Table of Contents

98th Annual Research Report

Rice Research Station

LSU AgCenter Research & Extension

www.lsuagcenter.com

Crowley, Louisiana

2006

98th Annual Research Report

RICE RESEARCH STATION

Crowley, Louisiana

2 0 0 6

Louisiana State University Agricultural Center
William B. Richardson, Chancellor

Louisiana Agricultural Experiment Station
David J. Boethel, Vice Chancellor and Director

Louisiana Cooperative Extension Service
Paul D. Coreil, Vice Chancellor and Director

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

Visit our Web site: www.lsuagcenter.com

The LSU AgCenter provides equal opportunities in programs and employment.

TABLE OF CONTENTS

	Page
INTRODUCTION	**1**
MONTHLY RAINFALL DATA	**2**
RICE BREEDING	**3-88**
Genetic Improvement of Rice for Louisiana Production	3-44
Introduction	3
Cooperative Uniform Regional Rice Nursery (URN)	4-11
Commercial-Advanced Tests	12-23
Preliminary Yield Tests	24-36
Clearfield Experimental Lines	37-44
Medium-Grain Rice Breeding	45-50
Development of Improved Long-Grain and Special Purpose Rice Varieties for Louisiana	51-61
Pedigrees of Anther Culture (AC)-Related Crosses	62-78
Rice Genetics and Germplasm Development	79-81
Marker-Assisted Breeding: Incorporation of DNA Markers to Develop Improved Breeding Lines	82-85
Mutation Induction in Rice – Development of High-Protein Rice	86-88
RICE AGRONOMY	**89-214**
Introduction	89-91
Rice Nutrition Experiments	92-151
Introduction	92-93
Rice Variety by Nitrogen Validation Experiments at the Rice Research Station	94-101
Rice Variety by Nitrogen Validation Experiments at Vermilion Parish	102-106
Rice Variety by Nitrogen Validation Experiments at Richland Parish	107-113
Medium-Grain Rice Response to Preflood Nitrogen Rates	114-115
Nitrogen Rate Validation in a Water-Seeded Cultural System	116-119
Nitrogen Sources and Application Timings 2	120-121
Economic Agrotain Comparison 2	122-123
Rice Variety and Hybrid Response to Nitrogen at Different Application Timings	124-126
Comparison of Urea, Agrotain-Treated Urea, and Nitamin as Nitrogen Sources in Rice	127-128
Ratoon Response of Rice Varieties and Hybrids to Nitrogen Fertilizer Rates	129-131
Ratoon Response to Nitrogen Fertilizer Application Timings	132-133
Ratoon Response to Phosphorus and Potassium Fertilization	134-135
Stand Establishment Study	136-138
Rice Response to Humic Acid—Low Fertility	139-141
Loveland Products Study	142-143
RiceTec Hybrid Nitrogen Validation Studies (Rice Research Station)	144-147
RiceTec Hybrid Nitrogen Validation Studies (Richland Parish)	148-151

Page

Cultural Management Experiments 152-214

Introduction 152-153
Rice Response to Seeding and Nitrogen Rates 2.1 (Rice Research Station) 154-158
Rice Response to Seeding and Nitrogen Rates 2.2 (Morehouse Parish) 159-163
Rice Response to Seeding Rate and Early-Season Nitrogen Fertilizer 2.1 (Rice Research Station) 164-166
Rice Response to Seeding Rate and Early-Season Nitrogen Fertilizer 2.2 (Morehouse Parish) 167-169
Seeding Rates in a Drill-Seeded Cultural System 2 170-171
Seeding Rates in a Water-Seeded Cultural System 2 172-173
Glyphosate Burndown Combinations for Rice 2 174-176
Valor Burndown Application Timings 2 177-178
Rice Tolerance to Grasp Herbicide 2.1 (Rice Research Station) 179-181
Rice Tolerance to Grasp Herbicide 2.2 (Morehouse Parish) 182-184
Ratoon Response of Rice Varieties to Main-Crop Stubble Manipulation 185-186
Ratoon Response of Rice Hybrids to Main-Crop Stubble Manipulation 187-188
Ratoon Rice Weed Management 189-190
Ratoon Response to Planting Method and Main-Crop Cutting Height 191-192
Hybrid Yield Comparison (Rice Research Station) 193-194
Hybrid Yield Comparison (Vermilion Parish) 195-196
Hybrid Yield Comparison (Evangeline Parish) 197-198
Hybrid Yield Comparison (Morehouse Parish) 199-200
Hybrid Yield Comparison (Richland Parish) 201-202
Rice-Based Cropping Systems in a No-Till Production System 2: Rice-Rice 203
Rice-Based Cropping Systems in a No-Till Production System 2: Rice-Sorghum 204
Rice-Based Cropping Systems in a No-Till Production System 2: Rice-Soybean 205-208
Rice-Based Cropping Systems in a Conventional Tillage Production System 2: Rice-Rice 209
Rice-Based Cropping Systems in a Conventional Tillage Production System 2: Rice-Sorghum 210
Rice-Based Cropping Systems in a Conventional Tillage Production System 2: Rice-Soybean 211-214

FOUNDATION SEED RICE PROGRAM **215-217**

RICE PHYSIOLOGY **218-277**

Introduction 218

North Unit General Methodology 219

Seedling Vigor Studies – Seed Treatment 220-231

Valent BioSciences Corporation Experimental Seed Treatments and Seedling Vigor in Drill-Seeded Rice – March Planting Date 220-222
Valent BioSciences Corporation Experimental Seed Treatments and Seedling Vigor in Drill-Seeded Rice – April Planting Date 223-225
Loveland Experimental Seed Treatments and Seedling Vigor in Drill-Seeded Rice – April Planting Date 226-228
Stoller Enterprises Inc. Experimental Seed Treatments and Seedling Vigor in Drill-Seeded Rice – April Planting Date 229-231

Page

Seedling Vigor Studies – Seed and Foliar Treatment 232-250

Gibberellic Acid and Seedling Vigor in Drill-Seeded Rice – March Planting Date 232-240
Gibberellic Acid and Seedling Vigor in Drill-Seeded Rice – April Planting Date 241-250

Yield Enhancement Studies – First Crop 251-255

Anti-ethylene Plant Growth Regulator and Crop Production in Drill-Seeded Rice 251-252
Prestige and Crop Production in Drill-Seeded Rice 253
Cutting Height and Crop Production in Drill-Seeded Rice 254
Auxin and Crop Production in Drill-Seeded Rice 255

South Unit General Methodology 256

Yield Enhancement Studies – First and Second Crop 257-264

Early- and Late-Season Plant Growth Regulator Treatments and Crop Production in Drill-Seeded Rice 257-258
Post-Heading Timing of N-Large Premier and Crop Production in Drill-Seeded Rice 259-260
Post Boot Timing of RyzUp and Crop Production in Drill-Seeded Rice 261-262
Growth Suppressants, Growth Stimulants, and Crop Production in Drill-Seeded Rice 263-264

Yield Enhancement Studies – Second Crop 265-272

First Crop Cutting Height and Second Crop Production in Drill-Seeded Rice 265-271
AFxRD-038 and Second Crop Production in Drill-Seeded Rice 272

No/Minimum Tillage Studies 273-277

Roundup WEATHERMAX, N-Large Premier, and Weed Control 273-274
Roundup WEATHERMAX, ReZist, Weed Control, and Crop Production in Drill-Seeded Rice 275-277

AQUACULTURE RESEARCH **278-303**

Annual Summary of Environmental Conditions and Crawfish Production 278-280
Effects of Trap Density on Crawfish Yield in a Rice-Crawfish Field Rotational Management System 281-284
Winter Burrow Excavations and Subsequent Reproduction in the Laboratory 285-287
Summer Burrow Excavations and Effects of Various Factors on Reproduction in the Laboratory 288-294
Comparisons of Spawning Attributes between Winter and Summer Collections of Crawfish 295-296
Evaluation of a Novel Approach to Estimate Annual Crawfish Yield 297-299
Effects of Cold Shock on Crawfish Hatchlings 300-301
A Preliminary Investigation of the Toxicity of an Experimental Rice Insecticide to Crawfish 302-303

Page

RICE DISEASE CONTROL STUDIES, 2006 304-344

Introduction 304-305
2006 Varietal and URN Disease Resistance Evaluation 306-314
2006 Sheath Blight Rice CAPS Trial 315
2006 Sheath Blight Fungicide Trial 316-317
2006 Variety by Fungicide Trial 318-319
2006 Narrow Brown Leaf Spot Fungicide Trial 320-321
2006 Blast Flood Management Trial 322-325
2006 Lake Arthur Fungicide Trial 326-327
2006 Jeff Davis Fungicide Trial 328-329
Disease Resistance and Management in Rice 330-342
PCR Detection of the Rice Bacterial Panicle Blight Pathogens, *Burkholderia glumae* and *B. gladioli* 343-344

RICE PRODUCTION ECONOMICS RESEARCH 345-347

RICE INSECTS RESEARCH 348-355

Rice Insecticide Trial: Comparison of Foliar and Granular Insecticides Against the Rice Water Weevil in a Drill-Seeded Trial 348-349
Rice Insecticide Trial: Comparison of Pyrethroids against the Rice Water Weevil in a Late-Season, Drill-Seeded Trial 350-351
Rice Insecticide Trial 1: Comparison of Insecticidal Seed Treatments in a Drill-Seeded Trial ... 352-353
Rice Insecticide Trial 2: Comparison of Insecticidal Seed Treatments in a Drill-Seeded Trial ... 354-355

COASTAL EROSION CONTROL RESEARCH 356-358

Rice Research Station Coastal Plant Project: Plant Development, Culture, and Seed Production 356-358

LOUISIANA RICE RESEARCH VERIFICATION PROGRAM 2006 359-382

RICE WEED CONTROL 383-384

STATION PERSONNEL 385-386

COOPERATING PERSONNEL 387-388

INTRODUCTION

Research at the Rice Research Station, Crowley, Louisiana, is conducted by scientists with the LSU AgCenter's Louisiana Agricultural Experiment Station. The 2006 rice research program included breeding, biotechnology, variety testing, fertilization, soil and water management, cultural practices, weed control, insect control, disease investigations, rice drying, bird control in rice, and physiology studies. 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. Although most research work was performed by members of the Rice Station faculty, several staff members from Baton Rouge conducted research at this station.

The research activities of this station include both fundamental and applied research, although the latter predominates because of the mission of the Rice Research Station. Research accomplishments and general progress of the Rice Station during 2006 are presented in this report representing the 98th Annual Research Report of the Rice Research Station, Louisiana Agricultural Experiment Station, LSU Agricultural Center.

In addition to research responsibilities of the Rice Research Station staff and cooperators, a large number of farmers, extension personnel, and others were trained and otherwise contacted during 2006. Approximately 450 people attended the annual Rice Research Station field day to view plots and participate in discussions of research findings. Field days also were conducted in Evangeline, Jeff Davis, Richland, and Vermilion parishes. In addition, the staff participated in industry meetings, both on and off the station, and worked individually with farmers and others in solving immediate problems. Several thousand people received services from the Rice Research Station during 2006.

Projects at this station are conducted under the supervision of research scientists from the Rice Research Station and also by cooperating personnel from certain departments of the Louisiana Agricultural Experiment Station. Following the reports, station personnel and cooperators in 2006 are listed.

MONTHLY RAINFALL DATA
RICE RESEARCH STATION - CROWLEY, LA
2006

DATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR TOTAL
1								.01				.09	
2		2.89						.04			.06		
3		.03					.65	.07					
4							.06						
5					.46		.76						
6					1.44		.02						
7					.46	.58	.42	.05			.51		
8				.09	.02			.47					
9				.01					.02				
10			.30				.09		.79				
11	.02	1.08					1.51		.02	.18			
12							.03		.99			1.21	
13	.25							.02		.10			
14							.09				.20		
15					.09		.07				.14		
16						.02				1.31			
17	1.40					.97	.89	.58		1.84			
18	.01	.14				.02	.51		.17	.02			
19									.35	2.09			
20		.01				.13	.01			.82		.01	
21			.32			.55	.31					.06	
22		.11		.18		.05			.52	2.40		1.10	
23	.40							1.79	.01				
24							.12		.78				
25		.07					.55	.93	.01			.80	
26		.50		1.36			.25	.11		.01		.01	
27				.15			.50	.78		2.61			
28								.02		.02		.01	
29	.63		.06		.30						.01		
30				3.04	.03		.04	.11			1.03	2.89	
31												.49	
MONTH TOTAL	2.71	4.83	0.68	4.83	2.80	2.32	6.88	4.98	3.66	11.40	1.95	6.67	53.71
2005	2.65	7.87	2.32	2.82	4.36	5.58	4.14	2.55	10.10	0.09	3.28	5.08	50.84

RICE BREEDING

GENETIC IMPROVEMENT OF RICE FOR LOUISIANA PRODUCTION[1]

S.D. Linscombe, X.Y. Sha, S.B. Blanche, K.F. Bearb, C.A. Conner, B.W. Theunissen,
S.J. Theunissen, G. E. Anderson, B.J. Henry, H.L. Hoffpauir, X. Jin,

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. The project is also placing major emphasis on the development of specialty purpose types.

In addition to the primary objective of varietal development, the Breeding Project also conducts other research that may have direct and/or indirect contributions on varietal development. Included here are studies on milling quality, mutation breeding, date of planting, incorporation of herbicide resistance into rice varieties for use in red rice control programs, and development of lines for crawfish forage production.

The 2006 rice breeding nursery included 97,500 breeding rows, 652 F_1 transplant populations, and 401 space planted F_2 populations. About 675 new crosses were made. On- and off-station testing included over 4,500 yield plots. Yield testing included the Cooperative Uniform Regional Rice Nursery, which contained 200 experimental lines and checks (50 Louisiana entries). The commercial-advanced test was conducted at the Rice Research Station and six off-station locations.

The preliminary yield testing program evaluated 725 lines (mainly of F_5 and F_6 generation), most for the first time. In addition to yield testing, these lines were also evaluated for seedling vigor, milling characteristics, quality parameters, and numerous other agronomic characteristics.

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

COOPERATIVE UNIFORM REGIONAL RICE NURSERY (URN)

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 in the URN tests are exposed to different environments over a wide, diverse growing region and allow researchers to evaluate their adaptation in a single year.

The 2006 URN test included 200 experimental lines and varieties planted in six states. A randomized complete block design was applied, with three replications for groups 1 to 4 and two replications for groups 5 to 7. Seeding rates were 90 lb/A for varieties and 38 lb/A for hybrids.

The 2006 URN results from the Rice Research Station (Crowley, Louisiana) test will be reported. All plots were drill-seeded on March 8 and harvested on August 1. Tests were conducted using standard agronomic practices (except that no fungicide was applied). Tables 1 to 7 show grain and milling yield and agronomic performance (seedling vigor, days to 50% heading, plant height, and lodging percentage) of entries in the 2006 URN nursery at the Rice Research Station.

Table 1. Grain and milling yields and agronomic performance of entries in the 2006 Uniform Regional Rice Nursery, Group 1, Crowley, LA.

Entry	RU#	Pedigree	Grain Type†	Vigor‡	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Lodging (%)	Milling Yield (%)	
									Whole	Total
013	RU0601013	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS	L	4	78	36	10374		63.1	70.5
011	RU0502022	CPRS/KBNT//9502008-A	L	4	78	34	10210		60.1	67.9
014	RU0404154	8603006/3/MARS/NWRX//TBNT	L	4	76	36	9856		61.2	68.4
007	RU0401087	NWBT/3/LBNT/9902//LBLE/4/LGRU	L	4	80	38	9519		61.9	71.2
001	RU0301081	NWBT/3/LBNT/9902//LBLE/4/DREW	L	4	85	45	9413		63.9	70.1
016	RU0404033	CPRS/3/L201//TBNT/BLMT	L	5	78	32	9179		61.4	70.1
020	CYBT	CYBONNET	L	4	79	35	9074		62.8	69.4
018	RU0202008	TRENASSE	L	4	72	37	9071	13	59.2	67.0
019	RU9903092	PRESIDIO	L	4	78	37	9044		66.1	70.4
010	RU0601010	DREW/UA99-52	L	5	78	36	8946		54.1	65.5
008	RU0502103	9502008-A//AR 1142/MBLE	L	4	80	34	8667	7	59.2	69.0
012	RU0503012	((NWBT/RU8303181)/RSMT))TX7129/CCDR	L	5	79	38	8621		62.3	70.9
005	RU0502168	LGRU/LCSN	L	4	77	35	8549		61.3	69.8
006	RU0506006	((NWBT/RU8303181)/RSMT))TX7129/CCDR	L	5	80	39	8538	13	62.6	68.9
003	RU0503003	((NWBT/RU8303181)/RSMT))TX7129/CCDR	L	5	80	38	8507	10	60.9	70.1
009	RU0503009	((NWBT/RU8303181)/RSMT))TX7129/CCDR	L	5	77	32	8495		59.4	68.6
017	RU0101093	SPRING	L	3	72	38	8447		60.7	68.4
002	RU0402097	9502008-A//AR 1188/CCDR	L	4	78	34	8331		60.7	67.7
004	RU0601004	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/CPRS	L	4	77	34	8166		60.2	70.9
015	RU0404100	TBNT/LA110//LMNT/3/TBNT	L	6	80	32	8089		61.4	70.3
c.v. %			-	10.9	1.0	4.2	6.1	-	3.1	1.5
$LSD_{0.05}$			-	0.8	1.3	2.5	901	-	4.0	2.2

† L = Long grain; M = Medium grain.

