005	RU 1602005	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5	71	38	8247	64.8	72.5
014	RU 1104077	8603006//3/MARS/NWRX//TBNT	5	76	37	8111	59.8	71.6
001	RU 1601001	248DREW16C-1-3/6/LGRU//KATY/STBN/5/NWBT/KATY//RA73/…	4	76	34	8111	64.5	73.6
012	RU 0803147	LCSN/LGRU	6	76	38	8080	61.0	70.3
007	RU 1501007	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/LGRU/MILL/6/…	4	77	38	8037	63.1	71.9
006	RU 1003123	CPRS/CCDR	6	81	40	7988	63.5	71.6
009	RU 0903141	CPRS/9901081	6	76	39	7975	63.8	72.4
015	RU 1404122	CPRS/NWBT	5	82	37	7599	63.8	72.0
013	RU 1501170	CHNR/4/CPRS/9502008-A/3/CFX 29//AR1142/LA2031	6	82	37	7538	63.1	72.8
019	RU 9903092	PRESIDIO	3	76	38	7389	60.1	72.6
003	RU 1503003	CF4-69/CCDR//Sierra	4	76	39	6805	28.5	73.5
004	RU 1601004	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/ DREW	5	80	41	6633	48.8	67.1
016	RU 1404154	CPRS//NWBT/C4-63	6	77	37	6460	47.5	71.4

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2016 Uniform Regional Rice Nursery, Group 2, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
039	LKST	LAKAST	2	74	41	9926	55.2	71.7
030	RU 1601030	RU1202168/JPTR	5	81	38	9198	66.9	69.4
034	RU 1502115	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	4	75	37	9104	63.2	71.7
022	RU 1502068	TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4	75	40	8945	65.4	73.4
031	RU 1502094	CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29//…	3	79	38	8891	63.1	72.0
040	DMND	DIAMOND	3	76	39	8859	53.6	71.8
035	RU 1504083	CL131/PSCL	5	74	37	8823	58.7	70.6
021	RU 1501111	BNGL/CL161/4/9502065/3/MERC//MERC/…	5	80	38	8652	68.9	72.2
038	WLLS	WELLS	2	79	39	8636	61.5	72.3
025	RU 1502082	9502008-A/DREW//CLR 20/3/CL111	4	76	38	8587	66.6	73.1
024	RU 1501024	CL111/3/CCDR//9502008/LGRU	5	74	37	8460	67.0	71.6
027	RU 1601027	BNGL//ORIN/BNGL	4	78	36	8451	67.5	70.3
036	RU 1504100	Cheniere/Banks	6	80	40	8300	60.6	72.3
028	RU 1502085	CPRS/KBNT//WELLS CFX 18/3/CHENIERE	4	75	35	8294	63.0	73.6
037	JPTR	JUPITER	4	83	36	8196	67.1	69.5
023	RU 1403153	L202/LQ39a//SABR	6	76	38	7964	66.4	73.7
033	RU 1404156	CPRS//NWBT/C4-63	5	79	38	7933	63.5	73.4
032	RU 1303138	IR64/IR 1321-12	7	148	37	7510	63.7	70.9
029	RU 0803153	CPRS/CCDR	6	74	37	7210	64.3	72.8
026	RU 1003098	CPRS/NWBT//KATY/3/CCDR	6	75	37	7203	68.4	75.1

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2016 Uniform Regional Rice Nursery, Group 3, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
047	RU 1401145	RU0801076/2/KBNT/Q36194	3	75	42	9303	61.7	73.1
060	CL272	CL272	3	80	37	9108	68.1	71.3
042	RU 1502183	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	4	77	37	8972	70.4	72.7
044	RU 1601044	MRMT/RU0802134	4	75	37	8813	66.5	73.7
048	RU 1602048	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	76	37	8808	66.9	73.9
051	RU 1602051	CATAHOULA/3/TRNS//9502008-A/DREW	4	75	39	8804	62.2	72.6
056	MM-14	MM-14	4	77	34	8798	68.2	70.9
058	CHNR	CHENIERE	4	76	36	8731	65.0	72.5
050	RU 1601050	RU1301124/CL261	4	77	37	8433	68.5	71.2
057	Rex	Rex	4	77	39	8362	64.9	72.0
054	RU 1504122	CL151//COLUMBIA2/BENGAL	6	76	37	8344	61.2	73.6
059	CCDR	COCODRIE	4	75	36	8290	62.4	73.2
052	RU 1403089	CPRS/9901081	6	75	36	8216	67.4	74.9
045	RU 1602045	JZMN/08CLR004//RU1002146*2	3	72	40	7758	68.8	73.2
046	RU 1303153	IR64/IR 1321-12	7	73	39	7483	66.5	71.6
043	RU 1403138	043752/0047277/CHEN	6	80	37	7457	64.5	74.1
055	RU 1504154	RSMT//TXMT/IR36/3/(0115735)/CL131	6	74	43	7401	54.4	70.7
049	RU 0903147	CCDR/L202	5	75	35	7374	67.9	74.4
041	RU 1601041	FRNS/CL/WLLS/2/KBNT/Q36194	4	78	40	7231	59.2	73.2
053	RU 1504114	Cheniere/Banks	6	79	43	7064	58.6	71.3

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2016 Uniform Regional Rice Nursery, Group 4, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
071	RU 1602071	CLH161	3	72	46	9635	65.1	73.6
061	RU 1501130	CPRS/KBNT//CFX29/CCDR/3/06CFP952	4	77	38	8718	70.0	75.4
077	RU 1504186	GFMT/LBLE	5	78	40	8383	66.8	72.2
079	ROYJ	ROY J	3	79	41	8381	58.4	72.0
070	RU 1601070	BRAZ/T489//MARS/3/M201/KATY/4/LMNT/RA73//KATY/5/TGRT	4	78	41	8305	48.7	70.5
065	RU 1602065	CCDR/3/CPRS/KBNT//WELLS CFX 18	3	74	37	8296	67.8	74.5
073	RU 1504156	Cocodrie/Priscilla	5	71	37	8276	63.8	73.8
080	TITN	Titan (RU1301021)	4	74	36	8207	68.3	70.1
078	RU 1203190	CPRS/NWBT//KATY/3/CCDR	5	76	38	8106	66.3	73.9
064	RU 1401105	JZMN/PI597046	4	78	39	8100	68.0	72.6
068	RU 1602068	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	4	75	35	7928	68.8	74.1
062	RU 1602062	MRMT/RU1002189	4	75	36	7725	68.2	74.4
072	RU 1303181	043752/0047277/CHEN	5	80	37	7494	66.9	73.3
063	RU 1003153	CPRS/CCDR	5	76	38	7424	66.3	72.3
076	RU 1601076	248WE16i-5/2/TGRT	4	78	37	7420	62.0	71.8
075	RU 1303116	CCDR/L202	6	73	37	7182	62.0	70.7
067	RU 1601067	STG05IMI-01-113/STG05L-40-137	5	78	40	6876	66.0	73.4
066	RU1403166	AC110DH2/AC108DH2//CYBT	6	80	37	6542	67.3	73.4
069	RU1303144	CCDR/L202	7	73	36	6520	67.5	73.8
074	RU 1504157	CPRS/JACKSON//BANKS	6	78	41	5584	51.8	67.9

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2016 Uniform Regional Rice Nursery, Group 5, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
082	RU 1602082	LAH169	4	70	46	9652	52.9	74.7
097	RU 1602097	CL131/TRNS	4	74	39	9415	66.1	72.2
112	RU 1602112	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/CPRS/KBNT// 9502008-A	4	77	35	8978	64.8	72.2
115	RU 1602115	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	4	73	34	8933	63.9	71.6
109	RU 1602109	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	3	74	38	8680	59.6	72.5
096	RU 1601096	CL131/ROYJ	3	74	41	8640	63.4	73.1
099	RU 1601099	RU0502068/RU1202088	4	75	39	8632	65.0	73.0
111	RU 1601111	RU1302048/RU1302045	5	74	37	8620	64.5	72.5
105	RU 1601105	STG05F5-08-104/STG03F5-02-085//JZMN	4	77	45	8433	64.8	73.4
087	RU 1601087	248DREW16C-1-3/6/CPRS/RU9201176/5/VSNTLM//L201/…	3	81	36	8379	65.0	72.9
118	CL172	CL172	3	75	37	8258	63.3	71.4
091	RU 1602091	RU1002146*4//JZMN/08CLR004	3	69	38	8099	69.8	74.5
106	RU 1602106	DREW//CCDR/CLPY 003	4	73	37	8064	63.5	73.4
083	RU 1504191	RSMT//TXMT/IR36/3/(0115735)/CL151(CL006)	5	75	36	7975	60.6	72.0
103	RU 1602103	9302065/4/CFX-18//CCDR/9770532 DH2/3/9502008-A//…	4	73	36	7958	66.7	73.8
085	RU 1602082	RU1002146/3/JZM2//07PY824/08CLR003	4	71	38	7893	63.8	75.8
088	RU 1602088	JZMN/08CLR004//RU0802146/3/RU0802146	4	76	38	7855	69.6	73.7
108	RU 1501108	JZMN/PI597046	3	77	39	7854	67.5	72.7
093	RU 1601093	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/ DREW	3	81	41	7751	58.8	70.0
098	RU 1503098	CPRS/9901081	5	75	39	7717	63.9	73.7
092	RU 1503092	CPRS/3/CPRS/NWBT/KATY	6	77	39	7633	67.3	74.4
084	RU 1601084	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/ DREW	4	81	38	7497	59.7	70.7
116	RU 1603116	L202/SABR//PACE	6	74	35	7371	59.0	72.7
120	CL163	CL163	5	76	38	7371	53.6	70.1
089	RU 1603089	AC110DH2/AC108DH2//CYBT	6	78	36	7353	64.3	72.7
095	RU 1503095	M202*4/Katy BC5F4	4	72	39	7346	45.8	69.9
081	RU 1601081	FRNS/CL.WLLS/2/KBNT/Q36194	5	78	40	7336	59.4	71.0
086	RU 1603086	CL161/CPRS	6	81	39	6982	68.3	73.7
117	JZMN2	JAZZMAN 2	3	76	34	6978	65.4	72.2

Continued.

Table 5. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
113	RU1603113	043752/0047277/CHEN	5	79	37	6963	66.3	72.7
101	RU 1603101	LGRU/LCSN/CF4-85//Sierra	4	75	36	6922	57.3	70.2
114	RU 1504194	DXBL//NWBT/KATY	5	83	42	6902	65.0	72.0
090	RU 1601090	FRNS/CL.WLLS/4/GP13416/KATY//PI312777/3/FRNS	5	79	44	6858	64.1	71.0
107	RU 1603107	Sierra/Deltabelle	5	76	35	6791	64.2	72.7
094	RU 1602094	RU1002146*4//JZMN/08CLR004	4	73	38	6780	65.5	74.0
100	RU 1504193	IR36/8603006	6	77	40	6579	65.3	73.9
104	RU 1403104	M202*4/Katy BC5F4	5	69	38	6528	67.2	69.5
110	RU 1501100	Deltabelle//LGRU/LCSN/CF4-85	4	75	39	6364	65.2	71.4
102	1503102	JASM85//DREW/UA99-167	4	80	40	6314	60.3	69.6
119	M206	M206	5	63	37	5931	68.3	70.9

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

Table 6. Grain and milling yields and agronomic performance of entries in the 2016 Uniform Regional Rice Nursery, Group 6, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
133	RU 1601133	RU1102192/4/WLLS/CFX-18/3/CFX-18//CCDR/9770532 DH2	5	75	40	9364	62.5	70.5
160	TGRT	TAGGART	2	80	44	9209	59.2	71.8
146	RU 1602146	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/CATAHOULA	3	76	41	9117	60.7	72.7
134	RU 1602134	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/4/CCDR/JEFF/3/CFX-18// CCDR/…	4	73	39	9022	66.3	74.6
124	RU 1601124	MRMT/RU0502068	4	77	37	9012	65.5	73.4
131	RU 1602131	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/4/CCDR/JEFF/3/CFX-18// CCDR/…	4	73	37	8953	65.6	73.0
142	RU 1601142	248DREW16C-1-3/6/LGRU//KATY/STBN/5/NWBT/KATY//RA73/…	3	80	42	8896	67.6	72.9
136	RU 1601136	RU1202168//RU0602162/RU0502031	5	80	38	8785	63.8	67.1
145	RU 1601145	IRGA409/RXMT/5/BRAZ/TBNT/3/164986-4/NV66//NTAI/4/BNGL/6/WLLS	3	72	41	8649	61.9	71.1
121	RU 1601121	CTHL/RU1002192	4	75	39	8634	59.8	73.5
125	RU 1602125	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/KBNT// 9502008-A	4	73	36	8490	61.1	73.5
140	RU 1602140	CCDR/RU1002177	4	77	36	8477	64.6	73.9
128	RU 1602128	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/9502008-A/DREW//CLR 20/4/…	3	75	37	8460	65.5	73.5
137	RU 1602137	TACAURI/3/CPRS//82CAY21/TBNT/…/4/CHENIERE	4	76	34	8432	65.4	75.0
127	RU 1601127	RU1102034/RU1202082	5	78	39	8422	63.1	72.8
139	RU 1601139	CL142-AR//KBNT/Q36194/3/248WE16i-5/TGRT	4	78	41	8409	61.2	71.7
143	RU 1602143	JPTR/S-102	5	80	36	8390	66.3	68.7
158	DLLA2	DELLA 2	4	78	38	8330	64.4	70.2
154	RU 1504197	RSMT/3/MARS/NWRX//TBNT/4/CL151	5	76	36	8330	63.7	72.5
148	RU 1401067	19991516/19951094//RNS3/RU9101001 NOW RU1401067	4	77	43	8322	53.3	73.1
132	RU 1503132	CPRS/9901081	5	76	36	8233	64.9	73.0
155	RU 1604155	Bowman//RSMT/KATY	5	75	40	8169	61.9	72.7
130	RU 1601130	CL172/5/CPRS/NWBT//KATY/3/CCDR/4/CFX-18//CCDR/9770532 DH2	5	80	38	8021	61.8	73.8
151	RU 1601151	KBNT/Q36194//TGRT	4	79	44	7792	61.4	72.0
152	RU 1602152	JZMN/08CLR004//RU1002146*2	3	71	39	7780	61.6	73.3
144	RU 1603144	WAB 450-11-1-1-P31-HB (NERICA 5)/RSMT	5	79	39	7760	67.4	73.2

Continued.

Table 6. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
156	RU 1504198	Rexmont/Banks	5	77	43	7686	58.3	71.5
122	RU 1504196	Rexmont/Banks	5	76	45	7670	61.9	71.9
150	RU 1603150	Deltabelle//LGRU/LCSN/CF4-85	4	79	39	7626	63.1	69.5
159	RU 0703144	ANTONIO	4	80	37	7614	67.3	73.3
135	RU 1303135	CCDR/L202	5	73	36	7544	59.9	71.1
141	RU 1403141	AC110DH2/AC108DH2//CHEN	6	80	38	7481	67.6	73.9
157	RU 1604157	Rexmont/Banks	5	82	41	7429	64.7	72.4
138	RU 1603138	WAB 450-11-1-1-P31-HB (NERICA 5)/RSMT	6	78	35	7342	65.7	73.4
147	RU 1503147	CPRS/3/CPRS/NWBT/KATY/4/SPRING	6	75	37	7301	64.8	73.9
149	RU 1602149	JZMN/08CLR004//RU0802146/3/JZM2	3	73	36	7169	63.5	73.0
129	RU1403129	RU0302195/CHEN	5	75	36	7082	65.3	73.7
126	RU 1603126	LGRU/LCSN/CF4-85//Sierra	4	76	39	7008	62.1	74.1
123	RU 1603123	CL161//Kaybonnet/Zhongyouzao3	5	81	38	6526	64.8	73.0
153	RU 1603153	CCDR/LQ275a//CCDR	7	82	40	5644	62.7	72.2

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

Table 7. Grain and milling yields and agronomic performance of entries in the 2016 Uniform Regional Rice Nursery, Group 7, H. Rouse Caffey Rice Research Station, Crowley, LA.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
191	RU 1604191	Cheniere/Banks	5	76	42	9369	64.2	73.8
193	RU 1604193	Cheniere/Banks	5	82	42	9265	65.1	73.5
197	RU 1604197	CL151//COLUMBIA2/BENGAL	5	79	39	9197	59.8	71.8
200	CL151	CL151	3	76	39	9127	62.8	72.5
167	RU 1601167	RU1302045/CL111	5	75	39	9086	63.7	70.6
180	RU 1602180	CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR//9502008/ LGRU	4	71	38	9078	58.8	70.1
185	RU 1601185	RU1302048/RU1302045	4	74	38	8945	62.1	72.4
195	RU 1602195	9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	3	77	38	8914	64.5	70.1
182	RU 1501182	LBNT/9902//NWBT/3/KATY/NWBT/5/IR36M4/4/L201/3/TTEP/IR-8// UNKN/6/…	4	77	43	8868	61.6	73.4
183	RU 1602183	CATAHOULA/CL111	4	72	40	8770	63.8	71.3
189	RU 1602189	9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008-A//AR1188/ CCDR/3/…	3	71	36	8730	65.5	74.2
164	RU 1601164	RU1102034/RU1302045	5	78	37	8708	60.0	69.9
198	RU 1604198	CL151//COLUMBIA2/BENGAL	6	76	36	8705	62.2	72.2
173	RU 1601173	RU1302045/MRMT	4	78	39	8705	65.1	71.7
194	RU 1604194	GFMT/LBLE	5	79	40	8667	67.2	72.8
171	RU 1602171	CL152/DREW	4	76	39	8645	63.2	70.6
174	RU 1602174	CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	3	73	39	8502	66.5	73.2
188	RU 1501188	LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT/7/BRAZ/TBNT/3/…	4	76	38	8487	59.9	72.4
168	RU 1602168	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/4/DREW	5	71	37	8484	65.0	73.8
192	RU 1602192	CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/…/3/…/6/CHENIERE// CCDR/JEFF	4	75	35	8406	64.2	72.9
175	RU 1503175	L202/LQ39a//SABR	5	76	38	8300	64.5	73.7
177	RU 1602177	9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…/5/CATAHOULA	3	74	37	8297	70.2	74.9
179	RU 1501179	FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW/7/LBNT/…	5	77	43	8172	60.8	71.2
162	RU 1602162	JZMN*2/08CLR004	3	77	39	8124	66.8	72.4
170	RU 1601170	STG10IMI-05-034//RU0902155/RU0902131	5	75	36	8107	60.1	73.3
161	RU 1401161	TGRT/6/LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT	4	83	36	7884	66.3	72.7

Continued.

Table 7. Continued.

ENT	SOURCE	PEDIGREE	VIG[1]	HDT	HTE	YIELD	WHOLE	TOTAL
169	RU 1503169	Hayakogane/BALDO	5	76	37	7666	65.0	73.1
172	RU 1303172	CPRS/NWBT//KATY/3/CCDR	5	80	37	7645	66.9	72.7
176	RU 1501176	ROYJ//19991516/19981467	4	75	43	7549	52.5	71.2
165	RU 1602165	RU1002146*4//JZMN/08CLR004	4	69	36	7496	68.4	74.3
163	RU 1303163	CPRS/SABR	6	75	38	7328	65.4	73.8
184	RU 1303184	FRAN/LQ39a	5	77	38	7319	67.3	72.9
199	RU 0603075	RHONDO	4	84	39	7209	63.9	71.3
181	RU 1403181	CPRS/3/CPRS/NWBT/KATY	6	76	37	6958	64.9	72.3
190	RU 1403190	LCSN/LGRU	5	76	35	6955	65.2	74.0
186	RU 1604186	Rexmont/Banks	6	79	45	6819	59.5	70.7
178	RU 1603178	SABR/CCDR//PRESIDIO	5	82	38	6770	62.0	70.2
187	RU 1603187	CPRS/3/CPRS/NWBT/KATY	6	80	36	6506	66.0	73.6
196	RU 1604196	CL151//COLUMBIA2/BENGAL	7	77	36	6470	60.3	73.4
166	RU 1603166	CPRS/3/CPRS/NWBT/KATY	6	79	36	6319	66.6	73.6

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

ESTABLISHMENT OF A HIGH-THROUGHPUT DNA MARKER LAB FOR APPLIED BREEDING

A.N. Famoso, J.D. Dartez, M.M. Meche, D.E. Groth, and S.D. Linscombe

Through the support of the Louisiana Rice Research Board and the LSU AgCenter, a new state-of-the-art DNA single nucleotide polymorphism (SNP) marker lab was established in February 2016 at the H. Rouse Caffey Rice Research Station (HRCRRS) as part of the Variety Development Program. This lab will facilitate the integration of molecular breeding as a core element to an applied breeding program and can offer tangible benefits to our variety development efforts in terms of speed, accuracy, throughput, and uniformity. However, to be a net gain to breeding productivity, it is critical that these approaches do not divert efforts from the core breeding foundation of a large scale field evaluation and testing. The objective of this lab and area of research is to develop, optimize, and implement a comprehensive molecular breeding strategy as an integrated component of rice variety development efforts. The establishment of the new SNP lab will facilitate the necessary scale and cost for these modern breeding approaches to be incorporated into the variety development efforts.

The new marker lab was equipped with SNP-line genotyping equipment from the LGC Group. This system is compatible with LGC's Kompetitive Allele Specific PCR (KASP) genotyping chemistry, which is very cost effective for breeding applications, where there are often many samples that need to be run on only a few markers. The initial focus was on learning how to operate the equipment and training of personnel. A significant effort was spent on optimizing protocols to minimize cost, while still meeting data quality requirements. One notable accomplishment from these efforts is the development of a new DNA extraction protocol that facilitates up to 1,000 samples per hour at a cost of $0.065 per sample. Optimization of genotyping reactions has reduced the cost per data point to $0.0375, which does not include time or DNA extraction costs. The developed protocols have been successful across many sample types, including young and old leaves, senesced leaves from the field, rough rice seeds, and milled rice, making the system very flexible for different breeding applications.

One of the primary applications of the SNP lab will be to facilitate marker-assisted selection (MAS) for large effect genes. In order to deploy MAS in the breeding program, it is necessary to develop new KASP assays and discover new SNP targets associated with the traits of interest. The primary focus of 2016 was to discover new SNP loci that are associated with genes previously demonstrated to be control traits of interest in U.S. germplasm. New SNPs were identified, developed into KASP assays, and validated across U.S. breeding germplasm for the blast-resistant gene PITA-2, the aroma gene BADH2, and the Provisia herbicide-resistant gene. Furthermore, new KASP assays were developed that converted previously identified (gel-based) SNP assays for the Clearfield herbicide resistance gene and the ALK grain quality gene. A novel discovery of a large effect gene conferring Cercospora resistance was made in collaboration with Dr. Donald Groth, in which a single gene was discovered that controlled over 80% of the variation of resistance/susceptibility to Cercospora. To enable subsequent gene discovery and validation, a breeding germplasm panel of 400 lines was developed in 2016 to be phenotyped in subsequent years to help identify loci and haplotypes of interest for use in MAS. The initial traits that will be focused on will include grain quality and shape, maturity, plant height, blast resistance, and Cercospora resistance.

In addition to MAS, which will be utilized for traits in which large effect genes are available, genomic selection (whole genome prediction) is planned to be used on traits that are more quantitative or complex. Initial efforts in this area include a collaboration with Dr. Susan McCouch at Cornell University, in which we are using 2015 and 2016 field data for 380 breeding lines to conduct Genomic Selection predictions for yield, milling, chalk, agronomic traits, and four disease traits. The goal of this work is to determine the accuracy of predicting traits across years and germplasm.

A set of genome-wide (GW) markers were ordered and tested to support efforts in trait mapping, germplasm characterization, and germplasm purity screening. This initial set included 525 SNPs selected, based on the probability of being informative within U.S. breeding germplasm. This set of the markers was screened across ~190 genotypes, and marker performance and polymorphism rates were determined. The goal of the HRCRRS GW marker set is to ultimately have an informative marker every 10-20 cM across the genome. Based on this initial screen, a germplasm purity marker set was selected by focusing on selecting a set of SNPs that can differentiate any two lines. This set was selected from the SNPs that had exceptional marker quality in terms of data return and scoreability. The resulting set of SNPs included 10 GW SNPs that can be used in conjunction with key trait markers to ensure purity of germplasm lines. This marker set was deployed for in 2016 to screen all foundation seed head rows and to test new F_1 breeding crosses to identify and eliminate selfs. Future GW marker development goals include identifying and developing a core set of markers (~200) that can be used as a standard set for whole genome prediction and construct a U.S. germplasm specific genetic map to be used in breeding applications.

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

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INTRODUCTION

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

Six Louisiana experimental hybrids in 2016 showed high yield potential and good milling performance in the Commercial-Advanced Trials in Acadia, Evangeline, Jefferson Davis, Lake Arthur, and HRCRRS locations. Three hybrids in inoculated plots showed good to moderate levels of resistance against leaf blast, sheath blight, and bacterial panicle blight diseases in Evangeline and Jefferson Davis parishes. During the 2016 Observational Trials, seven new hybrid combinations produced high grain and head rice yields and low chalk. Additional nurseries at the HRCRRS included 4,000 rows for male-sterile S line development and 2,000 rows for restorer R and maintainer B line development. DNA technology was used to identify and validate new candidate markers associated with low chalk specific to Louisiana varieties and elite breeding germplasm.

To complement the existing Clearfield herbicide technology, the HRCRRS is currently developing inbred and hybrid varieties that are resistant to the quizalofop-p-butyl (ProvisiaTM) herbicide for control of grassy weeds. Several new male-sterile, restorer, and maintainer lines in 2016 field trials showed high levels of resistance to Provisia along with improved agronomic characteristics. A new candidate Provisia hybrid showed high yield potential in the 2016 Observational Trial at the HRCRRS.

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 200 crosses for sheath blight resistance were made in 2016. In addition, 600 F_1 plants, 59 backcross populations, and 38 space-planted F_2 populations were evaluated. A total of 610 early and advanced lines were tested in inoculated field plots at the HRCRRS. DNA technology was used to identify and advance five elite lines with moderate to high levels of resistance to sheath blight.

Commercial-Advanced Trials

The objective of the 2016 Commercial-Advanced (CA) Trials was to evaluate three candidate hybrids vs. eight commercial checks for grain and milling yields at five Louisiana locations. Material was planted at the seeding rate of ~ 35 lb/A for the hybrids and ~ 70 lb/A for the conventional varieties. As shown in Table 1, the nine hybrids evaluated in the main crop showed good yield potential across locations. For example, the combined Louisiana and commercial hybrids produced an 18% yield advantage at 9,427 lb/A when compared to the combined average of 7,740 lb/A for the top two Clearfield inbred varieties, CL151 and CL111. When considering only the Louisiana hybrids in the main crop, an average 5% yield advantage vs. the inbreds was found across locations. Louisiana Clearfield hybrid CLH161 produced higher yields vs. two commercial hybrids at the Jefferson Davis and HRCRRS locations.

A second crop (ratoon) was evaluated at the HRCRRS that showed high yield production for all hybrids and inbreds (Table 1). Grain produced in the ratoon crop across all hybrids represented 23% of the total, while the ratoon for CL111 and CL151 was 19% of the total. The nine hybrids as a group produced a 32% yield advantage in the ratoon with a mean of 3,133 lb/A vs. 2,106 lb/A for CL111 and CL151. The Louisiana hybrids produced a mean ratoon yield of 3,347 lb/A that was slightly higher than the 3,025 lb/A for the six commercial hybrids. For main and ratoon crops combined, mean yield for the nine hybrids at 13,695 lb/A was 17% higher than the mean yield of CL111 and CL151 at 11,318 lb/A. The Louisiana hybrids produced a mean total yield of 13,419 lb/A that was comparable to the six commercial hybrids at 13,832 lb/A.

Table 1. Commercial-Advanced Yield Trials in Acadia (AD), Evangeline (EV), Jefferson Davis (JD), Lake Arthur (LA), and H. Rouse Caffey Rice Research Station (HRCRRS) locations, 2016.

	---------------- Yield (lb/A) - Main Crop ----------------					Yield (lb/A)	--- Yield (lb/A) ---	
Hybrid/Variety	AD	EV	JD	LA	HRCRRS	Mean	Ratoon (HRCRRS)	Total (HRCRRS)
GEMINI 210	10747	11754	10051	9739	11771	10812	2677	14448
XL753	10584	11212	10040	8910	11334	10416	3979	15313
XP766	8800	10969	10336	9457	10980	10108	2789	13769
XL760	9775	11759	9379	9299	9805	10003	2325	12130
CLXL745	10179	9871	10209	7979	10516	9751	2998	13514
CLXL729	7187	11056	9599	8182	10435	9291	3385	13820
LAH169	7710	8850	9026	7479	9913	8596	3296	13208
CLH161	6575	8813	9756	7376	10027	8509	2628	12656
CL151	6166	9342	8707	7240	9465	8184	2264	11729
09A/R608	6404	7355	8804	3955	10277	7359	4117	14394
CL111	5990	8482	8013	5043	8959	7297	1949	10907

Table 2. Commercial-Advanced head rice and total milling yields for the main crop at the Evangeline (EV), H. Rouse Caffey Rice Research Station (HRCRRS), and Lake Arthur (LA) locations, 2016.

Hybrid /Variety	EV	HRCRRS	LA	Mean
GEMINI 210	61/72	60/71	54/69	58/71
XL753	66/75	66/73	61/73	64/74
XP766	62/73	62/73	57/70	60/72
XL760	58/74	57/69	51/70	55/71
CLXL745	65/76	63/71	61/73	63/73
CLXL729	62/74	63/71	60/72	62/72
LAH169	65/74	64/73	55/70	61/72
CLH161	64/74	64/72	58/70	61/72
CL151	67/76	65/73	55/68	62/72
09A/R608	63/71	54/64	52/64	56/66
CL111	69/76	68/74	53/68	63/73

Table 2 shows the head rice and total milling yields of the main crop at Evangeline, Lake Arthur, and HRCRRS locations. Mean head rice yield across all entries and locations was 60%, while total milling yield was 71%. Average head rice across hybrids was 59% compared to 62% for the two Clearfield varieties. Mean head rice yield of the three Louisiana hybrids at 59% was similar to the 60% yield for the six commercial hybrids. Mean total milling yield across entries and locations was 71%, while the percentage of all hybrids at 70% was similar to 72% for the two Clearfield varieties.

Observational (Testcross) Trials

The objective of the Observational Trial is to identify new hybrid combinations with high grain yield, good milling yields, height, maturity, lodging percentage, and other agronomic characteristics. Planting dates for three Observation Trials were March 29 and May 15, 2016 at the HRCRRS. In the first trial of March 29, two Louisiana long-grain conventional hybrids, 16TC31 and 16TC280, were identified with high yield potential, early maturity, and comparable plant height vs. three commercial hybrids (Table 3). Lodging, seed dimensions, gelatinization temperature, and percent amylose of the two Louisiana hybrids showed similar values to those of the commercial hybrids. Percent chalk of the Louisiana hybrids was lower (6.0-6.3%) vs. the three commercial hybrids that ranged from 10.8-11.0%.

The long-grain Clearfield hybrid, 16M228, was selected in the second Observational Trial for high yield and acceptable maturity, height, lodging, seed dimensions, gelatinization temperature, and amylose content (Table 3). A relatively low chalk value of 7.5% was determined by the Winseedle scanning procedure. Due to seed availability, the third Observational Trial was planted late in the season on May 15, 2016. Two Clearfield, one conventional, and one Provisia hybrid were identified with relatively good yield for this date of planting vs. two elite Provisia inbred lines PVL024A and PVL024B. Maturity was earlier and height was taller for the four experimental Louisiana hybrids vs. the two Provisia lines. The Provisia hybrid 16TC4-48 produced 23-36% higher grain yield than the two Provisia lines under these conditions. Low chalk values were observed for both the Louisiana hybrids (3.2-6.0%) and the two Provisia lines (2.8-4.5%). All Louisiana hybrids produced intermediate gelatinization temperature profiles that are desirable for U.S. long-grain rice.

Table 3. Grain yield, heading date, height, and grain quality traits for seven candidate, three commercial hybrids, and two Provisia lines planted in three Observational Trials on March 29 and May 15, 2016, H. Rouse Caffey Rice Research Station.

Hybrid/ Variety	Days to 50% Heading	Height (in)	Yield (lb/A)	Lodge (0-5)	Seed Length (mm)	Seed Width (mm)	Chalk %‡	Gel Temp	Amylose (%)	Notes
XL753*	78	45	11074	0.5	6.82	2.15	11.0	I-Hᵠ	17	LG Hybrid
16TC31*	78	44	10005	0.0	6.49	2.10	6.3	I-H	17	LG Hybrid
XL760*	82	45	9925	0.5	6.93	2.11	12.9	L$^{\Omega}$	19	LG Hybrid
16TC280*	77	39	9427	0.5	6.76	2.07	6.0	I-H	20	LG Hybrid
CLXL729*	75	41	9113	0.0	6.62	2.11	10.8	I-H	19	CL LG Hybrid
16M228†	75	43	9438	0.0	6.74	2.18	7.5	I-H	18	CL Hybrid
16TC3B45§	79	41	9331	-	6.60	2.08	6.0	I	19	CL LG Hybrid
16TC3B44§	73	42	8723	-	6.75	2.17	4.2	I	20	LG Hybrid
16TC3B46§	78	44	8692	-	6.39	1.96	4.6	I	21	CL LG Hybrid
16TC4-48§	84	40	8598	-	6.57	1.92	3.2	I	17	PV LG Hybrid
PVL024B§	90	37	6754	-	6.82	2.09	4.5	I-H	21	PV LG Line
PVL024A§	91	37	5582	-	7.50	1.95	2.8	I-H	21	PV LG Line

* Hybrid/variety planted March 29, 2016, in Observational Trial 1.
† Hybrid/variety planted March 29, 2016, in Observational Trial 2.
§ Hybrid/variety planted May 15, 2016, in Observational Trial 3.
‡ Chalk % by area determined by Winseedle.
ᵠ Intermediate to high gelatinization temperature.
$^{\Omega}$ Low gelatinization temperature.
- No data taken.

Table 4. Commercial-Advanced Trial ratings for leaf blast, sheath blight, bacterial panicle blight, and Cercospora at Jefferson Davis (JD) and Evangeline (EV) locations, 2016.

Hybrid/Variety	----- Leaf Blast* -----		Sheath Blight*	Bacterial Panicle Blight*	Cercospora*
	JD	EV	JD	JD	EV
GEMINI 210	0	0	3	1	1
XL753	0	1	4	1	0
XP766	0	0	3	1	1
XL760	0	1	3	1	1
CLXL745	0	2	3	1	1
CLXL729	0	1	4	1	2
LAH169	0	1	3	1	0
CLH161	0	1	3	1	1
CL151	2	1	5	3	4
09A/R608	0	0	2	1	0
CL111	0	5	5	5	4

*Disease ratings where 0 = most resistant, 9 = most susceptible.

Across all hybrids and varieties, high levels of leaf blast resistance were observed except for CL111 with a 5.0 rating in Evangeline Parish (Table 4). Good levels of resistance against sheath blight (2-4 ratings) were found for all hybrids, while varieties CL111 and CL151 both displayed moderate resistance/susceptibility with both rating 5.0. All hybrids and varieties produced high resistance against bacterial panicle blight except for CL111 with a rating of 5.0. A similar trend was observed for Cercospora where all tested material generated good resistance ratings except for CL111 and CL151 that showed moderate levels of resistance at 4.0.

Development of Provisia Parents and Experimental Hybrids

During the summer of 2016, a total of 171 F_4 and F_5 male-sterile lines derived from single crosses of Provisia and indica germplasm were selected for further evaluation and advancement. During this season, 24 Provisia male-sterile lines were crossed with 23 elite pollen parents in different combinations. A total of 95 Provisia experimental hybrids were produced and will be evaluated during the summer of 2017.

In addition, 140 F_3 and F_4 Provisia male-sterile lines derived from three-way crosses were selected during the summer of 2016. The objective of this effort was to develop Provisia male steriles with good adapted traits and acceptable cereal chemistry of long-grain U.S. varieties. During the fall of 2016, 14 F_4 Provisia male-sterile lines derived from the three-way crosses were crossed to 17 selected pollen parents in different combinations. A total of 50 Provisia experimental hybrids were produced that will be evaluated during the summer of 2017. These 50 hybrids were derived from male-sterile lines that were selected phenotypically in 2016 for plant type, male sterility, and amylose and gelatinization temperature profiles based on DNA markers. Therefore, we anticipate the derived hybrids to generate high yields and cereal chemistry similar to U.S. long-grain varieties. Finally, a total of 307 potential restorer and 162 maintainer lines were developed to facilitate the development of Provisia three-line hybrids.

Development of Sheath Blight-Resistant Lines

Rice sheath blight disease is a major constraint to high grain yields and good milling quality with no commercial inbred varieties showing high levels of resistance. The objective of our research is to develop sheath blight-resistant rice with desirable height and maturity from multiple sources by leveraging DNA marker technology with inoculated field trials at the HRCRRS. A total of 860 early generation and advanced lines were planted on April 25, 2016, and inoculated with sheath blight fungus, *Rhizoctonia solani.* Five long-grain selected lines were identified with moderately resistant sheath blight ratings of 4.0 to 5.0 vs. 7.0 to 8.0 for susceptible Cocodrie, CL111, and CL152 (Table 5). The selected lines were 4 to 12 days later and 0 to 5 inches taller than the two Clearfield varieties. Average grain yield of the five selected lines under inoculated conditions was 4,074 lb/A that was 24% higher than the mean yield of 3,084 lb/A for the three susceptible varieties. Additional trials in 2017 will evaluate the selected lines and checks under inoculated and disease-free conditions.

Table 5. Days to heading, height, sheath blight rating, and grain yield of five selected lines, two Clearfield, and one conventional variety inoculated with *R. solani*, H. Rouse Caffey Rice Research Station, 2016.

Line/Variety	Days to 50% Heading	Height (in)	Sheath Blight Rating (0-9)	Yield (lb/A)
16SB2089	89	41	4.6	4527
16SB1293	91	38	4.0	4181
16SB1616	89	40	4.0	4049
16SB383	85	40	4.5	3611
16SB2054	90	40	5.0	4000
Cocodrie	81	36	7.2	2151
CL111	79	40	8.0	3243
CL152	81	39	7.0	3858

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

H.S. Utomo and S.D. Linscombe

1. Yield Trials.

Preliminary Yield trials were conducted in replicated plots at the H. Rouse Caffey Rice Research Station, Crowley, LA. Selected advanced lines to evaluate from marker-assisted selections were evaluated for their yield potential, milling performance, and other agronomic traits in addition to marker-based selection for disease-resistant traits (Table 1).

Table 1. Performance of advanced marker-assisted breeding lines in the 2016 Preliminary Yield trials at the H. Rouse Caffey Rice Research Station, Crowley, LA.

Entry	Line ID	VIG[1]	HDT	HTE	YIELD	DNA Marker Analysis for Amylose Cont.	DNA Marker Analysis for Amylose ALK
16HUV 001	07MB244	4.8	96.5	100.3	8,891.4	High Amylose	High/Intermediate GT
16HUV 002	07MB122	4.0	96.5	109.2	7,913.3	High Amylose	High/Intermediate GT
16HUV 003	08MB200	4.2	90.6	102.7	8,820.2	High Amylose	High/Intermediate GT
16HUV 004	08MB303	4.6	98.1	111.7	8,267.7	High Amylose	High/Intermediate GT
16HUV 005	08MB211	4.0	95.7	101.1	9,500.2	High Amylose	High/Intermediate GT
16HUV 006	08MB493	4.2	99.2	99.5	10,001.3	High Amylose	High/Intermediate GT
16HUV 007	08MB673	4.5	91.4	100.1	7,081.2	High Amylose	High/Intermediate GT
16HUV 008	08MB441	4.2	93.9	99.4	8,025.6	High Amylose	High/Intermediate GT
16HUV 009	09MB908	4.2	93.4	103.0	7,304.1	High Amylose	High/Intermediate GT
16HUV 010	09MB055	4.4	94.2	98.2	8,973.5	High Amylose	High/Intermediate GT
16HUV 011	10MB172	5.5	98.3	99.9	7,052.0	High Amylose	High/Intermediate GT
16HUV 012	10MB906	5.0	97.2	96.3	9,736.3	High Amylose	High/Intermediate GT
16HUV 013	10MB248	4.2	84.1	85.4	9,026.3	High Amylose	High/Intermediate GT
16HUV 014	11MB082	4.1	91.9	89.4	7,463.4	High Amylose	High/Intermediate GT
16HUV 015	11MB117	4.2	91.2	83.2	9,465.0	High Amylose	High/Intermediate GT
16HUV 016	11MB083	4.4	96.3	89.1	7,693.9	High Amylose	High/Intermediate GT
16HUV 017	12MB476	3.9	82.4	100.6	7,156.5	High Amylose	High/Intermediate GT
16HUV 018	12MB274	4.5	97.8	99.1	8,657.3	High Amylose	High/Intermediate GT
16HUV 019	13MB198	4.1	91.2	91.7	7,213.8	High Amylose	High/Intermediate GT
16HUV 020	13MB091	4.8	94.8	94.9	8,906.5	High Amylose	High/Intermediate GT
16HUV 021	13MB267	4.0	98.1	91.2	8,507.4	High Amylose	High/Intermediate GT
16HUV 022	13MB375	4.2	96.3	98.2	9,402.8	High Amylose	High/Intermediate GT
16HUV 023	13MB674	4.2	97.6	103.7	8,956.1	High Amylose	High/Intermediate GT
16HUV 024	13MB462	4.1	92.1	94.4	9,059.2	High Amylose	High/Intermediate GT

[1] Subjective rating of seedling vigor 1 to 5, where 1 = poor, 5 = excellent.

2. Head-Row Selections.

Head-row trials were conducted to select for lines with high yielding potential, excellent growth characteristics, and good disease resistance. Performance of some selected lines is presented in Table 2. In addition, marker-assisted breeding efforts continue including introgression of important genes, such as drought-tolerant, cold-tolerant (at seedling stage), salt-tolerant, aroma (Jasmine), grain weight, and panicle blight-resistant genes from outside the U.S. genetic pool into adapted Louisiana cultivars and breeding lines. The resulting progeny lines were advanced through the breeding process.

Table 2. Agronomic performance of new selected lines from marker-assisted breeding in the 2016 field trials, H. Rouse Caffey Rice Research Station, Crowley, LA.

No.	Plant ID	Blast Genes	Grain Type[§]	Vigor[¶]	Plant Height (cm)	Heading Date	Row Yield (g)	Amylose Content	Gel Temp
1	12F456	Pi-ta^2,Pi-b	L	4.2	97.4	92.1	925	Int Am	Int Gel
2	12F477	Pi-ta^2,Pi-b	L	4.3	73.9	99.2	850	Int Am	Int Gel
3	12F501	Pi-ta^2,Pi-b	L	3.2	103.3	86.4	815	Int Am	Int Gel
4	12F674	Pi-ta^2,Pi-b	L	4.4	91.6	91.5	848	Int Am	Int Gel
5	12F780	Pi-ta^2,Pi-b	L	5.0	80.6	89.8	808	Int Am	Int Gel
6	13F103	Pi-ta^2,Pi-b	L	4.3	82.1	82.3	814	Int Am	Int Gel
7	13F167	Pi-ta^2,Pi-b	L	4.1	85.6	84.6	763	Int Am	Int Gel
8	13F188	Pi-ta^2,Pi-b	L	4.4	99.5	95.5	717	Int Am	Int Gel
9	13F189	Pi-ta^2,Pi-b	L	4.2	93.6	92.5	784	Int Am	Int Gel
10	13F201	Pi-ta^2,Pi-b	L	4.4	90.1	96.4	897	Int Am	Int Gel
11	13F234	Pi-ta^2,Pi-b	L	3.9	84.6	85.7	863	Int Am	Int Gel
12	13F236	Pi-ta^2,Pi-b	L	4.2	83.5	84.2	849	Int Am	Int Gel
13	13F239	Pi-ta^2,Pi-b	L	5.0	76.5	89.4	846	Int Am	Int Gel
14	13F259	Pi-ta^2,Pi-b	L	4.2	78.9	87.3	883	Int Am	Int Gel
15	13F255	Pi-ta^2,Pi-b	L	4.1	79.1	74.3	856	Int Am	Int Gel
16	13F274	Pi-ta^2,Pi-b	L	3.9	83.3	79.2	838	Int Am	Int Gel
17	13F286	Pi-ta^2,Pi-b	L	3.7	81.4	89.7	847	Int Am	Int Gel
18	13F289	Pi-ta^2,Pi-b	L	4.2	76.5	99.3	853	Int Am	Int Gel
19	13F298	Pi-ta^2,Pi-b	L	4.8	78.1	82.5	839	Int Am	Int Gel
20	13F299	Pi-ta^2,Pi-b	L	4.7	74.3	69.3	866	Int Am	Int Gel
21	13F300	Pi-ta^2,Pi-b	L	4.1	87.8	83.3	887	Int Am	Int Gel
22	13F310	Pi-ta^2,Pi-b	L	4.1	74.5	95.4	808	Int Am	Int Gel
23	13F311	Pi-ta^2,Pi-b	L	4.2	101.2	79.3	842	Int Am	Int Gel
24	13F313	Pi-ta^2,Pi-b	L	5.0	98.4	72.2	884	Int Am	Int Gel
25	13F325	Pi-ta^2,Pi-b	L	4.2	98.6	87.1	807	Int Am	Int Gel
26	13F346	Pi-ta^2,Pi-b	L	5.0	91.9	94.3	816	Int Am	Int Gel
27	13F358	Pi-ta^2,Pi-b	L	4.3	85.1	92.2	800	Int Am	Int Gel
28	13F355	Pi-ta^2,Pi-b	L	4.8	90.8	91.8	897	Int Am	Int Gel
29	13F357	Pi-ta^2,Pi-b	L	4.7	86.1	88.4	887	Int Am	Int Gel
30	13R359	Pi-ta^2,Pi-b	L	4.3	87.2	83.7	872	Int Am	Int Gel
31	13F259	Pi-ta^2,Pi-b	L	3.3	82.8	82.5	797	Int Am	Int Gel
32	13F363	Pi-ta^2,Pi-b	L	4.1	86.4	92.3	787	Int Am	Int Gel
33	13F365	Pi-ta^2,Pi-b	L	5.0	81.3	85.3	747	Int Am	Int Gel
34	13F388	Pi-ta^2,Pi-b	L	4.6	75.2	79.2	772	Int Am	Int Gel
35	13F398	Pi-ta^2,Pi-b	L	4.2	82.5	82.8	714	Int Am	Int Gel
36	13F399	Pi-ta^2,Pi-b	L	4.2	78.1	81.9	777	Int Am	Int Gel
37	13F449	Pi-ta^2,Pi-b	L	4.8	84.7	83.8	765	Int Am	Int Gel
38	13F457	Pi-ta^2,Pi-b	L	4.4	80.5	75.5	752	Int Am	Int Gel
39	13F458	Pi-ta^2,Pi-b	L	4.6	79.0	81.3	722	Int Am	Int Gel
40	13F459	Pi-ta^2,Pi-b	L	3.9	80.3	85.4	773	Int Am	Int Gel
41	13F474	Pi-ta^2,Pi-b	L	4.4	77.4	81.3	758	Int Am	Int Gel
42	13F477	Pi-ta^2,Pi-b	L	5.0	74.0	76.6	763	Int Am	Int Gel
43	13F479	Pi-ta^2,Pi-b	L	4.1	84.4	79.5	758	Int Am	Int Gel
44	13F571	Pi-ta^2,Pi-b	L	4.2	89.4	78.5	736	Int Am	Int Gel
45	13F599	Pi-ta^2,Pi-b	L	4.4	71.5	91.8	791	Int Am	Int Gel
46	13F621	Pi-ta^2,Pi-b	L	4.2	86.5	84.1	764	Int Am	Int Gel
47	13F672	Pi-ta^2,Pi-b	L	4.1	81.4	79.2	644	Int Am	Int Gel
48	13F788	Pi-ta^2,Pi-b	L	5.0	84.3	81.2	646	Int Am	Int Gel
49	13F799	Pi-ta^2,Pi-b	L	4.2	84.2	83.3	673	Int Am	Int Gel
50	13F872	Pi-ta^2,Pi-b	L	4.8	85.4	85.2	645	Int Am	Int Gel

[§]L= Long grain; [¶]Subjective rating of seedling vigor 1 to 5, where 1 = poor, 5 = excellent.

3. Selections to Improve Grain Quality.

Selection efforts are being carried out to improve consistency and homogeneity of grain size and appearance. In addition, selections were also conducted to reduce the percent of chalk among progeny lines. Selected lines (Table 3) will be advanced in the next growing season.

Table 3. 2016 Agronomic performance of lines selected for yield, grain homogeneity, and % chalk, H. Rouse Caffey Rice Research Station, Crowley, LA.

Lines	Grain Type[§]	Yield (row)	Grain Homogeneity[¶]	% Chalk	Amylose Content	Gel Temp	Blast
11R-094	L	902	8.1	8.1	High	Intermediate	Pita, Pib
11R-097	L	850	9.2	9.3	High	Intermediate	Pita, Pib
11R-123	L	712	8.6	7.9	High	Intermediate	Pib
11R-126	L	748	9.2	11.0	High	Intermediate	Pita
11R-136	L	604	8.5	5.5	High	Intermediate	Pita, Pib
11R-137	L	613	8.8	4.6	High	Intermediate	Pita
11R-147	L	765	9.9	4.6	High	Intermediate	Pita, Pib
11R-158	L	617	8.6	10.1	Intermediate	Low	Pita, Pi-z
11R-198	L	681	8.3	7.5	High	Intermediate	Pita, Pib
11R-189	L	781	9.8	5.5	High	Intermediate	Pita
12R-218	L	458	9.1	5.8	High	Intermediate	Pita
12R-201	L	599	8.2	1.0	High	Intermediate	Pib, Piz
12R-789	L	746	9.3	10.9	High	Intermediate	Pita, Pib
12R-799	L	683	9.2	3.8	High	Intermediate	Pita
12R-822	L	526	9.1	9.0	High	Intermediate	Pita
12R-856	L	717	9.2	5.7	High	Intermediate	Pita
12R-864	L	574	9.0	12.8	High	Intermediate	Pita, Pib
12R-865	L	624	8.3	8.8	Intermediate	Low	Pita, Pib
12R-868	L	704	8.9	4.4	High	Intermediate	Pita, Pib
12R-910	L	649	8.9	1.9	High	Intermediate	Pib, Piz
12R-929	L	561	9.1	11.0	High	Intermediate	Pita, Pib
12R-939	L	617	9.0	2.0	High	Intermediate	Pita
12R-952	L	530	9.5	9.7	High	Intermediate	Pita
12R-956	L	532	9.3	5.6	High	Intermediate	Pita
12R-964	L	591	9.9	9.0	High	Intermediate	Pita, Pib
12R-969	L	846	8.2	8.0	Intermediate	Low	Pita, Pib
12R-968	L	706	8.8	4	High	Intermediate	Pita, Pib
12R-1002	L	515	8.2	1.5	High	Intermediate	Pib, Piz
12R-1029	L	569	9.6	1.9	High	Intermediate	Pita, Pib
12R-1139	L	520	9.0	2.0	High	Intermediate	Pita
12R-1192	L	512	9.7	1.0	High	Intermediate	Pita
12R-1196	L	582	9.6	5.5	High	Intermediate	Pita
12R-1198	L	559	9.0	2.6	High	Intermediate	Pita, Pib
12R-1244	L	690	8.2	4.7	Intermediate	Low	Pita, Pib
12R-1268	L	708	8.2	4.5	High	Intermediate	Pita, Pib
12R-1298	L	528	9.5	2.5	High	Intermediate	Pita, Pib
12R-1039	L	565	9.1	2.6	High	Intermediate	Pita
12R-1092	L	562	9.5	9.2	High	Intermediate	Pita
12R-1256	L	692	9.4	5.3	High	Intermediate	Pita
12R-1295	L	594	9.2	3.2	High	Intermediate	Pita, Pib
12R-1391	L	582	9.0	2.3	High	Intermediate	Pita
12R-1921	L	521	9.1	1.5	High	Intermediate	Pita
12R-2561	L	717	9.4	5.4	High	Intermediate	Pita
12R-2864	L	675	9.0	10.0	High	Intermediate	Pita, Pib

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

4. DNA Analyses of High-Protein Rice Lines: Gene Sequencing of 12 New High-Protein Lines.

A total of 68 new high-protein lines have been developed. Specific DNA properties of these new lines are being evaluated. One of the evaluation focuses is sequencing two target genes, dihydrodipicolinate syntase (DHDPS) and amino acid transporter OsAAP6. Dihydrodipicolinate syntase (DHDPS) is the enzyme that catalyzes the first committed step in the lysine biosynthetic pathway, which involves the condensation reaction between (S)-aspartate β-semialdehyde ((S)-ASA) and its feedback inhibited by lysine. Because of its role in the lysine production pathway, manipulation of the properties of this key enzyme can lead to the accumulation and improvement of the amino acid compositions and increase the overall grain protein content. Amino acid transporters (AATs) mediate the transport of amino acids across cellular membranes in various processes of plant growth and development, including long distance amino acid transport, and provide responses to pathogens and abiotic stresses. Among the 85 AAT genes identified in the rice genome, OsAAP6 is of particular interest because of its probable role in accumulation of protein in the rice grain. It has been shown that the OsAAP6 gene functions as an important regulator of grain protein content (GPC) and nutritional quality in rice. It is encoded by the quantitative trait locus (QTL) qPC1. The rice qPC1 controls GPC as a positive regulator in the synthesis and accumulation of glutelins, prolamins, globulins, albumins, and starch.

Due to the important roles of the DHDPS and OsAAP6 genes in the grain protein accumulation, it is essential to obtain DNA sequence information of these two genes among the 12 new high-protein rice lines developed. Sequencing of the OsAAP6 gene is underway, while DNA sequence information for the DHDPS gene has been attained and reported below.

4.1. Sequencing Strategy for the Rice DHDPS Gene.

A set of primers designed to cover the entire DHDPS gene of 1,143 base pairs was used to produce RT-PCR products from 12 different high-protein rice lines. Initial attempts to use DHPDS-F1 and DHDPS-R2 primers to generate sequencing templates were only partially successful (RT-PCR products of expected size were produced only for the high-protein lines 8 and 10). A total of 8 sequencing reactions were performed to confirm it was indeed the DHDPS gene, but primer DHDPS-F1 was found to be a problem. Another set of primers was ordered, and the combination of DHDPS-F5 and DHDPS-R3 oligonucleotides was found to be optimal for RT-PCR amplification of the DHDPS gene intended for DNA sequencing. A total of 4 sequencing primers (F5, R1, F2, and F3) were used to generate the entire sequence of the DHDPS gene. A total of 48 more sequencing reactions were performed (12x4=48). Most of the RT-PCR products that appeared as a single band of the expected size on the agarose gel were purified directly from the RT-PCR mix by using Agencourt AMPure XP-PCR purification magnetic beads (Bechman Coulter #A63880), while some were cut from the gel and purified by using the Zymoclean Gel DNA Recovery Kit (Zymo Research #D4007) before sequencing on an ABI 3130 Genetic Analyzer. All sequencing files derived from each sample were assembled as 12 individual sequence contigs using Sequencer version 5.3 software.

Table 4. List of primers used for RT-PCR amplification of the DHDPS gene for DNA sequencing.

No.	Name of Primer	Sequence (5'-3')
1	DHDPS-F1	ATG GCG TCG CTG CTG ATC GCC
2	DHDPS-F2	CAA CAC AGG TAG TAA CTC AAC
3	DHDPS-F3	CTT ATT CCT GGT CTC ATG CAC
4	DHDPS-F4	ATG GCG TCG CTG CTG ATC GCC AGC
5	DHDPS-F5	ATG GCG TCG CTG CTG ATC GCC AGC ACG
6	DHDPS-Fs	ATG GCG TCG CTG CTG ATC
7	DHDPS-R1	GTT GAG TTA CTA CCT GTG TTG
8	DHDPS-R2	TTA GTA CCT ACT GAC CAA CAC
9	DHDPS-R3	TTA GTA CCT ACT GAC CAA CAC AAA ATC
10	DHDPS-R4	AGG ATT GAT ATG GAG AGC CGC

4.2. Sequencing Result of the Rice DHDPS Gene.

The sequence of mRNA and the complete coding sequence (cds) associated with the DHDPS gene of the *Oryza sativa* reference/control line, Japonica Group Os04g0254000, and the 12 high-protein lines are described below.

4.3. mRNA and Complete cds of the *Oryza sativa* Reference/Control Line. (1,143 base pairs).

```
atg gcg tcg ctg ctg atc gcc agc acg ggg ggc tgc cca ccg cct cgc        48
Met Ala Ser Leu Leu Ile Ala Ser Thr Gly Gly Cys Pro Pro Pro Arg
1               5                   10                  15
gtg gaa gga cgc cgc cgc cct ggg acc cgc tcc ggc ttg gcg cga cct        96
Val Glu Gly Arg Arg Arg Pro Gly Thr Arg Ser Gly Leu Ala Arg Pro
            20                  25                  30
tgg ccc gcc gcc gtg gct gca ccg gcg ccg ctg ctc agg att agc aga       144
Trp Pro Ala Ala Val Ala Ala Pro Ala Pro Leu Leu Arg Ile Ser Arg
        35                  40                  45
gga aag ttt gca ttg cag gcc atc acc ctt gat gat tat ctt cca atg       192
Gly Lys Phe Ala Leu Gln Ala Ile Thr Leu Asp Asp Tyr Leu Pro Met
    50                  55                  60
cga agt act gaa gtg aaa aat cgg aca tca aca gct gat atc act agt       240
Arg Ser Thr Glu Val Lys Asn Arg Thr Ser Thr Ala Asp Ile Thr Ser
65                  70                  75                  80
ctc aga gta att aca gcg gtc aaa acc cca tat ctg cct gat gga aga       288
Leu Arg Val Ile Thr Ala Val Lys Thr Pro Tyr Leu Pro Asp Gly Arg
                85                  90                  95
ttt gat ctc gaa gca tat gat tca ctg ata aat atg cag ata gat ggt       336
Phe Asp Leu Glu Ala Tyr Asp Ser Leu Ile Asn Met Gln Ile Asp Gly
            100                 105                 110
ggt gct gaa ggt gta ata gtt gga gga aca aca gga gag ggc cac ctt       384
Gly Ala Glu Gly Val Ile Val Gly Gly Thr Thr Gly Glu Gly His Leu
        115                 120                 125
atg agc tgg gat gaa cac atc atg ctt att gga cat act gtt aac tgc       432
Met Ser Trp Asp Glu His Ile Met Leu Ile Gly His Thr Val Asn Cys
    130                 135                 140
ttt ggt gct aaa gtt aaa gtg gta ggc aac aca ggt agt aac tca aca       480
Phe Gly Ala Lys Val Lys Val Val Gly Asn Thr Gly Ser Asn Ser Thr
145                 150                 155                 160
aga gag gct att cat gca aca gag cag gga ttt gct gta ggt atg cat       528
Arg Glu Ala Ile His Ala Thr Glu Gln Gly Phe Ala Val Gly Met His
                165                 170                 175
gcg gct ctc cat atc aat cct tac tat ggg aag acc tct atc gaa ggg       576
Ala Ala Leu His Ile Asn Pro Tyr Tyr Gly Lys Thr Ser Ile Glu Gly
            180                 185                 190
ttg ata tct cat ttt gag gct gtc ctc cca atg ggt cca acc att att       624
Leu Ile Ser His Phe Glu Ala Val Leu Pro Met Gly Pro Thr Ile Ile
        195                 200                 205
tac aat gtt cca tct agg act ggc cag gat att cct cct gca gtt att       672
Tyr Asn Val Pro Ser Arg Thr Gly Gln Asp Ile Pro Pro Ala Val Ile
    210                 215                 220
gag gct gtt tca agt ttc aca aac ttg gca ggt gtg aaa gaa tgt gtt       720
Glu Ala Val Ser Ser Phe Thr Asn Leu Ala Gly Val Lys Glu Cys Val
225                 230                 235                 240
gga cat gag agg gtt aag tgc tac act gac aaa ggt ata acc ata tgg       768
Gly His Glu Arg Val Lys Cys Tyr Thr Asp Lys Gly Ile Thr Ile Trp
                245                 250                 255
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agt ggt aat gat gat gaa tgc cat gat tct agg tgg aaa tat ggt gcc        816
Ser Gly Asn Asp Asp Glu Cys His Asp Ser Arg Trp Lys Tyr Gly Ala
            260                 265                 270
act gga gtt att tct gtg gct agc aac ctt att cct ggt ctc atg cac        864
Thr Gly Val Ile Ser Val Ala Ser Asn Leu Ile Pro Gly Leu Met His
        275                 280                 285
gat ctc atg tat gaa ggg gag aat aag acg cta aat gag aag ctc ttt        912
Asp Leu Met Tyr Glu Gly Glu Asn Lys Thr Leu Asn Glu Lys Leu Phe
    290                 295                 300
ccc ctg atg aaa tgg ttg ttt tgc cag cca aat cca att gct ctc aac        960
Pro Leu Met Lys Trp Leu Phe Cys Gln Pro Asn Pro Ile Ala Leu Asn
305                 310                 315                 320
act gcc ctg gct cag ctt gga gtg gta agg cct gtt ttc aga tta cca       1008
Thr Ala Leu Ala Gln Leu Gly Val Val Arg Pro Val Phe Arg Leu Pro
                325                 330                 335
tat gta cct ctt cct ctt gaa aag agg gta gag ttt gtc cga atc gtt       1056
Tyr Val Pro Leu Pro Leu Glu Lys Arg Val Glu Phe Val Arg Ile Val
            340                 345                 350
gaa tct att gga cgg gaa aac ttt gtg ggt gag aac gag gca cgg gtt       1104
Glu Ser Ile Gly Arg Glu Asn Phe Val Gly Glu Asn Glu Ala Arg Val
        355                 360                 365
ctt gac gac gat gat ttt gtg ttg gtc agt agg tac taa                   1143
Leu Asp Asp Asp Asp Phe Val Leu Val Ser Arg Tyr
    370                 375                 380
```

4.4. Sequence Comparison with the Japonica Reference (NCBI Reference Sequence: NM_001058857.1).

Comparison of the DHDPS gene sequence of the 12 high-protein rice lines with the reference *Oryza sativa* Japonica Group Os04g0254000 (Os04g0254000) mRNA and the complete cds (NCBI Reference Sequence: NM_001058857.1) showed the following results. The Japonica group DHDPS sequence has one nt (base T at position 34) deletion resulting in a frame shift for the next 17 amino acids. An extra base C after the original reference position 82, restores the reading frame back. All 12 samples have the same reading frame shifting deletion and the same extra base C insertion to restore the protein sequence downstream. They also have two more nt substitutions that do not result in any amino acid changes within the same genomic area (C at position 84 was found to be changed to G without an amino acid change, and T at position 85 was substituted for C also without an amino acid change). Additionally, all 12 samples have the same C to T substitution (the same as Japonica) at position 297 without an amino acid change, as well as two more nucleotide substitutions without changes in the protein sequence (A to G at position 948 and A to G at position 1008). They are, however, specific only for the 12 samples sequenced. The actual nucleotide differences between the new high-protein rice lines and Japonica group sequence are shown below in bold, highlighted capital letters (within the Japonica group sequence) or in bold, highlighted capital letters that are underlined (within the 12 high-protein rice samples sequence).

4.5. *Oryza sativa* Japonica Group Os04g0254000 (Os04g0254000) mRNA and the Complete cds (NCBI Reference Sequence: NM_001058857.1).

```
atg gcg tcg ctg ctg atc gcc agc acg ggg ggc GCC CAC CGC CTC GCG         48
Met Ala Ser Leu Leu Ile Ala Ser Thr Gly Gly Ala His Arg Leu Ala
1               5                   10                  15
TGG AAG GAC GCC GCC GCC CTG GGA CCC GCT CCG Cgc ttg gcg cga cct         96
Trp Lys Asp Ala Ala Ala Leu Gly Pro Ala Pro Arg Leu Ala Arg Pro
            20                  25                  30
```

```
tgg ccc gcc gcc gtg gct gca ccg gcg ccg ctg ctc agg att agc aga      144
Trp Pro Ala Ala Val Ala Ala Pro Ala Pro Leu Leu Arg Ile Ser Arg
        35                  40                  45
gga aag ttt gca ttg cag gcc atc acc ctt gat gat tat ctt cca atg      192
Gly Lys Phe Ala Leu Gln Ala Ile Thr Leu Asp Asp Tyr Leu Pro Met
    50                  55                  60
cga agt act gaa gtg aaa aat cgg aca tca aca gct gat atc act agt      240
Arg Ser Thr Glu Val Lys Asn Arg Thr Ser Thr Ala Asp Ile Thr Ser
65                  70                  75                  80
ctc aga gta att aca gcg gtc aaa acc cca tat ctg cct gat gga aga      288
Leu Arg Val Ile Thr Ala Val Lys Thr Pro Tyr Leu Pro Asp Gly Arg
                85                  90                  95
ttt gat ctT gaa gca tat gat tca ctg ata aat atg cag ata gat ggt      336
Phe Asp Leu Glu Ala Tyr Asp Ser Leu Ile Asn Met Gln Ile Asp Gly
            100                 105                 110
ggt gct gaa ggt gta ata gtt gga gga aca aca gga gag ggc cac ctt      384
Gly Ala Glu Gly Val Ile Val Gly Gly Thr Thr Gly Glu Gly His Leu
        115                 120                 125
atg agc tgg gat gaa cac atc atg ctt att gga cat act gtt aac tgc      432
Met Ser Trp Asp Glu His Ile Met Leu Ile Gly His Thr Val Asn Cys
    130                 135                 140
ttt ggt gct aaa gtt aaa gtg gta ggc aac aca ggt agt aac tca aca      480
Phe Gly Ala Lys Val Lys Val Val Gly Asn Thr Gly Ser Asn Ser Thr
145                 150                 155                 160
aga gag gct att cat gca aca gag cag gga ttt gct gta ggt atg cat      528
Arg Glu Ala Ile His Ala Thr Glu Gln Gly Phe Ala Val Gly Met His
                165                 170                 175
gcg gct ctc cat atc aat cct tac tat ggg aag acc tct atc gaa ggg      576
Ala Ala Leu His Ile Asn Pro Tyr Tyr Gly Lys Thr Ser Ile Glu Gly
            180                 185                 190
ttg ata tct cat ttt gag gct gtc ctc cca atg ggt cca acc att att      624
Leu Ile Ser His Phe Glu Ala Val Leu Pro Met Gly Pro Thr Ile Ile
        195                 200                 205
tac aat gtt cca tct agg act ggc cag gat att cct cct gca gtt att      672
Tyr Asn Val Pro Ser Arg Thr Gly Gln Asp Ile Pro Pro Ala Val Ile
    210                 215                 220
gag gct gtt tca agt ttc aca aac ttg gca ggt gtg aaa gaa tgt gtt      720
Glu Ala Val Ser Ser Phe Thr Asn Leu Ala Gly Val Lys Glu Cys Val
225                 230                 235                 240
gga cat gag agg gtt aag tgc tac act gac aaa ggt ata acc ata tgg      768
Gly His Glu Arg Val Lys Cys Tyr Thr Asp Lys Gly Ile Thr Ile Trp
                245                 250                 255
agt ggt aat gat gat gaa tgc cat gat tct agg tgg aaa tat ggt gcc      816
Ser Gly Asn Asp Asp Glu Cys His Asp Ser Arg Trp Lys Tyr Gly Ala
            260                 265                 270
act gga gtt att tct gtg gct agc aac ctt att cct ggt ctc atg cac      864
Thr Gly Val Ile Ser Val Ala Ser Asn Leu Ile Pro Gly Leu Met His
        275                 280                 285
gat ctc atg tat gaa ggg gag aat aag acg cta aat gag aag ctc ttt      912
Asp Leu Met Tyr Glu Gly Glu Asn Lys Thr Leu Asn Glu Lys Leu Phe
    290                 295                 300
ccc ctg atg aaa tgg ttg ttt tgc cag cca aat cca att gct ctc aac      960
Pro Leu Met Lys Trp Leu Phe Cys Gln Pro Asn Pro Ile Ala Leu Asn
305                 310                 315                 320
```

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act gcc ctg gct cag ctt gga gtg gta agg cct gtt ttc aga tta cca     1008
Thr Ala Leu Ala Gln Leu Gly Val Val Arg Pro Val Phe Arg Leu Pro
                325                 330                 335
tat gta cct ctt cct ctt gaa aag agg gta gag ttt gtc cga atc gtt     1056
Tyr Val Pro Leu Pro Leu Glu Lys Arg Val Glu Phe Val Arg Ile Val
            340                 345                 350
gaa tct att gga cgg gaa aac ttt gtg ggt gag aac gag gca cgg gtt     1104
Glu Ser Ile Gly Arg Glu Asn Phe Val Gly Glu Asn Glu Ala Arg Val
        355                 360                 365
ctt gac gac gat gat ttt gtg ttg gtc agt agg tac taa                 1143
Leu Asp Asp Asp Asp Phe Val Leu Val Ser Arg Tyr
    370                 375                 380
```

4.6. High-Protein mRNA and Complete cds (12 Lines).