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

Table 2. Grain and milling yields and agronomic performance of entries in the 2006 Uniform Regional Rice Nursery, Group 2, Crowley, LA.

Entry	RU#	Pedigree	Grain Type†	Vigor‡	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Lodging (%)	Milling Yield (%)	
									Whole	Total
028	RU0402028	BNGL//MERC/RICO/3/MERC/…	M	3	83	35	11250		64.4	70.1
037	RU0202183	JUPITER	M	4	82	37	10799	57	61.3	65.9
031	RU0502125	MERC/RICO//BNGL/3/SMARS/SMARS/…	M	4	84	36	10455	27	64.8	68.6
024	RU0401136	BRAZ/TBNT/3/164986-4/NV66//NTAI/4/BNGL/5/…	M	4	81	31	10392		62.5	68.3
040	FRNS	FRANCIS	L	3	79	39	10340	13	58.3	66.2
039	MDRK	MEDARK	M	4	82	38	10013	17	65.2	69.3
034	RU0502137	MERC/RICO//BNGL/3/SMARS/SMARS/…	M	4	84	37	9849	23	63.1	67.0
035	RU0404074	8904865S919/NWBT	L	4	79	34	9579		60.7	69.2
038	PI561735	BENGAL	M	4	84	36	9562		63.5	67.6
022	RU0502094	CCDR/5/MARS/M201//MARS…	M	4	78	35	9315		62.6	67.7
033	RU0404191	8603006/3/MARS/NWRX//TBNT	L	5	78	35	9257		58.7	68.4
021	RU0401084	BRAZ/TBNT/3/164986-4/NV66//NTAI/4/BNGL/5/…	L	4	77	35	9010	37	62.3	67.5
036	RU0404194	8603006/3/MARS/NWRX//TBNT	L	5	77	37	9008		63.6	70.4
025	RU0602025	CCDR/5/MARS/…/6/BNGL/…	M	5	79	37	8937		56.7	63.9
023	RU0503095	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	6	79	36	8764		65.0	70.0
027	RU0601027	DREW/UA99-52	L	5	79	36	8676	40	58.4	66.1
026	RU0103184	(CPRS/PELDE)/JEFF	L	6	82	36	8287	10	63.9	67.9
030	RU0601030	WLLS/UA99-52	L	4	79	35	7719		60.9	71.1
032	RU0203032	JEFF/(VSTA/LBNT//L201/3/SKBT)RU9404077	L	5	78	41	6958	87	61.8	66.4
029	RU0503166	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	5	80	37	6878	63	59.1	68.3
c.v. %			-	9.3	1.0	3.7	6.2	-	3.3	1.8
$LSD_{0.05}$			-	0.7	1.4	2.2	946	-	4.2	2.6

† L = Long grain; M = Medium grain.

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2006 Uniform Regional Rice Nursery, Group 3, Crowley, LA.

Entry	RU#	Pedigree	Grain Type†	Vigor‡	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Lodging (%)	Milling Yield (%)	
									Whole	Total
057	RU9404036	PRISCILLA	L	5	80	34	10138	20	57.8	67.7
060	RU0104055	PACE	L	5	80	37	9788	27	55.3	66.8
045	RU0302082	9502008-A/DREW	L	5	78	35	9554		57.1	70.4
047	RU0401145	L201//TBNT/BLMT/3/CPRS	L	4	78	34	9479	7	59.0	67.0
055	RU0304077	V7817/SKBT	L	4	81	36	9474		61.2	65.9
054	RU0404193	8804032/KATY	L	3	77	36	9114	7	56.8	67.6
041	RU0301041	LMNT//82CAY21/CICA8/3/DLMT/4/BASMATI…	L	3	81	39	8976	13	63.9	68.2
051	RU0602051	CCDR/JEFF	L	4	77	36	8746	23	61.0	67.1
053	RU0104055	L201//TBNT/BLMT	L	4	82	36	8625		62.2	66.7
050	RU0301050	LBNT/9902//NWBT/3/KATY/NWBT/4/DREW	L	3	81	40	8562	73	58.6	67.6
044	RU0601044	DREW/UA99-52	L	5	80	35	8522	40	54.4	63.9
042	RU0502068	CCDR/JEFF	L	4	78	32	8507		61.3	69.6
059	PI606331	COCODRIE	L	4	79	36	8446	7	59.9	67.5
056	RU9603178	SABER	L	4	77	40	8200	7	64.7	70.0
043	RU0403166	Kaybonnet/Zhongyouzao3	L	5	83	35	8061		58.4	67.0
052	RU0103104	Texmont/TeQing	L	6	81	32	8039		58.9	65.9
058	RU0002174	CHENIERE	L	4	80	38	8002	27	58.7	65.5
046	RU0503046	(RSMT/RU8703196//TQNG)TX7063/CCDR	L	6	81	40	7690		56.2	68.3
048	RU0602048	DREW/3/KBNT//KATY/CPRS/4/WELLS	L	5	79	37	7569	67	56.8	66.1
049	RU0503049	((NWBT/RU8303181)/RSMT))TX7129/CCDR	L	6	78	36	7300		61.1	65.0
c.v. %			-	12.9	0.8	8.3	11.4	-	3.3	1.7
$LSD_{0.05}$			-	0.9	1.0	5.0	1628	-	4.1	2.3

† L = Long grain; M = Medium grain.

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2006 Uniform Regional Rice Nursery, Group 4, Crowley, LA.

Entry	RU#	Pedigree	Grain Type†	Vigor‡	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Lodging (%)	Milling Yield (%)	
									Whole	Total
065	RU0502134	BNGL/MERC/RICO/3/MERC/RICO//BNGL	M	3	81	36	11264		63.5	68.9
071	RU0602071	BNGL//MERC/RICO/3/MERC/RICO//BNGL	M	3	83	37	11207	20	63.0	69.0
074	RU0504074	8804032/KATY	L	4	84	38	10261		60.6	64.4
080	WLLS	WELLS	L	4	79	41	9840	50	57.3	66.9
067	RU0401067	BRAZ/TBNT/3/164986-4/NV66//NTAI/4/BNGL/5/…	M	4	73	32	9520		68.9	71.7
078	RU0403078	PSCL/JEFF	L	5	78	33	9230	20	59.2	67.2
079	BNKS	BANKS	L	4	82	43	8959	63	56.3	63.4
075	RU0603075	4483-1693	L	4	91	30	8812	90	51.0	65.0
076	RU0301188	961237	L	4	81	46	8635	87	55.8	60.7
061	RU0601061	RU9201176/3/NWBT/KATY//RA73/LMNT	L	4	81	30	8602	53	60.4	67.4
077	RU0504077	VSTA/LBNT//L201/3/SKBT	L	4	80	39	8586		60.9	67.4
062	RU0502131	MERC/RICO//BNGL/3/SMARS/SMARS/…	M	3	85	39	8530	73	64.3	68.2
073	RU0504073	CPRS/3/L201//TBNT/BLMT	L	4	83	37	8527		61.5	65.4
070	RU0401111	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	L	4	79	39	8421	57	54.9	60.6
068	RU0602068	ORIN//MERC/RICO//…/3/BNGL/RICO	M	4	79	39	8307	90	63.5	68.0
064	RU0401182	DREW/5/NWBT/3/DAWN/9695//STBN/4/KATY/…	L	4	83	40	7589	87	61.9	67.2
063	RU0203181	Kaybonnet/Zhongyouzao3	L	7	84	32	7376		59.1	67.0
072	RU0503187	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	5	81	38	7361	40	58.1	65.7
066	RU0503066	((NWBT/RU8303181)/RSMT))TX7144/JEFF	L	5	81	39	6361	87	56.2	65.2
069	RU0503069	(RSMT/RU8703196//TQNG)TX7063/CCDR	L	5	79	38	5377	83	59.0	64.5
c.v. %			-	10.5	1.2	18.9	9.1	-	2.6	1.7
$LSD_{0.05}$			-	0.7	1.6	11.7	1293	-	3.3	2.4

† L = Long grain; M = Medium grain.

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

Table 5. Grain and milling yields and agronomic performance of entries in the 2006 Uniform Regional Rice Nursery, Group 5, Crowley, LA.

Entry	RU#	Pedigree	Grain Type†	Vigor‡	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Lodging (%)	Milling Yield(%)	
									Whole	Total
108	RU0601108	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS	L	4	82	43	10863		62.0	68.1
087	RU0601087	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS	L	4	79	39	10660	70	59.0	65.0
111	RU0501111	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS	L	4	79	40	10230	15	55.9	65.4
090	RU0601090	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/DREW	L	4	80	42	10221		59.3	64.6
093	RU0501093	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/CCDR	L	4	80	32	9873		58.7	64.8
092	RU0503092	((NWBT/RU8303181)/RSMT))TX7129/CCDR	L	5	78	36	9609	30	61.6	68.8
085	RU0602085	CCDR/9502008-A	L	5	78	35	9506		60.6	67.5
109	RU0602109	9901081/CCDR	L	4	78	35	9498		59.0	65.2
103	RU0602103	KATY/CPRS//JKSN/3/AR 1188/CCDR	L	4	78	37	9494	15	59.3	64.8
117	PI606331	COCODRIE	L	4	79	33	9470		58.9	65.0
097	RU0602097	9502008-A//AR 1188/CCDR	L	4	78	34	9332		58.5	64.4
102	RU0501102	LGRU2/DREW	L	4	80	42	9259	85	62.6	67.7
115	RU0602115	CPRS/KBNT//9502008-A	L	5	79	33	9136		58.8	65.0
091	RU0602091	9502008-A//AR 1188/CCDR	L	4	79	37	9113		58.8	64.5
099	RU0501099	WLLS/PI 584698//ZHE 733	L	4	82	40	9077	45	60.9	67.7
106	RU0602106	CCDR/LGRU	L	4	78	37	8932	55	59.7	66.3
088	RU0602088	9502008-A//AR 1188/CCDR	L	4	79	34	8910		59.0	65.4
112	RU0602112	CCDR/4/NWBT/KATY/3/82CAY21/…	L	5	79	35	8817	20	59.3	66.3
113	RU0503113	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	5	77	38	8691		65.2	68.6
105	RU0501105	9101001/86179/6/RNS3/5/IR36M4/4/L201/3/TTEP/…	L	3	81	45	8602	50	51.9	67.5
082	RU0602082	CCDR/JEFF	L	4	79	33	8556		63.1	67.6
094	RU0602094	9502008-A//AR 1188/CCDR	L	4	79	33	8503	30	58.6	64.1
114	RU0504114	82CAY21/LMNT/3/L201//TBNT/BLMT	L	4	82	36	8407	35	50.9	61.9
107	RU0503107	(GFMT/RU8703196)TX6141/CCDR	L	5	80	41	8305		61.1	67.5
098	RU0503098	((NWBT/RU8303181)/GFMT))TX7181/CCDR	L	5	81	41	8201		57.0	64.2
104	RU0503104	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	6	79	39	8174	15	64.0	69.7
101	RU0103101	(CPRS/PELDE)/JEFF	L	5	79	34	8156	45	64.3	70.5
083	RU0504083	CPRS/JKSN	L	4	80	39	8070		64.2	70.8
120	PI595900	DIXIEBELLE	L	5	78	34	8029		61.8	67.4
089	RU0503089	((NWBT/RU8303181)/RSMT))TX7129/CCDR	L	5	79	37	7892		63.8	68.7
084	RU0501084	DREW/UA99-52	L	5	79	37	7821	45	59.6	67.5
096	RU0501096	L201/7402003//KATY/NWBT/3/LGRU	L	4	82	44	7606	90	57.3	63.7
086	RU0003178	(CPRS/PELDE)/JEFF	L	6	78	33	7378	55	64.1	68.0
116	RU0503116	MDSN/((NWBT/RU8303181)/RSMT))TX7129	L	6	79	39	7281	30	53.9	64.5
081	RU0501081	19991562	L	4	78	38	7276	90	62.3	67.9
110	RU0503110	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	6	79	35	7146	60	62.2	68.3
100	RU0504100	CPRS/JKSN	L	5	85	35	7126		62.0	68.0
119	PI608664	L205	L	4	74	36	6710	50	58.6	64.2
118	RU0003009	HIDALGO	L	5	76	35	6278	85	58.9	62.5
095	RU0603095	ABORIO	M	5	73	49	2980	90	42.5	64.4
c.v. %			-	11.4	1.1	3.7	7.2	-	2.5	2.8
$LSD_{0.05}$			-	1.0	1.8	2.8	1238	-	3.0	3.8

† L = Long grain; M = Medium grain. ‡ Subjective rating 1 to 9, where 1 = excellent, 9 = poor.

Table 6. Grain and milling yields and agronomic performance of entries in the 2006 Uniform Regional Rice Nursery, Group 6, Crowley, LA.

Entry	RU#	Pedigree	Grain Type†	Vigor‡	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Lodging (%)	Milling Yield (%)	
									Whole	Total
152	RU0402152	YD-4/RSMT	L	4	77	41	10459	55	60.1	66.7
143	RU0602143	05 SBYT 048	L	4	87	40	10418		57.5	65.0
160	FRNS	FRANCIS	L	3	80	40	10144	65	58.7	68.6
155	RU0602155	05 SBYT 119	L	4	86	34	10141		60.1	65.7
157	RU0504157	CPRS/3/L201//TBNT/BLMT	L	4	89	46	10067	30	61.2	68.5
128	RU0602128	CCDR/5/MARS/…/6/BNGL/…	L	4	80	39	9782		60.7	68.5
154	RU0504154	VSTA/LBNT//L201/3/SKBT	L	4	86	47	9710	80	64.6	70.6
127	RU0601127	CPRS/RU9201176/5/VSNTLM//L201/9NRZ/3/…	L	4	79	40	9648		60.8	68.7
122	RU0504122	CPRS/3/L201//TBNT/BLMT	L	3	78	39	9612	40	58.6	72.9
151	RU0501151	MDRK/UA99-123	M	5	85	38	9610		64.9	69.7
121	RU0601121	RU9901127/GP-2	M	4	80	36	9581	75	64.6	70.0
126	RU0503126	((NWBT/RU8303181)/RSMT))TX7144/JEFF	L	4	85	38	9396		64.0	68.7
142	RU0601142	LBNT/9902//NWBT/3/MILL/4/LGRU	L	3	81	38	9364		61.1	68.2
148	RU0601148	LGRU//LMNT/RA73/3/LGRU/4/LGRU/5/LGRU//KATY/STBN	L	3	79	42	9319	75	61.6	69.0
134	RU0602134	CCDR/5/MARS/…/6/ORIN/…/7/CCDR/…	L	3	82	41	9316		65.4	71.4
150	RU0503150	((NWBT/RU8303181)/GFMT))TX7181/CCDR	L	5	80	35	9124		63.8	70.4
146	RU0602146	CPRS/LGRU//97 KDM X2-5	L(A)	5	80	37	9084		63.9	68.6
136	RU0501136	STG99F5-13-025/MDRK	M	4	84	36	8973	35	63.3	69.5
124	RU0501124	CPRS/RU9201176//WLLS	L	4	81	35	8913		64.7	70.0
149	RU0602149	DLRS//AR 1142/LA 2031	L(A)	4	80	32	8900	40	67.4	72.6
130	RU0601130	WLLS/INIAP-12//ZHE 733	L	5	85	40	8880	90	59.5	66.8
131	RU0602131	CCDR/5/MARS/M201//MARS/3/MERC/…	L	4	79	37	8739	30	61.3	68.6
159	RU0103123	SABINE	L	4	80	34	8631	15	64.8	70.2
133	RU0501133	KATY/NWBT//L201/7402003/3/WLLS	L	4	80	41	8536	90	58.2	66.9
125	RU0502091	CCDR/5/MARS/…/6/CPRS/…	L	4	78	37	8469	45	65.6	72.6
139	RU0501139	SHUFENG 121-1655	L	4	93	45	8444	90	53.3	66.0
129	RU0303129	(CPRS/PANDA)/JEFF*2	L	5	77	35	8282		65.3	69.8
145	RU0501145	PI 584720/ZHE 733	L	4	82	38	8219	90	55.8	67.5
138	RU0503138	MDSN/((NWBT/RU8303181)/RSMT))TX7129	L	6	81	39	8148		58.4	68.5
156	RU0505156	CPRS/3/L201//TBNT/BLMT	L	5	78	30	8067	15	59.5	70.3
135	RU0503135	MDSN/((NWBT/RU8303181)/RSMT))TX7129	L	5	80	38	7934	40	56.8	67.0
147	RU0503147	MDSN/((NWBT/RU8303181)/RSMT))TX7129	L	6	79	39	7643		64.1	70.5
132	RU0403132	((NWBT/RU8303181)/RSMT))TX7129/JEFF	L	5	79	42	7597	65	60.6	70.0
140	RU0502177	L202/Leah//Toro/3/IR67016	L(AE)	4	78	37	7522	90	62.4	71.5
141	RU0503141	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	5	80	38	7508		66.0	71.7
144	RU0503144	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	6	80	37	7457	80	61.7	69.0
123	RU0503123	((NWBT/RU8303181)/RSMT))TX7144/JEFF	L	5	81	41	7351	90	62.9	68.8
137	RU0602137	RU9602097/RU9602082/3/JSMN/…	L	3	77	34	7053	90	59.1	69.5
158	PI593241	DELLROSE	L	5	81	41	7025	70	64.3	71.7
153	RU0503153	(CPRS/92:1021(KATY//GFMT/PCOS))RU9803175/…	L	6	79	36	6845	45	65.4	69.9
c.v. %			-	13.4	0.7	3.5	7.3	-	2.7	1.9
$LSD_{0.05}$			-	1.1	1.1	2.7	1284	-	3.4	2.7

† L = Long grain; M = Medium grain; L(A) = Long grain, aromatic; L(AE) = Long grain, elongating, aromatic. ‡ Subjective rating 1 to 9, where 1 = excellent, 9 = poor.