```
atg gcg tcg ctg ctg atc gcc agc acg ggg ggc GCC CAC CGC CTC GCG       48
Met Ala Ser Leu Leu Ile Ala Ser Thr Gly Gly Ala His Arg Leu Ala
1               5                   10                  15
TGG AAG GAC GCC GCC GCC CTG GGA CCC GCT CCG CGG Ctg gcg cga cct       96
Trp Lys Asp Ala Ala Ala Leu Gly Pro Ala Pro Arg Leu Ala Arg Pro
            20                  25                  30
tgg ccc gcc gcc gtg gct gca ccg gcg ccg ctg ctc agg att agc aga      144
Trp Pro Ala Ala Val Ala Ala Pro Ala Pro Leu Leu Arg Ile Ser Arg
        35                  40                  45
gga aag ttt gca ttg cag gcc atc acc ctt gat gat tat ctt cca atg      192
Gly Lys Phe Ala Leu Gln Ala Ile Thr Leu Asp Asp Tyr Leu Pro Met
    50                  55                  60
cga agt act gaa gtg aaa aat cgg aca tca aca gct gat atc act agt      240
Arg Ser Thr Glu Val Lys Asn Arg Thr Ser Thr Ala Asp Ile Thr Ser
65                  70                  75                  80
ctc aga gta att aca gcg gtc aaa acc cca tat ctg cct gat gga aga      288
Leu Arg Val Ile Thr Ala Val Lys Thr Pro Tyr Leu Pro Asp Gly Arg
                85                  90                  95
ttt gat ctT gaa gca tat gat tca ctg ata aat atg cag ata gat ggt      336
Phe Asp Leu Glu Ala Tyr Asp Ser Leu Ile Asn Met Gln Ile Asp Gly
            100                 105                 110
ggt gct gaa ggt gta ata gtt gga gga aca aca gga gag ggc cac ctt      384
Gly Ala Glu Gly Val Ile Val Gly Gly Thr Thr Gly Glu Gly His Leu
        115                 120                 125
atg agc tgg gat gaa cac atc atg ctt att gga cat act gtt aac tgc      432
Met Ser Trp Asp Glu His Ile Met Leu Ile Gly His Thr Val Asn Cys
    130                 135                 140
ttt ggt gct aaa gtt aaa gtg gta ggc aac aca ggt agt aac tca aca      480
Phe Gly Ala Lys Val Lys Val Val Gly Asn Thr Gly Ser Asn Ser Thr
145                 150                 155                 160
aga gag gct att cat gca aca gag cag gga ttt gct gta ggt atg cat      528
Arg Glu Ala Ile His Ala Thr Glu Gln Gly Phe Ala Val Gly Met His
                165                 170                 175
gcg gct ctc cat atc aat cct tac tat ggg aag acc tct atc gaa ggg      576
Ala Ala Leu His Ile Asn Pro Tyr Tyr Gly Lys Thr Ser Ile Glu Gly
            180                 185                 190
ttg ata tct cat ttt gag gct gtc ctc cca atg ggt cca acc att att      624
Leu Ile Ser His Phe Glu Ala Val Leu Pro Met Gly Pro Thr Ile Ile
        195                 200                 205
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tac aat gtt cca tct agg act ggc cag gat att cct cct gca gtt att       672
Tyr Asn Val Pro Ser Arg Thr Gly Gln Asp Ile Pro Pro Ala Val Ile
    210                 215                 220
gag gct gtt tca agt ttc aca aac ttg gca ggt gtg aaa gaa tgt gtt       720
Glu Ala Val Ser Ser Phe Thr Asn Leu Ala Gly Val Lys Glu Cys Val
225                 230                 235                 240
gga cat gag agg gtt aag tgc tac act gac aaa ggt ata acc ata tgg       768
Gly His Glu Arg Val Lys Cys Tyr Thr Asp Lys Gly Ile Thr Ile Trp
                245                 250                 255
agt ggt aat gat gat gaa tgc cat gat tct agg tgg aaa tat ggt gcc       816
Ser Gly Asn Asp Asp Glu Cys His Asp Ser Arg Trp Lys Tyr Gly Ala
            260                 265                 270
act gga gtt att tct gtg gct agc aac ctt att cct ggt ctc atg cac       864
Thr Gly Val Ile Ser Val Ala Ser Asn Leu Ile Pro Gly Leu Met His
        275                 280                 285
gat ctc atg tat gaa ggg gag aat aag acg cta aat gag aag ctc ttt       912
Asp Leu Met Tyr Glu Gly Glu Asn Lys Thr Leu Asn Glu Lys Leu Phe
    290                 295                 300
ccc ctg atg aaa tgg ttg ttt tgc cag cca aat ccG att gct ctc aac       960
Pro Leu Met Lys Trp Leu Phe Cys Gln Pro Asn Pro Ile Ala Leu Asn
305                 310                 315                 320
act gcc ctg gct cag ctt gga gtg gta agg cct gtt ttc aga tta ccG      1008
Thr Ala Leu Ala Gln Leu Gly Val Val Arg Pro Val Phe Arg Leu Pro
                325                 330                 335
tat gta cct ctt cct ctt gaa aag agg gta gag ttt gtc cga atc gtt      1056
Tyr Val Pro Leu Pro Leu Glu Lys Arg Val Glu Phe Val Arg Ile Val
            340                 345                 350
gaa tct att gga cgg gaa aac ttt gtg ggt gag aac gag gca cgg gtt      1104
Glu Ser Ile Gly Arg Glu Asn Phe Val Gly Glu Asn Glu Ala Arg Val
        355                 360                 365
ctt gac gac gat gat ttt gtg ttg gtc agt agg tac taa                  1143
Leu Asp Asp Asp Asp Phe Val Leu Val Ser Arg Tyr
    370                 375                 380
```

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

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

1. Preliminary Yield (PY) Trials.

New advanced high-protein lines selected primarily for high protein content and yield potential were evaluated in the PY trials for their agronomic performance in the field at the H. Rouse Caffey Rice Research Station, near Crowley, LA. Important phenotypic data including grain yield (main crop) were collected. Table 1 is the summary of the mean performance of the new advanced high-protein rice lines together with three conventional cultivar checks that were evaluated. The protein content of each line tested was measured using the N Combustion Analyzer with the sample digestion temperature of 850 to 1,200°C.

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

Entry	Pedigree	VIG	HDT	HTE	Yield (lb/A)	Protein Content (%, w/w)
15IDE 001	10P200115	4.5	84.3	37.5	8152.5	12.14
15IDE 002	10P200176	4.1	83.5	38.3	7631.0	11.94
15IDE 003	10P200573	3.9	85.3	40.4	7960.5	12.40
15IDE 004	10P210027	4.1	86.3	38.6	8073.1	13.36
15IDE 005	10P212009	4.5	84.4	37.4	8882.4	12.02
15IDE 006	11P300098	4.0	85.8	37.5	7688.7	11.60
15IDE 007	11P300099	4.2	87.5	36.4	7577.1	11.23
15IDE 008	11P300178	4.3	89.8	38.5	6960.2	13.80
15IDE 009	11P300199	4.4	84.5	39.4	6076.1	13.09
15IDE 0010	11P300317	4.0	86.5	39.2	7681.2	12.03
15IDE 006	CPRS	4.4	83.4	41.2	8255.1	7.29
15IDE 007	CCDR	4.6	84.1	37.1	8621.6	7.43
15IDE 008	FRNS	5.0	83.5	38.9	8803.2	7.78

2. Grain Quality of High-Protein Rice Lines.

Milling quality, percent chalk, grain appearance, grain shape, and homogeneity of the grain size and dimension are important components of rice grain quality. Because of the importance of the grain quality components in the market, advanced promising high-protein rice lines were evaluated for their grain quality as well as their cooking quality (Tables 2 and 3).

Table 2. Grain quality index among advanced promising high-protein rice lines.

Entry	Pedigree	Whole	Total	Grain Shape Homogeneity	% Chalk	Gel Temp	Amylose Content
15IDV 001	10P200115	65.3	70.3	8.7	5	Intermediate-high	23.90
15IDV 002	10P200573	64.2	71.2	9.0	7	Intermediate-high	24.12
15IDV 003	10P210027	63.2	72.1	9.3	11	Intermediate-high	23.03
15IDV 004	11P300178	59.8	69.6	9.5	8	Intermediate-high	22.45
15IDV 005	11P300199	62.1	68.7	8.9	10	Intermediate-high	23.45
15IDV 006	06P200055	62.2	71.2	8.6	7	Intermediate-high	24.70
15IDV 007	06P200497	63.2	71.1	8.4	5	Intermediate	20.87
15IDV 008	07P201570	58.1	66.3	8.0	9	Intermediate-high	23.52
15IDV 009	08P210027	59.6	68.9	8.2	8	Intermediate	20.09
15IDV 010	09P212009	59.3	68.9	9.3	12	Intermediate-high	20.13
15IDV 011	CPRS	65.2	71.5	8.0	10	Intermediate-high	21.02
15IDV 012	CCDR	61.4	70.2	8.1	9	Intermediate-high	24.29

Table 3. Alkali rating to estimate the gelling temperature of high-protein rice lines compared with the medium-grain Bengal and long grains Chenier, Cypress, HDLG, and Dixiebelle.

Cell	Sample #	Seed # (Alkali Ratings)*						Average	Gel Temp†
		1	2	3	4	5	6		
A1	BNGL	6	6	6	6	6	6	6.0	Low
A2	CHNR	4	3	3	4	3	3	3.3	Intermediate-high
A3	HDLG	2	2	2	2	2	2	2.0	High
A4	DXBL	3	3	3	3	3	3	3.0	Intermediate-high
A5	CPRS	3	4	4	4	4	3	3.7	Intermediate-high
B1	15-ID-24	6	5	5	7	5	7	5.8	Low
B2	15-ID-87	3	4	3	3	3	2	3.0	Intermediate-high
B3	15-ID-89	6	6	5	5	7	7	6.0	Low
B4	14-IL-HP-01	6	5	5	7	5	7	5.8	Low
B5	14-IL-HP-01	5	1	5	7	7	7	5.3	Low
B6	14-ID-005	3	3	3	3	3	3	3.0	Intermediate-high
B7	14-ID-006	3	3	3	3	3	3	3.0	Intermediate-high

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

† The gelatinization temperature of starch was estimated based on spreading value and determined as Low (6-7); Intermediate (4-5); Intermediate-high (3); and High (1-2).

3. Second Year Replicated Head-Row Trials to Determine the Performance of Selected High-Protein Rice Lines, H. Caffey Rice Research Station, Crowley, LA.

Prior to PY Trials, promising lines were tested in replicated head-row trials to determine their yield potential and other important traits. Data collected from these tests were used to select lines that will be advanced to PY Trials in a bigger plot size. The data listed below in Table 4 shows the results of the second year replicated head-row trials of these promising lines.

Table 4. Performance of 100 high-protein lines in the second year replicated head-row trials at the H. Rouse Caffey Rice Research Station, near Crowley, LA.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
1	11R-5115pan3	0.121	1.68	10.5	**16**	11R5197pan1	0.111	1.77	11.1
2	11R5202pan1	0.110	1.72	10.8	**17**	11R5218pan13	0.112	1.73	10.8
3	11R5242pan6	0.110	1.65	10.3	**18**	11R5218pan6	0.116	1.56	9.8
4	11R-5621-PAN3	0.103	1.67	10.4	**19**	11R5222pan6	0.113	1.34	8.4
5	11R-5022pan2	0.110	1.66	10.4	**20**	11R5568pan1	0.108	1.65	10.3
6	11R5070pan1	0.110	1.69	10.6	**21**	11R-5619-PAN3	0.113	1.76	11.0
7	11R-5113pan1	0.106	1.51	9.4	**22**	11R5084pan8	0.108	1.78	11.1
8	11R-5162-PAN6	0.120	1.59	9.9	**23**	11R-5188-PAN7	0.101	1.72	10.8
9	11R5183pan9	0.110	1.77	11.1	**24**	11R5198pan4	0.113	1.54	9.6
10	11R5193pan4	0.113	1.65	10.3	**25**	11R5243pan7	0.113	1.67	10.4
11	11R5196pan3	0.103	1.54	9.6	**26**	11R5245pan11	0.115	1.55	9.7
12	11R5551pan13	0.111	1.45	9.1	**27**	11R5249pan5	0.115	1.89	11.8
13	11R-5024pan5	0.113	1.8	11.3	**28**	11R5603pan11	0.118	1.67	10.4
14	11R5088pan3	0.100	1.67	10.4	**29**	11R5614pan2	0.114	1.72	10.8
15	11R5195pan5	0.107	1.76	11.0	**30**	11R5616pan3	0.100	1.73	10.8

Continued.

Table 4. Continued.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
31	11R5638pan14	0.102	1.74	10.9	**66**	11R-5637-PAN1	0.189	1.8	11.3
32	11R5264pan1	0.110	1.7	10.6	**67**	11R5213pan2	0.109	1.86	11.6
33	11R-5326pan3	0.108	1.71	10.7	**68**	11R5296pan10	0.111	1.89	11.8
34	11R5641pan7	0.100	1.54	9.6	**69**	11R-5408pan4	0.106	1.9	11.9
35	11R5237pan7	0.109	1.64	10.3	**70**	11R-5623-PAN1	0.110	1.81	11.3
36	11R-5026pan7	0.111	1.59	9.9	**71**	11R5087pan2	0.125	1.83	11.4
37	11R5202pan3	0.100	1.45	9.1	**72**	11R-5161-PAN1	0.110	1.82	11.4
38	11R5506pan7	0.112	1.79	11.2	**73**	11R5180pan1	0.121	1.82	11.4
39	11R5638pan13	0.110	6.25	11.0	**74**	11R5298pan3	0.122	1.84	11.5
40	11R-5009pan5	0.111	6.25	11.1	**75**	11R5298pan1	0.110	1.87	11.7
41	11R-5403pan2	0.103	6.25	10.4	**76**	11R-5442pan3	0.100	1.67	10.4
42	11R-5609-PAN2	0.109	6.25	9.8	**77**	11R5218pan11	0.113	1.76	11.0
43	11R5611pan3	0.114	6.25	11.1	**78**	11R-5434pan2	0.115	1.65	10.3
44	11R5203pan2	0.123	6.25	11.3	**79**	11R5558pan1	0.120	1.88	11.8
45	11R5242pan5	0.133	6.25	11.0	**80**	11R5577pan1	0.111	1.78	11.1
46	11R5243pan16	0.125	6.25	11.4	**81**	11R-5021pan4	0.110	1.88	11.8
47	11R5296pan6	0.103	6.25	11.4	**82**	11R5183pan7	0.109	1.88	11.8
48	11R-5328pan1	0.110	6.25	10.3	**83**	11R5245pan12	0.095	1.99	12.4
49	11R-5444pan3	0.100	6.25	10.3	**84**	11R5222pan9	0.090	1.93	12.1
50	11R5566pan7	0.110	6.25	10.6	**85**	11R5203pan12	0.092	1.9	11.9
51	11R-5170	0.117	1.77	11.1	**86**	11R-5043pan7	0.110	1.92	12.0
52	11R5210pan6	0.119	1.7	10.6	**87**	11R5177pan10	0.100	1.92	12.0
53	11R5242pan9	0.118	1.82	11.4	**88**	11R5574pan2	0.109	1.92	12.0
54	11R-5427pan3	0.104	1.76	11.0	**89**	11R5069pan2	0.100	1.78	11.1
55	11R5571pan3	0.167	1.76	11.0	**90**	11R5181pan8	0.124	1.67	10.4
56	11R5182pan4	0.126	1.78	11.1	**91**	11R-5200-PAN9	0.117	1.64	10.3
57	11R5296pan7	0.116	1.7	10.6	**92**	11R5211pan10	0.128	1.9	11.9
58	11R5554pan1	0.117	1.79	11.2	**93**	11R5212pan1	0.124	1.94	12.1
59	11R-5135pan3	0.117	1.78	11.1	**94**	11R5232pan5	0.080	2	12.5
60	11R5577pan3	0.120	1.8	11.3	**95**	11R5554pan2	0.122	1.99	12.4
61	11R5151pan7	0.094	1.83	11.4	**96**	11R5069pan10	0.120	2.1	13.1
62	11R5202pan6	0.091	1.84	11.5	**97**	11R5062pan1	0.122	2.02	12.6
63	11R5298pan2	0.109	1.67	10.4	**98**	11R-5417pan2	0.089	2.1	13.1
64	11R-5548pan2	0.099	1.87	11.7	**99**	11R5571pan2	0.110	2.2	13.8
65	11R5581pan4	0.120	1.8	11.3	**100**	11R5193pan3	0.120	1.77	11.1

4. New High-Protein Rice Lines.

Mutational experiments continue to generate new lines. Last year, additional tests were carried out for the 128 promising lines previously selected from 1,100 newly developed high-protein lines (Table 5). In addition to high protein content, selections were emphasized also on grain quality aspects. The ten most promising lines that have stable protein content will be advanced to the replicated head-row and PY trials in the next growing season.

Table 5. Grain crude protein content (GCPC) of newly developed rice lines. The GCPC was determined using the N Combustion Analyzer through high temperature digestion of samples at 850 to 1,200°C.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
1	11R-5009pan5	0.12	1.65	10.3	**37**	11R-5162-PAN6	0.12	1.77	11.1
2	11R-5021pan4	0.10	1.87	11.7	**38**	11R-5170	0.14	1.67	10.4
3	11R-5022pan2	0.11	1.79	11.2	**39**	11R5177pan10	0.13	1.86	11.6
4	11R-5024pan5	0.11	1.67	10.4	**40**	11R5180pan1	0.11	1.72	10.8
5	11R-5026pan7	0.13	1.76	11.0	**41**	11R5181pan8	0.12	1.87	11.7
6	11R-5043pan7	0.14	1.88	11.8	**42**	11R5182pan4	0.09	1.99	12.4
7	11R5061pan2	0.12	1.76	11.0	**43**	11R5183pan7	0.12	1.98	12.4
8	11R5062pan1	0.11	1.78	11.1	**44**	11R5183pan9	0.10	2.10	13.1
9	11R5068pan4	0.12	2.46	15.4	**45**	11R-5188-PAN7	0.12	1.67	10.4
10	11R5068pan5	0.10	2.11	13.2	**46**	11R5193pan3	0.10	2.30	14.4
11	11R5068pan7	0.09	2.34	14.6	**47**	11R5193pan4	0.12	1.54	9.6
12	11R5069pan10	0.12	2.40	15.0	**48**	11R5195pan5	0.10	1.76	11.0
13	11R5069pan2	0.10	2.10	13.1	**49**	11R5196pan3	0.12	1.64	10.3
14	11R5070pan1	0.13	1.56	9.80	**50**	11R5197pan1	0.12	1.75	10.9
15	11R5073pan3	0.09	1.45	9.1	**51**	11R5198pan4	0.15	1.87	11.7
16	11R5073pan4	0.09	1.76	11.0	**52**	11R-5200-PAN9	0.14	1.56	9.8
17	11R5073pan5	0.09	2.20	13.8	**53**	11R5202pan1	0.12	1.32	8.3
18	11R5081pan5	0.12	2.10	13.1	**54**	11R5202pan3	0.13	1.65	10.3
19	11R5081pan6	0.11	2.30	14.4	**55**	11R5202pan6	0.11	1.98	12.4
20	11R5084pan8	0.13	1.71	10.7	**56**	11R5203pan12	0.09	1.90	11.9
21	11R5087pan2	0.12	1.82	11.4	**57**	11R5203pan2	0.12	1.56	9.8
22	11R5088pan3	0.18	1.70	10.6	**58**	11R5210pan6	0.13	1.87	11.7
23	11R5093pan3	0.12	2.22	13.9	**59**	11R5211pan10	0.13	1.89	11.8
24	11R5093pan7	0.09	2.12	13.3	**60**	11R5212pan1	0.12	1.9	11.9
25	11R5094pan3	0.10	2.08	13.0	**61**	11R5213pan2	0.11	1.76	11.0
26	11R5094pan7	0.11	2.29	14.3	**62**	11R5218pan11	0.12	1.65	10.3
27	11R5098pan10	0.10	2.23	13.9	**63**	11R5218pan13	0.11	1.87	11.7
27	11R5098pan9	0.09	2.10	13.1	**64**	11R5218pan6	0.11	1.35	8.4
29	11R-5109pan2	0.10	3.20	20.0	**65**	11R5222pan6	0.11	1.85	11.6
30	11R-5113pan1	0.10	1.69	10.6	**66**	11R5222pan9	0.10	1.89	11.8
31	11R-5115pan3	0.11	1.68	10.5	**67**	11R5229pan15	0.09	2.10	13.1
32	11R-5130pan2	0.09	2.42	15.1	**68**	11R5231pan12	0.11	2.00	12.5
33	11R-5135pan3	0.13	1.54	9.6	**69**	11R5231pan2	0.09	2.43	15.2
34	11R5151pan7	0.09	1.76	11.0	**70**	11R5231pan5	0.10	2.00	12.5
35	11R-5158-PAN5	0.14	1.34	8.4	**71**	11R5232pan11	0.07	2.10	13.1
36	11R-5161-PAN1	0.12	1.34	8.4	**72**	11R5232pan5	0.09	2.40	15.0

Continued.

Table 5. Continued.

No.	Genotype	Mass	N-Cont.	Crude Protein Content	No.	Genotype	Mass	N-Cont.	Crude Protein Content
73	11R5232pan9	0.09	2.33	14.6	**101**	11R5514pan12	0.09	2.23	13.9
74	11R5237pan7	0.10	1.65	10.3	**102**	11R-5536pan1	0.09	2.02	12.6
75	11R5242pan5	0.13	1.76	11.0	**103**	11R-5548pan2	0.09	2.30	14.4
76	11R5242pan6	0.11	1.68	10.5	**104**	11R5551pan13	0.11	1.54	9.6
77	11R5242pan9	0.13	1.90	11.9	**105**	11R5554pan1	0.14	1.65	10.3
78	11R5243pan16	0.11	1.93	12.1	**106**	11R5554pan2	0.12	1.87	11.7
79	11R5243pan7	0.12	1.65	10.3	**107**	11R5558pan1	0.12	1.78	11.1
80	11R5245pan11	0.12	1.32	8.3	**108**	11R5566pan7	0.11	1.89	11.8
81	11R5245pan12	0.10	1.45	9.1	**109**	11R5568pan1	0.13	1.76	11.0
82	11R5249pan5	0.12	1.87	11.7	**110**	11R5571pan2	0.12	2.30	14.4
83	11R5264pan1	0.14	1.65	10.3	**111**	11R5571pan3	0.10	1.43	8.9
84	11R5296pan10	0.13	1.90	11.9	**112**	11R5574pan2	0.14	1.88	11.8
85	11R5296pan6	0.12	1.98	12.4	**113**	11R5577pan1	0.12	1.90	11.9
86	11R5296pan7	0.13	1.87	11.7	**114**	11R5577pan3	0.11	1.89	11.8
87	11R5298pan1	0.12	1.90	11.9	**115**	11R5581pan4	0.13	1.78	11.1
88	11R5298pan2	0.12	1.85	11.6	**116**	11R5603pan11	0.13	1.50	9.4
89	11R5298pan3	0.12	1.76	11.0	**117**	11R-5609-PAN2	0.13	1.70	10.6
90	11R-5326pan3	0.14	1.76	11.0	**118**	11R5611pan3	0.12	1.40	8.8
91	11R-5328pan1	0.13	1.56	9.8	**119**	11R5613pan10	0.12	2.00	12.5
92	11R-5403pan2	0.12	1.89	11.8	**120**	11R5614pan2	0.14	1.78	11.1
93	11R-5408pan4	0.10	1.90	11.9	**121**	11R5616pan3	0.11	1.76	11.0
94	11R-5417pan2	0.09	2.10	13.1	**122**	11R-5619-PAN3	0.12	1.76	11.0
95	11R-5427pan3	0.11	1.89	11.8	**123**	11R-5621-PAN3	0.13	1.54	9.6
96	11R-5434pan2	0.13	1.87	11.7	**124**	11R-5623-PAN1	0.12	1.82	11.4
97	11R-5436pan3	0.09	2.20	13.8	**125**	11R-5637-PAN1	0.12	1.76	11.0
98	11R-5442pan3	0.10	1.98	12.4	**126**	11R5638pan13	0.15	1.56	9.8
99	11R-5444pan3	0.10	1.40	8.8	**127**	11R5638pan14	0.12	1.54	9.6
100	11R5506pan7	0.12	2.03	12.7	**128**	11R5641pan7	0.13	1.87	11.7

5. Development of Glyphosate (Roundup) Herbicide-Resistant Rice.

Herbicide-resistant lines are being developed using a new class of herbicide (glyphosate or Roundup). Glyphosate [N-(phosphonomethyl) glycine)] is a broad-spectrum systemic herbicide. It is an organophosphorus compound, specifically a phosphonate, used to kill weeds, including annual broadleaf weeds and grasses that compete with crops. With this new type of herbicide-resistant rice, weeds, including red rice and red rice that acquired resistance to either NewPath or ACCase herbicide, can be eradicated rapidly from the rice production system. The availability of glyphosate-resistant rice is important to help maintain an effective weed control technology in the rice production system.

During last year's planting season, herbicide screening was conducted using seedlings of M_2 rice mutants sprayed with glyphosate at the rate of 0.75X, followed by 1.5X in a three-week interval. Two weeks after spraying, the field was inspected for any survivors. Fourteen surviving plants were identified and brought to the greenhouse to allow them to produce seeds that are being used for further tests. If the herbicide resistance characteristic is confirmed, inheritance of the herbicide resistance will be determined among these lines. To identify more surviving plants, the same screening technique will be applied on the remaining M_2 seeds.

RICE AGRONOMY

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

INTRODUCTION

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

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

Lounsberry Farm – Vermilion Parish
Charlie Fontenot – St. Landry Parish
John Owen and Tony Amos– Franklin Parish
Woodsland Plantation and Ashley Dixon – Richland Parish
Vic Jordan – Morehouse Parish
LaHaye Farm – Evangeline Parish

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

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

Abbreviation	Explanation
A	Acre
ANOVA	Analysis of variance
bu/A	Bushels per acre
Ca	Calcium
COC	Crop oil concentrate
DAT	Days after treatment
DPF	Days pre-flood
DPP	Days prior to planting
Fe	Iron
ft	Feet
ft^2	Square feet
gal/A	Gallons product per acre
Head Rice	Percent unbroken kernels left after milling
in	Inches
lb	Pounds
lb/A	Pounds product per acre
lb ai/A	Pounds active ingredient per acre
Ldg-Rate	Lodging rate in percent
Ldg-Type	Lodging type on a scale from 0 to 5; where 0 = no lodging, 1 = slightly lodged (approximately 1 - 23^o angle) and 5 = lodged to ground (90^o angle)
K	Potassium
Main	First rice crop; crop growth stage prior to first harvest
Mg	Magnesium
Mn	Manganese
Mo	Molybdenum
N	Nitrogen
Na	Sodium
NA	Information not available/applicable
NUE	Nitrogen use efficiency
oz/A	Ounces product per acre
P	Phosphorus
PD	Panicle differentiation
PI	Panicle initiation
pl/m^2	Plant densities measured 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
Pre-flood	Pre-flood 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; crop growth after harvest of first (main) crop
HRCRRS	H. Rouse Caffey Rice Research Station, Crowley, LA
RGY	Relative grain yield
S	Sulfur
SB Severity	Sheath blight infestation on a scale from 1 to 9; where 1 = no sheath blight and 9 = severe sheath blight infestation
Total Mill	Percent of rice kernels left after milling
Zn	Zinc
10% Heading(HD)	Crop growth stage where 10% of plants within a plot have visible panicles
50% Heading(HD)	Number of days from effective seeding date to 50% panicle exertion

Table 2. Common crop protection chemicals and formulations used in agronomic research at the H. Rouse Caffey Rice Research Station (HRCRRS).

Trade Name	Common Name	Formulation	Company
Herbicides			
Aim	carfentrazone	EC2	FMC Corp.
Arrosolo	propanil + molinate	3 lb + 3 lb	RiceCo, LLC
Basagran	bentazon	4 lb	BASF
Clincher	cyhalofop	2.38 lb	Dow AgroSciences, LLC
Command	clomazone	3ME	FMC Corp.
Duet	propanil + bensulfuron	4 lb + 0.48 oz	RiceCo, LLC
Grandstand R	triclopyr	3 lb	Dow AgroSciences, LLC
Grasp	penoxsulam	SC2	Dow AgroSciences, LLC
Honcho Plus	glyphosate	4 lb	Monsanto
Liberty	glufosinate ammonium	18.19%	Bayer CropSciences
Londax	bensulfuron	60% DF	DuPont
Newpath	imazethapyr	2 lb	BASF
Permit	halosulfuron	75% WSG	Monsanto
Prowl	pendimethalin	EL 3.3	BASF
Regiment	bispyribac-sodium	80% DF	Valent USA
RiceBeaux	propanil + thiobencarb	3 lb + 3 lb	RiceCo, LLC
Roundup Weatherman	glyphosate	4 lb	Monsanto
Stam M4	propanil	4 lb	Dow AgroSciences, LLC
Weedar 64	2,4-D	3.8 lb	Aventis
Insecticides			
Dermacor X-100	rynaxypyr		DuPont
Karate Z	cyhalothrin	2.08 lb	Syngenta
Mustang Maxx	zeta-cypermethrin	0.8 lb	FMC Corp.
Methyl Parathion	methyl Parathion	4 lb	Cheminova
Fungicides			
Dithane DF	mancozeb	75% DF	Dow AgroSciences, LLC
Stratego	propiconazole + trifloxystrobin	1.04 lb + 1.04 lb	Bayer Crop Science, LLC
Quadris	azoxystrobin	2.08 lb	Syngenta
Quilt	azoxystrobin + propiconazole	1.04 lb + 0.62 lb	Syngenta

RICE FERTILITY AND CULTURAL PRACTICE RESEARCH

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

INTRODUCTION

Variety by Nitrogen Rate and Application Timing Experiments

Variety by nitrogen (N) experiments are conducted yearly throughout Louisiana in order to establish N requirements for new commercial varieties and advanced experimental lines. Rice varieties vary in their response to N rates and timing of application. These varietal N response differences can be attributed to several factors, including such traits as lodging, disease susceptibility, and N use efficiency (NUE). Environmental influences also impact the N rate needed to produce optimum yields. These include such factors as soil type, weather, disease, and insect pressure. For this reason, trials are conducted not only at the H. Rouse Caffey Rice Research Station (HRCRRS) but also at cooperator sites in Vermilion (VP), Franklin (FP), St. Landry (SLP), Morehouse (MP), and Richland (RP) parishes.

The soils at HRCRRS, VP, FP, SLP, MP, and RP are classified as Crowley silt loam, Kaplan silt loam, Sharkey clay, Tensas-Sharkey complex, Perry clay, and Hebert silty clay, respectively. Eight single pre-flood N rates (0, 30, 60, 90, 120, 150, 180, and 210 lb/A) and four split rates applied at the 4- to 5-leaf stage and at panicle differentiation (45/45, 75/45, 105/45, and 135/45 lb N/A) were evaluated. The N requirement, days to 50% heading, lodging susceptibility, and plant height were all determined. Ratoon data is also determined for trials in southwest Louisiana.

A minimum of three years of data for each variety are needed before final recommendations are established. These recommendations can be found in the Rice Varieties and Management Tips 2017, LAES publication number 2270. Electronic copies of this publication can be accessed from the LSU AgCenter Website: http://www.lsuagcenter.com.

Two advanced Provisia experimental rice lines, eight recently released rice varieties, and two experimental rice hybrids were evaluated for their response to N application rate and time of application in 2016. Complete results for each variety by N trial at each location are presented in Tables 1–37.

The HRCRRS location was drill-seeded into a stale seedbed on March 22. Statistically, optimum grain yields at the HRCRRS were obtained after applying 180 lb N/A for the medium-grain Titan; 150 lb N/A for Thad and Provisia-B; 120 lb N/A for CL153, CL272, Diamond, and Provisia-A; 90 lb N/A for CL172, Gemini 214CL, and XL760; and 60 lb N/A for CL163.

Variety by N trials at VP were drill-seeded on March 21. Optimal rice yields at VP were obtained at 60 lb N/A for CL153 and XL760; 30 lb N/A for CL163, Titan, Thad, CL272, Provisia-A, and Provisia-B; and 0 lb N/A for CL172, Diamond, and Gemini 214CL.

Nitrogen response trials at SLP were drill-seeded on April 5. In SLP, yields for CL172, Titan, Diamond, and Provisia-B were optimized at 90 lb N/A; Thad, CL153, CL272, and Provisia-A were optimized at 30 lb N/A.

Variety by N trials in RP were drill-seeded on May 11. Rice grain yields at the RP location were optimized at 90 lb N/A for CL272 and Gemini 214CL, 60 lb N/A for CL163, and 30 lb N/A for CL272 and CL153.

Rice variety by N trials at the FP location were not harvested due to uneven stands caused by excessive rainfall after emergence.

Variety by N trials at the MP location were not harvested due to additional N which was accidentally applied on the plots by the cooperating producer.

Other Rice Fertility Research

A trial was established at the HRCRRS to evaluate the effect of water management on rice yield, yield components, and milling. Three water management treatments were evaluated. They included conventional flooding, alternate wetting and drying (AWD), and semi-aerobic. Rice yield was reduced under the semi-aerobic water management practice (7,852 lb/A) as compared with conventional flooding (8,877 lb/A) and AWD (8,610 lb/A). Rice yield from AWD and conventional flooding was not significantly different from each other. Ratoon yields were greatest for conventional flooding (3,398 lb/A), significantly reduced under AWD (2,590 lb/A), and reduced again under semi-aerobic (2,243 lb/A) water management. Rice whole milling was reduced under both AWD (60.29%) and semi-aerobic (59.96%) as compared to conventional water management (70.65%). Total milling was similar across all water management practices.

A trial was conducted to evaluate the ammonia volatilization potential of two Anuvia fertilizer blends (GreenTRX and SymTRX) with urea as compared to urea and ammonium sulfate (AMS)-urea blends. Seven total N sources were evaluated which included urea, Agrotain ultra-treated urea (AU-U), 1:1 AU-U + AMS blend, AU-U-GreenTRX blend, AU-U+SymTRX blend, urea+SymTRX blend, and an untreated control. Results from this trial are presented in Tables 53 and 54. Total volatilized ammonia, as a percent of the total N applied, was greatest for urea (21.3%) followed by urea+SymTRX blend (15.3%), AU-U (5.9%), AU-U+SymTRX blend (5.1%), AU-U+AMS blend (4.9%), and AU-U+GreenTRX blend (4.5%).

A trial was conducted to evaluate the response of the rice hybrid USH14002 to N fertilization rate. Six fertilization treatments were evaluated. Rates of N fertilization included 0, 45, 60, 75, 90, and 105 lb N/A. All N was applied at the 4- to 5-leaf stage of rice development, just prior to flood establishment. Results of the study are presented in Table 56. Main crop yields were 5,760; 8,036; 8,725; 8,702; 8,962; and 8,417 lb/A for the 0, 45, 60, 75, 90, and 105 lb N/A rates, respectively. Rice lodging occurred in all treatments and ranged from 77.5 to 97.5%.

A trial was conducted to evaluate the inbred lines 13-201-67 and 13-323-66 for their response to N (Table 57). Six N rates were evaluated which included 0, 90, 120, 150, 165, and 180 lb N/A. All N was applied as a single pre-flood application. Optimal N for the 13-201-67 line was 165 lb N/A while 13-323-66 was 120 lb N/A. Lodging was not observed on the 13-201-67 line; however, lodging occurred at the 90, 150, and 165 lb N rates in the 13-323-66 line.

A trial was established at the HRCRRS to evaluate the response of the hybrid Express to multiple rates of N fertilizer. Six rates of N were evaluated which included 46/0 lb/A (pre-flood/boot), 46/30 lb/A, 69/0 lb/A, 69/30 lb/A, 92/0 lb/A, and 92/30 lb/A. Results of this trial are presented in Table 58. Rice yield ranged from 6,178 to 7,751 lb/A from the lowest to highest N rates, respectively. Optimal N rate was achieved at the 92/0 N rate. However, the hybrid began to lodge severely even at the lowest (46/0 lb N/A) N fertilization rate.

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

Experiment number ....: 16-CM-01

Site and design ....:
  Location/Cooperator ....: H. Rouse Caffey Rice Research Station (Crowley Main)
  Tillage type ....: Fall Stale
  Experimental design ....: Randomized complete block
  Number of reps ....: 4
  Plot size ....: 4.67 x 16 ft
  Row width/rows per plot ....: 8 in / 7

Soil type ....: Crowley silt loam
  % organic matter ....: 1.23
  pH ....: 7.34
  Extractable nutrients ppm ....: Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3

Crop/Variety ....: Rice / See data sheet
  Planting method/date ....: Drill seeded / March 22
  Seeding rate/depth ....: 40 seeds/ft^2 / .5 in
  Emergence date ....: March 31
  Harvest date ....: Aug. 9
  Ratoon Harvest date ....: Oct. 27

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22
90 lb N/A 46-0-0, Aug. 19

Water management ....:
  Flush ....: April 11
  Flood ....: May 11
  Drain ....: July 22
  Ratoon flood ....: Aug. 22
  Ratoon drain ....: Oct. 17

Pest management ....:
  Herbicides ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
  Insecticides ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
  Fungicides ……………………….: 5 oz/A Gem + 9 oz/A Topaz, June 22

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

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/9/2016	8/9/2016	8/9/2016	10/27/2016	10/27/2016	
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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	96.0 f	87.0 f	31.3 c	47.9 a	4645 d	45.1 a	3139 a	7784 e
2	UREA	30	4-5 leaf	96.0 f	87.0 f	32.0 bc	47.5 ab	6381 c	45.0 a	3134 a	9515 d
3	UREA	60	4-5 leaf	96.3 ef	87.3 ef	35.8 a	47.5 ab	7771 b	45.2 a	3252 a	11023 abc
4	UREA	90	4-5 leaf	97.3 cd	88.3 cd	36.0 a	47.1 bc	8453 ab	44.3 bcd	3085 ab	11538 a
5	UREA	120	4-5 leaf	97.5 bc	88.5 bc	36.3 a	46.0 de	8244 ab	43.9 cde	2681 bcd	10925 abc
6	UREA	150	4-5 leaf	98.0 ab	89.0 ab	36.0 a	45.8 e	8255 ab	43.7 def	2520 d	10775 abc
7	UREA	180	4-5 leaf	98.3 a	89.3 a	36.3 a	45.7 e	8132 ab	43.4 ef	2028 e	10159 cd
8	UREA	210	4-5 leaf	97.8 abc	88.8 abc	36.3 a	45.6 e	8736 a	43.3 f	1631 e	10366 bcd
9	UREA	45	4-5 leaf	96.0 f	87.0 f	34.5 ab	47.3 ab	7778 b	44.7 ab	3149 a	10927 abc
	UREA	45	PD								
10	UREA	75	4-5 leaf	96.8 de	87.8 de	36.0 a	47.2 bc	7874 b	44.5 abc	3192 a	11066 abc
	UREA	45	PD								
11	UREA	105	4-5 leaf	97.5 bc	88.5 bc	37.3 a	46.6 cd	8327 ab	43.4 ef	3018 abc	11344 ab
	UREA	45	PD								
12	UREA	135	4-5 leaf	98.0 ab	89.0 ab	35.3 a	46.1 de	8282 ab	43.7 def	2614 cd	10896 abc
	UREA	45	PD								
LSD P=.05				0.55	0.55	2.97	0.61	825.6	0.68	428.7	994.8
Standard Deviation				0.38	0.38	2.07	0.42	573.9	0.47	298.0	691.5
CV				0.39	0.44	5.87	0.9	7.41	1.07	10.69	6.57
Replicate F				6.562	6.562	1.188	2.349	1.100	5.685	9.516	1.984
Replicate Prob(F)				0.0013	0.0013	0.3294	0.0904	0.3630	0.0030	0.0001	0.1355
Treatment F				20.227	20.227	3.068	14.513	15.741	8.665	11.969	8.709
Treatment Prob(F)				0.0001	0.0001	0.0062	0.0001	0.0001	0.0001	0.0001	0.0001

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

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

Experiment number ....: 16-CM-03

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.23
- **pH** ....: 7.34
- **Extractable nutrients** ppm ....: Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3

Crop/Variety ....: Rice / See data Sheet
- **Planting method/date** ....: Drill seeded / March 22
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 9
- **Ratoon Harvest date** ....: Oct. 27

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 11
- **Drain** ....: July 22
- **Ratoon flood** ....: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides** ………………………: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 2. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/9/2016	8/9/2016	8/9/2016	10/27/2016	10/27/2016	
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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	92.0 g	83.0 g	27.3 e	47.1 a	4625 f	44.5 a	2851 a	7476 e
2	UREA	30	4-5 leaf	94.0 f	85.0 f	30.0 d	46.8 ab	6497 e	44.4 a	2598 abc	9095 d
3	UREA	60	4-5 leaf	95.5 de	86.5 de	32.5 bc	46.7 b	8085 cd	44.2 a	2554 abc	10640 bc
4	UREA	90	4-5 leaf	96.5 cd	87.5 cd	34.5 ab	46.1 c	8958 ab	43.9 a	2516 bc	11474 ab
5	UREA	120	4-5 leaf	97.0 bc	88.0 bc	35.8 a	45.7 d	8889 abc	44.0 a	2458 bcd	11347 ab
6	UREA	150	4-5 leaf	97.8 ab	88.8 ab	35.0 a	44.9 fg	8571 a-d	43.6 a	2294 cde	10865 abc
7	UREA	180	4-5 leaf	98.3 a	89.3 a	35.8 a	44.9 fg	8522 a-d	43.7 a	2150 de	10672 bc
8	UREA	210	4-5 leaf	97.8 ab	88.8 ab	35.5 a	44.6 g	8133 bcd	43.5 a	2091 e	10224 c
9	UREA	45	4-5 leaf	94.5 ef	85.5 ef	31.8 cd	46.9 ab	7757 d	43.9 a	2854 a	10611 bc
	UREA	45	PD								
10	UREA	75	4-5 leaf	95.5 de	86.5 de	34.5 ab	46.3 c	8218 bcd	44.1 a	2602 abc	10820 bc
	UREA	45	PD								
11	UREA	105	4-5 leaf	96.8 bc	87.8 bc	34.0 ab	45.4 de	9160 a	43.8 a	2668 ab	11828 a
	UREA	45	PD								
12	UREA	135	4-5 leaf	97.5 abc	88.5 abc	35.0 a	45.1 ef	8273 bcd	43.8 a	2456 bcd	10730 bc
	UREA	45	PD								
LSD P=.05				1.13	1.13	2.10	0.36	847.9	0.64	313.4	968.4
Standard Deviation				0.79	0.79	1.46	0.25	589.4	0.44	217.8	673.1
CV				0.82	0.91	4.36	0.55	7.39	1.01	8.69	6.42
Replicate F				2.951	2.951	1.057	6.848	2.212	3.354	8.254	4.329
Replicate Prob(F)				0.0469	0.0469	0.3806	0.0010	0.1052	0.0305	0.0003	0.0111
Treatment F				22.195	22.195	13.021	50.761	18.318	1.882	4.869	12.014
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0790	0.0002	0.0001

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

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

Experiment number ....: 16-CM-04

Site and design ....:
Location/Cooperator ....: H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type.................................: Fall Stale
Experimental design...................: Randomized complete block
Number of reps ....: 4
Plot size..: 4.67 x 16 ft
Row width/rows per plot............: 8 in / 7

Soil type ....: Crowley silt loam
% organic matter........................: 1.23
pH...: 7.34
Extractable nutrients ppm ....: Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3

Crop/Variety ....: Rice / See data sheet
Planting method/date ....: Drill seeded / March 22
Seeding rate/depth......................: 40 seeds/ft^2 / .5 in
Emergence date...........................: March 31
Harvest date ....: Aug. 9
Ratoon Harvest date...................: Oct. 27

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

Fertilization..: 240 lb/A 0-24-24-2.7, March 22
90 lb N/A 46-0-0, Aug. 19

Water management ....:
Flush ....: April 11
Flood ....: May 11
Drain..: July 22
Ratoon flood ....: Aug. 22
Ratoon drain ....: Oct. 17

Pest management ....:
Herbicides...................................: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides………………………..: 5 oz/A Gem + 9 oz/A Topaz, June 22

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

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/9/2016	8/9/2016	8/9/2016	10/27/2016	10/27/2016	
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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	94.0 c	85.0 c	30.0 h	46.7 ab	4185 h	43.6 a	2327 bcd	6512 f
2	UREA	30	4-5 leaf	94.0 c	85.0 c	33.5 g	47.4 a	7181 g	43.7 a	2827 abc	10008 e
3	UREA	60	4-5 leaf	94.0 c	85.0 c	36.5 ef	47.5 a	8918 f	43.8 a	2831 abc	11749 d
4	UREA	90	4-5 leaf	94.8 bc	85.8 bc	37.3 def	46.5 b	10286 e	43.8 a	2906 ab	13192 c
5	UREA	120	4-5 leaf	95.5 ab	86.5 ab	38.5 bcd	45.6 c	11207 cd	43.6 a	2980 a	14187 ab
6	UREA	150	4-5 leaf	95.8 a	86.8 a	40.0 abc	45.4 c	11755 bc	43.9 a	2709 abc	14464 a
7	UREA	180	4-5 leaf	95.8 a	86.8 a	40.3 ab	45.2 c	12112 ab	43.1 a	2117 d	14229 ab
8	UREA	210	4-5 leaf	95.8 a	86.8 a	40.5 a	44.2 d	12476 a	43.7 a	2271 cd	14747 a
9	UREA	45	4-5 leaf	94.0 c	85.0 c	36.0 f	46.6 ab	8682 f	43.4 a	2939 a	11621 d
	UREA	45	PD								
10	UREA	75	4-5 leaf	95.0 ab	86.0 ab	37.8 def	46.7 ab	10226 e	43.8 a	3055 a	13280 bc
	UREA	45	PD								
11	UREA	105	4-5 leaf	95.5 ab	86.5 ab	38.3 cde	45.1 cd	11072 d	43.6 a	2763 abc	13836 abc
	UREA	45	PD								
12	UREA	135	4-5 leaf	95.5 ab	86.5 ab	40.3 ab	45.4 c	11532 cd	43.9 a	2706 abc	14238 ab
	UREA	45	PD								
LSD P=.05				0.79	0.79	1.97	0.84	575.5	0.54	581.2	969.0
Standard Deviation				0.55	0.55	1.37	0.58	400.0	0.38	404.0	673.5
CV				0.58	0.64	3.66	1.27	4.01	0.87	14.95	5.32
Replicate F				8.966	8.966	6.787	0.205	2.482	2.042	8.270	5.708
Replicate Prob(F)				0.0002	0.0002	0.0011	0.8923	0.0781	0.1271	0.0003	0.0029
Treatment F				7.840	7.840	20.899	12.129	144.117	1.346	2.236	51.044
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.2445	0.0366	0.0001

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

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

Experiment number	16-CM-05
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.23
pH	7.34
Extractable nutrients ppm	Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / March 22
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 9
Ratoon Harvest date	Oct. 27
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 11
Drain	July 22
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

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

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/9/2016	8/9/2016	8/9/2016	10/27/2016	10/27/2016	
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	92.0 f	83.0 f	29.0 e	47.1 bc	4789 f	45.3 a	2375 bc	7235 f
2	UREA	30	4-5 leaf	94.0 e	85.0 e	31.8 d	48.9 a	7093 e	45.1 a	2317 c	9410 e
3	UREA	60	4-5 leaf	94.3 e	85.3 e	34.0 bc	48.8 a	8525 cd	46.2 a	2602 abc	11126 cd
4	UREA	90	4-5 leaf	96.0 cd	87.0 cd	34.0 bc	46.6 cd	8943 bcd	45.3 a	2742 ab	11685 bcd
5	UREA	120	4-5 leaf	96.0 cd	87.0 cd	35.0 ab	48.1 ab	11265 a	45.1 a	2871 a	14136 a
6	UREA	150	4-5 leaf	97.5 ab	88.5 ab	34.8 ab	46.0 cd	9947 ab	45.1 a	2867 a	12814 ab
7	UREA	180	4-5 leaf	97.8 a	88.8 a	36.5 a	46.3 cd	9780 bc	45.5 a	2571 abc	12351 bc
8	UREA	210	4-5 leaf	97.8 a	88.8 a	34.8 ab	45.6 d	9798 bc	45.1 a	2901 a	12699 b
9	UREA	45	4-5 leaf	94.0 e	85.0 e	32.5 cd	48.3 a	8079 de	45.1 a	2668 abc	10747 de
	UREA	45	PD								
10	UREA	75	4-5 leaf	95.3 de	86.3 de	33.8 bcd	48.3 a	8893 bcd	45.5 a	2715 ab	11608 bcd
	UREA	45	PD								
11	UREA	105	4-5 leaf	96.3 bcd	87.3 bcd	35.0 ab	46.4 cd	9587 bc	45.5 a	2914 a	12501 bc
	UREA	45	PD								
12	UREA	135	4-5 leaf	97.3 abc	88.3 abc	35.0 ab	46.5 cd	9549 bc	45.6 a	2931 a	12480 bc
	UREA	45	PD								
LSD P=.05				1.26	1.26	2.14	1.16	1318.6	0.90	371.6	1410.8
Standard Deviation				0.88	0.88	1.49	0.80	915.5	0.62	258.3	979.5
CV				0.92	1.01	4.39	1.7	10.34	1.38	9.55	8.47
Replicate F				3.546	3.546	1.233	6.463	1.708	1.329	9.625	2.008
Replicate Prob(F)				0.0249	0.0249	0.3132	0.0015	0.1851	0.2815	0.0001	0.1326
Treatment F				17.191	17.191	6.989	8.444	13.070	1.030	2.604	13.665
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.4438	0.0165	0.0001

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

Determine the Agronomic Response of Drill-Seeded CL153 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number ....: 16-CM-06

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.23
- **pH** ....: 7.34
- **Extractable nutrients** ppm ....: Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 22
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 9
- **Ratoon Harvest date** ....: Oct. 27

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 11
- **Drain** ....: July 22
- **Ratoon flood** ....: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides** ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 5. Determine the agronomic response of drill-seeded CL153 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle											
Rating Date								8/9/2016		8/9/2016		8/9/2016		10/27/2016		10/27/2016			
Rating Type				50% HD		50% HD		Height		Test Wt.		Yield		Test Wt.		Yield		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 (lb ai/A)	Growth Stage																
1	UREA	0	4-5 leaf	96.0	e	87.0	e	29.3	e	47.2	ab	5319	g	44.6	a	2541	ab	7860	f
2	UREA	30	4-5 leaf	96.0	e	87.0	e	33.5	d	47.7	a	7804	f	45.6	a	2774	a	10577	e
3	UREA	60	4-5 leaf	96.5	de	87.5	de	36.5	bc	47.3	ab	9088	e	44.5	a	2415	bc	11502	d
4	UREA	90	4-5 leaf	97.0	bcd	88.0	bcd	38.0	ab	46.0	bcd	10078	cd	44.7	a	2462	abc	12540	bc
5	UREA	120	4-5 leaf	97.3	bc	88.3	bc	39.3	a	46.8	abc	10656	bc	44.6	a	2177	cde	12833	abc
6	UREA	150	4-5 leaf	97.3	bc	88.3	bc	39.5	a	45.3	d	10998	ab	44.0	a	2388	bc	13386	a
7	UREA	180	4-5 leaf	97.5	ab	88.5	ab	39.5	a	45.2	d	10812	ab	44.3	a	2020	e	12831	abc
8	UREA	210	4-5 leaf	97.5	ab	88.5	ab	40.3	a	44.7	d	11296	a	43.9	a	2066	de	13362	a
9	UREA	45	4-5 leaf	96.0	e	87.0	e	34.8	cd	47.7	a	8977	e	44.8	a	2584	ab	11562	d
	UREA	45	PD																
10	UREA	75	4-5 leaf	96.8	cd	87.8	cd	38.3	ab	47.2	ab	9763	d	44.8	a	2434	bc	12196	cd
	UREA	45	PD																
11	UREA	105	4-5 leaf	97.3	bc	88.3	bc	38.8	ab	45.7	cd	10680	abc	44.5	a	2346	bcd	13026	ab
	UREA	45	PD																
12	UREA	135	4-5 leaf	98.0	a	89.0	a	39.3	a	45.9	bcd	10945	ab	44.2	a	2200	cde	13145	ab
	UREA	45	PD																
LSD P=.05				0.59		0.59		2.50		1.45		634.0		1.07		320.2		815.5	
Standard Deviation				0.41		0.41		1.74		1.01		440.7		0.74		222.6		566.9	
CV				0.42		0.46		4.66		2.17		4.54		1.67		9.4		4.7	
Replicate F				1.000		1.000		1.296		2.245		0.760		0.120		8.498		2.914	
Replicate Prob(F)				0.4051		0.4051		0.2920		0.1014		0.5247		0.9475		0.0003		0.0488	
Treatment F				10.727		10.727		13.964		4.479		61.266		1.435		3.926		31.008	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0004		0.0001		0.2038		0.0011		0.0001	

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

Determine the Agronomic Response of Drill-Seeded CL272 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number ....: 16-CM-07

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type**.................................: Fall Stale
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**.......................................: 4.67 x 16 ft
- **Row width/rows per plot**...........: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.23
- **pH**..: 7.34
- **Extractable nutrients** ppm ....: Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 22
- **Seeding rate/depth**......................: 40 seeds/ft^2 / .5 in
- **Emergence date**...........................: March 31
- **Harvest date** ....: Aug. 9
- **Ratoon Harvest date**...................: Oct. 27

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

Fertilization..: 240 lb/A 0-24-24-2.7, March 22
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood**..: May 11
- **Drain**..: July 22
- **Ratoon flood**................................: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management...............................:
- **Herbicides**....................................: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides**………………………: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 6. Determine the agronomic response of drill-seeded CL272 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/9/2016	8/9/2016	8/9/2016	10/27/2016	10/27/2016	
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	97.0 e	88.0 e	28.5 e	46.4 a	4659 f	45.0 a	2290 a	6949 f
2	UREA	30	4-5 leaf	97.0 e	88.0 e	34.0 d	46.1 ab	7235 e	44.7 a	2383 a	9618 e
3	UREA	60	4-5 leaf	97.0 e	88.0 e	37.3 abc	45.7 abc	8728 cd	45.1 a	2314 a	11042 cd
4	UREA	90	4-5 leaf	98.0 cd	89.0 cd	37.3 abc	44.4 def	9374 b	44.7 a	2231 a	11605 bc
5	UREA	120	4-5 leaf	98.8 bc	89.8 bc	39.0 a	44.4 def	10759 a	44.4 a	2132 a	12891 a
6	UREA	150	4-5 leaf	99.3 ab	90.3 ab	37.3 abc	43.9 def	10647 a	44.7 a	2311 a	12958 a
7	UREA	180	4-5 leaf	99.8 a	90.8 a	37.3 abc	44.1 def	10760 a	44.1 a	1986 a	12745 a
8	UREA	210	4-5 leaf	99.0 ab	90.0 ab	38.5 ab	43.5 f	10378 a	44.4 a	2375 a	12753 a
9	UREA	45	4-5 leaf	97.0 e	88.0 e	35.5 cd	45.1 bcd	8164 d	45.3 a	2508 a	10672 d
	UREA	45	PD								
10	UREA	75	4-5 leaf	97.3 de	88.3 de	37.0 abc	45.1 bcd	9250 bc	44.6 a	2432 a	11681 b
	UREA	45	PD								
11	UREA	105	4-5 leaf	99.0 ab	90.0 ab	36.5 bc	44.8 cde	10356 a	44.6 a	2304 a	12660 a
	UREA	45	PD								
12	UREA	135	4-5 leaf	99.5 ab	90.5 ab	38.0 ab	43.7 ef	10401 a	44.5 a	2010 a	12411 a
	UREA	45	PD								
LSD P=.05				0.85	0.85	2.16	1.25	570.1	0.81	348.2	636.7
Standard Deviation				0.59	0.59	1.50	0.87	396.3	0.56	242.1	442.6
CV				0.6	0.66	4.13	1.94	4.3	1.26	10.65	3.85
Replicate F				2.295	2.295	4.573	0.605	0.853	0.706	3.894	1.428
Replicate Prob(F)				0.0960	0.0960	0.0087	0.6161	0.4748	0.5556	0.0174	0.2522
Treatment F				13.964	13.964	13.901	4.683	85.493	1.335	1.743	64.121
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0003	0.0001	0.2495	0.1068	0.0001

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

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

Experiment number	16-CM-07
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.23
pH	7.34
Extractable nutrients ppm	Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / March 22
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 9
Ratoon Harvest date	Oct. 27
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 11
Drain	July 22
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

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

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/9/2016	8/9/2016	8/9/2016	10/27/2016	10/27/2016	
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	92.0 g	83.0 g	29.3 e	45.4 abc	4146 f	44.1 a	2098 a	6245 f
2	UREA	30	4-5 leaf	93.3 f	84.3 f	35.0 d	46.0 ab	6951 e	43.9 a	1672 ab	8622 e
3	UREA	60	4-5 leaf	95.0 e	86.0 e	38.5 bc	46.1 a	8288 d	43.6 a	1634 b	9922 d
4	UREA	90	4-5 leaf	96.5 d	87.5 d	38.8 bc	44.6 a-e	9288 c	43.6 a	1559 b	10847 c
5	UREA	120	4-5 leaf	97.0 cd	88.0 cd	40.3 ab	45.3 a-d	10307 a	43.7 a	1379 b	11686 ab
6	UREA	150	4-5 leaf	97.5 abc	88.5 abc	39.8 abc	43.9 c-f	10191 ab	43.5 a	1618 b	11809 ab
7	UREA	180	4-5 leaf	98.0 a	89.0 a	40.0 abc	43.4 ef	10378 a	43.4 a	1301 b	11679 ab
8	UREA	210	4-5 leaf	97.8 ab	88.8 ab	41.5 a	42.7 f	10525 a	43.7 a	1393 b	11918 ab
9	UREA	45	4-5 leaf	93.8 f	84.8 f	37.5 cd	45.9 ab	8122 d	43.8 a	1476 b	9598 d
	UREA	45	PD								
10	UREA	75	4-5 leaf	95.5 e	86.5 e	38.5 bc	46.0 ab	9582 bc	43.5 a	1686 ab	11269 bc
	UREA	45	PD								
11	UREA	105	4-5 leaf	97.0 cd	88.0 cd	39.0 abc	44.4 b-e	10289 a	43.6 a	1269 b	11557 abc
	UREA	45	PD								
12	UREA	135	4-5 leaf	97.3 bc	88.3 bc	40.5 ab	43.8 def	10674 a	43.7 a	1427 b	12101 a
	UREA	45	PD								
LSD P=.05				0.69	0.69	2.54	1.62	655.0	0.42	427.2	813.0
Standard Deviation				0.48	0.48	1.76	1.13	455.3	0.29	296.9	565.1
CV				0.5	0.55	4.61	2.52	5.02	0.67	19.25	5.33
Replicate F				0.604	0.604	1.439	1.323	4.372	1.386	1.150	2.229
Replicate Prob(F)				0.6168	0.6168	0.2492	0.2836	0.0107	0.2642	0.3435	0.1033
Treatment F				67.747	67.747	13.801	4.252	72.321	1.704	2.312	38.219
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0006	0.0001	0.1160	0.0311	0.0001

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

Determine the Agronomic Response of Drill-Seeded Aura 115 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number	16-CM-47
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.23
pH	7.34
Extractable nutrients ppm	Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / March 22
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 9
Ratoon Harvest date	Oct. 27
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 11
Drain	July 22
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 8. Determine the agronomic response of drill-seeded Aura 115 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/9/2016	8/9/2016	8/9/2016	10/27/2016	10/27/2016	
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	91.0 f	82.0 f	33.5 b	45.4 a	5483 e	45.8 a	1542 e	7025 d
2	UREA	30	4-5 leaf	91.0 f	82.0 f	38.5 a	46.5 a	8459 d	47.1 a	1898 bcd	10357 c
3	UREA	60	4-5 leaf	91.5 ef	82.5 ef	38.5 a	45.2 a	9606 bc	46.3 a	1787 cde	11393 bc
4	UREA	90	4-5 leaf	92.5 cd	83.5 cd	38.0 a	44.8 a	10761 a	46.6 a	1905 bcd	12666 a
5	UREA	120	4-5 leaf	93.3 abc	84.3 abc	39.8 a	45.4 a	11239 a	46.7 a	2028 bcd	13267 a
6	UREA	150	4-5 leaf	93.5 ab	84.5 ab	39.8 a	44.5 a	10944 a	47.0 a	2168 ab	13112 a
7	UREA	180	4-5 leaf	94.0 a	85.0 a	39.0 a	43.7 a	10357 ab	46.7 a	2029 a-d	12386 ab
8	UREA	210	4-5 leaf	94.0 a	85.0 a	38.5 a	43.4 a	10907 a	46.8 a	2344 a	13251 a
9	UREA	45	4-5 leaf	91.0 f	82.0 f	39.0 a	44.8 a	8903 cd	46.3 a	1722 de	10625 c
	UREA	45	PD								
10	UREA	75	4-5 leaf	92.0 de	83.0 de	38.8 a	45.7 a	10292 ab	46.8 a	2113 ab	12406 ab
	UREA	45	PD								
11	UREA	105	4-5 leaf	93.3 abc	84.3 abc	38.5 a	44.2 a	10786 a	47.0 a	2094 abc	12880 a
	UREA	45	PD								
12	UREA	135	4-5 leaf	92.8 bcd	83.8 bcd	39.3 a	44.9 a	11163 a	46.6 a	2158 ab	13320 a
	UREA	45	PD								
LSD P=.05				0.80	0.80	2.07	1.68	1060.4	0.85	316.0	1267.3
Standard Deviation				0.56	0.56	1.44	1.17	737.1	0.59	219.7	880.9
CV				0.6	0.67	3.75	2.61	7.44	1.26	11.08	7.41
Replicate F				3.307	3.307	0.883	0.961	1.182	2.353	0.356	0.647
Replicate Prob(F)				0.0321	0.0321	0.4599	0.4226	0.3317	0.0900	0.7849	0.5903
Treatment F				17.294	17.294	5.153	2.053	20.111	1.596	4.093	17.457
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0546	0.0001	0.1461	0.0008	0.0001

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

Determine the Agronomic Response of Drill-Seeded Provisia (PVL024-A) to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number	16-CM-08
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.22
pH	7.61
Extractable nutrients ppm	Ca-1282; Cu-1.3; Mg-280; P-6; K-53; Na-109; S-7.6; Zn-3.9
Crop/Variety	Rice / PVL024-A
Planting method/date	Drill seeded / March 22
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 17
Ratoon Harvest date	Oct. 26
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 11
Drain	July 25
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 9. Determine the agronomic response of drill-seeded PVL024-A to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/17/2016	8/17/2016	8/17/2016	10/26/2016	10/26/2016	
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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	100 de	91 de	32 e	47.4 a	3525 f	43.3 ab	1577 c	5102 e
2	UREA	30	4-5 leaf	100 de	91 de	34 e	47.5 a	5004 e	42.9 abc	1710 bc	6714 d
3	UREA	60	4-5 leaf	101 de	92 de	37 cd	46.5 bcd	5962 d	43.3 ab	1848 abc	7811 c
4	UREA	90	4-5 leaf	102 c	93 c	37 d	46.1 cde	7058 c	43.0 abc	1849 abc	8908 b
5	UREA	120	4-5 leaf	103 c	94 c	37 d	46.4 bcd	7796 b	42.7 bc	1981 ab	9777 a
6	UREA	150	4-5 leaf	104 ab	95 ab	39 bc	46.2 cde	8090 ab	42.4 cd	2013 ab	10102 a
7	UREA	180	4-5 leaf	104 a	95 a	39 bc	45.8 de	8350 a	42.8 bc	1835 abc	10185 a
8	UREA	210	4-5 leaf	105 a	96 a	41 a	45.5 e	8418 a	42.0 d	1804 abc	10222 a
9	UREA	45	4-5 leaf	100 e	91 e	37 d	46.7 abc	6570 c	43.5 a	2096 a	8666 b
	UREA	45	PD								
10	UREA	75	4-5 leaf	101 d	92 d	37 cd	47.2 ab	6999 c	43.4 ab	2102 a	9100 b
	UREA	45	PD								
11	UREA	105	4-5 leaf	103 c	94 c	40 ab	46.4 bcd	8040 ab	42.8 bc	1981 ab	10021 a
	UREA	45	PD								
12	UREA	135	4-5 leaf	103 bc	94 bc	39 b	46.3 cde	8245 ab	43.1 abc	1978 ab	10224 a
	UREA	45	PD								
LSD P=.05				1.2	1.2	1.8	0.83	523.9	0.67	311.6	641.7
Standard Deviation				0.8	0.8	1.3	0.58	364.2	0.47	216.6	446.1
CV				0.79	0.87	3.37	1.24	5.2	1.09	11.41	5.01
Replicate F				2.673	2.673	4.440	2.441	14.410	0.619	16.090	24.328
Replicate Prob(F)				0.0634	0.0634	0.0100	0.0817	0.0001	0.6075	0.0001	0.0001
Treatment F				19.199	19.199	16.569	4.422	70.219	3.105	2.096	53.181
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0004	0.0001	0.0057	0.0497	0.0001

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

Determine the Agronomic Response of Drill-Seeded Provisia (PVL024-B) to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number	: 16-CM-09
Site and design	:
Location/Cooperator	: H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	: Fall Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley silt loam
% organic matter	: 1.22
pH	: 7.61
Extractable nutrients ppm	: Ca-1282; Cu-1.3; Mg-280; P-6; K-53; Na-109; S-7.6; Zn-3.9
Crop/Variety	: Rice / PVL024-B
Planting method/date	: Drill seeded / March 22
Seeding rate/depth	: 40 seeds/ft^2 / .5 in
Emergence date	: March 31
Harvest date	: Aug. 17
Ratoon Harvest date	: Oct. 26
Seed treatment/cwt	: Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	: 240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, Aug. 19
Water management	:
Flush	: April 11
Flood	: May 11
Drain	: July 25
Ratoon flood	: Aug. 22
Ratoon drain	: Oct. 17
Pest management	:
Herbicides	: 1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides ………………………	: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 10. Determine the agronomic response of drill-seeded PVL024-B to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/17/2016	8/17/2016	8/17/2016	10/26/2016	10/26/2016	
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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	98 f	89 f	35 d	47.4 a	3457 h	43.0 a	1401 b	4858 g
2	UREA	30	4-5 leaf	99 ef	90 ef	39 c	47.4 a	5106 g	43.7 a	1760 a	6866 f
3	UREA	60	4-5 leaf	100 de	91 de	39 c	47.3 a	6056 f	44.1 a	1868 a	7924 e
4	UREA	90	4-5 leaf	100 cd	91 cd	40 abc	46.9 b	6908 e	43.1 a	1840 a	8748 d
5	UREA	120	4-5 leaf	101 bc	92 bc	40 abc	46.6 c	7590 cd	44.2 a	2100 a	9690 bc
6	UREA	150	4-5 leaf	101 ab	92 ab	42 a	46.5 c	7838 bc	44.0 a	1964 a	9802 bc
7	UREA	180	4-5 leaf	101 b	92 b	41 ab	46.2 d	8184 ab	43.5 a	1839 a	10024 ab
8	UREA	210	4-5 leaf	102 a	93 a	41 ab	46.2 d	8355 a	43.5 a	1997 a	10352 a
9	UREA	45	4-5 leaf	99 e	90 e	39 c	47.3 a	6146 f	43.9 a	1811 a	7957 e
	UREA	45	PD								
10	UREA	75	4-5 leaf	100 de	91 de	39 bc	47.0 b	6837 e	43.8 a	1993 a	8830 d
	UREA	45	PD								
11	UREA	105	4-5 leaf	101 b	92 b	40 abc	46.9 b	7381 d	44.0 a	2058 a	9439 c
	UREA	45	PD								
12	UREA	135	4-5 leaf	101 bc	92 bc	39 c	46.7 c	7941 abc	44.6 a	1955 a	9896 abc
	UREA	45	PD								
LSD P=.05				0.9	0.9	2.1	0.21	435.2	0.90	356.3	527.7
Standard Deviation				0.6	0.6	1.5	0.14	302.5	0.62	247.7	366.8
CV				0.6	0.66	3.78	0.31	4.44	1.42	13.16	4.22
Replicate F				4.785	4.785	4.020	3.118	24.470	0.504	8.682	34.638
Replicate Prob(F)				0.0071	0.0071	0.0153	0.0392	0.0001	0.6822	0.0002	0.0001
Treatment F				15.281	15.281	6.070	37.126	90.243	1.914	2.204	75.552
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0738	0.0393	0.0001

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

Determine the Agronomic Response of Drill-Seeded XL760 to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number	16-CM-02
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.23
pH	7.34
Extractable nutrients ppm	Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3
Crop/Variety	Rice / XL760
Planting method/date	Drill seeded / March 22
Seeding rate/depth	10 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 9
Ratoon Harvest date	Oct. 26
Seed treatment/cwt	Clothianidin (NipsIt Inside) Fludioxonil (Spirato 480FS) Fludioxonil (Maxim 4FS) Gibberellic acid Zinc AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 11
Drain	July 22
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 11. Determine the agronomic response of drill-seeded XL760 to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/10/2016	8/10/2016	8/10/2016	10/26/2016	10/26/2016	
Rating Type				50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	92.0 f	83.0 f	34.0 d	44.8 a	5972 e	44.8 a	2322 a	8294 d
2	UREA	60	4-5 leaf	96.0 e	87.0 e	41.8 c	41.7 a	8519 d	43.5 b	1818 c	10287 c
3	UREA	90	4-5 leaf	96.5 cde	87.5 cde	43.8 bc	43.6 a	11722 bc	43.7 b	2025 abc	13747 ab
4	UREA	120	4-5 leaf	96.5 cde	87.5 cde	42.5 c	44.8 a	12346 ab	43.5 b	1841 c	14187 ab
5	UREA	150	4-5 leaf	97.0 bcd	88.0 bcd	45.3 ab	43.8 a	13455 a	43.3 b	1887 bc	15342 a
6	UREA	180	4-5 leaf	98.0 a	89.0 a	46.3 a	43.0 a	12268 ab	43.3 b	1792 c	14138 ab
7	UREA	75	4-5 leaf	96.3 de	87.3 de	43.3 bc	40.9 a	10301 c	43.7 b	2189 ab	12490 b
	UREA	45	50% HD								
8	UREA	105	4-5 leaf	97.3 abc	88.3 abc	43.3 bc	44.7 a	12472 ab	43.6 b	1961 bc	14433 a
	UREA	45	50% HD								
9	UREA	135	4-5 leaf	97.5 ab	88.5 ab	45.5 ab	43.7 a	11665 bc	43.3 b	1906 bc	13571 ab
	UREA	45	50% HD								
LSD P=.05				0.77	0.77	2.41	2.85	1678.0	0.88	332.0	1813.7
Standard Deviation				0.53	0.53	1.65	1.94	1144.2	0.60	227.5	1236.8
CV				0.55	0.61	3.85	4.47	10.43	1.37	11.54	9.56
Replicate F				4.496	4.496	1.375	3.853	4.863	0.764	12.463	5.222
Replicate Prob(F)				0.0122	0.0122	0.2742	0.0234	0.0096	0.5252	0.0001	0.0071
Treatment F				43.512	43.512	19.325	1.976	16.993	2.501	2.490	13.357
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0986	0.0001	0.0393	0.0400	0.0001

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

Determine the Agronomic Response of Drill-Seeded Gemini 214CL to Nitrogen Fertilizer Rate and Time of Application – H. Rouse Caffey Rice Research Station

Experiment number ....: 16-CM-11

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.23
- **pH** ....: 7.34
- **Extractable nutrients** ppm ....: Ca-1239; Cu-1.2; Mg-241; P-9; K-54; Na-82; S-6.3; Zn-4.3

Crop/Variety ....: Rice / Gemini 214CL
- **Planting method/date** ....: Drill seeded / March 22
- **Seeding rate/depth** ....: 10 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 9
- **Ratoon Harvest date** ....: Oct. 26

Seed treatment/cwt ....: Clothianidin (NipsIt Inside)
Fludioxonil (Spirato 480FS)
Fludioxonil (Maxim 4FS)
Gibberellic acid
Zinc
AV-1011 (bird repellent) – 18.3 oz

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 11
- **Drain** ....: July 22
- **Ratoon flood** ....: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides**……………………….: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 12. Determine the agronomic response of drill-seeded Gemini 214CL to nitrogen fertilizer rate and time of application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/9/2016	8/9/2016	8/9/2016	10/26/2016	10/26/2016	
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 (lb ai/A)	Growth Stage								
1	UREA	0	4-5 leaf	92.0 d	83.0 d	35.5 f	43.1 abc	5954 d	44.2 ab	2428 a	8382 c
2	UREA	60	4-5 leaf	96.0 c	87.0 c	41.5 e	41.7 c	10391 c	43.8 bc	2285 a	12676 b
3	UREA	90	4-5 leaf	96.3 c	87.3 c	44.8 cd	45.7 a	12110 b	43.4 c	2231 a	14341 ab
4	UREA	120	4-5 leaf	98.3 a	89.3 a	45.0 bcd	44.1 abc	13456 ab	43.7 bc	2243 a	15699 a
5	UREA	150	4-5 leaf	98.3 a	89.3 a	46.3 abc	41.8 c	12499 ab	43.4 c	2192 a	14691 a
6	UREA	180	4-5 leaf	98.3 a	89.3 a	47.3 a	43.8 abc	13473 a	43.6 bc	2314 a	15787 a
7	UREA	75	4-5 leaf	96.3 c	87.3 c	43.8 d	45.6 a	12544 ab	44.6 a	2998 a	15542 a
	UREA	45	50% HD								
8	UREA	105	4-5 leaf	96.8 bc	87.8 bc	46.3 abc	44.7 ab	12849 ab	44.0 abc	2536 a	15384 a
	UREA	45	50% HD								
9	UREA	135	4-5 leaf	97.5 ab	88.5 ab	46.5 ab	42.9 bc	13065 ab	43.8 bc	2607 a	15671 a
	UREA	45	50% HD								
LSD P=.05				0.91	0.91	1.75	2.67	1356.5	0.65	521.6	1674.5
Standard Deviation				0.63	0.63	1.20	1.83	929.5	0.45	357.4	1147.4
CV				0.65	0.71	2.72	4.18	7.87	1.02	14.73	8.06
Replicate F				1.799	1.799	1.000	0.181	0.614	1.489	4.077	1.345
Replicate Prob(F)				0.1743	0.1743	0.4098	0.9085	0.6126	0.2426	0.0179	0.2833
Treatment F				39.320	39.320	37.277	2.599	26.356	3.106	2.077	17.679
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0335	0.0001	0.0149	0.0795	0.0001

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

Determine the Agronomic Response of Drill-Seeded CL163 to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number	16-VP-01
Site and design	
Location/Cooperator	Vermilion Parish / Kent Lounsberry
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Kaplan silt loam
% organic matter	1.45
pH	4.72
Extractable nutrients ppm	Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / March 21
Seeding rate/depth	40 seeds/ft^2 / .75 in
Emergence date	March 30
Harvest date	Aug. 22
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	250 lb/A 0-20-30, March 14 20 lb/A Hydra-Hume, March 14
Water management	
Flush	April 6
Flood	May 13
Drain	July 21
Pest management	
Herbicides	10 oz/A Command, March 14 2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
Insecticides	None
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 13. Determine the agronomic response of drill-seeded CL163 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	96.5	c	87.5	c	32.8	a	48.7	a	5619	cd
2	UREA	30	4-5 leaf	97.0	bc	88.0	bc	35.5	a	47.4	abc	6972	ab
3	UREA	60	4-5 leaf	99.5	abc	90.5	abc	34.0	a	47.9	abc	7183	a
4	UREA	90	4-5 leaf	99.8	ab	90.8	ab	34.8	a	47.7	abc	6269	bc
5	UREA	120	4-5 leaf	100.5	ab	91.5	ab	35.0	a	47.0	abc	6094	c
6	UREA	150	4-5 leaf	100.3	ab	91.3	ab	35.0	a	46.6	bc	5884	cd
7	UREA	180	4-5 leaf	101.3	a	92.3	a	34.5	a	45.9	c	5215	de
8	UREA	210	4-5 leaf	100.3	ab	91.3	ab	34.3	a	46.2	c	4803	e
9	UREA	45	4-5 leaf	99.0	abc	90.0	abc	36.0	a	48.4	ab	7132	ab
	UREA	45	PD										
10	UREA	75	4-5 leaf	99.0	abc	90.0	abc	35.5	a	48.0	abc	7062	ab
	UREA	45	PD										
11	UREA	105	4-5 leaf	101.5	a	92.5	a	34.8	a	47.5	abc	6401	abc
	UREA	45	PD										
12	UREA	135	4-5 leaf	100.3	ab	91.3	ab	35.0	a	47.3	abc	5702	cd
	UREA	45	PD										
LSD P=.05				2.16		2.16		1.79		1.21		585.1	
Standard Deviation				1.50		1.50		1.24		0.84		405.1	
CV				1.51		1.66		3.57		1.88		6.9	
Replicate F				20.552		20.552		3.282		1.613		11.012	
Replicate Prob(F)				0.0001		0.0001		0.0329		0.2071		0.0001	
Treatment F				4.109		4.109		1.830		3.791		13.173	
Treatment Prob(F)				0.0008		0.0008		0.0886		0.0018		0.0001	

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

Determine the Agronomic Response of Drill-Seeded CL172 to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number	16-VP-03
Site and design	
Location/Cooperator	Vermilion Parish / Kent Lounsberry
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Kaplan silt loam
% organic matter	1.45
pH	4.72
Extractable nutrients ppm	Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / March 21
Seeding rate/depth	40 seeds/ft^2 / .75 in
Emergence date	March 30
Harvest date	Aug. 22
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	250 lb/A 0-20-30, March 14 20 lb/A Hydra-Hume, March 14
Water management	
Flush	April 6
Flood	May 13
Drain	July 21
Pest management	
Herbicides	10 oz/A Command, March 14 2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
Insecticides	None
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 14. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	86.0	b	77.0	b	28.3	c	48.7	a	5312	ab
2	UREA	30	4-5 leaf	87.0	a	78.0	a	30.8	b	48.3	ab	5609	a
3	UREA	60	4-5 leaf	87.8	a	78.8	a	32.0	ab	47.9	abc	5377	ab
4	UREA	90	4-5 leaf	88.0	a	79.0	a	33.3	ab	47.3	cde	5065	ab
5	UREA	120	4-5 leaf	88.3	a	79.3	a	32.3	ab	46.5	ef	4403	abc
6	UREA	150	4-5 leaf	88.3	a	79.3	a	34.3	ab	46.1	fg	4269	abc
7	UREA	180	4-5 leaf	88.5	a	79.5	a	35.0	a	46.0	fg	3487	c
8	UREA	210	4-5 leaf	88.3	a	79.3	a	32.5	ab	45.4	g	3857	bc
9	UREA	45	4-5 leaf	87.3	a	78.3	a	31.3	b	48.1	abc	5341	ab
	UREA	45	PD										
10	UREA	75	4-5 leaf	87.3	a	78.3	a	32.3	ab	47.7	bcd	5248	ab
	UREA	45	PD										
11	UREA	105	4-5 leaf	87.8	a	78.8	a	31.0	b	46.9	def	3928	abc
	UREA	45	PD										
12	UREA	135	4-5 leaf	87.8	a	78.8	a	31.8	ab	46.7	ef	4425	abc
	UREA	45	PD										
LSD P=.05				0.89		0.89		2.17		0.67		1022.4	
Standard Deviation				0.62		0.62		1.51		0.47		710.7	
CV				0.7		0.78		4.71		0.99		15.14	
Replicate F				16.280		16.280		1.133		4.729		3.311	
Replicate Prob(F)				0.0001		0.0001		0.3500		0.0075		0.0319	
Treatment F				5.200		5.200		5.299		19.783		4.055	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001		0.0009	

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