Table 7. Grain and milling yields and agronomic performance of entries in the 2006 Uniform Regional Rice Nursery, Group 7, Crowley, LA.

Entry	RU#	Pedigree	Grain Type†	Vigor‡	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Lodging (%)	Milling Yield (%)	
									Whole	Total
187	RU0603187	TESANAI 2	L	4	91	45.3	11902	90	62.0	68.6
168	RU0602168	BNGL//MERC/RICO/3/MERC/RICO//BNGL	M	4	83	35.4	11805		66.6	73.4
176	RU0601176	KATY/NWBT//L201/7402003/3/WLLS	L	4	82	43.3	11166	40	57.2	66.6
182	RU0601182	LBNT/9902/3/DAWN/9695//STBN/4/DLLA/KATY/5/DREW	L	4	84	40.0	10607		58.1	65.8
200	RTXP723	XP 723	L	5	80	40.9	10509	90	59.5	69.5
171	RU0602171	BNGL//MERC/RICO/3/EARL	M	4	82	34.8	10460		68.0	71.6
196	RU0504196	CPRS/3/L201//TBNT/BLMT	L	4	85	37.6	10315		64.6	69.3
185	RU0601185	RU9201176/4/LBNT/STBN//NWBT/3/MILL/5/WLLS	L	3	32	43.7	10208	65	58.8	67.4
188	RU0601188	LGRU//KATY/STBN/5/LGRU//LMNT/RA73/3/LGRU/4/LGRU	L	4	82	45.7	9820	80	59.6	70.5
194	RU0504194	A301/KATY	L	3	81	42.5	9765		63.0	70.6
180	RU0602180	KATY/CPRS//JKSN/3/AR 1188/CCDR	L	5	79	35.4	9663		60.6	68.6
170	RU0601170	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/LGRU/MILL	L	5	82	40.7	9615	90	63.1	70.3
163	RU0503163	((NWBT/RU8303181)/GFMT))TX7181/CCDR	L	5	80	34.8	9567		65.1	71.2
167	RU0501167	NWBT/3/LBNT/9902//LBLE/4/DREW	L	4	80	41.3	9507	75	57.1	66.1
189	RU0602189	9502008/CPRS	L	4	80	36.0	9493		62.1	69.3
174	RU0602174	9502008-A//AR 1188/CCDR	L	4	80	37.4	9485		59.3	68.3
162	RU0602162	BNGL//MERC/RICO/3/EARL	M	4	82	35.0	9476	85	68.5	72.2
183	RU0602183	9502008-A//AR 1188/CCDR	L	4	78	37.2	9430		61.7	69.2
198	RU0504198	RSMT/KATY	L	3	82	37.4	9307		61.2	67.6
192	RU0602192	CPRS/LGRU	L	4	80	34.3	9027		60.3	68.8
193	RU0504193	CPRS/3/L201//TBNT/BLMT	L	4	87	38.8	9003		66.5	70.9
178	RU0503178	(GFMT/RU8703196)TX6141/CCDR	L	5	85	38.0	8940		63.9	70.4
166	RU0603166	4484-1665	L	4	92	43.3	8586	90	54.2	67.9
173	RU0501173	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS	L	4	80	39.4	8556	85	55.0	65.5
195	RU0602195	CPRS/NWBT//KATY/3/CCDR	L	4	80	35.2	8538	30	62.8	69.5
165	RU0602165	BNGL//MERC/RICO/3/EARL	M	4	81	38.4	8524	90	66.7	70.6
169	RU0503169	((NWBT/RU8303181)/GFMT))TX7181/CCDR	L	6	80	39.2	8504	35	61.6	69.7
164	RU0401164	LBNT/9902/3/DAWN/9695//STBN/4/LGRU/5/WLLS	L	4	81	45.9	8445	85	58.5	67.0
197	RU0504197	CPRS/3/L201//TBNT/BLMT	L	4	80	36.4	8407	10	58.6	67.8
177	RU0602177	CPRS/LGRU//LGRU	L	5	80	36.4	8280		66.2	71.4
186	RU0504186	8603006/3/MARS/NWRX//TBNT	L	3	81	32.9	8212		60.9	69.2
179	RU0401179	KBNT LPA1-1/BBLE	L	5	81	49.0	8107	75	58.5	68.2
199	PI561734	CYPRESS	L	5	80	36.4	8071	55	64.0	69.5
191	RU0504191	8603006/3/MARS/NWRX//TBNT	L	5	84	36.0	8024		59.2	68.2
172	RU0203172	(MARS/CM101)/(LBNT_WX/RU8703190)	L	6	85	41.9	7953	80	61.8	67.5
184	RU0503184	((NWBT/RU8303181)/GFMT))TX7181/CCDR	L	5	83	40.7	7949	20	60.0	67.6
190	RU0503190	((NWBT/RU8303181)/GFMT))TX7181/CCDR	L	5	84	42.7	7753		59.0	67.8
181	RU0503181	(GFMT/RU8703196)TX6141/CCDR	L	4	82	40.7	7736		61.9	69.7
161	RU0601161	RNS3/RU9101001	L	4	81	45.3	7679	85	60.5	67.8
175	RU0603175	IR58	L	5	75	33.1	3931	90	62.4	72.7
c.v. %			-	11.8	14.1	3.5	6.6	-	2.7	2.3
$LSD_{0.05}$			-	1.0	22.9	2.8	1200	-	3.4	3.2

† L = Long grain; M = Medium grain. ‡ Subjective rating 1 to 9, where 1 = excellent, 9 = poor.

COMMERCIAL-ADVANCED TESTS

The Commercial-Advanced trial (CA) is a multi-location test conducted by the Rice Breeding Project in the major rice-growing regions in Louisiana. The objective of this study 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 2006 included the Rice Research Station at Crowley (RRS) and five on-farm test sites in Acadia, Evangeline, Vermilion, Morehouse, and Richland parishes. The tests in Morehouse and Richland parishes were conducted in cooperation with the Rice Agronomy Project.

Standard agronomic procedures (except that no fungicides were applied) were used at each individual location. Sixty entries were tested in a randomized complete block design with three replications. Varieties and hybrids were seeded at 90 and 38 lb/A, respectively. Planting dates were: RRS, March 8; Acadia, March 30; Evangeline, April 5; Vermilion, March 15; Morehouse, May 16; and Richland, May 3. Harvest dates were: RRS, July 27; Acadia, August 15; Evangeline, August 9; Vermilion, August 3; Morehouse, September 25; and Richland, September 12. Results from these tests are shown in Tables 1 to 8.

Table 1. Pedigree, grain type, and source information for entries in the Commercial-Advanced Trial, 2006.

Entry	Pedigree	Grain Type[†]	Source[‡]
201	CL131	L	LAES
202	CL161	L	LAES
203	CL006	L	LAES
204	IMI 261-177	L	LAES
205	TRENASSE	L	LAES
206	SPRING	L	AAES
207	COCODRIE	L	LAES
208	CHENIERE	L	LAES
209	CYPRESS	L	LAES
210	WELLS	L	AAES
211	BANKS	L	AAES
212	CYBONNET	L	AAES
213	MEDARK	M	AAES
214	JUPITER	M	LAES
215	BENGAL	M	LAES
216	PIROGUE	S	LAES
217	PRESDIO	L	TAES, USDA
218	PACE	L	TAES, USDA
219	XL8	L	RiceTec
220	XL730	L	RiceTec
221	XL723	L	RiceTec
222	XP729	L	RiceTec
223	9502008-A//AR 1188/CCDR	L	LAES
224	LGRU/LCSN	L	LAES
225	9502008-A//AR 1142/MBLE	L	LAES
226	CPRS/KBNT//9502008-A	L	LAES
227	CCDR/JEFF	L	LAES
228	9502008-A/DREW	L	LAES
229	DREW/3/KBNT//KATY/CPRS/4/WELLS	L	LAES
230	CCDR/JEFF	L	LAES
231	CCDR/JEFF	L	LAES
232	CCDR/9502008-A	L	LAES

Continued.

Table 1. Continued.

Entry	Pedigree	Grain Type[†]	Source[‡]
233	9502008-A//AR 1188/CCDR	L	LAES
234	9502008-A//AR 1188/CCDR	L	LAES
235	9502008-A//AR 1188/CCDR	L	LAES
236	9502008-A//AR 1188/CCDR	L	LAES
237	KATY/CPRS//JKSN/3/AR 1188/CCDR	L	LAES
238	CCDR/LGRU	L	LAES
239	9901081/CCDR	L	LAES
240	CCDR/4/NWBT/KATY/3/82CAY21/…	L	LAES
241	CCDR/5/MARS/M201//MARS…	L	LAES
242	CCDR/5/MARS/…/6/BNGL/…	L	LAES
243	CCDR/5/MARS/…/6/CPRS/…	L	LAES
244	BNGL//MERC/RICO/3/MERC/…	M	LAES
245	MERC/RICO//BNGL/3/SMARS/SMARS/…	M	LAES
246	MERC/RICO//BNGL/3/SMARS/SMARS/…	M	LAES
247	L202/Leah//Toro/3/IR67016	L(AE)	LAES
248	CPRS/LGRU//97 KDM X2-5	L(A)	LAES
249	MERC/RICO//BNGL/3/SMARS/SMARS/?	M	LAES
250	BNGL/MERC/RICO/3/MERC/RICO//BNGL	M	LAES
251	ORIN//MERC/RICO//…/3/BNGL/RICO	M	LAES
252	BNGL//MERC/RICO/3/MERC/RICO//BNGL	M	LAES
253	BNGL//MERC/RICO/3/EARL	M	LAES
254	YD-4/RSMT	L	LAES
255	XP723 x CLXL730 Blend	L	LAES
256	XP723 x Cocodrie Blend	L	LAES
257	XP723 x URN152 Blend	L	LAES
258	CLXL730 x Cocodrie Blend	L	LAES
259	CLXL730 x URN152 Blend	L	LAES
260	Cocodrie x URN152 Blend	L	LAES

[†] L = Long grain, M = Medium grain, and S = Short grain, (A = Aromatic, E = Elongating).
[‡] AAES, Rice Research and Extension Center, Arkansas Agricultural Experiment Station, Stuttgart, AR; LAES, Rice Research Station, Louisiana Agricultural Experiment Station, LSU Agricultural Center, Crowley, LA; TAES, USDA, Texas A&M Research and Education Center, Texas Agricultural Experiment Station, U.S. Department of Agriculture, Beaumont, TX; and RiceTec, RiceTec Inc., Alvin, TX.

Table 2. Grain and milling yields and agronomic performance of entries in the 2006 Commercial-Advanced Trial, Evangeline Parish, LA.

Entry	Source	Vigor[†]	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
						Whole	Total
221	XL723	5	73	41	11828	63.0	70.6
222	XP729	5	73	40	11505	60.6	71.0
255	XP723 x CLXL730	5	73	41	11206	61.9	69.6
220	XL730	5	73	42	10657	63.6	71.4
258	CLXL730 x Cocodrie	5	74	40	10371	59.2	68.4
257	XP723 x URN152	5	71	40	9995	63.3	70.5
256	XP723 x Cocodrie	5	72	39	9975	64.9	71.1
259	CLXL730 x URN152	5	70	39	9968	61.7	68.6
226	RU 0502022	6	71	34	9291	65.2	70.6
251	RU 0602068	5	75	37	9243	64.2	68.2
243	RU 0502091	4	71	34	8998	63.7	69.3
211	BANKS	5	76	40	8952	63.6	69.7

Continued.

Table 2. Continued.

Entry	Source	Vigor[†]	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
						Whole	Total
205	TRENASSE	5	64	37	8783	62.7	67.8
224	RU 0502168	5	71	34	8633	67.9	72.7
230	RU 0602051	5	71	31	8623	67.8	72.3
225	RU 0502103	5	73	32	8615	67.3	72.0
254	RU 0402152	5	68	36	8558	60.2	65.6
214	JUPITER	5	77	33	8513	62.9	66.3
250	RU 0502134	5	77	34	8448	66.9	71.0
223	RU 0402097	5	71	34	8382	65.1	71.6
242	RU 0602025	5	72	32	8363	68.3	71.8
203	CL151	4	74	33	8337	65.3	70.3
234	RU 0602091	5	72	32	8336	69.6	73.1
228	RU 0302082	5	72	33	8334	66.8	72.9
239	RU 0602109	4	71	31	8329	68.1	71.4
210	WELLS	4	76	37	8286	66.4	72.8
227	RU 0502068	5	74	32	8272	67.2	72.0
235	RU 0602094	5	70	31	8236	66.4	70.8
237	RU 0602103	5	73	34	8193	63.8	68.6
260	Cocodrie x URN152	5	69	35	8185	62.6	67.7
233	RU 0602088	5	73	32	8173	67.9	72.7
245	RU 0502125	5	76	35	8148	63.2	66.7
236	RU 0602097	5	71	31	8115	68.7	71.7
206	SPRING	5	64	38	8011	67.3	72.3
231	RU 0602082	5	72	30	8004	68.3	72.3
238	RU 0602106	5	71	33	7968	65.2	70.0
207	COCODRIE	5	72	31	7959	66.0	71.0
244	RU 0402028	5	78	33	7945	68.2	70.4
241	RU 0502094	6	71	33	7798	66.4	69.8
208	CHENIERE	6	76	34	7756	68.5	73.3
212	CYBONNET	5	73	31	7717	68.7	71.3
232	RU 0602085	6	71	31	7648	66.4	72.1
252	RU 0602071	6	76	33	7575	66.9	70.1
240	RU 0602112	6	73	32	7561	67.1	71.4
249	RU 0502131	5	76	37	7551	64.2	67.5
202	CL161	5	75	33	7475	67.4	70.2
218	PACE	5	75	34	7446	62.3	69.8
253	RU 0602162	5	76	30	7417	67.3	70.5
229	RU 0602048	5	75	37	7385	58.7	68.1
204	CL171	5	77	35	7366	63.3	67.9
215	BENGAL	4	76	36	7244	65.7	69.5
209	CYPRESS	6	75	32	7142	67.7	71.0
247	RU 0502177	5	68	38	7113	62.4	69.2
213	MEDARK	5	77	33	7001	63.5	68.2
201	CL131	5	76	28	6922	66.5	70.0
217	PRESDIO	5	72	33	6799	66.7	70.7
246	RU 0502137	6	79	34	6430	66.3	68.8
219	XL8	6	74	40	6346	57.5	68.1
248	RU 0602146	6	73	31	6122	66.7	69.1
216	PIROGUE	6	82	35	6117	59.2	66.2
c.v. %		13.3	9.2	3.8	6.7	2.4	1.7
$LSD_{0.05}$		1.1	11.0	2.1	887	3.1	2.5

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

Table 3. Grain and milling yields and agronomic performance of entries in the 2006 Commercial-Advanced Trial, Acadia Parish, LA.

Entry	Source	Vigor†	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
							Whole	Total
222	XP729	4	86	43	17	10112	57.7	67.0
221	XL723	4	87	44		10040	58.9	66.7
220	XL730	5	88	47	27	9873	61.3	67.5
255	XP723 x CLXL730	5	86	46	10	9657	55.7	64.9
258	CLXL730 x Cocodrie	5	87	43		9577	59.8	66.9
259	CLXL730 x URN152	5	85	46	7	9572	58.1	64.9
257	XP723 x URN152	5	83	43		9506	59.8	65.6
256	XP723 x Cocodrie	5	86	43		9493	59.3	67.0
214	JUPITER	6	90	37		9391	57.3	62.8
250	RU 0502134	4	88	38		8982	61.6	69.4
226	RU 0502022	5	85	36		8683	59.3	64.9
244	RU 0402028	4	91	37		8630	61.1	66.6
249	RU 0502131	5	90	40		8336	60.9	65.8
225	RU 0502103	5	87	35		8298	57.2	65.6
210	WELLS	4	92	41		8268	55.5	63.7
254	RU 0402152	5	83	40		8219	61.5	65.3
211	BANKS	5	93	44		8129	55.3	62.4
228	RU 0302082	5	88	37		8047	60.8	67.9
252	RU 0602071	4	89	36		7948	59.6	67.3
229	RU 0602048	5	90	39		7943	53.4	63.4
242	RU 0602025	5	87	39		7939	60.2	65.4
243	RU 0502091	5	86	39		7816	60.2	66.8
215	BENGAL	4	89	38		7799	60.7	65.1
260	Cocodrie x URN152	5	85	40		7796	57.9	63.1
232	RU 0602085	5	83	36		7794	58.2	64.2
246	RU 0502137	5	90	36		7733	62.7	67.8
248	RU 0602146	6	88	40		7701	60.4	65.3
251	RU 0602068	5	86	41		7695	57.2	63.4
245	RU 0502125	5	88	37		7669	61.1	66.9
233	RU 0602088	5	85	37		7604	61.5	67.0
212	CYBONNET	5	90	38		7584	63.0	67.9
216	PIROGUE	6	91	40		7563	60.0	65.7
213	MEDARK	5	88	35		7531	61.1	65.3
237	RU 0602103	5	84	38		7523	61.5	67.3
253	RU 0602162	4	90	35		7447	62.0	67.9
240	RU 0602112	5	86	36		7439	58.7	65.4
206	SPRING	5	83	41		7397	60.0	66.4
236	RU 0602097	5	84	36		7383	62.3	66.4
203	CL151	4	88	38		7352	59.7	64.4
208	CHENIERE	6	89	37		7340	60.4	65.6
227	RU 0502068	5	86	35		7333	60.4	67.0
234	RU 0602091	5	86	36		7333	59.9	65.6
241	RU 0502094	5	86	38		7293	63.6	68.1
230	RU 0602051	5	84	36		7232	62.6	67.0
223	RU 0402097	5	84	37		7227	62.5	67.8
204	CL171	4	93	37		7207	62.5	67.9
238	RU 0602106	5	84	38		7115	62.7	67.0
207	COCODRIE	5	88	36		7045	59.5	65.8
224	RU 0502168	6	86	37		6986	59.8	64.1

Continued.