Determine the Agronomic Response of Drill-Seeded Titan to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number ....: 16-VP-04

Site and design ....:
Location/Cooperator ....: Vermilion Parish / Kent Lounsberry
Tillage type ....: Conventional
Experimental design ....: Randomized complete block
Number of reps ....: 4
Plot size ....: 4.67 x 16 ft
Row width/rows per plot ....: 8 in / 7

Soil type ....: Kaplan silt loam
% organic matter ....: 1.45
pH ....: 4.72
Extractable nutrients ppm ....: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0

Crop/Variety ....: Rice / See data sheet
Planting method/date ....: Drill seeded / March 21
Seeding rate/depth ....: 40 seeds/ft^2 / .75 in
Emergence date ....: March 30
Harvest date ....: Aug. 22

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

Fertilization ....: 250 lb/A 0-20-30, March 14
20 lb/A Hydra-Hume, March 14

Water management ....:
Flush ....: April 6
Flood ....: May 13
Drain ....: July 21

Pest management ....:
Herbicides ....: 10 oz/A Command, March 14
2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
Insecticides ....: None
Fungicides ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

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

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	94.0	e	85.0	e	31.0	b	48.4	a	5992	b
2	UREA	30	4-5 leaf	95.8	d	86.8	d	32.8	ab	48.2	a	7233	a
3	UREA	60	4-5 leaf	98.0	bc	89.0	bc	33.0	ab	47.9	ab	7923	a
4	UREA	90	4-5 leaf	99.3	ab	90.3	ab	34.3	ab	47.2	bc	8276	a
5	UREA	120	4-5 leaf	99.8	ab	90.8	ab	36.5	a	46.9	c	8160	a
6	UREA	150	4-5 leaf	100.0	ab	91.0	ab	35.8	a	46.6	cd	8083	a
7	UREA	180	4-5 leaf	100.0	ab	91.0	ab	35.0	a	46.0	de	8201	a
8	UREA	210	4-5 leaf	101.0	a	92.0	a	35.5	a	45.6	e	7801	a
9	UREA	45	4-5 leaf	96.8	cd	87.8	cd	33.3	ab	48.1	a	7520	a
	UREA	45	PD										
10	UREA	75	4-5 leaf	98.0	bc	89.0	bc	34.3	ab	47.3	bc	8181	a
	UREA	45	PD										
11	UREA	105	4-5 leaf	100.0	ab	91.0	ab	36.0	a	47.3	bc	8486	a
	UREA	45	PD										
12	UREA	135	4-5 leaf	99.8	ab	90.8	ab	35.3	a	46.5	cd	8354	a
	UREA	45	PD										
LSD P=.05				1.68		1.68		2.27		0.59		801.2	
Standard Deviation				1.17		1.17		1.58		0.41		556.9	
CV				1.19		1.3		4.59		0.87		7.09	
Replicate F				21.191		21.191		3.808		6.144		0.709	
Replicate Prob(F)				0.0001		0.0001		0.0190		0.0019		0.5538	
Treatment F				12.809		12.809		4.194		18.627		6.065	
Treatment Prob(F)				0.0001		0.0001		0.0007		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded Thad to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number ....: 16-VP-05

Site and design ....:
- **Location/Cooperator** ....: Vermilion Parish / Kent Lounsberry
- **Tillage type** ....: Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Kaplan silt loam
- **% organic matter** ....: 1.45
- **pH** ....: 4.72
- **Extractable nutrients** ppm ....: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 21
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .75 in
- **Emergence date** ....: March 30
- **Harvest date** ....: Aug. 22

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

Fertilization ....: 250 lb/A 0-20-30, March 14
20 lb/A Hydra–Hume, March 14

Water management ....:
- **Flush** ....: April 6
- **Flood** ....: May 13
- **Drain** ....: July 21

Pest management ....:
- **Herbicides** ....: 10 oz/A Command, March 14
  2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
- **Insecticides** ....: None
- **Fungicides** ………………………..: 5 oz/A Gem + 9 oz/A Topaz, June 22

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

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	91.5	d	82.5	d	29.5	a	49.7	a	4681	bc
2	UREA	30	4-5 leaf	93.0	cd	84.0	cd	31.3	a	49.8	a	6033	a
3	UREA	60	4-5 leaf	94.0	cd	85.0	cd	33.5	a	49.7	a	6373	a
4	UREA	90	4-5 leaf	97.0	a-d	88.0	a-d	30.5	a	48.9	b	5593	ab
5	UREA	120	4-5 leaf	96.0	bcd	87.0	bcd	32.8	a	47.9	cd	5375	abc
6	UREA	150	4-5 leaf	100.5	ab	91.5	ab	32.8	a	47.1	e	4807	bc
7	UREA	180	4-5 leaf	102.0	a	93.0	a	33.3	a	45.9	f	4328	cd
8	UREA	210	4-5 leaf	100.5	ab	91.5	ab	31.8	a	45.5	f	3734	d
9	UREA	45	4-5 leaf	93.8	cd	84.8	cd	33.5	a	49.8	a	6236	a
	UREA	45	PD										
10	UREA	75	4-5 leaf	95.5	bcd	86.5	bcd	33.8	a	49.3	ab	6215	a
	UREA	45	PD										
11	UREA	105	4-5 leaf	97.8	abc	88.8	abc	32.3	a	48.3	c	5297	abc
	UREA	45	PD										
12	UREA	135	4-5 leaf	98.5	abc	89.5	abc	34.0	a	47.5	de	4963	bc
	UREA	45	PD										
LSD P=.05				3.83		3.83		2.90		0.54		705.2	
Standard Deviation				2.67		2.67		2.02		0.37		490.2	
CV				2.76		3.04		6.22		0.77		9.24	
Replicate F				9.569		9.569		0.265		13.247		4.917	
Replicate Prob(F)				0.0001		0.0001		0.8501		0.0001		0.0062	
Treatment F				6.143		6.143		1.930		66.826		11.544	
Treatment Prob(F)				0.0001		0.0001		0.0713		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded CL153 to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number	: 16-VP-06
Site and design	:
Location/Cooperator	: Vermilion Parish / Kent Lounsberry
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Kaplan silt loam
% organic matter	: 1.45
pH	: 4.72
Extractable nutrients ppm	: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill seeded / March 21
Seeding rate/depth	: 40 seeds/ft^2 / .75 in
Emergence date	: March 30
Harvest date	: Aug. 22
Seed treatment/cwt	: Dithane (fungicide) – 114 g
	Release (gibberellic acid) – 10 g
	Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml
	AV-1011 (bird repellant) – 18.3 oz
Fertilization	: 250 lb/A 0-20-30, March 14
	20 lb/A Hydra–Hume, March 14
Water management	:
Flush	: April 6
Flood	: May 13
Drain	: July 21
Pest management	:
Herbicides	: 10 oz/A Command, March 14
	2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
Insecticides	: None
Fungicides	: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 17. Determine the agronomic response of drill-seeded CL153 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	94.5	c	85.5	c	29.8	b	49.5	a	5180	c
2	UREA	30	4-5 leaf	96.5	bc	87.5	bc	32.3	a	49.3	ab	6162	bc
3	UREA	60	4-5 leaf	97.8	abc	88.8	abc	34.0	a	49.2	ab	8108	a
4	UREA	90	4-5 leaf	99.5	ab	90.5	ab	33.3	a	48.3	c	7689	ab
5	UREA	120	4-5 leaf	98.8	abc	89.8	abc	35.0	a	47.5	de	7537	ab
6	UREA	150	4-5 leaf	100.8	ab	91.8	ab	33.3	a	46.7	f	6817	ab
7	UREA	180	4-5 leaf	101.3	ab	92.3	ab	33.8	a	47.0	ef	6873	ab
8	UREA	210	4-5 leaf	102.3	a	93.3	a	33.3	a	46.4	f	6538	ab
9	UREA	45	4-5 leaf	97.8	abc	88.8	abc	34.3	a	48.9	abc	7237	ab
	UREA	45	PD										
10	UREA	75	4-5 leaf	97.8	abc	88.8	abc	33.8	a	48.6	bc	7583	ab
	UREA	45	PD										
11	UREA	105	4-5 leaf	100.5	ab	91.5	ab	34.5	a	47.7	d	7202	ab
	UREA	45	PD										
12	UREA	135	4-5 leaf	100.3	ab	91.3	ab	34.3	a	47.5	de	7102	ab
	UREA	45	PD										
LSD P=.05				3.23		3.23		2.29		0.51		1122.3	
Standard Deviation				2.25		2.25		1.59		0.35		780.2	
CV				2.27		2.5		4.76		0.73		11.14	
Replicate F				18.715		18.715		0.820		1.802		1.247	
Replicate Prob(F)				0.0001		0.0001		0.4920		0.1660		0.3084	
Treatment F				3.888		3.888		2.948		36.032		4.014	
Treatment Prob(F)				0.0012		0.0012		0.0080		0.0001		0.0009	

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

Determine the Agronomic Response of Drill-Seeded CL272 to Nitrogen Fertilizer Rate and Time of Application –Vermilion Parish

Experiment number	16-VP-07
Site and design	
Location/Cooperator	Vermilion Parish / Kent Lounsberry
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Kaplan silt loam
% organic matter	1.45
pH	4.72
Extractable nutrients ppm	Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / March 21
Seeding rate/depth	40 seeds/ft^2 / .75 in
Emergence date	March 30
Harvest date	Aug. 22
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	250 lb/A 0-20-30, March 14 20 lb/A Hydra–Hume, March 14
Water management	
Flush	April 6
Flood	May 13
Drain	July 21
Pest management	
Herbicides	10 oz/A Command, March 14 2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
Insecticides	None
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 18. Determine the agronomic response of drill-seeded CL272 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	101.0	f	92.0	f	27.8	b	44.2	a	5126	b
2	UREA	30	4-5 leaf	101.0	f	92.0	f	32.3	a	43.8	ab	6454	a
3	UREA	60	4-5 leaf	101.8	f	92.8	f	34.0	a	43.7	ab	6695	a
4	UREA	90	4-5 leaf	103.8	e	94.8	e	35.5	a	43.1	bc	6728	a
5	UREA	120	4-5 leaf	107.0	cd	98.0	cd	33.3	a	42.4	cde	5771	ab
6	UREA	150	4-5 leaf	107.8	bc	98.8	bc	35.5	a	42.1	def	5732	ab
7	UREA	180	4-5 leaf	108.8	ab	99.8	ab	36.3	a	41.8	ef	5270	b
8	UREA	210	4-5 leaf	109.3	a	100.3	a	36.0	a	41.5	f	5224	b
9	UREA	45	4-5 leaf	101.8	f	92.8	f	33.8	a	43.4	b	6802	a
	UREA	45	PD										
10	UREA	75	4-5 leaf	102.5	f	93.5	f	35.5	a	43.1	bc	6543	a
	UREA	45	PD										
11	UREA	105	4-5 leaf	106.0	d	97.0	d	35.5	a	42.6	cd	6469	a
	UREA	45	PD										
12	UREA	135	4-5 leaf	107.8	bc	98.8	bc	35.0	a	42.5	cd	5917	ab
	UREA	45	PD										
LSD P=.05				1.09		1.09		2.39		0.51		762.1	
Standard Deviation				0.76		0.76		1.66		0.35		529.8	
CV				0.72		0.79		4.86		0.83		8.74	
Replicate F				3.148		3.148		1.998		0.769		0.617	
Replicate Prob(F)				0.0380		0.0380		0.1334		0.5199		0.6090	
Treatment F				71.877		71.877		8.079		23.062		5.652	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded Diamond to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number ....: 16-VP-10

Site and design ....:
- **Location/Cooperator** ....: Vermilion Parish / Kent Lounsberry
- **Tillage type**..................................: Conventional
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.67 x 16 ft
- **Row width/rows per plot**............: 8 in / 7

Soil type ....: Kaplan silt loam
- **% organic matter**........................: 1.45
- **pH**...: 4.72
- **Extractable nutrients** ppm ....: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 21
- **Seeding rate/depth**......................: 40 seeds/ft^2 / .75 in
- **Emergence date**...........................: March 30
- **Harvest date** ....: Aug. 22

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

Fertilization..: 250 lb/A 0-20-30, March 14
20 lb/A Hydra–Hume, March 14

Water management ....:
- **Flush** ....: April 6
- **Flood**..: May 13
- **Drain**..: July 21

Pest management ....:
- **Herbicides**....................................: 10 oz/A Command, March 14
  2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
- **Insecticides** ....: None
- **Fungicides**………………………..: 5 oz/A Gem + 9 oz/A Topaz, June 22

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

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	86.3	c	77.3	c	31.8	b	49.1	a	5261	abc
2	UREA	30	4-5 leaf	87.5	b	78.5	b	35.5	ab	49.2	a	6215	a
3	UREA	60	4-5 leaf	88.0	ab	79.0	ab	34.3	ab	48.5	ab	6417	a
4	UREA	90	4-5 leaf	88.8	ab	79.8	ab	34.5	ab	47.9	b	4827	bcd
5	UREA	120	4-5 leaf	89.0	ab	80.0	ab	36.3	ab	46.7	c	3938	cd
6	UREA	150	4-5 leaf	88.5	ab	79.5	ab	35.3	ab	46.7	c	4149	cd
7	UREA	180	4-5 leaf	89.0	ab	80.0	ab	35.8	ab	45.3	d	3702	d
8	UREA	210	4-5 leaf	89.5	a	80.5	a	37.0	a	45.7	d	3393	d
9	UREA	45	4-5 leaf	87.5	b	78.5	b	36.5	a	48.5	ab	6134	a
	UREA	45	PD										
10	UREA	75	4-5 leaf	88.0	ab	79.0	ab	34.3	ab	48.5	ab	5781	ab
	UREA	45	PD										
11	UREA	105	4-5 leaf	89.0	ab	80.0	ab	35.8	ab	47.5	bc	4647	bcd
	UREA	45	PD										
12	UREA	135	4-5 leaf	88.3	ab	79.3	ab	34.3	ab	47.6	bc	4238	cd
	UREA	45	PD										
LSD P=.05				0.98		0.98		2.77		0.83		956.9	
Standard Deviation				0.68		0.68		1.92		0.58		665.1	
CV				0.77		0.86		5.48		1.21		13.6	
Replicate F				12.358		12.358		1.156		6.849		8.144	
Replicate Prob(F)				0.0001		0.0001		0.3414		0.0010		0.0003	
Treatment F				6.959		6.959		2.128		19.939		9.996	
Treatment Prob(F)				0.0001		0.0001		0.0463		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded Provisia (PVL024-A) to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number ....: 16-VP-08

Site and design ....:
- **Location/Cooperator** ....: Vermilion Parish / Kent Lounsberry
- **Tillage type** ....: Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Kaplan silt loam
- **% organic matter** ....: 1.45
- **pH** ....: 4.72
- **Extractable nutrients** ppm ....: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 21
- **Seeding rate/depth** ....: 40 seeds/ft^2 / .75 in
- **Emergence date** ....: March 30
- **Harvest date** ....: Aug. 22

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

Fertilization ....: 250 lb/A 0-20-30, March 14
20 lb/A Hydra-Hume, March 14

Water management ....:
- **Flush** ....: April 6
- **Flood** ....: May 13
- **Drain** ....: July 21

Pest management ....:
- **Herbicides** ....: 10 oz/A Command, March 14
  2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
- **Insecticides** ....: None
- **Fungicides** ………………………..: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 20. Determine the agronomic response of drill-seeded PVL024-A to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Stage										
1	UREA	0	4-5 leaf	100.8	e	91.8	e	32.5	b	44.8	a	4404	d
2	UREA	30	4-5 leaf	101.5	e	92.5	e	35.3	ab	44.3	abc	5849	abc
3	UREA	60	4-5 leaf	103.8	d	94.8	d	35.0	ab	44.4	ab	6241	ab
4	UREA	90	4-5 leaf	106.5	c	97.5	c	36.3	ab	43.9	bcd	6063	abc
5	UREA	120	4-5 leaf	107.0	bc	98.0	bc	36.0	ab	43.5	cde	6071	abc
6	UREA	150	4-5 leaf	108.8	ab	99.8	ab	36.3	ab	43.1	de	5477	bc
7	UREA	180	4-5 leaf	109.5	a	100.5	a	36.0	ab	43.4	cde	5500	bc
8	UREA	210	4-5 leaf	108.8	ab	99.8	ab	37.8	a	43.0	e	5338	c
9	UREA	45	4-5 leaf	102.0	e	93.0	e	36.0	ab	44.1	abc	6498	a
	UREA	45	PD										
10	UREA	75	4-5 leaf	104.0	d	95.0	d	35.3	ab	44.1	abc	6102	ab
	UREA	45	PD										
11	UREA	105	4-5 leaf	106.5	c	97.5	c	35.3	ab	43.4	cde	6138	ab
	UREA	45	PD										
12	UREA	135	4-5 leaf	108.3	abc	99.3	abc	36.5	a	43.6	cde	5595	bc
	UREA	45	PD										
LSD P=.05				1.41		1.41		2.34		0.55		478.6	
Standard Deviation				0.98		0.98		1.63		0.38		332.7	
CV				0.93		1.01		4.57		0.87		5.76	
Replicate F				1.410		1.410		0.105		0.936		4.024	
Replicate Prob(F)				0.2572		0.2572		0.9568		0.4344		0.0152	
Treatment F				39.738		39.738		2.333		8.023		11.241	
Treatment Prob(F)				0.0001		0.0001		0.0297		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded Provisia (PVL024-B) to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number ....: 16-VP-09

Site and design ....:
- **Location/Cooperator** ....: Vermilion Parish / Kent Lounsberry
- **Tillage type**..................................: Conventional
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.67 x 16 ft
- **Row width/rows per plot**............: 8 in / 7

Soil type ....: Kaplan silt loam
- **% organic matter**........................: 1.45
- **pH**...: 4.72
- **Extractable nutrients** ppm ....: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / March 21
- **Seeding rate/depth**......................: 40 seeds/ft^2 / .75 in
- **Emergence date**...........................: March 30
- **Harvest date** ....: Aug. 22

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

Fertilization..: 250 lb/A 0-20-30, March 14
20 lb/A Hydra-Hume, March 14

Water management ....:
- **Flush** ....: April 6
- **Flood** ....: May 13
- **Drain**..: July 21

Pest management ....:
- **Herbicides**....................................: 10 oz/A Command, March 14
  2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
- **Insecticides** ....: None
- **Fungicides**……………………….: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 21. Determine the agronomic response of drill-seeded PVL024-B to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	97.5	g	88.5	g	33.3	b	44.5	a	4290	d
2	UREA	30	4-5 leaf	99.8	f	90.8	f	33.8	b	44.4	ab	5448	abc
3	UREA	60	4-5 leaf	102.3	de	93.3	de	36.8	a	44.0	ab	6090	a
4	UREA	90	4-5 leaf	104.0	cd	95.0	cd	36.8	a	44.2	ab	5899	ab
5	UREA	120	4-5 leaf	105.8	bc	96.8	bc	35.8	a	44.1	ab	5894	ab
6	UREA	150	4-5 leaf	108.3	a	99.3	a	37.5	a	43.5	abc	5142	a-d
7	UREA	180	4-5 leaf	108.3	a	99.3	a	36.3	a	43.3	bc	5000	bcd
8	UREA	210	4-5 leaf	109.0	a	100.0	a	38.5	a	42.8	c	4548	cd
9	UREA	45	4-5 leaf	101.8	e	92.8	e	37.3	a	44.4	a	5810	ab
	UREA	45	PD										
10	UREA	75	4-5 leaf	104.0	cd	95.0	cd	36.8	a	44.5	a	5677	ab
	UREA	45	PD										
11	UREA	105	4-5 leaf	105.5	bc	96.5	bc	37.0	a	43.9	ab	5793	ab
	UREA	45	PD										
12	UREA	135	4-5 leaf	107.3	ab	98.3	ab	38.0	a	43.8	ab	5275	abc
	UREA	45	PD										
LSD P=.05				1.58		1.58		1.85		0.68		653.1	
Standard Deviation				1.10		1.10		1.29		0.48		454.0	
CV				1.05		1.15		3.53		1.08		8.4	
Replicate F				9.133		9.133		3.107		0.793		9.159	
Replicate Prob(F)				0.0002		0.0002		0.0397		0.5063		0.0001	
Treatment F				42.920		42.920		5.931		4.839		6.297	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0002		0.0001	

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

Determine the Agronomic Response of Drill-Seeded XL760 to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number	: 16-VP-02
Site and design	:
Location/Cooperator	: Vermilion Parish / Kent Lounsberry
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Kaplan silt loam
% organic matter	: 1.45
pH	: 4.72
Extractable nutrients ppm	: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0
Crop/Variety	: Rice / XL760
Planting method/date	: Drill seeded / March 21
Seeding rate/depth	: 10 seeds/ft^2 / .75 in
Emergence date	: March 30
Harvest date	: Aug. 22
Seed treatment/cwt	: Clothianidin (NipsIt Inside)
	Fludioxonil (Spirato 480FS)
	Fludioxonil (Maxim 4FS)
	Gibberellic acid
	Zinc
	AV-1011 (bird repellent) – 18.3 oz
Fertilization	: 250 lb/A 0-20-30, March 14
	20 lb/A Hydra-Hume, March 14
Water management	:
Flush	: April 6
Flood	: May 13
Drain	: July 21
Pest management	:
Herbicides	: 10 oz/A Command, March 14
	2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
Insecticides	: None
Fungicides	: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 22. Determine the agronomic response of drill-seeded XL760 to nitrogen fertilizer rate and time of application. Vermilion Parish.

Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage														
Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle									
Rating Date								8/22/2016		8/22/2016		8/22/2016		8/22/2016		8/22/2016	
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	
1	UREA	0	4-5 leaf	90.0	b	81.0	b	39.8	a	0.0	b	0.0	a	49.5	a	9073	b
2	UREA	60	4-5 leaf	94.8	a	85.8	a	44.8	a	0.0	b	0.0	a	49.4	a	11801	a
3	UREA	90	4-5 leaf	95.0	a	86.0	a	44.0	a	0.0	b	0.0	a	49.1	ab	11305	a
4	UREA	120	4-5 leaf	96.8	a	87.8	a	45.3	a	12.5	b	0.3	a	48.7	abc	11588	a
5	UREA	150	4-5 leaf	96.8	a	87.8	a	44.5	a	50.0	ab	1.0	a	47.6	c	11117	a
6	UREA	180	4-5 leaf	96.8	a	87.8	a	42.5	a	70.0	a	1.5	a	47.8	bc	10885	a
7	UREA	75	4-5 leaf	95.0	a	86.0	a	43.5	a	5.0	b	0.5	a	49.0	ab	11595	a
	UREA	45	50% HD														
8	UREA	105	4-5 leaf	95.5	a	86.5	a	44.8	a	32.5	ab	1.3	a	48.7	abc	11928	a
	UREA	45	50% HD														
9	UREA	135	4-5 leaf	95.8	a	86.8	a	42.5	a	20.0	b	0.3	a	48.3	abc	11744	a
	UREA	45	50% HD														
LSD P=.05				1.45		1.45		3.34		36.14		1.00		0.86		1190.6	
Standard Deviation				1.00		1.00		2.29		24.76		0.69		0.59		815.8	
CV				1.05		1.16		5.26		117.3		129.88		1.21		7.27	
Replicate F				9.075		9.075		0.714		0.834		2.108		5.803		0.858	
Replicate Prob(F)				0.0003		0.0003		0.5534		0.4886		0.1257		0.0039		0.4765	
Treatment F				17.607		17.607		2.242		4.099		2.852		4.977		4.604	
Treatment Prob(F)				0.0001		0.0001		0.0603		0.0034		0.0222		0.0010		0.0017	

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

Determine the Agronomic Response of Drill-Seeded Gemini 214CL to Nitrogen Fertilizer Rate and Time of Application – Vermilion Parish

Experiment number	: 16-VP-11
Site and design	:
Location/Cooperator	: Vermilion Parish / Kent Lounsberry
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Kaplan silt loam
% organic matter	: 1.45
pH	: 4.72
Extractable nutrients ppm	: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0
Crop/Variety	: Rice / Gemini 214CL
Planting method/date	: Drill seeded / March 21
Seeding rate/depth	: 10 seeds/ft^2 / .75 in
Emergence date	: March 30
Harvest date	: Aug. 22
Seed treatment/cwt	: Clothianidin (NipsIt Inside) Fludioxonil (Spirato 480FS) Fludioxonil (Maxim 4FS) Gibberellic acid Zinc AV-1011 (bird repellent) – 18.3 oz
Fertilization	: 250 lb/A 0-20-30, March 14 20 lb/A Hydra-Hume, March 14
Water management	:
Flush	: April 6
Flood	: May 13
Drain	: July 21
Pest management	:
Herbicides	: 10 oz/A Command, March 14 2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
Insecticides	: None
Fungicides	: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 23. Determine the agronomic response of drill-seeded Gemini 214CL to nitrogen fertilizer rate and time of application. Vermilion Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle									
Rating Date								8/22/2016		8/22/2016		8/22/2016		8/22/2016		8/22/2016	
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 (lb ai/A)	Growth Stage														
1	UREA	0	4-5 leaf	93.0	b	84.0	b	41.0	b	0.0	a	0.0	a	49.2	ab	10488	a
2	UREA	60	4-5 leaf	94.8	ab	85.8	ab	45.8	a	35.0	a	1.5	a	49.4	a	11685	a
3	UREA	90	4-5 leaf	96.5	ab	87.5	ab	43.8	a	35.0	a	1.5	a	48.6	ab	10514	a
4	UREA	120	4-5 leaf	96.5	ab	87.5	ab	46.3	a	47.5	a	1.8	a	48.2	ab	11343	a
5	UREA	150	4-5 leaf	97.3	a	88.3	a	45.0	a	55.0	a	1.5	a	47.8	b	11501	a
6	UREA	180	4-5 leaf	96.8	ab	87.8	ab	45.3	a	45.0	a	2.3	a	47.9	b	10866	a
7	UREA	75	4-5 leaf	95.8	ab	86.8	ab	45.3	a	32.5	a	1.0	a	49.0	ab	11603	a
	UREA	45	50% HD														
8	UREA	105	4-5 leaf	96.5	ab	87.5	ab	44.8	a	27.5	a	1.0	a	48.9	ab	11750	a
	UREA	45	50% HD														
9	UREA	135	4-5 leaf	96.0	ab	87.0	ab	46.0	a	37.5	a	1.8	a	48.0	ab	11212	a
	UREA	45	50% HD														
LSD P=.05				2.44		2.44		2.36		47.21		1.78		0.89		1016.2	
Standard Deviation				1.67		1.67		1.62		32.35		1.22		0.61		696.3	
CV				1.74		1.92		3.61		92.42		89.77		1.26		6.21	
Replicate F				9.404		9.404		2.012		4.712		3.888		2.677		0.744	
Replicate Prob(F)				0.0003		0.0003		0.1390		0.0101		0.0213		0.0698		0.5364	
Treatment F				2.394		2.394		3.909		0.932		1.093		3.727		1.955	
Treatment Prob(F)				0.0469		0.0469		0.0044		0.5088		0.4014		0.0058		0.0976	

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

Determine the Agronomic Response of Drill-Seeded CL172 to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number	16-SLP-03
Site and design	
Location/Cooperator	St. Landry Parish / Charlie Fontenot
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Tensas-Sharkey complex
% organic matter	2.94
pH	7.7
Extractable nutrients ppm	Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / April 5
Seeding rate/depth	40 seeds/ft^2 / .75 in
Emergence date	April 15
Harvest date	Aug. 29
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	May 29
Drain	Aug. 1
Pest management	
Herbicides	Farmer managed herbicides
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

Table 24. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle				
Rating Date						8/29/2016	8/29/2016	8/29/2016	8/29/2016	8/29/2016
Rating Type				50% HD	50% HD	Height	Lodge	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 (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	90.8 a	80.8 a	32.0 d	0.0 a	0.0 a	44.7 a	4764 d
2	UREA	30	4-5 leaf	91.8 a	81.8 a	35.5 c	0.0 a	0.0 a	44.5 a	5754 c
3	UREA	60	4-5 leaf	93.3 a	83.3 a	37.3 bc	0.0 a	0.0 a	44.0 b	6496 bc
4	UREA	90	4-5 leaf	91.0 a	81.0 a	39.0 abc	0.0 a	0.0 a	43.6 bc	7671 ab
5	UREA	120	4-5 leaf	91.3 a	81.3 a	41.8 a	0.0 a	0.0 a	43.2 cd	7381 ab
6	UREA	150	4-5 leaf	92.3 a	82.3 a	41.0 ab	0.0 a	0.0 a	43.3 cd	7607 ab
7	UREA	180	4-5 leaf	92.0 a	82.0 a	40.5 ab	0.0 a	0.0 a	42.3 e	7847 a
8	UREA	210	4-5 leaf	92.5 a	82.5 a	42.0 a	2.5 a	0.8 a	42.8 d	8193 a
9	UREA	45	4-5 leaf	89.8 a	79.8 a	38.5 abc	0.0 a	0.0 a	43.9 bc	7308 ab
	UREA	45	PD							
10	UREA	75	4-5 leaf	90.5 a	80.5 a	38.8 abc	0.0 a	0.0 a	43.6 bc	7096 ab
	UREA	45	PD							
11	UREA	105	4-5 leaf	91.5 a	81.5 a	38.5 abc	0.0 a	0.0 a	43.8 bc	7520 ab
	UREA	45	PD							
12	UREA	135	4-5 leaf	91.8 a	81.8 a	40.5 ab	0.0 a	0.0 a	43.4 bcd	7995 a
	UREA	45	PD							
LSD P=.05				3.28	3.28	2.55	2.08	0.62	0.48	824.7
Standard Deviation				2.28	2.28	1.77	1.44	0.43	0.33	573.3
CV				2.49	2.8	4.58	692.8	692.8	0.76	8.03
Replicate F				5.930	5.930	3.537	1.000	1.000	1.648	1.217
Replicate Prob(F)				0.0024	0.0024	0.0251	0.4051	0.4051	0.1973	0.3191
Treatment F				0.694	0.694	10.319	1.000	1.000	15.956	12.229
Treatment Prob(F)				0.7344	0.7344	0.0001	0.4671	0.4671	0.0001	0.0001

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

Determine the Agronomic Response of Drill-Seeded Titan to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number	: 16-SLP-04
Site and design	:
Location/Cooperator	: St. Landry Parish / Charlie Fontenot
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Tensas-Sharkey complex
% organic matter	: 2.94
pH	: 7.7
Extractable nutrients ppm	: Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill seeded / April 5
Seeding rate/depth	: 40 seeds/ft^2 / .75 in
Emergence date	: April 15
Harvest date	: Aug. 29
Seed treatment/cwt	: Dithane (fungicide) – 114 g
	Release (gibberellic acid) – 10 g
	Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml
	AV-1011 (bird repellant) – 18.3 oz
Fertilization	: No blanket applications
Water management	:
Flush	: Data not available
Flood	: May 29
Drain	: Aug. 1
Pest management	:
Herbicides	: Farmer managed herbicides
Insecticides	: 0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides ………………………..	: None

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

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle									
Rating Date								8/29/2016		8/29/2016		8/29/2016		8/29/2016		8/29/2016	
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 (lb ai/A)	Growth Stage														
1	UREA	0	4-5 leaf	89.3	cd	79.3	cd	32.3	e	0.0	a	0.0	a	43.7	abc	5072	e
2	UREA	30	4-5 leaf	88.3	d	78.3	d	35.3	d	0.0	a	0.0	a	44.1	a	6523	d
3	UREA	60	4-5 leaf	89.8	bcd	79.8	bcd	37.5	bcd	2.5	a	1.3	a	44.1	a	7102	cd
4	UREA	90	4-5 leaf	89.0	cd	79.0	cd	39.0	a-d	0.0	a	0.0	a	43.6	a-d	8104	abc
5	UREA	120	4-5 leaf	89.8	bcd	79.8	bcd	38.8	a-d	5.0	a	2.5	a	43.3	bcd	8519	ab
6	UREA	150	4-5 leaf	91.3	abc	81.3	abc	41.8	a	2.5	a	1.0	a	43.5	a-d	9050	a
7	UREA	180	4-5 leaf	91.8	ab	81.8	ab	41.0	ab	10.0	a	3.8	a	42.9	d	8564	ab
8	UREA	210	4-5 leaf	92.3	a	82.3	a	42.0	a	7.5	a	3.0	a	43.0	cd	8963	a
9	UREA	45	4-5 leaf	88.8	cd	78.8	cd	36.5	cd	0.0	a	0.0	a	43.7	abc	7731	bc
	UREA	45	PD														
10	UREA	75	4-5 leaf	89.8	bcd	79.8	bcd	36.8	cd	0.0	a	0.0	a	43.8	ab	8451	ab
	UREA	45	PD														
11	UREA	105	4-5 leaf	91.0	abc	81.0	abc	40.3	abc	10.0	a	3.8	a	43.1	bcd	7546	bc
	UREA	45	PD														
12	UREA	135	4-5 leaf	91.3	abc	81.3	abc	40.3	abc	2.5	a	1.3	a	43.5	a-d	9174	a
	UREA	45	PD														
LSD P=.05				1.55		1.55		2.69		6.55		2.57		0.47		775.8	
Standard Deviation				1.08		1.08		1.87		4.55		1.79		0.33		539.3	
CV				1.2		1.34		4.86		136.52		129.88		0.75		6.83	
Replicate F				2.057		2.057		0.404		1.878		2.169		3.317		2.423	
Replicate Prob(F)				0.1250		0.1250		0.7508		0.1525		0.1104		0.0317		0.0833	
Treatment F				5.726		5.726		9.717		2.927		2.829		5.795		19.914	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0083		0.0102		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded Thad to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number	: 16-SLP-05
Site and design	:
Location/Cooperator	: St. Landry Parish / Charlie Fontenot
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Tensas-Sharkey complex
% organic matter	: 2.94
pH	: 7.7
Extractable nutrients ppm	: Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill seeded / April 5
Seeding rate/depth	: 40 seeds/ft^2 / .75 in
Emergence date	: April 15
Harvest date	: Aug. 29
Seed treatment/cwt	: Dithane (fungicide) – 114 g
	Release (gibberellic acid) – 10 g
	Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml
	AV-1011 (bird repellant) – 18.3 oz
Fertilization	: No blanket applications
Water management	:
Flush	: Data not available
Flood	: May 29
Drain	: Aug. 1
Pest management	:
Herbicides	: Farmer managed herbicides
Insecticides	: 0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides ……………………….	: None

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

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle				
Rating Date						8/29/2016	8/29/2016	8/29/2016	8/29/2016	8/29/2016
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 (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	90.5 a	80.5 a	31.8 f	12.5 a	2.5 a	44.2 a	3476 a
2	UREA	30	4-5 leaf	90.3 a	80.3 a	34.0 ef	32.5 a	3.8 a	45.3 a	4140 a
3	UREA	60	4-5 leaf	90.3 a	80.3 a	37.3 bcd	32.5 a	3.8 a	44.7 a	4179 a
4	UREA	90	4-5 leaf	92.0 a	82.0 a	36.8 cde	37.5 a	3.8 a	44.0 a	4004 a
5	UREA	120	4-5 leaf	92.3 a	82.3 a	39.0 bcd	37.5 a	5.0 a	44.5 a	4145 a
6	UREA	150	4-5 leaf	92.5 a	82.5 a	43.3 a	15.0 a	2.5 a	43.9 a	4841 a
7	UREA	180	4-5 leaf	94.3 a	84.3 a	40.3 abc	35.0 a	5.0 a	43.8 a	4852 a
8	UREA	210	4-5 leaf	94.3 a	84.3 a	43.3 a	27.5 a	3.8 a	43.6 a	5144 a
9	UREA	45	4-5 leaf	91.3 a	81.3 a	36.0 de	55.0 a	5.0 a	44.6 a	2726 a
	UREA	45	PD							
10	UREA	75	4-5 leaf	91.3 a	81.3 a	37.8 bcd	57.5 a	3.8 a	44.2 a	2606 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	92.8 a	82.8 a	40.3 abc	60.0 a	5.0 a	44.0 a	1868 a
	UREA	45	PD							
12	UREA	135	4-5 leaf	93.5 a	83.5 a	40.5 ab	37.5 a	5.0 a	44.3 a	2986 a
	UREA	45	PD							
LSD P=.05				2.66	2.66	2.37	43.89	2.76	1.02	2194.4
Standard Deviation				1.85	1.85	1.65	30.51	1.92	0.71	1525.4
CV				2.01	2.25	4.3	83.21	47.2	1.6	40.71
Replicate F				1.771	1.771	1.367	0.352	2.030	3.210	4.961
Replicate Prob(F)				0.1719	0.1719	0.2698	0.7879	0.1287	0.0355	0.0060
Treatment F				2.411	2.411	17.688	0.973	0.966	1.641	1.791
Treatment Prob(F)				0.0251	0.0251	0.0001	0.4885	0.4949	0.1325	0.0962

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

Determine the Agronomic Response of Drill-Seeded CL153 to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number	: 16-SLP-06
Site and design	:
Location/Cooperator	: St. Landry Parish / Charlie Fontenot
Tillage type	: Conventional
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Tensas-Sharkey complex
% organic matter	: 2.94
pH	: 7.7
Extractable nutrients ppm	: Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8
Crop/Variety	: Rice / See data sheet
Planting method/date	: Drill seeded / April 5
Seeding rate/depth	: 40 seeds/ft^2 / .75 in
Emergence date	: April 15
Harvest date	: Aug. 29
Seed treatment/cwt	: Dithane (fungicide) – 114 g
	Release (gibberellic acid) – 10 g
	Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml
	AV-1011 (bird repellant) – 18.3 oz
Fertilization	: No blanket applications
Water management	:
Flush	: Data not available
Flood	: May 29
Drain	: Aug. 1
Pest management	:
Herbicides	: Farmer managed herbicides
Insecticides	: 0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides ………………………	: None

Table 27. Determine the agronomic response of drill-seeded CL153 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle				
Rating Date						8/29/2016	8/29/2016	8/29/2016	8/29/2016	8/29/2016
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 (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	92.0 c	82.0 c	32.0 c	0.0 c	0.0 b	45.0 ab	3597 d
2	UREA	30	4-5 leaf	93.8 abc	83.8 abc	37.8 b	0.0 c	0.0 b	45.6 a	6855 ab
3	UREA	60	4-5 leaf	94.0 ab	84.0 ab	37.8 b	2.5 c	1.0 ab	45.8 a	7406 a
4	UREA	90	4-5 leaf	94.8 ab	84.8 ab	40.3 ab	17.5 bc	3.3 ab	45.1 ab	7281 a
5	UREA	120	4-5 leaf	94.3 ab	84.3 ab	42.5 a	7.5 c	2.3 ab	44.9 ab	8066 a
6	UREA	150	4-5 leaf	94.3 ab	84.3 ab	40.8 ab	40.0 abc	5.0 a	44.8 ab	5933 abc
7	UREA	180	4-5 leaf	95.8 a	85.8 a	40.0 ab	42.5 abc	3.8 ab	42.9 b	3850 cd
8	UREA	210	4-5 leaf	95.5 a	85.5 a	40.3 ab	67.5 a	5.0 a	43.9 ab	3846 cd
9	UREA	45	4-5 leaf	93.0 bc	83.0 bc	38.5 ab	12.5 c	3.8 ab	45.6 a	6683 ab
	UREA	45	PD							
10	UREA	75	4-5 leaf	94.5 ab	84.5 ab	40.5 ab	2.5 c	1.3 ab	45.4 ab	7907 a
	UREA	45	PD							
11	UREA	105	4-5 leaf	94.5 ab	84.5 ab	40.3 ab	25.0 bc	3.8 ab	45.1 ab	6911 ab
	UREA	45	PD							
12	UREA	135	4-5 leaf	94.8 ab	84.8 ab	41.8 ab	55.0 ab	5.0 a	44.4 ab	4665 bcd
	UREA	45	PD							
LSD P=.05				1.49	1.49	2.67	28.46	2.71	1.58	1640.9
Standard Deviation				1.04	1.04	1.85	19.79	1.89	1.10	1140.6
CV				1.1	1.23	4.71	87.13	66.55	2.44	18.75
Replicate F				5.577	5.577	1.446	2.219	0.484	5.174	4.077
Replicate Prob(F)				0.0033	0.0033	0.2473	0.1044	0.6954	0.0048	0.0144
Treatment F				3.845	3.845	8.647	5.532	3.993	2.193	8.466
Treatment Prob(F)				0.0013	0.0013	0.0001	0.0001	0.0010	0.0402	0.0001

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

Determine the Agronomic Response of Drill-Seeded CL272 to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number	16-SLP-07
Site and design	
Location/Cooperator	St. Landry Parish / Charlie Fontenot
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Tensas-Sharkey complex
% organic matter	2.94
pH	7.7
Extractable nutrients ppm	Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / April 5
Seeding rate/depth	40 seeds/ft^2 / .75 in
Emergence date	April 15
Harvest date	Aug. 29
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	May 29
Drain	Aug. 1
Pest management	
Herbicides	Farmer managed herbicides
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

Table 28. Determine the agronomic response of drill-seeded CL272 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Top of Panicle									
Rating Date								8/29/2016		8/29/2016		8/29/2016		8/29/2016		8/29/2016	
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 (lb ai/A)	Growth Stage														
1	UREA	0	4-5 leaf	93.0	d	83.0	d	32.5	d	0.0	a	0.0	a	43.5	ab	5230	b
2	UREA	30	4-5 leaf	93.5	d	83.5	d	37.3	c	0.0	a	0.0	a	43.8	a	6888	a
3	UREA	60	4-5 leaf	94.5	cd	84.5	cd	39.5	abc	2.5	a	1.3	a	43.8	a	7924	a
4	UREA	90	4-5 leaf	96.0	c	86.0	c	39.8	abc	10.0	a	1.8	a	43.4	ab	8598	a
5	UREA	120	4-5 leaf	99.0	ab	89.0	ab	43.5	a	5.0	a	2.5	a	43.3	ab	8575	a
6	UREA	150	4-5 leaf	99.0	ab	89.0	ab	43.3	a	5.0	a	1.3	a	43.3	ab	8369	a
7	UREA	180	4-5 leaf	100.3	a	90.3	a	43.8	a	2.5	a	1.3	a	42.9	b	7903	a
8	UREA	210	4-5 leaf	99.8	ab	89.8	ab	43.8	a	17.5	a	2.8	a	43.1	ab	7921	a
9	UREA	45	4-5 leaf	94.0	cd	84.0	cd	39.0	bc	12.5	a	2.5	a	43.7	a	7312	a
	UREA	45	PD														
10	UREA	75	4-5 leaf	95.3	cd	85.3	cd	40.3	abc	10.0	a	1.3	a	43.5	ab	7506	a
	UREA	45	PD														
11	UREA	105	4-5 leaf	97.8	b	87.8	b	42.3	ab	2.5	a	1.3	a	43.4	ab	8704	a
	UREA	45	PD														
12	UREA	135	4-5 leaf	99.3	ab	89.3	ab	41.8	ab	5.0	a	2.5	a	43.1	ab	8321	a
	UREA	45	PD														
LSD P=.05				1.66		1.66		2.72		14.96		3.45		0.44		1426.8	
Standard Deviation				1.15		1.15		1.89		10.40		2.40		0.30		991.8	
CV				1.19		1.33		4.66		172.13		157.85		0.7		12.76	
Replicate F				0.932		0.932		0.694		1.560		0.351		1.503		0.903	
Replicate Prob(F)				0.4363		0.4363		0.5624		0.2175		0.7889		0.2320		0.4500	
Treatment F				21.449		21.449		12.321		1.070		0.595		3.366		3.860	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.4133		0.8189		0.0034		0.0013	

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

Determine the Agronomic Response of Drill-Seeded Diamond to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number	16-SLP-10
Site and design	
Location/Cooperator	St. Landry Parish / Charlie Fontenot
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Tensas-Sharkey complex
% organic matter	2.94
pH	7.7
Extractable nutrients ppm	Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / April 5
Seeding rate/depth	40 seeds/ft^2 / .75 in
Emergence date	April 15
Harvest date	Aug. 29
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	May 29
Drain	Aug. 1
Pest management	
Herbicides	Farmer managed herbicides
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

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

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle				
Rating Date						8/29/2016	8/29/2016	8/29/2016	8/30/2016	8/30/2016
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 (lb ai/A)	Growth Stage							
1	UREA	0	4-5 leaf	89.3 d	79.3 d	30.5 e	0.0 a	0.0 a	46.0 a	3744 e
2	UREA	30	4-5 leaf	90.8 c	80.8 c	36.5 d	0.0 a	0.0 a	45.6 ab	5897 d
3	UREA	60	4-5 leaf	91.3 bc	81.3 bc	38.0 cd	0.0 a	0.0 a	45.7 ab	6711 cd
4	UREA	90	4-5 leaf	92.5 bc	82.5 bc	40.3 a-d	0.0 a	0.0 a	44.9 cd	8336 abc
5	UREA	120	4-5 leaf	93.5 ab	83.5 ab	43.0 ab	0.0 a	0.0 a	44.7 de	8530 abc
6	UREA	150	4-5 leaf	93.5 ab	83.5 ab	40.5 a-d	12.5 a	1.3 a	44.4 ef	8820 ab
7	UREA	180	4-5 leaf	95.0 a	85.0 a	44.3 a	12.5 a	2.5 a	44.0 f	8646 abc
8	UREA	210	4-5 leaf	92.8 abc	82.8 abc	43.8 a	5.0 a	1.3 a	43.9 f	9254 a
9	UREA	45	4-5 leaf	91.3 bc	81.3 bc	37.5 d	0.0 a	0.0 a	45.4 b	6910 bcd
	UREA	45	PD							
10	UREA	75	4-5 leaf	93.0 ab	83.0 ab	39.0 bcd	0.0 a	0.0 a	45.3 bc	7855 abc
	UREA	45	PD							
11	UREA	105	4-5 leaf	93.3 ab	83.3 ab	41.8 abc	5.0 a	1.3 a	44.7 de	8382 abc
	UREA	45	PD							
12	UREA	135	4-5 leaf	93.3 ab	83.3 ab	42.8 ab	7.5 a	2.5 a	44.5 de	8960 a
	UREA	45	PD							
LSD P=.05				1.49	1.49	2.80	13.68	2.46	0.38	1273.9
Standard Deviation				1.03	1.03	1.95	9.51	1.71	0.26	885.5
CV				1.12	1.25	4.9	268.56	234.34	0.58	11.54
Replicate F				2.833	2.833	0.737	1.620	1.130	4.102	1.683
Replicate Prob(F)				0.0533	0.0533	0.5376	0.2035	0.3513	0.0140	0.1896
Treatment F				9.000	9.000	15.833	1.078	1.346	26.345	13.090
Treatment Prob(F)				0.0001	0.0001	0.0001	0.4073	0.2443	0.0001	0.0001

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

Determine the Agronomic Response of Drill-Seeded Provisia (PVL024-A) to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number ....: 16-SLP-08

Site and design ....:
- **Location/Cooperator** ....: St. Landry Parish / Charlie Fontenot
- **Tillage type**..................................: Conventional
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.67 x 16 ft
- **Row width/rows per plot**...........: 8 in / 7

Soil type ....: Tensas-Sharkey complex
- **% organic matter**.......................: 2.94
- **pH**...: 7.7
- **Extractable nutrients** ppm ....: Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8

Crop/Variety ....: Rice / See data sheet
- **Planting method/date** ....: Drill seeded / April 5
- **Seeding rate/depth**......................: 40 seeds/ft^2 / .75 in
- **Emergence date**...........................: April 15
- **Harvest date** ....: Aug. 29

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

Fertilization..: No blanket applications

Water management ....:
- **Flush** ....: Data not available
- **Flood**..: May 29
- **Drain**..: Aug. 1

Pest management ....:
- **Herbicides**....................................: Farmer managed herbicides
- **Insecticides** ....: 0.137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides**……………………….: None

Table 30. Determine the agronomic response of drill-seeded PVL024-A to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle									
Rating Date								8/29/2016		8/29/2016		8/29/2016		8/29/2016		8/29/2016	
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 (lb ai/A)	Growth Stage														
1	UREA	0	4-5 leaf	93.3	f	83.3	f	31.3	c	2.5	a	0.8	a	47.7	a	5571	b
2	UREA	30	4-5 leaf	95.3	e	85.3	e	37.0	b	7.5	a	3.0	a	47.3	abc	6629	a
3	UREA	60	4-5 leaf	98.0	d	88.0	d	39.5	ab	5.0	a	2.5	a	47.5	ab	7434	a
4	UREA	90	4-5 leaf	99.3	cd	89.3	cd	41.8	a	12.5	a	3.0	a	46.8	a-d	7099	a
5	UREA	120	4-5 leaf	101.0	abc	91.0	abc	43.0	a	7.5	a	2.0	a	46.5	bcd	7507	a
6	UREA	150	4-5 leaf	101.0	abc	91.0	abc	42.8	a	2.5	a	1.3	a	47.0	a-d	7252	a
7	UREA	180	4-5 leaf	101.8	ab	91.8	ab	42.0	a	7.5	a	2.0	a	46.2	d	7049	a
8	UREA	210	4-5 leaf	102.0	a	92.0	a	43.8	a	20.0	a	3.0	a	46.2	cd	7286	a
9	UREA	45	4-5 leaf	96.3	e	86.3	e	37.3	b	5.0	a	2.5	a	47.4	ab	7229	a
	UREA	45	PD														
10	UREA	75	4-5 leaf	99.5	bcd	89.5	bcd	40.5	ab	10.0	a	2.0	a	47.1	a-d	6977	a
	UREA	45	PD														
11	UREA	105	4-5 leaf	100.8	abc	90.8	abc	40.8	ab	0.0	a	0.0	a	47.2	a-d	7257	a
	UREA	45	PD														
12	UREA	135	4-5 leaf	101.3	abc	91.3	abc	42.8	a	0.0	a	0.0	a	47.0	a-d	7461	a
	UREA	45	PD														
LSD P=.05				1.61		1.61		2.69		14.82		2.78		0.66		715.7	
Standard Deviation				1.12		1.12		1.87		10.30		1.94		0.46		497.5	
CV				1.13		1.26		4.66		154.48		105.59		0.97		7.04	
Replicate F				0.193		0.193		1.498		1.729		3.899		1.521		2.468	
Replicate Prob(F)				0.9003		0.9003		0.2333		0.1802		0.0173		0.2272		0.0793	
Treatment F				25.594		25.594		14.441		1.214		1.290		4.369		4.507	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.3163		0.2732		0.0005		0.0004	

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

Determine the Agronomic Response of Drill-Seeded Provisia (PVL024-B) to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number ....: 16-SLP-09

Site and design ....:
Location/Cooperator ....: St. Landry Parish / Charlie Fontenot
Tillage type ....: Conventional
Experimental design ....: Randomized complete block
Number of reps ....: 4
Plot size ....: 4.67 x 16 ft
Row width/rows per plot ....: 8 in / 7

Soil type ....: Tensas-Sharkey complex
% organic matter ....: 2.94
pH ....: 7.7
Extractable nutrients ppm ....: Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8

Crop/Variety ....: Rice / See data sheet
Planting method/date ....: Drill seeded / April 5
Seeding rate/depth ....: 40 seeds/ft^2 / .75 in
Emergence date ....: April 15
Harvest date ....: Aug. 29

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

Fertilization ....: No blanket applications

Water management ....:
Flush ....: Data not available
Flood ....: May 29
Drain ....: Aug. 1

Pest management ....:
Herbicides ....: Farmer managed herbicides
Insecticides ....: 0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides ……………………….: None

Table 31. Determine the agronomic response of drill-seeded PVL024-B to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle									
Rating Date								8/30/2016		8/30/2016		8/30/2016		8/30/2016		8/30/2016	
Rating Type				50% HD		50% HD		Height		Lodge				Test Wt.		Yield	
Rating Unit				days		days		in		% plot		rate		lb/bu		lb/plot	
Crop Stage Majority				Main		Main		Main		Main		Main		Main		Ratoon	
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage														
1	UREA	0	4-5 leaf	93.3	a	83.3	a	35.0	d	0.0	a	0.0	b	44.7	ab	4339	d
2	UREA	30	4-5 leaf	93.5	a	83.5	a	37.0	d	2.5	a	1.3	ab	44.6	ab	6053	c
3	UREA	60	4-5 leaf	94.0	a	84.0	a	40.0	c	2.5	a	0.5	ab	44.8	a	6483	bc
4	UREA	90	4-5 leaf	90.0	a	80.0	a	41.3	bc	0.0	a	0.0	b	44.0	ab	6901	abc
5	UREA	120	4-5 leaf	98.3	a	88.3	a	42.8	abc	2.5	a	0.5	ab	44.4	ab	7436	a
6	UREA	150	4-5 leaf	100.0	a	90.0	a	44.3	ab	15.0	a	1.3	ab	44.1	ab	7473	a
7	UREA	180	4-5 leaf	100.3	a	90.3	a	45.3	a	13.8	a	0.8	ab	44.2	ab	6738	abc
8	UREA	210	4-5 leaf	100.8	a	90.8	a	44.5	ab	17.5	a	2.3	a	44.2	ab	7219	ab
9	UREA	45	4-5 leaf	94.0	a	84.0	a	39.5	c	2.5	a	0.3	ab	43.8	b	6448	bc
	UREA	45	PD														
10	UREA	75	4-5 leaf	95.5	a	85.5	a	40.5	c	13.8	a	1.3	ab	44.4	ab	6817	abc
	UREA	45	PD														
11	UREA	105	4-5 leaf	98.8	a	88.8	a	42.3	abc	7.5	a	0.3	ab	44.3	ab	7421	a
	UREA	45	PD														
12	UREA	135	4-5 leaf	99.8	a	89.8	a	44.0	ab	5.0	a	1.0	ab	44.1	ab	7028	ab
	UREA	45	PD														
LSD P=.05				6.35		6.35		2.20		11.96		1.27		0.55		580.4	
Standard Deviation				4.42		4.42		1.53		8.31		0.89		0.38		403.5	
CV				4.58		5.1		3.69		120.94		114.83		0.87		6.03	
Replicate F				1.285		1.285		5.424		5.334		3.147		0.264		0.754	
Replicate Prob(F)				0.2957		0.2957		0.0038		0.0042		0.0380		0.8510		0.5278	
Treatment F				2.581		2.581		16.950		2.359		2.231		2.371		18.302	
Treatment Prob(F)				0.0174		0.0174		0.0001		0.0281		0.0370		0.0273		0.0001	

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

Determine the Agronomic Response of Drill-Seeded XL760 to Nitrogen Fertilizer Rate and Time of Application – St. Landry Parish

Experiment number	16-SLP-02
Site and design	
Location/Cooperator	St. Landry Parish / Charlie Fontenot
Tillage type	Conventional
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Tensas-Sharkey complex
% organic matter	2.94
pH	7.7
Extractable nutrients ppm	Ca-4837; Cu-1.8; Mg-718; P-86; K-253; Na-48; S-6.5; Zn-1.8
Crop/Variety	Rice / XL760
Planting method/date	Drill seeded / April 5
Seeding rate/depth	10 seeds/ft^2 / .75 in
Emergence date	April 15
Harvest date	Aug. 29
Seed treatment/cwt	Clothianidin (NipsIt Inside) Fludioxonil (Spirato 480FS) Fludioxonil (Maxim 4FS) Gibberellic acid Zinc AV-1011 (bird repellent) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	May 29
Drain	Aug. 1
Pest management	
Herbicides	Farmer managed herbicides
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

Table 32. Determine the agronomic response of drill-seeded XL760 to nitrogen fertilizer rate and time of application. St. Landry Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/29/2016		8/29/2016		8/29/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	95.0	c	85.0	c	38.5	b	40.6	a	4426	b
2	UREA	60	4-5 leaf	97.8	abc	87.8	abc	50.0	a	40.4	a	8010	a
3	UREA	90	4-5 leaf	97.0	bc	87.0	bc	50.5	a	40.6	a	9327	a
4	UREA	120	4-5 leaf	100.0	ab	90.0	ab	52.5	a	40.2	a	9583	a
5	UREA	150	4-5 leaf	101.3	a	91.3	a	53.3	a	40.0	a	9626	a
6	UREA	180	4-5 leaf	99.3	ab	89.3	ab	50.3	a	40.3	a	10672	a
7	UREA	75	4-5 leaf	96.8	bc	86.8	bc	48.5	a	38.7	a	8355	a
	UREA	45	50% HD										
8	UREA	105	4-5 leaf	99.5	ab	89.5	ab	51.3	a	40.1	a	9815	a
	UREA	45	50% HD										
9	UREA	135	4-5 leaf	100.5	ab	90.5	ab	52.0	a	40.0	a	9105	a
	UREA	45	50% HD										
LSD P=.05				2.53		2.53		3.94		1.70		2023.3	
Standard Deviation				1.73		1.73		2.70		1.16		1383.2	
CV				1.76		1.96		5.44		2.99		16.33	
Replicate F				1.208		1.208		1.870		0.582		0.266	
Replicate Prob(F)				0.3282		0.3282		0.1616		0.6330		0.8492	
Treatment F				5.570		5.570		10.681		0.968		6.568	
Treatment Prob(F)				0.0005		0.0005		0.0001		0.4840		0.0002	

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

Determine the Agronomic Response of Drill-Seeded CL163 to Nitrogen Fertilizer Rate and Time of Application – Richland Parish

Experiment number	16-RP-01
Site and design	
Location/Cooperator	Richland Parish / Ashley Dixon
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Hebert silty clay (results from 2014 soil sample)
% organic matter	1.79
pH	7.2
Extractable nutrients ppm	Ca-3121; Cu-3.02; Mg-638; P-20; K-166; Na-173; S-29.9; Zn-1.28
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / May 11
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	May 21
Harvest date	Sept. 19
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	June 24
Drain	Sept. 6
Pest management	
Herbicides	25 oz/A Command + 1.5 qt/A Glyphosate + 4 oz/A Sharpen, May 11 2 qt/A Propanil + 3 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax + 6 oz/A Newpath, June 23
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

Table 33. Determine the agronomic response of drill-seeded CL163 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								9/19/2016		9/19/2016		9/19/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	93.0	a	83.0	a	33.8	d	44.5	a	5812	g
2	UREA	30	4-5 leaf	92.0	a	82.0	a	37.0	c	44.0	ab	6991	f
3	UREA	60	4-5 leaf	91.8	a	81.8	a	38.5	abc	43.5	bc	7628	a-d
4	UREA	90	4-5 leaf	92.8	a	82.8	a	40.0	ab	42.9	de	7912	ab
5	UREA	120	4-5 leaf	92.3	a	82.3	a	39.3	ab	42.5	ef	7375	c-f
6	UREA	150	4-5 leaf	92.8	a	82.8	a	38.8	abc	42.0	fgh	7431	b-f
7	UREA	180	4-5 leaf	93.8	a	83.8	a	38.3	bc	41.8	h	7242	def
8	UREA	210	4-5 leaf	93.5	a	83.5	a	38.3	bc	41.6	h	7104	ef
9	UREA	45	4-5 leaf	91.8	a	81.8	a	40.5	a	43.4	cd	7603	a-d
	UREA	45	PD										
10	UREA	75	4-5 leaf	92.0	a	82.0	a	38.8	abc	43.1	cd	7741	abc
	UREA	45	PD										
11	UREA	105	4-5 leaf	92.8	a	82.8	a	39.8	ab	42.4	efg	7946	a
	UREA	45	PD										
12	UREA	135	4-5 leaf	93.0	a	83.0	a	38.8	abc	42.0	gh	7545	a-e
	UREA	45	PD										
LSD P=.05				1.78		1.78		2.19		0.53		481.6	
Standard Deviation				1.24		1.24		1.52		0.37		334.7	
CV				1.34		1.5		3.96		0.85		4.55	
Replicate F				3.425		3.425		1.353		7.508		0.905	
Replicate Prob(F)				0.0283		0.0283		0.2743		0.0006		0.4492	
Treatment F				1.142		1.142		5.246		24.873		11.601	
Treatment Prob(F)				0.3626		0.3626		0.0001		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded CL172 to Nitrogen Fertilizer Rate and Time of Application – Richland Parish

Experiment number	16-RP-03
Site and design	
Location/Cooperator	Richland Parish / Ashley Dixon
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Hebert silty clay (results from 2014 soil sample)
% organic matter	1.79
pH	7.2
Extractable nutrients ppm	Ca-3121; Cu-3.02; Mg-638; P-20; K-166; Na-173; S-29.9; Zn-1.28
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / May 11
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	May 21
Harvest date	Sept. 19
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	June 24
Drain	Sept. 6
Pest management	
Herbicides	25 oz/A Command + 1.5 qt/A Glyphosate + 4 oz/A Sharpen, May 11 2 qt/A Propanil + 3 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax + 6 oz/A Newpath, June 23
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

Table 34. Determine the agronomic response of drill-seeded CL172 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								9/19/2016		9/19/2016		9/19/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	87.5	de	77.5	de	31.8	f	46.3	a	4446	a
2	UREA	30	4-5 leaf	87.3	e	77.3	e	34.8	e	45.6	b	5140	a
3	UREA	60	4-5 leaf	88.8	cd	78.8	cd	36.3	cde	45.5	b	5455	a
4	UREA	90	4-5 leaf	90.8	ab	80.8	ab	37.0	a-d	44.9	cd	4898	a
5	UREA	120	4-5 leaf	90.5	ab	80.5	ab	38.5	a	44.4	def	5130	a
6	UREA	150	4-5 leaf	90.8	ab	80.8	ab	36.8	a-d	44.0	fg	5205	a
7	UREA	180	4-5 leaf	90.5	ab	80.5	ab	37.0	a-d	44.1	fg	5160	a
8	UREA	210	4-5 leaf	91.8	a	81.8	a	37.5	abc	43.9	g	5577	a
9	UREA	45	4-5 leaf	88.5	cde	78.5	cde	35.3	de	45.7	b	5252	a
	UREA	45	PD										
10	UREA	75	4-5 leaf	89.8	bc	79.8	bc	36.0	cde	45.0	c	5138	a
	UREA	45	PD										
11	UREA	105	4-5 leaf	91.3	a	81.3	a	36.5	b-e	44.6	cde	5394	a
	UREA	45	PD										
12	UREA	135	4-5 leaf	91.5	a	81.5	a	38.3	ab	44.2	efg	5169	a
	UREA	45	PD										
LSD P=.05				1.47		1.47		1.93		0.48		661.1	
Standard Deviation				1.02		1.02		1.34		0.33		459.6	
CV				1.13		1.28		3.7		0.74		8.9	
Replicate F				6.371		6.371		0.386		7.653		1.900	
Replicate Prob(F)				0.0016		0.0016		0.7640		0.0005		0.1487	
Treatment F				9.102		9.102		7.191		21.486		1.561	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001		0.1570	

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

Determine the Agronomic Response of Drill-Seeded CL153 to Nitrogen Fertilizer Rate and Time of Application – Richland Parish

Experiment number	16-RP-06
Site and design	
Location/Cooperator	Richland Parish / Ashley Dixon
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Hebert silty clay (results from 2014 soil sample)
% organic matter	1.79
pH	7.2
Extractable nutrients ppm	Ca-3121; Cu-3.02; Mg-638; P-20; K-166; Na-173; S-29.9; Zn-1.28
Crop/Variety	Rice / See data sheet
Planting method/date	Drill seeded / May 11
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	May 21
Harvest date	Sept. 19
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	June 24
Drain	Sept. 6
Pest management	
Herbicides	25 oz/A Command + 1.5 qt/A Glyphosate + 4 oz/A Sharpen, May 11 2 qt/A Propanil + 3 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax + 6 oz/A Newpath, June 23
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

Table 35. Determine the agronomic response of drill-seeded CL153 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								9/19/2016		9/19/2016		9/19/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	85.3	f	75.3	f	32.3	f	46.7	a	5021	c
2	UREA	30	4-5 leaf	85.8	f	75.8	f	34.3	e	46.5	ab	6022	b
3	UREA	60	4-5 leaf	88.0	e	78.0	e	35.5	de	46.2	bc	6611	a
4	UREA	90	4-5 leaf	89.8	cd	79.8	cd	37.5	bc	45.7	cde	6081	ab
5	UREA	120	4-5 leaf	89.5	cd	79.5	cd	39.5	a	45.2	ef	6319	ab
6	UREA	150	4-5 leaf	91.3	ab	81.3	ab	40.5	a	45.1	f	6100	ab
7	UREA	180	4-5 leaf	91.8	ab	81.8	ab	40.5	a	45.1	f	6170	ab
8	UREA	210	4-5 leaf	92.3	a	82.3	a	40.5	a	44.9	f	6471	ab
9	UREA	45	4-5 leaf	87.5	e	77.5	e	36.5	cd	46.4	ab	6163	ab
	UREA	45	PD										
10	UREA	75	4-5 leaf	88.8	de	78.8	de	37.0	cd	45.8	cd	6137	ab
	UREA	45	PD										
11	UREA	105	4-5 leaf	90.5	bc	80.5	bc	39.0	ab	45.3	def	6205	ab
	UREA	45	PD										
12	UREA	135	4-5 leaf	91.3	ab	81.3	ab	39.0	ab	44.9	f	6161	ab
	UREA	45	PD										
LSD P=.05				1.31		1.31		1.77		0.57		534.1	
Standard Deviation				0.91		0.91		1.23		0.40		371.3	
CV				1.02		1.15		3.27		0.87		6.06	
Replicate F				15.079		15.079		1.827		1.076		10.865	
Replicate Prob(F)				0.0001		0.0001		0.1614		0.3728		0.0001	
Treatment F				25.486		25.486		18.787		11.274		4.314	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001		0.0005	

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

Determine the Agronomic Response of Drill-Seeded CL272 to Nitrogen Fertilizer Rate and Time of Application – Richland Parish

Experiment number	16-RP-07
Site and design	
Location/Cooperator	Richland Parish / Ashley Dixon
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Hebert silty clay (results from 2014 soil sample)
% organic matter	1.79
pH	7.2
Extractable nutrients ppm	Ca-3121; Cu-3.02; Mg-638; P-20; K-166; Na-173; S-29.9; Zn-1.28
Crop/Variety	Rice / See Data sheet
Planting method/date	Drill seeded / May 11
Seeding rate/depth	40 seeds/ft^2 / .5 in
Emergence date	May 21
Harvest date	Sept. 19
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn & 4.9% combined sulfur) – 296 ml AV-1011 (bird repellant) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	June 24
Drain	Sept. 6
Pest management	
Herbicides	25 oz/A Command + 1.5 qt/A Glyphosate + 4 oz/A Sharpen, May 11 2 qt/A Propanil + 3 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax + 6 oz/A Newpath, June 23
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

Table 36. Determine the agronomic response of drill-seeded CL272 to nitrogen fertilizer rate and time of application. Richland Parish.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								9/19/2016		9/19/2016		9/19/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	87.8	e	77.8	e	29.3	de	45.0	ef	4096	e
2	UREA	30	4-5 leaf	88.0	e	78.0	e	28.0	e	45.1	def	5129	d
3	UREA	60	4-5 leaf	88.3	de	78.3	de	30.0	de	45.9	ab	5619	cd
4	UREA	90	4-5 leaf	90.3	bc	80.3	bc	34.3	bc	45.7	abc	5993	bc
5	UREA	120	4-5 leaf	89.8	c	79.8	c	37.3	ab	45.3	cde	6159	ab
6	UREA	150	4-5 leaf	91.0	ab	81.0	ab	37.0	ab	45.0	ef	6299	ab
7	UREA	180	4-5 leaf	91.8	a	81.8	a	37.3	ab	45.0	ef	6395	ab
8	UREA	210	4-5 leaf	91.5	a	81.5	a	38.3	a	44.8	f	6533	a
9	UREA	45	4-5 leaf	89.3	cd	79.3	cd	32.8	cd	46.2	a	6156	ab
	UREA	45	PD										
10	UREA	75	4-5 leaf	89.5	c	79.5	c	35.3	abc	45.8	ab	6235	ab
	UREA	45	PD										
11	UREA	105	4-5 leaf	91.0	ab	81.0	ab	36.8	ab	45.6	bcd	6501	a
	UREA	45	PD										
12	UREA	135	4-5 leaf	91.8	a	81.8	a	37.3	ab	45.3	cde	6358	ab
	UREA	45	PD										
LSD P=.05				1.10		1.10		3.73		0.48		492.2	
Standard Deviation				0.77		0.77		2.59		0.33		342.1	
CV				0.85		0.96		7.52		0.74		5.74	
Replicate F				35.179		35.179		1.054		0.304		3.240	
Replicate Prob(F)				0.0001		0.0001		0.3817		0.8223		0.0344	
Treatment F				14.529		14.529		7.680		7.045		17.149	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001		0.0001	

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

Determine the Agronomic Response of Drill-Seeded Gemini 214CL to Nitrogen Fertilizer Rate and Time of Application – Richland Parish

Experiment number	16-RP-11
Site and design	
Location/Cooperator	Richland Parish / Ashley Dixon
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Hebert silty clay (results from 2014 soil sample)
% organic matter	1.79
pH	7.2
Extractable nutrients ppm	Ca-3121; Cu-3.02; Mg-638; P-20; K-166; Na-173; S-29.9; Zn-1.28
Crop/Variety	Rice / Gemini 214CL
Planting method/date	Drill seeded / May 11
Seeding rate/depth	10 seeds/ft^2 / .5 in
Emergence date	May 21
Harvest date	Sept. 19
Seed treatment/cwt	Clothianidin (NipsIt Inside) Fludioxonil (Spirato 480FS) Fludioxonil (Maxim 4FS) Gibberellic acid Zinc AV-1011 (bird repellent) – 18.3 oz
Fertilization	No blanket applications
Water management	
Flush	Data not available
Flood	June 24
Drain	Sept. 6
Pest management	
Herbicides	25 oz/A Command + 1.5 qt/A Glyphosate + 4 oz/A Sharpen, May 11 2 qt/A Propanil + 3 qt/A RiceBeaux + .5 oz/A Permit + 1 oz/A Londax + 6 oz/A Newpath, June 23
Insecticides	0.137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	None

Table 37. Determine the agronomic response of drill-seeded Gemini 214CL to nitrogen fertilizer rate and time of application. Richland Parish.

Crop				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								9/19/2016		9/19/2016		9/19/2016	
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 (lb ai/A)	Growth Stage										
1	UREA	0	4-5 leaf	87.5	a	77.5	a	40.3	c	45.9	a	6760	d
2	UREA	60	4-5 leaf	88.0	a	78.0	a	45.3	b	44.6	b	9662	c
3	UREA	90	4-5 leaf	88.8	a	78.8	a	48.0	ab	44.3	bc	9876	bc
4	UREA	120	4-5 leaf	89.3	a	79.3	a	49.3	a	44.0	bcd	10541	a
5	UREA	150	4-5 leaf	89.0	a	79.0	a	49.5	a	43.6	cde	10408	a
6	UREA	180	4-5 leaf	89.0	a	79.0	a	46.8	ab	43.1	e	10375	a
7	UREA	75	4-5 leaf	88.0	a	78.0	a	47.5	ab	44.0	bcd	9658	c
	UREA	45	50% HD										
8	UREA	105	4-5 leaf	88.0	a	78.0	a	49.3	a	44.6	b	10090	abc
	UREA	45	50% HD										
9	UREA	135	4-5 leaf	88.3	a	78.3	a	49.3	a	43.4	de	10321	ab
	UREA	45	50% HD										
LSD P=.05				1.30		1.30		3.29		0.84		475.6	
Standard Deviation				0.89		0.89		2.25		0.58		325.9	
CV				1.0		1.13		4.77		1.31		3.34	
Replicate F				10.264		10.264		1.882		5.393		3.157	
Replicate Prob(F)				0.0002		0.0002		0.1595		0.0056		0.0432	
Treatment F				1.821		1.821		6.986		8.145		51.164	
Treatment Prob(F)				0.1223		0.1223		0.0001		0.0001		0.0001	

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

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

Experiment number	16-CM-13
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.34
pH	7.22
Extractable nutrients ppm	Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2
Crop/Variety	Rice / CL172
Planting method/date	Drill seeded / March 23
Seeding rate/depth	See data sheet for seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 9
Ratoon harvest date	Oct. 25
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 150 lb N/A 46-0-0, May 5 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 6
Drain	July 20
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 38. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (CL172). H. Rouse Caffey Rice Research Station.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		Rice Density	Plant-hd	Emerg-hd	Tip of Panicle		Yield Components				
Rating Date		4/18/2016			8/9/2016	8/9/2016					
Rating Type		Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle #	Grain wt.	10 P gr. wt.	10 P seed
Rating Unit		number	days	days	in	lb/A	grams	number	grams	grams	number
Sample Size, Unit		1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit							2 rows	2 rows	2 rows	2 rows	2 rows
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		2-3 leaf					PI	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name										
1	5 seeds/ft^2 (11.6 lb/A)	4.1 e	96.0 a	88.0 a	40.5 abc	8595 d	650 a	97 e	309 a	42.03 a	1687 a
2	7.5 seeds/ft^2 (17.4 lb/A)	4.9 e	96.0 a	88.0 a	40.0 a-d	9089 bcd	684 a	109 de	308 a	37.29 abc	1503 abc
3	10 seeds/ft^2 (22.3 lb/A)	7.2 de	96.0 a	88.0 a	41.5 a	8767 cd	694 a	119 bcd	316 a	37.93 ab	1557 ab
4	15 seeds/ft^2 (34.9 lb/A)	9.5 d	96.0 a	88.0 a	40.8 ab	9309 abc	633 a	111 cde	294 a	32.20 bcd	1286 d
5	20 seeds/ft^2 (46.6 lb/A)	13.7 c	95.0 b	87.0 b	41.3 ab	9769 a	677 a	131 abc	299 a	33.03 bcd	1367 bcd
6	25 seeds/ft^2 (58.2 lb/A)	15.8 c	94.5 bc	86.5 bc	39.0 cd	9557 ab	703 a	135 ab	314 a	31.12 d	1298 cd
7	30 seeds/ft^2 (69.9 lb/A)	23.6 b	94.0 cd	86.0 cd	39.8 bcd	9671 ab	716 a	147 a	338 a	31.38 cd	1275 d
8	35 seeds/ft^2 (81.5 lb/A)	24.7 b	93.5 d	85.5 d	39.0 cd	9534 ab	677 a	140 a	305 a	28.84 d	1173 d
9	40 seeds/ft^2 (93.1 lb/A)	28.6 a	93.3 d	85.3 d	38.8 d	9567 ab	708 a	152 a	334 a	30.04 d	1212 d
LSD P=.05		3.60	0.85	0.85	1.60	583.6	93.91	21.03	57.84	5.914	216.2
Standard Deviation		2.47	0.59	0.59	1.10	399.9	64.35	14.41	39.63	4.052	148.1
CV		16.83	0.62	0.67	2.74	4.29	9.43	11.37	12.66	12.0	10.79
Replicate F		1.062	0.514	0.514	1.138	5.305	0.544	0.640	0.297	0.908	0.664
Replicate Prob(F)		0.3838	0.6768	0.6768	0.3535	0.0060	0.6568	0.5967	0.8272	0.4518	0.5824
Treatment F		54.612	15.324	15.324	3.415	4.291	0.710	6.828	0.543	4.624	5.434
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0092	0.0026	0.6803	0.0001	0.8128	0.0016	0.0006

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

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

Experiment number ....: 16-CM-14

Site and design ....:
Location/Cooperator ....: H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type ....: Fall Stale
Experimental design ....: Randomized complete block
Number of reps ....: 4
Plot size ....: 4.67 x 16 ft
Row width/rows per plot ....: 8 in / 7

Soil type ....: Crowley silt loam
% organic matter ....: 1.34
pH ....: 7.22
Extractable nutrients ppm ....: Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2

Crop/Variety ....: Rice / CL163
Planting method/date ....: Drill seeded / March 23
Seeding rate/depth ....: See data sheet for seeds/ft^2 / .5 in
Emergence date ....: March 31
Harvest date ....: Aug. 9
Ratoon harvest date ....: Oct. 25

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22
150 lb N/A 46-0-0, May 5
90 lb N/A 46-0-0, Aug. 19

Water management ....:
Flush ....: April 11
Flood ....: May 6
Drain ....: July 20
Ratoon flood ....: Aug. 22
Ratoon drain ....: Oct. 17

Pest management ....:
Herbicides ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
Insecticides ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 39. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (CL163). H. Rouse Caffey Rice Research Station.

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	Rice Density	Plant-hd	Emerg-hd	Tip of Panicle		Yield Components				
Rating Date	4/18/2016			8/9/2016	8/9/2016					
Rating Type	Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle #	Grain wt.	10 P gr. wt.	10 P seed
Rating Unit	number	days	days	in	lb/A	grams	number	grams	grams	number
Sample Size, Unit	1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit						2 rows	2 rows	2 rows	2 rows	2 rows
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale	2-3 leaf					PI	50% HD	50% HD	50% HD	50% HD
Trt. No. / Trt. Name										
1 5 seeds/ft^2 (11.6 lb/A)	4.1 e	96.0 a	88.0 a	40.5 abc	8595 d	650 a	97 e	309 a	42.03 a	1687 a
2 7.5 seeds/ft^2 (17.4 lb/A)	4.9 e	96.0 a	88.0 a	40.0 a-d	9089 bcd	684 a	109 de	308 a	37.29 abc	1503 abc
3 10 seeds/ft^2 (22.3 lb/A)	7.2 de	96.0 a	88.0 a	41.5 a	8767 cd	694 a	119 bcd	316 a	37.93 ab	1557 ab
4 15 seeds/ft^2 (34.9 lb/A)	9.5 d	96.0 a	88.0 a	40.8 ab	9309 abc	633 a	111 cde	294 a	32.20 bcd	1286 d
5 20 seeds/ft^2 (46.6 lb/A)	13.7 c	95.0 b	87.0 b	41.3 ab	9769 a	677 a	131 abc	299 a	33.03 bcd	1367 bcd
6 25 seeds/ft^2 (58.2 lb/A)	15.8 c	94.5 bc	86.5 bc	39.0 cd	9557 ab	703 a	135 ab	314 a	31.12 d	1298 cd
7 30 seeds/ft^2 (69.9 lb/A)	23.6 b	94.0 cd	86.0 cd	39.8 bcd	9671 ab	716 a	147 a	338 a	31.38 cd	1275 d
8 35 seeds/ft^2 (81.5 lb/A)	24.7 b	93.5 d	85.5 d	39.0 cd	9534 ab	677 a	140 a	305 a	28.84 d	1173 d
9 40 seeds/ft^2 (93.1 lb/A)	28.6 a	93.3 d	85.3 d	38.8 d	9567 ab	708 a	152 a	334 a	30.04 d	1212 d
LSD P=.05	3.60	0.85	0.85	1.60	583.6	93.91	21.03	57.84	5.914	216.2
Standard Deviation	2.47	0.59	0.59	1.10	399.9	64.35	14.41	39.63	4.052	148.1
CV	16.83	0.62	0.67	2.74	4.29	9.43	11.37	12.66	12.0	10.79
Replicate F	1.062	0.514	0.514	1.138	5.305	0.544	0.640	0.297	0.908	0.664
Replicate Prob(F)	0.3838	0.6768	0.6768	0.3535	0.0060	0.6568	0.5967	0.8272	0.4518	0.5824
Treatment F	54.612	15.324	15.324	3.415	4.291	0.710	6.828	0.543	4.624	5.434
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0092	0.0026	0.6803	0.0001	0.8128	0.0016	0.0006

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

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System (CL153)

Experiment number ....: 16-CM-15

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type**..................................: Fall Stale
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.67 x 16 ft
- **Row width/rows per plot**............: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.34
- **pH**...: 7.22
- **Extractable nutrients** ppm ....: Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2

Crop/Variety ....: Rice / CL153
- **Planting method/date** ....: Drill seeded / March 23
- **Seeding rate/depth**......................: See data sheet for seeds/ft^2 / .5 in
- **Emergence date**...........................: March 31
- **Harvest date** ....: Aug. 9
- **Ratoon harvest date**....................: Oct. 25

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

Fertilization.......................................: 240 lb/A 0-24-24-2.7, March 22
150 lb N/A 46-0-0, May 5
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 6
- **Drain**..: July 20
- **Ratoon flood** ....: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management ....:
- **Herbicides**...................................: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides**...................................: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 40. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (CL153). H. Rouse Caffey Rice Research Station.

	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	Rice Density	Plant-hd	Emerg-hd	Tip of Panicle		Yield Components				
Rating Date	4/18/2016				8/9/2016					
Rating Type	Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P gr. wt.	10 P seed
Rating Unit	number	days	days	in	lb/A	grams	number	grams	grams	number
Sample Size, Unit	1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit						2 rows	2 rows	2 rows	2 rows	2 rows
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale	2-3 leaf					PI	50% HD	50% HD	50% HD	50% HD
Trt. No. / Trt. Name										
1 5 seeds/ft^2 (11.6 lb/A)	2.9 d	96.0 a	88.0 a	39.3 a	8392 d	730 a	128 c	340 a	32.31 a	1351 a
2 7.5 seeds/ft^2 (17.4 lb/A)	4.9 d	96.0 a	88.0 a	39.5 a	9162 c	704 a	142 bc	337 a	22.09 c	902 c
3 10 seeds/ft^2 (22.3 lb/A)	5.2 d	96.0 a	88.0 a	38.8 a	9110 c	720 a	152 abc	350 a	21.11 c	888 c
4 15 seeds/ft^2 (34.9 lb/A)	10.3 c	96.0 a	88.0 a	39.3 a	9968 b	720 a	151 abc	346 a	23.86 bc	969 bc
5 20 seeds/ft^2 (46.6 lb/A)	13.7 b	95.0 ab	87.0 ab	40.5 a	10282 ab	691 a	147 abc	331 a	23.44 bc	956 c
6 25 seeds/ft^2 (58.2 lb/A)	13.6 b	94.5 b	86.5 b	39.5 a	10567 a	708 a	142 bc	328 a	28.85 ab	1186 ab
7 30 seeds/ft^2 (69.9 lb/A)	14.1 b	94.0 b	86.0 b	39.3 a	10099 ab	711 a	173 a	332 a	21.19 c	870 c
8 35 seeds/ft^2 (81.5 lb/A)	18.8 a	95.0 ab	87.0 ab	39.3 a	10380 ab	682 a	168 ab	319 a	20.39 c	850 c
9 40 seeds/ft^2 (93.1 lb/A)	19.1 a	94.3 b	86.3 b	40.3 a	10409 ab	685 a	172 a	320 a	21.59 c	887 c
LSD P=.05	3.16	1.10	1.10	1.87	481.9	100.35	28.59	55.26	5.536	220.8
Standard Deviation	2.17	0.75	0.75	1.28	330.2	68.76	19.59	37.87	3.793	151.3
CV	19.01	0.79	0.87	3.25	3.36	9.75	12.85	11.34	15.89	15.37
Replicate F	0.662	1.220	1.220	1.997	0.330	2.715	1.242	2.895	0.002	0.002
Replicate Prob(F)	0.5833	0.3241	0.3241	0.1413	0.8033	0.0672	0.3166	0.0560	0.9999	0.9998
Treatment F	30.338	4.805	4.805	0.719	20.676	0.234	2.424	0.304	4.566	5.087
Treatment Prob(F)	0.0001	0.0013	0.0013	0.6727	0.0001	0.9804	0.0446	0.9570	0.0018	0.0009

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

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System (CL272)

Experiment number	16-CM-16
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.34
pH	7.22
Extractable nutrients ppm	Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2
Crop/Variety	Rice / CL272
Planting method/date	Drill seeded / March 23
Seeding rate/depth	See data sheet for seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 9
Ratoon harvest date	Oct. 25
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 150 lb N/A 46-0-0, May 5 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 6
Drain	July 20
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 41. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (CL272). H. Rouse Caffey Rice Research Station.

	Crop Name	Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice	
	Description	Rice Density		Plant-hd		Emerg-hd		Tip of Panicle				Yield Components									
	Rating Date	4/18/2016						8/9/2016		8/9/2016											
	Rating Type	Stand Count		50% HD		50% HD		Height		Yield		WP dry wt.		Panicle		Grain wt.		10 P gr. wt.		10 P seed	
	Rating Unit	number		days		days		in		lb/A		grams		number		grams		grams		number	
	Sample Size, Unit	1 sq ft										1 m		1 m		1 m		1 m		1 m	
	Collection Basis, Unit											2 rows		2 rows		2 rows		2 rows		2 rows	
	Crop Stage Majority	Main		Main		Main		Main		Main		Main		Main		Main		Main		Main	
	Crop Stage Scale	2-3 leaf										PI		50 % HD		50 % HD		50 % HD		50 % HD	
Trt. No.	Trt. Name																				
1	5 seeds/ft^2 (11.6 lb/A)	2.7	g	100.8	a	91.8	a	37.3	a	8263	e	772	a	125	bcd	354	a	32.35	a	1351	a
2	7.5 seeds/ft^2 (17.4 lb/A)	4.1	fg	100.3	ab	91.3	ab	38.3	a	9413	d	660	a	116	cd	298	a	27.98	a	1142	a
3	10 seeds/ft^2 (22.3 lb/A)	6.4	ef	100.3	ab	91.3	ab	38.5	a	9219	d	655	a	113	d	294	a	27.34	a	1107	a
4	15 seeds/ft^2 (34.9 lb/A)	9.3	de	99.5	bc	90.5	bc	38.8	a	10065	c	737	a	129	a-d	356	a	29.14	a	1153	a
5	20 seeds/ft^2 (46.6 lb/A)	11.9	cd	99.0	cd	90.0	cd	40.0	a	10163	bc	733	a	126	bcd	334	a	30.97	a	1202	a
6	25 seeds/ft^2 (58.2 lb/A)	14.6	bc	98.0	de	89.0	de	39.3	a	10774	a	705	a	119	cd	308	a	30.52	a	1205	a
7	30 seeds/ft^2 (69.9 lb/A)	17.9	ab	97.5	e	88.5	e	39.0	a	10518	abc	744	a	138	abc	325	a	30.29	a	1189	a
8	35 seeds/ft^2 (81.5 lb/A)	18.0	ab	97.5	e	88.5	e	40.0	a	10770	a	765	a	143	ab	347	a	28.44	a	1132	a
9	40 seeds/ft^2 (93.1 lb/A)	20.1	a	97.3	e	88.3	e	39.8	a	10627	ab	804	a	151	a	348	a	29.20	a	1033	a
	LSD P=.05	3.59		1.19		1.19		2.14		484.4		126.77		22.19		69.72		5.615		237.15	
	Standard Deviation	2.46		0.82		0.82		1.47		331.9		86.87		15.21		47.77		3.848		162.50	
	CV	21.09		0.83		0.91		3.76		3.33		11.89		11.81		14.52		13.01		13.91	
	Replicate F	0.575		3.000		3.000		1.116		3.953		1.384		1.497		1.514		1.268		0.429	
	Replicate Prob(F)	0.6371		0.0504		0.0504		0.3620		0.0201		0.2716		0.2407		0.2362		0.3076		0.7338	
	Treatment F	27.164		11.167		11.167		1.526		26.563		1.318		2.812		1.042		0.683		1.147	
	Treatment Prob(F)	0.0001		0.0001		0.0001		0.2005		0.0001		0.2819		0.0237		0.4335		0.7019		0.3696	

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

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

Experiment number	16-CM-19
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.34
pH	7.22
Extractable nutrients ppm	Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2
Crop/Variety	Rice / Mermentau
Planting method/date	Drill seeded / March 23
Seeding rate/depth	See data sheet for seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 9
Ratoon harvest date	Oct. 25
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 150 lb N/A 46-0-0, May 5 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 6
Drain	July 20
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 42. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (Mermentau). H. Rouse Caffey Rice Research Station.

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description	Rice Density	Plant-hd	Emerg-hd	Tip of Panicle		Yield Components				
Rating Date	4/18/2016			8/9/2016	8/9/2016					
Rating Type	Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P gr. wt.	10 P seed
Rating Unit	number	days	days	in	lb/A	grams	number	grams	grams	number
Sample Size, Unit	1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit						2 rows	2 rows	2 rows	2 rows	2 rows
Crop Stage Majority	Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale	2-3 leaf					PI	50 % HD	50 % HD	50 % HD	50 % HD
Trt. No. / Trt. Name										
1 5 seeds/ft^2 (11.6 lb/A)	2.7 e	95.3 a	87.3 a	39.8 a	7326 e	672 a	114 b	307 a	28.90 ab	1291 abc
2 7.5 seeds/ft^2 (17.4 lb/A)	6.3 de	95.0 a	87.0 a	38.8 a	8404 d	603 a	107 b	275 a	30.42 a	1390 a
3 10 seeds/ft^2 (22.3 lb/A)	5.7 e	95.0 a	87.0 a	39.0 a	8627 d	610 a	110 b	284 a	29.47 ab	1339 ab
4 15 seeds/ft^2 (34.9 lb/A)	10.3 cd	93.5 b	85.5 b	38.8 a	9168 c	587 a	115 b	286 a	27.04 abc	1241 a-d
5 20 seeds/ft^2 (46.6 lb/A)	10.9 c	92.8 c	84.8 c	38.5 a	9692 b	705 a	153 a	312 a	23.20 c	1073 cd
6 25 seeds/ft^2 (58.2 lb/A)	15.4 b	92.3 cd	84.3 cd	38.8 a	9859 ab	728 a	155 a	332 a	25.07 bc	1148 bcd
7 30 seeds/ft^2 (69.9 lb/A)	17.0 b	91.8 de	83.8 de	39.5 a	9972 ab	692 a	159 a	325 a	24.98 bc	1160 a-d
8 35 seeds/ft^2 (81.5 lb/A)	16.7 b	91.3 ef	83.3 ef	38.0 a	9941 ab	636 a	156 a	289 a	23.15 c	1053 cd
9 40 seeds/ft^2 (93.1 lb/A)	23.6 a	91.0 f	83.0 f	37.8 a	10220 a	648 a	163 a	307 a	22.88 c	1049 d
LSD P=.05	4.05	0.63	0.63	1.81	438.6	103.31	20.97	72.36	5.351	241.69
Standard Deviation	2.77	0.43	0.43	1.24	300.6	70.79	14.37	49.58	3.666	165.61
CV	23.01	0.46	0.51	3.19	3.25	10.84	10.51	16.42	14.03	13.88
Replicate F	1.173	0.550	0.550	1.517	1.159	0.060	0.300	0.170	0.491	0.898
Replicate Prob(F)	0.3408	0.6530	0.6530	0.2357	0.3458	0.9802	0.8250	0.9154	0.6915	0.4567
Treatment F	23.070	60.750	60.750	1.060	40.512	1.923	11.646	0.628	2.549	2.372
Treatment Prob(F)	0.0001	0.0001	0.0001	0.4217	0.0001	0.1030	0.0001	0.7463	0.0363	0.0486

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

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System (Provisia-PVL024-A)

Experiment number ....: 16-CM-17

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type**.................................: Fall Stale
- **Experimental design**...................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.67 x 16 ft
- **Row width/rows per plot**...........: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.22
- **pH**...: 7.61
- **Extractable nutrients** ppm ....: Ca-1282; Cu-1.3; Mg-280; P-6; K-53; Na-109; S-7.6; Zn-3.9

Crop/Variety ....: Rice / PVL024–A
- **Planting method/date** ....: Drill seeded / March 22
- **Seeding rate/depth**......................: See data sheet for seeds/ft^2 / .5 in
- **Emergence date**...........................: March 31
- **Harvest date** ....: Aug. 17
- **Ratoon harvest date**....................: Oct. 26

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

Fertilization..: 240 lb/A 0-24-24-2.7, March 22
150 lb N/A 46-0-0, May 9
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 11
- **Drain**..: July 25
- **Ratoon flood** ....: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management ....:
- **Herbicides**...................................: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides**...................................: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 43. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (Provisia-PVL024-A). H. Rouse Caffey Rice Research Station.

Crop Name		Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description		Rice Density		Plant-hd		Emerg-hd		Tip of Panicle				Yield Components									
Rating Date		4/18/2016						8/17/2016		8/17/2016											
Rating Type		Stand Count		50% HD		50% HD		Height		Yield		WP dry wt.		Panicle #		Grain wt.		10 P gr. wt.		10 P seed	
Rating Unit		plants		days		days		in		lb/A		grams		number		grams		grams		number	
Sample Size, Unit		1 sq ft										1 m		1 m		1 m		1 m		1 m	
Collection Basis, Unit												2 rows		2 rows		2 rows		2 rows		2 rows	
Crop Stage Majority		Main		Main		Main		Main		Main		Main		Main		Main		Main		Main	
Crop Stage Scale		2-3 leaf										PI		50 % HD		50 % HD		50 % HD		50 % HD	
Trt. No.	Trt. Name																				
1	5 seeds/ft^2 (10.9 lb/A)	2.1	e	107.5	a	98.5	a	38.0	a	6595	c	572	a	91	d	189	a	31.92	a	1416	a
2	7.5 seeds/ft^2 (16.4 lb/A)	3.8	de	106.3	b	97.3	b	36.8	a	7099	bc	605	a	109	c	215	a	28.17	a	1262	a
3	10 seeds/ft^2 (21.9 lb/A)	5.7	d	105.8	bc	96.8	bc	39.5	a	7207	b	632	a	118	c	225	a	30.07	a	1315	a
4	15 seeds/ft^2 (32.8 lb/A)	8.1	c	105.3	bcd	96.3	bcd	39.3	a	7845	a	648	a	140	ab	239	a	26.93	a	1193	a
5	20 seeds/ft^2 (43.7 lb/A)	8.6	c	105.0	cde	96.0	cde	39.3	a	7877	a	698	a	154	a	233	a	26.40	a	1168	a
6	25 seeds/ft^2 (54.7 lb/A)	12.5	b	104.5	def	95.5	def	38.5	a	8022	a	668	a	139	ab	240	a	23.55	a	1051	a
7	30 seeds/ft^2 (65.6 lb/A)	13.8	b	103.5	f	94.5	f	38.3	a	7919	a	651	a	138	ab	242	a	28.89	a	1268	a
8	35 seeds/ft^2 (76.5 lb/A)	16.9	a	104.0	ef	95.0	ef	39.8	a	8058	a	614	a	127	bc	220	a	25.89	a	1140	a
9	40 seeds/ft^2 (87.4 lb/A)	17.3	a	104.0	ef	95.0	ef	39.8	a	7915	a	608	a	140	ab	209	a	26.02	a	1131	a
LSD P=.05		2.22		1.04		1.04		2.10		551.1		91.43		18.74		50.37		5.608		265.8	
Standard Deviation		1.52		0.72		0.72		1.44		377.6		62.65		12.84		34.51		3.843		182.1	
CV		15.43		0.68		0.74		3.71		4.96		9.9		10.0		15.45		13.95		14.98	
Replicate F		0.725		3.240		3.240		5.626		18.035		0.864		0.389		1.494		1.663		1.662	
Replicate Prob(F)		0.5468		0.0398		0.0398		0.0046		0.0001		0.4735		0.7617		0.2414		0.2015		0.2017	
Treatment F		53.180		12.584		12.584		1.918		7.500		1.459		9.180		1.040		1.707		1.472	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.1038		0.0001		0.2240		0.0001		0.4348		0.1481		0.2190	

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

Determination of Optimum Plant Population and Seeding Rate in a Stale Seedbed Tillage System (Provisia-PVL024-B)

Experiment number ....: 16-CM-18

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type**.................................: Fall Stale
- **Experimental design**..................: Randomized complete block
- **Number of reps** ....: 4
- **Plot size**..: 4.67 x 16 ft
- **Row width/rows per plot**...........: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter**.......................: 1.22
- **pH**..: 7.61
- **Extractable nutrients** ppm ....: Ca-1282; Cu-1.3; Mg-280; P-6; K-53; Na-109; S-7.6; Zn-3.9

Crop/Variety ....: Rice / PVL024–B
- **Planting method/date** ....: Drill seeded / March 22
- **Seeding rate/depth**......................: See data sheet for seeds/ft^2 / .5 in
- **Emergence date**...........................: March 31
- **Harvest date** ....: Aug. 17
- **Ratoon harvest date**....................: Oct. 26

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

Fertilization..: 240 lb/A 0-24-24-2.7, March 22
150 lb N/A 46-0-0, May 9
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood**..: May 11
- **Drain**..: July 25
- **Ratoon flood**................................: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management..............................:
- **Herbicides**...................................: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides**...................................: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 44. Determination of optimum plant population and seeding rate in a stale seedbed tillage system (Provisia-PVL024-B). H. Rouse Caffey Rice Research Station.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description		Rice Density	Plant-hd	Emerg-hd	Tip of Panicle		Yield Components				
Rating Date		4/18/2016			8/17/2016	8/17/2016					
Rating Type		Stand Count	50% HD	50% HD	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P gr. wt.	10 P seed
Rating Unit		plants	days	days	in	lb/A	grams	number	grams	grams	number
Sample Size, Unit		1 sq ft					1 m	1 m	1 m	1 m	1 m
Collection Basis, Unit							2 rows	2 rows	2 rows	2 rows	2 rows
Crop Stage Majority		Main	Main	Main	Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale		2-3 leaf					PI	50 % HD	50 % HD	50 % HD	50 % HD
Trt. No.	Trt. Name										
1	5 seeds/ft^2 (10.2 lb/A)	2.4 g	106.5 a	97.5 a	40.0 a	6008 d	655 a	106 c	242 a	26.17 a	1203 a
2	7.5 seeds/ft^2 (15.3 lb/A)	3.7 fg	105.5 ab	96.5 ab	39.0 a	6469 cd	628 a	116 bc	221 a	27.19 a	1171 a
3	10 seeds/ft^2 (20.4 lb/A)	4.7 ef	104.5 bc	95.5 bc	40.5 a	6613 c	593 a	113 bc	208 a	29.52 a	1277 a
4	15 seeds/ft^2 (30.5 lb/A)	6.4 e	103.8 cd	94.8 cd	40.3 a	7278 b	680 a	139 a	249 a	23.56 a	1045 a
5	20 seeds/ft^2 (40.7 lb/A)	9.0 d	102.5 de	93.5 de	40.3 a	7262 b	630 a	127 abc	227 a	23.06 a	979 a
6	25 seeds/ft^2 (50.9 lb/A)	11.0 c	102.5 de	93.5 de	40.0 a	7413 ab	631 a	133 ab	235 a	22.61 a	1002 a
7	30 seeds/ft^2 (61.1 lb/A)	13.9 b	102.5 de	93.5 de	39.5 a	7556 ab	605 a	125 abc	235 a	26.31 a	1141 a
8	35 seeds/ft^2 (71.3 lb/A)	15.2 ab	101.0 f	92.0 f	39.0 a	7899 a	642 a	143 a	217 a	27.01 a	1176 a
9	40 seeds/ft^2 (81.4 lb/A)	17.0 a	101.3 ef	92.3 ef	41.5 a	7680 ab	602 a	139 a	221 a	22.41 a	957 a
LSD P=.05		1.84	1.47	1.47	2.61	521.6	97.20	21.44	48.84	6.369	281.87
Standard Deviation		1.26	1.01	1.01	1.79	357.4	66.60	14.66	33.39	4.354	192.70
CV		13.65	0.98	1.07	4.46	5.01	10.58	11.57	14.62	17.2	17.43
Replicate F		1.217	4.301	4.301	0.837	13.156	1.692	1.611	3.113	1.427	1.081
Replicate Prob(F)		0.3250	0.0146	0.0146	0.4871	0.0001	0.1953	0.2142	0.0460	0.2606	0.3767
Treatment F		70.978	13.838	13.838	0.765	12.362	0.672	3.019	0.608	1.312	1.372
Treatment Prob(F)		0.0001	0.0001	0.0001	0.6364	0.0001	0.7109	0.0180	0.7615	0.2865	0.2603

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

Effect of Gibberellic Acid Applied at the Soft Dough Stage of Development in the Main Crop on Ratoon Regrowth and Yield

Experiment number	16-CM-21
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.34
pH	7.22
Extractable nutrients ppm	Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2
Crop/Variety	Rice / Mermentau
Planting method/date	Drill seeded / March 23
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 4
Ratoon harvest date	Oct. 25
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 120 lb N/A 46-0-0, May 5 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 6
Drain	July 20
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 45. Effect of gibberellic acid applied at the soft dough stage of development in the main crop on ratoon regrowth and yield.

Crop			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date						8/4/2016	8/4/2016	10/25/2016	10/25/2016	
Rating Type			50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	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 (oz/A)								
1	Without ProGibb		91.0 a	83.0 a	37.8 a	46.1 a	8773 a	46.4 a	1674 a	10447 a
2	ProGibb 4 oz	4	91.0 a	83.0 a	38.0 a	46.0 a	8919 a	46.4 a	1850 a	10768 a
3	ProGibb 6 oz	6	91.0 a	83.0 a	37.5 a	46.2 a	8621 a	46.6 a	1709 a	10330 a
4	Without ProGibb		91.0 a	83.0 a	38.3 a	46.6 a	9246 a	46.4 a	1831 a	11076 a
5	ProGibb 4 oz	4	91.0 a	83.0 a	36.8 a	46.2 a	9312 a	47.5 a	2065 a	11378 a
6	ProGibb 6 oz	6	91.0 a	83.0 a	38.0 a	46.4 a	9107 a	47.0 a	2036 a	11143 a
LSD P=.05			N/A	N/A	2.05	0.53	628.9	0.88	309.2	747.7
Standard Deviation			0.00	0.00	1.36	0.35	417.3	0.58	205.2	496.1
CV			0.0	0.0	3.61	0.76	4.64	1.25	11.03	4.57
Replicate F			0.000	0.000	0.262	1.815	0.430	1.607	3.594	1.098
Replicate Prob(F)			1.0000	1.0000	0.8514	0.1877	0.7346	0.2297	0.0389	0.3807
Treatment F			0.000	0.000	0.616	1.673	1.705	2.333	2.500	2.778
Treatment Prob(F)			1.0000	1.0000	0.6895	0.2018	0.1941	0.0934	0.0775	0.0571

N/A = Could not calculate LSD because of error. Mean square = 0.

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

Evaluation of ProGibb at Different Application Times – H. Rouse Caffey Rice Research Station

Experiment number ....: 16-CM-22

Site and design ....:
Location/Cooperator ....: H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type ....: Fall Stale
Experimental design ....: Randomized complete block
Number of reps ....: 4
Plot size ....: 4.67 x 16 ft
Row width/rows per plot ....: 8 in / 7

Soil type ....: Crowley silt loam
% organic matter ....: 1.26
pH ....: 7.54
Extractable nutrients ppm ....: Ca-1294; Cu-1.3; Mg-237; P-9; K-49; Na-89; S-7.5; Zn-4.5

Crop/Variety ....: Rice / Mermentau
Planting method/date ....: Drill seeded / March 22
Seeding rate/depth ....: 33 seeds/ft^2 / .5 in
Emergence date ....: March 31
Harvest date ....: Aug. 4
Ratoon harvest date ....: Oct. 25

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22
120 lb N/A 46-0-0, May 9
90 lb N/A 46-0-0, Aug. 19

Water management ....:
Flush ....: April 11
Flood ....: May 11
Drain ....: July 22
Ratoon flood ....: Aug. 22
Ratoon drain ....: Oct. 17

Pest management ....:
Herbicides ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 46. Evaluation of ProGibb at different application times. H. Rouse Caffey Rice Research Station.

Crop						Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date								8/4/2016	8/4/2016	8/4/2016	10/25/2016	10/25/2016	
Rating Type						50% HD	50% HD	Height	Test Wt.	Yield	Test Wt.	Yield	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	Form Type	Rate	Rate Unit	Growth Stage								
1	Without ProGibb					96.0 a	87.0 a	35.5 a	45.5 a	9580 a	45.3 bc	2050 a	11630 a
2	ProGibb		4	oz/A	Milk	96.0 a	87.0 a	36.8 a	45.1 a	9470 a	45.8 a	2339 a	11809 a
3	ProGibb		4	oz/A	Soft dough	96.0 a	87.0 a	37.3 a	45.2 a	9381 a	46.0 a	2421 a	11803 a
4	ProGibb		4	oz/A	Drain	96.0 a	87.0 a	36.3 a	45.2 a	9859 a	45.1 c	2149 a	12008 a
5	ProGibb		4	oz/A	After harvest	96.0 a	87.0 a	35.5 a	45.1 a	9987 a	45.3 bc	2011 a	11999 a
6	Palisade 120 EC	EC	40	g ai/ha	Soft dough	96.0 a	87.0 a	37.3 a	45.4 a	9700 a	45.6 ab	2371 a	12071 a
	COC	SL	1.0	% v/v									
LSD P=.05						N/A	N/A	1.91	0.46	527.6	0.48	351.0	665.4
Standard Deviation						0.00	0.00	1.27	0.31	350.1	0.32	232.9	441.5
CV						0.0	0.0	3.49	0.68	3.62	0.7	10.47	3.71
Replicate F						0.000	0.000	2.655	0.830	4.315	4.111	8.453	2.749
Replicate Prob(F)						1.0000	1.0000	0.0862	0.4980	0.0221	0.0258	0.0016	0.0793
Treatment F						0.000	0.000	1.593	0.962	1.753	4.468	2.282	0.575
Treatment Prob(F)						1.0000	1.0000	0.2219	0.4710	0.1833	0.0108	0.0990	0.7183

N/A = Could not calculate LSD because of error. Mean square = 0.
Means followed by the same letter or symbol do not significantly differ (P=.05, LSD).

**Evaluation of Nitrogen Rate and Timing on Nitrogen Uptake (Spoonfeed) –
H. Rouse Caffey Rice Research Station**

Experiment number	16-CM-28
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.26
pH	7.54
Extractable nutrients ppm	Ca-1294; Cu-1.3; Mg-237; P-9; K-49; Na-89; S-7.5; Zn-4.5
Crop/Variety	Rice / CL153
Planting method/date	Drill seeded / March 22
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 4
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22
Water management	
Flush	April 11
Flood	May 11
Drain	July 22
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 47. Evaluation of nitrogen rate and timing on nitrogen uptake (Spoonfeed). H. Rouse Caffey Rice Research Station.

Crop Name			Rice		Rice		Rice		Rice		Rice		Rice		Rice	
Description			Plant-hd		Emerg-hd		Tip of Panicle				Tissue		Tissue N		N Uptake	
Part Rated											Abvgrd -		Abvgrd -		Total -	
Rating Date							8/4/2016		8/4/2016							
Rating Type			50% HD		50% HD		Height		Yield		Biomass-dry					
Rating Unit			days		days		in		lb/A		lb/A		% N		lb/A	
Crop Stage Majority			Main		Main		Main		Main		Main		Main		Main	
Crop Stage Scale											50% HD		50% HD		50% HD	
Trt. No.	Trt. Name	Rate (lb ai/A)														
1	UTC 0 N	0	94.0	b	85.0	b	32.3	a	5187	d	5397	e	0.88	b	46	b
2	UREA SPF	138	96.0	a	87.0	a	35.3	a	10161	a	8047	a	0.76	b	60	b
3	UREA SPostF	138	94.0	b	85.0	b	30.5	a	6247	bc	6553	bc	0.87	b	58	b
4	UREA 0 day PostF 2/3	92	94.0	b	85.0	b	31.0	a	6282	bc	6422	bcd	0.81	b	51	b
	UREA 3 days PostF 1/3	46														
5	UREA 0 day PostF 2/3	92	94.0	b	85.0	b	31.8	a	6763	b	6823	b	0.86	b	58	b
	UREA 5 days PostF 1/3	46														
6	UREA 0 day PostF 2/3	92	94.0	b	85.0	b	32.0	a	6639	b	6118	cd	1.58	a	93	a
	UREA 10 days PostF 1/3	46														
7	UREA 0 day PostF 1/2	69	94.0	b	85.0	b	31.0	a	5426	cd	5900	de	0.81	b	47	b
	UREA 3 days PostF 1/2	69														
8	UREA 0 day PostF 1/2	69	94.0	b	85.0	b	31.3	a	6683	b	6824	b	0.92	b	61	b
	UREA 5 days PostF 1/2	69														
9	UREA 0 day PostF 1/2	69	94.0	b	85.0	b	31.0	a	6541	b	6236	bcd	1.07	b	65	b
	UREA 10 days PostF 1/2	69														
10	UREA 0 day PostF 1/3	46	94.0	b	85.0	b	30.8	a	5621	cd	5904	de	0.77	b	43	b
	UREA 3 days PostF 2/3	92														

Continued.

Table 47. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			Plant-hd	Emerg-hd	Tip of Panicle		Tissue	Tissue N	N Uptake
Part Rated							Abvgrd -	Abvgrd -	Total -
Rating Date					8/4/2016	8/4/2016			
Rating Type			50% HD	50% HD	Height	Yield	Biomass-dry		
Rating Unit			days	days	in	lb/A	lb/A	% N	lb/A
Crop Stage Majority			Main	Main	Main	Main	Main	Main	Main
Crop Stage Scale							50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate (lb ai/A)							
11	UREA 0 day PostF 1/3	46	94.0 b	85.0 b	31.3 a	5475 cd	6272 bcd	0.85 b	52 b
	UREA 5 days PostF 2/3	92							
12	UREA 0 day PostF 1/3	46	94.0 b	85.0 b	31.3 a	6151 bc	6821 b	0.82 b	56 b
	UREA 10 days PostF 2/3	92							
LSD P=.05			.	.	3.09	863.2	607.6	0.381	22.8
Standard Deviation			0.00	0.00	2.15	600.0	422.4	0.223	13.3
CV			0.0	0.0	6.81	9.33	6.56	24.3	23.11
Replicate F			0.000	0.000	0.545	1.905	5.438	0.696	0.564
Replicate Prob(F)			1.0000	1.0000	0.6551	0.1480	0.0038	0.5109	0.5782
Treatment F			0.000	0.000	1.360	18.589	9.941	3.046	2.861
Treatment Prob(F)			1.0000	1.0000	0.2374	0.0001	0.0001	0.0161	0.0215

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

Evaluation of Nitrogen Leaching and Denitrification on Preserve Nitrogen Application – H. Rouse Caffey Rice Research Station

Experiment number ....: 16-CM-38

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.22
- **pH** ....: 7.61
- **Extractable nutrients** ppm ....: Ca-1282; Cu-1.3; Mg-280; P-6; K-53; Na-109; S-7.6; Zn-3.9

Crop/Variety ....: Rice / CL111
- **Planting method/date** ....: Drill seeded / March 22
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 1

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 11
- **Drain** ....: July 25

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides** ……………………….: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 48. Evaluation of nitrogen leaching and denitrification on Preserve N application. H. Rouse Caffey Rice Research Station.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/1/2016		8/1/2016		8/1/2016	
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 (lb ai/A)	Growth Stage										
1	UTC			87.3	c	78.3	c	32.0	a	41.8	c	5004	f
2	UREA	138	1 DPF	90.0	a	81.0	a	35.8	a	41.1	d	10542	a
3	UREA + Preserve N	138	ATPLANT	87.5	c	78.5	c	34.3	a	42.4	ab	5779	e
4	UREA	138	ATPLANT	87.5	c	78.5	c	34.0	a	42.3	abc	6172	cde
5	UREA + Preserve N 1/2	69	ATPLANT	87.0	c	78.0	c	33.5	a	42.4	ab	6532	cd
	UREA + Preserve N 1/2	69	10 DPF										
6	UREA 1/2	69	ATPLANT	87.0	c	78.0	c	33.8	a	42.6	a	6683	c
	UREA 1/2	69	10 DPF										
7	UREA	138	10 DPF	88.5	b	79.5	b	32.5	a	42.5	ab	6395	cd
8	UREA treated with Agrotain	138	10 DPF	90.0	a	81.0	a	37.5	a	42.0	bc	8429	b
9	UREA + Preserve N	138	10 DPF	88.5	b	79.5	b	31.8	a	42.4	ab	6097	de
LSD P=.05				0.61		0.61		3.76		0.55		582.7	
Standard Deviation				0.42		0.42		2.57		0.37		399.3	
CV				0.48		0.53		7.59		0.89		5.83	
Replicate F				1.000		1.000		0.559		1.870		5.641	
Replicate Prob(F)				0.4098		0.4098		0.6469		0.1617		0.0045	
Treatment F				32.368		32.368		2.031		6.566		69.133	
Treatment Prob(F)				0.0001		0.0001		0.0859		0.0001		0.0001	

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

Evaluation of Plant Growth Regulator and Nitrogen Rate on Hybrid Rice Yield – H. Rouse Caffey Rice Research Station

Experiment number ....: 16-CM-39

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main) / Dr. Jim Oard
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.34
- **pH** ....: 7.22
- **Extractable nutrients** ppm ....: Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2

Crop/Variety ....: Rice / LAH10
- **Planting method/date** ....: Drill seeded / March 23
- **Seeding rate/depth** ....: 10 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 9
- **Ratoon harvest date** ....: Oct. 25

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 6
- **Drain** ....: July 20
- **Ratoon flood** ....: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides** ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 49a. Evaluation of plant growth regulator and nitrogen rate on hybrid rice yield. H. Rouse Caffey Rice Research Station.

Crop Name						Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date								8/9/2016	8/9/2016	8/9/2016	8/9/2016	10/25/2016	
Rating Type						50% HD	50% HD	Height	Lodge		Yield	Yield	Yield
Rating Unit						days	days	in	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main	Main	Ratoon	MC + RC
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage								
1	Urea	GR	60	lb ai/A	4-5 leaf	96.3 a	88.3 a	46.8 a	12.5 a	0.3 a	9111 cd	2291 a	11402 bc
	Untreated		0	g ai/A									
2	Urea	GR	60	lb ai/A	4-5 leaf	96.5 a	88.5 a	46.0 a	12.5 a	0.3 a	8902 d	2172 a	11074 c
	Palisade	EC	4.56	fl oz/A									
	COC	SL	1.0	% v/v									
3	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	89.0 a	45.0 a	0.0 a	0.0 a	8873 d	2387 a	11261 c
	Cycocel	EC	27.37	fl oz/A									
4	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	89.0 a	46.3 a	25.0 a	0.5 a	10220 ab	2306 a	12526 a
	Untreated		0	g ai/A									
5	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	89.0 a	46.5 a	12.5 a	0.3 a	9761 bc	2285 a	12046 ab
	Palisade	EC	4.56	fl oz/A									
	COC	SL	1.0	% v/v									
6	Urea	GR	120	lb ai/A	4-5 leaf	96.8 a	88.8 a	46.3 a	37.5 a	0.8 a	10467 a	2253 a	12720 a
	Cycocel	EC	27.37	fl oz/A									
LSD P=.05						0.75	0.75	2.27	37.26	0.75	676.8	310.4	713.9
Standard Deviation						0.49	0.49	1.51	24.72	0.49	449.0	206.0	473.7
CV						0.51	0.56	3.27	148.32	148.32	4.7	9.02	4.0
Replicate F						1.136	1.136	1.044	0.455	0.455	0.749	13.722	5.481
Replicate Prob(F)						0.3662	0.3662	0.4017	0.7180	0.7180	0.5396	0.0001	0.0096
Treatment F						1.636	1.636	0.648	1.091	1.091	9.539	0.468	8.561
Treatment Prob(F)						0.2107	0.2107	0.6671	0.4051	0.4051	0.0003	0.7945	0.0005

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

Table 49b. Evaluation of plant growth regulator and nitrogen rate on hybrid rice yield (2-way Table).

Crop Name						Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date								8/9/2016	8/9/2016	8/9/2016	8/9/2016	10/25/2016	
Rating Type						50% HD	50% HD	Height	Lodge		Yield	Yield	Yield
Rating Unit						days	days	in	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main	Main	Ratoon	MC + RC
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage								
TABLE OF A (Nitrogen Rate) MEANS													
1	Urea 60 lb N/A	GR	60	lb ai/A	4-5 leaf	96.6 a	88.6 a	45.9 a	8.3 a	0.2 a	8962 b	2283 a	11246 b
2	Urea 120 lb N/A	GR	120	lb ai/A	4-5 leaf	96.9 a	88.9 a	46.3 a	25.0 a	0.5 a	10149 a	2281 a	12431 a
	P					0.1	0.1	0.5	0.1	0.1	0.0001	0.9787	0.0001
	LSD P=.05					0.43	0.43	1.31	21.51	0.43	390.7	179.2	412.2
TABLE OF B (Growth Regulator) MEANS													
1	Untreated		0	g ai/A		96.6 a	88.6 a	46.5 a	18.8 a	0.4 a	9666 a	2298 a	11964 a
2	Palisade	EC	4.56	fl oz/A		96.8 a	88.8 a	46.3 a	12.5 a	0.3 a	9332 a	2228 a	11560 a
3	Cycocel	EC	27.37	fl oz/A		96.9 a	88.9 a	45.6 a	18.8 a	0.4 a	9670 a	2320 a	11990 a
	P					0.6	0.6	0.5	0.8	0.8	0.2561	0.6534	0.16
	LSD P=.05					0.53	0.53	1.61	26.35	0.53	478.6	219.5	504.8

Continued.

Table 49b. Continued.

Crop Name						Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Plant-hd	Emerg-hd	Tip of Panicle					
Rating Date								8/9/2016	8/9/2016	8/9/2016	8/9/2016	10/25/2016	
Rating Type						50% HD	50% HD	Height	Lodge		Yield	Yield	Yield
Rating Unit						days	days	in	% plot	rate	lb/A	lb/A	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main	Main	Ratoon	MC + RC
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage								
TABLE OF A (Nitrogen Rate) and B (Growth Regulator) MEANS													
	Urea	GR	60	lb ai/A	4-5 leaf	96.3 a	88.3 a	46.8 a	12.5 a	0.3 a	9111 a	2291 a	11402 a
	Untreated		0	g ai/A									
	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	89.0 a	46.3 a	25.0 a	0.5 a	10220 a	2306 a	12526 a
	Untreated		0	g ai/A									
	Urea	GR	60	lb ai/A	4-5 leaf	96.5 a	88.5 a	46.0 a	12.5 a	0.3 a	8902 a	2172 a	11074 a
	Palisade	EC	4.56	fl oz/A									
	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	89.0 a	46.5 a	12.5 a	0.3 a	9761 a	2285 a	12046 a
	Palisade	EC	4.56	fl oz/A									
	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	89.0 a	45.0 a	0.0 a	0.0 a	8873 a	2387 a	11261 a
	Cycocel	EC	27.37	fl oz/A									
	Urea	GR	120	lb ai/A	4-5 leaf	96.8 a	88.8 a	46.3 a	37.5 a	0.8 a	10467 a	2253 a	12720 a
	Cycocel	EC	27.37	fl oz/A									
	P					0.1435	0.1435	0.5227	0.3305	0.3305	0.281	0.498	0.5858
	LSD P=.05					0.75	0.75	2.27	37.26	0.75	676.8	310.4	713.9

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

Evaluation of Plant Growth Regulator and Nitrogen Rate on Hybrid Rice Yield – Vermilion Parish

Experiment number ....: 16-VP-39

Site and design ....:
- **Location/Cooperator** ....: Vermilion Parish / Kent Lounsberry
- **Tillage type** ....: Conventional
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Kaplan silt loam
- **% organic matter** ....: 1.45
- **pH** ....: 4.72
- **Extractable nutrients** ppm ....: Ca-788; Cu-0.77; Mg-151; P-15.6; K-145; Na-61; S-13.5; Zn-4.0

Crop/Variety ....: Rice / LAH10
- **Planting method/date** ....: Drill seeded / March 21
- **Seeding rate/depth** ....: 10 seeds/ft^2 / .75 in
- **Emergence date** ....: March 30
- **Harvest date** ....: Aug. 22

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

Fertilization ....: 250 lb/A 0-20-30, March 14
20 lb/A Hydra-Hume, March 14

Water management ....:
- **Flush** ....: April 6
- **Flood** ....: May 13
- **Drain** ....: July 21

Pest management ....:
- **Herbicides** ....: 10 oz/A Command, March 14
2 qt/A Propanil + 2 qt/A RiceBeaux + 1 oz/A Londax + 1 oz/A Permit, May 12
- **Insecticides** ....: None
- **Fungicides** ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 50a. Evaluation of plant growth regulator and nitrogen rate on hybrid rice yield. Vermilion Parish.

Crop Name						Rice	Rice	Rice	Rice	Rice	Rice
Description						Plant-hd	Emerg-hd	Tip of Panicle			
Rating Date								8/22/2016	8/22/2016	8/22/2016	8/22/2016
Rating Type						50% HD	50% HD	Height	Lodge		Yield
Rating Unit						days	days	in	% plot	rate	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage						
1	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	88.0 a	44.5 ab	62.5 ab	3.8 a	4985 bc
	Untreated		0	g ai/A							
2	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	88.0 a	42.0 c	10.0 cd	0.8 b	6491 a
	Palisade	EC	4.56	fl oz/A							
	COC	SL	1.0	% v/v							
3	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	88.0 a	44.8 ab	0.0 d	0.0 b	6067 ab
	Cycocel	EC	27.37	fl oz/A							
4	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	88.0 a	45.8 a	87.5 a	5.0 a	3067 d
	Untreated		0	g ai/A							
5	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	88.0 a	45.8 a	70.0 ab	3.8 a	3713 cd
	Palisade	EC	4.56	fl oz/A							
	COC	SL	1.0	% v/v							
6	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	88.0 a	42.5 bc	45.0 bc	3.3 a	4969 bc
	Cycocel	EC	27.37	fl oz/A							
LSD P=.05						.	.	2.31	41.97	2.38	1462.4
Standard Deviation						0.00	0.00	1.53	27.85	1.58	970.3
CV						0.0	0.0	3.46	60.76	57.5	19.88
Replicate F						0.000	0.000	1.299	1.297	1.267	1.668
Replicate Prob(F)						1.0000	1.0000	0.3113	0.3120	0.3214	0.2165
Treatment F						0.000	0.000	4.416	6.172	6.040	7.370
Treatment Prob(F)						1.0000	1.0000	0.0113	0.0027	0.0030	0.0011

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

Table 50b. Evaluation of plant growth regulator and nitrogen rate on hybrid rice yield. Vermilion Parish.

Crop Name						Rice	Rice	Rice	Rice	Rice	Rice
Description						Plant-hd	Emerg-hd	Tip of Panicle			
Rating Date								8/22/2016	8/22/2016	8/22/2016	8/22/2016
Rating Type						50% HD	50% HD	Height	Lodge		Yield
Rating Unit						days	days	in	% plot	rate	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage						
TABLE OF A (Nitrogen Rate) MEANS											
1	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	88.0 a	43.8 a	24.2 b	1.5 b	5848 a
2	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	88.0 a	44.7 a	67.5 a	4.0 a	3916 b
	P					1.0	1.0	0.2	0.0	0.0	0.0002
	LSD P=.05					.	.	1.33	24.23	1.38	844.3
TABLE OF B (Growth Regulator) MEANS											
1	Untreated		0	g ai/A		97.0 a	88.0 a	45.1 a	75.0 a	4.4 a	4026 b
2	Palisade	EC	4.56	fl oz/A		97.0 a	88.0 a	43.9 a	40.0 b	2.3 b	5102 a
3	Cycocel	EC	27.37	fl oz/A		97.0 a	88.0 a	43.6 a	22.5 b	1.6 b	5518 a
	P					1.0	1.0	0.1	0.0	0.0	0.0212
	LSD P=.05					.	.	1.63	29.68	1.69	1034.1

Continued.

Table 50b. Continued.

Crop Name						Rice	Rice	Rice	Rice	Rice	Rice
Description						Plant-hd	Emerg-hd	Tip of Panicle			
Rating Date								8/22/2016	8/22/2016	8/22/2016	8/22/2016
Rating Type						50% HD	50% HD	Height	Lodge		Yield
Rating Unit						days	days	in	% plot	rate	lb/A
Crop Stage Majority						Main	Main	Main	Main	Main	Main
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage						
TABLE OF A (Nitrogen Rate) and B (Growth Regulator) MEANS											
	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	88.0 a	44.5 ab	62.5 a	3.8 a	4985 a
	Untreated		0	g ai/A							
	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	88.0 a	45.8 a	87.5 a	5.0 a	3067 a
	Untreated		0	g ai/A							
	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	88.0 a	42.0 c	10.0 a	0.8 a	6491 a
	Palisade	EC	4.56	fl oz/A							
	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	88.0 a	45.8 a	70.0 a	3.8 a	3713 a
	Palisade	EC	4.56	fl oz/A							
	Urea	GR	60	lb ai/A	4-5 leaf	97.0 a	88.0 a	44.8 ab	0.0 a	0.0 a	6067 a
	Cycocel	EC	27.37	fl oz/A							
	Urea	GR	120	lb ai/A	4-5 leaf	97.0 a	88.0 a	42.5 bc	45.0 a	3.3 a	4969 a
	Cycocel	EC	27.37	fl oz/A							
	P					1.0	1.0	0.0049	0.4697	0.4088	0.2554
	LSD P=.05					N/A	N/A	2.31	41.97	2.38	1462.4

N/A = Could not calculate LSD because of error. Mean square = 0.
Means followed by the same letter or symbol do not significantly differ (P=.05, LSD).

Evaluation of Nitrogen Uptake and Nitrogen Use Efficiency under Different Water Management Practices

Experiment number	: 16-CM-29
Site and design	:
Location/Cooperator	: H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	: Fall Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley silt loam
% organic matter	: 1.35
pH	: 7.38
Extractable nutrients ppm	: Ca-1588; Cu-1.6; Mg-289; P-12; K-76; Na-95; S-12.4; Zn-4.7
Crop/Variety	: Rice / CL153 and CLXL729
Planting method/date	: Drill seeded / March 23
Seeding rate/depth	: Conventional 33 seeds/ft^2 and Hybrid 10 seeds/ft^2 / .5 in
Emergence date	: March 31
Harvest date	: Aug. 1
Ratoon harvest date	: Oct. 26
Seed treatment/cwt	: Conventional seed:
	Dithane (fungicide) – 114 g
	Release (gibberellic acid) – 10 g
	Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml
	AV-1011 (bird repellent) – 18.3 oz
	Hybrid seed:
	Clothianidin (NipsIt Inside)
	Fludioxonil (Spirato 480FS)
	Fludioxonil (Maxim 4FS)
	Gibberellic acid
	Zinc
	AV-1011 (bird repellent) – 18.3 oz
Fertilization	: 240 lb/A 0-24-24-2.7, March 22
	90 lb N/A 46-0-0, Aug. 19
Water management	:
Flush	: April 11
Flood	: May 11
Drain	: July 19
Ratoon flood	: Aug. 22
Ratoon drain	: Oct. 17
Pest management	:
Herbicides	: 1.5 qt/A glyphosate, Feb. 29
	1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
	Bay 1 & 2 received 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
	Bay 3, 4, and 5 received 3 qt/A Propanil + .25 oz/A Permit, May 19
Insecticides	: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 51a. **Evaluation of nitrogen uptake and nitrogen use efficiency under different water management practices (agronomics).**

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			Plant-hd	Emerg-hd	Tip of Panicle	Abvgrd -	Tissue N	N Uptake	N Fert. Eff.	N Fert. Eff.
Rating Date					7/28/2016					
Rating Type			50% HD	50% HD	Height	Biomass-dry				
Rating Unit			days	days	in	lb/A	% N	lb/A	%	%
Crop Stage Majority			Main	Main	Main	Main	Main	Main	by block	by mean
Crop Stage Scale						50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate (lb ai/A)								
TABLE OF Water Management MEANS										
1	Conventional flood		92.3 c	84.3 c	37.0 a	7741 a	1.13 b	89 a	30 b	36 a
2	Alternate Wet and Dry		92.8 b	84.8 b	35.6 b	7489 a	1.13 b	87 a	37 a	36 a
3	Semi-aerobic		93.7 a	85.7 a	33.0 c	6294 b	1.24 a	81 a	38 a	33 a
	P		0.0001	0.0001	0.0001	0.0001	0.0003	0.1654	0.0399	0.5020
	LSD P=.05		0.37	0.37	0.85	558.5	0.061	8.7	7.0	6.7
TABLE OF Variety MEANS										
1	CL153		93.6 a	85.6 a	33.2 b	6838 b	1.15 a	81 b	35 a	32 b
2	CLXL729		92.2 b	84.2 b	37.2 a	7511 a	1.18 a	90 a	35 a	38 a
	P		0.0001	0.0001	0.0001	0.0044	0.2158	0.0092	0.9125	0.0281
	LSD P=.05		0.30	0.30	0.69	456.0	0.050	7.1	5.7	5.5
TABLE OF Fertilizer MEANS										
1	0 N/A	0	91.3 d	83.3 d	31.5 c	4994 b	0.88 d	44 c	0 c	0 c
2	90 N/A Split 45/45	90	92.9 c	84.9 c	35.5 b	7960 a	1.15 c	91 b	52 a	51 a
3	120 N/A Split 60/60	120	93.5 b	85.5 b	36.8 a	7927 a	1.26 b	99 ab	46 ab	46 ab
4	150 N/A Split 75/75	150	94.0 a	86.0 a	37.0 a	7817 a	1.38 a	108 a	42 b	42 b
	P		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	LSD P=.05		0.42	0.42	0.98	644.9	0.071	10.0	8.0	7.7

Continued.

Table 51a. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
					Tip of					
Description			Plant-hd	Emerg-hd	Panicle	Abvgrd -	Tissue N	N Uptake	N Fert. Eff.	N Fert. Eff.
Rating Date					7/28/2016					
Rating Type			50% HD	50% HD	Height	Biomass-dry				
Rating Unit			days	days	in	lb/A	% N	lb/A	%	%
Crop Stage Majority			Main	Main	Main	Main	Main	Main	by block	by mean
Crop Stage Scale						50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate (lb ai/A)								
TABLE OF Water Management x Variety MEANS										
1	Conventional flood		93.3 b	85.3 b	34.8 a	7177 a	1.14 a	83 a	32 a	32 a
1	CL153									
2	Alternate Wet and Dry		93.8 a	85.8 a	34.1 a	7092 a	1.10 a	80 a	36 a	32 a
1	CL153									
3	Semi-aerobic		93.8 a	85.8 a	30.8 a	6244 a	1.21 a	79 a	38 a	31 a
1	CL153									
1	Conventional flood		91.4 c	83.4 c	39.2 a	8304 a	1.12 a	94 a	28 a	39 a
2	CLXL729									
2	Alternate Wet and Dry		91.8 c	83.8 c	37.1 a	7885 a	1.15 a	94 a	39 a	40 a
2	CLXL729									
3	Semi-aerobic		93.5 ab	85.5 ab	35.3 a	6344 a	1.27 a	83 a	38 a	34 a
2	CLXL729									
	P		0.0001	0.0001	0.1218	0.1814	0.3685	0.5036	0.6420	0.7685
	LSD P=.05		0.52	0.52	1.20	789.9	0.086	12.3	9.8	9.5
TABLE OF Variety x Fertilizer MEANS										
1	CL153	0	92.1 a	84.1 a	29.0 a	4418 a	0.87 a	39 d	0 d	0 c
2	CLXL729	0	90.4 a	82.4 a	33.9 a	5571 a	0.89 a	50 d	0 d	0 c
1	CL153	90	93.8 a	85.8 a	33.6 a	7463 a	1.08 a	80 c	46 bc	40 b
2	CLXL729	90	92.0 a	84.0 a	37.4 a	8457 a	1.21 a	102 ab	58 a	63 a
1	CL153	120	94.2 a	86.2 a	34.9 a	8053 a	1.28 a	103 ab	53 ab	49 b
2	CLXL729	120	92.9 a	84.9 a	38.6 a	7802 a	1.24 a	96 b	38 c	43 b
1	CL153	150	94.5 a	86.5 a	35.3 a	7418 a	1.37 a	101 ab	41 c	38 b
2	CLXL729	150	93.6 a	85.6 a	38.8 a	8215 a	1.39 a	114 a	43 bc	46 b
	P		0.1853	0.1853	0.4406	0.1348	0.1168	0.0409	0.0152	0.0035
	LSD P=.05		0.60	0.60	1.38	912.1	0.100	14.2	11.4	10.9

Continued.

Table 51a. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
					Tip of					
Description			Plant-hd	Emerg-hd	Panicle	Abvgrd -	Tissue N	N Uptake	N Fert. Eff.	N Fert. Eff.
Rating Date					7/28/2016					
Rating Type			50% HD	50% HD	Height	Biomass-dry				
Rating Unit			days	days	in	lb/A	% N	lb/A	%	%
Crop Stage Majority			Main	Main	Main	Main	Main	Main	by block	by mean
Crop Stage Scale						50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate (lb ai/A)								
TABLE OF Water Management x Fertilizer MEANS										
1	Conventional flood									
1	0 N/A	0	90.9 a	82.9 a	33.1 a	5825 a	0.91 a	53 a	0 a	0 a
2	Alternate Wet and Dry									
1	0 N/A	0	91.1 a	83.1 a	31.6 a	5008 a	0.86 a	43 a	0 a	0 a
3	Semi-aerobic									
1	0 N/A	0	91.8 a	83.8 a	29.6 a	4149 a	0.87 a	36 a	0 a	0 a
1	Conventional flood									
2	90 N/A Split 45/45	90	92.4 a	84.4 a	37.3 a	8070 a	1.09 a	88 a	39 a	49 a
2	Alternate Wet and Dry									
2	90 N/A Split 45/45	90	92.6 a	84.6 a	35.4 a	8725 a	1.10 a	97 a	59 a	55 a
3	Semi-aerobic									
2	90 N/A Split 45/45	90	93.6 a	85.6 a	33.9 a	7085 a	1.25 a	89 a	58 a	50 a
1	Conventional flood									
3	120 N/A Split 60/60	120	92.8 a	84.8 a	38.8 a	8543 a	1.22 a	103 a	42 a	49 a
2	Alternate Wet and Dry									
3	120 N/A Split 60/60	120	93.4 a	85.4 a	37.4 a	8341 a	1.24 a	104 a	51 a	50 a
3	Semi-aerobic									
3	120 N/A Split 60/60	120	94.5 a	86.5 a	34.1 a	6898 a	1.32 a	90 a	45 a	38 a
1	Conventional flood									
4	150 N/A Split 75/75	150	93.4 a	85.4 a	38.8 a	8525 a	1.29 a	110 a	38 a	44 a
2	Alternate Wet and Dry									
4	150 N/A Split 75/75	150	94.0 a	86.0 a	38.0 a	7880 a	1.32 a	104 a	40 a	40 a
3	Semi-aerobic									
4	150 N/A Split 75/75	150	94.8 a	86.8 a	34.4 a	7046 a	1.53 a	108 a	48 a	43 a
	P		0.76	0.7595	0.6113	0.6138	0.0718	0.5436	0.2837	0.7036
	LSD P=.05		0.74	0.74	1.69	1117.0	0.122	17.4	13.9	13.4

Continued.

Table 51a. Continued.

Trt. No.	Trt. Name	Rate (lb ai/A)	Rice Plant-hd 50% HD days Main		Rice Emerg-hd 50% HD days Main		Rice Tip of Panicle 7/28/2016 Height in Main		Rice Abvgrd - Biomass-dry lb/A Main 50% HD		Rice Tissue N % N Main 50% HD		Rice N Uptake lb/A Main 50% HD		Rice N Fert. Eff. % by block 50% HD		Rice N Fert. Eff. % by mean 50% HD	
TABLE OF Water Management x Variety x Fertilizer MEANS																		
1 1	Conventional flood CL153	0	91.8	a	83.8	a	30.5	a	4921	a	0.92	a	45	a	0	a	0	a
2 1	Alternate Wet and Dry CL153	0	92.3	a	84.3	a	29.5	a	4300	a	0.88	a	37	a	0	a	0	a
3 1	Semi-aerobic CL153	0	92.3	a	84.3	a	27.0	a	4032	a	0.82	a	33	a	0	a	0	a
1 2	Continuous flood CLXL729	0	90.0	a	82.0	a	35.8	a	6729	a	0.91	a	61	a	0	a	0	a
2 2	Alternate Wet and Dry CLXL729	0	90.0	a	82.0	a	33.8	a	5717	a	0.84	a	48	a	0	a	0	a
3 2	Semi-aerobic CLXL729	0	91.3	a	83.3	a	32.3	a	4266	a	0.92	a	39	a	0	a	0	a
1 2	Conventional flood 90 N/A Split 45/45	90	93.5	a	85.5	a	34.8	a	7706	a	1.04	a	80	a	39	a	40	a
2 1	Alternate Wet and Dry CL153	90	94.0	a	86.0	a	34.0	a	8106	a	1.01	a	82	a	49	a	42	a
3 1	Semi-aerobic CL153	90	93.8	a	85.8	a	32.0	a	6576	a	1.20	a	79	a	51	a	39	a
1 2	Conventional flood CLXL729	90	91.3	a	83.3	a	39.8	a	8434	a	1.15	a	97	a	40	a	59	a
2 2	Alternate Wet and Dry CLXL729	90	91.3	a	83.3	a	36.8	a	9344	a	1.18	a	112	a	68	a	69	a
3 2	Semi-aerobic CLXL729	90	93.5	a	85.5	a	35.8	a	7594	a	1.30	a	98	a	66	a	60	a

Continued.

Table 51a. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description			Plant-hd	Emerg-hd	Tip of Panicle	Abvgrd -	Tissue N	N Uptake	N Fert. Eff.	N Fert. Eff.
Rating Date					7/28/2016					
Rating Type			50% HD	50% HD	Height	Biomass-dry				
Rating Unit			days	days	in	lb/A	% N	lb/A	%	%
Crop Stage Majority			Main	Main	Main	Main	Main	Main	by block	by mean
Crop Stage Scale						50% HD	50% HD	50% HD	50% HD	50% HD
Trt. No.	Trt. Name	Rate (lb ai/A)								
TABLE OF Water Management x Variety x Fertilizer MEANS										
1 1	Conventional flood CL153	120	93.8 a	85.8 a	36.5 a	8397 a	1.24 a	103 a	48 a	49 a
2 1	Alternate Wet and Dry CL153	120	94.3 a	86.3 a	36.0 a	8650 a	1.31 a	113 a	63 a	58 a
3 1	Semi-aerobic CL153	120	94.5 a	86.5 a	32.3 a	7110 a	1.30 a	92 a	49 a	40 a
1 2	Conventional flood CLXL729	120	91.8 a	83.8 a	41.0 a	8688 a	1.20 a	104 a	36 a	50 a
2 2	Alternate Wet and Dry CLXL729	120	92.5 a	84.5 a	38.8 a	8033 a	1.18 a	95 a	39 a	42 a
3 2	Semi-aerobic CLXL729	120	94.5 a	86.5 a	36.0 a	6685 a	1.34 a	88 a	41 a	37 a
1 1	Conventional flood CL153	150	94.0 a	86.0 a	37.3 a	7684 a	1.36 a	105 a	40 a	40 a
2 1	Alternate Wet and Dry CL153	150	94.8 a	86.8 a	37.0 a	7313 a	1.21 a	88 a	31 a	29 a
3 1	Semi-aerobic CL153	150	94.8 a	86.8 a	31.8 a	7259 a	1.53 a	111 a	51 a	45 a
1 2	Conventional flood CLXL729	150	92.8 a	84.8 a	40.3 a	9367 a	1.22 a	116 a	36 a	48 a
2 2	Alternate Wet and Dry CLXL729	150	93.3 a	85.3 a	39.0 a	8447 a	1.42 a	121 a	48 a	51 a
3 2	Semi-aerobic CLXL729	150	94.8 a	86.8 a	37.0 a	6833 a	1.53 a	105 a	44 a	41 a
	P		0.8174	0.8174	0.8311	0.7556	0.1285	0.4423	0.4406	0.5237
	LSD P=.05		1.04	1.04	2.40	1579.7	0.173	24.6	19.7	18.9

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

Table 51b. Evaluation of nitrogen uptake and nitrogen use efficiency under different water management practices (yield components).

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Yield components (from 1 m x 2 rows)						
Rating Date			7/28/2016	10/26/2016		7/21/2016						
Rating Type			Yield	Yield	Yield	WP dry wt.	Panicle #	Grain wt.	10 P gr. wt.	10 P seed	Milling (%)	
Rating Unit			lb/A	lb/A	lb/A	grams	number	grams	grams	number	head	total
Crop Stage Majority			Main	Ratoon	MC + RC							
Crop Stage Scale												
Trt. No.	Trt. Name	Rate (lb ai/A)										
TABLE OF Water Management MEANS												
1	Conventional flood		8877 a	3398 a	12303 a	639 a	146 a	314 a	26.39 a	1099 a	61.97 a	70.65 a
2	Alternate Wet and Dry		8610 a	2590 b	11200 b	614 a	161 a	307 a	25.15 a	1054 a	60.29 b	69.69 a
3	Semi-aerobic		7852 b	2243 c	10098 c	530 b	163 a	248 b	19.72 b	884 b	59.96 b	70.83 a
	P		0.0002	0.0001	0.0001	0.0002	0.1178	0.0001	0.0001	0.0001	0.0036	0.0977
	LSD P=.05		487.3	167.5	483.9	51.79	18.21	28.222	1.5429	66.42	1.2307	1.1069
TABLE OF Variety MEANS												
1	CL153		8050 b	2446 b	10517 b	558 b	160 a	265 b	22.95 b	975 b	63.50 a	71.34 a
2	CLXL729		8843 a	3042 a	11884 a	631 a	153 a	314 a	24.56 a	1049 a	57.98 b	69.43 b
	P		0.0002	0.0001	0.0001	0.0009	0.4126	0.0001	0.0133	0.0081	0.0001	0.0001
	LSD P=.05		397.9	136.8	395.1	42.28	14.87	23.043	1.2598	54.23	1.0049	0.9038
TABLE OF Fertilizer MEANS												
1	0 N/A	0	5291 c	2855 a	8190 c	388 c	126 c	193 b	19.89 b	819 b	56.58 b	69.12 b
2	90 N/A Split 45/45	90	8986 b	2774 a	11765 b	625 b	156 b	308 a	25.28 a	1072 a	61.74 a	70.95 a
3	120 N/A Split 60/60	120	9544 ab	2671 a	12206 ab	671 ab	166 ab	320 a	25.12 a	1082 a	62.17 a	71.01 a
4	150 N/A Split 75/75	150	9964 a	2676 a	12640 a	693 a	179 a	336 a	24.74 a	1076 a	62.47 a	70.48 a
	P		0.0001	0.1872	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0146
	LSD P=.05		562.7	193.4	558.8	59.80	21.03	32.588	1.7816	76.70	1.4211	1.2782

Continued.

Table 51b. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Yield components (from 1 m x 2 rows)						
Rating Date			7/28/2016	10/26/2016		7/21/2016						
Rating Type			Yield	Yield	Yield	WP dry wt.	Panicle #	Grain wt.	10 P gr wt.	10 P seed	Milling (%)	
Rating Unit			lb/A	lb/A	lb/A	grams	number	grams	grams	number	head	total
Crop Stage Majority			Main	Ratoon	MC + RC							
Trt. No.	Trt. Name	Rate (lb ai/A)										
TABLE OF Water Management x Variety MEANS												
1	Conventional flood		8593 a	3005 a	11653 a	592 a	144 a	284 a	26.11 a	1091 a	64.14 a	71.27 a
1	CL153											
2	Alternate Wet and Dry		8350 a	2378 a	10729 a	586 a	175 a	296 a	24.27 a	1017 a	64.16 a	71.18 a
1	CL153											
3	Semi-aerobic		7207 a	1954 a	9168 a	495 a	160 a	216 a	18.47 a	817 a	62.20 b	71.57 a
1	CL153											
1	Conventional flood		9161 a	3792 a	12952 a	687 a	147 a	343 a	26.67 a	1106 a	59.80 c	70.02 a
2	CLXL729											
2	Alternate Wet and Dry		8869 a	2803 a	11672 a	642 a	147 a	317 a	26.03 a	1090 a	56.42 d	68.21 a
2	CLXL729											
3	Semi-aerobic		8497 a	2532 a	11028 a	565 a	167 a	280 a	20.98 a	951 a	57.72 d	70.08 a
2	CLXL729											
	P		0.2162	0.1031	0.1707	0.7443	0.1183	0.2627	0.4521	0.2160	0.0109	0.2510
	LSD P=.05		689.2	236.9	684.4	73.24	25.76	39.912	2.1820	93.94	1.7405	1.5654
TABLE Of Variety x Fertilizer MEANS												
1	CL153	0	4918 a	2579 a	7589 a	344 a	134 a	165 a	18.93 a	789 a	59.87 a	69.97 a
2	CLXL729	0	5664 a	3131 a	8792 a	433 a	118 a	221 a	20.84 a	849 a	53.28 a	68.27 a
1	CL153	90	8494 a	2457 a	10961 a	597 a	157 a	283 a	23.70 a	1003 a	64.14 a	71.70 a
2	CLXL729	90	9478 a	3092 a	12570 a	652 a	154 a	334 a	26.86 a	1141 a	59.34 a	70.19 a
1	CL153	120	9290 a	2346 a	11619 a	653 a	167 a	309 a	25.30 a	1078 a	64.74 a	71.73 a
2	CLXL729	120	9798 a	2995 a	12793 a	689 a	165 a	331 a	24.93 a	1086 a	59.59 a	70.29 a
1	CL153	150	9498 a	2401 a	11899 a	636 a	180 a	303 a	23.88 a	1030 a	65.24 a	71.97 a
2	CLXL729	150	10430 a	2950 a	13380 a	750 a	178 a	368 a	25.60 a	1121 a	59.69 a	68.99 a
	P		0.8302	0.9297	0.8333	0.5740	0.8988	0.5928	0.2691	0.3960	0.6198	0.5966
	LSD P=.05		795.8	273.6	790.2	84.57	29.74	46.086	2.5196	108.47	2.0097	1.8076

Continued.

Table 51b. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Yield components (from 1 m x 2 rows)						
Rating Date			7/28/2016	10/26/2016		7/21/2016						
Rating Type			Yield	Yield	Yield	WP dry wt.	Panicle #	Grain wt.	10 P gr. wt.	10 P seed	Milling (%)	
Rating Unit			lb/A	lb/A	lb/A	grams	number	grams	grams	number	head	total
Crop Stage Majority			Main	Ratoon	MC + RC							
Trt. No.	Trt. Name	Rate (lb ai/A)										
TABLE OF Water Management x Fertilizer MEANS												
1	Conventional flood											
1	0 N/A	0	6013 a	3264 a	9374 a	436 a	112 a	218 a	20.75 a	855 a	58.34 a	69.46 a
2	Alternate Wet and Dry											
1	0 N/A	0	5182 a	2668 b	7849 a	389 a	145 a	191 a	22.44 a	921 a	56.43 a	69.09 a
3	Semi-aerobic											
1	0 N/A	0	4679 a	2632 b	7348 a	339 a	120 a	169 a	16.46 a	681 a	54.97 a	68.80 a
1	Conventional flood											
2	90 N/A Split 45/45	90	9067 a	3391 a	12473 a	642 a	141 a	316 a	27.61 a	1148 a	62.10 a	70.81 a
2	Alternate Wet and Dry											
2	90 N/A Split 45/45	90	9221 a	2727 b	11948 a	680 a	160 a	345 a	26.92 a	1129 a	61.69 a	70.68 a
3	Semi-aerobic											
2	90 N/A Split 45/45	90	8670 a	2205 cd	10875 a	552 a	166 a	264 a	21.32 a	940 a	61.44 a	71.35 a
1	Conventional flood											
3	120 N/A Split 60/60	120	9942 a	3412 a	13354 a	703 a	156 a	340 a	27.92 a	1173 a	63.55 a	71.26 a
2	Alternate Wet and Dry											
3	120 N/A Split 60/60	120	9703 a	2571 b	12275 a	680 a	155 a	322 a	25.87 a	1085 a	61.53 a	70.38 a
3	Semi-aerobic											
3	120 N/A Split 60/60	120	8986 a	2029 d	10989 a	630 a	187 a	298 a	21.56 a	989 a	61.42 a	71.39 a
1	Conventional flood											
4	150 N/A Split 75/75	150	10485 a	3525 a	14010 a	776 a	173 a	380 a	29.29 a	1220 a	63.90 a	71.06 a
2	Alternate Wet and Dry											
4	150 N/A Split 75/75	150	10333 a	2396 bc	12729 a	706 a	183 a	368 a	25.37 a	1080 a	61.50 a	68.63 a
3	Semi-aerobic											
4	150 N/A Split 75/75	150	9074 a	2106 cd	11180 a	598 a	181 a	260 a	19.57 a	927 a	62.00 a	71.76 a
	P		0.644	0.014	0.4818	0.6344	0.5176	0.1697	0.1719	0.3723	0.7424	0.4625
	LSD P=.05		974.6	335.0	967.8	103.57	36.43	56.444	3.0859	132.85	2.4614	2.2138

Continued.

Table 51b. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Yield components (from 1 m x 2 rows)						
Rating Date			7/28/2016	10/26/2016		7/21/2016						
Rating Type			Yield	Yield	Yield	WP dry wt.	Panicle #	Grain wt.	10 P gr. wt.	10 P seed	Milling (%)	
Rating Unit			lb/A	lb/A	lb/A	grams	number	grams	grams	number	head	total
Crop Stage Majority			Main	Ratoon	MC + RC							
Trt. No.	Trt. Name	Rate (lb ai/A)										
TABLE OF Water Management x Variety x Fertilizer MEANS												
1	Conventional flood	0	5343 a	3015 a	8551 a	396 a	116 a	195 a	20.77 a	861 a	61.05 a	70.48 a
1	CL153											
2	Alternate Wet and Dry	0	5263 a	2449 a	7711 a	373 a	186 a	182 a	22.24 a	919 a	61.84 a	70.49 a
1	CL153											
3	Semi-aerobic	0	4150 a	2272 a	6504 a	262 a	100 a	119 a	13.80 a	586 a	56.73 a	68.94 a
1	CL153											
1	Continuous flood	0	6683 a	3514 a	10197 a	476 a	109 a	242 a	20.74 a	849 a	55.63 a	68.45 a
2	CLXL729											
2	Alternate Wet and Dry	0	5101 a	2886 a	7987 a	406 a	104 a	201 a	22.65 a	923 a	51.01 a	67.70 a
2	CLXL729											
3	Semi-aerobic	0	5207 a	2991 a	8192 a	416 a	140 a	220 a	19.12 a	776 a	53.21 a	68.67 a
2	CLXL729											
1	Conventional flood	90	8567 a	2945 a	11541 a	599 a	141 a	289 a	27.08 a	1127 a	64.61 a	71.49 a
2	90 N/A Split 45/45											
2	Alternate Wet and Dry	90	8752 a	2427 a	11179 a	673 a	169 a	333 a	24.15 a	1004 a	64.05 a	71.32 a
1	CL153											
3	Semi-aerobic	90	8163 a	2000 a	10162 a	519 a	162 a	227 a	19.88 a	878 a	63.76 a	72.30 a
1	CL153											
1	Conventional flood	90	9566 a	3838 a	13405 a	685 a	142 a	343 a	28.13 a	1168 a	59.58 a	70.12 a
2	CLXL729											
2	Alternate Wet and Dry	90	9691 a	3027 a	12717 a	686 a	150 a	357 a	29.69 a	1253 a	59.34 a	70.04 a
2	CLXL729											
3	Semi-aerobic	90	9178 a	2410 a	11588 a	585 a	170 a	300 a	22.76 a	1001 a	59.11 a	70.40 a
2	CLXL729											

Continued.

Table 51b. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description						Yield components (from 1 m x 2 rows)						
Rating Date			7/28/2016	10/26/2016		7/21/2016						
Rating Type			Yield	Yield	Yield	WP dry wt.	Panicle #	Grain wt.	10 P gr. wt.	10 P seed	Milling (%)	
Rating Unit			lb/A	lb/A	lb/A	grams	number	grams	grams	number	head	total
Crop Stage Majority			Main	Ratoon	MC + RC							
Trt. No.	Trt. Name	Rate (lb ai/A)										
TABLE OF Water Management x Variety x Fertilizer MEANS												
1 1	Conventional flood CL153	120	9696 a	2877 a	12573 a	675 a	155 a	318 a	28.83 a	1215 a	65.40 a	71.73 a
2 1	Alternate Wet and Dry CL153	120	9585 a	2494 a	12078 a	666 a	159 a	325 a	25.20 a	1052 a	64.91 a	71.20 a
3 1	Semi-aerobic CL153	120	8588 a	1668 a	10204 a	618 a	187 a	284 a	21.87 a	968 a	63.91 a	72.26 a
1 2	Conventional flood CLXL729	120	10188 a	3947 a	14135 a	732 a	157 a	362 a	27.02 a	1130 a	61.69 a	70.79 a
2 2	Alternate Wet and Dry CLXL729	120	9822 a	2649 a	12472 a	695 a	151 a	319 a	26.54 a	1118 a	58.16 a	69.55 a
3 2	Semi-aerobic CLXL729	120	9384 a	2390 a	11773 a	642 a	186 a	312 a	21.24 a	1011 a	58.93 a	70.52 a
1 1	Conventional flood CL153	150	10765 a	3183 a	13948 a	696 a	167 a	333 a	27.78 a	1161 a	65.52 a	71.40 a
2 1	Alternate Wet and Dry CL153	150	9802 a	2144 a	11946 a	631 a	185 a	344 a	25.51 a	1093 a	65.83 a	71.72 a
3 1	Semi-aerobic CL153	150	7926 a	1876 a	9802 a	581 a	190 a	234 a	18.35 a	838 a	64.38 a	72.80 a
1 2	Conventional flood CLXL729	150	10206 a	3867 a	14072 a	855 a	179 a	427 a	30.80 a	1279 a	62.29 a	70.72 a
2 2	Alternate Wet and Dry CLXL729	150	10863 a	2648 a	13511 a	780 a	182 a	393 a	25.23 a	1068 a	57.18 a	65.54 a
3 2	Semi-aerobic CLXL729	150	10221 a	2336 a	12557 a	615 a	173 a	286 a	20.79 a	1015 a	59.61 a	70.73 a
	P		0.2230	0.4080	0.2108	0.7782	0.2268	0.9315	0.3756	0.4222	0.3856	0.4944
	LSD P=.05		1378.3	473.8	1368.7	146.47	51.52	79.823	4.3641	188	3.4809	3.1308

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

**Evaluation of ContaiN, NutriPak, SulPak, and Zinc9 in Rice Production –
H. Rouse Caffey Rice Research Station**

Experiment number ....: 16-CM-35

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.34
- **pH** ....: 7.22
- **Extractable nutrients** ppm ....: Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2

Crop/Variety ....: Rice / CL153
- **Planting method/date** ....: Drill seeded / March 23
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 9

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 6
- **Drain** ....: July 20

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides** ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 52. Evaluation of ContaiN, NutriPak, SulPak, and Zinc9 in rice production. H. Rouse Caffey Rice Research Station.

Crop Name					Rice		Rice		Rice		Rice	
Description					Plant-hd		Emerg-hd		Tip of Panicle			
Rating Date									8/9/2016		8/9/2016	
Rating Type					50% HD		50% HD		Height		Yield	
Rating Unit					days		days		in		lb/A	
Crop Stage Majority					Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate	Rate Unit	Growth Stage								
1	Control-no urea	0	lb ai/A	10 DPF	90	b	82	b	32.0	b	6160	b
2	Untreated urea	120	lb ai/A	10 DPF	93	a	85	a	37.8	a	9411	a
3	ContaiN-treated urea	120	lb ai/A	10 DPF	94	a	86	a	38.0	a	9578	a
4	Agrotain Advanced-treated urea	120	lb ai/A	10 DPF	94	a	86	a	38.3	a	9789	a
5	ContaiN-treated urea	120	lb ai/A	10 DPF	94	a	86	a	38.8	a	9600	a
	NutriPak at Pre-flood	32	fl oz/A	10 DPF								
	NutriPak at PI	16	fl oz/A	PI								
6	ContaiN-treated urea	120	lb ai/A	10 DPF	94	a	86	a	37.5	a	9697	a
	NutriPak at Pre-flood	32	fl oz/A	10 DPF								
	NutriPak at PI	16	fl oz/A	PI								
	SulPak at Pre-flood	16	fl oz/A	10 DPF								
	SulPak at PI	16	fl oz/A	PI								
7	ContaiN-treated urea	120	lb ai/A	10 DPF	94	a	86	a	37.5	a	9874	a
	NutriPak at Pre-flood	32	fl oz/A	10 DPF								
	NutriPak at PI	16	fl oz/A	PI								
	SulPak at Pre-flood	16	fl oz/A	10 DPF								
	SulPak at PI	16	fl oz/A	PI								
	Zinc9 at Pre-flood	16	fl oz/A	10 DPF								
	Zinc9 at PI	16	fl oz/A	PI								
LSD P=.05					0.96		0.96		1.82		573.6	
Standard Deviation					0.65		0.65		1.22		386.1	
CV					0.7		0.76		3.3		4.22	
Replicate F					2.123		2.123		0.278		1.249	
Replicate Prob(F)					0.133		0.133		0.8407		0.3215	
Treatment F					17.717		17.717		14.048		47.533	
Treatment Prob(F)					0.0001		0.0001		0.0001		0.0001	

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

**Volatilization of Anuvia Fertilizers as Compared to Agrotain and Untreated Urea –
H. Rouse Caffey Rice Research Station**

Experiment number	16-CM-32 (Volatilization)
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.34
pH	7.22
Extractable nutrients ppm	Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2
Crop/Variety	Rice / CL111
Planting method/date	Drill seeded / March 23
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Did not Harvest
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22
Water management	
Flush	April 11
Flood	May 6
Drain	July 20
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 53. Volatilization of Anuvia fertilizers as compared to Agrotain and untreated urea. H. Rouse Caffey Rice Research Station.

Crop Name			NH4	NH4	NH4	NH4	NH4	NH4	NH4	TOTAL N
Description			9 DPF	7 DPF	5 DPF	3 DPF	1 DPF	1 DPostF	5 DPostF	
Rating Type			1 DPA	3 DPA	5 DPA	7 DPA	9 DPA	11 DPA	15 DPA	sum
Rating Unit			ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Trt.. No.	Trt. Name	Rate (lb ai/A)								
1	No N	0	0.71 c	1.24 c	0.84 d	0.67 d	0.68 d	1.47 c	1.12 a	6.70 d
2	Urea	120	60.88 a	191.75 a	65.35 a	16.00 b	7.46 bc	4.83 b	3.37 a	349.60 a
3	Agrotain Ultra-treated urea	120	1.17 c	8.77 c	40.13 b	23.45 a	12.87 ab	6.01 ab	4.22 a	96.60 c
4	Agrotain Ultra-treated urea	84	3.10 c	10.24 c	30.50 bc	17.40 ab	10.89 ab	6.69 ab	1.22 a	80.03 c
	Ammonium Sulfate	36								
5	Agrotain Ultra-treated urea	84	2.64 c	9.56 c	21.46 c	18.44 ab	10.10 bc	7.06 ab	5.15 a	74.38 c
	GreenTRX	36								
6	Urea	84	43.03 b	159.00 b	29.95 bc	8.12 c	4.22 cd	5.05 b	1.20 a	250.55 b
	SymTRX	36								
7	Agrotain Ultra-treated urea	84	2.44 c	6.99 c	21.45 c	22.13 ab	16.87 a	8.46 a	4.64 a	82.98 c
	SymTRX	36								
LSD P=.05			10.91	21.93	18.64	7.24	6.11	2.96	4.67	32.25
Standard Deviation			7.34	14.76	12.55	4.88	4.11	1.99	3.14	21.71
CV			45.12	26.66	41.9	32.14	45.66	35.3	105.16	16.15
Replicate F			1.316	1.167	1.711	0.097	0.527	1.428	6.349	0.718
Replicate Prob(F)			0.2999	0.3497	0.2005	0.9609	0.6696	0.2673	0.004	0.5543
Treatment F			46.055	125.19	9.942	11.022	6.938	4.955	1.276	122.681
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0006	0.0037	0.3169	0.0001

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

Table 54. Comulative volatilization of Anuvia Fertilizers as compared to Agrotain and untreated urea. H. Rouse Caffey Rice Research Station.

Crop Name			Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N	Cumulative N
Rating Type			1 DPA	3 DPA	5 DPA	7 DPA	9 DPA	11 DPA	15 DPA
Rating Unit			%	%	%	%	%	%	%
Trt. No.	Trt. Name	Rate (lb ai/A)							
1	No N	0	0 c	0.1 c	0.2 d	0.2 d	0.3 d	0.3 d	0.4 d
2	Urea	120	3.7 a	15.4 a	19.4 a	20.4 a	20.8 a	21.1 a	21.3 a
3	Agrotain Ultra-treated urea	120	0.1 c	0.6 c	3.1 c	4.5 c	5.3 c	5.6 c	5.9 c
4	Agrotain Ultra-treated urea	84	0.2 c	0.8 c	2.7 c	3.7 c	4.4 c	4.8 c	4.9 c
	Ammonium Sulfate	36							
5	Agrotain Ultra-treated urea	84	0.2 c	0.7 c	2.1 c	3.2 c	3.8 c	4.2 c	4.5 c
	GreenTRX	36							
6	Urea	84	2.6 b	12.3 b	14.1 b	14.6 b	14.9 b	15.2 b	15.3 b
	SymTRX	36							
7	Agrotain Ultra-treated urea	84	0.1 c	0.6 c	1.9 cd	3.2 c	4.3 c	4.8 c	5.1 c
	SymTRX	36							
LSD P=.05			0.66	1.87	1.72	1.89	1.94	1.99	1.97
Standard Deviation			0.45	1.26	1.16	1.28	1.31	1.34	1.32
CV			45.12	28.78	18.66	17.92	17.05	16.76	16.15
Replicate F			1.316	1.261	1.027	0.946	0.902	0.862	0.717
Replicate Prob(F)			0.2999	0.3174	0.4041	0.4392	0.4595	0.4786	0.5549
Treatment F			46.055	108.586	165.378	134.579	126.027	119.335	122.715
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

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

Evaluation of Anuvia Fertilizers (GreenTRX and SymTRX) Applied at 5 and 10 Days Pre-Flood on Rice Yield – H. Rouse Caffey Rice Research Station

Experiment number ....: 16-CM-33 (Plot Yield)

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.34
- **pH** ....: 7.22
- **Extractable nutrients** ppm ....: Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2

Crop/Variety ....: Rice / CL111
- **Planting method/date** ....: Drill seeded / March 23
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 4

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 6
- **Drain** ....: July 20

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides** ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 55a. Evaluation of Anuvia fertilizers (GreenTRX and SymTRX) applied at 5 and 10 days pre-flood (DPF) on rice yield.

Crop Name				Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle			
Rating Date								8/4/2016		8/4/2016	
Rating Type				50% HD		50% HD		Height		Yield	
Rating Unit				days		days		in		lb/A	
Crop Stage Majority				Main		Main		Main		Main	
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage								
1	No N Check	0		86.0	d	78.0	d	31.8	f	5317	h
2	Urea	120	5 DPF	88.5	ab	80.5	ab	37.5	a	9229	a-d
3	Urea + Agrotain Ultra	120	5 DPF	88.8	ab	80.8	ab	37.0	ab	9790	a
4	Urea + Agrotain Ultra (70%)	84	5 DPF	88.8	ab	80.8	ab	35.5	b-e	9365	a-d
	Ammonium Sulfate (30%)	36	5 DPF								
5	Urea + Agrotain Ultra (70%)	84	5 DPF	88.8	ab	80.8	ab	37.5	a	9392	abc
	GreenTRX (30%)	36	5 DPF								
6	Urea (70%)	84	5 DPF	88.8	ab	80.8	ab	36.3	abc	9278	a-d
	SymTRX (30%)	36	5 DPF								
7	Urea + Agrotain Ultra (70%)	84	5 DPF	89.0	a	81.0	a	36.8	ab	9686	ab
	SymTRX (30%)	36	5 DPF								
8	No N Check	0		86.0	d	78.0	d	31.0	f	5212	h
9	Urea	120	10 DPF	86.8	c	78.8	c	33.8	e	6254	g
10	Urea + Agrotain Ultra	120	10 DPF	89.0	a	81.0	a	36.0	a-d	8892	cde
11	Urea + Agrotain Ultra (70%)	84	10 DPF	88.3	b	80.3	b	36.0	a-d	8521	e
	Ammonium Sulfate (30%)	36	10 DPF								
12	Urea + Agrotain Ultra (70%)	84	10 DPF	88.3	b	80.3	b	35.3	b-e	8783	de
	GreenTRX (30%)	36	10 DPF								
13	Urea (70%)	84	10 DPF	87.3	c	79.3	c	34.3	de	7619	f
	SymTRX (30%)	36	10 DPF								
14	Urea + Agrotain Ultra (70%)	84	10 DPF	88.3	b	80.3	b	34.5	cde	9137	bcd
	SymTRX (30%)	36	10 DPF								
LSD P=.05				0.63		0.63		1.9		596.9	
Standard Deviation				0.44		0.44		1.33		417.3	
CV				0.5		0.55		3.77		5.02	
Replicate F				0.338		0.338		3.726		2.31	
Replicate Prob(F)				0.7979		0.7979		0.019		0.0913	
Treatment F				23.525		23.525		9.025		57.774	
Treatment Prob(F)				0.0001		0.0001		0.0001		0.0001	

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

Table 55b. Treatment means for the factorial analysis of 2-way interactions. Evaluation of Anuvia fertilizers (GreenTRX and SymTRX) applied at 5 and 10 days pre-flood (DPF) on rice yield.

Crop Name			Rice		Rice		Rice		Rice		Rice	
Description			Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date							8/4/2016		8/4/2016		8/4/2016	
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 (lb ai/A)										
Time of Application Means												
1	10 DPF		88.4	a	80.4	a	36.0	a	47.0	a	8865	a
2	5 DPF		87.7	b	79.7	b	34.4	b	47.2	a	7774	b
	P		0.0001		0.0001		0.0001		0.4354		0.0001	
	LSD P=.05		0.24		0.24		0.72		0.34		225.6	
N Fertilizer Means												
1	No N Check		86.0	c	78.0	c	31.4	b	46.9	a	5264	e
2	Urea	120	87.6	b	79.6	b	35.6	a	46.8	a	7742	d
3	Urea + Agrotain Ultra	120	88.9	a	80.9	a	36.5	a	47.2	a	9341	ab
4	Urea + Agrotain Ultra (70%)	84	88.5	a	80.5	a	35.8	a	47.3	a	8943	b
4	Ammonium Sulfate (30%)	36										
5	Urea + Agrotain Ultra (70%)	84	88.5	a	80.5	a	36.4	a	47.2	a	9087	ab
5	GreenTRX (30%)	36										
6	Urea (70%)	84	88.0	b	80.0	b	35.3	a	47.3	a	8449	c
6	SymTRX (30%)	36										
7	Urea + Agrotain Ultra (70%)	84	88.6	a	80.6	a	35.6	a	47.0	a	9412	a
7	SymTRX (30%)	36										
	P		0.0001		0.0001		0.0001		0.6261		0.0001	
	LSD P=.05		0.45		0.45		1.34		0.64		422.1	

Continued.

Table 55b. Continued.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Description				Plant-hd		Emerg-hd		Tip of Panicle					
Rating Date								8/4/2016		8/4/2016		8/4/2016	
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 (lb ai/A)	Growth Stage										
Time of application x N sources													
1	No N Check	0	5 DPF	86.0	d	78.0	d	31.8	a	47.2	a	5317	h
2	No N Check	0	10 DPF	86.0	d	78.0	d	31.0	a	46.6	a	5212	h
3	Urea	120	5 DPF	88.5	ab	80.5	ab	37.5	a	47.1	a	9229	a-d
4	Urea	120	10 DPF	86.8	c	78.8	c	33.8	a	46.5	a	6254	g
5	Urea + Agrotain Ultra	120	5 DPF	88.8	ab	80.8	ab	37.0	a	47.1	a	9790	a
6	Urea + Agrotain Ultra	120	10 DPF	89.0	a	81.0	a	36.0	a	47.3	a	8892	cde
7	Urea + Agrotain Ultra (70%)	84	5 DPF	88.8	ab	80.8	ab	35.5	a	47.3	a	9365	a-d
	Ammonium Sulfate (30%)	36											
8	Urea + Agrotain Ultra (70%)	84	10 DPF	88.3	b	80.3	b	36.0	a	47.3	a	8521	e
	Ammonium Sulfate (30%)	36											
9	Urea + Agrotain Ultra (70%)	84	5 DPF	88.8	ab	80.8	ab	37.5	a	46.8	a	9392	abc
	GreenTRX (30%)	36											
10	Urea + Agrotain Ultra (70%)	84	10 DPF	88.3	b	80.3	b	35.3	a	47.6	a	8783	de
	GreenTRX (30%)	36											
11	Urea (70%)	84	5 DPF	88.8	ab	80.8	ab	36.3	a	47.0	a	9278	a-d
	SymTRX (30%)	36											
12	Urea (70%)	84	10 DPF	87.3	c	79.3	c	34.3	a	47.6	a	7619	f
	SymTRX (30%)	36											
13	Urea + Agrotain Ultra (70%)	84	5 DPF	89.0	a	81.0	a	36.8	a	46.8	a	9686	ab
	SymTRX (30%)	36											
14	Urea + Agrotain Ultra (70%)	84	10 DPF	88.3	b	80.3	b	34.5	a	47.2	a	9137	bcd
	SymTRX (30%)	36											
	P			0.0003		0.0003		0.0754		0.2645		0.0001	
	LSD P=.05			0.63		0.63		1.9		0.9		596.9	

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

Evaluation of Nitrogen Rates on USH14002 Yield and Milling Quality – H. Rouse Caffey Rice Research Station

Experiment number	: 16-CM-43
Site and design	:
Location/Cooperator	: H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	: Fall Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 4.67 x 16 ft
Row width/rows per plot	: 8 in / 7
Soil type	: Crowley silt loam
% organic matter	: 1.23
pH	: 7.65
Extractable nutrients ppm	: Ca-1504; Cu-1.7; Mg-276; P-6; K-54; Na-93; S-7.1; Zn-4.6
Crop/Variety	: Rice / USH14002
Planting method/date	: Drill seeded / March 22
Seeding rate/depth	: 10 seeds/ft^2 / .5 in
Emergence date	: March 31
Harvest date	: Aug. 11
Ratoon harvest date	: Oct. 26
Seed treatment/cwt	: Dy, DSF, DSM, GA3, Z, ANip, Dermacor X-100
Fertilization	: 240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, Aug. 19
Water management	:
Flush	: April 11
Flood	: May 11
Drain	: July 25
Ratoon flood	: Aug. 22
Ratoon drain	: Oct. 17
Pest management	:
Herbicides	: 1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 56. Evaluation of nitrogen rates on USH14002 yield and milling quality. H. Rouse Caffey Rice Research Center.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle							
Rating Date						8/11/2016	8/11/2016	8/11/2016	8/11/2016	10/14/2016			
Rating Type				50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield	Milling (g/100g)	
Rating Unit				days	days	in	% plot	rate	lb/A	lb/A	lb/A	head	total
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	Main	Main
Trt. No.	Trt. Name	Rate (lb ai/A)	Growth Stage										
1	0 N/A	0	4-5 leaf	90.0 b	81.0 b	39.0 b	77.5 b	3.0 c	5760 b	1102 a	6862 a	41.03 d	66.06 b
2	45 N/A	45	4-5 leaf	91.0 ab	82.0 ab	44.0 a	97.5 a	3.8 b	8036 a	504 b	8540 a	57.70 c	69.62 a
3	60 N/A	60	4-5 leaf	91.0 ab	82.0 ab	44.5 a	95.0 a	4.0 b	8725 a	625 b	9350 a	59.81 bc	70.07 a
4	75 N/A	75	4-5 leaf	92.0 a	83.0 a	46.0 a	97.5 a	3.8 b	8702 a	511 b	9213 a	62.76 ab	70.72 a
5	90 N/A	90	4-5 leaf	92.0 a	83.0 a	44.8 a	92.5 a	4.0 b	8962 a	396 b	9358 a	63.14 ab	70.89 a
6	105 N/A	105	4-5 leaf	91.5 a	82.5 a	45.0 a	97.5 a	4.5 a	8417 a	486 b	8904 a	63.44 a	70.82 a
LSD P=.05				1.26	1.26	2.21	9.50	0.48	1596	251.9	1741	3.393	1.861
Standard Deviation				0.84	0.84	1.47	6.30	0.32	1059	167.1	1155	2.251	1.235
CV				0.92	1.02	3.34	6.78	8.25	13.08	27.68	13.27	3.88	1.77
Replicate F				0.238	0.238	3.942	0.664	3.333	0.740	5.479	0.993	2.092	0.532
Replicate Prob(F)				0.8684	0.8684	0.0294	0.5868	0.0481	0.5446	0.0096	0.4230	0.1442	0.6673
Treatment F				3.286	3.286	11.415	6.147	9.667	5.047	9.289	2.738	58.424	8.979
Treatment Prob(F)				0.0335	0.0335	0.0001	0.0027	0.0003	0.0065	0.0003	0.0596	0.0001	0.0004

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

Evaluation of Inbred Varieties (13-201-67 and 13-323-66) on the Response of Nitrogen Rates – H. Rouse Caffey Rice Research Station

Experiment number	16-CM-44
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.23
pH	7.65
Extractable nutrients ppm	Ca-1504; Cu-1.7; Mg-276; P-6; K-54; Na-93; S-7.1; Zn-4.6
Crop/Variety	Rice / 13-201-67 and 13-323-66
Planting method/date	Drill seeded / March 22
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 11
Ratoon harvest date	Oct. 26
Seed treatment/cwt	Dy, DSF, DSM, GA3, Zn, ANip, Dermacor X-100
Fertilization	240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, Aug. 19
Water management	
Flush	April 11
Flood	May 11
Drain	July 25
Ratoon flood	Aug. 22
Ratoon drain	Oct. 17
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 57. Evaluation of inbred varieties (13-201-67 and 13-323-66) on the response of N rates. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle							
Rating Date						8/11/2016	8/11/2016		8/11/2016	10/26/2016			
Rating Type				50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield	Milling (g/100g)	
Rating Unit				days	days	in	% plot	rate	lb/A	lb/A	lb/A	head	total
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	Main	Main
Trt. No.	Trt. Name	Rate (lb N/A)	Growth Stage										
1	13-201-67	0	4-5 leaf	92.0 e	83.0 e	34.0 b	0.0 b	0.0 a	5449 d	1465 c	6914 c	43.56 f	67.20 d
2	13-201-67	90	4-5 leaf	97.0 d	88.0 d	40.8 a	0.0 b	0.0 a	8717 bc	1405 cd	10122 b	57.14 e	69.42 c
3	13-201-67	120	4-5 leaf	98.3 bcd	89.3 bcd	40.5 a	0.0 b	0.0 a	9352 ab	1110 e	10462 b	58.55 cde	70.65 bc
4	13-201-67	150	4-5 leaf	98.5 bc	89.5 bc	38.3 a	0.0 b	0.0 a	8673 bc	1179 de	9852 b	57.09 e	70.10 bc
5	13-201-67	165	4-5 leaf	99.5 ab	90.5 ab	39.5 a	0.0 b	0.0 a	9325 ab	1101 e	10511 b	57.89 de	70.29 bc
6	13-201-67	180	4-5 leaf	100.3 a	91.3 a	38.0 a	0.0 b	0.0 a	9332 ab	986 e	10318 b	57.95 de	70.19 bc
7	13-323-66	0	4-5 leaf	93.0 e	84.0 e	35.0 b	70.0 a	1.0 a	5583 d	1559 bc	7141 c	30.49 g	66.67 d
8	13-323-66	90	4-5 leaf	97.3 cd	88.3 cd	39.8 a	32.5 ab	0.8 a	8611 bc	1638 abc	10249 b	60.90 bcd	70.02 bc
9	13-323-66	120	4-5 leaf	99.0 ab	90.0 ab	40.0 a	0.0 b	0.0 a	8373 c	1747 ab	10120 b	62.03 abc	69.75 bc
10	13-323-66	150	4-5 leaf	99.0 ab	90.0 ab	38.8 a	22.5 b	0.5 a	9508 a	1744 ab	11252 a	65.27 a	72.45 a
11	13-323-66	165	4-5 leaf	99.0 ab	90.0 ab	38.3 a	22.5 b	0.3 a	8743 abc	1775 ab	10519 b	63.52 ab	70.46 bc
12	13-323-66	180	4-5 leaf	99.0 ab	90.0 ab	39.3 a	0.0 b	0.0 a	8458 c	1896 a	10355 b	64.50 ab	71.32 ab
LSD P=.05				1.49	1.49	2.84	37.94	0.72	769.9	276.1	702.6	3.650	1.578
Standard Deviation				1.03	1.03	1.97	26.37	0.50	534.5	191.9	487.8	2.537	1.097
CV				1.06	1.16	5.12	214.6	240.0	6.41	13.08	4.97	4.48	1.57
Replicate F				1.583	1.583	1.043	0.227	0.333	0.387	1.270	0.950	2.246	10.016
Replicate Prob(F)				0.212	0.212	0.387	0.877	0.801	0.763	0.301	0.428	0.101	0.000
Treatment F				24.787	24.787	4.430	2.696	1.970	26.481	10.378	30.488	61.739	8.358
Treatment Prob(F)				0.0001	0.0001	0.0004	0.0136	0.0654	0.0001	0.0001	0.0001	0.0001	0.0001

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

Evaluation of Hybrid Express (USH140001) on Nitrogen Application Rates and Timings – H. Rouse Caffey Rice Research Station

Experiment number	16-CM-45
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.23
pH	7.65
Extractable nutrients ppm	Ca-1504; Cu-1.7; Mg-276; P-6; K-54; Na-93; S-7.1; Zn-4.6
Crop/Variety	Rice / USH14001
Planting method/date	Drill seeded / March 22
Seeding rate/depth	10 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	July 12
Ratoon harvest date	Oct. 14
Seed treatment/cwt	Dy, DSF, DSM, GA3, Zn, ANip, Dermacor X-100
Fertilization	240 lb/A 0-24-24-2.7, March 22 90 lb N/A 46-0-0, July 13
Water management	
Flush	April 11
Flood	May 11
Drain	July 1
Ratoon flood	July 13
Ratoon drain	Sept. 27
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 6
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 58. Evaluation of Hybrid Express (USH140001) on N application rates and timings. H. Rouse Caffey Rice Research Station.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description				Plant-hd	Emerg-hd	Tip of Panicle							
Rating Date						7/12/2016	7/12/2016	7/12/2016		10/14/2016			
Rating Type				50% HD	50% HD	Height	Lodge		Yield	Yield	Total Yield	Milling (g/100g)	
Rating Unit				days	days	in	% plot	rate	lb/A	lb/A	lb/A	head	total
Crop Stage Majority				Main	Main	Main	Main	Main	Main	Ratoon	MC+RC	Main	Main
Trt. No.	Trt. Name	Rate	Rate Unit										
1	46 N/A PF	46	lb ai/A	71.0 a	63.0 a	32.3 a	52.5 a	1.0 a	6178 c	3915 a	10094 a	63.03 b	69.30 c
	GA3 (ProGibb)	4	oz/A										
2	46 N/A PF	46	lb ai/A	71.0 a	63.0 a	32.5 a	60.0 a	1.8 a	6358 c	4080 a	10438 a	63.23 b	69.80 bc
	30 N/A Lateboot	30	lb ai/A										
3	69 N/A PF	69	lb ai/A	71.0 a	63.0 a	33.3 a	77.5 a	2.0 a	7030 b	4158 a	11188 a	64.81 a	70.40 ab
	GA3 (ProGibb)	4	oz/A										
4	69 N/A PF	69	lb ai/A	71.0 a	63.0 a	33.0 a	60.0 a	1.5 a	6747 bc	4213 a	10960 a	65.36 a	70.50 a
	30 N/A Lateboot	30	lb ai/A										
5	92 N/A PF	92	lb ai/A	71.0 a	63.0 a	33.8 a	85.0 a	2.3 a	7189 ab	3755 a	10944 a	65.14 a	70.60 a
	GA3 (ProGibb)	4	oz/A										
6	92 N/A PF	92	lb ai/A	71.0 a	63.0 a	34.5 a	77.5 a	2.5 a	7751 a	4239 a	11990 a	65.67 a	70.50 a
	30 N/A Lateboot	30	lb ai/A										
LSD P=.05				N/A	N/A	2.03	30.67	1.26	611.9	755.1	1262.8	1.2475	0.57
Standard Deviation				0.00	0.00	1.34	20.35	0.84	406.0	501.0	837.8	0.8277	0.38
CV				0.0	0.0	4.05	29.6	45.64	5.9	12.34	7.66	1.28	0.54
Replicate F				0.000	0.000	1.313	2.344	0.476	1.277	0.057	0.245	5.060	8.292
Replicate Prob(F)				1.0000	1.0000	0.3068	0.1142	0.7035	0.3181	0.9813	0.8638	0.0128	0.0017
Treatment F				0.000	0.000	1.516	1.612	1.667	8.057	0.572	2.431	7.464	7.047
Treatment Prob(F)				1.0000	1.0000	0.2434	0.2170	0.2032	0.0007	0.7209	0.0836	0.0011	0.0014

N/A = Could not calculate LSD because of error. Mean square = 0.

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

Effects of HM1369 on Rice Health and Yield with and without HM9310 Applied at Panicle Initiation

Experiment number	16-CM-27
Site and design	
Location/Cooperator	H. Rouse Caffey Rice Research Station (Crowley Main)
Tillage type	Fall Stale
Experimental design	Randomized complete block
Number of reps	4
Plot size	4.67 x 16 ft
Row width/rows per plot	8 in / 7
Soil type	Crowley silt loam
% organic matter	1.34
pH	7.22
Extractable nutrients ppm	Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2
Crop/Variety	Rice / CL153
Planting method/date	Drill seeded / March 23
Seeding rate/depth	33 seeds/ft^2 / .5 in
Emergence date	March 31
Harvest date	Aug. 9
Seed treatment/cwt	Dithane (fungicide) – 114 g Release (gibberellic acid) – 10 g Zinc Plus (10% Zn and 4.9% combined sulfur) – 296 ml AV-1011 (bird repellent) – 18.3 oz
Fertilization	240 lb/A 0-24-24-2.7, March 22 120 lb N/A 46-0-0, May 5
Water management	
Flush	April 11
Flood	May 6
Drain	July 20
Pest management	
Herbicides	1.5 qt/A glyphosate, Feb. 29 1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23 2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
Insecticides	0.0137 lb ai/cwt Dermacor X-100 seed treatment
Fungicides	5 oz/A Gem + 9 oz/A Topaz, June 22

Table 59. Effects of HM1369 on rice health and yield with and without HM9310 applied at panicle initiation. H. Rouse Caffey Rice Research Station.

Crop Name						Rice		Rice		Rice		Rice	
Description						Plant-hd		Emerg-hd		Tip of Panicle			
Rating Date										8/9/2016		8/9/2016	
Rating Type						50% HD		50% HD		Height		Yield	
Rating Unit						days		days		in		lb/A	
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage								
1	Untreated Check					93.5	a	85.5	a	38.0	a	10177	a
2	HM1369	L	8	oz/A	PI	93.5	a	85.5	a	38.0	a	10171	a
3	HM1369	L	10	oz/A	PI	93.3	a	85.3	a	37.8	a	10032	a
4	HM1369	L	12	oz/A	PI	93.5	a	85.5	a	38.0	a	10233	a
5	HM9310	L	2	gal/A	PI	93.5	a	85.5	a	38.5	a	10225	a
6	HM9310	L	2	gal/A	PI	93.5	a	85.5	a	38.5	a	10243	a
	HM1369	L	8	oz/A	PI								
7	HM9310	L	2	gal/A	PI	93.5	a	85.5	a	39.0	a	10254	a
	HM1369	L	10	oz/A	PI								
8	HM9310	L	2	gal/A	PI	93.5	a	85.5	a	39.5	a	10322	a
	HM1369	L	12	oz/A	PI								
LSD P=.05						0.84		0.84		1.60		323.3	
Standard Deviation						0.57		0.57		1.09		219.9	
CV						0.61		0.67		2.84		2.15	
Replicate F						0.855		0.855		0.237		2.116	
Replicate Prob(F)						0.4795		0.4795		0.8695		0.1287	
Treatment F						0.095		0.095		1.201		0.598	
Treatment Prob(F)						0.9981		0.9981		0.3450		0.7507	

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

Evaluation of HM1568 and Ammonium Sulfate (AMS) Product on Rice Grain Yield

Experiment number ....: 16-CM-Helena 3

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.34
- **pH** ....: 7.22
- **Extractable nutrients** ppm ....: Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2

Crop/Variety ....: Rice / Mermentau
- **Planting method/date** ....: Drill seeded / March 23
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 4

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 6
- **Drain** ....: July 20

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides** ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 60. Evaluation of HM1568 and ammonium sulfate (AMS) product on rice grain yield. H. Rouse Caffey Rice Research Station.

Crop Name						Rice		Rice		Rice		Rice	
Description						Plant-hd		Emerg-hd		Tip of Panicle			
Rating Date										8/4/2016		8/4/2016	
Rating Type						50% HD		50% HD		Height		Yield	
Rating Unit						days		days		in		lb/A	
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage								
1	Urea	GR	120	lb ai/A	Pre-flood	90.8	cd	82.8	cd	36.0	a	8593	a
	Ammonium Sulfate	GR	0	lb/A	Pre-flood								
2	Urea	GR	120	lb ai/A	Pre-flood	91.3	abc	83.3	abc	36.5	a	8686	a
	Ammonium Sulfate	GR	65	lb/A	Pre-flood								
3	Urea	GR	120	lb ai/A	Pre-flood	90.5	d	82.5	d	35.8	a	8653	a
	HM9754B	GR	10	lb/A	Pre-flood								
4	Urea	GR	120	lb ai/A	Pre-flood	91.0	bcd	83.0	bcd	37.0	a	8763	a
	Ammonium Sulfate	GR	65	lb/A	Pre-flood								
	HM9754B	GR	10	lb/A	Pre-flood								
5	Urea	GR	120	lb ai/A	Pre-flood	91.0	bcd	83.0	bcd	35.8	a	8636	a
	HM0838A	GR	30	lb/A	Pre-flood								
6	Urea	GR	120	lb ai/A	Pre-flood	91.8	a	83.8	a	37.8	a	8823	a
	Ammonium Sulfate	GR	65	lb/A	Pre-flood								
	HM0838A	GR	30	lb/A	Pre-flood								
7	Urea	GR	120	lb ai/A	Pre-flood	91.5	ab	83.5	ab	36.8	a	8795	a
	HM1568	GR	85	lb/A	Pre-flood								
8	Urea	GR	120	lb ai/A	Pre-flood	91.5	ab	83.5	ab	37.3	a	8702	a
	HM1568	GR	65	lb/A	Pre-flood								
9	Urea	GR	120	lb ai/A	Pre-flood	91.5	ab	83.5	ab	37.3	a	9308	a
	HM1354 treated AMS (2.0 qt/t)	GR	65	lb/A	Pre-flood								
10	Urea	GR	120	lb ai/A	Pre-flood	91.3	abc	83.3	abc	37.8	a	8859	a
	HM1354 treated AMS (1.5 qt/t)	GR	65	lb/A	Pre-flood								
LSD P=.05						0.70		0.70		2.04		434.3	
Standard Deviation						0.48		0.48		1.41		299.4	
CV						0.53		0.58		3.82		3.41	
Replicate F						1.161		1.161		0.485		1.807	
Replicate Prob(F)						0.3427		0.3427		0.6957		0.1697	
Treatment F						2.613		2.613		1.165		1.855	
Treatment Prob(F)						0.0258		0.0258		0.3553		0.1035	

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

Evaluating Foliar Nutritionals with and without HM9310 – H. Rouse Caffey Rice Research Station

Experiment number ....: 16-CM-46

Site and design ....:
- **Location/Cooperator** ....: H. Rouse Caffey Rice Research Station (Crowley Main)
- **Tillage type** ....: Fall Stale
- **Experimental design** ....: Randomized complete block
- **Number of reps** ....: 4
- **Plot size** ....: 4.67 x 16 ft
- **Row width/rows per plot** ....: 8 in / 7

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.34
- **pH** ....: 7.22
- **Extractable nutrients** ppm ....: Ca-1429; Cu-1.5; Mg-281; P-14; K-77; Na-112; S-11.4; Zn-5.2

Crop/Variety ....: Rice / CL153
- **Planting method/date** ....: Drill seeded / March 23
- **Seeding rate/depth** ....: 33 seeds/ft^2 / .5 in
- **Emergence date** ....: March 31
- **Harvest date** ....: Aug. 9
- **Ratoon harvest date** ....: Oct. 25

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

Fertilization ....: 240 lb/A 0-24-24-2.7, March 22
120 lb N/A 46-0-0, May 4
90 lb N/A 46-0-0, Aug. 19

Water management ....:
- **Flush** ....: April 11
- **Flood** ....: May 6
- **Drain** ....: July 20
- **Ratoon flood** ....: Aug. 22
- **Ratoon drain** ....: Oct. 17

Pest management ....:
- **Herbicides** ....: 1.5 qt/A glyphosate, Feb. 29
1.5 qt/A glyphosate + 4 oz/A Sharpen + 15 oz/A Command + 1% MSO, March 23
2 qt/A RiceBeaux + 2 qt/A Propanil + .25 oz/A Permit + 4 oz/A League, May 4
- **Insecticides** ....: 0.0137 lb ai/cwt Dermacor X-100 seed treatment
- **Fungicides** ....: 5 oz/A Gem + 9 oz/A Topaz, June 22

Table 61. Evaluating foliar nutritionals with and without HM9310. H. Rouse Caffey Rice Research Station.

Crop Name						Rice	Rice	Rice	Rice	Rice
Description						Plant-hd	Emerg-hd	Tip of Panicle		
Rating Date									8/9/2016	8/9/2016
Rating Type						50% HD	50% HD	Height	Test Wt.	Yield
Rating Unit						days	days	in	lb/bu	lb/A
Trt. No.	Trt. Name	Form Type	Rate	Rate Unit	Growth Stage					
1	UREA	GR	120	lb/A	Pre-flood	93.8 a	85.8 a	39.0 a	47.7 a	7656 a
	UREA	GR	30	lb/A	PI					
2	UREA	GR	120	lb/A	Pre-flood	94.0 a	86.0 a	40.0 a	47.8 a	7612 a
	HM9310	L	3	gal/A	PI					
	HM9310	L	2	gal/A	10% HEAD					
3	UREA	GR	120	lb/A	Pre-flood	93.8 a	85.8 a	38.5 a	47.6 a	7754 a
	HM9310	L	2	gal/A	PI					
	HM9310	L	2	gal/A	10% HEAD					
4	UREA	GR	120	lb/A	Pre-flood	93.8 a	85.8 a	39.8 a	47.6 a	7760 a
	UREA	GR	30	lb/A	PI					
	HM9310	L	2	gal/A	10% HEAD					
LSD P=.05						0.77	0.77	1.56	0.62	524.8
Standard Deviation						0.48	0.48	0.98	0.39	328.1
CV						0.51	0.56	2.48	0.82	4.26
Replicate F						0.273	0.273	0.416	0.240	0.157
Replicate Prob(F)						0.8436	0.8436	0.7458	0.8662	0.9225
Treatment F						0.273	0.273	1.993	0.338	0.201
Treatment Prob(F)						0.8436	0.8436	0.1857	0.7987	0.8929

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

ROTATIONAL CROP RESEARCH

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INTRODUCTION

Rotational Crop Research

Separate variety trials were conducted for Group 3.0 – 4.4, Group 4.5 – 4.7, Group 4.8 – 4.9, Group 5.0 – 5.3, and Group 5.4 – 6.9 soybeans. The data is not included in this text; however, it can be found in the 2016 Soybean Variety Yields and Production Practices publication (LSU AgCenter publication number 2269) which can be found online at www.lsuagcenter.com. Soybean variety trials are conducted annually to evaluate the maturity group (Groups 3 – 6) and varietal response to the environmental and soil conditions in southwest Louisiana. In 2016, the varieties with the highest yield at the H. Rouse Caffey Rice Research Station (HRCRRS) location included AG 44X6, CZ 4181 RY, and Mycogen 5N414R2 soybeans (34 bu/A; Group 3.0 – 4.4); AG 46X6 (40 bu/A; Group 4.5 – 4.7); AG 48X7, Armor 48-D80, and Armor 49-D90 (41 bu/A; Group 4.8 – 4.9); S11-20124 (48 bu/A; Group 5.0 – 5.3); and Armor 55-R68, CZ5445LL, and DG5625GENRR2Y soybeans (47 bu/A; Group 5.4 – 6.9).

Wheat varietal and experimental lines are evaluated annually. The results for the Crowley South Farm location can be found in the 2016 Small Grain Performance Trials publication (LSU AgCenter publication number 206) which can be found online at www.lsuagcenter.com. The top yielding varieties at the Crowley location in 2016 included AGS 3000 (38.3 bu/A), USG 3120 (37.9 bu/A), LA08095C-37 (35.8 bu/A), Dyna-Gro Savoy (35.2 bu/A), and AGS 2035 (35.0 bu/A).

Grain sorghum hybrids are evaluated annually for their yield response. The results of the HRCRRS South Farm variety trial can be found in the Performance of Sorghum Hybrids in Louisiana in 2016 publication (LSU AgCenter publication number 208) which can be accessed online at www.lsuagcenter.com. Twenty-seven entries were evaluated in 2016 with the highest yielding grain sorghum hybrids at the Crowley location being Sorghum Partners SP7715 (83.1 bu/A), Dyna-Gro GX15371 (82.4 bu/A), Terral Seed REV9782 (79.6 bu/A), and Terral Seed REV9562 (79.6 bu/A).

A trial was conducted to evaluate soybean response to potassium (K) fertilization rate at the HRCRRS South Farm. Fertilizer K was surface broadcast as potash (0-0-60) immediately after seeding. Six rates of K were evaluated (0, 30, 60, 90, 120, and 150 lb K_2O/A). Results of the trial are presented in Table 1. Mean soybean yields ranged from 5 to 10 bu/A. A significant response to K rate was not observed ($P = 0.492$; LSD = 6.6).

A date of planting trial was conducted for the fourth year in 2016 at the HRCRRS in Crowley, LA. Six dates of planting were achieved in 2016. The actual dates of planting were April 4, April 26, May 7, May 31, June 9, and June 20. The trial evaluated four Group 3.8 – 4.1 soybean varieties (Pioneer P38T61BR, Terral 38R10, Bayer CZ4181RY, and Dyna-Gro 39RY43); four Group 4.7 – 4.8 soybean varieties (Pioneer P47T36R, Terral 47R53, Armor 47R70, and Bayer CZ4898RY); and four Group 5.4 – 5.7 soybean varieties (Pioneer P54T94R, Terral 56R63, Armor 55-R68, and Dyna-Gro 39RY57). Soybean yields for the April 4 planting date were very low and ranged from 1.7 – 2.9 bu/A for the Group 3 varieties, 3.4 – 7.4 bu/A for the Group 4 varieties, and 7.8 – 17.8 for the Group 5 varieties. Soybean yields increased for all maturity groups increased during the April 26 plantings, with the Group 3 varieties yielding between 6.4 – 9.5 bu/A, the Group 4 varieties yielding between 11.8 – 18.5 bu/A, and the Group 5 varieties ranging from 23.8 – 30.0 bu/A. The May 7 and later plantings were not harvested at the time this proposal was written. It should also be noted that a significant rainfall event occurred which flooded the soybeans for two days in September which most likely reduced yields. Analysis of multiple years of data will be needed before inferences of the optimum date of planting window for Group 3, 4, or 5 soybeans in southwest Louisiana can be made.

Evaluation of the Response of Soybeans to Different Potassium Sources and Boron Rates – H. Rouse Caffey Rice Research Station (South Unit)

Experiment number ....: 16-CS-Soybean_Mosaic

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.91
- **pH** ....: 6.16
- **Extractable nutrients** ppm ....: Ca-1,194; Cu-1.3; Mg-200; P-15; K-94; Na-37; S-10; Zn-1.9; B-0.5; Mn-69; Fe-75

Crop/Variety ....: Soybeans / Terral REV 49R94
- **Planting method/date** ....: Drill seeded / May 7
- **Seeding rate/depth** ....: 130,000 seeds/A / 1 in
- **Emergence date** ....: May 14
- **Harvest date** ....: Sept. 29

Seed treatment/cwt ....: NA

Fertilization ....: May 7

Water management ....:
- **Flush** ....: None

Pest management ....:
- **Herbicides** ....: 1.33 pt/A Dual Magnum, May 13
  2.25 pt/A Poast Plus + 1.33 pt/A Dual Magnum, May 31
  2.4 pt/A Basagran + 1% COC, June 17
  2.25 pt/A Poast Plus + 1% COC, Aug. 25
  1 pt/A Gramaxone + .0025% NIS, Sept. 16
- **Insecticides** ....: None
- **Fungicides** ....: None

Table 1. Evaluation of the response of soybeans to different potassium sources and boron rates.

Crop Name				Soybean		Soybean		Soybean		Soybean	
Rating Date				9/26/2016		9/26/2016		9/26/2016		9/26/2016	
Rating Type				# plant		Height		Weight		Yield	
Rating Unit				/A		in		lb/bu		bu/A	
Trt. No.	Treatment Name	Rate	Rate Unit								
1	MAP	40	lb ai/A	110,330	a	28.5	a	54.5	a	36.6	a
2	MAP	40	lb ai/A	105,427	a	29.5	a	54.6	a	39.4	a
	MOP	60	lb ai/A								
3	MAP	40	lb ai/A	95,620	a	29.8	a	54.5	a	35.8	a
	Aspire	60	lb ai/A								
4	MAP	40	lb ai/A	102,158	a	29.0	a	54.5	a	35.1	a
	MOP	60	lb ai/A								
	Granubor preplant	0.5	lb ai/A								
5	MAP	40	lb ai/A	91,533	a	29.8	a	54.3	a	37.1	a
	MOP	60	lb ai/A								
	Granubor preplant	1	lb ai/A								
6	MAP	40	lb ai/A	94,802	a	29.8	a	54.5	a	40.2	a
	MOP	60	lb ai/A								
	Granubor preplant	2	lb ai/A								
7	MESZ	40	lb ai/A	114,417	a	29.3	a	54.4	a	36.6	a
	MOP	60	lb ai/A								
8	MESZ	40	lb ai/A	107,061	a	29.3	a	54.6	a	35.0	a
	Aspire	60	lb ai/A								
LSD P=.05				18362.3		1.42		0.18		5.21	
Standard Deviation				12487.1		0.97		0.12		3.54	
CV				12.16		3.3		0.22		9.58	
Replicate F				2.178		7.868		3.368		12.307	
Replicate Prob(F)				0.1208		0.001		0.0378		0.0001	
Treatment F				1.684		0.835		1.984		1.175	
Treatment Prob(F)				0.1674		0.5709		0.1062		0.3581	

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

Evaluation of Date of Planting on Non-Irrigated Soybeans in Southwest Louisiana

Experiment number ....: 2016 DOP1 Soybeans

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.91
- **pH** ....: 6.16
- **Extractable nutrients** ppm ....: Ca-1,321; Cu-2.2; Mg-187; P-24; K-78; Na-37; S-7.9; Zn-5.9

Crop/Variety ....: Soybeans / See data sheet
- **Planting method/date** ....: Drill seeded / April 4
- **Seeding rate/depth** ....: 130,000 seeds/A / 1 in
- **Emergence date** ....: April 11
- **Harvest date** ....: Sept. 26

Seed treatment/cwt ....: NA

Fertilization ....: 250 lb/A 0-24-24-2.7, April 8

Water management ....:
- **Flush** ....: None

Pest management ....:
- **Herbicides** ....: 1.5 pt/A Dual Magnum, April 12
  1.5 qt/A Glyphosate, May 6
  1.33 pt/A Dual Magnum, May 13
  1.5 qt/A Glyphosate, May 30
  1.5 qt/A Glyphosate, Aug. 25
  1 pt/A Gramoxone + .0025% NIS, Sept. 9
- **Insecticides** ....: None
- **Fungicides** ....: None

Experiment number ....: 2016 DOP2 Soybeans

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

Soil type ....: Crowley silt loam
- **% organic matter** ....: 1.91
- **pH** ....: 6.16
- **Extractable nutrients** ppm ....: Ca-1,321; Cu-2.2; Mg-187; P-24; K-78; Na-37; S-7.9; Zn-5.9

Crop/Variety ....: Soybeans / See data sheet
- **Planting method/date** ....: Drill seeded / April 26
- **Seeding rate/depth** ....: 130,000 seeds/A / 1 in
- **Emergence date** ....: May 2
- **Harvest date** ....: Sept. 27

Seed treatment/cwt ....: NA

Fertilization ....: 250 lb/A 0-24-24-2.7, May 7

Water management ....:
- **Flush** ....: None

Pest management ....:
- **Herbicides** ....: 1.5 pt/A Dual Magnum, April 12
  1.5 qt/A Glyphosate, May 6
  1.33 pt/A Dual Magnum, May 13
  1.5 qt/A Glyphosate, May 30
  1.5 qt/A Glyphosate, Aug. 25
  1 pt/A Gramoxone + .0025% NIS, Sept. 14
- **Insecticides** ....: None
- **Fungicides** ....: None

Experiment number	: 2016 DOP3 Soybeans
Site and design	:
Location/Cooperator	: H. Rouse Caffey Rice Research Station (South Unit)
Tillage type	: Spring Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5.33 x 20 ft
Row width/rows per plot	: 16 in / 4
Soil type	: Crowley silt loam
% organic matter	: 1.91
pH	: 6.16
Extractable nutrients ppm	: Ca-1,321; Cu-2.2; Mg-187; P-24; K-78; Na-37; S-7.9; Zn-5.9
Crop/Variety	: Soybeans / See data sheet
Planting method/date	: Drill seeded / May 7
Seeding rate/depth	: 130,000 seeds/A / 1 in
Emergence date	: May 14
Harvest date	: Oct. 10
Seed treatment/cwt	: NA
Fertilization	: 250 lb/A 0-24-24-2.7, May 7
Water management	:
Flush	: None
Pest management	:
Herbicides	: 1.33 pt/A Dual Magnum, May 13
	1.5 qt/A Glyphosate, May 30
	1.5 qt/A Glyphosate, Aug. 25
	1 pt/A Gramoxone + .0025% NIS, Sept. 23
Insecticides	: None
Fungicides	: None

Experiment number	: 2016 DOP4 Soybeans
Site and design	:
Location/Cooperator	: H. Rouse Caffey Rice Research Station (South Unit)
Tillage type	: Spring Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5.33 x 20 ft
Row width/rows per plot	: 16 in / 4
Soil type	: Crowley silt loam
% organic matter	: 1.91
pH	: 6.16
Extractable nutrients ppm	: Ca-1,321; Cu-2.2; Mg-187; P-24; K-78; Na-37; S-7.9; Zn-5.9
Crop/Variety	: Soybeans / See data sheet
Planting method/date	: Drill seeded / May 31
Seeding rate/depth	: 130,000 seeds/A / 1 in
Emergence date	: June 5
Harvest date	: Oct. 10
Seed treatment/cwt	: NA
Fertilization	: 250 lb/A 0-24-24-2.7, May 31
Water management	:
Flush	: None
Pest management	:
Herbicides	: 1.5 qt/A Glyphosate, May 30
	1.5 qt/A Glyphosate, July 14
	1.5 qt/A Glyphosate, Aug. 25
	1 pt/A Gramoxone + .0025% NIS, Sept. 28
Insecticides	: 1 lb ai/A Livid 90, Sept. 23
Fungicides	: None

Experiment number	: 2016 DOP5 Soybeans
Site and design	:
Location/Cooperator	: H. Rouse Caffey Rice Research Station (South Unit)
Tillage type	: Spring Stale
Experimental design	: Randomized complete block
Number of reps	: 4
Plot size	: 5.33 x 20 ft
Row width/rows per plot	: 16 in / 4
Soil type	: Crowley silt loam
% organic matter	: 1.91
pH	: 6.16
Extractable nutrients ppm	: Ca-1,321; Cu-2.2; Mg-187; P-24; K-78; Na-37; S-7.9; Zn-5.9
Crop/Variety	: Soybeans / See data sheet
Planting method/date	: Drill seeded / June 9
Seeding rate/depth	: 130,000 seeds/A / 1 in
Emergence date	: June 14
Harvest date	: Oct. 24
Seed treatment/cwt	: NA
Fertilization	: 250 lb/A 0-24-24-2.7, June 10
Water management	:
Flush	: None
Pest management	:
Herbicides	: 1.5 qt/A Glyphosate, July 14
	1.5 qt/A Glyphosate, Aug. 25
	1 pt/A Gramoxone + .0025% NIS, Oct. 14
Insecticides	: 1 lb ai/A Livid 90, Sept. 23
Fungicides	: None

Experiment number ....: 2016 DOP6 Soybeans

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

Soil type ....: Crowley silt loam
- **% organic matter**........................: 1.91
- **pH**...: 6.16
- **Extractable nutrients** ppm ....: Ca-1,321; Cu-2.2; Mg-187; P-24; K-78; Na-37; S-7.9; Zn-5.9

Crop/Variety ....: Soybeans / See data sheet
- **Planting method/date** ....: Drill seeded / June 20
- **Seeding rate/depth**......................: 130,000 seeds/A / 1 in
- **Emergence date**...........................: June 25
- **Harvest date** ....: Oct. 24

Seed treatment/cwt ....: NA

Fertilization..: 250 lb/A 0-24-24-2.7, June 10

Water management ....:
- **Flush** ....: None

Pest management ....:
- **Herbicides**....................................: 1.5 qt/A Glyphosate, July 14
  1.5 qt/A Glyphosate, Aug. 25
  1 pt/A Gramoxone + .0025% NIS, Oct. 14
- **Insecticides** ....: 1 lb ai/A Livid 90, Sept. 23
- **Fungicides**....................................: None

Table 2. Evaluation of date of planting on non-irrigated soybeans in southwest Louisiana.

Crop Name			Soybean		Soybean		Soybean		Soybean		Soybean	
Rating Date					10/6/2016		10/6/2016		10/6/2016		10/6/2016	
Rating Type			Maturity		Height		Lodging		Test Wt.		Yield	
Rating Unit			days		in		0-5		lb/bu		bu/A	
Trt. No.	Treatment Name	Planting Code										
TABLE OF A (Date of Planting) MEANS												
1	DOP-1 April 4	A	.		15.7	d	0.0	b	42.9	d	13.3	d
2	DOP-2 April 26	B	137.5	a	23.0	c	0.0	b	47.1	c	38.4	b
3	DOP-3 May 7	C	129.7	b	27.9	b	0.4	a	49.4	b	43.0	a
4	DOP-4 May 31	D	111.3	c	29.6	a	0.1	b	49.8	b	44.2	a
5	DOP-5 June 9	E	111.9	c	27.5	b	0.0	b	52.7	a	43.2	a
6	DOP-6 June 20	F	112.0	c	27.5	b	0.0	b	50.5	b	24.9	c
P			0.0001		0.0001		0.0001		0.0001		0.0001	
LSD P=.05			3.78		0.68		0.13		2.03		1.77	
TABLE OF B (Group/Variety) MEANS												
1	Pioneer P38T61BR (3.8)		115.6	cd	24.4	e	0.0	b	47.8	a	29.0	f
2	Terral 38R10 (3.8)		116.2	c	23.5	e	0.0	b	47.5	a	28.0	f
3	Bayer CZ4181RY (4.1)		110.3	d	29.3	bc	0.0	b	49.6	a	35.6	cd
4	Dyna-Gro 39RY43 (3.9)		117.4	bc	24.3	e	0.0	b	43.6	b	29.0	f
5	Pioneer P47T36R (4.7)		122.9	a	28.3	c	0.0	b	49.2	a	34.4	de
6	Terral 47R53 (4.7)		115.0	cd	25.9	d	0.0	b	49.2	a	34.9	de
7	Armor 47R70 (4.7)		123.1	a	30.3	a	0.0	b	49.1	a	33.0	e
8	Bayer CZ4898RY (4.8)		122.6	ab	30.0	ab	0.7	a	48.9	a	33.2	de
9	Pioneer P54T94R (5.4)		123.4	a	18.9	g	0.0	b	50.3	a	38.6	ab
10	Terral 56R63 (5.6)		126.8	a	23.5	e	0.2	b	49.9	a	40.0	ab
11	Armor 55-R68 (5.5)		126.8	a	22.4	f	0.1	b	49.9	a	37.8	bc
12	Dyna-Gro 39RY57 (5.7)		125.8	a	21.5	f	0.0	b	50.1	a	40.7	a
P			0.0001		0.0001		0.0001		0.0005		0.0001	
LSD P=.05			5.34		0.96		0.18		2.88		2.51	

Continued.

Table 2. Continued.

Crop Name			Soybean		Soybean		Soybean		Soybean		Soybean	
Rating Date					10/6/2016		10/6/2016		10/6/2016		10/6/2016	
Rating Type			Maturity		Height		Lodging		Test Wt.		Yield	
Rating Unit			days		in		0-5		lb/bu		bu/A	
Trt. No.	Treatment Name	Planting Code										
TABLE OF A (Date of Planting) and B (Group/Variety) MEANS												
1 1	DOP-1 April 4 Pioneer P38T61BR (3.8)	A	.		14.0	DEF	0.0	c	37.9	f	4.4	F
2 1	DOP-2 April 26 Pioneer P38T61BR (3.8)	B	139.0	ab	22.5	uvw	0.0	c	46.7	a-d	17.4	ABC
3 1	DOP-3 May 7 Pioneer P38T61BR (3.8)	C	125.5	c-l	27.0	k-r	0.0	c	49.7	a-d	29.0	uvw
4 1	DOP-4 May 31 Pioneer P38T61BR (3.8)	D	103.0	s	30.5	e-h	0.0	c	50.2	a-d	48.5	d-j
5 1	DOP-5 June 9 Pioneer P38T61BR (3.8)	E	103.8	rs	26.5	l-s	0.0	c	51.8	ab	44.0	h-p
6 1	DOP-6 June 20 Pioneer P38T61BR (3.8)	F	106.5	o-s	26.0	n-t	0.0	c	50.3	a-d	30.6	tuv
1 2	DOP-1 April 4 Terral 38R10 (3.8)	A	.		13.5	DEF	0.0	c	38.8	ef	8.4	EF
2 2	DOP-2 April 26 Terral 38R10 (3.8)	B	138.0	abc	20.5	wxy	0.0	c	45.2	b-e	13.4	CDE
3 2	DOP-3 May 7 Terral 38R10 (3.8)	C	129.0	a-h	26.3	m-s	0.0	c	48.7	a-d	25.1	v-y
4 2	DOP-4 May 31 Terral 38R10 (3.8)	D	105.3	p-s	28.8	h-l	0.0	c	50.0	a-d	46.9	f-k
5 2	DOP-5 June 9 Terral 38R10 (3.8)	E	103.5	s	25.8	o-t	0.0	c	50.9	abc	45.4	f-n
6 2	DOP-6 June 20 Terral 38R10 (3.8)	F	105.0	qrs	26.5	l-s	0.0	c	51.2	abc	28.7	uvw
1 3	DOP-1 April 4 Bayer CZ4181RY (4.1)	A	.		19.5	x-A	0.0	c	47.6	a-d	9.5	DEF
2 3	DOP-2 April 26 Bayer CZ4181RY (4.1)	B	133.8	a-e	28.5	h-m	0.0	c	47.0	a-d	32.3	stu
3 3	DOP-3 May 7 Bayer CZ4181RY (4.1)	C	122.0	e-m	33.8	a-d	0.0	c	49.9	a-d	40.4	l-q
4 3	DOP-4 May 31 Bayer CZ4181RY (4.1)	D	108.0	n-s	34.0	abc	0.0	c	49.7	a-d	50.0	b-h
5 3	DOP-5 June 9 Bayer CZ4181RY (4.1)	E	80.0	t	29.3	g-k	0.0	c	52.3	a	51.3	b-f
6 3	DOP-6 June 20 Bayer CZ4181RY (4.1)	F	107.8	n-s	30.5	e-h	0.0	c	50.9	abc	30.4	tuv

Continued.

Table 2. Continued.

Crop Name			Soybean		Soybean		Soybean		Soybean		Soybean	
Rating Date					10/6/2016		10/6/2016		10/6/2016		10/6/2016	
Rating Type			Maturity		Height		Lodging		Test Wt.		Yield	
Rating Unit			days		in		0-5		lb/bu		bu/A	
Trt. No.	Treatment Name	Planting Code										
TABLE OF A (Date of Planting) and B (Group/Variety) MEANS												
1 4	DOP-1 April 4 Dyna-Gro 39RY43 (3.9)	A	.		15.5	CDE	0.0	c	16.3	g	8.8	EF
2 4	DOP-2 April 26 Dyna-Gro 39RY43 (3.9)	B	139.0	ab	21.3	wx	0.0	c	44.6	c-f	17.8	z-C
3 4	DOP-3 May 7 Dyna-Gro 39RY43 (3.9)	C	126.3	b-k	27.5	j-p	0.0	c	48.7	a-d	32.0	stu
4 4	DOP-4 May 31 Dyna-Gro 39RY43 (3.9)	D	108.0	n-s	29.5	f-j	0.0	c	49.9	a-d	47.0	f-k
5 4	DOP-5 June 9 Dyna-Gro 39RY43 (3.9)	E	105.0	qrs	27.0	k-r	0.0	c	51.4	abc	44.6	g-o
6 4	DOP-6 June 20 Dyna-Gro 39RY43 (3.9)	F	108.5	n-s	25.0	q-t	0.0	c	50.6	a-d	23.8	w-z
1 5	DOP-1 April 4 Pioneer P47T36R (4.7)	A	.		18.8	yzA	0.0	c	44.9	b-f	8.0	EF
2 5	DOP-2 April 26 Pioneer P47T36R (4.7)	B	137.0	abc	28.5	h-m	0.0	c	47.7	a-d	42.7	j-p
3 5	DOP-3 May 7 Pioneer P47T36R (4.7)	C	130.8	a-f	31.8	c-f	0.0	c	49.1	a-d	41.5	k-q
4 5	DOP-4 May 31 Pioneer P47T36R (4.7)	D	115.5	i-s	31.5	d-g	0.0	c	49.4	a-d	44.4	g-o
5 5	DOP-5 June 9 Pioneer P47T36R (4.7)	E	116.8	h-r	30.3	e-i	0.0	c	53.4	a	44.9	g-o
6 5	DOP-6 June 20 Pioneer P47T36R (4.7)	F	114.5	j-s	29.3	g-k	0.0	c	50.8	abc	24.8	v-y
1 6	DOP-1 April 4 Terral 47R53 (4.7)	A	.		15.8	BCD	0.0	c	44.8	b-f	8.5	EF
2 6	DOP-2 April 26 Terral 47R53 (4.7)	B	135.5	a-d	23.8	tuv	0.0	c	46.9	a-d	39.9	m-q
3 6	DOP-3 May 7 Terral 47R53 (4.7)	C	127.3	a-j	29.0	h-k	0.3	bc	49.3	a-d	42.2	k-p
4 6	DOP-4 May 31 Terral 47R53 (4.7)	D	87.3	t	30.3	e-i	0.0	c	50.3	a-d	45.0	g-o
5 6	DOP-5 June 9 Terral 47R53 (4.7)	E	112.3	m-s	28.3	h-n	0.0	c	53.6	a	49.0	c-i
6 6	DOP-6 June 20 Terral 47R53 (4.7)	F	112.5	l-s	28.5	h-m	0.0	c	50.3	a-d	24.7	v-y

Continued.

Table 2. Continued.

Crop Name			Soybean		Soybean		Soybean		Soybean		Soybean	
Rating Date					10/6/2016		10/6/2016		10/6/2016		10/6/2016	
Rating Type			Maturity		Height		Lodging		Test Wt.		Yield	
Rating Unit			days		in		0-5		lb/bu		bu/A	
Trt. No.	Treatment Name	Planting Code										
TABLE OF A (Date of Planting) and B (Group/Variety) MEANS												
1 7	DOP-1 April 4 Armor 47R70 (4.7)	A	.		19.5	x-A	0.0	c	44.6	c-f	7.1	F
2 7	DOP-2 April 26 Armor 47R70 (4.7)	B	134.3	a-e	27.3	j-q	0.0	c	47.8	a-d	44.5	g-o
3 7	DOP-3 May 7 Armor 47R70 (4.7)	C	131.0	a-f	31.5	d-g	0.3	bc	49.4	a-d	41.5	k-q
4 7	DOP-4 May 31 Armor 47R70 (4.7)	D	115.8	i-s	35.8	a	0.0	c	49.8	a-d	46.9	f-k
5 7	DOP-5 June 9 Armor 47R70 (4.7)	E	119.0	f-o	34.5	ab	0.0	c	53.3	a	38.1	p-s
6 7	DOP-6 June 20 Armor 47R70 (4.7)	F	115.5	i-s	33.5	a-d	0.0	c	49.5	a-d	19.8	y-B
1 8	DOP-1 April 4 Bayer CZ4898RY (4.8)	A	.		18.8	yzA	0.0	c	43.6	def	8.7	EF
2 8	DOP-2 April 26 Bayer CZ4898RY (4.8)	B	137.3	abc	28.5	h-m	0.0	c	47.2	a-d	46.0	f-l
3 8	DOP-3 May 7 Bayer CZ4898RY (4.8)	C	128.0	a-i	33.5	a-d	3.5	a	49.7	a-d	41.7	k-q
4 8	DOP-4 May 31 Bayer CZ4898RY (4.8)	D	115.0	i-s	35.3	a	0.5	b	49.4	a-d	38.9	o-r
5 8	DOP-5 June 9 Bayer CZ4898RY (4.8)	E	119.0	f-o	32.5	b-e	0.0	c	53.1	a	40.3	l-q
6 8	DOP-6 June 20 Bayer CZ4898RY (4.8)	F	113.5	k-s	31.5	d-g	0.0	c	50.3	a-d	23.2	w-A
1 9	DOP-1 April 4 Pioneer P54T94R (5.4)	A	.		12.8	F	0.0	c	48.5	a-d	15.0	BCD
2 9	DOP-2 April 26 Pioneer P54T94R (5.4)	B	136.8	abc	17.3	ABC	0.0	c	48.1	a-d	50.5	b-g
3 9	DOP-3 May 7 Pioneer P54T94R (5.4)	C	130.3	a-g	21.5	vwx	0.0	c	49.9	a-d	55.8	ab
4 9	DOP-4 May 31 Pioneer P54T94R (5.4)	D	117.5	g-q	21.5	vwx	0.0	c	50.0	a-d	41.9	k-q
5 9	DOP-5 June 9 Pioneer P54T94R (5.4)	E	119.0	f-o	19.8	xyz	0.0	c	53.8	a	43.4	i-p
6 9	DOP-6 June 20 Pioneer P54T94R (5.4)	F	113.5	k-s	20.8	wxy	0.0	c	51.2	abc	24.7	v-y

Continued.

Table 2. Continued.

Crop Name			Soybean		Soybean		Soybean		Soybean		Soybean	
Rating Date					10/6/2016		10/6/2016		10/6/2016		10/6/2016	
Rating Type			Maturity		Height		Lodging		Test Wt.		Yield	
Rating Unit			days		in		0-5		lb/bu		bu/A	
Trt. No.	Treatment Name	Planting Code										
TABLE OF A (Date of Planting) and B (Group/Variety) MEANS												
1 10	DOP-1 April 4 Terral 56R63 (5.6)	A	.		13.0	F	0.0	c	49.5	a-d	27.5	u-x
2 10	DOP-2 April 26 Terral 56R63 (5.6)	B	140.3	a	18.8	yzA	0.0	c	48.0	a-d	54.9	abc
3 10	DOP-3 May 7 Terral 56R63 (5.6)	C	134.5	a-e	24.8	r-u	0.5	b	49.6	a-d	54.6	a-d
4 10	DOP-4 May 31 Terral 56R63 (5.6)	D	120.0	f-n	27.8	j-o	0.5	b	49.6	a-d	42.4	k-p
5 10	DOP-5 June 9 Terral 56R63 (5.6)	E	123.0	d-m	28.0	i-o	0.0	c	52.7	a	39.4	n-q
6 10	DOP-6 June 20 Terral 56R63 (5.6)	F	116.0	h-s	28.8	h-l	0.0	c	50.1	a-d	21.2	y-B
1 11	DOP-1 April 4 Armor 55-R68 (5.5)	A	.		14.5	DEF	0.0	c	49.1	a-d	28.2	u-x
2 11	DOP-2 April 26 Armor 55-R68 (5.5)	B	140.3	a	20.8	wxy	0.0	c	48.0	a-d	53.4	a-e
3 11	DOP-3 May 7 Armor 55-R68 (5.5)	C	135.0	a-e	24.3	stu	0.5	b	49.3	a-d	54.1	a-d
4 11	DOP-4 May 31 Armor 55-R68 (5.5)	D	119.8	f-n	24.8	r-u	0.0	c	49.7	a-d	36.0	q-t
5 11	DOP-5 June 9 Armor 55-R68 (5.5)	E	123.0	d-m	24.8	r-u	0.0	c	53.0	a	32.9	r-u
6 11	DOP-6 June 20 Armor 55-R68 (5.5)	F	116.0	h-s	25.3	p-t	0.0	c	50.3	a-d	22.4	x-A
1 12	DOP-1 April 4 Dyna-Gro 39RY57 (5.7)	A	.		13.3	EF	0.0	c	49.0	a-d	25.8	v-y
2 12	DOP-2 April 26 Dyna-Gro 39RY57 (5.7)	B	139.0	ab	18.0	zAB	0.0	c	48.0	a-d	47.4	e-k
3 12	DOP-3 May 7 Dyna-Gro 39RY57 (5.7)	C	136.8	abc	23.8	tuv	0.0	c	49.6	a-d	58.2	a
4 12	DOP-4 May 31 Dyna-Gro 39RY57 (5.7)	D	120.0	f-n	26.0	n-t	0.0	c	49.9	a-d	42.1	k-q
5 12	DOP-5 June 9 Dyna-Gro 39RY57 (5.7)	E	118.3	f-p	23.8	tuv	0.0	c	53.3	a	45.8	f-m
6 12	DOP-6 June 20 Dyna-Gro 39RY57 (5.7)	F	115.0	i-s	24.3	stu	0.0	c	51.0	abc	24.8	v-y
P			0.0235		0.0001		0.0001		0.0001		0.0001	
LSD P=.05			13.09		2.35		0.45		7.05		6.14	
Standard Deviation			9.38		1.68		0.32		5.06		4.40	
CV			7.79		6.68		387.84		10.37		12.76	

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

Evaluation of Soybean Response to Potassium

Experiment number	16-KL-Soy01
Site and design	
Location/Cooperator	Evangeline Parish / Kenneth LaHaye
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 in / 4
Soil type	Mowata silt loam
% organic matter	1.25
pH	6.47
Extractable nutrients ppm	Ca-969; Cu-0.6; Mg-359; P-5.1; K-130; Na-148; S-14; Zn-8.2
Crop/Variety	Soybean / AG5533
Planting method/date	Drill seeded / May 25
Seeding rate/depth	130,000 seeds/A / 1 in
Emergence date	June 1
Harvest date	Oct. 13
Seed treatment/cwt	NA
Fertilization	See data sheet
Water management	
Flush	NA
Flood	NA
Drain	NA
Pest management	
Herbicides	1.5 qt/A Glyphosate + 1.33 pt/A Dual Magnum, June 1 1.5 qt/A Glyphosate, June 27 1 pt/A Gramoxone + .0025% NIS, Sept. 29
Insecticides	2 oz/A Karate, June 27
Fungicides	None

Table 3. Evaluation of soybean response to potassium rate.

Crop Name				Soybean	Soybean	Soybean	Soybean	Soybean
Description				Maturity	Maturity	Plt. Height	Test Wt.	Yield
Rating Date						10/13/2016	10/13/2016	10/13/2016
Rating Type				Plant-R8	Emerg-R8	Height		
Rating Unit				days	days	in	lb/bu	bu/A
Trt. No.	Treatment Name	Rate (lb ai/A)	Growth Stage					
1	0 lb K_2O	0	ATPLAN	126 a	119 a	19.5 a	51.9 a	42.7 a
2	30 lb K_2O	30	ATPLAN	126 a	119 a	20.5 a	51.8 a	41.9 a
3	60 lb K_2O	60	ATPLAN	126 a	119 a	19.8 a	51.9 a	49.4 a
4	90 lb K_2O	90	ATPLAN	126 a	119 a	20.8 a	51.8 a	45.9 a
5	120 lb K_2O	120	ATPLAN	126 a	119 a	21.3 a	51.7 a	40.9 a
6	150 lb K_2O	150	ATPLAN	126 a	119 a	20.3 a	51.8 a	45.5 a
LSD P=.05				N/A	N/A	2.55	0.30	13.40
Standard Deviation				0.00	0.00	1.69	0.20	8.70
CV				0.0	0.0	8.33	0.38	19.58
Replicate F				0.000	0.000	4.419	0.091	5.354
Replicate Prob(F)				1.0000	1.0000	0.0204	0.9641	0.0143
Treatment F				0.000	0.000	0.581	0.861	0.528
Treatment Prob(F)				1.0000	1.0000	0.7139	0.5291	0.7512

N/A = Could not calculate LSD because of error. Mean square = 0.
Means followed by the same letter or symbol do not significantly differ (P=.05, LSD).

Evaluation of Potassium Time of Application on Soybean Yield

Experiment number ....: 16-KL-Soy02

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish / Kenneth LaHaye
- **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 in / 4

Soil type ....: Mowata silt loam
- **% organic matter** ....: 1.25
- **pH** ....: 6.47
- **Extractable nutrients** ppm ....: Ca-969; Cu-0.6; Mg-359; P-5.1; K-130; Na-148; S-14; Zn-8.2

Crop/Variety ....: Soybean / AG5533
- **Planting method/date** ....: Drill seeded / May 25
- **Seeding rate/depth** ....: 130,000 seeds/A / 1 in
- **Emergence date** ....: June 1
- **Harvest date** ....: Oct. 13

Seed treatment/cwt ....: NA

Fertilization ....: See data sheet

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

Pest management ....:
- **Herbicides** ....: 1.5 qt/A Glyphosate + 1.33 pt/A Dual Magnum, June 1
  1.5 qt/A Glyphosate, June 27
  1 pt/A Gramoxone + .0025% NIS, Sept. 29
- **Insecticides** ....: 2 oz/A Karate, June 27
- **Fungicides** ....: None

Table 4. Evaluation of potassium time of application on soybean yield.

Crop Name				Soybean		Soybean		Soybean		Soybean		Soybean	
Description				Maturity		Maturity		Plt. Height		Test Wt.		Yield	
Rating Date								10/13/2016		10/13/2016		10/13/2016	
Rating Type				Plant-R8		Emerg-R8		Height					
Rating Unit				days		days		in		lb/bu		bu/A	
Trt. No.	Treatment Name	Rate (lb ai/A)	Growth Stage										
1	Untreated Check	0		126	a	119	a	19.3	a	52.3	a	41.4	a
2	Muriate of Potash	120	ATPLAN	126	a	119	a	20.3	a	52.3	a	46.4	a
3	Muriate of Potash	120	V1	126	a	119	a	20.0	a	52.3	a	38.7	a
4	Muriate of Potash	120	V3	126	a	119	a	19.3	a	51.8	a	38.2	a
5	Muriate of Potash	120	V5	126	a	119	a	18.7	a	51.9	a	41.3	a
6	Muriate of Potash	120	R1	126	a	119	a	20.3	a	51.9	a	32.3	a
7	Muriate of Potash	120	R3	126	a	119	a	20.3	a	52.1	a	38.6	a
8	Muriate of Potash	120	R5	126	a	119	a	20.3	a	51.9	a	32.9	a
9	Muriate of Potash	120	R6	126	a	119	a	18.7	a	51.6	a	31.9	a
LSD P=.05				N/A		N/A		2.44		0.64		11.54	
Standard Deviation				0.00		0.00		1.41		0.44		6.49	
CV				0.0		0.0		7.14		0.85		17.09	
Replicate F				0.000		0.000		0.916		8.445		6.425	
Replicate Prob(F)				1.0000		1.0000		0.4201		0.0005		0.0127	
Treatment F				0.000		0.000		0.776		1.177		1.685	
Treatment Prob(F)				1.0000		1.0000		0.6296		0.3524		0.2002	

N/A = Could not calculate LSD because of error. Mean square = 0.
Means followed by the same letter or symbol do not significantly differ (P=.05, LSD).

Evaluation of Soybean Response to Phosphorus Rate

Experiment number	16-KL-Soy03
Site and design	
Location/Cooperator	Evangeline Parish / Kenneth LaHaye
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 in / 4
Soil type	Mowata silt loam
% organic matter	1.25
pH	6.47
Extractable nutrients ppm	Ca-969; Cu-0.6; Mg-359; P-5.1; K-130; Na-148; S-14; Zn-8.2
Crop/Variety	Soybean / AG5533
Planting method/date	Drill seeded / May 25
Seeding rate/depth	130,000 seeds/A / 1 in
Emergence date	June 1
Harvest date	Oct. 13
Seed treatment/cwt	NA
Fertilization	See data sheet
Water management	
Flush	NA
Flood	NA
Drain	NA
Pest management	
Herbicides	1.5 qt/A Glyphosate + 1.33 pt/A Dual Magnum, June 1 1.5 qt/A Glyphosate, June 27 1 pt/A Gramoxone + .0025% NIS, Sept. 29
Insecticides	2 oz/A Karate, June 27
Fungicides	None

Table 5. Evaluation of soybean response to phosphorus rate.

Crop Name				Soybean		Soybean		Soybean		Soybean		Soybean	
Description				Maturity		Maturity		Plt. Height		Test Wt.		Yield	
Rating Date								10/13/2016		10/13/2016		10/13/2016	
Rating Type				Plant-R8		Emerg-R8		Height					
Rating Unit				days		days		in		lb/bu		bu/A	
Trt. No.	Treatment Name	Rate (lb ai/A)	Growth Stage										
1	P_2O_5	0	ATPLAN	126	a	119	a	17.8	a	52.1	a	27.2	a
2	P_2O_5	30	ATPLAN	126	a	119	a	18.8	a	51.9	a	32.6	a
3	P_2O_5	60	ATPLAN	126	a	119	a	19.0	a	52.0	a	33.8	a
4	P_2O_5	90	ATPLAN	126	a	119	a	19.5	a	52.0	a	33.6	a
5	P_2O_5	120	ATPLAN	126	a	119	a	20.8	a	51.8	a	34.1	a
6	P_2O_5	150	ATPLAN	126	a	119	a	19.3	a	52.2	a	38.5	a
LSD P=.05				N/A		N/A		3.65		0.38		7.05	
Standard Deviation				0.00		0.00		2.42		0.25		4.62	
CV				0.0		0.0		12.64		0.48		13.87	
Replicate F				0.000		0.000		2.045		2.290		0.667	
Replicate Prob(F)				1.0000		1.0000		0.1507		0.1200		0.5869	
Treatment F				0.000		0.000		0.659		1.480		2.464	
Treatment Prob(F)				1.0000		1.0000		0.6597		0.2542		0.0883	

N/A = Could not calculate LSD because of error. Mean square = 0.
Means followed by the same letter or symbol do not significantly differ (P=.05, LSD).

Evaluation of Phosphorus Time of Application on Soybean Yield

Experiment number ....: 16-KL-Soy04

Site and design ....:
- **Location/Cooperator** ....: Evangeline Parish / Kenneth LaHaye
- **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 in / 4

Soil type ....: Mowata silt loam
- **% organic matter** ....: 1.25
- **pH** ....: 6.47
- **Extractable nutrients** ppm ....: Ca-969; Cu-0.6; Mg-359; P-5.1; K-130; Na-148; S-14; Zn-8.2

Crop/Variety ....: Soybean / AG5533
- **Planting method/date** ....: Drill seeded / May 25
- **Seeding rate/depth** ....: 130,000 seeds/A / 1 in
- **Emergence date** ....: June 1
- **Harvest date** ....: Oct. 13

Seed treatment/cwt ....: NA

Fertilization ....: See data sheet

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

Pest management ....:
- **Herbicides** ....: 1.5 qt/A Glyphosate + 1.33 pt/A Dual Magnum, June 1
  1.5 qt/A Glyphosate, June 27
  1 pt/A Gramoxone + .0025% NIS, Sept. 29
- **Insecticides** ....: 2 oz/A Karate, June 27
- **Fungicides** ....: None

Table 6. Evaluation of phosphorus time of application on soybean yield.

Crop Name				Soybean	Soybean	Soybean	Soybean	Soybean
Description				Maturity	Maturity	Plt. Height	Test Wt.	Yield
Rating Date						10/13/2016	10/13/2016	10/13/2016
Rating Type				Plant-R8	Emerg-R8	Height		
Rating Unit				days	days	in	lb/bu	bu/A
Trt. No.	Treatment Name	Rate (lb ai/A)	Growth Stage					
1	Check	0		126 a	119 a	19.8 a	52.0 a	28.7 a
2	P_2O_5	120	ATPLAN	126 a	119 a	20.4 a	52.2 a	34.6 a
3	P_2O_5	120	V1	126 a	119 a	19.8 a	52.0 a	28.8 a
4	P_2O_5	120	V3	126 a	119 a	19.5 a	51.5 a	31.2 a
5	P_2O_5	120	V5	126 a	119 a	19.3 a	51.8 a	26.5 a
6	P_2O_5	120	R1	126 a	119 a	19.3 a	51.7 a	31.1 a
7	P_2O_5	120	R3	126 a	119 a	19.0 a	52.0 a	34.6 a
8	P_2O_5	120	R5	126 a	119 a	18.8 a	51.1 a	30.7 a
9	P_2O_5	120	R6	126 a	119 a	18.0 a	51.7 a	24.9 a
LSD P=.05				N/A	N/A	2.48	0.72	9.04
Standard Deviation				0.00	0.00	1.69	0.49	6.03
CV				0.0	0.0	8.78	0.96	20.01
Replicate F				0.000	0.000	5.313	1.726	1.663
Replicate Prob(F)				1.0000	1.0000	0.0063	0.1884	0.2148
Treatment F				0.000	0.000	0.639	1.693	1.198
Treatment Prob(F)				1.0000	1.0000	0.7369	0.1516	0.3592

N/A = Could not calculate LSD because of error. Mean square = 0.
Means followed by the same letter or symbol do not significantly differ (P=.05, LSD).

Evaluation of Soybean Response to Zinc Rate

Experiment number	16-KL-Soy05
Site and design	
Location/Cooperator	Evangeline Parish / Kenneth LaHaye
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 in / 4
Soil type	Mowata silt loam
% organic matter	1.25
pH	6.47
Extractable nutrients ppm	Ca-969; Cu-0.6; Mg-359; P-5.1; K-130; Na-148; S-14; Zn-8.2
Crop/Variety	Soybean / AG5533
Planting method/date	Drill seeded / May 25
Seeding rate/depth	130,000 seeds/A / 1 in
Emergence date	June 1
Harvest date	Oct. 13
Seed treatment/cwt	NA
Fertilization	See data sheet
Water management	
Flush	NA
Flood	NA
Drain	NA
Pest management	
Herbicides	1.5 qt/A Glyphosate + 1.33 pt/A Dual Magnum, June 1 1.5 qt/A Glyphosate, June 27 1 pt/A Gramoxone + .0025% NIS, Sept. 29
Insecticides	2 oz/A Karate, June 27
Fungicides	None

Table 7. Evaluation of soybean response to zinc rate.

Crop Name				Soybean		Soybean		Soybean		Soybean		Soybean	
Description				Maturity		Maturity		Plt. Height		Test Wt.		Yield	
Rating Date								10/13/2016		10/13/2016		10/13/2016	
Rating Type				Plant-R8		Emerg-R8		Height					
Rating Unit				days		days		in		lb/bu		bu/A	
Trt	Treatment	Rate	Growth										
No.	Name	(lb ai/A)	Stage										
1	0 lb Zn/A			126	a	119	a	19.5	a	51.9	a	30.2	a
2	5 lb Zn/A	5	ATPLAN	126	a	119	a	19.3	a	51.3	a	30.7	a
3	7.5 lb Zn/A	7.5	ATPLAN	126	a	119	a	18.8	a	52.1	a	29.5	a
4	10 lb Zn/A	10	ATPLAN	126	a	119	a	19.8	a	51.7	a	29.5	a
5	15lb Zn/A	15	ATPLAN	126	a	119	a	20.8	a	51.9	a	29.4	a
6	20 lb Zn/A	20	ATPLAN	126	a	119	a	19.5	a	51.8	a	23.7	a
LSD P=.05				N/A		N/A		1.75		0.70		9.10	
Standard Deviation				0.00		0.00		1.16		0.46		5.96	
CV				0.0		0.0		5.92		0.9		20.66	
Replicate F				0.000		0.000		9.132		1.845		1.455	
Replicate Prob(F)				1.0000		1.0000		0.0011		0.1824		0.2725	
Treatment F				0.000		0.000		1.314		1.234		0.729	
Treatment Prob(F)				1.0000		1.0000		0.3103		0.3416		0.6139	

N/A = Could not calculate LSD because of error. Mean square = 0.

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

RICE DISEASE CONTROL RESEARCH

RICE DISEASE CONTROL STUDIES, 2016

D.E. Groth, C.W. Dischler, L.L. Monte, and M.J. Frey

INTRODUCTION

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

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

Diseases occur in all rice-growing regions of the world. In the United States, disease pressure is higher in the mid-south growing region than in the arid California production area; although, California has had significantly more disease pressure recently with the introduction of blast in 1997 and the introduction of bakanae in 1999. The United States is fortunate that it does not have any of the devastating viral diseases that occur in most other production areas of the world. Also, the United States has a limited number of nematode and bacterial diseases compared with most of the world production areas. Unfortunately, there are enough fungal diseases that increase production costs and reduce yields and quality to limit the economic return U.S. farmers receive for their crop.

The objective of these studies is to develop effective economical rice disease management practices. These include disease resistance, cultural management, and chemical control.

Table 1. List of fungicides tested in 2016.

	Common Name	**Company**
Quadris 2.08 SC	Azoxystrobin	Syngenta
Stratego 2.08 EC	Trifloxystrobin/Propiconazole	Bayer
GEM 500 SC	Trifloxystrobin	Bayer
Quilt 1.66 SC	Azoxystrobin/Propiconazole	Syngenta
Sercadis	Xemium	BASF
Tilt 3.6 EC	Propiconazole	Syngenta
Quilt Xcel 2.2SC	Azoxystrobin/Propiconazole	Syngenta
Convoy	Flutolanil	Nichino
Amastar Top	Azoxystrobin/Difenoconazole	Syngenta
Equation	Azoxystrobin	FMC

2016 Louisiana Variety Rice Disease Nursery Trial

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: Various / ~100 lb/A

Plot Size: Three 6-ft rows

Planting Method/Date: Drill seeded / March 23

Fertilization: Preplant 0-60-60+7 Zn, Sept. 24; Pre-flood 150-0-0, May 7; Topdressed 46-0-0, May 31

Experimental Design: Randomized complete block design with two to four replications

Water Management: Flushed, April 6; Flooded, May 9; Drained, July 19

Herbicides: Prowl 1 qt/A, April 5
Tank-Mix Propanil 3.5 qt/A, Prowl 1 qt/A, and Permit 1 oz/A, May 6

Insecticides: Dermacor seed treatment

Fungicides: None

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 31

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:

	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 15	Boot	09:00	86°F	7 mph	85%	70%	Moderate

Disease Ratings: July 18

Drained: July 19

Harvest: N/A

Results: See Table 2

Comments: Sheath blight severity was moderate, bacterial panicle blight severity was light, and blast severity was very light.

Table 2. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), bacterial panicle blight (BPB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016.

Character Rated		SB	BPB	RNB
Rating Date		Aug. 5	Aug. 17	Aug. 17
Rating Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
Trt. No.	Treatment Name	2	3	4
1	Caffey	4.0ab	3.8b-f	1.3abc
2	Catahoula	6.0a	2.5c-g	0.0c
3	Cheniere	5.3ab	1.3efg	1.3abc
4	CL111	5.8ab	6.0ab	1.8abc
5	CL151	5.8ab	4.0b-f	1.8abc
6	CL152	5.0ab	2.5c-g	0.0c
7	CL153	6.0a	3.8b-f	0.8bc
8	CL163	5.3ab	3.0b-g	0.5c
9	PV 24A	4.3ab	4.3b-f	3.0abc
10	CL172	5.5ab	4.0b-f	2.5abc
11	CLXL729	3.8ab	1.0fg	0.0c
12	CLXL745	4.8ab	1.0fg	0.5c
13	PV 24B	4.8ab	3.3b-g	4.0a
14	Cypress	5.5ab	3.3b-g	1.5abc
15	Della-2	5.3ab	2.8b-g	0.5c
16	Jazzman	3.5ab	5.8abc	0.3c
17	Jazzman-2	5.8ab	5.5abc	1.0abc
18	Jupiter	4.8ab	2.8b-g	0.0c
19	LaKast	4.3ab	3.3b-g	0.0c
20	Mermentau	5.3ab	1.5d-g	1.0abc
21	Roy J	3.3b	3.8b-f	1.8abc
22	XL753	3.8ab	1.0fg	0.3c
23	XL760	3.8ab	0.3g	0.0c
24	MM14	4.3ab	7.5a	0.8bc
25	Titan	4.8ab	3.0b-g	0.0c
26	Diamond	4.0ab	3.3b-g	2.8abc
27	Thad	4.5ab	4.8bcd	3.8ab
28	XL 766	3.8ab	1.3efg	0.0c
29	CLJ 10	5.0ab	4.5b-e	2.3abc
30	CLJ 23	5.5ab	4.5b-e	2.5abc
31	CLJ 27	5.3ab	3.3b-g	0.5c
32	CLJ 34	5.3ab	5.8abc	1.5abc
33	CLJ 40	5.8ab	5.3abc	1.5abc
LSD P=.05		1.29	1.78	1.74
Standard Deviation		0.92	1.27	1.24
CV		19.12	36.98	105.06
Bartlett's X2		28.048	28.534	21.599
P(Bartlett's X2)		0.619	0.594	0.603
Skewness		-0.0456	0.3121	1.1337
Kurtosis		-0.5446	-0.6318	0.3045
Replicate F		3.167	1.374	0.432
Replicate Prob(F)		0.0279	0.2555	0.7303
Treatment F		2.952	7.130	3.357
Treatment Prob(F)		0.0001	0.0001	0.0001

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

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

2016 Louisiana Uniform Rice Disease Nursery Trial

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: Various / ~100 lb/A

Plot Size: 6-ft rows

Planting Method/Date: Drill seeded / March 23

Fertilization: Preplant 0-60-60+7 Zn, Sept. 24; Pre-flood 150-0-0, May 7; Topdressed 46-0-0, May 31

Experimental Design: Randomized complete block design with two to four replications

Water Management: Flushed, April 6; Flooded, May 9; Drained, July 19

Herbicides: Prowl 1 qt/A, April 5
Tank-Mix Propanil 3.5 qt/A, Prowl 1 qt/A, and Permit 1 oz/A, May 6

Insecticides: Dermacor seed treatment

Fungicides: None

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 31

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 15	Boot	09:00	86°F	7 mph	85%	70%	Moderate

Disease Ratings: July 18

Drained: July 19

Harvest: N/A

Results: See Tables 3-9

Comments: Sheath blight severity was moderate, bacterial panicle blight severity was light, and blast severity was very light.

Table 3. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), bacterial panicle blight (BPB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016. (URN Group I).

		SB	BPB	RNB
Character Rated		SB	BPB	RNB
Rating Date		Aug. 5	Aug. 17	Aug. 17
Rating Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
ARM Action Codes			AS	
Trt. No.	Treatment Name			
1	248DREW16C-1-3/6/LGRU//KATY/STBN/5/NWBT/KATY//RA73/LMNT/4/LBNT/9902/3	4.8ab	2.7def	0.8a
2	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	5.8ab	4.5a-e	1.0a
3	CF4-69/CCDR//Sierra	6.3ab	2.0f	1.3a
4	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	4.0b	4.0b-f	1.8a
5	TRNS/4/9502008-A/DREW//CLR 20/3/CPRS/KBNT//WELLS CFX 18	6.0ab	6.7a	1.3a
6	CPRS/CCDR	5.3ab	2.2ef	0.0a
7	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/LGRU/MILL/6/RU9201127/4/KATY/NWBT//L201/7402003/3/WLLS	5.0ab	5.7ab	0.5a
8	CL131/3/CPRS/KBNT//9502008-A	6.8a	4.0b-f	2.3a
9	CPRS/9901081	5.0ab	3.7b-f	0.5a
10	91642//KATY/NWBT/5/RU9201176/4/KATY/NWBT/3/LBNT/STBN//NWBT/6/CYBT/7/FRNS	5.5ab	3.5b-f	1.8a
11	9502008/3/MBLE//LMNT/20001-5/4/WELLS/CFX18/5/TAGGART	4.8ab	2.9c-f	0.0a
12	LCSN/LGRU	5.3ab	3.0c-f	0.8a
13	CHNR/4/CPRS/9502008-A/3/CFX 29//AR1142/LA2031	5.0ab	2.6def	0.0a
14	8603006//3/MARS/NWRX//TBNT	4.5ab	4.7a-d	2.8a
15	CPRS/NWBT	4.3b	3.7b-f	1.3a
16	CPRS//NWBT/C4-63	4.3b	2.0f	0.5a
17	CL111	5.5ab	5.2abc	1.8a
18	CL153	4.8ab	2.9c-f	0.5a
19	PRESIDIO	4.5ab	2.9c-f	0.3a
20	MERMENTAU	5.0ab	2.7def	1.3a
LSD P=.05		1.30	1.18-1.70	1.90
Standard Deviation		0.92	0.24t	1.34
CV		18.03	11.87t	133.97
Bartlett's X2		4.775	13.826	13.057
P(Bartlett's X2)		1.00	0.612	0.669
Skewness		0.2989	0.3925	1.2202
Kurtosis		-0.3803	-0.8747	0.5266
Replicate F		2.089	0.166	2.730
Replicate Prob(F)		0.1117	0.9189	0.0522
Treatment F		2.346	6.446	1.320
Treatment Prob(F)		0.0069	0.0001	0.2078

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

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

Table 4. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), bacterial panicle blight (BPB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016. (URN Group II).

Character Rated	SB	BPB	RNB
Rating Date	Aug. 5	Aug. 17	Aug. 17
Rating Type	Severity	Severity	Severity
Rating Unit	0-9	0-9	0-9
ARM Action Codes			AS
Trt. No. Treatment Name			
21 BNGL/CL161/4/9502065/3/MERC//MERC/…	5.3abc	3.8a-d	0.0c
22 TACAURI/3/CPRS//82CAY21/TBNT/4/CFX 18/5/CHENIERE	4.8abc	2.0d	0.6bc
23 L202/LQ39a//SABR	5.0abc	2.8bcd	0.0c
24 CL111/3/CCDR//9502008/LGRU	5.8ab	2.5cd	2.2a
25 9502008-A/DREW//CLR 20/3/CL111	5.3abc	4.5a-d	0.5bc
26 CPRS/NWBT//KATY/3/CCDR	5.5ab	4.3a-d	0.0c
27 BNGL//ORIN/BNGL	4.3bc	3.3a-d	0.0c
28 CPRS/KBNT//WELLS CFX 18/3/CHENIERE	5.5ab	4.8abc	0.5bc
29 CPRS/CCDR	6.3a	5.3ab	0.4bc
30 RU1202168/JPTR	5.0abc	4.8abc	0.0c
31 CPRS/3/9502008-A//AR 1188/CCDR/4/CPRS/9502008-A/3/CFX 29AR 1142/LA 2031	5.8ab	2.8bcd	0.0c
32 IR64/IR 1321-12	4.0bc	2.0d	0.0c
33 CPRS//NWBT/C4-63	5.3abc	3.8a-d	0.8bc
34 9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5.5ab	3.5a-d	0.2bc
35 CL131/PSCL	5.5ab	5.5a	1.7ab
36 Cheniere/Banks	4.0bc	2.3cd	0.0c
37 JUPITER	4.0bc	4.0a-d	0.0c
38 WELLS	4.0bc	3.8a-d	0.0c
39 LAKAST	5.3abc	3.8a-d	0.4bc
40 DIAMOND	3.5c	3.3a-d	0.4bc
LSD P=.05	1.10	1.45	0.84 - 1.18
Standard Deviation	0.77	1.03	0.29t
CV	15.61	28.43	31.82t
Bartlett's X2	12.012	17.262	6.665
P(Bartlett's X2)	0.847	0.505	0.672
Skewness	0.0065	0.2339	1.5935*
Kurtosis	-0.5581	-0.6311	0.8846
Replicate F	4.186	0.518	3.821
Replicate Prob(F)	0.0095	0.6719	0.0145
Treatment F	3.783	4.054	3.539
Treatment Prob(F)	0.0001	0.0001	0.0001

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

Table 5. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), bacterial panicle blight (BPB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016. (URN Group III).

		SB	BPB	RNB
Character Rated		SB	BPB	RNB
Rating Date		Aug. 5	Aug. 17	Aug. 17
Rating Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
ARM Action Codes				ET17
Trt. No.	Treatment Name			
41	FRNS/CL/WLLS/2/KBNT/Q36194	5.0a-d	3.5b-e	3.0ab
42	BNGL//MERC/RICO/3/MERC/RICO//BNGL/4/MARS	4.0cd	4.8bc	0.5c
43	043752/0047277/CHEN	3.8cd	2.8cde	0.0c
44	MRMT/RU0802134	5.0a-d	3.5b-e	0.0c
45	JZMN/08CLR004//RU1002146*2	6.3a	7.0a	0.0c
46	IR64/IR 1321-12	3.5d	1.5e	0.0c
47	RU0801076/2/KBNT/Q36194	4.5bcd	2.8cde	0.3c
48	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	6.5a	4.8bc	0.5c
49	CCDR/L202	5.0a-d	5.8ab	0.0c
50	RU1301124/CL261	4.3bcd	3.8b-e	1.3bc
51	CATAHOULA/3/TRNS//9502008-A/DREW	5.8ab	2.3cde	1.0bc
52	CPRS/9901081	5.0a-d	2.0de	1.3bc
53	Cheniere/Banks	4.5bcd	3.5b-e	4.3a
54	CL151//COLUMBIA2/BENGAL	5.0a-d	3.8b-e	3.0ab
55	RSMT//TXMT/IR36/3/(0115735)/CL131	5.3abc	4.8bc	1.5bc
56	MM-14	3.8cd	7.0a	0.3c
57	Rex	4.5bcd	4.3bcd	0.5c
58	CHENIERE	6.3a	2.0de	0.5c
59	COCODRIE	6.5a	3.3cde	0.5c
60	CL272	4.5bcd	3.5b-e	1.0bc
LSD P=.05		0.99	1.43	1.36
Standard Deviation		0.70	1.01	0.96
CV		14.1	26.53	100.01
Bartlett's X2		10.42	10.416	9.787
P(Bartlett's X2)		0.885	0.885	0.778
Skewness		0.3353	0.3727	1.3328*
Kurtosis		-0.287	-0.8066	0.7388
Replicate F		7.320	0.305	2.496
Replicate Prob(F)		0.0003	0.8213	0.0689
Treatment F		7.001	9.103	5.972
Treatment Prob(F)		0.0001	0.0001	0.0001

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

Table 6. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), bacterial panicle blight (BPB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016. (URN Group IV).

Character Rated		SB	BPB	RNB
Rating Date		Aug. 5	Aug. 17	Aug. 17
Rating Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
ARM Action Codes				AA
Trt. No.	Treatment Name			
61	CPRS/KBNT//CFX29/CCDR/3/06CFP952	5.3b-e	2.0c	0.1a
62	MRMT/RU1002189	5.0b-e	2.8abc	0.8a
63	CPRS/CCDR	5.8bc	3.0abc	0.5a
64	JZMN/PI597046	4.0def	5.5a	0.0a
65	CCDR/3/CPRS/KBNT//WELLS CFX 18	5.5bcd	3.5abc	0.5a
66	AC110DH2/AC108DH2//CYBT	4.3c-f	1.5c	0.0a
67	STG05IMI-01-113/STG05L-40-137	5.3b-e	4.3abc	1.7a
68	CPRS/KBNT//WELLS CFX 18/3/AR 1188/CCDR//9502008/LGRU	5.0b-e	3.8abc	0.6a
69	CCDR/L202	5.5bcd	2.8abc	0.3a
70	BRAZ/T489//MARS/3/M201/KATY/4/LMNT/RA73//KATY/5/TGRT	3.8ef	4.3abc	0.0a
71	OARD HYBRID	5.0b-e	2.8abc	0.0a
72	043752/0047277/CHEN	5.5bcd	3.0abc	0.5a
73	Cocodrie/Priscilla	7.0a	3.5abc	0.9a
74	CPRS/JACKSON//BANKS	5.0b-e	4.5abc	0.5a
75	CCDR/L202	5.8bc	3.8abc	0.6a
76	248WE16i-5/2/TGRT	4.8cde	5.0ab	0.0a
77	GFMT/LBLE	3.8ef	1.5c	0.0a
78	CPRS/NWBT//KATY/3/CCDR	6.5ab	2.5bc	0.0a
79	ROY J	3.3f	3.3abc	0.0a
80	Titan (RU1301021)	5.0b-e	3.3abc	0.2a
LSD P=.05		0.90	1.65	1.61 - 1.73
Standard Deviation		0.64	1.17	4.10t
CV		12.64	35.27	161.52t
Bartlett's X2		9.438	11.822	1.055
P(Bartlett's X2)		0.894	0.856	1.00
Skewness		0.1074	0.3422	1.1571*
Kurtosis		0.0303	-0.2995	-0.4732
Replicate F		4.634	1.938	0.362
Replicate Prob(F)		0.0057	0.1337	0.7805