Table 3. Continued.

Entry	Source	Vigor†	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
							Whole	Total
235	RU 0602094	5	84	36		6964	63.8	68.8
218	PACE	6	89	40		6961	56.6	64.0
201	CL131	5	88	35		6820	59.9	64.9
231	RU 0602082	5	85	35		6819	64.1	68.4
217	PRESDIO	6	87	37		6817	61.8	66.1
202	CL161	5	92	38		6803	61.4	66.4
205	TRENASSE	5	91	38	27	6691	60.3	65.8
247	RU 0502177	5	88	39		6433	57.7	66.0
239	RU 0602109	6	86	34		6404	56.2	63.2
219	XL8	5	89	43		6349	55.9	65.8
209	CYPRESS	6	89	36		6107	61.8	66.3
c.v. %		13.4	1.6	4.6	-	8.1	3.3	2.8
$LSD_{0.05}$		1.1	2.3	2.9	-	1024	3.9	3.7

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

Table 4. Grain and milling yields and agronomic performance of entries in the 2006 Commercial-Advanced Trial, Rice Research Station, LA.

Entry	Source	Vigor†	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
							Whole	Total
211	BANKS	4	81	44		9993	61.2	67.5
257	XP723 x URN152	4	77	38		9947	61.6	69.1
222	XP729	4	82	39		9876	60.3	69.6
210	WELLS	4	79	39		9834	60.3	70.4
221	XL723	5	80	42	27	9764	62.0	71.2
216	PIROGUE	4	83	37		9557	59.4	66.4
255	XP723 x CLXL730	4	80	42	47	9510	59.7	71.2
252	RU 0602071	3	83	37		9467	63.0	69.0
254	RU 0402152	4	75	39		9375	60.0	64.6
250	RU 0502134	4	80	37		9320	64.5	68.6
259	CLXL730 x URN152	4	77	43	3	9267	59.6	68.0
256	XP723 x Cocodrie	4	81	39		9229	61.8	69.7
258	CLXL730 x Cocodrie	4	81	43		9203	60.0	68.1
214	JUPITER	4	84	37		8835	60.3	63.7
249	RU 0502131	3	85	38		8799	61.2	64.4
237	RU 0602103	4	78	35		8724	62.5	69.8
215	BENGAL	3	84	35	10	8709	65.0	68.0
244	RU 0402028	4	85	36		8697	64.1	67.5
260	Cocodrie x URN152	4	77	37		8646	64.0	68.4
228	RU 0302082	5	79	33		8544	64.1	72.7
204	CL171	4	85	39		8531	66.4	71.7
251	RU 0602068	4	79	40	43	8497	61.2	65.4
245	RU 0502125	4	84	37		8492	63.7	66.0
246	RU 0502137	4	84	38		8484	64.2	67.0
229	RU 0602048	5	80	39	10	8466	60.9	68.7
242	RU 0602025	4	79	35		8423	61.4	68.5
241	RU 0502094	4	78	35		8419	65.7	70.9

Continued.

Table 4. Continued.

Entry	Source	Vigor†	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
							Whole	Total
219	XL8	5	82	40		8369	59.8	69.7
205	TRENASSE	5	70	35		8351	63.1	69.0
213	MEDARK	4	81	36		8348	64.8	67.9
234	RU 0602091	4	78	35		8323	64.0	71.1
253	RU 0602162	3	83	35		8297	66.7	70.4
220	XL730	5	82	44	60	8228	59.5	67.7
248	RU 0602146	4	79	35		8228	67.8	71.0
218	PACE	5	80	35		8222	58.6	69.0
239	RU 0602109	5	79	34		8178	64.0	70.7
223	RU 0402097	4	78	34		8174	63.6	71.0
238	RU 0602106	4	78	34		8146	63.6	70.9
233	RU 0602088	4	78	32		8125	61.1	68.1
230	RU 0602051	4	78	33		8101	62.5	69.1
243	RU 0502091	5	78	37		8056	61.7	69.7
208	CHENIERE	4	81	34		8046	63.2	69.8
209	CYPRESS	5	81	34		7977	64.6	68.7
202	CL161	5	83	37		7944	66.3	70.4
207	COCODRIE	4	80	33		7907	63.5	71.1
203	CL151	4	80	36		7887	61.9	68.1
227	RU 0502068	5	79	34		7856	63.3	69.9
217	PRESDIO	4	79	33		7851	66.3	70.6
236	RU 0602097	4	78	33		7831	62.5	68.9
235	RU 0602094	4	78	32		7806	63.1	68.9
240	RU 0602112	5	79	32		7781	61.4	68.2
226	RU 0502022	4	79	33		7698	61.9	69.9
232	RU 0602085	5	76	34		7625	60.2	66.8
225	RU 0502103	4	78	33		7580	62.6	70.8
224	RU 0502168	4	77	34		7530	63.2	69.6
206	SPRING	3	70	38		7377	60.0	69.6
201	CL131	5	80	32		7350	66.5	70.9
231	RU 0602082	4	78	31		7009	64.0	70.2
212	CYBONNET	4	78	34		6933	65.5	69.9
247	RU 0502177	4	77	37		6655	63.9	71.2
c.v. %		13.0	1.1	4.3	-	7.5	2.6	1.9
$LSD_{0.05}$		0.9	1.5	2.5	-	1015	3.2	2.6

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

Table 5. Grain and milling yields, agronomic performance, and disease ratings of entries in the 2006 Commercial-Advanced Trial, Vermilion Parish, LA.

Entry	Source	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Sheath Blight[†]	Milling Yield (%)	
						Whole	Total
221	XL723	78	43	10908	5.0	63.0	69.7
222	XP729	78	41	10300	5.0	59.9	69.9
251	RU 0602068	80	40	10172	4.7	66.3	69.7
214	JUPITER	83	40	10081	5.0	60.0	66.6
255	XP723 x CLXL730	78	41	9928	6.0	61.2	70.5
250	RU 0502134	83	38	9761	5.3	64.3	69.8
211	BANKS	81	47	9649	4.7	63.7	69.4
259	CLXL730 x URN152	75	43	9612	6.0	60.1	69.1
257	XP723 x URN152	76	42	9550	5.7	59.2	69.4
253	RU 0602162	83	37	9430	5.3	66.4	71.4
252	RU 0602071	84	39	9365	5.7	67.8	71.8
245	RU 0502125	83	39	9362	5.3	64.4	69.3
256	XP723 x Cocodrie	79	41	9360	6.7	61.4	69.9
237	RU 0602103	78	38	9294	6.3	66.2	72.2
216	PIROGUE	83	45	9208	4.7	62.7	68.4
244	RU 0402028	83	40	9158	5.7	67.7	71.4
228	RU 0302082	79	36	9097	6.0	66.8	73.7
229	RU 0602048	79	42	9082	5.7	64.0	70.2
243	RU 0502091	78	37	9077	6.0	67.5	72.8
220	XL730	79	44	9058	7.0	57.3	68.7
210	WELLS	80	43	8958	5.3	60.2	69.4
254	RU 0402152	75	40	8915	6.3	62.9	68.9
205	TRENASSE	72	38	8817	6.3	63.4	69.2
226	RU 0502022	78	37	8755	7.3	64.0	70.3
218	PACE	79	38	8698	5.3	62.4	70.8
260	Cocodrie x URN152	75	40	8689	6.3	60.7	69.0
249	RU 0502131	84	42	8648	6.0	63.3	70.0
212	CYBONNET	78	37	8605	6.3	69.2	72.6
258	CLXL730 x Cocodrie	79	42	8604	6.0	63.2	70.6
248	RU 0602146	78	39	8509	5.7	62.3	69.9
235	RU 0602094	78	37	8470	6.7	62.7	70.1
213	MEDARK	82	39	8469	5.3	63.8	70.0
208	CHENIERE	78	36	8447	6.0	65.1	72.0
215	BENGAL	83	38	8371	5.0	64.6	69.3
233	RU 0602088	78	35	8349	7.0	64.3	71.1
246	RU 0502137	83	39	8283	6.0	63.8	68.7
242	RU 0602025	79	38	8240	7.0	65.4	71.3
234	RU 0602091	78	36	8191	6.3	65.4	72.1
201	CL131	79	33	8170	7.0	65.9	71.8
241	RU 0502094	79	37	8104	7.3	63.7	70.5
206	SPRING	70	42	8087	5.7	63.2	72.2
224	RU 0502168	76	35	8049	6.7	65.0	71.5
236	RU 0602097	78	37	8009	7.7	65.0	71.3
204	CL171	79	38	8007	7.0	65.0	72.0
227	RU 0502068	78	35	7998	7.7	65.3	72.5
207	COCODRIE	79	35	7976	7.0	60.9	67.3
239	RU 0602109	79	37	7950	6.3	65.2	71.6
232	RU 0602085	77	37	7906	7.0	65.1	71.4
240	RU 0602112	77	36	7848	6.7	65.4	72.0
209	CYPRESS	81	36	7817	7.0	67.6	71.2

Continued.

Table 5. Continued.

Entry	Source	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Sheath Blight†	Milling Yield (%)	
						Whole	Total
203	CL151	80	38	7809	7.3	63.7	69.8
202	CL161	81	37	7741	7.0	66.9	71.6
225	RU 0502103	80	36	7705	8.0	64.2	71.5
231	RU 0602082	76	34	7669	7.3	64.9	71.0
223	RU 0402097	77	37	7632	7.7	61.7	69.9
217	PRESDIO	79	37	7534	6.7	67.4	71.6
238	RU 0602106	78	38	7497	7.3	66.2	72.1
219	XL8	80	41	7207	6.3	56.5	66.7
230	RU 0602051	76	35	7147	8.0	66.1	71.5
247	RU 0502177	76	38	6920	7.0	66.2	71.7
c.v. %		1.5	3.7	6.2	12.3	3.8	2.0
$LSD_{0.05}$		1.9	2.3	863	1.3	4.9	2.8

† Sheath blight rating 0-9, where 0 = no disease, 9 = maximum disease possible.

Table 6. Grain yield and agronomic performance of entries in the 2006 Commercial-Advanced Trial, Morehouse Parish, LA.

Entry	Source	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)
222	XP729	76	46	33	10853
214	JUPITER	76	39		10698
220	XL730	78	51	40	10387
249	RU 0502131	78	40		10349
245	RU 0502125	75	38		10129
216	PIROGUE	74	41		10110
255	XP723 x CLXL730	77	50	40	10075
250	RU 0502134	77	39		10066
246	RU 0502137	76	39		10052
221	XL723	76	47	33	10046
251	RU 0602068	71	42	7	9834
252	RU 0602071	78	40		9775
244	RU 0402028	77	37	7	9641
225	RU 0502103	78	38		9604
257	XP723 x URN152	72	45	3	9515
253	RU 0602162	80	37		9493
258	CLXL730 x Cocodrie	78	47	7	9458
213	MEDARK	74	39		9388
256	XP723 x Cocodrie	77	45		9262
226	RU 0502022	76	39		9145
233	RU 0602088	76	38		9104
235	RU 0602094	75	39		9072
237	RU 0602103	74	41		9052
215	BENGAL	78	40	10	9036
259	CLXL730 x URN152	73	47		9016
230	RU 0602051	76	38		8904
239	RU 0602109	76	38		8763
227	RU 0502068	75	38		8645
243	RU 0502091	75	40		8576
210	WELLS	78	42		8572

Continued.

Table 6. Continued.

Entry	Source	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)
224	RU 0502168	76	41		8568
231	RU 0602082	74	37		8560
234	RU 0602091	76	38		8558
236	RU 0602097	75	39		8516
232	RU 0602085	75	40		8480
242	RU 0602025	76	41		8460
208	CHENIERE	79	36		8459
223	RU 0402097	76	39		8429
240	RU 0602112	77	36		8403
238	RU 0602106	76	39		8364
211	BANKS	82	44		8321
205	TRENASSE	71	42	10	8290
260	Cocodrie x URN152	71	41		8279
218	PACE	80	38		8225
206	SPRING	67	43	20	8155
228	RU 0302082	76	39		8120
229	RU 0602048	78	42		8067
203	CL151	75	38		8051
254	RU 0402152	71	42	3	8041
207	COCODRIE	76	38		7960
202	CL161	82	41		7927
241	RU 0502094	77	40		7927
212	CYBONNET	77	39		7667
204	CL171	81	40		7448
201	CL131	76	33		7446
247	RU 0502177	76	38		7225
248	RU 0602146	76	36		7197
209	CYPRESS	82	39		7170
219	XL8	78	44		7025
217	PRESDIO	76	38		7000
c.v. %		1.8	3.8	-	5.9
$LSD_{0.05}$		2.3	2.5	-	837

Table 7. Grain yield and agronomic performance of entries in the 2006 Commercial-Advanced Trial, Richland Parish, LA.

Entry	Source	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)
220	XL730	81	48	43	11234
221	XL723	80	45	10	10897
255	XP723 x CLXL730	80	46		10658
214	JUPITER	83	37		10277
252	RU 0602071	83	39		10252
222	XP729	82	44		10118
256	XP723 x Cocodrie	80	44		10077
258	CLXL730 x Cocodrie	80	46		9989
245	RU 0502125	80	36		9956
216	PIROGUE	81	40		9899
246	RU 0502137	83	35		9798

Continued.

Table 7. Continued.

Entry	Source	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)
224	RU 0502168	80	40		9759
244	RU 0402028	84	35		9758
227	RU 0502068	82	37		9604
253	RU 0602162	82	35		9602
251	RU 0602068	78	39		9541
250	RU 0502134	81	37		9469
249	RU 0502131	83	38		9456
225	RU 0502103	82	39		9414
243	RU 0502091	80	40		9407
210	WELLS	83	39		9366
208	CHENIERE	84	36		9292
233	RU 0602088	80	39		9275
213	MEDARK	80	35		9259
215	BENGAL	82	37		9249
237	RU 0602103	79	40		9181
234	RU 0602091	80	38		9168
223	RU 0402097	80	38		9099
226	RU 0502022	82	37		9073
259	CLXL730 x URN152	75	46	20	9066
235	RU 0602094	81	39		9063
228	RU 0302082	82	39		9057
242	RU 0602025	83	41		9041
231	RU 0602082	81	36		8981
211	BANKS	87	42		8952
203	CL151	80	36		8866
230	RU 0602051	80	37		8839
232	RU 0602085	79	38		8834
238	RU 0602106	79	39		8795
257	XP723 x URN152	74	45		8781
207	COCODRIE	83	37		8775
212	CYBONNET	83	37		8597
219	XL8	83	45		8432
229	RU 0602048	82	39		8318
241	RU 0502094	81	40		8298
204	CL171	83	39		8218
239	RU 0602109	80	35		8144
236	RU 0602097	79	39		8116
201	CL 131	81	32		8051
209	CYPRESS	85	38		7980
260	Cocodrie x URN152	73	38		7980
218	PACE	80	38		7935
202	CL 161	87	39		7918
240	RU 0602112	81	36		7725
254	RU 0402152	74	40		7716
205	TRENASSE	71	37		7640
248	RU 0602146	80	36		7563
217	PRESDIO	78	37		7015
206	SPRING	74	43		6312
247	RU 0502177	79	37		5884
c.v. %		1.7	3.9	-	6.2
$LSD_{0.05}$		2.2	2.5	-	888

Table 8. Mean grain and milling yields and agronomic performance of entries in the 2006 Commercial-Advanced Trial, averaged across all locations.

Entry	Source	Vigor†	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
						Whole	Total
221	XL723	5	79	44	10580	61.7	69.6
222	XP729	5	79	42	10461	59.6	69.4
255	XP723 x CLXL730	5	79	44	10172	59.6	69.0
220	XL730	5	80	46	9906	60.4	68.8
214	JUPITER	5	82	37	9633	60.1	64.8
256	XP723 x Cocodrie	5	79	42	9566	61.8	69.4
257	XP723 x URN152	5	76	42	9549	61.0	68.6
258	CLXL730 x Cocodrie	4	80	43	9534	60.6	68.5
259	CLXL730 x URN152	5	76	44	9417	59.9	67.7
250	RU 0502134	4	81	37	9341	64.3	69.7
251	RU 0602068	5	78	40	9164	62.2	66.7
252	RU 0602071	4	82	37	9064	64.3	69.6
211	BANKS	5	83	44	8999	60.9	67.2
244	RU 0402028	5	83	36	8972	65.3	69.0
245	RU 0502125	4	81	37	8959	63.1	67.2
210	WELLS	4	81	40	8881	60.6	69.1
249	RU 0502131	4	83	39	8856	62.4	66.9
226	RU 0502022	5	79	36	8774	62.6	68.9
216	PIROGUE	5	82	40	8742	60.3	66.7
237	RU 0602103	5	78	37	8661	63.5	69.5
243	RU 0502091	5	78	38	8655	63.3	69.6
253	RU 0602162	4	82	35	8614	65.6	70.1
225	RU 0502103	5	80	36	8536	62.8	70.0
228	RU 0302082	5	79	36	8533	64.6	71.8
254	RU 0402152	4	74	39	8471	61.1	66.1
246	RU 0502137	5	82	37	8463	64.3	68.1
233	RU 0602088	5	78	36	8438	63.7	69.7
242	RU 0602025	5	79	38	8411	63.8	69.2
215	BENGAL	4	82	37	8401	64.0	68.0
213	MEDARK	4	80	36	8333	63.3	67.9
234	RU 0602091	5	78	36	8318	64.7	70.5
227	RU 0502068	5	79	35	8285	64.1	70.4
235	RU 0602094	5	78	36	8268	64.0	69.7
260	Cocodrie x URN152	4	75	38	8263	61.3	67.1
224	RU 0502168	5	78	37	8254	64.0	69.5
208	CHENIERE	5	81	35	8224	64.3	70.2
229	RU 0602048	5	80	40	8210	59.3	67.6
223	RU 0402097	5	78	36	8157	63.2	70.1
230	RU 0602051	4	77	35	8141	64.7	70.0
205	TRENASSE	5	73	38	8096	62.4	67.9
203	CL151	4	79	37	8050	62.7	68.1
232	RU 0602085	5	77	36	8048	62.5	68.6
236	RU 0602097	5	77	36	7995	64.6	69.6
238	RU 0602106	5	78	37	7981	64.4	70.0
241	RU 0502094	5	79	37	7973	64.9	69.8
239	RU 0602109	5	79	35	7961	63.4	69.2
207	COCODRIE	5	80	35	7937	62.5	68.8
218	PACE	5	80	37	7915	60.0	68.4
212	CYBONNET	5	80	36	7850	66.6	70.4

Continued.

Table 8. Continued.

Entry	Source	Vigor[†]	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
						Whole	Total
231	RU 0602082	5	78	34	7840	65.3	70.5
204	CL171	4	83	38	7796	64.3	69.9
240	RU 0602112	5	79	35	7793	63.1	69.2
202	CL161	5	83	38	7635	65.5	69.7
206	SPRING	4	71	41	7556	62.6	70.1
248	RU 0602146	5	79	36	7553	64.3	68.8
201	CL131	5	80	32	7460	64.7	69.4
209	CYPRESS	5	82	36	7366	65.4	69.3
219	XL8	5	81	42	7288	57.4	67.6
217	PRESDIO	5	78	36	7169	65.6	69.8
247	RU 0502177	5	77	38	6705	62.6	69.5
c.v. %		14.3	4.1	4.9	9.2	3.6	2.4
$LSD_{0.05}$		0.6	2.1	1.2	509	2.2	1.6

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

PRELIMINARY YIELD TESTS

The preliminary yield tests provide the first stage of yield testing of promising experimental lines, which include both replicated (PY) and non-replicated (SP) tests, depending on the priority and/or seed availability. The more promising line selections will be advanced for additional testing.

The tests were conducted using standard agronomic practices (except that no fungicides were applied) at the Rice Research Station at Crowley, LA. A randomized complete block design was applied to arrange test entries. Yield, agronomic, and milling data are presented in Tables 1 to 10 for the PY groups and Table 11 for the SP entries. The plot size was 4.66 x 16 ft. Seeding rate was 90 lb/A. This test was drill-seeded on March 7 and harvested on July 29-31.

Table 1. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 1, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
501	TACAURI/CPRS	3	86	35	9200	64	70
502	CCDR/DREW	4	87	33	8918	66	73
503	9502008-A//AR 1188/CCDR	4	86	32	8942	64	73
504	CCDR/LGRU	5	86	33	7555	66	72
505	AR 1188/CCDR//AR 1142/LA 2031	4	85	34	10017	56	67
506	CPRS/LGRU	4	85	33	8945	62	70
507	LCSN/CPRS//9502008-A	3	86	33	10320	61	70
508	9502008-A//AR 1188/CCDR	3	87	35	10367	62	69
509	LGRU//AR 1188/CCDR	4	87	35	9029	66	72
510	9502008/3/CPRS//82CAY21/TBNT	4	84	32	8854	66	71
511	9502008-A//AR 1188/CCDR	4	85	35	11051	59	67
512	CCDR/3/CPRS/NWBT//KATY	4	88	35	9112	63	71
513	JEFF/JODN	4	87	34	9378	63	70
514	CPRS/CH1	3	87	33	8925	63	70
515	LBLEX2/BJ-1*F//…/3/GCHW/4/L-205	4	86	33	8780	71	73
516	CCDR/3/KATY/CPRS//JKSN	4	87	35	10168	63	69
517	JEFF/3/CPRS/NWBT//KATY	5	87	36	9643	66	72
518	CPRS//NWBT/KATY/3/KBNT	4	87	33	9990	61	69
519	KATY/CPRS//JKSN/3/AR 1188/CCDR	3	85	36	10106	61	68
520	CCDR/3/KATY/CPRS//JKSN	3	86	33	9966	63	69
521	LGRU/EP 144	5	89	43	13020	55	68
522	WELLS/CPRS	4	89	34	10134	60	69
523	CCDR/3/KATY/CPRS//JKSN	4	87	36	9871	66	71
524	9302065/CCDR	3	88	37	10166	66	73
525	TRENASSE	5	81	36	10035	65	69
C.V.%		17.8	1.1	2.7	15.0	3.6	1.8
LSD		1.4	1.9	1.9	2993	4.7	2.6

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

Table 2. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 2, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
526	SABER//AR 1188/CCDR	4	87	35	9830	65	69
527	MILL//CPRS/97T1280 DH1	4	89	35	8166	66	72
528	MILL/3/NWBT/KATY//CPRS	4	89	33	8652	61	73
529	LCRU//CCDR 9770532 DH2	4	88	33	8999	67	73
530	MILL/CCDR	5	90	31	8019	64	71
531	CCDR/9901081	4	91	33	9841	65	70
532	9901081/CCDR	5	87	31	9061	66	71
533	JEFF/3/CPRS/NWBT//KATY	3	88	37	9920	63	70
534	MILL/CCDR	4	87	32	8511	64	71
535	LGRU//CCDR 9770532 DH2	4	87	35	8711	68	72
536	9302065/CPRS	3	89	33	9223	67	72
537	MILL/3/NWBT/KATY//CPRS	4	86	33	9588	66	72
538	MILL/CCDR	4	87	30	8675	67	73
539	9302065/CPRS	4	89	34	9407	60	70
540	CCDR/JEFF	4	89	34	9568	70	73
541	MILL//9502008/LGRU	4	89	32	7351	54	69
542	9502008/CPRS//9502008/LGRU	3	89	33	10034	63	68
543	9302065/CPRS	4	90	34	8801	70	74
544	LCSN/LGRU	5	91	36	9171	66	71
545	MILL/CCDR	3	85	32	9470	65	72
546	MILL/CCDR	4	87	30	8409	66	73
547	MILL/CCDR	4	86	31	9517	69	74
548	CCDR//AR 1188/CCDR	3	87	36	10376	62	70
549	CCDR/9901081	4	89	31	10349	61	69
550	COCODRIE	4	87	35	9621	66	73
C.V.%		12.6	1.7	4.6	10.7	5.0	2.2
LSD		1.0	3.0	3.1	2018	6.7	3.2

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

Table 3. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 3, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
551	LGRU//CCDR 9770532 DH2	4	86	34	8494	64	72
552	SABER//AR 1188/CCDR	5	89	35	8170	62	71
553	CCDR/9770532 DH1//MBLE	5	87	31	8728	70	74
554	MILL/CPRS	4	86	32	9138	64	72
555	CCDR/3/KATY/CPRS//JKSN	4	87	35	8703	64	71
556	JEFF/3/CPRS/NWBT//KATY	4	88.5	37	9543	66	69
557	9502008/CPRS//WELLS	4	90	31	9524	67	73
558	CCDR/LGRU	5	88.5	34	8505	67	73
559	MILL//9502008/LGRU	4	88.5	33	8260	65	72
560	MILL//9502008/LGRU	4	87	32	9828	65	73
561	JEFF/MBLE	6	87.5	33	8896	61	69
562	KATY/CPRS//JKSN/3/AR 1188/CCDR	5	85.5	32	9310	63	70
563	DREW/CPRS	5	87.5	29	5985	66	72
564	MILL/CCDR	4	86.5	33	8463	63	72
565	MILL//CPRS/97T1280 DH1	4	87	35	8061	66	72
566	JEFF/3/CPRS/NWBT//KATY	4	86	33	10064	59	68
567	LBNT/9902/3/DAWN/9695//…/4/9502008/…	4	89.5	37	10122	62	67
568	CPRS/NWBT//KATY/3/ARNT	4	86.5	35	10277	63	70
569	CPRS/9901081	4	89	36	9991	61	68
570	FRAN//9502008/KBNT	4	88.5	33	10282	58	63
571	CPRS/NWBT//KATY/3/LSCN	4	89.5	37	9869	64	69
572	KATY/CPRS//NWBT/KATY	4	87.5	31	8293	61	72
573	AR 1179/3/CPRS//…/4/DREW	5	90	34	8159	64	70
574	CCDR/9770532 DH1//LGRU	4	88.5	37	10766	58	64
575	CHENIERE	5	88.5	35	10128	64	69
C.V.%		13.5	1.1	1.8	9.3	3.8	2.7
LSD		1.2	2.0	3.4	1741	5.0	3.9

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

Table 4. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 4, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
576	KATY/CPRS//NWBT/KATY	4	90	33	9723	63	72
577	FRAN//9502008/KBNT	4	89	32	9235	66	71
578	CPRS/9901081	4	88	35	11990	61	67
579	9502008/CPRS//WELLS	4	89	33	8900	64	73
580	FRAN/CCDR	4	91	37	11322	64	71
581	AR 1142/JODN/4/NWBT/KATY/3/…	5	89	33	8781	64	70
582	NWBT//KATY/EP227/3/9702128	5	90	35	10705	62	69
583	9502008-A//CCDR/LGRU	3	90	35	8973	66	71
584	9502008/CPRS//WELLS	5	91	34	7778	69	73
585	FRAN//9502008/KBNT	4	88	30	9088	65	70
586	9502008-A/DREW//FRAN	4	91	33	10596	62	68
587	CPRS/NWBT//KATY/3/CCDR	4	89	34	8767	62	72
588	AR 1142/JODN/4/NWBT/KATY/3/…	4	90	33	9112	65	69
589	LGRU//CCDR 9770532 DH2	5	88	33	9346	64	71
590	CPRS//NWBT/KATY/3/CCDR	5	89	31	8637	68	72
591	CPRS/NWBT//KATY/3/CCDR	4	90	31	8835	70	71
592	CPRS/9901081	4	88	31	10007	60	69
593	CPRS/9901081	5	88	32	10127	57	67
594	CPRS/NWBT//KATY/3/CCDR	4	86	34	8646	68	71
595	9502008-A//CCDR/LGRU	3	90	38	9116	63	68
596	LGRU/JODN//DREW	5	91	32	9636	61	67
597	MBLE//9002207X2/LGRU	4	87	36	9995	65	73
598	9602065/3/KATY/CPRS//JKSN	5	89	35	10302	60	68
599	NWBT/KATY//CPRS/3/LCSN	4	89	35	9559	66	73
600	9502008-A//AR 1188/CCDR	5	86	35	8797	63	70
C.V.%		13.8	1.0	4.0	9.6	4.2	3.0
LSD		1.2	1.9	2.8	1880	5.5	4.3

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

Table 5. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 5, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
601	MCR 4933/JKSN	4	86	38	9942	61	70
602	FRAN/CCDR	4	86	32	9484	63	73
603	9602065/3/KATY/CPRS//JKSN	4	94	35	9038	67	71
604	NWBT/KATY/3/82CAY21/../4/DREW	5	89	36	10938	61	70
605	AR 1142/JODN/4/NWBT/KATY/3/82CAY21/...	4	90	34	13255	61	67
606	CCDR/LGRU	4	86	33	6733	69	73
607	KATY/CPRS//NWBT/KATY	4	90	33	9157	62	71
608	CCDR/LGRU	4	85	33	9259	63	71
609	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY	5	91	40	11490	54	66
610	9901081/CPRS	4	88	32	8329	66	71
611	JODN/3/NWBT/KATY//LCSN	4	88	37	9037	64	70
612	9502008/LGRU//MBLE	5	90	33	7474	63	68
613	9901081/CCDR	5	86	35	9847	67	72
614	9901081/CCDR	4	87	36	9133	68	74
615	AR 1179/3/CPRS//…/4/WELLS	5	89	37	9040	67	73
616	CPRS/97T1280 DH1/3/CPRS/NWBT//KATY	4	89	32	8732	65	71
617	9502008/CPRS//WELLS	3	89	32	9758	61	71
618	9901081/CCDR	4	88	32	9484	65	72
619	CPRS/NWBT//KATY/3/LSCN	6	93	37	7839	58	69
620	CPRS/NWBT//KATY/3/CCDR	5	90	34	9498	66	69
621	9502008/3/CPRS//82CAY21/…/4/LM-1	4	89	33	10105	62	68
622	FRAN/CCDR	5	89	36	9578	63	73
623	JODN/LMNT	4	88	35	8558	63	71
624	KATY/CPRS//NWBT/KATY/3/CPRS	4	89	33	8880	63	72
625	9502008-A/DREW	4	87	34	9199	66	72
C.V.%		12.2	0.9	4.5	13.6	2.7	1.7
LSD		1.0	1.7	3.2	2618	3.5	2.6

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

Table 6. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 6, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
626	AR 1188/CCDR/4/KBNT/3/CPRS//…	4	88	35	10663	60	69
627	KATY/CPRS//NWBT/KATY/3/CPRS	4	89	33	8157	66	71
628	AR 1142/LA 2031//9702128	4	88	31	6885	64	70
629	9302065/LGRU	4	91	34	8426	64	72
630	CPRS/KBNT/4/9502008/3/CPRS//…	5	88	36	11122	57	68
631	KATY/CPRS//NWBT/KATY	5	89	32	6892	61	71
632	DREW/3/KBNT//KATY/CPRS/4/WELLS	4	86	31	8338	63	70
633	CPRS/CH1	4	89	31	10282	65	70
634	KATY/CPRS//NWBT/KATY	4	88	33	9494	58	71
635	KATY/CPRS//NWBT/KATY/3/CPRS	3	88	33	9203	63	72
636	AR 1142/JODN/3/KATY/CPRS//JKSN	3	88	32	8484	58	71
637	CCDR/MILL	4	88	32	8993	56	73
638	CCDR/LGRU	4	85	33	10317	62	70
639	CCDR/LGRU	4	85	35	9022	65	71
640	CCDR//9502008-A/DREW	4	87	36	8981	61	72
641	CPRS/KBNT/4/9502008/3/CPRS//…	4	86	34	9813	61	71
642	KATY/CPRS//NWBT/KATY	4	89	32	7649	60	72
643	CCDR/3/NWBT/KATY//CPRS	4	88	34	6222	63	73
644	CPRS/KBNT/4/9502008/3/CPRS//…	4	86	31	9116	64	70
645	CPRS/KBNT/4/9502008/3/CPRS//…	5	88	34	10077	61	69
646	CCDR/JEFF	4	85	34	8465	66	71
647	DREW/WELLS	5	90	39	10811	62	66
648	9502008/3/CPRS//82CAY21/…/4/LM-1	4	86	32	8134	67	73
649	NWBT/KATY/3/82CAY21/…/4/MCR 4933	5	89	35	9792	64	70
650	XP 723	5	88	41	9735	63	71
C.V.%		11.5	1.1	3.6	16.4	4.0	1.3
LSD		0.9	1.9	2.5	3046	5.0	1.9

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

Table 7. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 7, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
651	248WE16i-1*1	6	89	32	7291	65	73
652	CCDR//9502008-A/TACAURI	5	86	33	9085	66	73
653	9002207X2/LGRU//CCDR	4	84	38	8874	66	72
654	248WE16i-2*2	4	90	40	11628	56	69
655	9502008-A/DREW//FRAN	4	89	32	9674	64	71
656	248WE16i-6	5	90	31	7253	65	70
657	9502008/CPRS//WELLS	4	89	36	9140	65	71
658	9002207X2/LGRU//CCDR	4	89	33	10399	59	66
659	9002207X2/LGRU//CCDR	4	82	34	9276	63	70
660	NWBT/KATY//9902207x2/3/CCDR	5	86	32	9518	63	72
661	9002207X2/LGRU//CCDR	4	83	29	7766	63	73
662	248WE16i-10	5	90	32	8942	64	72
663	CCDR//9502008-A/TACAURI	5	84	34	8913	67	71
664	KATY/CPRS//NWBT/…/3/9502008/4/CCDR	4	87	33	9030	59	72
665	FRAN//9502008/LGRU	5	87	31	9298	67	72
666	9502008-A/DREW//FRAN	3	87	31	10194	61	68
667	LGRU//CCDR 9770532 DH2	5	88	34	8073	66	72
668	9502008-A/DREW//FRAN	4	88	33	10759	58	69
669	CPRS//CPRS/DREW	4	88	37	9843	63	71
670	9302065//CPRS/97T1280DH1	5	88	32	7412	52	72
671	FRAN//9502008/LGRU	5	86	34	10421	63	71
672	TACAURI//CPRS/82CAY21/TBNT/3/CCDR	4	86	32	8097	67	73
673	CCDR/3/CPRS/NWBT//KATY	4	86	33	8602	63	70
674	CCDE/3/CPRS/NWBT//KATY	4	84	34	8324	63	73
675	CL131	4	89	31	8261	66	70
C.V.%		13.4	0.9	4.1	12.8	3.8	1.6
LSD		1.2	1.8	2.8	2398	4.9	2.4