Treatment F		8.325	3.294	1.364
Treatment Prob(F)		0.0001	0.0003	0.1825

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

Table 7. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), bacterial panicle blight (BPB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016. (URN Group V).

Character Rated		SB	BPB	RNB
Rating Date		Aug. 5	Aug. 17	Aug. 17
Rating Type		Severity	Severity	Severity
Rating Unit		0-9	0-9	0-9
Trt. No.	Treatment Name			
81	FRNS/CL.WLLS/2/KBNT/Q36194	5.0ab	3.5abc	0.8a
82	OARD HYBRID	6.5ab	3.5abc	0.0a
83	RSMT//TXMT/IR36/3/(0115735)/CL151(CL006)	6.0ab	5.0abc	0.0a
84	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/ LGRU/5/DREW	4.0ab	4.0abc	1.3a
85	RU1002146/3/JZM2//07PY824/08CLR003	6.0ab	5.5abc	0.5a
86	CL161/CPRS	5.5ab	3.0abc	0.0a
87	248DREW16C-1-3/6/CPRS/RU9201176/5/VSNTLM//L201/9NRZ/ 3/KATY/4/VSNTLM//L201/9 NRZ/3/TBNT/LBLE//L201/9NRZ	5.0ab	5.5abc	0.0a
88	JZMN/08CLR004//RU0802146/3/RU0802146	7.0a	7.5a	0.0a
89	AC110DH2/AC108DH2//CYBT	5.0ab	3.0abc	0.0a
90	FRNS/CL.WLLS/4/GP13416/KATY//PI312777/3/FRNS	4.0ab	3.0abc	0.0a
91	RU1002146*4//JZMN/08CLR004	7.0a	7.5a	0.0a
92	CPRS/3/CPRS/NWBT/KATY	4.5ab	3.0abc	0.0a
93	FRNS/CL.WLLS/7/FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/ LGRU/5/DREW	3.5b	3.0abc	0.0a
94	RU1002146*4//JZMN/08CLR004	5.0ab	6.0ab	0.8a
95	M202*4/Katy BC5F4	5.0ab	1.0c	0.0a
96	CL131/ROYJ	4.0ab	4.5abc	0.0a
97	CL131/TRNS	5.0ab	3.5abc	0.5a
98	CPRS/9901081	5.5ab	1.5bc	0.3a
99	RU0502068/RU1202088	5.0ab	4.0abc	0.0a
100	IR36/8603006	5.0ab	3.5abc	0.5a
101	LGRU/LCSN/CF4-85//Sierra	6.0ab	2.5abc	4.0a
102	JASM85//DREW/UA99-167	5.5ab	6.0ab	0.0a
103	CCDR/5/9502008/3/MBLE//LMNT/20001-5/4/CFX18//CCDR/ 9770532 DH2	6.0ab	4.5abc	0.8a
104	M202*4/Katy BC5F4	4.0ab	3.5abc	0.0a
105	STG05F5-08-104/STG03F5-02-085//JZMN	4.0ab	3.0abc	0.5a
106	DREW//CCDR/CLPY 003	5.5ab	4.0abc	0.0a
107	Sierra/Deltabelle	6.5ab	2.5abc	0.8a
108	JZMN/PI597046	-	-	-
109	PRESIDO/4/9502008-A//AR 1188/CCDR/3/CFX-26/9702128	7.0a	6.5a	0.8a
110	Deltabelle//LGRU/LCSN/CF4-85	5.5ab	4.5abc	0.0a
111	RU1302048/RU1302045	6.0ab	5.5abc	1.5a
112	9502008-A/DREW//CLR 20/5/9502008-A/DREW//CLR 20/4/ CPRS/KBNT//9502008-A	5.0ab	3.0abc	0.8a
113	043752/0047277/CHEN	5.5ab	3.0abc	0.5a
114	DXBL//NWBT/KATY	4.5ab	3.5abc	0.0a
115	9502008-A/DREW//CLR 20/3/TRNS//CCDR/JEFF	6.5ab	4.5abc	1.0a
116	L202/SABR//PACE	4.5ab	4.5abc	3.5a

Continued.

Table 7. Continued.

Character Rated	SB	BPB	RNB
Rating Date	Aug. 5	Aug. 17	Aug. 17
Rating Type	Severity	Severity	Severity
Rating Unit	0-9	0-9	0-9
Trt. No. Treatment Name			
117 JAZZMAN-2	4.5ab	4.5abc	0.8a
118 CL172	5.0ab	4.0abc	0.5a
119 M206	6.0ab	7.5a	8.0a
120 CL163	6.5ab	4.0abc	0.0a
LSD P=.05	1.59	2.43	4.17 - 6.45
Standard Deviation	0.79	1.20	4.58t
CV	14.78	28.92	148.6t
Bartlett's X2	6.278	11.461	3.527
P(Bartlett's X2)	0.995	0.998	1.00
Skewness	-0.0336	0.2648	1.2043*
Kurtosis	-0.8779	-0.4417	-0.0776
Replicate F	0.021	2.878	0.837
Replicate Prob(F)	0.8862	0.0980	0.3661
Treatment F	2.788	3.230	1.392
Treatment Prob(F)	0.0011	0.0002	0.1560

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

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

Table 8. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), bacterial panicle blight (BPB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016. (URN Group VI).

Character Rated Rating Date Rating Type Rating Unit		SB Aug. 5 Severity 0-9	BPB Aug. 17 Severity 0-9	RNB Aug. 17 Severity 0-9
Trt. No.	Treatment Name			
121	CTHL/RU1002192	5.5abc	2.5bcd	1.0b
122	Rexmont/Banks	6.0abc	3.9a-d	4.0ab
123	CL161//Kaybonnet/Zhongyouzao3	6.5abc	4.5a-d	0.0b
124	MRMT/RU0502068	5.5abc	3.0bcd	0.0b
125	9502008-A/DREW//CLR 20/4/9502008-A//AR1188/CCDR/3/CPRS/ KBNT//9502008-A	6.0abc	6.5ab	0.0b
126	LGRU/LCSN/CF4-85//Sierra	7.0ab	2.5bcd	3.5ab
127	RU1102034/RU1202082	5.0abc	2.9bcd	0.0b
128	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/5/9502008-A/DREW// CLR 20/4/CPRS/KBNT//9502008-A	6.5abc	2.9bcd	0.0b
129	RU0302195/CHEN	6.0abc	2.0cd	0.0b
130	CL172/5/CPRS/NWBT//KATY/3/CCDR/4/CFX-18//CCDR/9770532 DH2	4.0bc	2.0cd	1.0b
131	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	7.0ab	3.5a-d	1.0b
132	CPRS/9901081	6.5abc	2.0cd	2.5ab
133	RU1102192/4/WLLS/CFX-18/3/CFX-18//CCDR/9770532 DH2	7.0ab	5.0a-d	2.0ab
134	LGRU/LCSN/3/CFX-18//CCDR/9770532 DH2/4/CCDR/JEFF/3/CFX-18//CCDR/9770532 DH2	7.5a	6.5ab	1.0b
135	CCDR/L202	5.5abc	3.0bcd	3.0ab
136	RU1202168//RU0602162/RU0502031	4.0bc	5.0a-d	0.0b
137	TACAURI/3/CPRS//82CAY21/TBNT/CFX18/5/CHENIERE	5.5abc	2.9bcd	2.0ab
138	WAB 450-11-1-1-P31-HB (NERICA 5)/RSMT	5.0abc	1.9cd	0.0b
139	CL142-AR//KBNT/Q36194/3/248WE16i-5/TGRT	5.0abc	4.0a-d	0.0b
140	CCDR/RU1002177	6.0abc	2.9bcd	0.0b
141	AC110DH2/AC108DH2//CHEN	5.0abc	2.5bcd	1.0b
142	248DREW16C-1-3/6/LGRU//KATY/STBN/5/NWBT/KATY//RA73/ LMNT/4/LBNT/9902/3/DAWN/9695//STBN	4.5abc	2.5bcd	0.0b
143	JPTR/S-102	4.5abc	4.8a-d	0.0b
144	WAB 450-11-1-1-P31-HB (NERICA 5)/RSMT	4.5abc	2.0cd	0.0b
145	IRGA409/RXMT/5/BRAZ/TBNT/3/164986-4/NV66//NTAI/4/BNGL /6/WLLS	6.5abc	5.0a-d	2.0ab
146	CFX-18//CCDR/9770532 DH2/3/CPRS/KBNT//9502008-A/4/ CATAHOULA	6.0abc	4.5a-d	0.0b
147	CPRS/3/CPRS/NWBT/KATY/4/SPRING	5.0abc	2.5bcd	2.5ab
148	19991516/19951094//RNS3/RU9101001	3.5c	2.5bcd	4.0ab
149	JZMN/08CLR004//RU0802146/3/JZM2	6.0abc	6.0abc	3.0ab
150	Deltabelle//LGRU/LCSN/CF4-85	5.0abc	2.5bcd	1.5ab
151	KBNT/Q36194//TGRT	4.0bc	5.0a-d	0.0b
152	JZMN/08CLR004//RU1002146*2	6.0abc	7.5a	2.0ab
153	CCDR/LQ275a//CCDR	4.0bc	2.5bcd	0.0b
154	RSMT/3/MARS/NWRX//TBNT/4/CL151	5.5abc	5.0a-d	0.0b
155	Bowman//RSMT/KATY	5.0abc	4.5a-d	5.5a
156	Rexmont/Banks	4.0bc	2.3bcd	0.0b

Continued.

Table 8. Continued.

Character Rated	SB	BPB	RNB
Rating Date	Aug. 5	Aug. 17	Aug. 17
Rating Type	Severity	Severity	Severity
Rating Unit	0-9	0-9	0-9
Trt. No. Treatment Name			
157 Rexmont/Banks	6.0abc	2.0cd	1.0b
158 DELLA-2	5.0abc	1.5d	1.5ab
159 ANTONIO	4.5abc	3.0bcd	0.0b
160 TAGGART	3.5c	3.9a-d	0.0b
LSD P=.05	1.52	1.61 - 2.53	2.31
Standard Deviation	0.75	0.24t	1.14
CV	13.96	12.24t	101.65
Bartlett's X2	5.875	9.175	5.834
P(Bartlett's X2)	1.00	0.999	0.99
Skewness	-0.022	0.3545	1.1165*
Kurtosis	-0.7325	-0.5854	-0.0592
Replicate F	10.749	5.643	0.000
Replicate Prob(F)	0.0022	0.0225	1.0000
Treatment F	3.770	4.332	3.172
Treatment Prob(F)	0.0001	0.0001	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 9. Disease reaction of various rice varieties and experimental lines to sheath blight (SB), bacterial panicle blight (BPB), and rotten neck blast (RNB) at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016. (URN Group VII).

Character Rated Rating Date ting Type Rating Unit	SB Aug. 5 Severity 0-9	BPB Aug. 17 Severity 0-9	RNB Aug. 17 Severity 0-9
Trt. No. Treatment Name			
161 TGRT/6/LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT	5.0ab	4.4ab	0.0a
162 JZMN*2/08CLR004	4.5ab	5.0ab	0.0a
163 CPRS/SABR	6.5ab	3.9ab	1.5a
164 RU1102034/RU1302045	6.5ab	3.0ab	0.0a
165 RU1002146*4//JZMN/08CLR004	6.0ab	7.0a	1.5a
166 CPRS/3/CPRS/NWBT/KATY	6.5ab	2.9ab	0.0a
167 RU1302045/CL111	5.5ab	3.4ab	0.0a
168 9502008/3/MBLE//LMNT/20001-5/4/CFX-18//CCDR/9770532 DH2/4/ DREW	7.0a	5.4ab	5.5a
169 Hayakogane/BALDO	5.0ab	2.9ab	0.0a
170 STG10IMI-05-034//RU0902155/RU0902131	6.0ab	3.9ab	2.0a
171 CL152/DREW	6.5ab	2.5ab	2.0a
172 CPRS/NWBT//KATY/3/CCDR	5.5ab	2.0b	1.5a
173 RU1302045/MRMT	4.5ab	2.9ab	0.0a
174 CCDR/5/'9502008/3/MBLE//LMNT/20001-5/4/CFX-18//…	6.0ab	5.5ab	0.0a
175 L202/LQ39a//SABR	5.5ab	4.4ab	1.0a
176 ROYJ//19991516/19981467	5.0ab	3.5ab	0.0a
177 9502008/3/MBLE//LMNT/20001-5/4/CFX-18//CCDR/9770532 DH2/5/ CATAHOULA	6.5ab	2.5ab	0.0a
178 SABR/CCDR//PRESIDIO	6.0ab	2.0b	3.5a
179 FRNS/6/LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW/7/ LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS/6/19981434	4.0ab	2.9ab	0.0a
180 CFX18/LM-1/3/9502008-A//AR 1188/CCDR/4/AR 1188/CCDR// 9502008/LGRU	6.5ab	5.0ab	1.0a
181 CPRS/3/CPRS/NWBT/KATY	7.0a	3.0ab	1.5a
182 LBNT/9902//NWBT/3/KATY/NWBT/5/IR36M4/4/L201/3/TTEP/IR- 8//UNKN/6/FRNS/5/LBNT/9902//NWBT/3/KATY/NWBT/4/LGRU	4.5ab	3.4ab	0.0a
183 CATAHOULA/CL111	7.0a	2.9ab	1.0a
184 FRAN/LQ39a	5.0ab	2.5ab	2.0a
185 RU1302048/RU1302045	6.0ab	5.0ab	0.0a
186 Rexmont/Banks	4.5ab	4.5ab	0.5a
187 CPRS/3/CPRS/NWBT/KATY	6.0ab	2.5ab	0.0a
188 LGRU//LMNT/RA73/3/LGRU/4/WLLS/5/CYBT/7/BRAZ/TBNT/3/164 986-4/NV66//NTAI/4/BNGL/5/RU9201176/4/LBNT/STBN//NWBT/3/ MIL/6/BNKS	7.0a	6.0ab	0.0a
189 9502008-A//AR 1188/CCDR/3/CFX-26/9702128/4/9502008- A//AR1188/CCDR/3/CPRS/KBNT//9502008-A	6.5ab	7.0a	1.0a
190 LCSN/LGRU	7.0a	3.0ab	0.0a
191 Cheniere/Banks	5.0ab	3.5ab	1.0a
192 CPRS/KBNT//9502008-A/5/KATY/CPRS//NWBT/KATY/3/9502008/ 4/CLR9/6/CHENIERE//CCDR/JEFF	5.5ab	4.0ab	1.0a
193 Cheniere/Banks	4.5ab	2.0b	0.0a
194 GFMT/LBLE	5.0ab	2.0b	1.5a
195 9502008-A/DREW//CLR 20/4/CPRS/KBNT//9502008-A	5.5ab	3.5ab	1.0a
196 CL151//COLUMBIA2/BENGAL	4.5ab	5.5ab	0.0a

Continued.

Table 9. Continued.

Character Rated	SB	BPB	RNB
Rating Date	Aug. 5	Aug. 17	Aug. 17
Rating Type	Severity	Severity	Severity
Rating Unit	0-9	0-9	0-9
Trt. No. Treatment Name			
197 CL151//COLUMBIA2/BENGAL	5.0ab	3.0ab	2.0a
198 CL151//COLUMBIA2/BENGAL	5.0ab	4.5ab	3.0a
199 RHONDO	3.0b	3.0ab	0.0a
200 CL151	5.5ab	4.5ab	2.5a
LSD P=.05	1.73	1.94 - 2.60	2.97
Standard Deviation	0.85	0.26t	1.47
CV	15.27	12.74t	156.44
Bartlett's X2	9.914	7.761	6.306
P(Bartlett's X2)	0.997	0.999	0.998
Skewness	-0.2392	0.317	1.4722*
Kurtosis	-0.2433	-0.8249	0.9664
Replicate F	12.519	0.032	0.285
Replicate Prob(F)	0.0011	0.8587	0.5966
Treatment F	2.532	2.850	1.361
Treatment Prob(F)	0.0023	0.0007	0.1698

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.

2016 HRCRRS Yield Loss Fungicide Trial

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL131 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / March 22

Fertilization: Preplant 0-60-60+7 Zn, Sept. 24; Pre-flood 150-0-0, May 7; Topdressed 46-0-0, May 31

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 6; Flooded, May 9; Drained, July 19

Herbicides: Prowl 1 qt/A, April 5
Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, and Permit 3/4 oz/A, May 6

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 31

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 16	Boot	08:30	84°F	5 mph	88%	Hazy	Moderate

Disease Ratings: July 21

Drained: July 19

Harvest: Aug. 5 and 8

Results: See Table 10

Comments: Sheath blight severity was lighter than normal due to high temperatures during grain filling and possible fungicide drift.

Table 10. Effect of fungicide applications on sheath blight (SB) and narrow brown leaf spot (NBLS) development and rice yield and milling at the H. Rouse Caffey Rice Research Station, Crowley, LA. 2016.

Character Rated					SB	SB	NBLS	Yield	Milling Head	Milling Total
Rating Date					July 18	July 18	July 18	Aug. 8	Aug. 31	Aug. 31
Rating Type					Severity	Infestation	Severity	Weight	Quality	Quality
Rating Unit					0-9	%	0-9	LB/A	%	%
Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage						
1	Untreated				6.8a	77a	2.5a	9905a	60.5a	70.0a
2	Tilt	6	oz/A	B	5.8ab	63b	0.8bcd	9988a	63.2a	70.9a
3	Tilt	9	oz/A	B	5.8ab	61b	0.3cd	10085a	62.6a	70.9a
4	Tilt	12	oz/A	B	5.8ab	50bc	0.8bcd	10200a	62.9a	70.6a
5	GEM	4.7	oz/A	B	4.3bc	36c	2.0ab	10551a	62.7a	70.8a
6	Stratego	19	oz/A	B	5.0bc	43c	0.8bcd	10650a	61.2a	69.7a
7	Stratego Tilt	19 3	oz/A oz/A	B B	4.5bc	40c	1.0bcd	10718a	62.2a	70.7a
8	Quadris	12	oz/A	B	3.8c	30c	1.5abc	10562a	61.7a	70.0a
9	Quilt Xcel	21	oz/A	B	4.0c	35c	1.0bcd	10738a	63.0a	71.1a
10	Quilt Xcel Tilt	21 3	oz/A oz/A	B B	4.5bc	30c	0.0d	10581a	62.3a	70.6a
11	Sercadis	6.8	oz/A	B	4.3bc	33c	1.0bcd	10447a	60.9a	70.1a
12	Sercadis Tilt	6.8 6	oz/A oz/A	B B	4.3bc	30c	0.8bcd	9871a	61.3a	70.3a
13	Elegia	32	oz/A	B	4.5bc	37c	2.0ab	9928a	60.6a	69.7a
14	Elegia Tilt	40 9	oz/A oz/A	B B	4.5bc	35c	1.3bcd	10137a	61.6a	70.3a
15	Quadris Top SB	14	oz/A	B	4.0c	34c	0.5cd	10363a	62.0a	70.5a
16	Quadris Top SBX	7.7	oz/A	B	4.3bc	36c	0.8bcd	10318a	62.2a	70.6a
LSD P=.05					0.99	12.9	0.84	621.0	3.01	2.06
Standard Deviation					0.69	9.1	0.59	436.0	1.41	0.97
CV					14.63	21.76	56.43	4.23	2.28	1.37
Bartlett's X2					6.583	17.217	6.473	10.567	10.458	8.982
P(Bartlett's X2)					0.968	0.306	0.774	0.783	0.79	0.878
Skewness					0.3003	0.7481*	0.2618	-0.2444	-0.6535	-0.74
Kurtosis					-0.2264	0.5185	-0.7056	-0.1218	-0.0587	-0.2063
Replicate F					3.595	4.586	0.522	3.400	13.950	11.355
Replicate Prob(F)					0.0206	0.0069	0.6691	0.0256	0.0020	0.0042
Treatment F					5.802	9.186	5.084	1.936	0.760	0.404
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0446	0.6990	0.9551

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.

2016 Jefferson Davis Yield Loss Trial

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

Soil Type: Crowley silt loam

Variety/Seed Rate: CL131 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / March 18 and 21

Fertilization: Preplant 20-59-59, March 18; Pre-flood 106-0-0, April 26

Experimental Design: Randomized complete block design with four replications

Water Management: Flooded, April 28; Drained, July 17

Herbicides: Tank-Mix Propanil 4 qt/A, Londax 1 oz/A, Permit 1 oz/A, April 6
Tank-Mix Propanil 4 qt/A, Londax 1 oz/A, Permit 1 oz/A, June 4

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: All natural inoculums

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 14	Boot	10:00	86°F	6 mph	86%	50%	Slight

Disease Ratings: July 20

Drained: July 17

Harvest: July 29

Results: See Table 11

Comments: Sheath blight severity was lighter than normal due to very hot weather during grain filling.

Table 11. Effect of fungicide applications on sheath blight (SB) and narrow brown leaf spot (NBLS) development and rice yield and milling, Jimmy Hoppe Farm, Fenton, LA, Jefferson Davis Parish. 2016.

Character Rated					SB	SB	NBLS	Yield	Milling Head	Milling Total	NBLS Second Crop
Rating Date					July 20	July 20	July 20	July 27	Aug. 31	Aug. 31	Sept. 29
Rating Type					Severity	Infestation	Severity	Weight	Quality	Quality	Severity
Rating Unit					0-9	%	0-9	LB/A	%	%	0-9
Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage							
1	Untreated				6.5a	68a	3.3a	9858.4a	61.3a	70.6a	4.3a
2	Tilt	6	oz/A	B	4.9abc	45ab	2.3ab	10171.9a	62.4a	71.2a	4.5a
3	Tilt	9	oz/A	B	5.4abc	55ab	1.5ab	10066.8a	63.0a	71.3a	4.0a
4	Tilt	12	oz/A	B	5.9ab	58ab	1.3b	9728.4a	62.4a	71.0a	4.3a
5	GEM	4.7	oz/A	B	4.0bc	35bc	2.5ab	9998.4a	60.5a	70.4a	4.3a
6	Stratego	19	oz/A	B	4.5abc	35bc	2.0ab	9853.7a	62.2a	71.1a	4.3a
7	Stratego Tilt	19 3	oz/A oz/A	B B	4.4abc	32bc	1.5ab	10146.2a	62.8a	70.9a	4.3a
8	Quadris	12	oz/A	B	4.4abc	41abc	3.0ab	9983.7a	61.6a	70.7a	4.3a
9	Quilt Xcel	21	oz/A	B	4.2abc	44ab	2.3ab	9707.2a	62.5a	70.9a	4.3a
10	Quilt Xcel Tilt	21 3	oz/A oz/A	B B	4.2abc	38bc	1.8ab	10386.1a	62.2a	71.0a	4.3a
11	Sercadis	6.8	oz/A	B	4.2abc	33bc	2.3ab	10036.6a	62.8a	71.2a	4.5a
12	Sercadis Tilt	6.8 6	oz/A oz/A	B B	3.7bc	37bc	2.0ab	9812.6a	62.9a	71.4a	4.8a
13	Elegia	32	oz/A	B	5.0abc	46ab	2.5ab	10016.0a	61.3a	71.2a	4.0a
14	Elegia Tilt	40 9	oz/A oz/A	B B	4.2abc	38bc	2.5ab	10111.6a	62.1a	70.8a	4.5a
15	Quadris Top SB	14	oz/A	B	3.7bc	33bc	2.0ab	9879.6a	61.6a	71.0a	5.3a
16	Quadris Top SBX	7.7	oz/A	B	3.4c	23c	1.5ab	9898.5a	61.9a	70.9a	5.0a
LSD P=.05					1.10 - 1.49	9.8 - 19.6	1.04	530.98	1.35	0.83	1.35
Standard Deviation					0.07t	0.1t	0.73	372.83	0.63	0.39	0.95
CV					9.17t	6.38t	34.28	3.74	1.02	0.55	21.51
Bartlett's X2					10.935	11.93	5.059	8.835	8.23	8.05	7.507
P(Bartlett's X2)					0.691	0.684	0.992	0.886	0.914	0.922	0.942
Skewness					0.2482	0.189	0.2833	-0.4087	-0.4674	-0.6315	0.0815
Kurtosis					-0.4715	0.0553	-0.4845	0.0475	-0.0367	0.0714	-0.6622
Replicate F					2.601	2.111	0.393	5.706	0.237	2.564	0.765
Replicate Prob(F)					0.0637	0.1121	0.7589	0.0021	0.6336	0.1301	0.5196
Treatment F					3.236	4.571	2.325	0.906	2.403	0.883	0.515
Treatment Prob(F)					0.0012	0.0001	0.0149	0.5634	0.0501	0.5934	0.9192

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.

2016 Evangeline (Mamou) Trial

Location: Bieber Farms, Mamou, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL111 / 70 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / March 20

Fertilization: Preplant 20-59-59, March 30; Pre-flood 101-0-0, May 11

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 9; Flooded, May 12; Drained, July 23

Herbicides: Rebel X, April 25; Permit 1 oz/A, April 26
Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, Permit 1 oz/A, May 11

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: All natural inoculum

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 21	Boot	09:30	81°F	3 mph	90%	65%	Moderate

Disease Ratings/Date: Aug. 10

Drained: July 23

Harvest: Aug. 23

Results: See Table 12

Comments: Sheath blight failed to develop. Cercospora was light to moderate in severity.

Table 12. Effect of fungicide applications on narrow brown leaf spot (NBLS) development and rice yield and milling, Mamou, LA. 2016.

Character Rated					NBLS	Yield	Milling Head	Milling Total
Rating Date					Aug. 10	Aug. 29	Aug. 31	Aug. 31
Rating Type					Severity	Weight	Quality	Quality
Rating Unit					0-9	LB/A	%	%
Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage				
1	Untreated				4.5a	10049a	61.4a	72.0a
2	Tilt	6	oz/A	B	3.0ab	9856a	64.0a	72.3a
3	Tilt	9	oz/A	B	3.3ab	9843a	62.4a	71.8a
4	Tilt	12	oz/A	B	3.0ab	9827a	63.3a	72.7a
5	GEM	4.7	oz/A	B	3.8ab	9793a	61.5a	72.0a
6	Stratego	19	oz/A	B	3.3ab	10052a	63.2a	72.2a
7	Stratego Tilt	19 3	oz/A oz/A	B B	3.5ab	9792a	63.0a	71.9a
8	Quadris	12	oz/A	B	4.3ab	9996a	61.6a	71.7a
9	Quilt Xcel	21	oz/A	B	2.8b	9766a	60.7a	71.5a
10	Quilt Xcel Tilt	21 3	oz/A oz/A	B B	2.8b	9873a	60.7a	71.5a
11	Sercadis	6.8	oz/A	B	3.8ab	9862a	61.8a	72.0a
12	Sercadis Tilt	6.8 6	oz/A oz/A	B B	3.0ab	10148a	63.6a	72.1a
13	Elegia	32	oz/A	B	3.0ab	9934a	62.4a	72.1a
14	Elegia Tilt	40 9	oz/A oz/A	B B	3.0ab	10297a	61.8a	72.1a
15	Quadris Top SB	14	oz/A	B	3.0ab	9996a	62.4a	72.3a
16	Quadris Top SBX	7.7	oz/A	B	3.3ab	10008a	61.5a	71.9a
LSD P=.05					0.93	475.7	2.16	0.69
Standard Deviation					0.66	334.0	1.01	0.33
CV					19.81	3.36	1.63	0.45
Bartlett's X2					9.365	18.768	10.22	17.479
P(Bartlett's X2)					0.745	0.224	0.806	0.291
Skewness					0.327	-1.0813*	-0.6196	-0.0726
Kurtosis					-0.0156	1.1674	0.1606	0.4575
Replicate F					0.484	11.268	9.348	2.917
Replicate Prob(F)					0.6952	0.0001	0.0080	0.1083
Treatment F					2.439	0.764	1.922	1.844
Treatment Prob(F)					0.0107	0.7078	0.1087	0.1238

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.

2016 Lake Arthur Yield Loss Trial

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

Soil Type: Crowley silt loam

Variety/Seed Rate: CL131 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / March 21

Fertilization: Preplant 00-50-75, hydra hume - 20 lb/A, March 14; Pre-flood 106-0-0, May 12

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 6; Flooded, May 13; Drained, July 21

Herbicides: Command 10 oz/A, (on preplant fertilizer) March 14
Tank-Mix Propanil 2 qt/A, RiceBeaux 2 qt/A, Londax 1 oz/A, and Permit 1 oz/A, May 12

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: All natural inoculums

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:

	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 17	Boot	09:30	86°F	6 mph	86%	60%	Moderate

Disease Ratings: July 26

Drained: July 21

Harvest: Aug. 22

Results: See Table 13

Comments: Disease pressure was very low.

Table 13. Effect of fungicide applications on sheath blight (SB) and narrow brown leaf spot (NBLS) development and rice yield, Kent Lounsberry Farm, Lake Arthur, LA, Vermilion Parish. 2016.

Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage	SB	SB	NBLS	Yield
Character Rated					SB	SB	NBLS	Yield
Rating Date					July 26	July 26	July 26	Aug. 29
Rating Type					Severity	Infestation	Severity	Weight
Rating Unit					0-9	%	0-9	LB/A
1	Untreated				4.5a	28a	2.0a	6756a
2	Tilt	6	oz/A	B	3.5a	22a	2.3a	6741a
3	Tilt	9	oz/A	B	4.5a	23a	2.0a	6717a
4	Tilt	12	oz/A	B	3.8a	23a	1.3a	6246a
5	GEM	4.7	oz/A	B	3.8a	29a	2.3a	6500a
6	Stratego	19	oz/A	B	3.5a	28a	1.5a	7008a
7	Stratego	19	oz/A	B	4.0a	21a	1.5a	6893a
	Tilt	3	oz/A	B				
8	Quadris	12	oz/A	B	4.0a	29a	1.5a	6484a
9	Quilt Xcel	21	oz/A	B	3.5a	22a	1.3a	6455a
10	Quilt Xcel	21	oz/A	B	3.5a	25a	1.5a	6265a
	Tilt	3	oz/A	B				
11	Sercadis	6.8	oz/A	B	3.3a	21a	1.3a	6567a
12	Sercadis	6.8	oz/A	B	3.8a	19a	1.0a	7052a
	Tilt	6	oz/A	B				
13	Elegia	32	oz/A	B	3.8a	21a	2.0a	6870a
14	Elegia	40	oz/A	B	4.3a	33a	1.8a	6832a
	Tilt	9	oz/A	B				
15	Quadris Top SB	14	oz/A	B	3.5a	26a	1.3a	6066a
16	Quadris Top SBX	7.7	oz/A	B	3.8a	25a	1.5a	7240a
LSD P=.05					0.99	10.5	0.96	709.3
Standard Deviation					0.69	7.4	0.67	498.0
CV					18.29	30.29	41.76	7.47
Bartlett's X2					9.186	20.857	5.393	20.202
P(Bartlett's X2)					0.759	0.141	0.988	0.164
Skewness					0.2957	0.0855	0.503	-0.1921
Kurtosis					2.7371*	-0.7337	-0.5472	-0.3811
Replicate F					0.378	3.524	2.894	5.377
Replicate Prob(F)					0.7693	0.0223	0.0455	0.0030
Treatment F					1.121	1.108	1.326	1.660
Treatment Prob(F)					0.3664	0.3770	0.2271	0.0954

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.

2016 Blast 2 Trial

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL151 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / May 10

Fertilization: Preplant 0-54-54+6 Zn, Oct. 6; Pre-flood 160-0-0, June 10; Topdressed 46-0-0, June 24

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, May 27; Flooded, June 10; Drained, Aug. 24

Herbicides: Tank-Mix Propanil 3 qt/A and Prowl H_2O 2.4 pt/A, May 25
Tank-Mix Propanil 2 qt/A and RiceBeaux 2 qt/A, May 31
Tank-Mix Propanil 2 qt/A and RiceBeaux 2.25 qt/A, June 9

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: All natural inoculum

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
July 25	Heading	09:00	88°F	3 mph	82%	80%	Moderate

Disease Ratings: Aug. 18

Drained: Aug. 19

Harvest: Sept. 8

Results: See Table 14

Comments: Blast severity was moderate while other diseases were low.

Table 14. Effect of fungicide application on rotten neck blast (RNB) development and rice yield and milling. H. Rouse Caffey Rice Research Station, Crowley, LA. 2016.

Character Rated					RNB	Yield	Milling Head	Milling Total
Rating Date					Aug. 18	Sept. 12	Sept. 12	Sept. 12
Rating Type					Infestation	Weight	Quality	Quality
Rating Unit					%	LB/A	%	%
Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage				
1	Untreated				39a	7055b	55.6a	66.4a
2	Tilt	6	oz/A	H	38a	7932ab	55.9a	67.1a
3	Tilt	9	oz/A	H	30a	7728ab	55.2a	66.7a
4	Tilt	12	oz/A	H	34a	7954ab	56.5a	66.9a
5	GEM	4.7	oz/A	H	7d	8190ab	58.1a	67.9a
6	Stratego	19	oz/A	H	9cd	8341ab	58.4a	68.3a
7	Stratego	19	oz/A	H	9cd	8234ab	58.9a	68.8a
	Tilt	3	oz/A	H				
8	Quadris	12	oz/A	H	15b	8188ab	57.5a	67.4a
9	Quilt Xcel	21	oz/A	H	13bc	8433a	57.0a	67.7a
10	Quilt Xcel	21	oz/A	H	9cd	8640a	57.2a	67.7a
	Tilt	3	oz/A	H				
11	Sercadis	6.8	oz/A	H	26a	7721ab	57.0a	67.5a
12	Sercadis	6.8	oz/A	H	27a	7890ab	57.9a	67.5a
	Tilt	6	oz/A	H				
13	Elegia	32	oz/A	H	33a	7671ab	55.8a	66.7a
14	Elegia	40	oz/A	H	29a	7873ab	59.0a	68.4a
	Tilt	9	oz/A	H				
15	Quadris Top SB	14	oz/A	H	11bc	8284ab	57.5a	67.4a
16	Quadris Top SBX	7.7	oz/A	H	12bc	8221ab	58.6a	68.0a
LSD P=.05					2.3 - 8.9	770.2	4.20	2.38
Standard Deviation					0.1t	540.8	1.97	1.12
CV					6.04t	6.74	3.44	1.65
Bartlett's X2					4.965	13.739	18.962	18.014
P(Bartlett's X2)					0.992	0.545	0.215	0.262
Skewness					-0.1479	-0.2517	-0.6601	-0.4374
Kurtosis					-1.013	-0.3683	-0.575	-0.7298
Replicate F					50.881	7.612	8.080	5.798
Replicate Prob(F)					0.0001	0.0003	0.0124	0.0294
Treatment F					43.085	1.960	0.742	0.726
Treatment Prob(F)					0.0001	0.0416	0.7148	0.7282

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.

2016 Blast Management Trial

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: Caffey, Catahoula, Cheniere, CL151, and CL152 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / May 10

Fertilization: Preplant 0-54-54+6 Zn, Oct. 6; Pre-flood 160-0-0, June 10; Topdressed 46-0-0, June 24

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, May 27; Flooded, June 10; Drained, Aug. 24

Herbicides: Tank-Mix Propanil 3 qt/A and Prowl H_2O 2.4 pt/A, May 25
Tank-Mix Propanil 2 qt/A and RiceBeaux 2 qt/A, May 31
Tank-Mix Propanil 2 qt/A and RiceBeaux 2.25 qt/A, June 9

Insecticides: Dermacor seed treatment

Fungicides: GEM and untreated check

Inoculation Dates: All inoculum from natural sources

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:

	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
July 18	Boot	09:00	84°F	3 mph	76%	5%	Moderate
July 28	Heading	08:30	86°F	4 mph	87%	50%	Moderate

Disease Ratings: Aug. 18

Drained: Aug. 19

Harvest: Sept. 8

Results: See Table 15

Comments: Blast severity was light to moderate while other diseases were light.

Table 15. Effect of fungicide application on rotten neck blast (RNB) development and rice yield and milling. H. Rouse Caffey Rice Research Station, Crowley, LA. 2016.

Character Rated Rating Date Rating Type Rating Unit					RNB Aug. 18 Infestation %	Yield Sept. 8 Weight LB/A	Milling Head Sept. 13 Quality %	Milling Total Sept. 13 Quality %
Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage				
1	Catahoula Unsprayed				3cde	6518a	57.5a-d	67.1b
2	Catahoula GEM	4.7	fl oz/A	H	1de	7428a	60.5abc	73.1a
3	Catahoula GEM	4.7	fl oz/A	B & H	1de	7098a	60.1abc	70.4ab
4	Caffey Unsprayed				2cde	6495a	62.8ab	68.3ab
5	Caffey GEM	4.7	fl oz/A	H	0e	6623a	63.9a	68.3ab
6	Caffey GEM	4.7	fl oz/A	B & H	0de	7369a	62.6ab	67.2b
7	CL152 Unsprayed				17b	6184a	52.9d	66.9b
8	CL152 GEM	4.7	fl oz/A	H	4cd	7291a	57.0bcd	67.9ab
9	CL152 GEM	4.7	fl oz/A	B & H	0de	7346a	56.7bcd	67.7ab
10	Cheniere Unsprayed				24b	6896a	58.6a-d	70.5ab
11	Cheniere GEM	4.7	fl oz/A	H	2cde	7053a	60.1abc	71.3ab
12	Cheniere GEM	4.7	fl oz/A	B & H	2cde	7531a	59.9abc	71.1ab
13	CL151 Unsprayed				45a	6975a	54.4cd	66.5b
14	CL151 GEM	4.7	fl oz/A	H	7c	7311a	56.4bcd	66.9b
15	CL151 GEM	4.7	fl oz/A	B & H	5cd	7708a	57.1bcd	67.1b
LSD P=.05					1.7 - 9.8	932.6	3.82	3.23
Standard Deviation					4.0t	557.6	1.78	1.51
CV					31.47t	7.9	3.04	2.19
Bartlett's X2					10.128	19.269	12.748	12.837
P(Bartlett's X2)					0.753	0.155	0.546	0.539
Skewness					1.3098*	0.6011	-0.4629	0.4741
Kurtosis					1.457*	0.8627	0.4303	0.2625
Replicate F					3.160	0.830	0.857	0.539
Replicate Prob(F)					0.0344	0.4465	0.3702	0.4749
Treatment F					30.954	1.845	6.154	3.672
Treatment Prob(F)					0.0001	0.0816	0.0008	0.0103

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.

2016 HRCRRS Second Crop (Ratoon) Fungicide Trial #1

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL111 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / March 23

Fertilization: Preplant 0-60-60+7 Zn, Sept. 24; Pre-flood 150-0-0, May 7; Topdressed 46-0-0, May 31
Ratoon Crop Topdressed 70-0-0, Aug. 9

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 6; Flooded, May 9; Drained, July 19
Ratoon Crop Flooded, Aug. 10; Drained, Oct. 17

Herbicides: Prowl 1 qt/A, April 5
Tank-Mix Propanil 3.5 qt/A, Prowl 1 qt/A, and Permit 1 oz/A, May 6

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 31

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
June 15	Boot	09:00	86°F	7 mph	85%	70%	Moderate

Disease Ratings: First Crop, July 18; Second Crop, Oct. 13

Drained: July 19

Drained Ratoon Crop: Oct. 17

Harvest: Aug. 5 and 8

Harvest First Crop, Aug. 8; Second Crop, Nov. 1

Results: See Table 16

Comments: Disease pressure in the first crop was light and moderate in the second crop.

Table 16. Effect of fungicide application on sheath blight (SB), narrow brown leaf spot (NBLS), and leaf smut (LS) development and rice yield and milling first and second crop. H. Rouse Caffey Rice Research Station, Crowley, LA. 2016.

Character Rated					SB	SB	NBLS	LS	First Crop Yield	NBLS	Second Crop Yield
Rating Date					July 18	July 18	July 18	July 18	Aug. 8	Oct. 13	Nov. 1
Rating Type					Severity	Infestation	Severity	Severity	Weight	Severity	Weight
Rating Unit					0-9	%	0-9	0-9	LB/A	0-9	LB/A
Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage							
1	Untreated				7.3a	71a	3.8a	4.3a	10489	5.5a	2150a
2	Tilt	6	oz/A	B	5.8b	58ab	1.8cd	3.0a-e	11125a	5.0a	2031a
3	Tilt	9	oz/A	B	6.0b	60ab	1.5cd	2.8b-e	11316a	5.3a	2066a
4	Tilt	12	oz/A	B	5.8b	52bc	1.0d	2.8b-e	11026a	5.3a	2183a
5	GEM	4.7	oz/A	B	4.5bc	52bc	3.0ab	3.3a-d	10661a	5.0a	2325a
6	Stratego	19	oz/A	B	5.0bc	46bcd	1.0d	2.8b-e	11353a	5.5a	2320a
7	Stratego Tilt	19 3	oz/A oz/A	B B	5.0bc	45bcd	1.0d	3.0a-e	10967a	5.3a	2312a
8	Quadris	12	oz/A	B	4.5bc	34cd	3.0ab	3.5abc	11556a	4.5a	2345a
9	Quilt Xcel	21	oz/A	B	5.0bc	44bcd	1.5cd	3.0a-e	11354a	5.3a	2200a
10	Quilt Xcel Tilt	21 3	oz/A oz/A	B B	4.8bc	43bcd	1.3cd	2.5b-e	11368a	5.3a	2246a
11	Sercadis	6.8	oz/A	B	5.3bc	43bcd	1.5cd	2.5b-e	10909a	4.5a	2244a
12	Sercadis Tilt	6.8 6	oz/A oz/A	B B	4.5bc	41bcd	1.3cd	3.3a-d	11245a	5.3a	2369a
13	Elegia	32	oz/A	B	5.3bc	49bcd	2.5bc	3.8ab	10721a	5.3a	2193a
14	Elegia Tilt	40 9	oz/A oz/A	B B	4.8bc	41bcd	1.8cd	2.3cde	11378a	5.3a	2190a
15	Quadris Top SB	14	oz/A	B	4.0c	28d	1.5cd	1.8e	11087a	5.3a	2120a
16	Quadris Top SBX	7.7	oz/A	B	4.5bc	34cd	1.5cd	2.0de	11532a	5.3a	2299a
LSD P=.05					0.99	13.5	0.76	0.80	781.3	0.97	272.3
Standard Deviation					0.69	9.5	0.54	0.56	547.5	0.68	191.2
CV					13.59	20.27	29.86	19.44	4.9	13.15	8.6
Bartlett's X2					9.801	19.501	3.434	7.986	21.897	6.487	9.837
P(Bartlett's X2)					0.633	0.147	0.992	0.89	0.081	0.953	0.83
Skewness					0.0484	0.3571	0.5399	0.0588	-0.4923	-0.1589	-0.2259
Kurtosis					0.656	-0.3403	-0.3648	-0.5336	1.078	-0.5966	0.0939
Replicate F					5.216	7.357	3.239	7.970	1.918	0.589	9.966
Replicate Prob(F)					0.0035	0.0005	0.0307	0.0002	0.1414	0.6253	0.0001
Treatment F					5.112	5.485	9.405	5.172	1.006	0.716	1.110
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.4657	0.7554	0.3751

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.

2016 HRCRRS Second Crop (Ratoon) Fungicide Trial #2

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL111 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / March 23

Fertilization: Preplant 0-60-60+7 Zn, Sept. 24; Pre-flood 150-0-0, May 7; Topdressed 46-0-0, May 31
Ratoon Crop Topdressed 70-0-0, Aug. 9

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 6; Flooded, May 9; Drained, July 19
Ratoon Crop Flooded, Aug. 10; Drained, Oct. 17

Herbicides: Prowl 1 qt/A, April 5
Tank-Mix Propanil 3.5 qt/A, Prowl 1 qt/A, and Permit 1 oz/A, May 6

Insecticides: Dermacor seed treatment

Fungicides: Various

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 31

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:	Growth Stage	Time	Temp	Wind	RH	Clouds	Dew
Aug. 24	2 weeks post-harvest	08:00	87°F	2 mph	84%	60%	Moderate

Disease Ratings: First Crop, Aug. 8; Second Crop, Oct. 13

Drained: July 19

Drained Ratoon Crop: Oct. 17

Harvest: Aug. 5 and 8

Harvest First Crop, Aug. 8; Second Crop, Nov. 1

Results: See Table 17

Comments: Disease severity was light in the first crop and moderate in the second crop.

Table 17. Effect of fungicide application on narrow brown leaf spot (NBLS) development and rice yield on second crop. H. Rouse Caffey Rice Research Station, Crowley, LA. 2016.

Character Rated					NBLS	Yield
Rating Date					Oct. 13	Nov 1
Rating Type					Severity	Weight
Rating Unit					0-9	LB/A
Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage		
1	Untreated				4.5ab	2325a
2	Tilt	6	oz/A	2nd	3.8ab	2453a
3	Tilt	9	oz/A	2nd	3.8ab	2477a
4	Tilt	12	oz/A	2nd	3.3b	2530a
5	GEM	4.7	oz/A	2nd	4.8ab	2500a
6	Stratego	19	oz/A	2nd	4.3ab	2468a
7	Stratego	19	oz/A	2nd	5.0a	2521a
	Tilt	3	oz/A	2nd		
8	Quadris	12	oz/A	2nd	4.5ab	2357a
9	Quilt Xcel	21	oz/A	2nd	4.0ab	2547a
10	Quilt Xcel	21	oz/A	2nd	3.5ab	2420a
	Tilt	3	oz/A	2nd		
11	Sercadis	6.8	oz/A	2nd	3.5ab	2483a
12	Sercadis	6.8	oz/A	2nd	3.8ab	2479a
	Tilt	6	oz/A	2nd		
13	Elegia	32	oz/A	2nd	4.5ab	2426a
14	Elegia	40	oz/A	2nd	4.3ab	2613a
	Tilt	9	oz/A	2nd		
15	Quadris Top SB	14	oz/A	2nd	4.0ab	2250a
16	Quadris Top SBX	7.7	oz/A	2nd	3.8ab	2373a
LSD P=.05					0.89	334.6
Standard Deviation					0.62	234.9
CV					15.35	9.58
Bartlett's X2					5.432	8.705
P(Bartlett's X2)					0.964	0.892
Skewness					-0.0979	-0.2443
Kurtosis					-1.0924	-0.6121
Replicate F					1.286	0.370
Replicate Prob(F)					0.2908	0.7750
Treatment F					2.529	0.600
Treatment Prob(F)					0.0083	0.8588

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.

2016 HRCRRS Second Crop (Ratoon) Fungicide Trial #3

Location: H. Rouse Caffey Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4/kg)

Variety/Seed Rate: CL111 / 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill seeded / March 23

Fertilization: Preplant 0-60-60+7 Zn, Sept. 24; Pre-flood 150-0-0, May 7; Topdressed 46-0-0, May 31
Ratoon Crop Topdressed 70-0-0, Aug. 9

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, April 6; Flooded, May 9; Drained, July 19
Ratoon Crop Flooded, Aug. 10; Drained, Oct. 17

Herbicides: Prowl 1 qt/A, April 5
Tank-Mix Propanil 3.5 qt/A, Prowl 1 qt/A, and Permit 1 oz/A, May 6

Insecticides: Dermacor seed treatment

Fungicides: Tilt

Inoculation Dates: *Rhizoctonia solani* culture grown on rice grain/hull mixture, May 31

Application Equipment: CO_2 backpack sprayer, three tip (TJ8002) hand wand, 20 gal/A

Application Dates:

	Growth Stage Post Harvest	Time	Temp	Wind	RH	Clouds	Dew
Aug. 17	9 Days	09:30	81°F	4 mph	93%	90%	Moderate
Aug. 22	14 Days	08:30	81°F	4 mph	92%	85%	Heavy
Aug. 30	22 Days	08:30	78°F	4 mph	93%	20%	Moderate
Sept. 6	29 Days	08:30	78°F	5 mph	94%	95%	Moderate
Sept. 12	35 Days	08:30	75°F	3 mph	96%	Fog	Heavy
Sept. 19	42 Days	09:00	82°F	4 mph	92%	5%	Moderate
Sept. 26	49 Days	08:30	80°F	3 mph	93%	5%	Moderate
Oct. 3	56 Days	08:30	69°F	4 mph	84%	0%	Moderate

Disease Ratings: First Crop, Aug. 8; Second Crop, Oct. 13

Drained: July 19

Drained Ratoon Crop: Oct. 17

Harvest: Aug. 5 and 8

Harvest First Crop, Aug. 13; Second Crop, Nov. 1

Results: See Table 18

Comments: Disease pressure was light in the first crop and moderate in the second crop.

Table 18. Effect of fungicide application on narrow brown leaf spot (NBLS) development and rice yield on second crop. H. Rouse Caffey Rice Research Station, Crowley, LA. 2016.

Character Rated					NBLS	Yield	Yield Change
Rating Date					Oct. 13	Nov. 1	Nov. 1
Rating Type					Severity	Weight	Weight
Rating Unit					0-9	LB/A	LB/A
Trt. No.	Treatment Name	Rate	Rate Unit	Growth Stage			
1	Unsprayed				5.0a	2141a	0a
2	Tilt	9	fl oz/A	1 Week post H	4.3ab	2434a	293a
3	Tilt	9	fl oz/A	2 Weeks post H	4.0ab	2656a	515a
4	Tilt	9	fl oz/A	3 Weeks post H	3.5ab	2586a	445a
5	Tilt	9	fl oz/A	4 Weeks post H	4.3ab	2660a	519a
6	Tilt	9	fl oz/A	5 Weeks post H	2.5b	2286a	145a
7	Tilt	9	fl oz/A	6 Weeks post H	3.3ab	2579a	438a
8	Tilt	9	fl oz/A	7 Weeks post H	3.8ab	2534a	393a
9	Tilt	9	fl oz/A	8 Weeks post H	3.5ab	2621a	480a
10	Tilt	9	fl oz/A	9 Weeks post H	4.3ab	2430a	289a
11	Tilt	9	fl oz/A	10 Weeks post H	4.3ab	2501a	360a
12	Tilt	12	fl oz/A	3 Weeks post H	3.8ab	2588a	447a
13	Tilt	12	fl oz/A	4 Weeks post H	4.3ab	2395a	254a
14	Tilt	12	fl oz/A	5 Weeks post H	2.5b	2532a	391a
15	Tilt	12	fl oz/A	6 Weeks post H	3.3ab	2434a	293a
16	Tilt	12	fl oz/A	7 Weeks post H	3.5ab	2360a	219a
LSD P=.05					1.03	306.2	306.2
Standard Deviation					0.73	215.0	215.0
CV					19.43	8.66	62.73
Bartlett's X2					7.561	17.855	17.855
P(Bartlett's X2)					0.911	0.27	0.27
Skewness					0.0737	-0.3212	-0.3212
Kurtosis					-0.5465	0.6119	0.6119
Replicate F					2.561	0.635	0.635
Replicate Prob(F)					0.0667	0.5964	0.5964
Treatment F					3.384	1.748	1.748
Treatment Prob(F)					0.0008	0.0751	0.0751

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

GENETIC MAPPING, BREEDING, AND DEVELOPMENT OF NEW STRATEGIES TO IMPROVE RICE DISEASE MANAGEMENT FOR SHEATH BLIGHT AND BACTERIAL PANICLE BLIGHT

J.H. Ham, I.K. Barphagha, and D.E. Groth

Introduction

Rice production in Louisiana and other rice-growing states in the southeastern United States is frequently challenged by chronic rice disease problems including sheath blight and bacterial panicle blight. Diseases caused by fungal pathogens, such as blast and sheath blight, can be managed by fungicide application. But the efficacy of fungicides is prone to diminish due to the high chance of spontaneous generation of fungicide-resistant pathogens resulting from repeated and heavy usages of fungicides. A good example is the recent occurrence of fungicide-resistant isolates of *Rhizoctonia solani* (the causal agent of rice sheath blight) in Louisiana. Bacterial panicle blight caused by a bacterial pathogen, *Burkholderia glumae*, is even more difficult to control than fungal diseases because few chemical measures are available for the disease. This project aims to develop useful materials and methods to manage major rice diseases in more cost-efficient and sustainable ways, for which multifaceted approaches have been employed to better understand the genetics and genomics underlying rice disease resistance, breed new disease-resistant rice lines, and develop new microbial agents and chemical materials to inhibit rice pathogens.

Progress

The medium-grain variety Jupiter and the long-grain line LM-1 have been used as major genetic sources of disease resistance for this project. Various chemical and biological materials have also been tested as potential disease control agents to develop new disease management strategies for sheath blight and bacterial panicle blight as well as another major rice disease blast.

Genetic and genomic studies of rice disease resistance. The medium-grain variety Jupiter and the long-grain line LM-1, which show high levels of quantitative resistance to both bacterial panicle blight and sheath blight, have been used as the major genetic materials for genetic and genomic studies of rice disease resistance. Jupiter and LM-1 were crossed with the two disease-susceptible varieties, Trenasse (long-grain) and Bengal (medium-grain), generating four mapping populations from the cross combinations; Trenasse/Jupiter, Bengal/Jupiter, Trenasse/LM-1, and Bengal/LM-1. In 2016, phenotypes in bacteria panicle blight were evaluated in the field for the F9 recombinant inbred line (RIL) populations of Trenasse/Jupiter (TJF9) and Bengal/Jupiter (BJF9).

For the phenotyping of the TJF9 RIL population, the bacterial pathogen, *B. glumae* strain 336gr-1, was inoculated 78 and 83 days after planting, using a spraying method (planting date, March 22, 2016; inoculation dates, June 17, 2016 and June 22, 2016). Phenotypes of the individual lines of the TJF9 RIL population in bacterial panicle blight symptom as well as early/late heading were recorded 11 and 21 days after inoculation (June 28, 2016, and July 8, 2016) (Table 1). To get the genotypic data of the TJF9 RIL population, single nucleotide polymorphism (SNP) markers were screened for polymorphic markers that differentiate Trenasse and Jupiter. Genotyping was performed in collaboration with Dr. Adam Famoso using the high-throughput genotyping system, PHERAStar Plus (BMG LABTECH, Germany). Out of 68 SNP markers, 53 successfully yielded genotypic data for 188 RILs of the TJF9 population. With this progress, genotyping of the TJF mapping population has been completed with a total of 69 molecular markers that represent various regions of the rice genome (Fig. 1). Genotyping will be continued in 2017 with additional SNP markers and RILs for getting a more refined genetic map.

For the phenotyping of the BJF9 RIL population, *B. glumae* was inoculated on July 8, 2016, (107 days after planting), and their phenotypes in bacterial panicle blight were evaluated on July 13, 2016, (5 days after inoculation).

<u>Line exhibiting a Zn-deficiency phenotype</u>: It was noteworthy that one line of the TJF9 RIL population (TJF9-238) exhibited spontaneous lesions on leaves, which resembled a Zn-deficiency symptom (Fig. 2). It is hypothesized that this phenotype is due to the loss of an ion channel function for Zn uptake. This line may be a good material to study the rice physiology related to micronutrient uptake for Zn.

Development of new disease-resistant lines. Twenty-six germplasm lines previously screened as sheath blight-resistant lines and 40 sheath blight-resistant lines developed in Dr. James Oard's lab were tested for their disease resistance to bacterial panicle blight. Bacterial pathogen (*B. glumae* 336gr-1) was inoculated on July 8, 2016, and disease was rated 7 days later (July 14, 2016). About 30 lines exhibited high levels of bacterial panicle blight resistance higher than or comparable to the resistant variety Jupiter (Table 3).

Immune phenotype of INIAP12 to bacterial panicle blight: Among the resistant lines tested, INIAP12 exhibited an outstanding phenotype of disease resistance to bacterial panicle blight (Fig. 3). Few symptoms were observed from any of the rows heavily inoculated with the pathogen. This line also exhibited an excellent sheath blight resistance in the greenhouse and in field tests of previous years. However, problems in delayed grain maturity and lodging were also observed with this line. Despite the agronomic disadvantages of INIAP12, it is thought that its excellent disease-resistant traits can be introgressed to disease-susceptible commercial varieties through repeated backcrossing procedures.

Development of new disease management strategies for bacterial panicle blight. Candidate chemical and biological materials that can be used as alternative measures for disease management were tested in the field for their efficacy in the suppression of bacterial panicle blight. Tested materials were ascorbic acid, acetic acid, ascorbic acid/chitosan mixture, acetic acid/chitosan mixture, zinc oxide (ZnO), and three bacterial strains isolated from rice seeds/panicles (i.e. *Pantoea* sp., RPB4, and RPB5). Kocide 3000, a commercial copper product for plant bacterial diseases, and another commercial product were also included for comparison. Rice plots (4 X 16 ft each, Bengal cv.) planted on April 26, 2016 were sprayed with the bacterial pathogen (*B. glumae* 336gr-1) for inoculation on July 19, 2016 (at an early heading stage), and treated with the testing materials on July 22, 2016. According to the disease rating on July 27, 2016 (8 days after pathogen inoculation), all of the materials tested did not show significant effects in suppression of bacterial panicle blight (Fig. 4A). However, the least reduction of yield loss caused by bacterial infection was observed from the plots treated with 0.1% ascorbic acid, 1% acetic acid, the mixture of 1% acetic acid and 1% chitosan, and RPB4 (Fig. 4B).

In addition, more than 30 new antagonistic bacteria were isolated from various environments including rice seeds and a soybean field, and identified based on their 16S rDNA sequences. Most of them were identified as *Bacillus* spp. or *Pseudomonas* spp. These biological materials will be further tested for their biological control activities against major rice diseases.

Development of innovative materials for seed treatments to enhance rice health. To determine the bactericidal activity to *B. glumae* in rice seeds, three different nanoparticles (silver nanoparticle (Ag-NP), aluminum nanoparticle (Al-NP), and zinc nanoparticle (Zn-NP) and two different chitosan products were applied to rice seeds infected with *B. glumae*. All the materials tested, except for Al-NP, exhibited bactericidal activities in the seed-treatment experiments, but results were variable among different experiments. Optimal conditions for seed treatments should be established to get more consistent and reliable results. Despite the variable results from different experiments, Zn-NP (ZnO) exhibited excellent bactericidal activities in multiple experiments. Meanwhile, two chitosan products from two different manufacturers, Keumho Inc. (Korea) and Chemsaver (USA), exhibited different physical properties and antimicrobial activities, indicating that choosing a right chitosan compound is crucial.

In addition, some antagonistic bacteria (e.g. RAB-E1) exhibited good activities in pathogen suppression as well as growth promotion of rice seedlings when treated to the rice seeds contaminated with the pathogen, *B. glumae* (Fig. 5). Several antagonistic bacteria were also selected from rice seeds in 2016, which will be further tested for their rice growth promoting activity.

Monitoring of the population changes of *B. glumae* in rice plants. Rice seeds were infiltrated with a high concentration of *B. glumae* and subjected to the growth in the greenhouse to investigate the survival and multiplication of the pathogen in rice plants during a growing season. The rice plants from these pathogen-treated seeds were monitored periodically for the population of the pathogen. Interestingly, the population level of *B. glumae* cells did not increase in rice plants and was eventually diminished to an undetectable level at the booting stage. This study suggests that the seed-borne nature of the pathogen route and the survival of the pathogen in host plants should be comprehensively re-examined.

Table 1. Phenotypes of the TJF9 RIL population in bacterial panicle blight (BPB).

RIL ID	BPB[1]	RIL ID	BPB	RIL ID	BPB	RIL ID	BPB	RIL ID	BPB
Trenasse	7.25	TJF9-060	3.00	TJF9-121	2.50	TJF9-182	0.75	TJF9-243	3.50
Jupiter	1.25	TJF9-061	0.25	TJF9-122	2.00	TJF9-183	1.25	TJF9-244	2.25
TJF9-001	1.25	TJF9-062	1.25	TJF9-123	3.25	TJF9-184	4.25	TJF9-245	2.00
TJF9-002	2.50	TJF9-063	0.75	TJF9-124	4.75	TJF9-185	1.75	TJF9-246	7.50
TJF9-003	3.25	TJF9-064	0.25	TJF9-125	0.25	TJF9-186	3.00	TJF9-247	3.75
TJF9-004	5.75	TJF9-065	2.00	TJF9-126	3.25	TJF9-187	2.25	TJF9-248	5.25
TJF9-005	3.00	TJF9-066	3.00	TJF9-127	5.25	TJF9-188	0.75	TJF9-249	5.25
TJF9-006	6.75	TJF9-067	1.00	TJF9-128	4.00	TJF9-189	3.25	TJF9-250	4.00
TJF9-007	3.75	TJF9-068	2.00	TJF9-129	4.75	TJF9-190	2.50	TJF9-251	4.00
TJF9-008	0.50	TJF9-069	5.00	TJF9-130	0.25	TJF9-191	1.00	TJF9-252	2.75
TJF9-009	0.50	TJF9-070	3.25	TJF9-131	1.50	TJF9-192	1.50	TJF9-253	2.25
TJF9-010	0.25	TJF9-071	2.50	TJF9-132	0.50	TJF9-193	3.75	TJF9-254	6.75
TJF9-011	2.50	TJF9-072	2.50	TJF9-133	5.25	TJF9-194	1.75	TJF9-255	0.50
TJF9-012	7.50	TJF9-073	0.25	TJF9-134	3.00	TJF9-195	0.75	TJF9-256	3.00
TJF9-013	1.50	TJF9-074	1.75	TJF9-135	1.00	TJF9-196	0.50	TJF9-257	1.00
TJF9-014	4.50	TJF9-075	4.75	TJF9-136	1.50	TJF9-197	5.50	TJF9-258	0.50
TJF9-015	7.00	TJF9-076	0.50	TJF9-137	0.00	TJF9-198	6.50	TJF9-259	0.25
TJF9-016	0.50	TJF9-077	3.75	TJF9-138	0.25	TJF9-199	3.00	TJF9-260	0.25
TJF9-017	3.25	TJF9-078	6.50	TJF9-139	1.75	TJF9-200	0.25	TJF9-261	0.65
TJF9-018	3.50	TJF9-079	2.50	TJF9-140	3.00	TJF9-201	3.75	TJF9-262	6.00
TJF9-019	0.00	TJF9-080	5.25	TJF9-141	4.00	TJF9-202	5.75	TJF9-263	0.50
TJF9-020	2.00	TJF9-081	0.50	TJF9-142	1.00	TJF9-203	0.50	TJF9-264	0.25
TJF9-021	0.50	TJF9-082	3.00	TJF9-143	5.25	TJF9-204	2.00	TJF9-265	3.50
TJF9-022	1.25	TJF9-083	3.75	TJF9-144	3.75	TJF9-205	5.00	TJF9-266	4.75
TJF9-023	3.00	TJF9-084	2.00	TJF9-145	2.25	TJF9-206	2.00	TJF9-267	5.25
TJF9-024	1.00	TJF9-085	4.25	TJF9-146	4.25	TJF9-207	2.00	TJF9-268	5.75
TJF9-025	1.00	TJF9-086	4.00	TJF9-147	1.25	TJF9-208	1.00	TJF9-269	3.00
TJF9-026	1.50	TJF9-087	1.00	TJF9-148	5.25	TJF9-209	0.50	TJF9-270	0.25
TJF9-027	2.00	TJF9-088	4.50	TJF9-149	5.50	TJF9-210	1.25	TJF9-271	5.00
TJF9-028	3.25	TJF9-089	1.00	TJF9-150	4.25	TJF9-211	3.00	TJF9-272	1.25
TJF9-029	0.25	TJF9-090	1.50	TJF9-151	0.50	TJF9-212	2.50	TJF9-273	0.25
TJF9-030	0.25	TJF9-091	0.75	TJF9-152	0.25	TJF9-213	2.50	TJF9-274	0.75
TJF9-031	1.75	TJF9-092	0.50	TJF9-153	3.50	TJF9-214	1.25	TJF9-275	4.00
TJF9-032	1.00	TJF9-093	1.25	TJF9-154	2.75	TJF9-215	3.25	TJF9-276	3.25
TJF9-033	1.75	TJF9-094	4.25	TJF9-155	1.25	TJF9-216	2.75	TJF9-277	4.25
TJF9-034	1.00	TJF9-095	3.00	TJF9-156	0.25	TJF9-217	6.00	TJF9-278	4.50
TJF9-035	0.25	TJF9-096	3.00	TJF9-157	4.00	TJF9-218	0.25	TJF9-279	3.50
TJF9-036	1.00	TJF9-097	0.75	TJF9-158	3.00	TJF9-219	0.00	TJF9-280	3.50
TJF9-037	1.25	TJF9-098	1.00	TJF9-159	0.75	TJF9-220	2.50	TJF9-281	1.50
TJF9-038	0.00	TJF9-099	0.50	TJF9-160	1.50	TJF9-221	2.25	TJF9-282	1.75
TJF9-039	2.50	TJF9-100	0.25	TJF9-161	3.75	TJF9-222	3.75	TJF9-283	4.25
TJF9-040	1.75	TJF9-101	0.25	TJF9-162	1.75	TJF9-223	1.25	TJF9-284	2.75
TJF9-041	0.25	TJF9-102	1.50	TJF9-163	1.25	TJF9-224	5.00	TJF9-285	0.25
TJF9-042	3.75	TJF9-103	0.25	TJF9-164	3.25	TJF9-225	2.75	TJF9-286	3.50
TJF9-043	4.50	TJF9-104	4.75	TJF9-165	0.50	TJF9-226	0.50	TJF9-287	8.00
TJF9-044	6.00	TJF9-105	8.00	TJF9-166	0.50	TJF9-227	0.50	TJF9-288	0.75
TJF9-045	2.00	TJF9-106	5.00	TJF9-167	2.25	TJF9-228	4.75	TJF9-289	5.25
TJF9-046	4.00	TJF9-107	4.75	TJF9-168	0.25	TJF9-229	0.75	TJF9-290	3.25
TJF9-047	1.00	TJF9-108	0.75	TJF9-169	2.00	TJF9-230	0.50	TJF9-291	4.25
TJF9-048	2.00	TJF9-109	4.25	TJF9-170	0.00	TJF9-231	3.75	TJF9-292	0.25
TJF9-049	6.25	TJF9-110	3.00	TJF9-171	1.00	TJF9-232	3.00	TJF9-293	2.25
TJF9-050	3.50	TJF9-111	5.75	TJF9-172	0.50	TJF9-233	5.50	TJF9-294	1.25
TJF9-051	0.50	TJF9-112	2.50	TJF9-173	0.00	TJF9-234	3.00	TJF9-295	5.00
TJF9-052	0.50	TJF9-113	3.00	TJF9-174	1.50	TJF9-235	0.50	TJF9-296	5.75
TJF9-053	1.75	TJF9-114	3.25	TJF9-175	4.50	TJF9-236	0.75	TJF9-297	5.75
TJF9-054	2.50	TJF9-115	2.50	TJF9-176	3.75	TJF9-237	1.50	TJF9-298	3.50
TJF9-055	2.00	TJF9-116	1.25	TJF9-177	3.50	TJF9-238	3.25	TJF9-299	3.50
TJF9-056	0.50	TJF9-117	5.00	TJF9-178	2.50	TJF9-239	1.50	TJF9-300	0.75
TJF9-057	4.50	TJF9-118	1.25	TJF9-179	0.25	TJF9-240	6.00		
TJF9-058	2.25	TJF9-119	0.50	TJF9-180	7.25	TJF9-241	1.00		
TJF9-059	0.50	TJF9-120	4.75	TJF9-181	3.50	TJF9-242	0.75		

[1] Disease Index of bacterial panicle blight (0 – 9 scale, average value of four panicles observed).

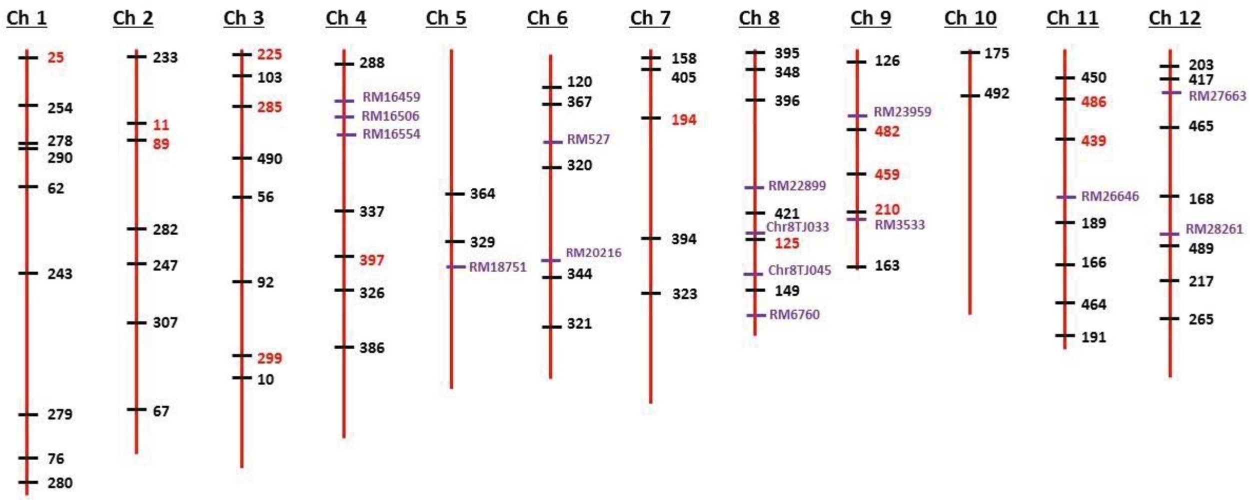


Figure 1. A physical map of SNP (black) and SSR (purple) markers used for the genotyping of the TJF9 RIL population.

Figure 2. The spontaneous lesion-forming phenotype of TJF9-238 in the rice field.

Table 2. Phenotypes of the BJF9 RIL population in bacterial panicle blight (BPB).

RIL ID	BPB[1]	RIL ID	BPB	RIL ID	BPB	RIL ID	BPB	RIL ID	BPB
Bengal	7.00	BJF9-060	2.50	BJF9-121	5.25	BJF9-182	4.75	BJF9-243	0.25
Jupiter	1.00	BJF9-061	3.75	BJF9-122	5.50	BJF9-183	2.75	BJF9-244	1.25
BJF9-001	4.25	BJF9-062	5.25	BJF9-123	3.25	BJF9-184	5.25	BJF9-245	1.50
BJF9-002	6.00	BJF9-063	1.50	BJF9-124	4.25	BJF9-185	2.00	BJF9-246	4.00
BJF9-003	6.25	BJF9-064	2.50	BJF9-125	5.50	BJF9-186	0.50	BJF9-247	1.25
BJF9-004	5.00	BJF9-065	6.00	BJF9-126	3.25	BJF9-187	5.50	BJF9-248	3.00
BJF9-005	2.50	BJF9-066	2.00	BJF9-127	6.50	BJF9-188	4.25	BJF9-249	6.00
BJF9-006	5.00	BJF9-067	1.75	BJF9-128	3.00	BJF9-189	6.00	BJF9-250	1.50
BJF9-007	5.00	BJF9-068	1.50	BJF9-129	0.50	BJF9-190	5.75	BJF9-251	0.25
BJF9-008	6.50	BJF9-069	7.00	BJF9-130	3.25	BJF9-191	1.50	BJF9-252	6.75
BJF9-009	3.00	BJF9-070	1.75	BJF9-131	1.00	BJF9-192	5.75	BJF9-253	6.25
BJF9-010	5.00	BJF9-071	3.00	BJF9-132	3.50	BJF9-193	4.25	BJF9-254	3.50
BJF9-011	3.25	BJF9-072	4.50	BJF9-133	4.50	BJF9-194	2.50	BJF9-255	2.25
BJF9-012	2.75	BJF9-073	0.50	BJF9-134	1.25	BJF9-195	1.25	BJF9-256	6.00
BJF9-013	2.50	BJF9-074	3.50	BJF9-135	5.75	BJF9-196	5.25	BJF9-257	0.75
BJF9-014	2.50	BJF9-075	3.25	BJF9-136	6.00	BJF9-197	3.75	BJF9-258	3.00
BJF9-015	5.25	BJF9-076	2.00	BJF9-137	5.75	BJF9-198	2.00	BJF9-259	1.00
BJF9-016	6.50	BJF9-077	1.50	BJF9-138	3.00	BJF9-199	2.75	BJF9-260	1.75
BJF9-017	1.75	BJF9-078	3.75	BJF9-139	4.25	BJF9-200	1.50	BJF9-261	0.25
BJF9-018	6.25	BJF9-079	3.75	BJF9-140	5.50	BJF9-201	2.50	BJF9-262	0.25
BJF9-019	2.75	BJF9-080	4.75	BJF9-141	6.50	BJF9-202	1.25	BJF9-263	6.25
BJF9-020	5.00	BJF9-081	0.50	BJF9-142	2.50	BJF9-203	6.25	BJF9-264	6.25
BJF9-021	1.75	BJF9-082	4.25	BJF9-143	1.00	BJF9-204	1.25	BJF9-265	3.75
BJF9-022	2.50	BJF9-083	3.50	BJF9-144	2.50	BJF9-205	1.00	BJF9-266	3.00
BJF9-023	5.25	BJF9-084	0.75	BJF9-145	2.25	BJF9-206	5.25	BJF9-267	3.75
BJF9-024	3.00	BJF9-085	2.75	BJF9-146	2.00	BJF9-207	1.75	BJF9-268	2.00
BJF9-025	2.25	BJF9-086	1.25	BJF9-147	6.50	BJF9-208	4.00	BJF9-269	3.25
BJF9-026	5.75	BJF9-087	1.25	BJF9-148	2.00	BJF9-209	3.25	BJF9-270	1.00
BJF9-027	2.50	BJF9-088	1.75	BJF9-149	5.75	BJF9-210	1.75	BJF9-271	0.75
BJF9-028	3.25	BJF9-089	0.50	BJF9-150	4.50	BJF9-211	0.50	BJF9-272	4.00
BJF9-029	6.75	BJF9-090	2.00	BJF9-151	3.00	BJF9-212	2.75	BJF9-273	1.75
BJF9-030	3.25	BJF9-091	5.75	BJF9-152	1.25	BJF9-213	2.50	BJF9-274	5.50
BJF9-031	6.00	BJF9-092	6.25	BJF9-153	3.00	BJF9-214	1.88	BJF9-275	6.75
BJF9-032	3.25	BJF9-093	3.75	BJF9-154	6.00	BJF9-215	0.75	BJF9-276	6.75
BJF9-033	1.50	BJF9-094	0.25	BJF9-155	2.50	BJF9-216	0.50	BJF9-277	1.25
BJF9-034	4.50	BJF9-095	1.75	BJF9-156	2.50	BJF9-217	2.25	BJF9-278	0.75
BJF9-035	2.50	BJF9-096	4.25	BJF9-157	2.75	BJF9-218	1.75	BJF9-279	3.00
BJF9-036	5.25	BJF9-097	5.75	BJF9-158	2.75	BJF9-219	3.00	BJF9-280	1.50
BJF9-037	1.00	BJF9-098	5.25	BJF9-159	0.25	BJF9-220	2.50	BJF9-281	3.75
BJF9-038	2.00	BJF9-099	1.25	BJF9-160	0.50	BJF9-221	5.75	BJF9-282	6.50
BJF9-039	4.50	BJF9-100	1.25	BJF9-161	6.00	BJF9-222	4.75	BJF9-283	5.50
BJF9-040	3.75	BJF9-101	4.25	BJF9-162	3.50	BJF9-223	0.50	BJF9-284	6.75
BJF9-041	1.75	BJF9-102	0.50	BJF9-163	0.75	BJF9-224	5.00	BJF9-285	1.75
BJF9-042	3.00	BJF9-103	5.00	BJF9-164	6.00	BJF9-225	0.25	BJF9-286	4.25
BJF9-043	5.50	BJF9-104	3.75	BJF9-165	0.50	BJF9-226	1.75	BJF9-287	1.50
BJF9-044	1.00	BJF9-105	3.50	BJF9-166	0.50	BJF9-227	4.75	BJF9-288	2.00
BJF9-045	2.50	BJF9-106	4.25	BJF9-167	2.00	BJF9-228	6.75	BJF9-289	1.50
BJF9-046	6.50	BJF9-107	1.75	BJF9-168	4.00	BJF9-229	0.75	BJF9-290	4.50
BJF9-047	6.00	BJF9-108	0.75	BJF9-169	2.00	BJF9-230	1.75	BJF9-291	2.25
BJF9-048	0.75	BJF9-109	5.50	BJF9-170	3.50	BJF9-231	0.25		
BJF9-049	4.75	BJF9-110	3.25	BJF9-171	2.25	BJF9-232	4.75		
BJF9-050	1.50	BJF9-111	0.50	BJF9-172	3.75	BJF9-233	6.25		
BJF9-051	3.75	BJF9-112	4.50	BJF9-173	3.00	BJF9-234	6.50		
BJF9-052	0.50	BJF9-113	5.00	BJF9-174	5.75	BJF9-235	5.75		
BJF9-053	2.25	BJF9-114	1.50	BJF9-175	5.50	BJF9-236	4.02		
BJF9-054	3.75	BJF9-115	3.75	BJF9-176	3.00	BJF9-237	5.25		
BJF9-055	1.00	BJF9-116	8.25	BJF9-177	4.75	BJF9-238	2.50		
BJF9-056	5.75	BJF9-117	3.75	BJF9-178	2.50	BJF9-239	3.50		
BJF9-057	1.50	BJF9-118	2.00	BJF9-179	1.50	BJF9-240	4.00		
BJF9-058	6.00	BJF9-119	3.75	BJF9-180	0.50	BJF9-241	5.50		
BJF9-059	1.50	BJF9-120	4.25	BJF9-181	1.75	BJF9-242	2.50		

[1] Disease Index of bacterial panicle blight (0 – 9 scale, average value of four panicles observed).

Table 3. Phenotypes of sheath blight-resistant lines in bacterial panicle blight resistance.

Breeding Line ID	BPB[1]	Breeding Line ID	BPB
Trenasse	3.00	11PY730	3.25
Bengal	8.25	PI658312	0.67
Jupiter	3.25	PI658313	1.00
Lemont	2.50	PI658314	5.33
LM-1	1.75	PI658315	0.67
LB-33	2.00	PI658316	1.67
14SP#10	2.00	PI658317	2.00
14SP#20	5.25	PI658318	6.67
14SP#23	4.75	PI658319	0.67
14SP#35	2.50	PI658320	2.33
14SP#45	3.25	PI658322	6.67
14SP#56	3.75	PI658323	4.67
14SP#69	3.75	PI658324	3.67
14SP#79	4.75	PI658325	2.67
14SP#87	3.00	PI658326	1.00
14SP#175	2.75	PI658328	3.67
14SP#185	5.00	PI658329	4.00
14SP#208	2.75	PI658330	5.00
14SP#220	3.75	PI658331	4.00
14SP#246	3.50	PI658332	5.67
14SP#268	4.50	PI658333	0.33
RUSHSBR4/09125	2.67	PI658334	3.00
SB131/SB125	1.00	PI658335	5.00
SB2-225	2.33	PI658336	7.67
SB125/SB131	2.33	TJF8-014	6.00
RUSHSBR4	2.66	TJF8-019	2.25
JODN/3/TDCN/SBNT//LSRR5/LMNT	1.67	TJF8-041	3.25
WELLS/CANTORSB51//97URN128/96CR921	4.33	TJF8-137	3.00
PI658321	6.33	TJF8-151	1.50
PI658327	2.33	TJF8-221	4.50
RUSHC99-1166	0.67	LBF8-007	1.50
09DN/RUSH222	1.67	LBF8-008	2.25
09DN/RUSH222//SBR174	2.33	LBF8-013	1.75
09DN157//TRP545/CL161	3.00	LBF8-014	5.25
WELLS/CANTORSB51//97URN128/96CR921//CTHL	2.00	LBF8-015	3.50
GSOR101021	3.67	INIAP12	0.75

[1] Disease Index of bacterial panicle blight (0 – 9 scale, average value of four panicles observed).

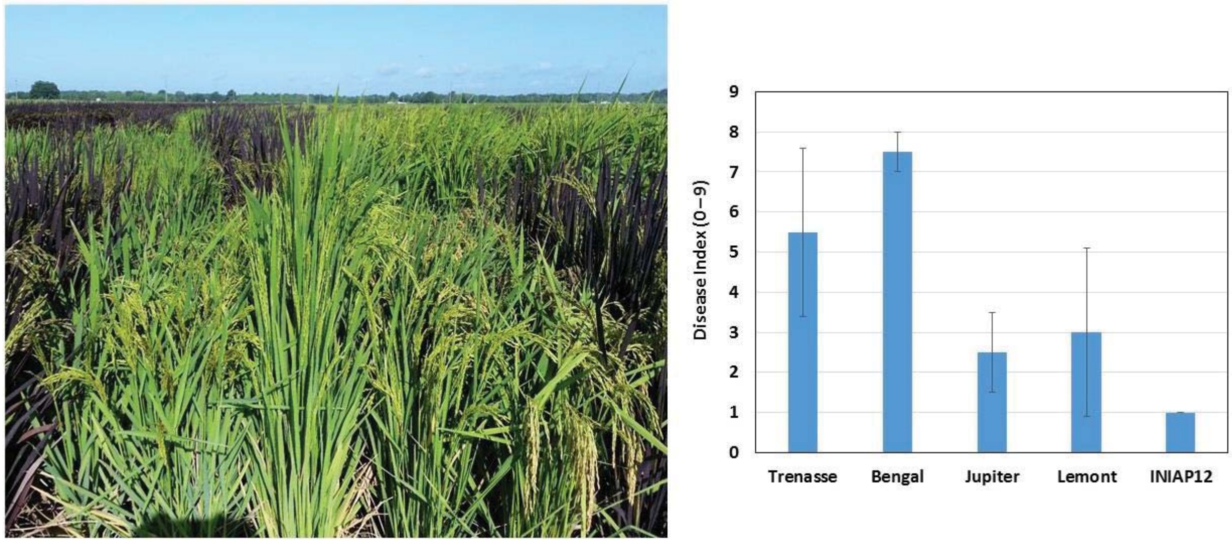


Figure 3. The bacterial panicle resistance phenotype of INIAP12 as a field image (left), and a graph comparing the disease-resistant and disease-susceptible varieties (right).

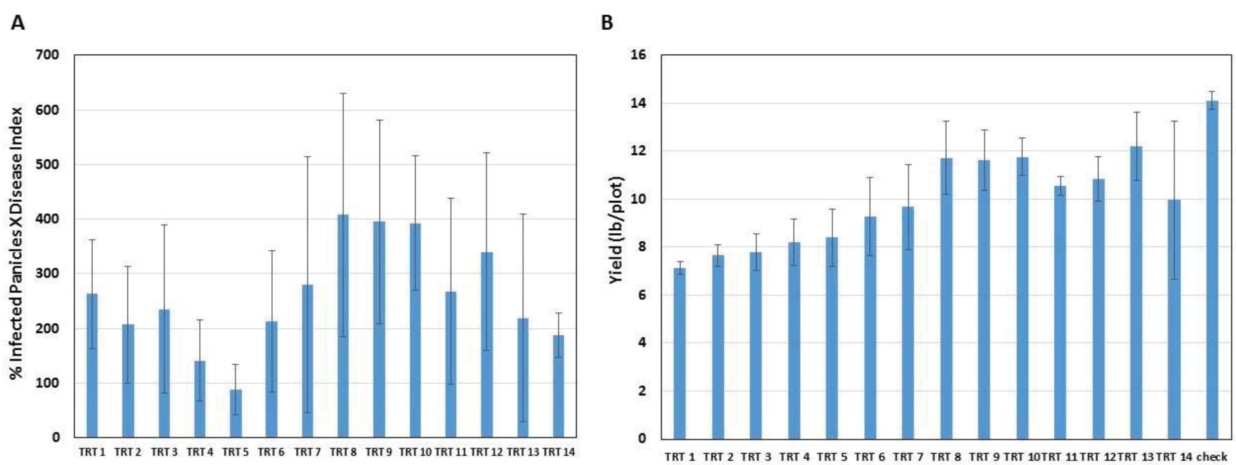
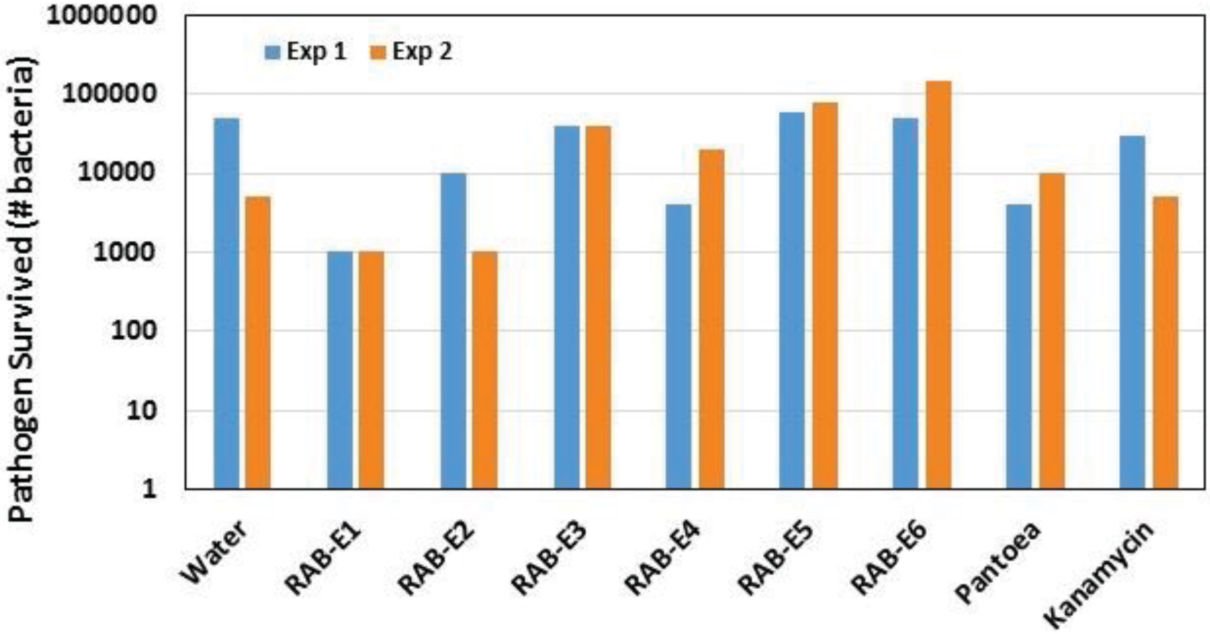


Figure 4. The effects of various chemical and biological materials in suppression of bacterial panicle blight (A) and of yield reduction caused by bacterial panicle blight infection (B). The variety Bengal was used for the test. The treatments tested are: TRT1, no treatment check; TRT2, a company product (200 ppm); TRT3, a company product (400 ppm); TRT4, a company product (4,000 ppm); TRT5, Kocide 3000 (10,000 ppm); TRT6, ascorbic acid (1%); TRT7, ascorbic acid (1%) + chitosan (1%); TRT8, ascorbic acid (0.1%); TRT9, acetic acid (1%); TRT10, acetic acid (1%) + chitosan (1%); TRT11, ZnO (1%); TRT12, *Pantoea* sp.; TRT13, RPB4; and TRT14, RPB5.

A



B

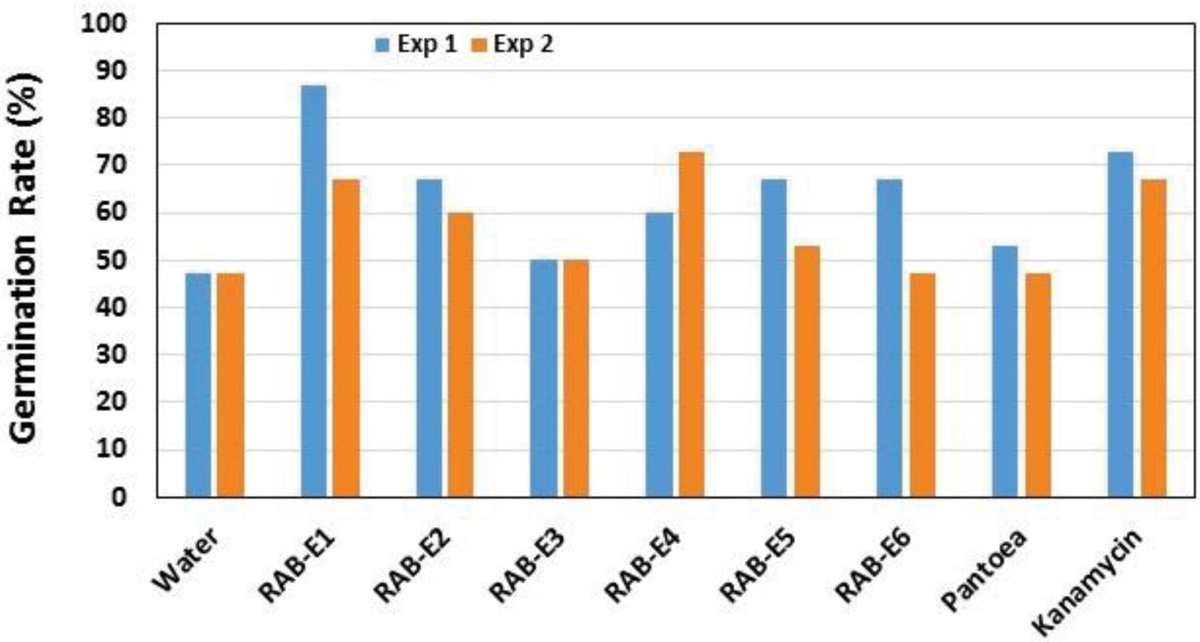


Figure 5. The superior activity of RAB-E1 in the suppression of pathogen survival in rice seeds (A) and the promotion of rice germination rate (B).

RICE INSECTS RESEARCH

EFFECTS OF SEED TREATMENTS AGAINST THE RICE WATER WEEVIL: A FIELD STUDY FROM 2013-2015

L. Bernaola, M.J. Frey, and M.J. Stout

The rice water weevil is an economically damaging pest of rice. Rice varieties can suffer significant yield losses if they are not treated with insecticides. Currently, the use of insecticidal seed treatments is the most widely used tactic for weevil management. Poncho, Cruiser, and NipsIt Inside are systemic seed treatment insecticide formulations belonging to the neonicotinoid class of chemistry.

Purpose:

Compare the efficacies of seed treatment formulations (Poncho, NipsIt, Cruiser, and CruiserMaxx) against the rice water weevil, individually and in combination, over a three-year period in a field study (2013-2015). EverGol Energy, Maxim/Apron, and Votivo are fungicidal and biological seed treatments for the protection from soil plant pathogenic organisms.

Summary of findings:

In 2013, all seed treatments were effective in reducing larval populations of the rice water weevil in the first core sampling but not in the second core sampling. There were no significant effects of seed treatments on rice stands; however, there was a significant effect of seed treatments on plot yields. Poncho/Votivo seed treatment showed the highest yield compared to other seed treatments. In 2014, Poncho was as effective as Cruiser in controlling the rice water weevil. There was a marginally significant effect of EverGol on rice stands, but there were no significant effects of seed treatments on yield. In 2015, seed treatments did not reduce populations of rice water weevil. There were no significant effects on rice stands and plot yields.

Experimental narrative:

Experiments were conducted at the H. Rouse Caffey Rice Research Station, Crowley, LA. Over 3 years, small field plots of rice were drill-seeded on March 18, 2013; April 10, 2014; and March 30, 2015. Plots measured 4.7 ft x 19 ft (seven rows at 7–inch spacing). A seeding rate of 60 lb/A was used. Rice emerged by April 1, 2013; April 22, 2014; and April 11, 2015. Plots were cultivated following recommendations from the LSU AgCenter for drill-seeded rice (with the exception of insect control). Stand counts were taken on April 26, 2013; May 12 and 14, 2014; and April 29, 2015. For stand counts, numbers of seedlings in two (for years 2013 and 2014) or three (in 2015) randomly selected 1 ft^2 areas were counted on each date. Permanent flood was applied on May 9, 2013; May 20, 2014; and May 21, 2015, when rice was in the 4- to 5-leaf stage (early tillering). Core sampling (3 or 4 cores per plot) was conducted each year to estimate populations of rice water weevil larvae on roots. In 2013, cores were taken on June 4 [26 days post-flood (DPF)] and June 13 (35 DPF). In 2014, cores were taken on June 9 (20 DPF) and June 16 (27 DPF). In 2015, samples were taken on June 12 (22 DPF), June 17 (27 DPF), and June 23 (33 DPF). Plots were harvested with a small-plot combine (four of seven rows harvested) on Aug. 14, 2013, and Aug. 28, 2014, and 2015.

Treatments and experimental design:

In both 2013 and 2014, there were six treatments arranged as randomized complete block experiments (Table 1) with four replications and five treatments in 2015. Each year, all seeds were treated by Bayer at the rates specified in Table 1. Data were analyzed using PROC Mixed in SAS with an LSD mean separation (2014) and Tukey-Kramer (2013 and 2015).

Table 1. Labels, insecticide active ingredient, seed treatment rates, and activity included in three field experiments conducted.

Year	Trade name	Insecticidal active ingredient	Seed treatment rate (g AI/100 kg)	Type of active ingredient
2013	Untreated control			
	EverGol Energy + Poncho 600	Clothianidin	23.03 + 75	Fungicide + Insecticide
	EverGol Energy + Poncho/Votivo	Clothianidin	23.03 + 85	Fungicide + Insecticide
	EverGol Energy + NipSit Inside	Clothianidin	23.03 + 75.1	Fungicide + Insecticide
	EverGol Energy + Cruiser 600FS	Thiamethoxam	23.03 + 129.1	Fungicide + Insecticide
	CruiserMaxx	Thiamethoxam	92.4	Insecticide
2014	Untreated control			
	Poncho 600	Clothianidin		Insecticide
	EverGol Energy		23.03	Fungicide
	EverGol Energy + Poncho 600	Clothianidin	23.03 + 78.2	Fungicide + Insecticide
	EverGol Energy + Poncho/Votivo	Clothianidin	23.03 + 85	Fungicide + Insecticide
	Cruiser 600FS + Maxim + Apron	Thiamethoxam	129.1 + 2.504 + 7.7	Insecticide + Fungicide
2015	Untreated control			
	EverGol Energy		23.03	Fungicide
	EverGol Energy + Poncho 600	Clothianidin	23.03 + 78.2	Fungicide + Insecticide
	EverGol Energy + Poncho/Votivo	Clothianidin	23.03 + 85	Fungicide + Insecticide
	Cruiser 5FS + Maxim + Apron XL	Thiamethoxam	129.1 + 2.504 + 7.7	Insecticide + Fungicide

Results:

In 2013: Seed treatments did not significantly affect stand counts on April 26 ($F_{5,18} = 1.70$, $P = 0.186$), although there was a slight trend towards higher stand counts in plots treated with Poncho/Votivo (Table 2). All seed treatments reduced population densities of rice water weevils in core samples on June 4 ($F_{5,15} = 21.26$, $P < 0.0001$), but this was not the case on June 13 ($F_{5,15} = 1.28$, $P = 0.324$). Also, seed treatments did affect plot yields ($F_{5,15} = 17.10$, $P < 0.0001$). Yields from Poncho/Votivo-treated plots were highest and greater than yields from Poncho and NipsIt-treated plots (Table 2). Yields for this experiment are presented as kilograms of grain per four rows; yields were adjusted for 12% moisture.

In 2014: Seed treatments did not significantly affect stand counts on May 12 ($F_{5,15} = 1.62$, $P = 0.21$) or May 14 ($F_{5,15} = 2.62$, $P = 0.07$), although there did appear to be a trend toward higher stand counts in plots treated with EverGol Energy (Table 2). Seed treatments with Poncho and Cruiser reduced population densities of rice water weevils as measured by core samples on June 9 ($F_{5,15} = 13.64$, $P < 0.0001$) and June 16 ($F_{5,15} = 9.70$, $P = 0.0003$). Cruiser and Poncho appeared to be equally effective; EverGol did not reduce weevil densities. Seed treatments did not affect plot yields. Yields are presented as kilograms of grain per four rows; yields were not adjusted for moisture.

In 2015: Seed treatments did not significantly affect stand counts on April 29 ($F_{4,15} = 0.37$, $P = 0.828$), although there did appear to be a trend toward higher stand counts in plots treated with Poncho and Poncho/Votivo in combination with EverGol (Table 2). In general, seed treatments did not significantly reduce population densities of rice water weevils in core samples (Table 2) (June 12: $F_{4,15} = 5.56$, $P = 0.006$; June 17: $F_{4,15} = 0.15$, $P = 0.962$; and June 23: $F_{4,12}$

= 1.12, P = 0.391). Seed treatments did not affect plot yields ($F_{4,15}$ = 0.92, P = 0.479). Yields are presented as kilograms of grain per four rows; yields were adjusted for 12% moisture.

Comments:

In 2015, the H. Rouse Caffey Rice Research Station (Crowley, LA) experienced excessive rainfall (especially in April), and insecticide seed treatments may have been affected by this excess of moisture.

Table 2. Stand counts, rice water weevil densities, and yield data for plots treated with seed treatments over three years of study.

Treatment	Stand count (seedlings per ft^2 ± s.e)	Mean no. of larvae/pupae per core sample ± s.e. @		Partial plot yields, kg per four rows ± s.e.
2013	April 26	June 4	June 13	
Control	17.13 ± 1.3	26.78 ± 5.34 A	16.68 ± 1.11	1.98 ± 0.2 C
Poncho 600	18.00 ± 1.2	1.65 ± 0.30 B	10.43 ± 3.56	3.38 ± 0.2 AB
Poncho/Votivo	21.38 ± 0.9	1.50 ± 0.22 B	9.40 ± 2.54	3.64 ± 0.1 A
NipsIt Inside	16.88 ± 2.1	2.18 ± 0.53 B	12.10 ± 1.99	3.38 ± 0.2 AB
Cruiser 600FS	17.88 ± 1.9	3.75 ± 0.63 B	11.70 ± 1.87	2.84 ± 0.2 B
CruiserMaxx	15.88 ± 0.8	2.65 ± 0.88 B	12.00 ± 1.35	3.23 ± 0.2 AB

Treatment	Stand counts (seedlings per ft^2 ± s.e.)		Mean no. of larvae/pupae per core sample ± s.e. @		Partial plot yields, kg per four rows ± s.e.
2014	May 12	May 14	June 9	June 16	