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

Table 8. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 8, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
676	248WE16i-13-2	4	90	35	9565	64	70
677	TACAURI//CPRS/82CAY21/TBNT/3/CCDR	5	86	33	7877	66	72
678	CCDR/LGRU	4	86	34	10083	59	69
679	248WE16i-13-3	4	94	34	8519	68	72
680	9502008/KBNT//CPRS/LGRU	4	88	36	8842	68	72
681	FRAN//9502008/LGRU	5	89	33	9316	65	72
682	248WE16m-7	5	90	35	10556	65	71
683	KATY/CPRS//NWBT/…/3/9502008/4/CCDR	4	85	33	8794	64	72
684	9302065//CPRS/97T1280DH1	4	91	31	8255	61	71
685	248WE16i-13-2	5	90	36	10768	62	70
686	MILL/3/NWBT/KATY//CPRS	4	86	34	8541	68	73
687	CCDR/9901081	4	87	32	9511	61	71
688	JKSN/MCR 4933	4	89	32	8583	65	70
689	9302065/CPRS	4	89	32	7752	66	72
690	CCDR/LGRU	5	86	33	9214	65	72
691	DREW/CCDR	4	84	35	9169	63	73
692	SABER//AR 1188/CCDR	5	86	31	8861	68	71
693	9302065/CCDR	4	83	32	9110	68	74
694	SABER//AR 1188/CCDR	5	82	34	8965	67	71
695	CCDR/3/CPRS/NWBT//KATY	5	87	36	8314	59	72
696	LMNT/WELLS	5	88	32	7495	60	72
697	9302065/CCDR	4	87	34	9132	61	71
698	9302065/CPRS	4	91	33	8569	64	68
699	LMNT/20001-5/3/LMNT/L-202/4/JKSN/CPRS	4	86	35	10655	61	69
700	CFX-26/9702128	4	88	36	9626	63	69
C.V.%		11.0	1.6	3.7	7.8	4.1	2.4
LSD		0.9	3.0	2.6	1377	5.4	3.5

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

Table 9. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 9, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
701	CCDR/3/CPRS/NWBT//KATY	5	87	31	7912	54	74
702	9302065/CPRS	5	89	33	6812	64	71
703	CCDR/LGRU	4	85	33	9833	70	74
704	DREW/CPRS	4	91	32	8293	67	71
705	9502008/CPRS//WELLS	4	88	34	8524	60	71
706	9302065/CPRS	4	90	31	7179	66	73
707	CCDR/4/CPRS/3/MBLE//LMNT/…	4	84	32	7600	65	72
708	9302065/DREW//WELLS	5	87	31	6366	70	74
709	9302065/CPRS	3	88	33	7237	64	70
710	AR 1179/3/CPRS//…/4/WELLS	5	93	35	9634	62	67
711	LCSN/LGRU	5	90	35	8326	63	69
712	MILL/4/AR 1179/3/CPRS/…	4	89	32	8801	61	71
713	9302065/CPRS	4	88	30	5374	61	71
714	JEFF/MBLE	4	84	32	7310	55	70
715	CCDR//AR 1188/CCDR	4	86	33	8034	62	70
716	CCDR/9770532 DH1//MBLE	4	89	31	8072	57	72
717	MILL/CCDR	4	85	30	8743	68	73
718	MILL//9502008/LGRU	4	87	33	8974	57	73
719	CPRS/9901081	5	87	33	10394	61	69
720	AR 1179/3/CPRS//…/4/WELLS/…	4	91	37	8579	64	69
721	DH1/3/CPRS/NWBT//KATY	5	89	36	9742	57	70
722	FRAN/ARNT	4	88	32	8794	63	69
723	AR 1188/CCDR//9502008/LGRU	4	87	32	9561	67	71
724	AR 1179/3/CPRS//…/4/WELLS	4	93	38	9590	63	68
725	LGRU/LCSN	4	85	33	9495	63	70
C.V.%		13.3	1.0	4.2	11.1	3.8	1.8
LSD		1.1	1.7	2.8	1913	4.9	2.7

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

Table 10. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 10, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
726	AR 1179/3/CPRS//…/4/WELLS	4	94	34	11983	56	66
727	AR 1188/CCDR//AR 1142/MBLE	5	87	31	5859	58	68
728	CCDR/9770532 DH1//LGRU	4	89	36	12608	59	67
729	9502008/3/CPRS//82CAY21/…/4/LM-1	4	88	36	10647	58	66
730	9502008-A//CCDR/LGRU	4	89	34	9313	66	70
731	NWBT/KATY/3/82CAY21/../4/DREW	4	88	33	9008	65	73
732	AR 1188/CCDR//9502008/LGRU	4	86	32	12896	61	68
733	CPRS/NWBT//KATY/3/ARNT	5	86	35	10469	56	65
734	AR 1142/JODN//DREW	5	86	33	9349	63	74
735	AR 1142/JODN//DREW	4	88	32	9531	67	73
736	AR 1179/3/CPRS//…/4/WELLS	4	89	33	10245	55	69
737	9502008/CPRS//WELLS	4	89	32	9837	66	71
738	LM-1//CPRS/KBNT	4	89	30	6508	64	69
739	WELLS//LGRU/JODN	4	89	32	9057	60	69
740	AR 1142/JODN/4/NWBT/KATY/3/…	4	88	32	8803	68	72
741	LGRU/JODN//DREW	5	91	33	9434	61	69
742	AR 1179/3/CPRS//…/4/DREW	4	91	37	9335	60	71
743	AR 1179/3/CPRS//…/4/WELLS	4	95	36	9900	61	68
744	AR 1179/3/CPRS//…/4/WELLS	4	88	33	9915	63	70
745	9502008/CPRS//WELLS	4	88	34	9498	64	73
746	KATY/CPRS//NWBT/KATY	3	88	31	8202	59	71
747	CPRS/3/CPRS/NWBT/KATY	4	88	31	8639	65	72
748	AR 1179/3/CPRS//…/4/DREW	5	89	32	8887	61	70
749	MCR 4933/9302065	4	86	34	8835	63	71
750	9502008-A//AR 1142/MBLE	4	87	32	8266	64	71
C.V.%		10.1	1.2	5.2	12.6	2.9	1.9
LSD		0.9	2.1	3.5	2475	3.7	2.7

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

Table 11. Agronomic and milling performance of Single Plot Test (SP), long-grain entries, Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
SP 001	WELLS/DXBL	5	94	41	9820	60	69
SP 002	LGRU/CCDR	4	89	38	8781	64	70
SP 003	SABER/LGRU	4	88	37	8521	67	73
SP 004	LCSN/LGRU	5	90	33	8504	61	68
SP 005	MILL//9502008/LGRU	4	88	34	8780	62	70
SP 006	MILL/CCDR	5	87	35	8937	64	72
SP 007	WELLS/LSCN	4	90	38	7852	75	74
SP 008	LGRU//AR 1188/CCDR	5	87	33	7239	57	74
SP 009	CCDR/DREW	4	85	35	7163	63	71
SP 010	CCDR/3/CPRS/NWBT//KATY	5	88	33	6570	59	72
SP 011	CCDR/9502008-A	5	88	33	6622	62	71
SP 012	EP 144/3/NWBT/KATY/EP 227	5	87	35	7156	63	68
SP 013	9302065/CCDR	4	87	33	7989	65	72
SP 014	CCDR/3/CPRS/NWBT//KATY	4	86	33	8314	65	73
SP 015	EP 144/3/NWBT/KATY/EP 227	4	87	33	6981	68	70
SP 016	CCDR/DREW	5	85	32	6834	63	71
SP 017	SABER//AR 1188/CCDR	5	86	35	8158	65	73
SP 018	MILL//9502008/LGRU	4	89	33	7421	65	73
SP 019	CCDR/4/CPRS/3/MBLE//LMNT/…	4	86	33	7983	68	72
SP 020	9502008/CPRS//WELLS	5	87	31	7317	61	71
SP 021	CCDR/4/NWBT/KATY/3/82CAY21/…	5	87	31	8483	64	73
SP 022	MBLE/CCDR	5	87	31	7617	65	72
SP 023	CCDR/MILL	6	86	30	7954	60	74
SP 024	LCSN/LGRU	4	90	34	8691	64	73
SP 025	TRENASSE	4	82	36	9074	61	68
SP 026	MILL/3/NWBT/KATY//CPRS	4	87	33	8797	61	73
SP 027	9302065/CCDR	5	87	33	7904	65	69
SP 028	CCDR/LGRU	4	86	32	7820	63	73
SP 029	CCDR/3/CPRS/NWBT//KATY	4	87	31	7585	62	73
SP 030	CCDR/LGRU	5	88	32	7339	64	70
SP 031	MILL/4/AR 1179/3/CPRS/…	4	87	33	8682	67	72
SP 032	MILL/3/NWBT/KATY//CPRS	4	86	30	7569	63	72
SP 033	9302065/CPRS	3	89	30	7856	65	72
SP 034	CCDR/LGRU	4	85	35	8212	64	72
SP 035	CCDR/4/CPRS/3/MBLE//LMNT/…	4	86	33	7164	63	71
SP 036	JEFF/CCDR	5	85	27	6051	68	71
SP 037	CCDR/LGRU	4	85	32	7317	62	71
SP 038	CPRS/9901081	4	88	34	9189	66	72
SP 039	MILL/3/NWBT/KATY//CPRS	4	87	31	7580	61	73
SP 040	MILL/CCDR	4	85	30	7850	69	74
SP 041	CCDR/9901081	5	87	35	8192	62	72
SP 042	CPRS/9901081	4	86	29	9164	64	73
SP 043	9302065/CPRS	5	89	30	7183	67	71
SP 044	9302065/CPRS	4	89	35	8155	68	73
SP 045	CCDR/9901081	4	90	33	9498	65	70

Continued.

Table 11. Continued.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
SP 046	CCDR/9901081	4	87	33	9731	60	69
SP 047	MILL/CPRS	4	87	31	8806	66	73
SP 048	CPRS/9901081	3	88	33	9954	61	66
SP 049	9302065/DREW//LSCN	4	89	33	7300	64	74
SP 050	COCODRIE	4	88	33	8890	64	71
SP 051	DREW/CPRS	4	89	34	8716	67	75
SP 052	DREW/CPRS	4	87	33	8781	68	73
SP 053	9901081/CCDR	4	85	30	9961	63	69
SP 054	SABER/LGRU	3	88	37	7844	64	69
SP 055	9901081/CCDR	4	87	35	10570	61	68
SP 056	9502008/CPRS//WELLS	5	88	31	7487	67	73
SP 057	MILL/MBLE	4	87	32	7558	63	69
SP 058	CCDR/MBLE	5	87	33	8039	63	71
SP 059	MILL/CCDR	4	87	31	7888	69	73
SP 060	CCDR/9901081	5	87	33	7836	63	70
SP 061	9502008/CPRS//9502008/LGRU	4	88	33	8800	65	72
SP 062	LGRU//CCDR 9770532 DH2	4	86	31	6153	66	71
SP 063	CCDR/9901081	4	89	32	7778	68	72
SP 064	LCSN/LGRU	5	89	35	8179	59	72
SP 065	9901081/CCDR	5	84	28	6498	62	73
SP 066	JKSN/9302065	3	88	31	8585	65	73
SP 067	MILL/MBLE	3	84	35	6568	64	73
SP 068	CPRS/9901081	4	90	33	9467	64	68
SP 069	MILL/9302065	3	91	34	7826	67	72
SP 070	JEFF/CCDR	5	86	33	8269	68	72
SP 071	MILL/CCDR	4	85	31	7554	61	73
SP 072	MILL/CCDR	4	86	30	7951	70	73
SP 073	MILL/CCDR	4	85	31	8613	64	74
SP 074	CCDR/MBLE	5	87	31	5646	65	69
SP 075	CHENIERE	4	89	34	7948	65	72
SP 076	MILL/CCDR	4	85	27	7833	67	72
SP 077	JEFF/MBLE	5	85	30	7135	65	70
SP 078	SABER/LGRU	4	91	34	7293	65	70
SP 079	CCDR/LGRU	4	85	32	6639	65	72
SP 080	CCDR/MILL	4	-60	29	4316	63	71
SP 081	MILL/CCDR	4	84	30	4768	64	72
SP 082	CCDR/LGRU	4	85	32	8242	64	73
SP 083	SABER/CCDR	4	86	30	7576	65	72
SP 084	AR 1179/3/CPRS//…/4/WELLS	4	92	31	8982	62	72
SP 085	CCDR/9770532 DH1//LGRU	4	88	30	10075	65	71
SP 086	9502008/3/CPRS//82CAY21/…/4/CPRS	4	87	29	6370	59	72
SP 087	CPRS/9901081	4	87	31	8908	66	71
SP 088	CPRS/NWBT//KATY/3/CCDR	4	87	35	8589	67	71
SP 089	NWBT/KATY/3/82CAY21/../4/DREW	4	86	36	7866	59	72
SP 090	CCDR/JEFF	3	83	31	8823	70	73

Continued.

Table 11. Continued.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
SP 091	9901081/CCDR	4	87	31	8393	64	69
SP 092	CPRS/NWBT//KATY/3/CCDR	4	87	32	8133	66	71
SP 093	AR 1179/3/CPRS//…/4/WELLS	4	95	34	9569	62	68
SP 094	FRAN/CCDR	3	87	35	9137	64	72
SP 095	DREW/WELLS	4	90	39	8393	68	72
SP 096	KATY/CPRS//NWBT/KATY	4	87	33	7813	59	71
SP 097	248WE16f-3	4	93	37	8552	68	71
SP 098	FRAN//9502008/KBNT	3	85	33	8840	65	71
SP 099	9502008-A/DREW//FRAN	4	86	33	9339	64	74
SP 100	9502008-A//AR 1188/CCDR	4	87	32	7505	65	73

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

CLEARFIELD EXPERIMENTAL LINES

S.D. Linscombe, X.Y. Sha, S.B. Blanche, K.F. Bearb, C.A. Conner, B.W. Theunissen,
S.J. Theunissen, G.E. Anderson, B.J. Henry, H.L. Hoffpauir, and X. Jin

The combination of a Clearfield variety with use of the NewPath (*imazethypr*) herbicide can be used in a program to selectively eliminate red rice in a commercial rice field. Since the majority of the current Clearfield rice acreage was planted with CL161 (a Cypress mutant) and CL131 (a line derived from conventional breeding with a CL mutant), there is a great potential to improve Clearfield rice production by the development of new Clearfield varieties.

The Rice Breeding Project at the LSU AgCenter's Rice Research Station (RRS) has been actively involved in the development of new Clearfield lines that combine the high level of herbicide resistance, high yield potential, and good agronomic characteristics. Due to the limitations of both mutation and backcross breeding, conventional pedigree breeding has continued to be the primary method for the development of new Clearfield rice varieties. Crosses are continuously made to combine the high level of *imazethypr* resistance of CL161 and its derived experimental lines with high yield potential of conventional long-grain varieties or lines. On- and off-station (in-farm) trials were conducted to evaluate these lines in a typical breeding trial for yield, milling, and agronomic performance. These trials were also treated with the herbicide Newpath to evaluate resistance levels. In each of the trials, *imazethypr* was applied at a rate of 0.126 lb ai/A at emergence after drill seeding, then again at the 3- to 4-leaf stage.

In 2006, advanced yield trials, including 22 experimental Clearfield lines, along with check varieties CL131, CL161, CL 151 and CL 171, were tested at RRS and four off-station locations. All on- and off-station tests were planted as companion tests to the commercial-advanced (CA) tests. Standard agronomic practices were used for all trials. The experimental design was a randomized complete block with two to three replications for each location. Plot size was 4.67 x 16 ft. Yield and agronomic performance of advanced tests are listed in tables 1 to 5. Medium-grain experimental line tests were conducted at the Rice Research Station and two off-station locations. These data are presented in Tables 6 to 8.