Control	22.1 ± 1.5	22.7 ± 0.9	14.7 ± 1.8 A	24.0 ± 2.5 A	3.81 ± 0.2
Poncho 600	21.1 ± 1.5	22.2 ± 0.9	2.4 ± 1.8 B	7.7 ± 2.5 B	4.24 ± 0.2
EverGol Energy	23.5 ± 1.5	25.0 ± 0.9	16.1 ± 1.8 A	23.7 ± 2.5 A	3.77 ± 0.2
EverGol + Poncho	25.4 ± 1.5	24.5 ± 0.9	4.9 ± 1.8 B	10.2 ± 2.5 B	4.04 ± 0.2
EverGol + Poncho/Votivo	23.5 ± 1.5	23.2 ± 0.9	1.8 ± 1.8 B	7.8 ± 2.5 B	4.20 ± ± 0.2
Cruiser 600FS	23.0 ± 1.5	22.7 ± 0.9	3.8 ± 1.8 B	9.4 ± 2.5 B	4.09 ± 0.2

Treatment	Stand count (seedlings per ft^2 ± s.e)	Mean no. of larvae/pupae per core sample ± s.e. @			Partial plot yields, kg per four rows ± s.e.
2015	April 29	June 12	June 17	June 23	August 11
Control	25.08 ± 1.3	9.53 ± 0.7 AB	11.53 ± 2.6	7.10 ± 1.3	2.52 ± 0.1
EverGol Energy	23.25 ± 4.2	14.65 ± 0.9 A	9.68 ± 1.5	8.78 ± 1.6	2.25 ± 0.1
EverGol + Poncho 600	27.15 ± 3.2	7.83 ± 0.3 B	10.75 ± 2.0	6.65 ± 0.6	2.35 ± 0.1
EverGol + Poncho/Votivo	26.1 ± 3.6	9.60 ± 1.9 AB	9.53 ± 0.6	6.30 ± 0.7	2.30 ± 0.1
Cruiser + Maxim + Apron	22.6 ± 2.8	7.78 ± 1.2 B	10.78 ± 3.3	6.53 ± 0.8	2.35 ± 0.1

Means in the same column followed by the same letter are not significantly different: LSD or Tukey-Kramer test.

IS HYBRID RICE MORE TOLERANT TO RICE WATER WEEVIL INJURY THAN CONVENTIONAL RICE?

J.M. Villegas, M.J. Frey, and M.J. Stout

Yield losses resulting from rice water weevil injury were compared from hybrid and conventional varieties. A field experiment was established using two hybrid varieties (LAH10 and XL760) and two conventional varieties (CL111 and Mermentau), two weevil treatments (weevil infested and weevil exclusion [control]), and four replications in a randomized block design. Weevils were excluded from the control field plots through chlorantraniliprole seed treatment.

Experimental Narrative: Small field plots (4.1 ft x 20 ft, 7 rows at 7-inch spacing) were drill-seeded on June 26, 2016, with LAH10 (from Dr. James Oard), XL760 (from RiceTec), CL111, and Mermentau. Rice emerged on July 1, and plots were cultivated following the standard recommendation of the LSU AgCenter for drill-seeded rice. To determine the density of rice water weevil larvae, two core samples were obtained from every plot one month after permanent flooding (Aug. 1). Weevil density is presented as the mean number of larvae/pupae per core sample across four replicates. Field plots were harvested using a mechanical small-plot harvester on Oct. 18. Yield loss was determined using the equation: $Percent\ Yield\ Loss = \left(\frac{Yield\ C - Yield\ WI}{Yield\ C}\right) * 100$; where, WI represents weevil infested plots and C represents control plots. If hybrids are more tolerant of weevil injury, yield losses from hybrid varieties should be lower than yield losses from conventional varieties.

Data Analysis: Weevil densities were analyzed as a factorial block design with block as random effect and variety and weevil treatments as fixed effects using a mixed model analysis of variance in PROC MIXED (SAS, 2013). In addition, yield loss was analyzed using one-way ANOVA in PROC MIXED (SAS, 2013) with variety as a fixed effect. Means were separated using Tukey's HSD test.

Result: Chlorantraniliprole seed treatment significantly reduced rice water weevil density ($F_{1, 24} = 30.78$, $P = < 0.0001$) (see Table 1). Thus, control plots had a significantly lower weevil infestation compared to weevil infested plots. There was no significant effect of rice variety on weevil densities ($F_{3, 24} = 1.02$, $P = < 0.4028$). Furthermore, yield losses varied across varieties ($F_{3, 12} = 3.44$, $P = < 0.0518$). As shown in Fig. 1, CL111 suffered the greatest yield loss at approximately 47.8% while LAH10, a hybrid variety, had the lowest yield loss at approximately 16.5%.

Conclusion: Based on our initial findings, hybrid varieties seem to have more tolerance to weevil injury as compared to conventional varieties. This might be attributed to higher plant vigor or greater tillering in hybrid varieties; however, it should be evaluated further.

Table 1. Effects of chlorantraniliprole seed treatment on rice water weevil densities across rice varieties.

Variety	**Rice Water Weevil Density (mean larvae/pupae ± SE)**	
	WI*	C*
LAH10	1.25 ± 0.62	24.50 ± 7.96
XL760	2.25 ± 1.44	19.75 ± 5.72
CL111	1.50 ± 0.50	13.75 ± 2.02
Mermentau	0.50 ± 0.50	19.75 ± 5.72

**WI – Weevil Infested; C- Control.*

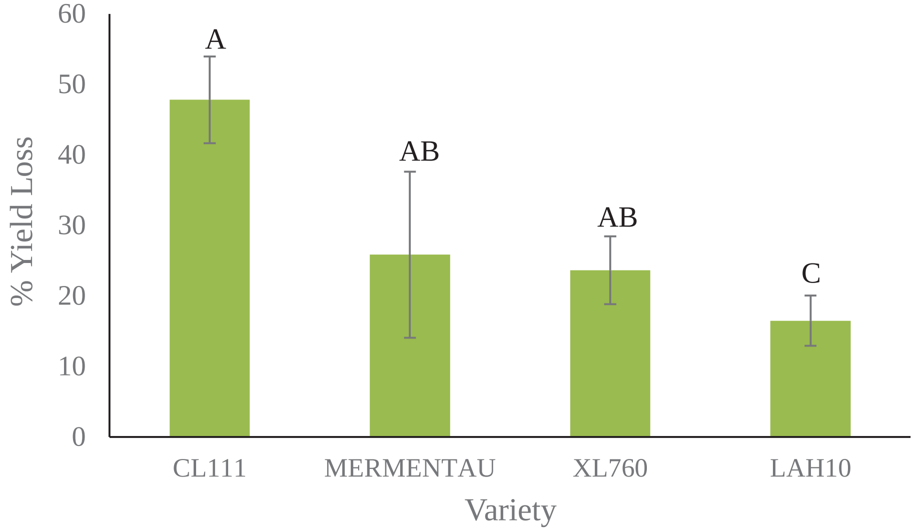


Figure 1. Estimated yield loss from water weevil injury in conventional (CL111 and Mermentau) and hybrid (XL760 and LAH10) varieties. Means with the same letter are not significantly different.

RICE WEED MANAGEMENT

WEED MANAGEMENT IN HERBICIDE-RESISTANT/TOLERANT AND CONVENTIONAL RICE

E.P. Webster, E.A. Bergeron, B.M. McKnight, S.Y. Rustom, Jr., and G.M. Teló

RESULTS

Research Summary to Date.

Weed management studies were conducted at the H. Rouse Caffey Rice Research Station (HRCRRS), Northeast Research Station (NERS), and producer locations in Louisiana in 2016. A total of 79 studies were conducted with a total of 831 treatments and 3,200 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.

Interactions with Provisia Herbicide Plus Herbicides with Broadleaf Activity Mixtures.

The active ingredient in Provisia is quizalofop, and this herbicide is only active on grass species. Studies were conducted at the HRCRRS and at the NERS. At 15 and 30 days after treatment (DAT), weedy rice and barnyardgrass were controlled 88 to 99% when treated with Provisia at 15.5 oz/A. Barnyardgrass treated with Provisia mixed with Grasp, Grasp Xtra, and Regiment was below 50% control at 15 and 30 DAT; however, Permit, Halomax, Strada Pro, League, and Londax mixed with Provisia provided similar barnyardgrass control compared with Provisia alone. All of the ALS products were less antagonistic to Provisia when applied to weedy rice. Similar results were observed on conventional rice lines also evaluated in this trial. Another trial was conducted to evaluate mixtures of Provisia with herbicides with contact activity. Herbicides used to mix with Provisia in the contact trial were Aim, Bolero, Basagran, propanil, or Sharpen. Antagonism was observed when Provisia was mixed with propanil at 3 qt/A at 10 and 24 DAT. At 24 DAT, barnyardgrass control decreased from 93% with Provisia applied alone to no control when Provisia was mixed with propanil. Red rice control decreased to 80% when treated with Provisia plus propanil. Little to no antagonism was observed with the other contact herbicides mixed with Provisia. Another study evaluated the application of Provisia at 7, 3, 1, and 0 days prior to a RiceBeaux application or followed by Provisia at 1, 3, and 7 days after a RiceBeaux application. At 16 DAT, no antagonism was observed for barnyardgrass control with Provisia applied prior to RiceBeaux; however, when applied 1 or 3 days after a RiceBeaux application, control decreased 47 and 31%, respectively. When Provisia was mixed with RiceBeaux at 0 days, antagonism was severe with a 55% reduction in barnyardgrass control compared with barnyardgrass treated with Provisia alone with 96% control. If a Provisia application was delayed for 7 days after a RiceBeaux application, no antagonism was observed. In all of the trials, a second application of Provisia was needed to overcome antagonism.

Broad Spectrum Weed Control with the Dow Herbicide Loyant.

Loyant is the new herbicide currently under development by Dow AgroSciences. Loyant is projected to have a full label in the second half of 2017, which will allow the use of this herbicide for the first time during the 2018 growing season. The mode of action of Loyant is similar to 2,4-D and Grandstand; however, the specific mode of action of this herbicide is slightly different than those two herbicides. For a herbicide with auxin activity, one would not expect activity on grass and sedge weeds; however, Loyant has excellent activity on barnyardgrass, rice flatsedge, yellow nutsedge, hemp sesbania, Indian jointvetch, grassy arrowleaf, creeping burhead, ducksalad, and many other weeds. Loyant has little to no activity on Texasweed. The use rate of this herbicide will be 1 pt/A with the addition of a methylated seed oil. Long-grain rice cultivars have excellent tolerance of Loyant; however, medium-grain rice and hybrids are slightly sensitive. Rice grown on soil that has been recently land leveled should also be avoided.

Management and Competition of Nealley's Sprangletop.

Clincher and RiceStar HT were evaluated at the HRCRRS for control of Nealley's sprangletop. Clincher was applied at 13, 15, and 20 oz/A, and RiceStar HT was applied at 13, 17, and 24 oz/A at a pre-flood and post-flood timing. Nealley's sprangletop densities were low with 3 to 5 plants/yd^2. RiceStar HT and Clincher controlled Nealley's sprangletop 89 to 95% at 15, 30, and 45 DAT. Previous research has shown that high densities, greater than 50 to 100 plants/yd^2 of Nealley's sprangletop is more consistently controlled with RiceStar at 24 oz/A.

Managing Red Rice Outcrosses and Hybrid Rice Volunteers.

A long-term study was established on a grower location in 2013 to evaluate the management of red rice outcrosses and/or hybrid volunteers often referred to as weedy rice. The four year study evaluated five rotations, including the use of Provisia rice in 2014 and 2015. The rotations used were:

Rotation 1) Roundup Ready® (RR) soybean (2013)/Provisia rice (2014)/RR soybean (2015)/Clearfield (CL) hybrid rice (2016).
Rotation 2) Fallow (2013)/Provisia rice (2014)/RR soybean (2015)/CL hybrid rice (2016).
Rotation 3) CL hybrid rice (2013)/Liberty Link (LL) soybean (2014)/Provisia rice (2015)/CL hybrid rice (2016).
Rotation 4) RR soybean (2013)/LL soybean (2014)/RR soybean (2015)/CL hybrid rice (2016).
Rotation 5) RR soybean/CL hybrid rice (2014)/RR soybean (2015)/CL hybrid rice (2016).

Rotation 4 included three years of Roundup or Liberty Link soybean followed by CL hybrid rice in 2016, and this rotation has been recommended to help manage weedy rice. At the end of the 2016 growing season, there were 20 weedy rice plants/A present in this rotation, compared with a high of 12,550 plants/A in 2014. Rotation 1 employed a soybean-rice-soybean-rice rotation with Provisia rice grown in 2014 and CL hybrid rice in 2016, and at the end of the growing season in 2016 there were 23 weedy rice plants/A. Rotation 5 employed the standard rotation of soybean-rice-soybean-rice with CL hybrid rice grown in the rice rotation and RR soybean in the soybean rotation. At the end of the 2016 growing season, there were 683 weedy rice plants in Rotation 5. This long-term study indicates that the use of Provisia rice, along with proper rotation, can reduce weedy rice populations to manageable levels.

Evaluation of Experimental Herbicides.

This project continues to evaluate several experimental herbicides. In 2016, this project evaluated 14 experimental herbicides. The experimental herbicides included several numbered compounds along with several herbicides that are close to receiving a full federal label. The experimental herbicide benzobicyclon has a great deal of potential for use on aquatic weeds. It continues to be an excellent herbicide for control of ducksalad and other aquatic weeds. Benzobicyclon will probably not receive a full label for use in mid-south rice until the 2018 growing season.

The entire Annual Weed Management Research Report can be located at the link below.

http://edit.lsuagcenter.com/~/media/system/3/3/6/1/3361c7ec4eba194b1d007389cac02ca9/2016%20annual%20reportpdf.pdf

AQUACULTURE RESEARCH

ANNUAL SUMMARY OF ENVIRONMENTAL CONDITIONS AND CRAWFISH PRODUCTION

W.R. McClain and J.J. Sonnier

Table 1 contains the average weekly data for environmental conditions and crawfish catch, 2015-2016 season, crawfish research project, H. Rouse Caffey Rice Research Station (HRCRRS), Crowley, LA. The catch consisted exclusively of red swamp crawfish (*Procambarus clarkii*). The production summary is composed of cumulative yield from both experimental units (i.e., traps) and non-experimental trap lifts but only from the pond located at the HRCRRS.

Pond History: Pond was fallow for a period of 10 months following the previous crawfish season of 2013-2014.

Pond Area: 13.4 A

Soil Type: Midland silty clay loam

Water Source: Groundwater

Forage Crops: Rice variety Jupiter was drill-seeded on April 22, 2015, at 60 lb/A. Grain was harvested by a rice combine on Aug. 31, 2015, 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 on May 29, 2015;
46-0-0 at 100 lb/A on June 23, 2015.

Herbicide: RiceStar at 23 oz/A on May 29, 2015; Clincher at 19 oz/A; Crop Oil at 1 qt/A on June 24, 2015.

Insecticide: None

Fungicide: Tilt at 6 oz/A and Gem at 5 oz/A on July 20, 2015.

Crawfish Stocking Rate: 62.9 lb/A from June 10-23, 2015.

Permanent Flood Date: Oct. 14, 2015

Feed: None

Trap Type and Density: 3-funnel pyramid trap: (0.75-inch square mesh); Density = 14.9 traps/A.

Bait Used: Manufactured bait: *Southern Pride*, *Early-On* (Purina Mills, Inc., Shreveport, LA), or fish baits that included gizzard shad or menhaden (pogy). Experimental formulated baits were used for a limited number of trap sets, and catch totals also included incidental yields from a limited number of non-baited trap sets.

Crawfish Harvest: Jan. 12 - June 24, 2016 (1,147.3 total trap-sets/A)

Fields Drained: June 24, 2016

Table 1. Annual environmental conditions and crawfish production (averaged or totaled weekly). H. Rouse Caffey Rice Research Station, Crowley, LA, 2015-2016.

Weeks (2015 - 2016)	Avg. Air Temp. Min.	Avg. Air Temp. Max.	Avg. Water Temp. Min.	Avg. Water Temp. Max.	Total Rainfall	Total Crawfish Harvest	Total Trap Sets
	deg. F				(inches)	(lb/A)	(#/A)
June 1-6	69.3	86.7			1.30		
June 7-13	73.8	87.9			4.31		
June 14-20	75.3	87.3			1.52		
June 21-27	74.7	90.2			.80		
June 28-July 4	73.7	88.1			3.73		
July 5-11	74.7	89.9					
July 12-18	75.7	93.1					
July 19-25	76.4	94.3					
July 26-Aug. 1	75.2	95.2			2.33		
Aug. 2-8	74.0	94.9					
Aug. 9-15	74.4	96.3			1.05		
Aug. 16-22	73.3	86.9			4.59		
Aug. 23-29	68.3	89.7			.69		
Aug. 30-Sept. 5	71.4	88.7			2.05		
Sept. 6-12	72.1	88.6			3.74		
Sept. 13-19	64.6	86.6			.17		
Sept. 20-26	66.3	89.6					
Sept. 27-Oct. 3	67.3	83.5			.48		
Oct. 4-10	59.4	82.6					
Oct. 11-17	55.0	88.0					
Oct. 18-24	57.8	81.2					
Oct. 25-31	61.8	79.8	69.8	75.0	4.56		
Nov. 1-7	67.5	82.0	71.1	75.1	4.28		
Nov. 8-14	54.8	73.0	64.3	70.5	2.72		
Nov. 15-21	53.1	74.1	63.4	69.3	2.00		
Nov. 22-28	47.4	67.6	58.3	64.6	.94		
Nov. 29-Dec. 5	52.9	66.9	60.7	65.7	.72		
Dec. 6-12	49.6	71.7	60.1	67.3			
Dec. 13-19	51.0	72.0	58.4	64.9	1.46		
Dec. 20-26	60.3	72.6	65.2	70.7	1.40		
Dec. 27-Jan. 2	48.4	60.6	56.8	61.6	.92		
Jan. 3-9	42.0	59.0	51.4	58.9	.90		
Jan. 10-16	37.9	59.6	50.2	55.9	.72	42.0	59.6
Jan. 17-23	38.0	60.6	50.2	58.3	1.10		
Jan. 24-30	37.3	59.9	49.0	58.6	.12	51.9	74.5
Jan. 31-Feb. 6	46.7	67.3	57.3	65.1	1.35	50.5	74.5
Feb. 7-13	37.7	62.3	50.4	61.1		42.4	59.6
Feb. 14-20	47.6	69.6	56.5	70.5	.68	61.6	74.5
Feb. 21-27	37.1	69.8	58.4	66.5	1.07	77.4	74.5
Feb. 28-March 5	47.9	71.9	61.3	70.5		71.4	74.5
March 6-12	60.5	75.0	67.0	72.4	5.25	65.6	74.5
March 13-19	63.9	77.1	68.5	77.7	2.85	73.8	74.5
March 20-26	46.8	67.3	59.1	69.5		27.3	14.9
March 27-April 2	58.4	75.4	66.3	75.0	.62	97.3	74.5
April 3-9	48.6	76.7	64.8	76.5		99.1	74.5

Continued.

Table 1. Continued.

Weeks (2016)	Avg. Air Temp. Min.	Max.	Avg. Water Temp. Min.	Max.	Total Rainfall	Total Crawfish Harvest	Total Trap Sets
	-----------deg. F------------				(inches)	(lb/A)	(#/A)
April 10-16	62.3	78.0	69.7	78.4	5.29	92.1	74.5
April 17-23	64.2	77.3	69.7	78.4	2.95	30.2	14.9
April 24-30	66.9	82.3	74.2	84.1	.78	23.3	14.9
May 1-7	60.4	77.0	69.3	81.0	5.68		
May 8-14	66.3	83.3	74.0	86.8		20.4	14.9
May 15-21	65.6	80.9	73.1	82.7	4.85	24.0	14.9
May 22-28	71.3	85.6	77.2	89.9	.72	14.4	14.9
May 29-June 4	71.3	86.0	78.8	88.8	1.40	17.1	14.9
June 5-11	72.4	86.4	80.8	94.8	2.91	33.4	59.6
June 12-18	76.4	89.4	83.1	95.4	1.75	32.7	59.6
June 19-24	74.0	89.3	81.0	95.9	.34	18.2	59.6
Yearly Total					**80.69[1]**	**1066.0**	**1147.3**

[1] Rainfall total is for one year only (June 1, 2015 - May 31, 2016) and does not include additional rainfall for the extended harvest period (June 2016).

COMPARISON OF BAIT EFFICACY FOR CUT FISH AND A FORMULATED CRAWFISH BAIT AT VARIOUS WATER TEMPERATURES

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish producers and fishermen have used cut fish for harvesting crawfish for decades. This is the bait of choice for trap harvesting in cooler water temperatures because it generates larger catches and is the most economical of the flesh type baits. However, costs have risen substantially in recent years and supplies of quality bait fish have been scarce at times. Moreover, fish bait must be kept frozen until used, and nearly all fish baits require cutting into smaller portions. Gizard shad and pogy (menhaden) are the most common fish used, but often larger fish (i.e., carp, buffalo) are necessary when supplies of shad or pogy are limited. Handling, storing, and cutting of fish – regardless of species – is costly, inconvenient, and frankly, unpleasant.

Although commercially formulated and manufactured crawfish baits have been on the market for several years, these baits have proven less effective than fish when harvests occur at cool water temperatures. Various studies and much anecdotal evidence suggest that at water temperatures below about 70ºF the manufactured baits tend to consistently catch fewer crawfish per trap set. Nonetheless, because the price of fish baits are approximately twice that of manufactured crawfish baits per pound and because the manufactured baits are easier to obtain and use and need no refrigeration, they are sometimes used during the cooler harvesting period despite their lower yields.

Because all other associated costs of harvesting are the same, the economics of harvesting crawfish boils down to the cost differential of baits used, differences in crawfish catch based on bait type used, and price achieved for the catch. While cost variables associated with market price and bait price differentials are typically fixed for a given time and set of conditions, a producer must also have some reasonable expectation for catch differential based on bait type in order to make judgment calls regarding which bait type will provide the best cost-effective advantage. This requires experience and/or reliable data. While the narrow temperature range for when fish baits become less effective and manufactured baits become more effective is generally known, the catch differential between the two bait types over a range of temperatures below that critical range is not well documented.

Therefore, this study was a continuation of efforts to document catch differences between a leading manufactured crawfish bait (Southern Pride) and cut pogy, an industry standard fish bait, at declining temperatures below 70ºF.

Test Site and Production Scenario: An experimental crawfish pond at the H. Rouse Caffey Rice Research Station (HRCRRS), Crowley, LA, was managed to simulate a rice-crawfish field rotational production system. The pond was partitioned in the center, length-wise, by an earthen levee, essentially dividing the pond into two contiguous halves. Both halves were managed identically in all respects from stocking rate to forage and water management. Trapping effort was consistent across both sections. Crawfish population density in this pond was relatively high (and consistent between pond sections), resulting in high yields and relatively small crawfish but consistent with commercial ponds exhibiting similar densities.

Trap Type: Industry standard 3-funnel pyramid traps constructed of 0.75-inch coated square mesh wire. Traps were placed in designated trapping lanes and spaced at approximately 50-ft intervals.

Baits: Experimental baits (i.e., treatments) consisted of either cut pogy (menhaden) or a commercially available pelleted bait (Southern Pride, Purina Mills, Shreveport, LA). Bait quantity used throughout the study was approximately 115 to 150 g (or 1/4 to 1/3 lb) per trap and was adjusted by catch and amount of residual bait remaining following the soak. Bait quantity was adjusted to reflect the demand and ensure bait was available over the entire soak period. Fresh bait was used daily.

Trap Soak Duration: 24 hours.

Dates: Harvesting was initiated on Jan. 12, 2016, and typically occurred three to four days per week until average daily water temperature exceeded 75ºF. Total harvesting effort (i.e., number of total trap lifts) was consistent for both bait treatments.

Harvesting Protocol: To prevent unintentional influence from competing baits of nearby traps, each bait treatment selection was relegated to two lines of traps (i.e., two trapping lanes) per pond section, and these were alternated on a weekly basis. Therefore, over each 2-week period, both baits were employed in each pond section (alternately), and the total trap lifts for each bait in each section of the pond were the same for the course of a season. This minimized any bias due to pond section even though both sections were managed exactly alike and held virtually equal crawfish densities.

Water Temperature: Water temperature was recorded by a submerged temperature data logger (Hobo®, 104 Onset Computers, Pocasset, MA., model TEMP) that recorded temperature at 4-hour intervals. Average daily water temperature was derived from the data for each 24-hour period preceding the trap lifts.

Replicates: A single line of traps, reflecting the average catch per trap for 25 traps, constituted replications for each bait treatment per soak period, and catch was averaged among both trapping lanes (lines) per treatment per day to reflect the mean catch per 24-hour soak at a corresponding mean water temperature. Data was collected over 46 harvest days and represented approximately 2,300 trap lifts for each bait treatment.

Parameters: Average weight of crawfish captured per trap by bait type at various mean water temperatures.

Comments: Crawfish yields from over 4,500 trap sets, occurring over 46 days spanning parts of 4 months, were documented in this study. Baits consisted of either fresh-frozen cut pogy (menhaden) or Southern Pride manufactured crawfish bait. Trapping occurred from late January through mid-April encompassing average daily water temperatures ranging from 49.7 to 76.4ºF. Both baits were used, in equal numbers, each day and attempts were made to minimize any spatial or competing bait influential biases. The results of this study were specific to the particular environmental conditions present during the study – principally the condition of high population density of crawfish, which is usually associated with larger trap catches and smaller crawfish. These conditions were not atypical of commercial ponds experiencing similar population densities.

Average daily trap yields, in pounds of crawfish per trap, for each bait type over the course of the study is presented in Figure 1. While trap yields generally increased over the course of the season, with changes in water temperature partly responsible for the increases, other factors also influence daily crawfish catch, such as weather patterns (pressure changes, moon phases, precipitation, etc.), pond water replenishment activity (pumping), trapping frequency, and molting patterns of the population. To better visualize effects of water temperature, the data was rearranged in Figure 2 by average daily water temperature during the 24-hour period prior to trap lifts. Best fit trend lines were also computer generated to visually mitigate the many other factors influencing catch and to allow for a better focus on relative effects of bait type as influenced by temperature. The exponential effect of water temperature by bait type interaction is clearly obvious. As water temperatures increase, the differential advantage of cut fish decreases, and at some point, roughly 70ºF, the manufactured bait Southern Pride becomes more advantageous in terms of yield.

The differential advantage of cut pogy as bait over Southern Pride, expressed as a percentage, is plotted in Figure 3. Below about 65 to 69ºF, the fish bait provided a clear advantage in terms of yield, but at a water temperature below 55ºF, crawfish catch was exponentially better – 176% greater catch than that with the manufactured bait. Average daily water temperatures below 50ºF was not encountered in this study, but in a previous study at water temperatures between 46 and 49ºF, fish caught on average 448% more crawfish than Southern Pride. This is strong evidence that profits are being sacrificed when manufactured baits are used in lieu of fish baits at cold water temperatures.

To better illustrate the potential net profit differences when considering bait choice for different water temperature conditions, a table was developed using the parameters of this study and arbitrary, but realistic, variables for the main factors affecting net profit comparisons (Table 1). Bait costs of $0.25 per pound for Southern Pride and $0.50 per pound for cut pogy were used with a weight of 1/4 pound of bait per trap per day held constant for these calculations. Since the market values and respective yields are also necessary factors in determining net profits, actual yield results from this study were used, and four arbitrary market value figures, representing a wide range of farm gate prices actually paid over the course of the season in 2016, were included for different scenarios.

Regardless of market price scenario examined, use of the lower cost Southern Pride achieved greater net profits when water temperatures were above 65ºF. Profit advantages with the use of the fish bait were greater as water temperatures decreased and differential benefits with fish were amplified as market price increased. Typically, however, as water temperatures increase with the waning of winter and progression of spring, the catch rate increases causing a surge in market supply and a corresponding decline in market prices. The shaded cells within the table may somewhat reflect the potential magnitude of advantages/disadvantages of using one bait over the other as both catch increases and market price declines as the season progresses. In short, there appears to be no profit incentive for using the less expensive and more convenient manufactured baits when water temperatures are below about 65ºF.

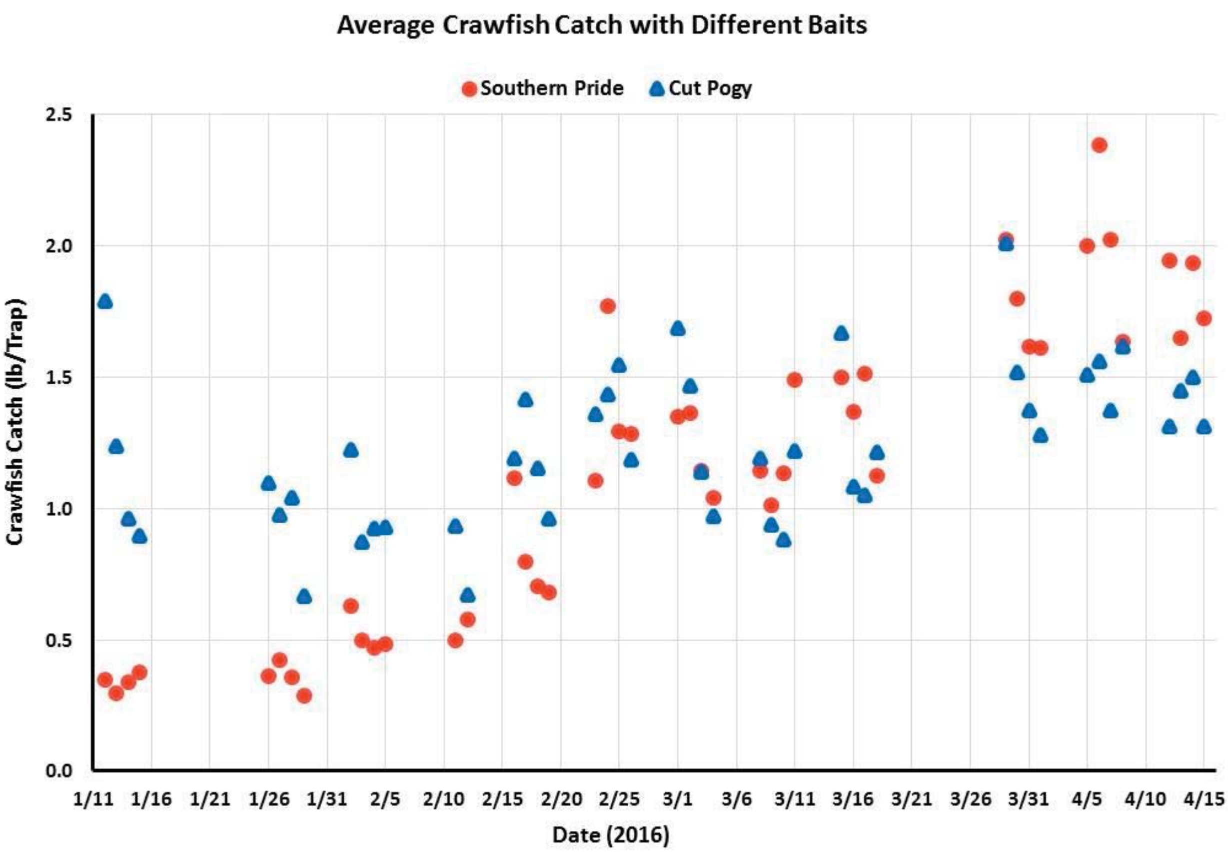


Figure 1. Average daily crawfish catch (lb/trap) by bait type.

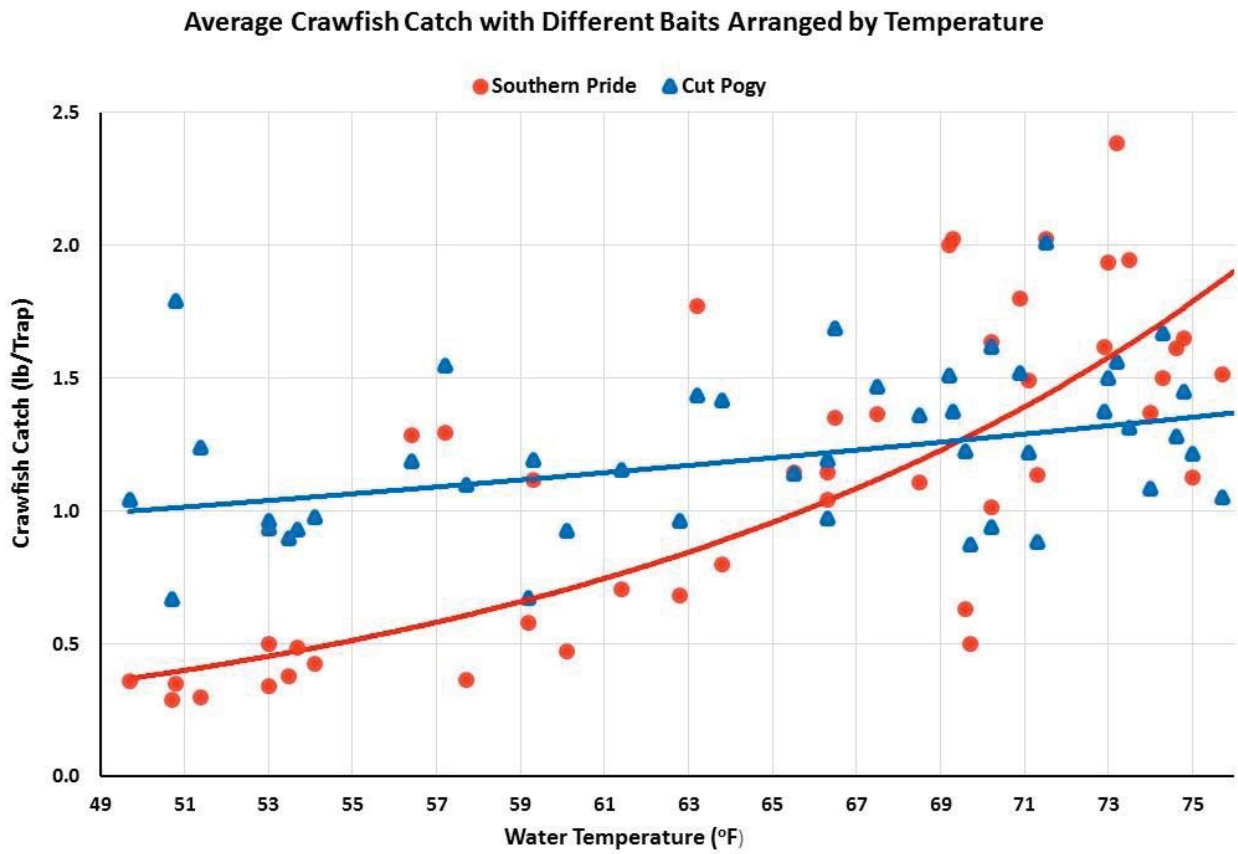


Figure 2. Average crawfish catch (lb/trap) by bait type for mean water temperatures ranging from 50 to 76°F. Trend lines are a best fit curve for the exponential data set.

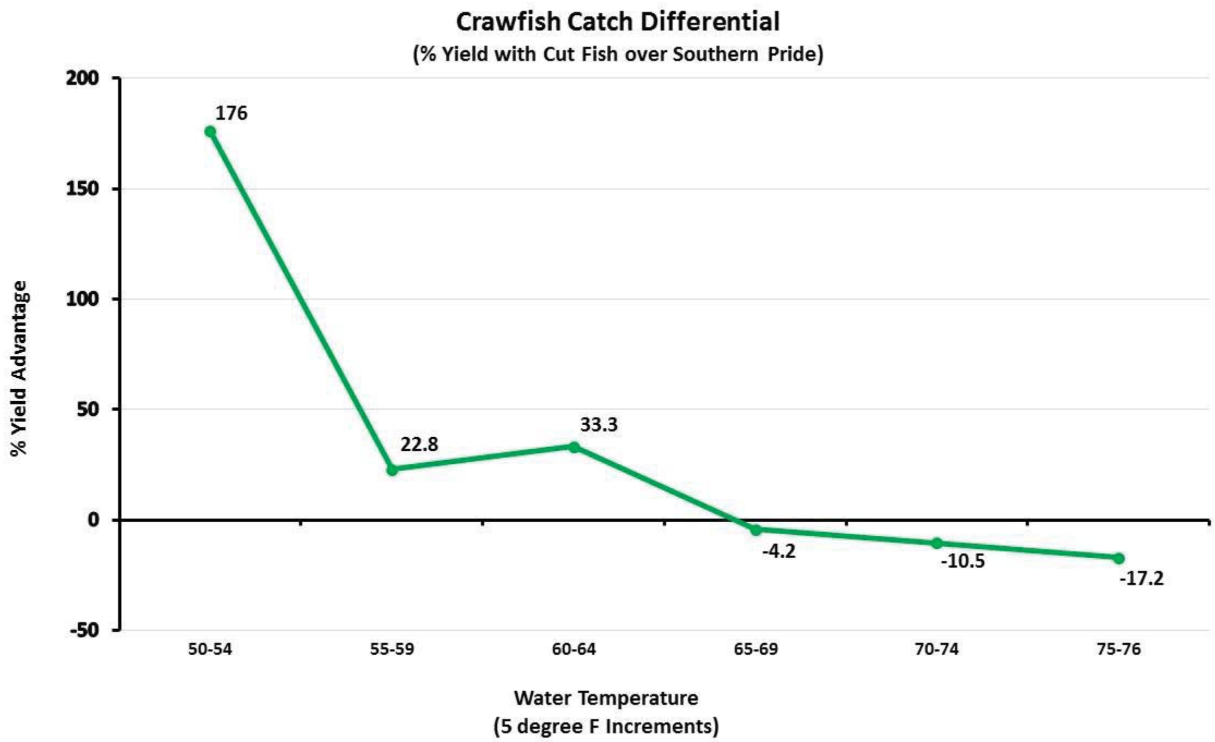


Figure 3. Crawfish catch differential expressed as average percentage increase (or decrease) in yield per trap set with cut fish as bait compared to yield with Southern Pride as bait for increasing increments of water temperature.

Table 1. Net profit estimations (per 100 trap sets) when baiting crawfish traps with cut pogy versus Southern Pride at different water temperature intervals and with different market price valuations ($/lb) for the crawfish catch. Yield data used for these calculations were actual catch results (average lb of crawfish/trap) observed from this study.

Temp. Range (ºF)	Avg. Yield S.P. (lb/trap)	Avg. Yield Pogy (lb/trap)	% Diff. with Pogy	Net Profit per 100 Traps at ($0.75/lb)[1]	Net Profit per 100 Traps at ($1.00/lb)[1]	Net Profit per 100 Traps at ($2.00/lb)[1]	Net Profit per 100 Traps at ($3.00/lb)[1]
75-76	1.52	1.26	-17.2	-19.61	-26.14	-52.29	-78.43
70-74	1.50	1.34	-10.5	-11.81	-15.75	-31.50	-47.25
65-69	1.40	1.34	-4.20	-4.41	-5.88	-11.76	-17.64
60-64	0.88	1.17	33.3	21.98	29.30	58.61	87.91
55-59	0.93	1.14	22.8	15.90	21.20	42.41	63.61
50-54	0.38	1.05	176.0	50.16	66.89	133.76	200.64

[1] Net profit calculations were based on arbitrary market price valuations from $0.75 to $3.00 per pound of captured crawfish. Shaded cells reflect net profit estimates based on projected seasonal price variations for crawfish that might be associated with seasonal variations in water temperature.

INVESTIGATION OF MEANS FOR EXTENDING FRESH FISH IN CRAWFISH BAIT

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish traps are typically baited with manufactured formulated bait in warmer weather, but because formulated baits are inferior at cooler water temperatures (less than 70°F), fresh-frozen cut fish is used. Fish for crawfish bait has become expensive, often costing over twice that of commercially formulated bait. Fish baits also require refrigerated transport and storage and usually requires cutting into smaller portions – a labor intensive and unpleasant job. These necessities also add to the expense of using fish. Fish baits are also frequently in short supply, and for many of these bait fish species, there is an ecological concern with the potential for overfishing.

In many cases, half of the annual crawfish harvesting effort occurs during cool-water periods (December through late March), and with the 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. Efforts to find or develop an effective alternative to cut fish have failed to date. No tested attractant has come close to matching the effectiveness of cut fish in terms of crawfish catch at water temperatures below about 70°F. Moreover, recent research has documented that catch efficiencies with currently available manufactured crawfish baits decrease exponentially in comparison to cut fish as water temperatures drop below 70°F.

Due to the lack of progress in identifying alternative baits or attractants for cool-water harvesting, this research investigated the efficacy of extending fish supplies by reducing the amount used per trap set. Previous research has clearly shown that simply reducing the amount of cut fish used per trap set below about 1/4 to 1/3 pound per trap resulted in a substantial reduction in catch. It was determined that the reduction in catch was a result of bait being consumed prior to the end of the 24-hour soak duration. Without bait in traps for the duration of the soak interval, crawfish inside traps tend to exit the trap more readily, and further attraction ceases, obviously curtailing catch. Therefore, this research involved employing minced or ground fish (at varying quantities) bound in a matrix to form an experimental bait block. The objective was to investigate the efficacy of decreasing amounts of fish (attractant) in the bait block. Specifically, the amount of attractant (or fish flesh) was diluted in experimental bait blocks to assess the point at which catch was significantly negatively impacted.

Test Sites and Production Scenarios: Trial 1. An experimental crawfish pond at the H. Rouse Caffey Rice Research Station, Crowley, Louisiana, that was managed to simulate a typical rice-crawfish field rotational production system. Crawfish population density in this pond was high, resulting in relatively small crawfish but consistent with commercial ponds exhibiting similar densities. Trial 2. A large commercial crawfish pond in Acadia Parish, located west of Crowley, LA. Crawfish population density was moderately high, resulting in relatively small crawfish harvested.

Trap Type: Industry standard 3-funnel pyramid traps constructed of 0.75-inch coated square mesh wire, each fitted with a bait well of 0.75-inch plastic hexagon mesh centered in the trap and extending above the water line. Bait wells were used to position the bait in the center of the trap to insure uniform consistency of protocol, especially important when working with limited numbers of replications.

Baits: Experimental baits consisted of mixtures of minced whole menhaden (in various proportions) contained within an alginate-based medium, which formed a semi-harden bait block upon setting. Treatments consisted of fish portions equivalent to 100, 75, 50, and 25% of the wet weight of cut fish controls or 113 g at the 100% level. No attractant other than the minced fish was utilized, and the alginate medium served simply to extend the fish and contain and facilitate its effective use as bait. Control baits or checks were also used and consisted of cut menhaden (pogy) and a commercially available pelleted bait (Southern Pride, Purina Mills, Shreveport, LA). Traps without bait were also used as a negative control treatment.

Bait Quantity: Experimental bait blocks ranged from 290 to 203 g each with decreasing quantities of incorporated minced fish ranging from 113 g (100%) to 28 g (25%). Commercial baits or controls (cut fish or pelleted baits) weighted approximately 113 g or 1/4 lb per trap. In most cases, some residual pieces of bait for all treatments were present in the trap after each 24-hour soak. Fresh bait was used daily.

Trap Soak Duration: 24 hours.

Dates: Trial 1 = Jan. 12 to 15, 2016. Trial 2 = Jan. 28 to Feb. 5, 2016.

Water Temperature: Average daily water temperature was derived from data recorded by a temperature data logger every 4 hours between harvesting episodes.

Experimental Design: Traps were placed in a designated trapping lane and spaced at approximately 50-ft intervals. Each trap was randomly assigned a bait treatment. Bait treatment per trap remained consistent over consecutive days of baiting to minimize attractant contamination in the immediate vicinity of the trap.

Replicates: A single trap set or soak constituted a replicate for each bait treatment, and replications were achieved over several days of trapping.

Parameters: Crawfish catch per unit effort by numbers of crawfish and weight of crawfish per trap; average weight of individual crawfish. To facilitate comparisons among trials for experimental baits, crawfish catch results were also expressed as a percentage of the catch with cut fish (the common control treatment in this and previous trials).

Statistics: Results were analyzed with the ANOVA procedure of SAS, and differences were declared significant at the 0.05 alpha level.

Comments: Experimental conditions for both trials were well representative of typical commercial conditions for the 2016 production season. Crawfish population densities were relatively high in both locations as evident by the relatively small size of crawfish harvested and by the relatively high catch rate (for 100% fish baits) for early-season yields. It was apparent, however, that population density was greatest in Trial 1. These levels of crawfish densities were not uncommon in south Louisiana during 2016.

Results of the baiting trials are presented in Table 1. The general trend for both trials were for increased catch-per-unit-effort (CPUE) with increased fish content in the experimental baits; although, not all comparisons were significantly different. When compared to the 100% minced fish treatment, the catch significantly declined below the 75% level in Trial 1 and below the 50% level in Trial 2. It should be noted that the CPUE with cut fish, the industry standard cool-water bait, was numerically lower than the 75 and 100% treatments, but these were not statistically significant. Trends were generally similar whether CPUE were expressed as number of crawfish per trap or weight of crawfish per trap.

The commercially manufactured bait (Southern Pride) resulted in poor catches in both trials, catching less than 20% of that with cut fish in Trial 1 and approximately 45% of the catch with cut fish in Trial 2. It is unclear if the relative increase in catch with Southern Pride in Trial 2 was a result of lower population density or increased water temperatures. However, previous research found a positive correlation with increasing water temperatures and a decreasing magnitude of the difference between catch with fish and manufactured bait.

From the results of this study, it appears that the quantity of fresh fish used as crawfish bait could possibly be spared by up to 50% when incorporated in a suitable bait block without a significant reduction in catch. However, without a thorough economic evaluation, it is not known if this would be feasible. More work is needed to evaluate the feasibility based on a savings of from 25 to 50% of fish quantity, representing a savings of only about 3 to 6 cents per trap at current bait fish prices. Further research is also needed under a wider range of crawfish population densities, water temperatures, and harvesting strategies.

Table 1. Average crawfish catch per trap (by number and by weight, lb/trap), average individual crawfish weight (g), and average catch expressed as a percentage of that caught with cut fish, both in number and in lb/trap for experimental bait treatments. Menhaden (pogy) was used in both minced and cut fish treatments. Averages represent 16 replicates for each trial.

Test Baits	No. CF per Trap	Wt. CF per Trap (lb)	Avg. Indiv. Wt. (g)	% of Cut Fish (by No.)	% of Cut Fish (by Wt.)
Trial 1 (Average Daily Water Temperature ranged from 50.8 to 53.5°F)					
No Bait	4.6^{D}	0.1^{C}	14.4^{CD}	9.6	5.9
Purina's S. Pride Bait	10.1^{D}	0.3^{C}	13.5^{D}	21.2	17.6
25% Fish Content	22.1^{C}	0.8^{B}	18.0^{A}	46.3	47.1
50% Fish Content	30.1^{C}	1.1^{B}	17.0^{AB}	63.1	64.7
75% Fish Content	60.3^{A}	2.1^{A}	15.8^{BC}	126.4	123.5
100% Fish Content	56.6^{AB}	2.0^{A}	15.9^{BC}	118.7	117.6
Cut Fish	47.7^{B}	1.7^{A}	16.9^{AB}	-	-
Trial 2 (Average Daily Water Temperature ranged from 49.7 to 69.7°F)					
No Bait	4.4^{D}	0.14^{C}	15.1^{BC}	21.3	19.2
Purina's S. Pride Bait	9.5^{CD}	0.31^{BC}	14.7^{C}	45.9	42.5
25% Fish Content	13.7^{BC}	0.47^{B}	16.5^{AB}	66.2	64.4
50% Fish Content	20.6^{AB}	0.74^{A}	16.3^{AB}	99.5	101.4
75% Fish Content	26.8^{A}	0.94^{A}	16.1^{ABC}	129.5	128.8
100% Fish Content	21.9^{A}	0.83^{A}	17.4^{A}	105.8	113.7
Cut Fish	20.7^{AB}	0.73^{A}	16.0^{ABC}	-	-

Figure 1: Experimental baits consisting of Purina's Southern Pride Crawfish Bait, cut menhaden, and minced menhaden incorporated into alginate-based bait blocks at 100, 75, 50, and 25% of cut fish controls at 113 g. Photo on left shows fresh baits, and photo on right represents bait residuals after a 24-hour soak in traps.

CONVENTIONAL AND HYBRID RICE BIOMASS COMPARISONS UNDER CRAWFISH AQUACULTURE CONDITIONS

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish aquaculture in the Southern United States relies solely on a forage-based system to furnish the necessary food resources for growing crawfish. Supplemental feeds are not routinely applied, nor have they been shown in research to provide cost benefits on a predictable or consistent basis. Crawfish receive their sustenance from sources within the pond, based largely on a detrital food chain. Intact vegetative matter contributes little to the direct nourishment of crawfish, short of providing some limited nutrients, and is mostly consumed when other food sources are in short supply. Decomposing plant material and associated microorganisms, collectively referred to as detritus, and certain seeds are consumed to a much greater degree by crawfish and have higher food values. The optimum food resource in the pond, however, is the collection of aquatic invertebrates that, in turn, depend on detritus for their nourishment. Thus, the main role of forage crops in crawfish aquaculture is not to provide direct nutrition; rather, it is to provide the fuel that powers the food web, with crawfish at the top of that web. Vegetation is also beneficial in providing cover for crawfish and protection from predators and in providing vertical structure that allows crawfish to disperse from the bottom and reach the water surface when necessary.

The microbes and larger invertebrate communities that crawfish rely on for high quality nutrition requires a continual influx of plant fragments to the aquatic environment for much of their nutrition. Too little vegetal fuel entering the detrital pool can cause a disruption of the invertebrate biomass and possible food shortages for crawfish. Too much plant fragmentation at one time is wasted because it cannot be stockpiled and simply deteriorates or decomposes before it can be consumed. Furthermore, excess plant fragmentation over a short period of time could lead to premature depletion of the forage crop and/or contribute to water quality issues. Therefore, a forage crop that yields small portions of its total biomass on a consistent basis over the duration of the crawfish production season is desired.

Rice has generally become the standard forage crop for the crawfish industry because of its semi-aquatic nature and its characteristics under extended flooded conditions. It can produce considerable biomass and persist well in flooded crawfish ponds, yet it furnishes plant fragments to the detrital pool in a consistent manner. As immature rice grows, the older (lower) leaves sluff off, providing early plant fragments to the pond bottom. Once a freeze or heavy frost kills the above-water portion of the plant, the dead plant material tends to fragment gradually over time. Rice seeds that are produced also furnish food for crawfish as well as the invertebrate community. Moreover, under some conditions, rice can achieve further regrowth as water warms the following spring.

When crawfish population densities are moderate to high, rice (as well as many other forage types) can become taxed as a forage crop even under the best management practices. Early or premature depletion of rice biomass prior to completion of the crawfish growing/harvesting season can hamper maximum potential production and is not an uncommon problem. Therefore, subtle differences in rice varieties or lines, especially the amount of biomass present late in the crawfish season, could influence overall production or net profits. Rice lines, or any agronomic crop for that matter, that yield high total biomass production with excellent biomass persistence (i.e., gradual fragmentation rate) is most likely to be associated with greater crawfish production and/or larger harvested individuals. Therefore, this study was conducted to acquire some preliminary information regarding the forage characteristics of several conventional versus hybrid rice lines under actual commercial crawfish aquaculture conditions.

Experimental Conditions: In cooperation with local rice producers, RiceTec (Houston, TX) sponsored several outfield research/demonstration tests in large field plots to evaluate and compare rice yield and performance among several conventional and hybrid rice lines under commercial conditions. This research "piggybacked" off of those studies to examine and compare selected lines following the rice harvest under typical extended flooded conditions of commercial crawfish ponds. Two of the locations realized a single rice harvest (main crop harvest) with the intent of maximizing crawfish production from the field. The other location managed the field for maximum rice yield with two rice harvests (main and ratoon crop harvest), followed by crawfish as a secondary crop. All fields were stocked with crawfish broodstock during the early vegetative growth phase of the rice crop. All rice lines within a field were managed alike with regard to planting and harvest dates, as well as fertilizer and pest management practices.

Pertinent data for each location are presented in Table 1. Beginning in October 2015 and occurring every other month after permanent pond flood-up, rice forage biomass in each plot was sampled. Three randomly selected 5-ft^2 (0.46 m^2) areas within each rice plot were collected – to include both standing vegetation and or lodged or decomposing plant fragments within the sampled area. Standing plants were cut at the soil line, any non-rice vegetative types were discarded, and rice composed of any vegetative and/or reproductive plant components were dried to a constant weight at 167°F (75°C). Dry biomass data were then averaged (N=3) by rice line by month for each location and expressed as total dry weight in lb/A (Figures 1 to 4).

Support: This research was supported in part by RiceTec, Inc. (Houston, TX).

Results:

Table 1. Experimental conditions and farm locations for selected rice lines monitored for total biomass production and persistence over the subsequent crawfish season of 2015-2016. Three random samples were collected bi-monthly after crawfish pond flood-up.

Hundley Farm (Mowata, LA)	**CL111**	**CL151**	**CLXL729**	**CLXL745**
Seeding rate (lb/A)	65	65	22.5	22.5
Planting date	April 2, 2016			
Plot widths	40 ft			
Approx. field ("cut") size	16 A			
Rice Harvest date	Aug. 3, 2015			
Flood-up (for crawfish) date	Oct. 10, 2015			
Relative crawfish density	Moderate			
Krielow Farm (Roanoke, LA)	**CL111**	**CL151**	**CLXL729**	**CLXL745**
Seeding rate (lb/A)	65	65	22.5	22.5
Planting date	March 25, 2015			
Plot widths	40 ft			
Approx. field ("cut") size	23 A			
Rice Harvest date	Aug. 5, 2015			
Flood-up (for crawfish) date	Oct. 6, 2015			
Relative crawfish density	Moderately high			
Byrne Farm (Elton, LA)	**Cheniere**	**Mermentau**	**CLXL723**	**CLXL753**
Seeding rate (lb/A)	65	65	22.5	22.5
Planting date	March 20, 2015			
Plot widths	60 ft			
Approx. field ("cut") size	30 A			
Rice Harvest date	Aug. 3, 2015, Main Crop; Nov. 4, 2015, Ratoon Crop			
Flood-up (for crawfish) date	Nov. 25, 2015			
Relative crawfish density	Low			

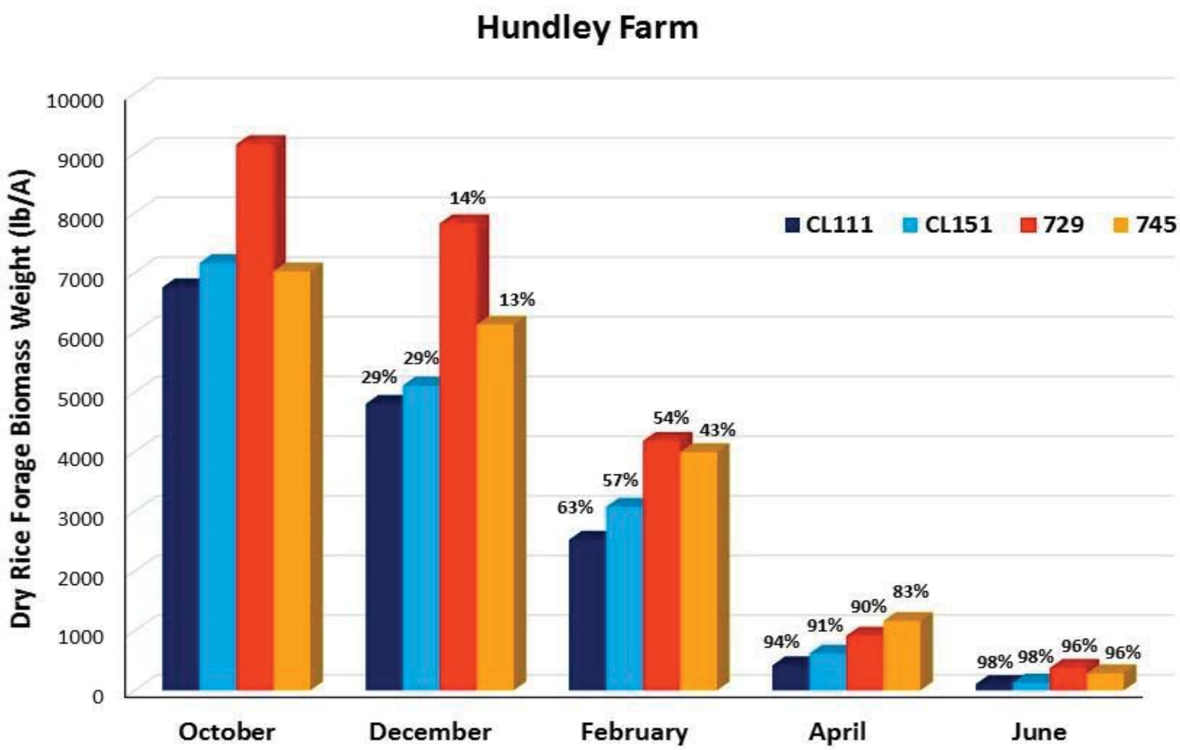


Figure 1. Mean rice forage biomass estimates (lb/A dry weight) at bi-monthly intervals from four rice lines at the Hundley commercial crawfish pond, Mowata, Louisiana. N=3 replicates per line per month. Rice lines consisted of two commercial Clearfield pure-bred lines (CL111 and CL151) and two RiceTec hybrid lines (CLXL729 and CLXL745). Single crop yields only were harvested from these lines. Bar heights represent dry weight biomass averages for each line at each sampling, and numerical percentages represent the percentage reduction of biomass from peak line biomass measurements, which occurred in October for all rice lines.

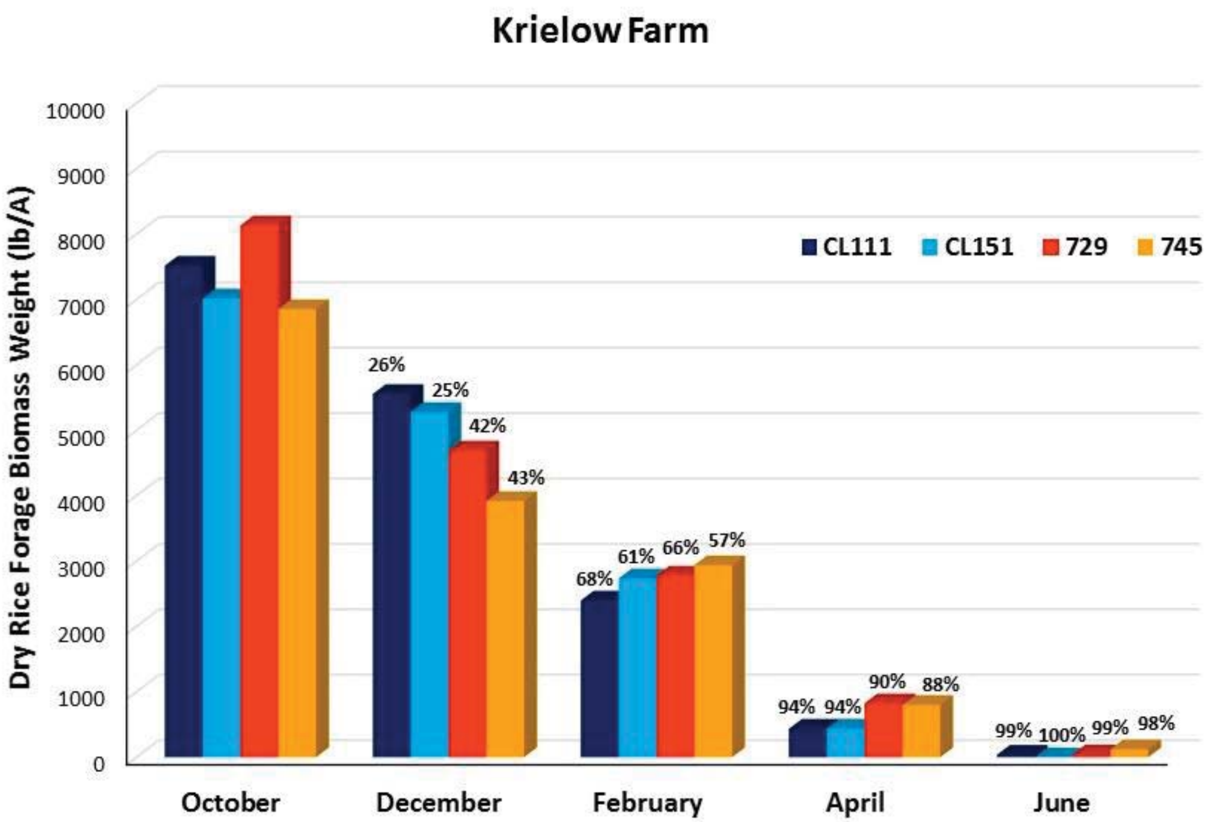


Figure 2. Mean rice forage biomass estimates (lb/A dry weight) at bi-monthly intervals from four rice lines at the Krielow commercial crawfish pond, Roanoke, LA. N=3 replicates per line per month. Rice lines consisted of two commercial Clearfield pure-bred lines (CL111 and CL151) and two RiceTec hybrid lines (CLXL729 and CLXL745). Single crop yields only were harvested from these lines. Bar heights represent dry weight biomass averages for each line at each sampling, and numerical percentages represent the percentage reduction of biomass from peak line biomass measurements, which occurred in October for all rice lines.

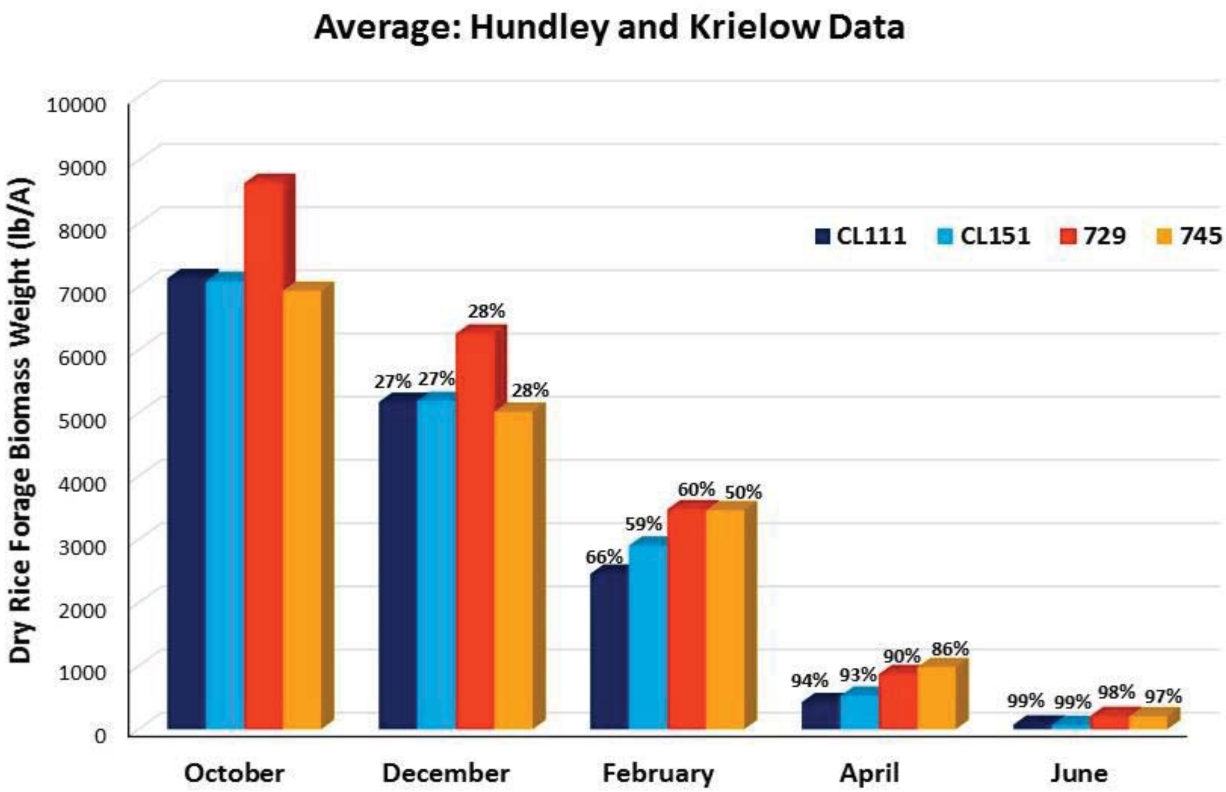


Figure 3. Mean rice forage biomass estimates (lb/A dry weight) at bi-monthly intervals from four rice lines based on averaged data from the Hundley and Krielow farms. N=6 replicates per line per month. Rice lines consisted of two commercial Clearfield pure-bred lines (CL111 and CL151) and two RiceTec hybrid lines (CLXL729 and CLXL745). Bar heights represent dry weight biomass averages for each line at each sampling, and numerical percentages represent the percentage reduction of biomass from peak line biomass measurement, which occurred in October for all rice lines.

Comments: Because the same four rice lines were used at both locations and the same protocol and time lines were used for sampling, data were combined to provide a more comprehensive overview of the results. In general, both pure-bred lines and the hybrid CLXL745 produced similar amounts of biomass (consisting of a combination of vegetative and reproductive plant parts) by the beginning of the crawfish production season (October). However, one hybrid (CLXL729) had produced considerably more biomass. These results highlighted another trend, which appears to be characteristics of the hybrids – that is, a slightly slower rate of biomass decline over the extended crawfish production season. Although the magnitude of the difference is not great, by April, the pure-bred lines had lost 93 to 94% of their peak biomass; whereas, the hybrid lines had lost only 86 to 90% of their peak biomass. This difference was diminished by the last sampling (June), where very little of any biomass remained. This is typical for most rice-based crawfish ponds in south Louisiana with even modest crawfish population densities.

The amount of food resource or vegetative biomass present later in the crawfish season is critical since this is the time when crawfish biomass is typically greatest and crawfish are capable of growing the fastest; therefore, nutritional needs are the greatest. The hybrid lines tested appear to offer a slight advantage over the pure-bred lines since they were observed with a greater amount of biomass available during the February through April period. This appears to be the result of a combination of greater biomass production (at least with one of the lines) and slower rates of biomass decline over time.

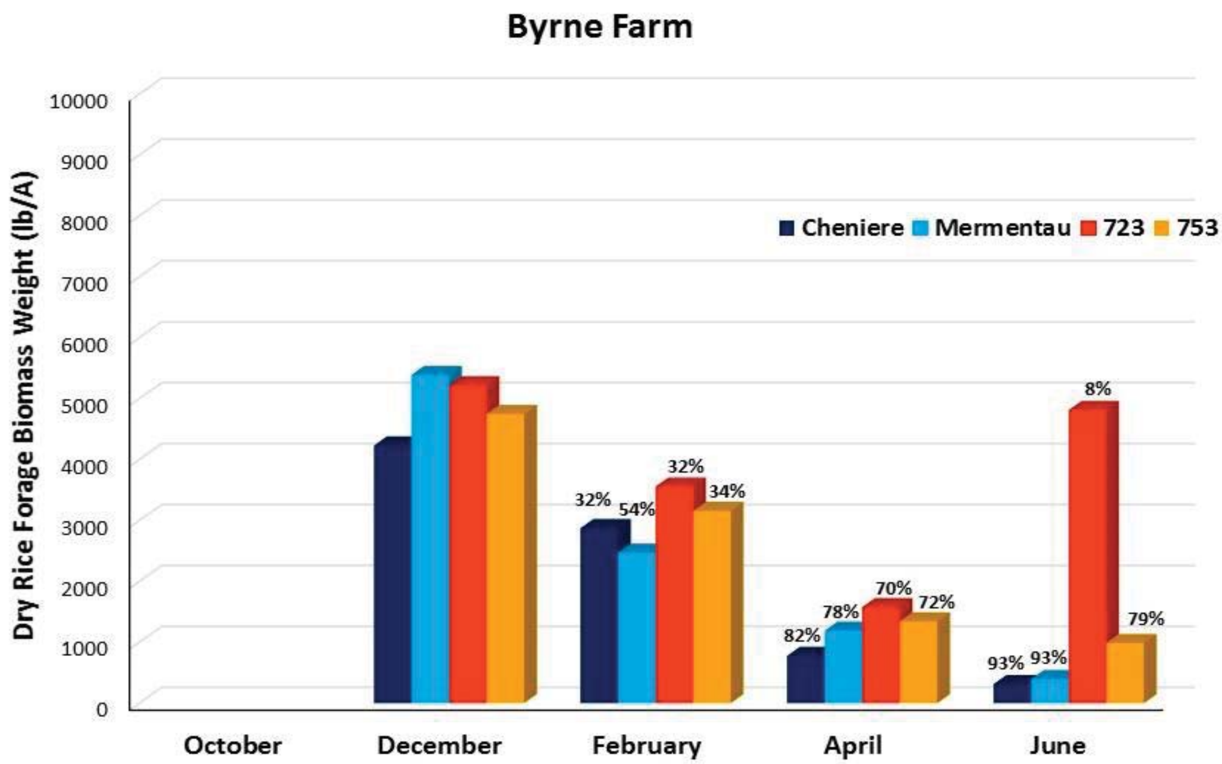


Figure 4. Mean rice forage biomass estimates (lb/A dry weight) at bi-monthly intervals from four rice lines at the Byrne commercial crawfish pond, Roanoke, Louisiana. N=3 replicates per line per month. Rice lines consisted of two commercial conventional lines (Cheniere and Mermentau) and two RiceTec hybrid lines (CLXL723 and CLXL753). Two rice crop yields were harvested from these lines prior to flood-up in December for crawfish. Bar heights represent dry weight biomass averages for each line at each sampling, and numerical percentages represent the percentage reduction of biomass from peak line biomass measurements, which occurred in December for all rice lines.

Comments: Total peak forage biomass was lower for this farm because of the late second cropping of rice. Little time or favorable weather conditions prevailed following the October rice harvest to allow for maximum regrowth. Consequently, few differences were observed for initial forage biomass among the tested lines. However, it appears that the hybrids may have had a slight advantage in the ability of the crop to retain biomass over the course of the season. By April, the hybrids showed a decline of only 70 to 72% of the initial biomass produced; whereas, the conventional lines tested exhibited 78 to 82% declines in total biomass. Clearly, existing biomass late in the season prior to the possibility of any regrowth is a function of the amount of biomass initially produced and the rate of decline, and at least it appears the hybrids tested in this study seem to have a slight advantage over those conventional lines chosen.

Late spring regrowth was observed for all four lines at this test site, possibly due to the immature stage of the regrowth prior to onset of winter as well as the low crawfish population density at this location. However, regrowth among the lines were not equal as seen in Figure 4. The hybrid CLXL723 exhibited a much greater propensity for end-of-season growth than the others. This is a trait that could be important when moderate or moderately high crawfish densities are present. However, at very high crawfish densities, end-of-season growth potential is seldom fully realized due to the grazing pressure exerted by high densities of crawfish.

Summary and Conclusions: These results, though preliminary, suggest that forage characteristics of at least some hybrid rice lines, as currently managed, may provide important advantages over current non-hybrid rice lines for use in commercial crawfish ponds where the food resources are typically highly taxed over the extended season. A greater production of vegetative biomass and/or a slower rate of decline of that biomass pool over the course of the crawfish season may mean a greater availability of food for crawfish near the end of the season when crawfish biomass is typically the highest and demand the greatest.

It should be noted though that these results are preliminary and more research is needed to corroborate these findings and to more accurately determine cause/effect relationships. For example, are the apparent benefits of a slower rate of decline observed with the hybrids due to physiological differences (e.g., stem size or strength) associated with the genotypes, or due to cultural differences (e.g., planting rate, etc.). More research under a wider range of culture conditions is warranted before firm recommendations or conclusions can be made.

EFFECT OF CRAWFISH DENSITY ON SIZE DISTRIBUTION: YEAR 3

W.R. McClain and J.J. Sonnier

INTRODUCTION

High yields and large crawfish are goals every crawfish farmer hopes to achieve each season. Larger crawfish are desired in most markets and are easier to sell, especially during peak periods of production when buyers can be more selective. Fixed production and harvesting costs for producers necessitate that yields must exceed some threshold to generate profits in the crawfish farming business. Unfortunately, the crawfish farmer has relatively little control over both yield and size at harvest beyond ensuring a suitable habitat for production and adequate harvesting when warranted.

Weather patterns largely dictate: (1) how well crawfish broodstock survive and reproduce between seasons, (2) the effectiveness and timing of female emergence with young from burrows, and to a large extent (3) the conditions for growth following emergence. Survival and reproduction of broodstock can be highly variable from year to year and even from pond to pond, due largely to differences in rainfall patterns. This means crawfish population densities in ponds can be highly variable. Unlike most agricultural enterprises where the producer can precisely control planting or stocking rates, crawfish farmers rely solely on natural reproduction of brood crawfish to populate the ponds. This renders an imprecise means for establishing a population, which can significantly affect total yield and size at harvest.

It has been demonstrated in numerous studies that crawfish exhibit a strong density-dependent growth response and that high crawfish population densities can negatively affect average size at harvest. However, few studies have investigated the effects of density on size distribution of the population. This study concludes a 3-year project looking at growth responses of single-class crawfish populations at two different densities under highly controlled experimental conditions in outdoor pools. A low density of 4 crawfish/m^2 and a moderately high density of 12 crawfish/m^2 is thought to represent common densities found in commercial ponds of south Louisiana.

Outdoor pools, or mesocosms, of 10.5 m^2 with soil, planted rice, and maintained at common water depths replicate commercial earthen pond conditions, while allowing the necessary control over population density for this type of study.

Experimental Units: Twelve, 12-ft diameter x 5-ft tall (10.5 m^2 bottom surface area) outdoor fiberglass pools with 6 inches (15.2 cm) of soil and a planted rice crop served as simulated natural crawfish habitats (mesocosms) and were utilized as experimental units.

Forage Crop: The rice variety Caffey was planted Aug. 28, 2015, at 120 lb/A. Fertilizer (8-24-24) was applied pre-planting at 250 lb/A, and 45-0-0 was applied at 200 lb/A as a topdress on Sept. 10, 2015. A tank mix of herbicides (RiceBeaux, Basagran, Londax, and Permit) was applied at recommended rates on Sept. 10, 2015. The insecticide Karate (at 10 ml/gal) was applied as a mist application for armyworm control on Sept. 21, 2015. A permanent flood was established on Oct. 14, 2015.

Water Source: Municipal water was vigorously aerated and aged at least two days prior to use in pools. Water levels in pools were maintained at approximately 14 inches (35.6 centimeters) deep throughout the crawfish growth trials.

Crawfish: Stocker crawfish were red swamp (*Procambarus clarkii*) hatchlings, obtained by capturing females in berry. Broods from several berried females at each stocking were pooled, and hatchlings were randomly assigned to tanks at the predetermined stocking densities. Average weight of hatchlings stocked was 1.08 mg for the early stocking and 1.20 mg for the late stocking.

Experimental Design: A 2 x 2 factorial design with three replicated mesocosms per treatment combination.

Experimental Treatments: Stocking date was one treatment factor, with an early (Nov. 4, 2015) and late (Feb. 16, 2016) stocking to represent early and late recruitment of hatchlings. Stocking density was the other treatment factor, with a low (4 crawfish/m^2) and high (12 crawfish/m^2) density to represent differences in initial recruitment density.

Crawfish Stocking Rate: 126 crawfish per tank ($12/m^2$) for the high stocking treatments and 42 ($4/m^2$) for the low stocking treatment.

Stocking Dates: Early stocking = Nov. 4, 2015. Late stocking = Feb. 16, 2016.

Supplemental Aeration: A Sweetwater® regenerative blower provided supplemental aeration via four shop-built diffusers (3-inch PVC pipe, 1 ft long) per tank. Aeration was provided continuously when water temperature was greater than about 80 °F and was provided nocturnally when water temperature was between approximately 70 and 80 °F. Aeration was consistent across all treatments. Dissolved oxygen (DO) was monitored periodically with a YSI model 50B oxygen meter (Yellow Spring Instrument Corp., Yellow Springs, Ohio) to ensure early morning DO levels remained above 1.5 ppm.

Temperature Monitoring: Water temperature was recorded every 4 hours by temperature data-loggers (Hobo®, 104 Onset Computers, Pocasset, MA., model TEMP) placed randomly in representative tanks at each stocking. Mean daily (24 hours) temperatures were used to calculate the cumulative Fahrenheit degree-days for the duration of each growth study based on 41 °F as the thermal minimum for growth.

Crawfish Sampling: Crawfish populations in each tank were sampled periodically by means of baited traps to assess growth and maturity. Captured crawfish were immediately returned to the population. When at least 50% of the captured crawfish for a given stocking date were mature and average crawfish captured reached approximately 25 g, the trial relating to that stocking date was terminated, and all crawfish were retrieved.

Study Termination: Early stocking treatments were terminated on May 6, 2016. Late stocking treatments were terminated on June 3, 2016. Three days before each trial termination, crawfish harvest commenced in earnest by baited trap with three traps per tank (equivalent of 1,156 trap sets per acre) per night. After three nights of retrieving crawfish by trap, the tanks were drained and residual crawfish were removed by hand.

Parameters: Individual crawfish weight at termination, survival, maturity, harvest efficiency, and cumulative degree-days of growth.

Comments: Experimental treatments and conditions are summarized in Table 1, and sampling results prior to termination of the growth study is summarized in Table 2. Size, sex, and maturity data at termination are presented in Tables 3, 4, and 5. The percentage of crawfish at termination captured by baited trap is also include in Table 4.

Resulting differences in growth and survival for the early stocking versus late stocking were minor, with the late stocking group exhibiting slightly larger average weights (34.8 vs. 31.2 g) and less percentage of crawfish below 15 g (8.3 vs. 12.7%). While growth was somewhat slower for the early stocking group due to cooler water temperatures, the number of accumulated degree-days was slightly higher. Survival was slightly greater (69.4 vs. 62.4%) on average, perhaps also resulting in less favorable growth responses. The greatest differences resulted from the initial density factor – with the higher density affecting growth to a greater degree. Survival was greater (69 vs. 62.8%), average weight was greater (40.7 vs. 25.3 g), percentage of mature crawfish at termination was greater (80.6 vs. 49.6%), and most significant, the percentage of crawfish less than 15 g was less (1.5 vs. 19.5%) for the low density group.

When the data was grouped according to stocking density only without regard to time of stocking and plotted at 3-gram increments, the effect of density on size disparity is clearly obvious (Table 5). Not only did this study reaffirm the negative effects of increased population density on crawfish survival and average weight, but it provided strong evidence for the association of higher density with increased percentage of "runts" or submarket size individuals. The initial density of 12 crawfish/m^2 in this study resulted in approximately 20% of the crawfish at harvest falling below the submarket-size category of 15 g. This compares to less than 2% of the crawfish in the lower density group failing to reach an acceptable market size. While it's possible that some of the runts in the high density population could potentially achieve further growth given more time, it is unlikely that stunted commercial populations will recover under typical conditions. Once an age class begins to reach maturity in high numbers, it is more likely that the stragglers will soon mature also, even if at a smaller size.

These results may help explain why crawfish yields in some aquaculture ponds fail to meet expectations when recruitment appears to be strong and populations appear to be high early in the season. Increasing densities may be associated with increased percentages of the population that fail to reach sizes easily retained by industry standard traps. Sub-harvestable populations of crawfish can exert greater pressure on food resources and further exacerbate problems with overcrowding. Non-harvested individuals will eventually succumb to predation or cannibalism, or achieve attrition by burrowing, thereby not contributing to the yield.

This study also provides further evidence of the inefficiency of trap harvesting crawfish as practiced within the industry. While trap density varies from about 10 to 25 traps/A in commercial crawfish ponds, the use of 3 traps per tank in this study equated to 1,156 traps/A. Yet after three consecutive days of harvests (3,468 total trap lifts/A), it is interesting to see that only 75 to 87% of the surviving populations were recovered by traps (Table 4). Even though some individual crawfish were small enough to easily escape from the traps, a substantial portion was of sufficient size that prevented escape through mesh openings. These results emphasize the inefficiency of trap harvesting. Given the results of the growth and size distribution data achieved with this multi-year project, these findings may help explain why yields may sometimes be lower than expected in ponds where young-of-the-year recruitment is great.

Table 1. Summary of treatment factor combinations for crawfish hatchlings reared in outdoor pools.

Treatment Indicators	Stocking Date	Stocking Rate (No. Hatchlings)	No. of Tanks (reps)	Termination, Days After Stocking	Cumulative Degree-Days (°F)
Early / Low	Nov. 4, 2015	42	3	184	3,795
Early / High	Nov. 4, 2015	126	3	184	3,795
Late / Low	Feb. 16, 2016	42	3	105	3,144
Late / High	Feb. 16, 2016	126	3	105	3,144

Table 2. Results of sampling efforts to determine maturity status and average weight by stocking date. Threshold for terminating growth trials was at least 50% mature and approximately 25.0 g average weight of captured individuals by stocking date.

Stocking Date	Sampling Date	Sampling Traps	Low-Den. Avg. Wt. (g)	Low-Den. % Mat.	High-Den. Avg. Wt. (g)	High-Den. % Mat.
Nov. 4, 2015	Feb. 4, 2016	Small-mesh	7.4	0	6.5	0
	March 3, 2016	Large-mesh	17.3	0	12.4	0
	March 10, 2016	Large-mesh	18.9	0	14.6	0
	March 17, 2016	Large-mesh	25.8	0	17.8	0
	March 31, 2016	Large-mesh	26.8	15.8	18.2	3
	April 6, 2016	Large-mesh	34.9	45.5	22.8	14.5
	April 13, 2016	Large-mesh	42.0	81.8	25.8	37.1
	April 20, 2016	Large-mesh	50.2	100	24.8	55.0
	April 27, 2016	Large-mesh	52.4	96.0	25.1	69.2
Feb. 16, 2016	March 17, 2016	Small-mesh	0.9	0	0.8	0
	April 27, 2016	Large-mesh	23.3	0	15.3	0
	May 3, 2016	Large-mesh	26.7	9.1	18.1	14.9
	May 17, 2016	Large-mesh	43.1	72.2	22.3	58.5
	May 25, 2016	Large-mesh	48.9	88.9	23.5	88.6

Table 3. Growth response of crawfish by pool (replicate) at termination of each trial. Individual crawfish were designated as "runts" if they weighed less than the generally accepted minimum market size of 15 g.

Treatment	% Survival	Avg. Ind. Wt. (g)	Min. - Max Wt. (g)	% Mature	% Females	% Runts (< 15 g)
Early / Low	73.8	41.0	7.9-72.6	83.9	45.2	3.2
Early / Low	88.1	38.2	15.2-74.1	81.1	43.2	0
Early / Low	83.3	39.0	13.9-68.2	85.7	45.7	5.7
Avg.	***81.7***	***39.4***		***83.6***	***44.7***	***3.0***
Early / High	36.5	28.6	14.0-54.0	65.2	45.7	4.3
Early / High	73.8	19.0	6.5-44.8	10.9	57.0	40.9
Early / High	61.1	21.4	4.9-43.3	52.0	53.2	22.1
Avg.	***57.1***	***23.0***		***42.7***	***52.0***	***22.4***
Late / Low	64.3	35.5	20.5-62.8	77.8	40.7	0
Late / Low	59.5	48.2	29.3-73.7	76.0	68.0	0
Late / Low	45.2	42.4	23.0-65.2	78.9	42.1	0
Avg.	***56.3***	***42.0***		***77.6***	***50.3***	***0***
Late / High	73.8	22.2	7.0-35.2	48.4	53.8	15.1
Late / High	75.4	18.4	5.9-34.7	43.2	46.3	34.7
Late / High	75.4	17.5	5.3-34.6	41.1	53.7	35.8
Avg.	***68.5***	***27.5***		***56.4***	***50.1***	***16.6***

Table 4. Harvest statistics for crawfish retrieved at termination of growth trials.

Treatment	Stocking Date	Stocking Rate	Total Retrieved	% Survival	% Retrieval by Harvest
Early / Low	Nov. 4, 2015	42	31	73.8	83.9
Early / Low	Nov. 4, 2015	42	37	88.1	86.5
Early / Low	Nov. 4, 2015	42	35	83.3	91.4
Avg.			***34.3***	***81.7***	***87.3***
Early / High	Nov. 4, 2015	126	46	36.5	73.9
Early / High	Nov. 4, 2015	126	93	73.8	66.7
Early / High	Nov. 4, 2015	126	77	61.1	76.6
Avg.			***72.0***	***57.1***	***72.4***
Late / Low	Feb. 16, 2016	42	27	64.3	81.5
Late / Low	Feb. 16, 2016	42	25	59.5	76.0
Late / Low	Feb. 16, 2016	42	19	45.2	89.5
Avg.			***23.7***	***56.3***	***82.3***
Late / High	Feb. 16, 2016	126	93	73.8	69.9
Late / High	Feb. 16, 2016	126	95	75.4	82.1
Late / High	Feb. 16, 2016	126	95	75.4	73.7
Avg.			***94.3***	***68.5***	***75.2***

Table 5. Overall response summary by treatment combination for crawfish reared at different densities in outdoor pools.

Treatment	Stocking Density (m^2)	Final Density (m^2)	Days	Cumulative Degree-Days (°F)	% Survival	Avg. Ind. Wt. (g)	% Mature	% Runts (< 15 g)
Early / Low	4	3.3	184	3,795	81.7	39.4	83.6	3.0
Early / High	12	6.8	184	3,795	57.1	23.0	42.7	22.4
Late / Low	4	2.3	105	3,144	56.3	42.0	77.6	0
Late / High	12	8.2	105	3,144	68.5	27.5	56.4	16.6

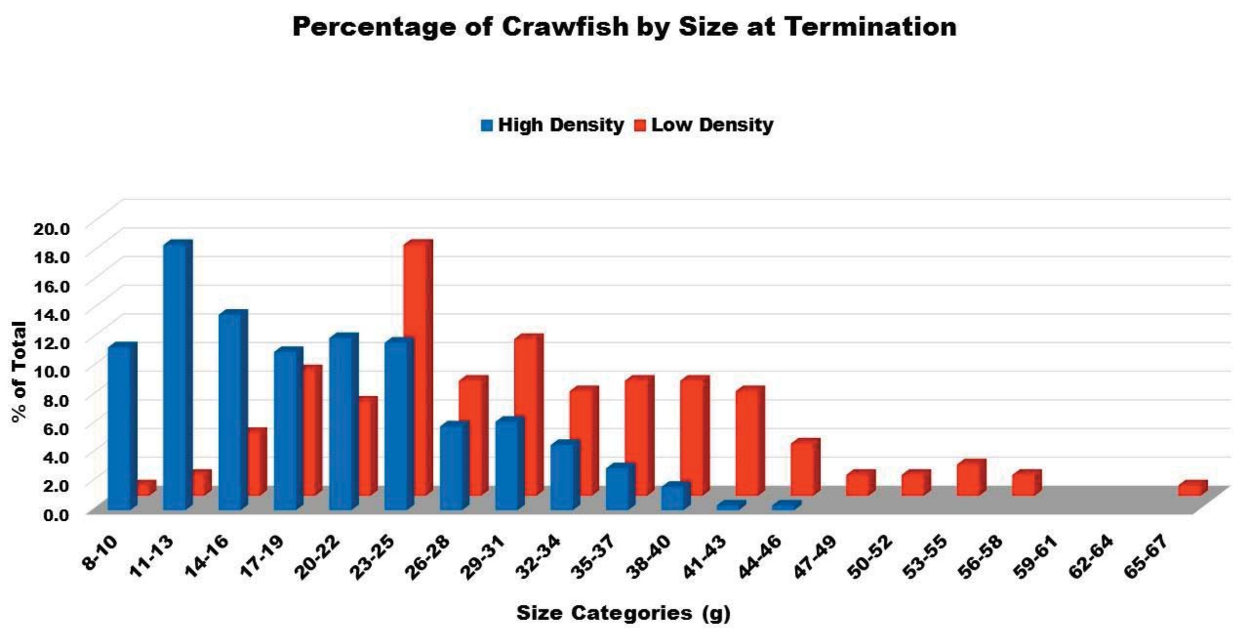


Figure 1. Effects of initial population density (red = 4 and blue = 12 crawfish/m^2) on percentage of crawfish within each weight category at termination of the grow-out study.

FOUNDATION SEED RICE PROGRAM

Richard E. Zaunbrecher

INTRODUCTION

Foundation seed rice has been produced by the LSU AgCenter's H. Rouse Caffey Rice Research Station (HRCRRS) for distribution to Louisiana farmers since 1949. The HRCRRS'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 169,600 cwt. of pedigreed stock of 45 rice varieties.

Concurrent with the distribution of pure seed by the HRCRRS, an industry was developed in Louisiana composed of independent seed dealers through whom farmers could conduct trade in registered and certified classes of pedigreed rice.

Foundation seed rice, the planting stock from which registered and certified seed are produced, is the farmer's link with the work of the plant breeder. It is the product of hybridization and successive generations of selection and testing to establish its value as crop seed and eventually as a commercial commodity. For this reason, foundation seed and the basic stocks from which it is produced must be grown and conditioned in a manner that will ensure that viability is maintained and that it be genetically pure and free from mechanical mixtures or contamination by noxious weeds.

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

To fulfill the objectives of the seed program, the HRCRRS 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 HRCRRS's seed stocks. The nursery also serves as a site for evaluating, purifying, and increasing selections from the HRCRRS's breeding program that show promise as new varieties.

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

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

In this state, the official seed-certifying agency for all crops is the Louisiana Department of Agriculture and Forestry (LDAF). 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 LDAF. 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 HRCRRS 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 before 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 pre-flood application of urea in which the rate of nitrogen (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 harvest. 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 HRCRRS'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 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 also removes 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 HRCRRS'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 strict with regard to varietal mixtures and noxious weeds. Therefore, in all phases of production, great care must be exercised to prevent these impurities from contaminating the seed stocks. It is routine procedure at the HRCRRS 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 use in stubble fields. Therefore, tractors, plows, harrows, and land levelers are carefully washed before they enter fallow land. 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.

2016 ACTIVITIES

Of the 798 cwt. of foundation seed rice sold in 2016, the varieties and quantities were as follows: Cheniere, 453 cwt.; Catahoula, 20 cwt.; Jazzman-2, 68 cwt.; Jupiter, 113 cwt.; Jazzman, 74 cwt.; Della-2, 45 cwt.; and Caffey, 25 cwt.

The HRCRRS's foundation seed crop in 2016 consisted of 8 acres of Cheniere, 1 acre of Jazzman, 1 acre of Jazzman-2, 1 acre of Della-2, 1 acre of Toro-2, and 1 acre of Pirogue.

Headrows of Cheniere, Mermentau, Jazzman, Toro-2, Pirogue, and Della-2 were grown for replenishment of breeder seed stock.

RICE PRODUCTION ECONOMICS RESEARCH IN 2016

M.A. Deliberto and M.E. Salassi

The 2016 projected cost and return rice enterprise budgets were developed in the fall of 2015 for alternative rice production systems in Louisiana. These enterprise budgets are intended to serve as a farm management planning tool. Projected rice enterprise budgets were estimated for six typical rice production systems in the southwestern region of Louisiana as well as two rice production system alternatives in the northeastern region of the state. For southwest Louisiana, rice enterprise budgets were estimated for: (a) conventional variety rice that is water planted, (b) Clearfield variety rice that is water planted, (c) conventional variety rice that is drill planted, (d) Clearfield variety rice that is drill planted, (e) Clearfield hybrid variety rice that is drill planted, and (f) a ratoon rice crop. For northeast Louisiana, rice enterprise budgets were estimated for: (a) conventional variety rice that is drill planted and (b) Clearfield variety rice that is drill planted.

A summary of this enterprise budget analysis for rice production systems in southwest Louisiana is presented in Tables 1-4. The values contained in these tables represent tenant operator net returns above total specified production costs per acre. Direct production costs include expenses for custom farming operation charges, drying, fertilizers, chemicals, labor, fuel, repair, and interest on operating capital. Total specified expenses include the aforementioned direct (variable) production expenses plus fixed costs of ownership on machinery and equipment. The land tenure situation that is reflected in each enterprise table consists of a 70/30 share rental arrangement with the landlord/waterlord financing the irrigation pumping costs. Returns from the rice crop are assumed to be allocated 70% to the producer and 30% to the landlord/waterlord. Net return estimates for the conventional variety drill-planted production system (Table 1) are based on production cost estimates of $486.35 per acre of variable costs and $577.69 per acre for total specified costs. Net return estimates for the Clearfield variety drill-planted production system (Table 2) are based on production cost estimates of $551.72 per acre of variable costs and $641.67 per acre for total specified costs. Net return estimates for the Clearfield hybrid variety drill-planted production system (Table 3) are based on production cost estimates of $606.38 per acre of variable costs and $692.65 per acre for total specified costs. Net return estimates for the ratoon crop production system (Table 4) are based on production cost estimates of $116.96 per acre of variable costs and $139.56 per acre for total specified costs.

To further assist rice producers in planning for the 2016 crop year, the Projected 2016 Rice Cash Flow Model was developed. The interactive model is delivered in the format of a Microsoft Excel spreadsheet that allows individual rice producers to enter projected acreage, yield, market price, and production cost data for 2016 to estimate net returns above variable production costs in order to easily evaluate the potential impacts that a changing percentage of base planted acres would have 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 data entry cells for whole farm fixed expenses to estimate projected return form rice production overall (total) costs. Farm program parameters of the Agricultural Act of 2014 relating to the Price Loss Coverage (PLC) program are included in the model. The projected PLC program payments, if triggered, are included in the return calculations.

Table 1. Estimated Net Returns above Total Specified Costs for a Tenant Operator Rice, Conventional Variety, Drill Planted, Conventional Tillage, Southwest Louisiana, 2016.

		Percent								
		80%	85%	90%	95%	100%	105%	110%	115%	120%
	Yield	Rice Market Price ($/cwt)								
Percent	(cwt.)	$9.60	$10.20	$10.80	$11.40	$12.00	$12.60	$13.20	$13.80	$14.40
		($/acre)								
80%	56.0	-56	-25	-16	5	25	45	65	86	106
85%	59.5	-33	-11	11	32	54	76	98	120	141
90%	63.0	-9	14	37	60	84	107	130	153	177
95%	66.5	14	39	64	88	113	138	162	187	212
100%	70.0	38	64	90	119	142	169	195	221	247
105%	73.5	61	89	116	144	172	199	227	255	282
110%	77.0	85	114	143	172	201	230	259	289	318
115%	80.5	108	139	169	200	231	261	292	322	353
120%	84.0	132	164	196	228	260	292	324	356	388

Net returns above total specified costs for a tenant operator is calculated here as the grower's share of market revenue less total specified costs paid by the grower. Specified costs include charges for direct costs and fixed machinery costs but exclude charges for general farm overhead and management expenses. The land rental arrangement charge represented here is a 30% crop share with the landlord paying variable and fixed irrigation pumping costs.

Table 2. Estimated Net Returns above Total Specified Costs for a Tenant Operator Rice, Clearfield Variety, Drill Planted, Conventional Tillage, Southwest Louisiana, 2016.

		Percent								
		80%	85%	90%	95%	100%	105%	110%	115%	120%
	Yield	Rice Market Price ($/cwt)								
Percent	(cwt.)	$9.60	$10.20	$10.80	$11.40	$12.00	$12.60	$13.20	$13.80	$14.40
		($/acre)								
80%	56.0	-120	-100	-80	-59	-39	-19	1	22	42
85%	59.5	-97	-75	-53	-32	-10	12	34	56	77
90%	63.0	-73	-50	-27	-4	20	43	66	89	113
95%	66.5	-50	-25	0	24	49	74	98	123	148
100%	70.0	-26	0	26	52	78	105	131	157	183
105%	73.5	-3	25	53	80	108	136	163	191	218
110%	77.0	21	50	79	108	137	166	196	225	254
115%	80.5	44	75	105	136	167	197	228	258	289
120%	84.0	68	100	132	164	196	228	260	292	324

Net returns above total specified costs for a tenant operator is calculated here as the grower's share of market revenue less total specified costs paid by the grower. Specified costs include charges for direct costs and fixed machinery costs but exclude charges for general farm overhead and management expenses. The land rental arrangement charge represented here is a 30% crop share with the landlord paying variable and fixed irrigation pumping costs.

Table 3. Estimated Net Returns above Total Specified Costs for a Tenant Operator Rice, Clearfield Hybrid Variety, Drill Planted, Conventional Tillage, Southwest Louisiana, 2016.

		Percent								
		80%	85%	90%	95%	100%	105%	110%	115%	120%
	Yield	Rice Market Price ($/cwt)								
Percent	(cwt.)	$9.60	$10.20	$10.80	$11.40	$12.00	$12.60	$13.20	$13.80	$14.40
		($/acre)								
80%	64.0	-112	-89	-66	-42	-19	4	27	51	74
85%	68.0	-85	-60	-35	-10	14	39	64	89	114
90%	72.0	-58	-32	-5	22	48	75	101	128	154
95%	76.0	-31	-3	25	53	82	110	138	166	195
100%	80.0	-4	25	55	85	115	145	175	205	235
105%	84.0	22	54	86	117	149	181	212	244	275
110%	88.0	49	83	116	149	182	216	249	282	316
115%	92.0	76	111	146	181	216	251	286	321	356
120%	96.0	103	140	176	213	250	286	323	360	396

Net returns above total specified costs for a tenant operator is calculated here as the grower's share of market revenue less total specified costs paid by the grower. Specified costs include charges for direct costs and fixed machinery costs but exclude charges for general farm overhead and management expenses. The land rental arrangement charge represented here is a 30% crop share with the landlord paying variable and fixed irrigation pumping costs.

Table 4. Estimated Net Returns above Total Specified Costs for a Tenant Operator Rice, Ratoon Crop, Southwest Louisiana, 2016.

		Percent								
		80%	85%	90%	95%	100%	105%	110%	115%	120%
	Yield	Rice Market Price ($/cwt)								
Percent	(cwt.)	$9.60	$10.20	$10.80	$11.40	$12.00	$12.60	$13.20	$13.80	$14.40
		($/acre)								
80%	18.4	23	30	37	43	50	57	63	70	77
85%	19.6	31	38	45	53	60	67	74	81	88
90%	20.7	39	46	54	62	69	77	85	92	100
95%	21.9	47	55	63	71	79	87	95	103	112
100%	23.0	54	63	71	80	89	97	106	115	123
105%	24.2	62	71	80	89	98	107	117	126	135
110%	25.3	70	79	89	98	108	118	127	137	146
115%	26.5	77	88	98	108	118	128	138	148	158
120%	27.6	85	96	106	117	127	138	148	159	169

Net returns above total specified costs for a tenant operator is calculated here as the grower's share of market revenue less total specified costs paid by the grower. Specified costs include charges for direct costs and fixed machinery costs but exclude charges for general farm overhead and management expenses. The land rental arrangement charge represented here is a 30% crop share with the landlord paying variable and fixed irrigation pumping costs.

LOUISIANA RICE RESEARCH VERIFICATION PROGRAM - 2016

K.A. Fontenot and D.L. Harrell

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 a total of 10 parishes (Acadia, Allen, Avoyelles, Calcasieu, East Carroll, Evangeline, Jefferson Davis, Madison, Morehouse, St. Landry, and Vermilion). From 1999 to 2015, 128 fields had been included in the verification program. In 2016, the program included five fields (Fig. 1).

The fields were visited on at least a weekly basis by a specialist or county agent to make production practice recommendations. These recommendations included, but were not limited to, fertilization, weed control, disease control, insect control, and water management. Fields were followed from planting to harvest.

Yield data were collected for each of the fields (Table 1). Yields of the first crop averaged 7,657 lb/A 47.2 bbl/A (170 bu/A or) at 12% moisture. Second crop was harvested in Acadia and Cameron parishes, adding another 6,112 lb/A to the total, for a final average of 9,185 lb/A (56.6 bbl/A or 204 bu/A). This is the fourth highest ranked overall yield of the verification program in the 19 years that the program has been carried out.

Economic data revealed large production cost differences between growers. It also is clear that more needs to be done to help farmers reduce production costs (Table 2). Harvest and water costs remain the most elusive expenses to capture and are often underestimated by all parties involved in the verification field.

The program continues to provide an accurate evaluation of current recommendations and insight into other areas of research. The educational value of the program to all concerned (farmers, researchers, consultants, and extension personnel) increases each year.

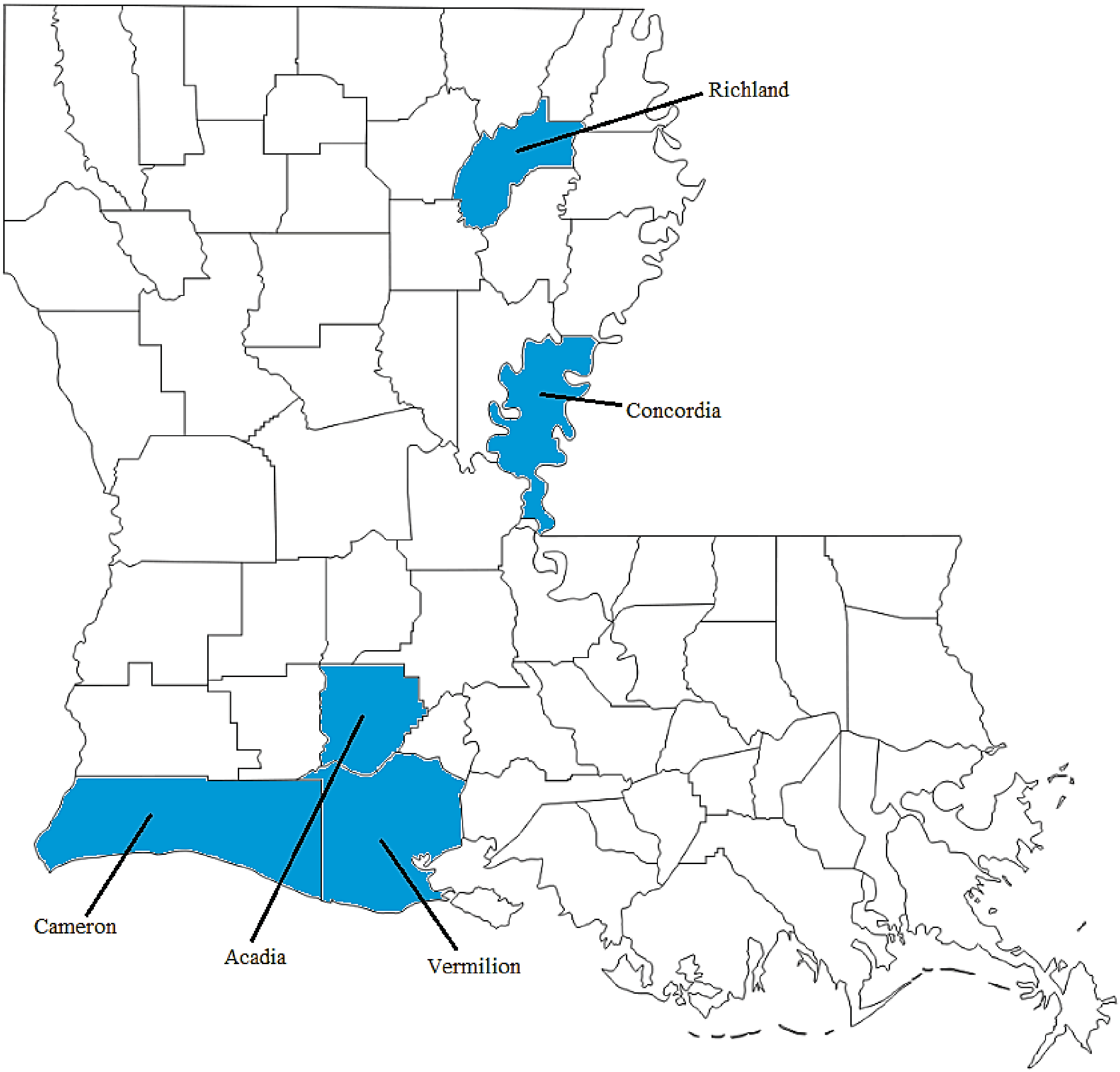


Figure 1. Parishes where the LRRVP were located in 2016.

Table 1. Yields of Verification Fields in 2016.

Parish	Acres	Variety	Cwt/A Green	Bbl/A Green	Bu/A Green	Cwt/A Dry	Bbl/A Dry	Bu/A Dry
Acadia[1]	45.0	XP753	127.6	78.8	283.6	120.4	74.3	267.6
Cameron[1]	25.0	CL111	104.8	64.7	232.8	99.6	61.5	221.4
Concordia[2]	18.0	CLXL745	n/a	n/a	n/a	79.3	48.9	176.0
Richland	24.0	CL111	71.4	44.1	158.0	69.0	42.0	151.0
Vermilion[3]	18.0	Roy J						
Total Acres	112.0							
Average			105.8	65.3	235.2	99.0	61.0	219.9

[1] Yield includes ratoon crop.
[2] Harvested at 11.75% moisture.
[3] Not harvested due to flood.

Table 2. 2016 Louisiana Rice Research Verification Program Yield, Milling, and Economic Summary.

Parish	Variety	Yield at 12% Moisture (cwt/A)	Milling (% Whole / % Total)	Variable Costs ($/A)[2]	Cost of Production ($/cwt)[2]	Return on Variable Costs ($/A)[2,3]
Acadia[1]	XP753	120.4	62.30 / 77.87	$771.68	$6.40	$393.79
Cameron[1]	CL111	99.6	63.01 / 75.64	$715.93	$7.18	$248.19
Concordia	CLXL745	79.3	18.46 / 73.09	$585.32	$7.38	$182.30
Richland	CL111	68.0	60.46 / 75.21	$526.96	$7.63	$131.47
Vermilion[4]	Roy J					

[1] Figure includes ratoon crop yield.
[2] Costs captured are from land preparation to harvest. They do not include land rent, transporting, drying, storing, or fixed costs.
[3] This value was obtained using a selling price of $9.68/cwt for long grain and $9.65/cwt for medium grain.
[4] Not harvested due to flood.

ACADIA PARISH

This 45-acre field was burned down with 2 pt of Roundup Powermax by ground rig on Feb. 15, 2016. After disking and shanking, XP753 treated with Dermacor X-100, Apron, Zinc, and Release was dry broadcast by spreader truck and harrowed in on March 5 at a rate of 20 lb/A. Uneven distribution of seed caused some streaking in the field which was evident from emergence through harvest. After emergence, we assessed stand density and felt that even in the light streaked areas, the stand was good.

Once a stand was established, delayed-flood water management was employed. One day prior to planting, 230 lb of 0-26-26, impregnated with Command at 8 oz/A, was applied. There was a concern for the stand thickness due to the light seeding rate, swath pattern issues, and incidental black bird predation. After an application of 100 lb of ammonium sulfate, the field was flushed. A 1.25-inch rain occurred the next week. After this, an application of 3 qt Propanil, 2 pt Prowl, and 1/3 oz Permit Plus was made. The herbicide application worked well on Indian jointvetch, sedge, ducksalad, and smart weed while also showing some effect on broadleaf signalgrass. A follow up application 20 days later of 3 qt Propanil along with 236 lb of an ammonium sulfate and urea blend fertilizer (38% N) was applied. Permanent flood was then established. The field was topdressed with 100 lb of an ammonium sulfate and urea blend fertilizer (33% N) on May 27.

Growth stages on the field were as follows:

Emergence was called on March 18. It reached internode elongation (green ring) on May 12 and panicle differentiation by May 18. Fifty percent heading was called on June 13.

This field grew exceptionally well all season, even with flooding events on May 2-3, which in some cases caused severe losses in other areas. The ratoon crop was not adversely affected by a second severe flooding event on Aug. 12-13, which wiped out several thousand acres of rice in southwestern Louisiana.

Disease pressure was not evident in the field, and stinkbug numbers were very low throughout the growing season. No late-season fungicide or insecticide treatments were needed or recommended.

The field was drained on July 12 and harvested on July 29. Following harvest, 200 lb of urea was applied for the ratoon crop, and a flood was established. There were no significant issues with the ratoon crop that required any management decisions during the weekly visits to the field.

First crop yield was 8,235 lb or 50.8 dry bbl/A. This was followed by a ratoon crop yield of 3,809 lb or 23.5 dry bbl. Total yield was 12,044 lb/A (74.3 bbl/A or 267.6 bu/A).

ACADIA PARISH

Cooperator: Brent Pousson
Agent: Jeremy Hebert
Consultant: Ruston Gilder
Field Size: 45 Acres

Cultural Practices

Variety: XP753
Method of Planting: Dry Broadcast-Truck
Water Management: Delayed flood
Seeding Rate: 20 lb/A
Date of Planting: March 5
Date of Emergence: March 18

Growth and Development

Stage	Observation Date
Green Ring	May 12
Panicle Differentiation	May 18
50% Heading	June 13
Drain for Harvest	July 12
Harvest	July 29 and Nov. 1

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
First Crop	82.35	62.3 / 77.87	$628.89	$7.63	$168.25
Ratoon Crop	38.09	--	$142.79	$3.74	$225.92
Total Crop	120.44		$771.68	$6.40	$393.79

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $9.68/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)	S (lb/A)
March 4	0-26-26	230	0	60	60	0
March 30	21-0-0-24	100	21	0	0	24
April 27	36-0-0-6.5	236	90	0	0	15.3
May 26	33-0-0	100	33	0	0	0
First Crop	Total		144	60	60	39.3
Aug. 1	30-10-10	201	60	20	20	0
Aug. 25	33-0-0	150	49.5	0	0	0
Ratoon Crop	Total		109.5	20	20	0
Season	Total		253.5	80	80	39.3

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Various - Burndown	Feb. 15	glyphosate
Nutsedge, Barnyardgrass, Dayflower, Indian jointvetch, Fall panicum, and Hemp sesbania	March 5	10 oz Command impregnated on fertilizer
Same as above	April 4	3 qt Propanil + 2 qt Prowl + 3/4 oz Permit Plus
Same as above	April 23	3 qt Propanil

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
N/A		

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	March 5	Dermacor X-100

ACADIA PARISH

Item	Description	Cost/A	Acres	Total
Burndown	2 pt Roundup Powermax	$8.88	45	$399.60
Application Cost - Herbicide	Ground Rig	$9.26	45	$416.70
Fertilizer Pre-Plant	150 lb 0-26-26 + 8 oz Command + Zinc Sulfate	$44.61	22	$981.42
Application Cost - Fertilizer	Spreader ground rig	$5.84	22	$128.48
Fertilizer Pre-Plant	230 lb 0-26-26 + 8 oz Command	$47.64	23	$1,095.72
Application Cost - Fertilizer		$9.56	23	$219.88
Seed and Seed Treatment	RiceTec XL753 + Dermacor X-100 6 oz treatment	$159.66	45	$7,184.70
Planting	Spreader Truck	$6.00	45	$270.00
Fertilizer	100 lb 21-0-0	$14.14	45	$636.30
Application Cost - Fertilizer	Spreader	$7.44	45	$334.80
Herbicide	3 qt propanil + 2 pt Prowl H_2O + 0.33 oz Permit	$36.91	45	$1,660.95
Application Cost - Herbicide		$9.26	45	$416.70
Herbicide	3 qt. propanil + Riceshot	$21.00	45	$945.00
Application Cost - Herbicide		$9.26	45	$416.70
Fertilizer	236 lb 39-0-0	$40.95	45	$1,842.75
Application Cost - Fertilizer		$9.56	45	$430.20
Fertilizer	100 lb 33-0-0	$19.64	45	$883.80
Application Cost - Fertilizer		$7.44	45	$334.80
Fungicide				$0.00
Application Cost - Fungicide				$0.00
Insecticide				$0.00
Application Cost - Insecticide				$0.00
Harvest - Cart with Tractor		$5.04	45	$226.80
Harvest - Combine		$43.50	45	$1,957.50
Water Cost		$113.30	45	$5,098.50
Fuel and Maintenance				$0.00
Power Unit and Gear Head				$0.00
First Crop Totals		$628.89		$25,881.30

Ratoon Crop

Item	Description	Cost/A	Acres	Total
Ratoon Crop Fertilizer and Application	201 lb 30-10-10	$36.03	45	$1,621.35
Ratoon Crop Fertilizer and Application	150 lb 33-0-0	$31.05	45	$1,397.25
Ratoon Fertilizer Application				$0.00
Ratoon Crop Water Cost		$27.62	45	$1,242.90
Ratoon Crop Harvest Cart		$5.04	45	$226.80
Ratoon Crop Harvest Combine		$43.05	45	$1,937.25
Ratoon Crop Totals		$142.79		$6,425.55

Total for First Crop and Ratoon	$771.68		$32,306.85

CAMERON PARISH

The producer wanted to dry plant. However, due to the continuing rain delays, this became one of the two water-planted fields in the 2016 LRRVP. The field was planted on March 21 with Dermacor X-100 and AV-1011-treated CL111 seed at the rate of 75 lb/A. First, the field was lightly leveled, and then seed was flown in. Emergence was called on March 31. Rains continuously affected the timing of management practices of early-season fertilizer and herbicide applications.

Plant population was very good. Early-season weeds present in the field were primarily rush and some scattered broadleaf signalgrass. A few broadleaves, such as alligatorweed, Indian jointvetch, ducksalad, and redweed, were present primarily along levee edges. Early weed control included 5 oz of Newpath followed by fertilizing with zinc sulfate and triple super-phosphate. During this time, the rains kept the field very wet, at times delaying applications. A second 5 oz application of Newpath tank mixed with 0.33 oz of Permit was applied 15 days later. The pre-flood nitrogen application was split and also applied into the flood due to severe flooding of the entire area on May 2-3. The rainy and cloudy conditions persisted affecting tillering growth stages which we believe severely limited yield potential. A final nitrogen application of 100 lb of urea was applied on May 25.

Important growth stages on this field occurred as follows: green ring on May 16, panicle differentiation on May 24, and 50% heading on June 13.

While scouting the field, both sheath blight disease and rice stink bug incidence and severity were noted. Just prior to 50% heading, an application of 16 oz of Trevoprop fungicide was applied due to the increasing presence of sheath blight in the field. One week later, 2 oz of Karate was applied when rice stink bug numbers surpassed economic threshold levels.

The field was drained on July 12, when all panicles in the field were turned down and showed 3/4 tan-colored panicle.

Rain delayed harvest until Aug. 3. First crop yield was 7,684 lb/A (47.2 bbl/A or 170 bu/A) at 12% moisture.

During harvest, a tractor with a brush hog-style mower followed the combine in the field shredding stubble to stimulate ratoon crop production.

On Aug. 10, the field was fertilized with 200 lb of urea which provided 90 lb of nitrogen per acre. The well was then turned on for ratoon crop flooding; however, the well was quickly turned off due to rainfall events which flooded the field.

The ratoon crop was harvested on Nov. 3 and yielded 2,303 lb/A (14.2 bbl/A or 51 bu/A) at 12% moisture. Total yield was 9,963 lb/A (61.4 bbl/A or 221 bu/A) adjusted to 12% moisture.

CAMERON PARISH

Cooperator: Kelly Precht
Agent: Bradley Pousson / Jimmy Meaux
Consultant: Randy Verrett
Field Size: 25 Acres

Cultural Practices

Variety: CL111
Method of Planting: Water Seeded
Water Management: Delayed flood
Seeding Rate: 75 lb/A
Date of Planting: March 21
Date of Emergence: March 28

Growth and Development

Stage*	Observation Date
Green Ring	May 16
Panicle Differentiation	May 24
50% Heading	June 13
Drain for Harvest	July 12
Harvest	Aug. 3 & Nov. 3

* Estimated.

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1,3]	Cost of Production ($/cwt)[1,3]	Return on Variable Costs ($/A)[1,2,3]
First Crop	76.84	63.30 / 79.50	$586.72	$7.63	$157.09
Ratoon Crop	25.03	63.01 / 75.64	$129.21	$5.16	$113.08
Total Crop	101.87		$715.93	$7.02	$248.19

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $9.68/cwt.
[3] Costs and returns for first and ratoon crop combined.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)	S (lb/A)	Zn (lb/A)
March 7	0-18-36	300	0	54	108	0	0
April 12	0-46-0	75	0	46	0	0	0
April 12	Zinc sulfate	15	0	0	0	2.6	5.25
May 8	39-0-0-6.5	115	45	0	0	7.5	0
May 14	39-0-0-6.5	115	45	0	0	7.5	0
May 25	46-0-0	100	46	0	0	0	0
First Crop	Total		136	100	108	17.6	5.25
Aug. 10	46-0-0	200	92	0	0	0	0
Ratoon Crop	Total		92	0	0	0	0
Season	Total		228	100	108	17.6	5.25

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Hemp sesbania, Indian jointvetch, and Barnyardgrass	April 12	5 oz Newpath
Same as above	April 27	5 oz Newpath + 0.33 oz Permit

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Sheath blight	June 13	16 oz Trevoprop + 4.5 oz Tilt

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	Seed treatment	Dermacor X-100
Rice Stink Bug	June 21	2 oz Karate

CAMERON PARISH

Item	Description	Cost/A	Acres	Total
Burndown				$0.00
Application Cost - Herbicide				$0.00
Field Work, Discing Etc.				$0.00
Water Leveling	Water Leveling	$33.01	45	$1,485.45
Ditching	Ditcher	$1.25	45	$56.25
Seed	CL111	$71.60	45	$3,222.00
Seed Treatment (If Separate)	Dermacor X-100	$26.00	45	$1,170.00
Planting	LA Rice Air Plant Service	$7.00	45	$315.00
Fertilizer	15-30-15 @ 300 lb	$75.86	45	$3,413.70
Application Cost - Fertilizer	7.00 cwt/A + GPS 0.35	$21.35	45	$960.75
Herbicide	Clearpath at 0.5 lb/A Newpath 2 oz 1/3 oz Permit	$45.20	45	$2,034.00
Application Cost - Herbicide	5 gal - 6.50 + GPS 0.35 =	$6.85	45	$308.25
Herbicide				$0.00
Application Cost - Herbicide				$0.00
Fertilizer	33-0-16 at 150 lb/A	$31.00	45	$1,395.00
Application Cost - Fertilizer	7.00 cwt/A + GPS 0.35 =	$10.85	45	$488.25
Fertilizer	46-0-0 100 lb	$21.00	45	$945.00
Application Cost - Fertilizer	7.00 cwt/A + GPS 0.35 =	$7.35	45	$330.75
Fungicide	Stratego 19 oz	$26.00	45	$1,170.00
Application Cost - Fungicide	5 gal 6.50 + GPS 0.35	$6.85	45	$308.25
Insecticide				$0.00
Application Cost - Insecticide				$0.00
Harvest - Cart with Tractor		$5.04	45	$226.80
Harvest - Combine		$43.50	45	$1,957.50
Water Cost		$108.05	45	$4,862.25
Fuel and Maintenance				$0.00
Power Unit and Gear Head				$0.00
First Crop Totals		$547.76		$24,649.20

Ratoon Crop

Item	Description	Cost/A	Acres	Total
Ratoon Crop Manipulation				$0.00
Ratoon Crop Fertilizer	46-0-0 200 lb	$42.00	45	$1,890.00
Ratoon Fertilizer Application	7.00 cwt/A + GPS 0.35 =	$14.35	45	$645.75
Ratoon Crop Water Cost		$27.62	45	$1,242.90
Ratoon Crop Harvest Cart		$5.04	45	$226.80
Ratoon Crop Harvest Combine		$43.50	45	$1,957.50
Ratoon Crop Totals		$132.51		$5,962.95

Total for First Crop and Ratoon	$680.27		$30,612.15

CONCORDIA PARISH

The Concordia Parish field operations were delayed as many others were this year due to wet field conditions. Weed burndown was accomplished with 32 oz of Roundup Powermax + 21 oz of 2,4-D. Pre-plant fertilizer consisted of a combination of diammonium phosphate (DAP) and ammonium sulfate applied at a rate of 185 lb/A. The field was drill planted with CLXL745 utilizing NipsIt Inside + 1/2 rate of Dermacor X-100 seed treatment on April 28. Following planting, 21 oz of Roundup Powermax + 2 oz of Sharpen + 21 oz of Command were applied by ground rig. A rain followed by a light flush helped to activate the herbicide application.

Some grasses as well as broadleaf weeds were the primary target species a month later, when an application of 4 oz Newpath + 1/3 oz Permit were applied on May 25. Ten days later the second 4 oz application of Newpath along with 200 lb of urea were applied, and a light flood was established on the field.

The field exhibited good color and growth and reached these different growth stages on the following dates: green ring on June 18, panicle differentiation on June 22, and 50% heading on July 17.

The topdress application of nitrogen, 100 lb of 46-0-0, was applied on June 22. Approximately two weeks later, water levels in the field became very low, and chewed edges and ragged-looking leaf tips were observed. Fall armyworms and grasshoppers were found in the field. Populations were not at high enough levels for treatment. The water levels were up the next week, and water was being added to the field during the field visit.

Though no sheath blight nor blast was detected, an application of 10 oz/A of Fitness fungicide was made just after boot split for protection from kernel smut. Tank mixed with this application was 4 oz of Karate to assist with any remaining armyworms, grasshoppers, and a light rice stink bug population.

Approximately three weeks later, a second application of 2 oz of Karate was applied for rice stink bug control.

The field was drained on Aug. 10 when the rice was straw-colored on 1/2 of the panicle, since this was clay soil and several days of rain was predicted.

Due to prolonged rains delaying the corn harvest on this farm, extremely wet conditions, and other circumstances out of our control, this field was not harvested until Oct. 7.

Yield was 7,933 lb/A (48.9 bbl/A or 176 bu/A) with a harvest field moisture of 11.75% with no adjustment needed for the 12% moisture standard.

CONCORDIA PARISH

Cooperator: Thomas Ater
Agent: Kylie Miller
Consultant: Will Miller
Field Size: 18 Acres

Cultural Practices

Variety: CLXL745
Method of Planting: Drill seeded
Water Management: Delayed flood
Seeding Rate: 22 lb/A
Date of Planting: April 28
Date of Emergence: May 5

Growth and Development

Stage	Observation Date
Green Ring	June 18
Panicle Differentiation	June 22
50% Heading	July 17
Drain for Harvest	Aug. 10
Harvest	Oct. 7

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
First Crop	79.33	18.46 / 73.09	$585.32	$7.37	$182.59

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $9.68/cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)	S (lb/A)	Zn (lb/A)
April 19	15-32-0-6.5-5	185	28	60	0	12	11.3
June 8	46-0-0	200	92	0	0	0	0
June 22	46-0-0	100	46	0	0	0	0
First Crop / Season	Total		166	60	0	12	11.3

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Burndown	March 28	32 oz Roundup Powermax + 21 oz 2,4-D
Various grasses and broadleaves	April 30	21 oz glyphosate + 2 oz Sharpen + 12.8 oz Command
Various	May 25	4 oz Newpath + 1/3 oz Permit
Sprangletop	June 9	4 oz Newpath

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Smut	July 12	10 oz Fitness

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	Seed treatment	NipsIt Inside + 1/2 rate Dermacor X-100
Fall Armyworm and Rice Stink Bug	July 12	4 oz Karate
Rice Stink Bug	Aug. 3	2 oz Karate

CONCORDIA PARISH

Item	Description	Cost/A	Acres	Total
Burndown	21 oz 2,4-D, 32 oz Roundup Powermax	$8.00	18	$144.00
Application Cost - Herbicide	6.00/5 gal/A/air	$6.00	18	$108.00
Herbicide - At Planting	21 oz Roundup Powermax; 2 oz Sharpen-21 oz Command	$29.83	18	$536.94
Application Cost - Herbicide	Ground	$2.50	18	$45.00
Ditching				$0.00
Seed	22.5 lb/A - CLXL745	$140.00	18	$2,520.00
Seed Treatment (If Separate)	NipsIt - $12/A Dermacor X-100 1/2 rate 9.00/A	$21.00	18	$378.00
Planting	Drilled - 40' JD9520	$10.21	18	$183.78
Fertilizer	15-32-0 - 9.45-5.4 Zn 185lb/A	$61.00	18	$1,098.00
Application Cost - Fertilizer	5.00/cwt/A/ground	$9.25	18	$166.50
Herbicide	4 oz Newpath - 1/3 oz of Permit - 1 pt coc	$20.77	18	$373.86
Application Cost - Herbicide	7.50/10 gal/A/air	$7.50	18	$135.00
Herbicide	4 oz Newpath - 1 pt coc	$14.50	18	$261.00
Application Cost - Herbicide	7.50/10 gal/A/air	$7.50	18	$135.00
Fertilizer	200 lb UREA + Arborite	$40.00	18	$720.00
Application Cost - Fertilizer	7.00/cwt./A/air	$14.00	18	$252.00
Fertilizer	100 lb UREA	$20.00	18	$360.00
Application Cost - Fertilizer	7.00/cwt/A/air	$7.00	18	$126.00
Fungicide + Insecticide	Fitness @ 10 oz/A + 4 oz Lambda-C	$8.90	18	$160.20
Application Cost	6.00/A/5 gal/Air	$6.00	18	$108.00
Insecticide	2 oz of Lambda-C	$3.00	18	$54.00
Application Cost	6.00/5 gal/A/Air	$6.00	18	$108.00
Harvest - Cart with Tractor		$5.04	18	$90.72
Harvest - Combine		$43.50	18	$783.00
Water Cost	Water budget costs	$76.72	18	$1,380.96
Fuel and Maintenance				$0.00
Power Unit and Gear Head				$0.00
First Crop Totals		$568.22		$10,227.96

Ratoon Crop

Item	Description	Cost/A	Acres	Total
Ratoon Crop Manipulation				$0.00
Ratoon Crop Fertilizer				$0.00
Ratoon Fertilizer Application				$0.00
Ratoon Crop Water Cost				$0.00
Ratoon Crop Harvest Cart				$0.00
Ratoon Crop Harvest Combine				$0.00
Ratoon Crop Totals				$0.00

Total for First Crop and Ratoon	$568.22		$10,227.96

RICHLAND PARISH

Planting of the Richland field was delayed due to excessive rain and flooded field conditions. These conditions also necessitated an early burndown application utilizing 32 oz of glyphosate tank mixed with 2 oz of Sharpen.

Conditions finally allowed the field to be cultivated and drill seeded on May 20 with CL111 at the rate of 60 lb/A. Seed treatments included CruiserMaxx, Ascend, and gibberellic acid. Twenty-one ounces of Command was applied by ground rig after planting for early-season pre-emergence weed control. Emergence was reached on May 20 with a very even and thick stand. Internode elongation was called on July 6, while panicle differentiation was estimated on July 12. Fifty percent heading was determined to be around Aug. 5, with heading being very even across the field. The field was drained on Aug. 29, and the crop was harvested on Sept. 23.

This field was the most uniform and evenly grown field in this year's verification program. There was very little differentiation in reaching growth stages from one end of the field to the other.

Early-season weed pressure was from Hemp sesbania and barnyardgrass with a few sedges, although the pressure was very light. With these weeds and weather conditions experienced and forecasted, it was decided to apply 5 oz Newpath + 1 qt Facet + 3/4 oz Permit and crop oil for weed control. This was followed with 50 lb of ammonium sulfate + 200 lb urea + 100 lb of DAP along with a light flood.

Armyworms were detected in the field on July 6 and were treated with 2 oz of Karate. Green ring was reached a week later, and 100 lb of urea was applied to the field as a topdress. After this application, the rice greened up well and grew out of the armyworm damage.

Three weeks later, the rice was near boot split, and armyworms were again feeding in the field. Sheath blight was also seen scattered throughout the field but very low on the plants. An application of 19 oz of Stratego + 2 oz of Karate was applied two days later as the first heads emerged. Sheath blight pressure remained low on the plants as well as in density in the field.

Rice stink bugs were found in the field during the late heading and early milk stages of growth. Although population levels remained low, the producer decided to treat approximately two weeks prior to draining the field on Aug. 29.

The field was harvested on Sept. 23. Yield was 7,142 lb/A (44 bbl/A or 158 bu/A) at 16.24% moisture. When adjusted to 12% moisture, the yield was 6,803 lb/A (42 bbl/A or 151 bu/A).

RICHLAND PARISH

Cooperator: Tyler Amos
Agent: Keith Collins
Consultant: N/A
Field Size: 24 Acres

Cultural Practices

Variety: CL111
Method of Planting: Drill seeded
Water Management: Delayed flood
Seeding Rate: 60 lb/A
Date of Planting: May 20
Date of Emergence: June 1

Growth and Development

Stage	Observation Date
Green Ring	July 6
Panicle Differentiation	July 12
50% Heading	Aug. 5
Drain for Harvest	Aug. 29
Harvest	Sept. 23

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
First Crop	68.20	60.46 / 75.21	$526.96	$7.72	$133.21

[1] Costs captured are from land preparation to harvest. They do not include land rent, transportation, drying, storage, or fixed costs.
[2] This value was obtained using a selling price of $9.68 /cwt.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)	S (lb/A)
June 15	21-0-0-24	50	11	0	0	11
June 15	18-46-0	100	18	46	0	0
June 15	46-0-0	200	92	0	0	0
July 6	46-0-0	100	46	0	0	0
First Crop / Season	Total		167	46	0	11

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Various	Prior to planting	32 oz glyphosate + 2 oz Sharpen
Various	May 25 post plant	21 oz Command
Barnyardgrass, Indiand jointvetch, and sedge	June 5	5 oz Newpath + 32 oz Facet + 3/4 oz Permit

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
Sheath blight and Kernel smut	July 28	19 oz Stratego

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	Seed Treatment	CruiserMaxx
Fall Armyworm	June 29	2 oz Karate
Fall Armyworm	July 28	2 oz Karate
Rice Stink Bug	Aug. 24	2 oz Karate

RICHLAND PARISH

Item	Description	Cost/A	Acres	Total
Burndown	Glyphosate 32 oz + Sharpen 2 oz	$16.22	24	$389.28
Application Cost - Herbicide	Aerial	$6.00	24	$144.00
Field Work, Discing, Etc.	Light cultivation	$7.30	24	$175.20
Water Leveling				$0.00
Ditching		$1.25	24	$30.00
Seed	CL111 65 lb/A	$68.25	24	$1,638.00
Seed Treatment (If Separate)	CruiserMaxx + Ascend	$18.00	24	$432.00
Planting	Drill @ 65 lb/A	$10.32	24	$247.68
Fertilizer	50 lb AMS + 100 lb DAP + 200 lb Urea	$58.75	24	$1,410.00
Application Cost - Fertilizer	$0.07 / lb	$24.50	24	$588.00
Herbicide	Command 21 oz/A $24.15	$24.14	24	$579.36
Application Cost - Herbicide	Ground rig, following planting	$3.32	24	$79.68
Herbicide	5 oz Newpath, 32 oz Facet, 3/4 oz Permit + crop oil	$65.87	24	$1,580.88
Application Cost - Herbicide	Aerial	$6.00	24	$144.00
Insecticide	Karate @ 2.5 oz	$8.50	24	$204.00
Application Cost - Insecticide	Aerial	$6.00	24	$144.00
Fertilizer	46-0-0 Urea	$15.00	24	$360.00
Application Cost - Fertilizer	Aerial	$7.00	24	$168.00
Fungicide	Sratego 19 oz + 2 oz Karate (FAW)	$36.48	24	$875.52
Application Cost - Fungicide	Aerial	$6.00	24	$144.00
Insecticide	Karate 2 oz	$6.80	24	$163.20
Application Cost - Insecticide	Aerial	$6.00	24	$144.00
Harvest - Cart with Tractor		$5.04	24	$120.96
Harvest - Combine		$43.50	24	$1,044.00
Water Cost		$76.72	24	$1,841.28
Fuel and Maintenance				$0.00
Power Unit and Gear Head				$0.00
First Crop Totals		$526.96		$12,647.04

Ratoon Crop

Item	Description	Cost/A	Acres	Total
Ratoon Crop Manipulation				$0.00
Ratoon Crop Fertilizer				$0.00
Ratoon Fertilizer Application				$0.00
Ratoon Crop Water Cost				$0.00
Ratoon Crop Harvest Cart				$0.00
Ratoon Crop Harvest Combine				$0.00
Ratoon Crop Totals				$0.00

Total for First Crop and Ratoon	$526.96		$12,647.04

VERMILION PARISH

The variety Roy J was water seeded by air onto an uneven seedbed on April 16. Emergence on the majority of the field was estimated as April 25 with the lower wet spots taking longer to establish and showing a thinner stand in several places. On May 2, severe flooding resulted in more than 4 ft of water on this young rice for several days. When the water did recede, the rice was severely stretched, but the stand was deemed sufficient for producing a crop. After recovering for a week, the recommended phosphorus, ammonium sulfate, and zinc sulfate fertilizer was applied. The stretched rice required special observation and flushing to prevent sticking to the soil. By May 28, the rice was green, upright, and beginning to tiller, although it was still thin in spots. After the field dried, 1.3 oz of Permit was applied to control Hemp sesbania. Two hundred pounds of urea fertilizer was applied along with a light flood which was maintained at a shallow level to prevent further scum formation.

Green ring was reached on June 13. An application of 75 lb of urea was made giving us our goal of 147 lb of nitrogen on the field. Some scarring of leaves by rice water weevil adult feeding was also noted.

Approximately three weeks later near the boot split growth stage, rice stink bug populations increased dramatically. For the next five weeks during heading and later stages, rice stink bug populations were anywhere from 3 to 15 times the economic threshold levels. Since this was a crawfish pond, nothing was recommended for control.

The unevenness of the field between the top and bottom cuts made estimation of all the growth stages difficult on a field-wide basis. Growth stages were estimated on the following dates: emergence was called on April 25, green ring around June 13, panicle differentiation on June 20, and 50% heading on July 15.

No disease was noted in the field from panicle differentiation through grain maturity; therefore, no fungicide application was made.

The decision to drain the field was made on Aug. 8. Unfortunately, during the next week (Aug. 12-13), drastic rainfall and subsequent flooding events occurred across the state of Louisiana. After the Aug. 8 field visit, the field was unreachable for three weeks due to the flooding of parish roads leading to this area. The water was above the panicles of the rice plants for an estimated 14 days.

On Aug. 30, the area was still flooded; however, we managed to assess the damage and end the program on that day. The rice was severely damaged with 95% or more damaged grains due to sprouting, total deterioration of the seed, or blanked grains.

VERMILION PARISH

Cooperator: Adlar Stelly
Agent: Andrew Granger
Consultant: N/A
Field Size: 17 Acres

Cultural Practices

Variety: Roy J
Method of Planting: Water Seeded
Water Management: Delayed Flood
Seeding Rate: 90 lb/A
Date of Planting: April 16
Date of Emergence: April 25

Growth and Development

Stage	Observation Date
Green Ring	June 13
Panicle Differentiation	June 20
50% Heading	July 15
Drain for Harvest	Aug. 8
Harvest	Not Applicable

Yield, Milling, and Economic Data

	Yield at 12% Moisture (cwt/A)	Milling Yield (% Whole / % Total)	Variable Costs ($/A)	Cost of Production ($/cwt)	Return on Variable Costs ($/A)
First Crop[1]	N/A				

[1] Field not harvested due to flooding.

Fertilization

Date	Source	Rate (lb/A)	N (lb/A)	P (lb/A)	K (lb/A)	Zn (lb/A)	S (lb/A)
May 9	0-60-0	130	0	60	0	0	0
May 9	21-0-0-24	100	21	0	0	0	24
May 9	0-0-0-35-17.5	15	0	0	0	5.3	2.6
May 28	46-0-0	200	92	0	0	0	0
June 13	46-0-0	75	34	0	0	0	0
First Crop / Season	Total		147	60	0	5.3	26.6

Weed Management

Weeds Present	Date of Treatment Decision	Recommendation
Hemp sesbania and various grasses	May 28	1.3 oz Permit

Disease Management

Diseases Present	Date of Treatment Decision	Recommendation
N/A		

Insect Management

Insects Present	Date of Treatment Decision	Recommendation
N/A		

VERMILION PARISH

Item	Description	Cost/A	Acres	Total
Burndown	N/A			$0.00
Application Cost - Herbicide				$0.00
Water Leveling				$0.00
Ditching				$0.00
Seed	Roy J @ 90 lb/A	$35.00	17	$595.00
Seed Treatment (If Separate)	N/A			$0.00
Planting	Water Planted by air	$8.00	17	$136.00
Fertilizer	0-60-0 + ammonium sulfate + zinc sulfate	$55.50	17	$943.50
Application Cost - Fertilizer		$10.50	17	$178.50
Herbicide	1.3 oz Permit	$26.00	17	$442.00
Application Cost - Herbicide	Aerial application	$8.00	17	$136.00
Herbicide				$0.00
Application Cost - Herbicide				$0.00
Fertilizer	200 lb Urea	$45.00	17	$765.00
Application Cost - Fertilizer	Aerial application	$10.50	17	$178.50
Fertilizer	75 lb Urea	$16.87	17	$286.79
Application Cost - Fertilizer	Aerial application	$10.50	17	$178.50
Fungicide	N/A			$0.00
Application Cost - Fungicide				$0.00
Harvest - Cart with Tractor	N/A			$0.00
Harvest - Combine	N/A			$0.00
Water Cost	Fuel and maintenance	$75.00	17	$1,275.00
Pump Off Costs From Flooding		$50.00	17	$850.00
First Crop Totals		$350.87	17	$5,964.79

Ratoon Crop

Item	Description	Cost/A	Acres	Total
Ratoon Crop Manipulation				$0.00
Ratoon Crop Fertilizer				$0.00
Ratoon Fertilizer Application				$0.00
Ratoon Crop Water Cost				$0.00
Ratoon Crop Harvest Cart				$0.00
Ratoon Crop Harvest Combine				$0.00
Ratoon Crop Totals				$0.00

Total for First Crop and Ratoon	$350.87		$5,964.79

Table 1. Summary of Management Practices and Economic Data per Acre for 2016 Verification Fields.

Parish	Planting Method	Rice Variety	Planting Date	Water Management	Seed Cost ($/A)	Insecticide Seed Treatment Cost ($/A)	Herbicide Cost ($/A)	Herbicide Application Cost ($/A)
Acadia[1]	Dry Broadcast Ground / Harrow	XP753	March 5	Delayed Flood	145.72	13.94	75.89	37.04
Cameron[1]	Water	CL111	March 21	Delayed Flood	70.00	19.35	45.35	21.05
Concordia	Drill	CLXL745	April 28	Delayed Flood	140.00	21.00	73.10	23.50
Richland	Drill	CL111	May 20	Delayed Flood	68.25	18.00	106.23	15.32
Vermilion	Water	CL111	April 16	Delayed Flood	80.00	N/A	25.35	7.50

[1] Costs include first and ratoon crops. All parish water and harvest costs derived from AgCenter budgets.

Continued.

Table 1. Continued.

Parish	Fertilizer Cost ($/A)	Fertilizer Application Cost ($/A)	Fungicide Cost ($/A)	Fungicide Application Cost ($/A)	Insecticide Cost ($/A)[2]	Insecticide Application Cost ($/A)	Water Cost ($/A)
Acadia[1]	234.11	54.69	N/A	N/A	N/A	N/A	140.92
Cameron[1]	186.74	65.10	20.68	3.42	6.80	3.42	135.67
Concordia	121.00	30.25	8.60	3.00	20.40	9.00	76.72
Richland	73.75	31.50	30.00	6.00	40.10	20.00	76.72
Vermilion	103.06	28.00	N/A	N/A	N/A	N/A	113.30

[1] Costs include first and ratoon crop. All parish water and harvest costs derived from AgCenter budgets.
[2] Does not include insecticide seed treatment.

Continued.

Table 1. Continued.

Parish	Harvest Date	Yield at 12% Moisture[1]			Milling % (% Whole / % Total)	Variable Cost ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Cost ($/A)[1,2]
		lb	bbl	bu				
Acadia[1]	July 29 and Nov. 11	12,040	74.34	267.6	62.3 / 77.87	771.68	6.40	393.79
Cameron[1]	Aug. 3 and Nov. 3	9,960	61.5	221.4	63.0 / 75.64	715.93	7.18	248.19
Concordia	Oct. 7	7,930	48.9	176	18.4 / 73.09	585.32	7.38	182.30
Richland	Sept. 23	6,902	42	151	60.46 / 75.21	526.96	7.63	131.47
Vermilion[3]	N/A							

[1] Costs and yields include first and ratoon crop. All parish water and harvest costs derived from AgCenter budgets.
[2] Value obtained using selling price of $9.68/cwt based on FSA Figures.
[3] Not harvested; crop lost due to flood.

Table 3. Nineteen-Year Louisiana Rice Research Verification Summary.

1998 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	53.0	32.8	118.1	5,314
Avoyelles	32.5	42.9	154.4	6,950
Calcasieu*	60.0	34.1	122.8	5,524
East Carroll	33.9	41.1	148.0	6,658
Evangeline	33.0	42.9	154.4	6,950
Jefferson Davis*	61.8	37.3	134.3	6,043
Madison	36.6	39.0	140.4	6,318
Morehouse	63.0	33.8	121.7	5,476
St. Landry	37.1	38.2	137.5	6,188
Vermilion	16.7	29.4	105.8	4,763
TOTALS	**427.6**	**37.2**	**133.7**	**6,018**

* Yield includes second crop.

1999 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	31.1	37.4	134.6	6,059
Avoyelles	32.5	46.6	167.8	7,549
Calcasieu	49.3	34.6	124.6	5,605
Catahoula	30.4	33.4	120.2	5,411
East Carroll	36.1	47.0	169.2	7,614
Evangeline	22.3	43.1	155.2	6,982
Jefferson Davis*	26.6	30.8	110.9	4,990
Madison	38.1	39.0	140.4	6,318
St. Landry	30.1	38.8	139.7	6,286
Vermilion	23.8	36.5	131.4	5,913
TOTALS	**320.3**	**38.7**	**139.4**	**6,273**

* Yield includes second crop.

Table 3. Continued.

2000 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	53.3	39.4	141.8	6,383
Avoyelles	63.2	36.7	132.1	5,945
Calcasieu	22.1	25.1	90.4	4,066
Catahoula	39.6	36.4	131.0	5,897
East Carroll	45.1	49.1	176.8	7,956
Evangeline	19.9	38.2	137.5	6,188
Jefferson Davis	30.6	26.7	96.1	4,325
Morehouse	27.7	28.3	101.9	4,585
St. Landry	70.7	39.2	141.1	6,350
Vermilion*	21.6	37.7	135.7	6,107
TOTALS	**393.8**	**35.7**	**128.4**	**5,780**

* Yield includes second crop.

2001 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	60.6	50.8	182.9	8,230
Allen	41.6	35.1	126.4	5,686
Avoyelles	63.2	38.1	137.2	6,172
Calcasieu*	61.9	39.4	142.0	6,388
Concordia	79.6	36.1	130.1	5,853
Evangeline*	20.8	52.7	189.7	8,538
Jefferson Davis*	21.6	57.3	206.4	9,289
Richland	65.9	46.0	165.5	7,447
St. Landry*	40.6	51.1	184.0	8,282
Vermilion*	33.3	52.4	188.7	8,493
TOTALS	**489.1**	**45.9**	**165.3**	**7,438**

* Yield includes second crop.

Table 3. Continued.

2002 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	38.4	49.8	179.3	8,068
Allen*	25.1	46.0	165.6	7,452
Avoyelles	37.4	49.9	179.6	8,084
Beauregard*	49.5	53.1	191.2	8,602
Calcasieu*	41.4	42.4	152.6	6,869
Concordia	67.6	48.2	173.5	7,808
Evangeline	42.0	37.6	135.4	6,091
Jefferson Davis*	31.7	45.0	162.0	7,290
Richland	35.8	42.1	151.5	6,819
St. Landry	32.7	48.8	175.7	7,906
Vermilion*	32.0	49.8	179.4	8,072
TOTALS	**433.6**	**46.6**	**167.8**	**7,551**

* Yield includes second crop.

2003 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	57.2	44.0	158.4	7,128
Allen*	35.7	46.1	166.0	7,469
Avoyelles	37.4	50.1	180.4	8,116
Beauregard*	45.7	48.7	175.2	7,884
Concordia	79.5	49.2	177.1	7,970
Evangeline*	48.4	44.5	160.2	7,209
Jefferson Davis*	52.9	28.7	103.3	4,649
Richland	40.2	44.7	160.8	7,234
St. Landry*	32.7	61.1	220.0	9,898
Vermilion*	33.0	40.0	144.0	6,480
TOTALS	**462.7**	**45.7**	**164.5**	**7,404**

* Yield includes second crop.

Table 3. Continued.

2004 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen*	53.2	40.9	147.1	6,620
Avoyelles	33.3	32.8	118.0	5,307
Beauregard*	21.8	42.5	153.3	6,899
Concordia	82.3	36.0	130.0	5,843
East Carroll	54.8	45.8	165.0	7,427
Evangeline	30.7	34.8	125.2	5,638
Jefferson Davis*	42.3	38.5	138.6	6,237
Natchitoches	47.2	44.1	158.8	7,144
St. Landry*	60.1	65.1	234.3	10,543
Vermilion*	30.0	42.1	151.6	6,824
TOTALS	**455.7**	**42.3**	**152.2**	**6,848**

* Yield includes second crop.

2005 Verification Acres and Yields*				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	28.9	39.6	143.8	6,427
Allen	76.7	25.6	92.0	4,140
Avoyelles	32.1	35.9	129.3	5,819
Calcasieu	49.0	51.0	184.0	8,282
Concordia	60.5	43.0	156.0	7,003
East Carroll	30.4	47.9	172.7	7,771
Evangeline	30.0	37.1	133.6	6,014
Jefferson Davis	39.2	32.5	117.0	5,264
Natchitoches	30.0	43.3	156.0	7,022
Richland	47.4	49.2	177.2	7,974
St. Landry	61.7	47.5	170.9	7,689
Vermilion	52.8	40.9	147.3	6,631
TOTALS	**538.7**	**41.1**	**148.3**	**6,670**

* No ratoon crop was harvested in the verification program in 2005.

Table 3. Continued.

2006 Verification Acres and Yields*				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	41.8	43.0	155.0	6,972
Concordia	54.7	50.8	183.0	8,237
East Carroll	60.4	44.5	150.0	7,210
Evangeline	29.4	32.3	116.0	5,227
Jefferson Davis	21.5	43.8	157.8	6,000
St. Landry	40.9	36.8	132.5	5,962
Vermilion	29.6	37.0	133.3	7,100
West Carroll	50.1	53.1	191.2	8,603
TOTALS	**328.4**	**43.4**	**156.4**	**7,040**

* No ratoon crop was harvested in the verification program in 2005.

2007 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	40.9	56.7	204	9,187
Concordia	53.8	53.6	193	8,680
East Carroll	23.0	49.0	176	7,917
Evangeline – St. Landry	33.9	50.1	180	8,122
Jefferson Davis*	38.9	55.8	201	9,046
Vermilion*	36.6	46.0	166	7,451
West Carroll	40.2	45.4	164	7,356
TOTALS	**267.3**	**51.2**	**184**	**8,293**

* Yield includes second crop.

2008 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	40.9	47	170	7,657
Calcasieu*	55.1	51	183	8,247
Concordia	54.7	44	160	7,178
Evangeline	46.4	42	152	6,840
Madison	41.5	51	182	8,208
Jefferson Davis*	37.7	52	189	8,481
St. Landry	60.2	48	173	7,801
Vermilion*	51.1	70	252	11,359
TOTALS	**387.6**	**51**	**183**	**8,228**

* Yield includes second crop.

Table 3. Continued.

2009 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	56.6	70.9	255.3	11,489
Avoyelles	28.6	50.7	182.5	8,214
Calcasieu*	41.7	58.1	209.3	9,418
Concordia	57.0	49.6	178.6	8,035
East Carroll	33.6	41.3	148.7	6,692
Evangeline*	22.5	61.7	222.2	9,999
Madison	29.0	50.4	181.5	8,168
St. Landry	49.4	49.3	177.5	7,987
Vermilion*	41.5	66.9	241.0	10,843
TOTALS	**359.9**	**56.0**	**201.7**	**9,078**

* Yield includes second crop.

2010 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	41.8	49.7	179.0	8,057
Jefferson Davis*	35.8	67.5	243.1	10,941
St. Landry	31.3	44.3	159.4	7,171
TOTALS	**108.9**	**54.0**	**194.4**	**8,750**

* Yield includes second crop.

2011 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen	23.2	48.1	173.3	7,799
Cameron[1]	17.6	57.6	207.4	9,332[1]
Madison	10.5[2]	57.9	208.5	9,382
St. Landry	45.7	42.5	153.1	6,890
Vermilion	24.0	54.0	194.5	8,754
TOTALS	**121.0**	**49.4**	**177.9**	**8,005**

[1] Yield includes second crop.

[2] Yield calculated on 10.5 acres, total field acres 73.4.

Table 3. Continued.

2012 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen	30.7	45.6	164.2	7,391
Cameron[1]	35.7	42.3	152.4	6,858
Concordia	37.4	45.2	162.7	7,321
St. Landry[1]	44.1	64.9	233.6	10,510
Vermilion	16.5	44.1	158.6	7,137
TOTALS	**164.4**	**49.8**	**179.3**	**8,071**

[1] Yield includes second crop.

2013 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Evangeline	38.0	51.7	186.0	8,368
Jefferson Davis[1]	39.3	65.1	234.2	10,541
St. Landry[1]	52.4	75.2	270.7	12,183
Vermilion	17.3	36.4	131.1	5,898
West Carroll	34.5	65.3	235.2	10,582
TOTALS	**181.5**	**62.5**	**225.0**	**10,125**

[1] Yield includes second crop.

2014 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Concordia	23.0	48.5	174.8	7,865
Evangeline	20.7	46.2	166.3	7,483
Jefferson Davis[1]	42.6	83.8	301.6	13,574
Vermilion[1]				
West Carroll	32.2	51.4	185.1	8,329
TOTALS	**118.5**			**9,931**

[1] Yield includes second crop.

Table 3. Continued.

2015 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia[1]	40.5	85.5	308	13,867
Cameron[1]	45	65	233	10,522
Concordia	18	52	189	8,487
Vermilion	39.2	40	145	6,529
West Carroll	36.5	56	202	9,089
TOTALS	**179.2**	**61**	**219.9**	**9,908**

[1] Yield includes second crop.

2016 Verification Acres and Yields				
		Yield at 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia[1]	45	74.34	267.6	12,040
Cameron[1]	25	61.5	221.4	9,960
Concordia	18	48.9	176	7,930
Richland	24	42	151	6,902
Vermilion[2]	18	--	--	--
TOTALS[3]	**112**	**60.4**	**217**	**9,814**

[1] Yield includes second crop.
[2] Not harvested due to flood.
[3] Harvested acres only.

1998 – 2016 Louisiana Rice Research Verification Yield Summary

Verification Totals			Verification Parish Totals		
Year	**Acres**	**Pounds/A**	**Acres**	**Pounds/A**	**Difference**
1998	427.6	6,018	475,103	5,052	966
1999	320.3	6,273	444,015	5,502	771
2000	393.8	5,780	385,824	5,620	160
2001	489.1	7,438	412,286	5,794	1,644
2002	433.6	7,551	412,630	5,764	1,787
2003	462.7	7,404	327,843	5,843	1,561
2004	455.7	6,848	311,606	5,582	1,266
2005	538.7	6,670	402,759	6,165	505
2006	328.4	7,040	185,249	5,644	1,396
2007	267.3	8,293	183,357	6,501	1,792
2008	387.6	8,228	258,845	6,047	2,181
2009	359.9	9,078	246,793	6,715	2,363
2010	108.9	8,750	125,856	6,488	2,262
2011	121.0	8,005	110,236	6,175	1,830
2012	164.4	8,071	109,823	6,043	2,028
2013	181.5	10,125	202,366	7,524	2,602
2014	118.5	9,931	194,761	7,541	2,390
2015	179.2	9,908	149,888	6,860	3,048
2016	112.0	9,814	160,772	6,630	3,184
Totals	**5,850.2**		**48,100,512**		

STATION PERSONNEL

Steven D. Linscombe, Professor	**Regional Director/Resident Coordinator**
Valerie B. Dartez	Administrative Coordinator III
Kimberly G. Guidry	Accounting Specialist I
Carol D. LeDoux	Administrative Program Specialist-A
Donna L. Sonnier	Custodian I
Adam N. Famoso, Assistant Professor	**Rice Breeding**
Christopher K. Addison[1]	Graduate Assistant
Jacob A. Matson[2]	Graduate Assistant
Donald E. Groth, Professor/Research Coordinator	**Rice Pathology**
Carl W. Dischler	Research Associate/Specialist
Laura L. Monte	Research Farm Specialist I
Dustin L. Harrell, Associate Professor	**Rice Agronomy/Rotational Crops/Extension**
Jacob S. Fluitt	Research Associate/Specialist
Keith A. Fontenot[3]	Extension Associate
Jason R. Hartman[4]	Research Farm Assistant II
James P. Leonards	Research Associate/Specialist
Nutifafa Adotey[5]	Graduate Assistant
Jifeng Li[6]	Graduate Assistant
Manoch Kongchum, Assistant Professor-Research	**Rice Agronomy/Rotational Crops**
William J. Leonards, Jr., Research Associate/Coordinator/Manager	**Farm Management**
Brent W. Theunissen	Research Associate/Coordinator/Manager
Nathan T. Breaux	Research Farm Specialist I
Brian D. Broussard	Research Farm Supervisor
Paul A. Miller	Research Farm Specialist I
Jimmy D. Pellerin	Research Farm Specialist II
Ronald J. Pellerin[7]	Research Farm Manager I
Thomas J. Reed	Research Farm Specialist II
Steven D. Linscombe, Professor	**Rice Breeding**
Karen F. Bearb	Research Associate/Coordinator
Corey A. Conner[8]	Research Associate/Specialist
Raymond R. Dilly, Jr.	Research Associate/Specialist
Brandon J. Frey	Research Farm Specialist II
Gavin J. Guidry[9]	Research Associate/Specialist
Brent W. Theunissen	Research Associate/Coordinator/Manager

[1] Appointed 11/01/2016
[2] Appointed 08/15/2016; Separated 12/19/2016
[3] Appointed 01/01/2016
[4] Appointed 03/14/2016
[5] Graduated December 2016
[6] Graduated May 2016
[7] Retired 06/30/2016
[8] Appointed 11/01/2016
[9] Appointed 01/01/2016

STATION PERSONNEL
(Continued)

Mona M. Meche, Research Associate/Coordinator--------------------------Rice Anther Culture/Tissue Culture
Jennifer D. Dartez — Research Farm Specialist I

W. Ray McClain, Professor --- Aquaculture
John J. Sonnier — Research Farm Specialist II

James H. Oard, Professor -- Rice Hybrid Breeding
Troy C. Barrilleaux[10] — Research Associate/Specialist
Elle M. Cooper[11] — Research Farm Specialist I
Lazo N. Pavich — Research Associate/Specialist
Brady L. Williams[12] — Research Farm Specialist I
Jose R. Camacho Montero — Graduate Assistant
Christian T. De Guzman[13] — Graduate Assistant
Manuel Q. Esquerra — Graduate Assistant
Dominique C.A. Galam — Graduate Assistant
Federico Molina Casella — Graduate Assistant
Paola Mosquera[14] — Graduate Assistant
Democrito Banay Rebong II[15] — Graduate Assistant

Glenn J. Schexnayder, Research Farm Maintenance Manager ----------------------- Maintenance Department
Ted R. Trahan — Maintenance Repairer II

Michael J. Stout, Professor (Baton Rouge)---Rice Entomology
Marty J. Frey — Research Associate/Specialist

Herry S. Utomo, Associate Professor------------------------------Marker-Assisted Selection Breeding/Biotechnology
Lauren E. Ingalls — Research Farm Specialist I
Gretchen M. Zaunbrecher — Research Associate/Specialist

Ida Wenefrida, Assistant Professor-Research--- Biotechnology

Richard E. Zaunbrecher, Research Associate/Coordinator ---------------------------------------Foundation Seed Rice

[10] Separated 03/05/2016
[11] Separated 02/12/2016
[12] Appointed 06/06/2016
[13] Graduated May 2016
[14] Appointed 08/22/2016
[15] Appointed 05/31/2016

LSU AGCENTER CAMPUS PERSONNEL

LSU AgCenter personnel conducting research at the H. Rouse Caffey Rice Research Station include the following:

Michael A. Deliberto, Assistant Professor for Research---Economics
Department of Agricultural Economics and Agribusiness

Jong Hyun Ham, Associate Professor-- Rice Diseases
Department of Plant Pathology and Crop Physiology

Inderjit K. Barphagha	Research Associate
Bishnu K. Shrestha[16]	Research Associate

Michael E. Salassi, Professor--Economics
Department of Agricultural Economics and Agribusiness

Michael J. Stout, Professor---Rice Entomology
Department of Entomology

Marty J. Frey (HRCRRS)	Research Associate/Specialist
Lina Bernaola Alvarado	Graduate Assistant
Emily C. Kraus	Graduate Assistant
Maisarah Mohamad Saad	Graduate Assistant
James M.P. Villegas	Graduate Assistant

Eric P. Webster, Professor -- Rice Weed Control
School of Plant, Environmental and Soil Sciences

Gustavo Telo[17]	Postdoctoral Researcher
Benjamin M. McKnight	Research Associate
Eric A. Bergeron	Graduate Assistant
Samer Y. Rustom, Jr.	Graduate Assistant

---
[16] Graduated December 2016
[17] Appointed 07/18/2016

COOPERATING PERSONNEL

Cooperating personnel on research projects at the H. Rouse Caffey Rice Research Station include the following:

Lucas Aviles ---------- **Rice Breeding**
University of Puerto Rico Research and Extension Center
Lajas, Puerto Rico

Niranjan Baisakh ---------- **Rice Breeding**
School of Plant, Environmental and Soil Sciences
Louisiana State University Agricultural Center

Steve A. Harrison ---------- **Wheat, Oats, and Coastal Erosion Control**
School of Plant, Environmental and Soil Sciences
Louisiana State University Agricultural Center

Clayton A. Hollier ---------- **Soybean and Rice Disease Control**
Department of Plant Pathology and Crop Physiology
Louisiana State University Agricultural Center

Ronald J. Levy ---------- **Soybeans**
Dean Lee Research and Extension Center
Louisiana State University Agricultural Center

Cullen Minter ---------- **Aquaculture**
RiceTec, Inc.
Lake Charles, Louisiana

Anthony Rivera ---------- **Rice Breeding**
University of Puerto Rico Research & Extension Center
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Aaron P. Smith ---------- **Rice Breeding**
Department of Biological Sciences
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Prasanta K. Subudhi ---------- **Rice Breeding**
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Brenda Tubaña ---------- **Rice Fertilization**
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E. Allen Wilson ---------- **Bird Control**
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Crowley, Louisiana

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