Table 1. Agronomic and milling performance of 2006 Clearfield Advanced Yield Trials, Acadia Parish, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total	Lodging %
CY 001	CL131	5	87	35	7280	63	67	
CY 002	CL161	4	90	39	7356	62	67	
CY 003	CL151	4	87	39	7719	59	66	
CY 004	CL171	5	91	40	7311	61	67	
CY 005	WELLS/CFX-18	4	31	38	7518	59	65	
CY 006	CFX-26/9702128	4	85	37	6905	62	66	43
CY 007	CFX18/LM-1	5	88	38	6080	62	67	10
CY 008	CFX-26/9702128	4	86	34	6569	63	67	20
CY 009	CFX-26/9702128	5	85	36	6255	65	69	43
CY 010	CFX-18//CCDR/9770532 DH2	5	86	35	6936	64	69	
CY 011	WELLS/CFX-18	4	88	38	7641	62	68	
CY 012	WELLS/CFX-18	4	88	38	7385	62	68	
CY 013	CFX-18//CCDR/9770532 DH2	4	85	38	7251	63	67	
CY 014	9502008/3/CPRS//82CAY21/…/4/CFX-18	4	87	38	7448	65	65	
CY 015	CFX-18//CCDR/9770532 DH2	4	86	38	7765	62	66	
CY 016	DREW/CFX-18	5	90	42	7778	62	67	
CY 017	CFX-29/CCDR	5	88	36	7345	60	66	
CY 018	CFX-26/9702128	4	90	38	7589	56	62	
CY 019	CFX-29/CCDR	5	89	40	7664	63	68	
CY 020	CCDR/CLR 11	5	85	38	7154	59	64	
CY 021	WELLS/CFX-18	5	86	36	7284	59	66	
CY 022	CFX-29//AR 1142/LA 2031	5	89	35	7630	64	67	
CY 023	CFX-24/98IM2251	5	85	37	6880	63	68	
CY 024	CFX-18//CCDR/9770532 DH2	4	88	38	7004	63	67	
CY 025	CFX-18//CPRS/KBNT	5	90	37	7170	61	66	
CY 026	DREW/CFX-18	5	87	37	7647	66	70	
C.V%		10.7	0.9	3.1	5.4	3.6	2.6	
LSD		0.8	1.3	1.9	645	4.6	3.6	

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

Table 2. Agronomic and milling performance of 2006 Clearfield Advanced Yield Trials, Evangeline Parish, LA .

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
CY 001	CL131	5	75	31	7860	69	73
CY 002	CL161	4	76	36	7969	70	72
CY 003	CL151	4	75	35	8614	68	72
CY 004	CL171	4	77	38	8219	68	73
CY 005	WELLS/CFX-18	4	71	34	8415	65	70
CY 006	CFX-26/9702128	4	71	33	8465	65	70
CY 007	CFX18/LM-1	5	73	35	8015	66	70
CY 008	CFX-26/9702128	5	72	35	8123	67	70
CY 009	CFX-26/9702128	5	71	33	8578	67	70
CY 010	CFX-18//CCDR/9770532 DH2	5	72	32	7705	64	69
CY 011	WELLS/CFX-18	5	70	35	8289	68	72
CY 012	WELLS/CFX-18	4	70	37	8089	67	71
CY 013	CFX-18//CCDR/9770532 DH2	4	70	35	8242	65	69
CY 014	9502008/3/CPRS//82CAY21/…/4/CFX-18	4	74	33	8320	69	71
CY 015	CFX-18//CCDR/9770532 DH2	4	71	35	8835	69	72
CY 016	DREW/CFX-18	5	76	39	8405	69	72
CY 017	CFX-29/CCDR	4	72	33	7886	69	72
CY 018	CFX-26/9702128	4	77	38	9068	65	69
CY 019	CFX-29/CCDR	5	72	36	8756	67	70
CY 020	CCDR/CLR 11	5	74	33	8192	69	72
CY 021	WELLS/CFX-18	5	69	32	7310	64	70
CY 022	CFX-29//AR 1142/LA 2031	5	75	32	8804	71	74
CY 023	CFX-24/98IM2251	5	72	34	8063	67	71
CY 024	CFX-18//CCDR/9770532 DH2	4	77	36	8285	69	72
CY 025	CFX-18//CPRS/KBNT	5	75	36	8865	67	71
CY 026	DREW/CFX-18	5	69	33	8343	67	72
C.V.%		12.4	2.0	3.6	4.6	2.6	1.5
LSD		0.9	2.4	2.0	629	3.6	2.2

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

Table 3. Agronomic and milling performance of 2006 Clearfield Advanced Yield Trials, Lake Arthur, Vermilion Parish, LA.

Entry	Pedigree	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total	Sheath Blight
CY 001	CL131	79	33	8478	68	73	7
CY 002	CL161	81	37	8316	66	71	6
CY 003	CL151	78	38	8162	63	70	7
CY 004	CL171	80	39	7785	67	72	7
CY 005	WELLS/CFX-18	78	38	7984	60	66	7
CY 006	CFX-26/9702128	76	36	8139	63	69	8
CY 007	CFX18/LM-1	80	37	7493	67	72	8
CY 008	CFX-26/9702128	79	37	7860	63	69	6
CY 009	CFX-26/9702128	76	36	8325	68	72	6
CY 010	CFX-18//CCDR/9770532 DH2	76	35	7344	67	72	7
CY 011	WELLS/CFX-18	77	36	8302	67	72	7
CY 012	WELLS/CFX-18	77	38	8344	67	73	6
CY 013	CFX-18//CCDR/9770532 DH2	43	35	7097	68	72	8
CY 014	9502008/3/CPRS//82CAY21/…/4/CFX-18	79	36	7907	67	72	8
CY 015	CFX-18//CCDR/9770532 DH2	76	36	7963	69	73	7
CY 016	DREW/CFX-18	81	36	7799	60	65	7
CY 017	CFX-29/CCDR	78	36	8188	68	73	7
CY 018	CFX-26/9702128	82	38	8237	60	67	7
CY 019	CFX-29/CCDR	79	36	7715	68	73	8
CY 020	CCDR/CLR 11	79	36	7933	67	73	7
CY 021	WELLS/CFX-18	76	36	8322	65	72	7
CY 022	CFX-29//AR 1142/LA 2031	78	36	8908	68	72	7
CY 023	CFX-24/98IM2251	80	35	7311	66	72	6
CY 024	CFX-18//CCDR/9770532 DH2	79	36	8306	68	73	7
CY 025	CFX-18//CPRS/KBNT	81	35	7762	65	70	8
CY 026	DREW/CFX-18	76	36	7872	68	73	7
C.V.%		1.1	3.4	4.7	3.1	2.4	12.1
LSD		1.4	2.0	631	4.2	3.6	1.4

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

Table 4. Agronomic and milling performance of 2006 Clearfield Advanced Yield Trials, Richland Parish, LA

Entry	Pedigree	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)
CY 001	CL131	81	33	8175
CY 002	CL161	87	38	7740
CY 003	CL151	80	37	9041
CY 004	CL171	83	39	7907
CY 005	WELLS/CFX-18	83	40	9280
CY 006	CFX-26/9702128	78	37	8498
CY 007	CFX18/LM-1	84	39	7931
CY 008	CFX-26/9702128	76	37	7608
CY 009	CFX-26/9702128	75	36	7952
CY 010	CFX-18//CCDR/9770532 DH2	82	37	7908
CY 011	WELLS/CFX-18	80	37	7660
CY 012	WELLS/CFX-18	80	40	8176
CY 013	CFX-18//CCDR/9770532 DH2	79	38	8255
CY 014	9502008/3/CPRS//82CAY21/…/4/CFX-18	83	39	8356
CY 015	CFX-18//CCDR/9770532 DH2	80	38	8460
C.V.%		1.2	3.2	4.4
LSD		1.6	2.0	607

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

Table 5. Agronomic and milling performance of 2006 Clearfield Advanced Yield Trials, Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total
001	CL131	4	81	32	7098	65	70
002	CL161	4	83	38	8224	67	72
003	CL151	4	82	37	7869	62	68
004	CL171	4	84	38	8209	66	72
005	WELLS/CFX-18	5	80	37	7030	63	69
006	CFX-26/9702128	4	79	33	8199	61	67
007	CFX18/LM-1	4	82	38	7199	64	69
008	CFX-26/9702128	5	81	35	7397	63	68
009	CFX-26/9702128	6	80	36	8345	65	70
010	CFX-18//CCDR/9770532 DH2	5	79	34	7565	66	71
011	WELLS/CFX-18	4	79	36	7952	65	71
012	WELLS/CFX-18	4	80	37	8000	66	72
013	CFX-18//CCDR/9770532 DH2	4	79	34	7694	66	71
014	9502008/3/CPRS//82CAY21/…/4/CFX-18	4	81	36	8391	67	71
015	CFX-18//CCDR/9770532 DH2	4	79	34	8141	66	71
016	DREW/CFX-18	4	84	41	8387	66	70
017	CFX-29/CCDR	4	81	36	7800	64	70
018	CFX-26/9702128	4	85	38	8487	62	68
019	CFX-29/CCDR	4	81	36	7809	67	72
020	CCDR/CLR 11	5	80	39	7523	66	72
021	WELLS/CFX-18	4	79	34	7850	62	70
022	CFX-29//AR 1142/LA 2031	4	81	33	7918	66	70
023	CFX-24/98IM2251	4	80	36	7432	62	69
024	CFX-18//CCDR/9770532 DH2	4	80	37	8156	68	72
025	CFX-18//CPRS/KBNT	4	84	36	6772	66	70
026	DREW/CFX-18	4	79	34	7286	67	72
C.V%		10.0	0.9	3.7	6.3	2.2	1.6
LSD		0.7	1.2	2.2	811	2.9	2.3

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

Table 6. Agronomic and milling performance of 2006 Clearfield Advanced Yield Trials, medium-grain lines. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total	Lodging %
001	9502065/3/BNGL//MERC/RICO/4/CL161	5	83	43	9764	67.6	70.0	30
002	9502065/3/BNGL//MERC/RICO/4/CL161	5	81	43	8642	67.1	70.2	57
003	BNGL/SRICO/CFX18	4	79	43	8600	63.8	68.3	
004	BNGL/SRICO/CFX18	4	81	44	8441	64.9	68.7	
005	9502065/3/BNGL//MERC/RICO/4/CL161	5	80	45	8706	64.1	67.7	53
006	9502065/3/BNGL//MERC/RICO/4/CL161	5	81	43	9403	68.4	71.2	
007	CL131	5	82	35	4016	64.9	69.4	
008	CL161	5	86	40	9041	67.0	70.2	
009	CL151	4	83	39	9159	63.6	67.6	
010	CL171	4	85	40	9448	65.9	70.1	
C.V.%		9.0	1.1	3.3	8.8	1.7	1.3	
LSD		0.7	1.5	2.3	1355	2.5	2.0	

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

Table 7. Agronomic and milling performance of 2006 Clearfield Advanced Yield Trials, Medium grain lines. Lake Arthur, Vermilion Parish, LA.

Entry	Pedigree	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A@ 12%)	Milling Yield (%) Whole	Milling Yield (%) Total	Lodging %
001	9502065/3/BNGL//MERC/RICO/4/CL161	80	41	8565	66	70	6
002	9502065/3/BNGL//MERC/RICO/4/CL161	80	44	9072	68	70	5
003	BNGL/SRICO/CFX18	79	41	8423	65	70	6
004	BNGL/SRICO/CFX18	79	43	8770	64	68	5
005	9502065/3/BNGL//MERC/RICO/4/CL161	80	42	8517	65	69	6
006	9502065/3/BNGL//MERC/RICO/4/CL161	79	42	8866	65	69	7
007	CL131	80	34	8799	66	71	8
008	CL161	81	39	8311	67	71	7
009	CL151	79	38	8681	63	69	7
010	CL171	81	40	8664	67	72	6
C.V.%		0.5	3.4	3.4	2.1	1.3	11.8
LSD		0.7	2.4	619	3.2	2.0	1.3

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

Table 8. Agronomic and milling performance of 2006 Clearfield Advanced Yield Trials, medium-grain lines, Jeff Davis Parish, LA

Entry	Pedigree	Grain Yield (lb/A@ 12%)	Sheath Blight
001	9502065/3/BNGL//MERC/RICO/4/CL161	4976	6
002	9502065/3/BNGL//MERC/RICO/4/CL161	5450	7
003	BNGL/SRICO/CFX18	5442	6
004	BNGL/SRICO/CFX18	5128	6
005	9502065/3/BNGL//MERC/RICO/4/CL161	5370	6
006	9502065/3/BNGL//MERC/RICO/4/CL161	6523	6
007	CL131	4814	8
008	CL161	3046	8
009	CL151	5739	8
010	CL171	5033	7
C.V.%		18.2	7.2
LSD		881	2.1

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

MEDIUM-GRAIN RICE BREEDING

S.B. Blanche, S.D. Linscombe, X.Y. Sha, G.A. Anderson, K.F. Bearb, C.A. Conner,
B.T. Theunissen, S.J. Theunissen, H.L. Hoffpauir

The objectives of the medium-grain rice breeding project are to develop improved medium-grain rice varieties using traditional and modern breeding techniques. Key goals of the program are to increase yield potential, disease resistance, and milling quality and to select for large, bold grain-types with excellent cooking characteristics. Other traits of interest include short plant stature, lodging resistance, earliness, and stable grain and milling yield.

The medium-grain breeding project made 90 unique cross combinations to accomplish the goals of the program. Other activities in 2006 included 65 transplanted F_1 populations and 66 space-planted F_2 populations. The 2006 medium-grain rice breeding nursery included over 10,000 progeny rows from F_3 (early) to F_8 (advanced) generations.

Eight advanced medium-grain experimental lines (entries 062, 065, 068, 071, 162, 165, 168, and 171) were tested in the 2006 Uniform Regional Rice Nursery (URN). The yield, milling, and agronomic performance of these lines are presented in the URN tables. Five of these lines were tested in the Commercial-Advanced (CA) Yield Test at six locations throughout the Louisiana rice-growing regions, and these data are presented in the CA tables.

The preliminary yield testing program evaluated 125 advanced breeding lines in 2006. These experimental lines were evaluated for yield, seedling vigor, milling characteristics, quality parameters, and agronomic characteristics such as plant height and maturity.

Standard agronomic practices were used for the preliminary yield tests, but no fungicide was applied. Tests were conducted at the Rice Research Station at Crowley, LA, and plot size was 4.66 x 16 feet. Seeding rate was 90 lb/A. This test was drill-seeded on March 7 and harvested on July 29. Milling samples were taken from each plot at harvest maturity (18 to 20% moisture). Tables 1 to 3 presented in this section report only on the medium-grain entries in the replicated and single-plot preliminary yield tests.

Table 1. Grain and milling yield and agronomic performance of medium-grain entries in the 2006 replicated preliminary yield test, Group 15. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor[†]	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Milling Yield (%)		Blast[‡]	SB[‡]	NBLS[‡]
						Whole	Total			
858	9502065/3/MERC//MERC/…	6	90	36	12344	65.6	72.0	2.0	5.5	0.0
857	BNGL/9502065	6	90	36	12225	68.8	72.5	3.0	5.5	0.5
851	EARL/9902028	6.5	87	39	12110	63.0	71.4	4.0	4.5	1.5
868	BNGL//MERC/RICO/3/MERC/RICO//BNG	6	91	35	11503	69.3	72.6	1.5	4.5	0.0
874	9902028/3/BNGL//MERC/RICO	6.5	89	36	11048	62.6	70.5	1.5	4.5	0.0
855	EARL/9902028	5.5	93	33	10925	66.0	71.2	3.5	5.0	0.0
869	BNGL//MERC/RICO/3/MERC/RICO//BNG	6	92	34	10671	70.1	72.7	3.5	5.0	0.0
875	9902028/3/BNGL//MERC/RICO	5.5	88	26	10660	68.1	72.9	4.0	6.5	0.5
867	BNGL/3/BNGL//MERC/RICO	5.5	91	35	10130	68.8	73.3	3.0	5.0	0.0
862	BNGL//MERC/RICO/3/RICO/…	6	91	34	10088	64.1	67.0	3.0	6.0	1.0
863	BENGAL	6	92	36	10022	64.4	71.5	4.5	5.5	3.0
864	BNGL//MERC/RICO/3/RICO/…	5.5	93	36	9845	69.3	73.3	4.0	5.5	0.5
860	MERC//MERC/KOSH/3/MERC/RICO//BN	5.5	91	36	9834	65.3	71.7	1.5	5.0	0.5
866	BNGL//MERC/RICO/3/STRN	5.5	93	33	9730	68.4	74.2	4.0	5.0	0.5
872	EARL/9902028	6	93	36	9714	66.4	70.6	1.5	5.5	0.0
854	EARL/9902028	6	89	34	9272	61.4	71.0	1.5	6.0	0.0
873	PY 678/BNGL//MERC/RICO	6	94	37	9215	66.0	70.6	3.5	5.5	0.0
870	BNGL//MERC/RICO/3/MERC/RICO//BNG	5.5	91	31	9204	67.0	72.6	3.0	5.5	0.0
859	9502065/BNGL	5.5	92	34	9197	66.0	70.4	2.0	4.5	0.0
865	LFTE/BNGL	6	88	36	9008	69.4	73.0	1.5	4.5	0.5
853	9502065/BNGL	5.5	91	35	8967	63.1	68.5	4.5	5.0	0.0
871	BNGL//MERC/RICO/3/STRN	6	94	35	8738	66.5	72.2	4.0	5.5	0.5
852	ORIN/3/MERC/CAM9/MARS/4/BNGL	6	89	37	8547	63.7	71.3	5.0	5.0	1.5
861	MERC/LMNT//MERC/3/BNGL/4/AB 869	6	90	33	8380	66.0	72.2	4.5	5.0	2.0
856	BNGL//MERC/RICO/3/RICO/…	5	89	33	8233	61.8	70.5	3.0	5.5	0.5
c.v.%		9.6	1.0	8.5	10.1	3.4	2.3	64	12	53
$LSD_{0.0}$		1.2	1.8	6.1	2243	4.6	4.0	2.4	1.5	2.1

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

[‡]Blast = Leaf blast, SB = Sheath blight, NBLS = Narrow brown leaf spot; rating 0 to 9, where 0 = no disease, 9 = maximum disease.

Table 2. Grain and milling yield and agronomic performance of medium-grain entries in the 2006 replicated preliminary yield test, Group 16. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor†	Days to 50% Heading	Plant Height (in)	Grain Yield (lb/A @ 12%)	Milling Yield (%)		Blast‡	SB‡	NBLS‡
						Whole	Total			
896	9865216DH2//BNGL/SHORT RICO	5	87	39	10751	68.7	73.1	4.5	6.0	0.0
878	9902028/3/BNGL//MERC/RICO	6	91	39	10585	68.1	72.7	5.0	5.5	0.5
889	EARL//BNGL/SHORT RICO	6	91	33	10556	66.3	73.6	2.0	5.5	0.5
899	9865216DH2/4/9502065/3/BNGL//…	5.5	90	39	10533	69.8	73.9	3.5	4.5	1.0
883	BNGL//MERC/RICO/3/EARL	5.5	92	35	10462	68.5	72.8	4.5	6.0	0.0
887	JUPITER	5.5	94	37	10418	68.7	72.0	2.0	6.0	0.0
891	LFTE/4/KATY/CPRS/3/CPRS/LMNT/5/	5.5	91	36	10326	69.1	73.0	3.0	5.5	0.0
885	EARL/9902028	5.5	94	33	10226	65.9	71.1	1.0	4.0	0.0
876	BNGL//MERC/RICO/3/EARL	5	90	35	10161	67.4	72.7	5.0	6.0	0.5
879	9502065/3/MERC//MERC/4/9902028	5.5	86	34	10059	65.4	73.4	0.0	4.5	0.0
882	BNGL//MERC/RICO/3/EARL	5.5	92	35	10027	66.3	73.8	4.0	6.5	0.0
895	9865216DH2/4/9502065/3/BNGL//…	6	89	38	9997	61.6	68.9	3.0	5.0	1.0
884	9902028/3/BNGL//MERC/RICO	6	89	36	9995	64.9	71.9	1.5	4.5	0.0
886	MERC/LMNT//MERC/3/BNGL/3/MERC/	5	95	31	9850	67.3	72.8	2.5	5.0	0.0
898	9502065/3/BNGL//MERC/RICO/5/LFTE/	5	91	35	9827	63.2	71.6	2.5	6.0	0.0
892	BNGL/SHORT RICO/4/ORIN//…	5	86	33	9798	64.9	72.0	3.5	5.5	0.5
900	9502065/3/BNGL//MERC/RICO/5/LFTE/	6	94	40	9796	65.2	70.2	4.0	5.5	0.0
881	9902028/3/BNGL//MERC/RICO	6	91	38	9712	64.4	72.5	3.0	5.5	0.5
894	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/	5	88	35	9708	66.2	72.1	0.0	5.5	1.5
893	9865216DH2/BNGL	5.5	89	37	9682	67.7	72.5	4.0	5.0	0.0
880	MARS/4/9502065/3/MERC//MERC	5.5	90	37	9673	59.1	70.8	2.5	5.5	0.0
888	ORIN/3/MERC/CAM9/MARS/4/BNGL	6	90	36	9573	68.9	72.5	0.0	6.0	0.0
890	BNGL/SHORT RICO/4/ORIN//…	6	88	32	9283	68.8	73.4	3.0	5.0	0.0
897	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/	5.5	90	34	8612	65.2	73.1	4.5	6.5	0.5
877	RICO/BNGL	5.5	89	38	8199	59.3	68.6	4.0	4.0	0.0
c.v.%		11.3	1.2	3.6	6.8	2.7	0.8	64	12	53
$LSD_{0.05}$		1.3	2.3	2.7	1396	3.7	1.1	2.4	1.5	2.1

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

‡ Blast = Leaf blast, SB = Sheath blight, NBLS = Narrow brown leaf spot; rating 0 to 9, where 0 = no disease, 9 = maximum disease.

Table 3. Grain and milling yield and agronomic performance of 2006 single-plot yield test, medium-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor†	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
							Whole	Total
SP 282	BNGL/SHORT RICO/4/ORIN//…	6	87	39		11568	65	71
SP 273	BNGL/SHORT RICO/4/9502065/3/…	6	88	35	5	11562	66	72
SP 306	9865216DH2//BNGL/SHORT RICO	6	85	40	50	11256	67	72
SP 279	BNGL/SHORT RICO//LFTE	6	85	37		11187	67	72
SP 305	9865216DH2//BNGL/SHORT RICO	6	86	38	10	11104	65	71
SP 322	BNGL/SHORT RICO/4/ORIN//…	5	88	39		11094	67	71
SP 264	9865216DH2/EARL	6	89	39		11077	60	72
SP 272	BNGL/SHORT RICO/4/9502065/3/…	6	88	35		11052	69	73
SP 288	MEDARK	7	89	37	15	10927	69	72
SP 281	BNGL/SHORT RICO/4/ORIN//…	5	86	37		10906	67	71
SP 295	9502065/3/BNGL//MERC/RICO/5/LFTE/4/…	5	89	37		10808	66	73
SP 301	9865216DH2//BNGL/SHORT RICO	6	85	40	15	10696	66	72
SP 287	ORIN//MERC/RICO/3/MARS//M201/…	5	86	38		10639	59	70
SP 283	BNGL/SHORT RICO/4/ORIN//…	6	85	39		10612	65	71
SP 297	9865216DH2/4/9502065/3/BNGL//…	5	92	40	95	10530	68	71
SP 323	BNGL/SHORT RICO/4/ORIN//…	6	85	37		10501	69	73
SP 251	9902028/3/BNGL//MERC/RICO	6	91	37		10471	67	74
SP 302	9865216DH2//BNGL/SHORT RICO	5	86	37		10430	70	73
SP 275	BNGL/SHORT RICO/4/9502065/3/…	6	91	36		10426	68	73
SP 324	9502065/3/BNGL//MERC/RICO/5/LFTE/4/…	6	89	40		10398	67	74
SP 256	ORIN/3/MERC/CAM9/MARS/4/BNGL	6	92	35		10396	67	70
SP 321	BNGL/SHORT RICO/4/9502065/3/…	5	88	37		10392	67	72
SP 268	BNGL/SHORT RICO//BNGL	5	90	36		10382	60	72
SP 274	BNGL/SHORT RICO/4/9502065/3/…	5	89	35		10379	68	73
SP 269	BNGL/SHORT RICO//BNGL	6	89	37		10147	60	73
SP 270	BNGL/SHORT RICO//BNGL	5	91	37		10112	68	73
SP 280	BNGL/SHORT RICO/4/ORIN//…	6	86	36		10085	69	72
SP 304	9865216DH2//BNGL/SHORT RICO	6	88	39	15	10079	69	73

Continued.

Table 3. Continued.

Entry	Pedigree	Vigor†	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
							Whole	Total
SP 303	9865216DH2//BNGL/SHORT RICO	6	85	36		10074	69	72
SP 278	BNGL/SHORT RICO//LFTE	6	84	38		10021	67	74
SP 292	ORIN//MERC/RICO/3/MARS//M201/…	6	83	37	40	9956	57	69
SP 271	BNGL/SHORT RICO/4/9502065/3/…	6	86	37		9951	66	72
SP 276	BNGL/SHORT RICO/4/9502065/3/…	6	90	36		9948	70	75
SP 300	9865216DH2//BNGL/SHORT RICO	6	88	38	90	9947	70	73
SP 277	BNGL/SHORT RICO/4/9502065/3/…	6	90	38	5	9932	70	74
SP 260	9865216DH2/BNGL	6	90	38	20	9827	67	71
SP 259	9865216DH2/BNGL	6	89	41		9809	68	72
SP 255	ORIN/3/MERC/CAM9/MARS/4/BNGL	5	92	35		9741	68	73
SP 316	LFTE/4/KATY/CPRS/3/CPRS/LMNT/5/…	6	92	40		9725	69	72
SP 298	9865216DH2/4/9502065/3/BNGL//…	6	88	37	95	9670	65	70
SP 318	LFTE/4/KATY/CPRS/3/CPRS/LMNT/5/…	6	86	41	10	9564	66	71
SP 263	EARL	5	92	40	85	9535	69	72
SP 296	9502065/3/BNGL//MERC/RICO/5/LFTE/4/…	6	91	37	15	9526	67	70
SP 285	EARL/RICO	5	91	37	95	9520	67	73
SP 291	ORIN//MERC/RICO/3/MARS//M201/…	6	84	36	60	9507	66	71
SP 320	LFTE/4/KATY/CPRS/3/CPRS/LMNT/5/…	6	85	39	50	9406	69	71
SP 313	RiceTec XP716	4	94	43	95	9354	67	71
SP 290	ORIN//MERC/RICO/3/MARS//M201/…	6	84	37		9301	69	72
SP 266	BNGL/SHORT RICO//BNGL	6	88	39	40	9282	58	70
SP 262	9865216DH2/EARL	5	91	42	95	9206	65	69
SP 267	BNGL/SHORT RICO//BNGL	6	90	36		9203	69	73
SP 314	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/…	6	84	34		9129	64	71
SP 293	ORIN//MERC/RICO/3/MARS//M201/…	6	83	37	80	9017	57	71
SP 325	BNGL//MERC/RICO/3/EARL	6	90	35		8987	62	72
SP 299	9865216DH2//BNGL/SHORT RICO	6	85	40	100	8944	64	70
SP 308	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/…	0	84	40	80	8872	58	72

Continued.

Table 3. Continued.

Entry	Pedigree	Vigor†	Days to 50% Heading	Plant Height (in)	Lodging (%)	Grain Yield (lb/A @ 12%)	Milling Yield (%)	
							Whole	Total
SP 258	9502065/3/MERC//MERC/4/BNGL/4/99020	5	92	41	60	8837	.	.
SP 289	ORIN//MERC/RICO/3/MARS//M201/…	6	84	37	95	8789	62	71
SP 294	9502065/3/BNGL//MERC/RICO/5/LFTE/4/	5	84	36		8743	64	70
SP 254	9502065/3/MERC//MERC/4/9902028	6	89	39	95	8703	65	70
SP 286	EARL/RICO	4	90	37		8616	61	71
SP 312	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/…	5	86	33		8218	61	74
SP 252	9502065/3/MERC//MERC/…	6	90	37	95	8201	61	71
SP 257	ORIN/3/MERC/CAM9/MARS/4/BNGL	6	91	36		8078	68	71
SP 311	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/…	5	88	37	100	8075	65	70
SP 315	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/…	4	83	33	5	7906	63	69
SP 317	LFTE/4/KATY/CPRS/3/CPRS/LMNT/5/…	5	88	37		7734	64	70
SP 319	LFTE/4/KATY/CPRS/3/CPRS/LMNT/5/…	6	84	39	100	7682	61	72
SP 253	9502065/3/MERC//MERC/4/BNGL	6	92	40	95	7578	69	72
SP 310	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/…	6	87	39	95	7562	54	71
SP 261	9865216DH2/MERC	6	84	39	100	7557	59	71
SP 309	LFTE/4/KATY/CPRS/3/CPRS/LMNT/6/…	6	85	39	85	6992	64	70
SP 307	BNGL/SHORT RICO//MERC	6	87	36	95	6751	67	72
SP 265	BNGL/5/LFTE/4/KATY/CPRS/3/…	5	86	32		6317	54	74
SP 284	BNGL/SHORT RICO/4/ORIN//…	6	88	39	60	3962	66	72

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

DEVELOPMENT OF IMPROVED LONG-GRAIN AND SPECIAL PURPOSE RICE VARIETIES FOR LOUISIANA

X.Y. Sha, S.D. Linscombe, and S. Theunissen

This project is designed to develop superior conventional long-grain rice varieties with emphasis on yield potential, quality (milling, cooking, and processing), disease resistance, lodging resistance, seedling vigor, and early maturity. The other objective is to develop specialty rice varieties adapted to Louisiana and southern U.S. environmental conditions with superior cooking, agronomic, milling, and specific qualities, such as aroma and kernel elongation. The emphasis is being placed on breeding for Jasmine-, Basmati-, and Della-type long-grain rice.

Field tests in 2006 included 167 transplanted F_1s (81 long-grain and 86 specialty), 55 space- planted specialty F_2 populations, and 21,940 progeny rows (15,440 long-grain and 6,500 specialty) ranging from F_3 to F_8. Out of those rows, 844 rows were bulk-harvested for the further evaluation (578 long-grain and 266 specialty). Of the 377 new crosses made in 2006, 171 are long-grain, 72 specialty, 113 for Dr. Linscombe's project, and the remaining 21 for Dr. Rush's project. Two hundred forty-four breeding lines (174 long-grain and 80 specialty) were included in the preliminary yield test, of those, 110 (78 long-grain and 32 specialty) in replicated test (PY) and 144 (96 long-grain and 48 specialty) in the single plot test (SP). Yield, milling, and agronomic performance of these lines are listed in Tables 1 to 6. Seven advanced long-grain and three medium-grain lines were tested in the uniform regional rice nursery (URN). Test results of these lines (entries 022, 025, 028, 031, 034, 125, 128, 131, 134, and 137) are presented in Table 7. Three specialty entries were also tested in URN. Specific specialty traits, such as aroma, elongation, cooking flavor, and texture, were placed at the same priority as both grain and milling yield potentials. Among these lines, one was Basmati (140) and two were Della types (entries 146 and 149). Agronomic results are presented in Table 7. Most of these lines were also tested in statewide multi-location Commercial-Advanced (CA) yield trials. CA data are presented in Table 8. The agronomic performance of these advanced lines as compared with other conventional lines can also be found in Tables 2 and 6 on pages 6 and 10 and Tables 1 to 8 on pages 12 to 23.

Grain quality and specialty traits, such as dimension, size, translucency, and aroma, are extremely important to this project. Our previous studies revealed that several such traits were highly inheritable and can be effectively selected in the mid or even early generations. Such rigorous selection in the early and mid-generations enables us to efficiently use our limited resources by concentrating on the materials with some of the target traits. Extensive lab works were carried out to evaluate grain quality and/or aroma of 2006 field selections of 1,911 specialty rows ranging from F_3 to F_7. About 50% of tested specialty progenies have been discarded because of the poor grain quality or lack of strong aroma. Additional 588 bulked long-grain and specialty rows were also evaluated for seedling vigor, milling, grain quality, and/or aroma.

The Puerto Rico winter nursery is critical to this project. In 2006, 2,500 progeny rows of both long-grain and special purpose types were planted and selected. Most of these were F_3s for the generation advancement purpose.

The medium-grain experimental line LA2028 and two specialty lines (Basmati type LA2177 and Jasmine type LA0402125) continuously showed superior yield potential, good milling, and grain quality. Small increases of these lines were planted for further evaluation and varietal release purposes.

Table 1. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 11, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
763	MBLE/ALAN/4/L201//…/5/MBLE/…/4/CCDR/…	4	87	91	20	12109	54.9	67.6	5
760	MBLE/ALAN/6/CCDR/5/MARS/…/JSMNX2/…	4	86	92	20	10878	57.3	69.8	5
764	CPRS/…/L201/…/7/CCDR/5/MARS/…	3	82	85		10047	68.4	72.3	6
755	9602097/9602082//JSMN/…/6/CCDR/…	5	83	90	18	10035	53.9	69.3	6
771	MC04-6483	4	93	88	3	10027	60.7	66.4	6
759	9602097/...//JSMN/…/6/CCDR/…/7/JSMNX2	4	87	87		9726	61.1	67.2	5
772	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	86	96	15	9046	58.4	69.2	5
775	TRNS	4	80	85	20	9019	63.2	68.3	4
753	CCDR/5/MARS/…/6/CCDR/4/CPRS/…	4	83	84		8903	64.9	70.3	5
774	CHNR	4	89	87	3	8849	62.7	70.3	5
751	CCDR/5/MARS/…/6/BNGL//…	5	85	90		8811	61.3	69.3	7
766	CCDR/5/MARS/…/7/L202/…/6/CPRS/5/…	4	86	83		8716	63.1	67.2	7
767	CCDR/5/MARS/…/6/DREW//…/3/9602082	5	83	93	50	8626	59.0	69.5	4
773	CCDR/4/CPRS/…/6/CCDR/5/MARS/…	3	86	88	3	8380	64.5	70.5	6
761	MBLE/ALAN//CCDR/…/7/JODN/…/6/CCDR/…	4	81	79		8243	59.3	64.2	6
752	CPRS/4/CPRS//L201/…/5/CPRS/…	5	86	92		8124	59.8	70.7	4
768	MC03-2771	3	89	107	93	8111	65.5	71.0	3
769	CCDR/9502152//Orin/Nipponbare	4	84	82		8090	64.0	69.8	7
770	9602097/0602082/3/JSMN/…/4/L201/…	4	79	86		8061	65.5	69.9	6
765	MBLE/ALAN//CCDR/HAKATOMACHI	4	84	86		8026	63.7	70.9	6
756	L201//TBNT/3/…/4/BNGL/…/5/CCDR/…	5	84	96	48	7860	63.9	71.0	5
757	JSMNX2/7/CCDR/5/MARS/…/6/L201/…	4	82	81		7844	65.0	70.3	7
762	MBLE/ALAN//CCDR/HAKATOMACHI	4	85	82		7562	64.9	69.7	5
754	CCDR/5/MARS/…/6/BNGL//…	4	82	88		5782	64.7	71.0	5
758	9602097/...//JSMN/…/6/CCDR/…/7/JSMNX2	4	85	86	68	4694	62.3	68.6	6
c.v.%		10.9	1.1	3.8		25.3	4.8	2.4	
$LSD_{0.05}$		0.9	2.0	6.9		3802	6.2	3.4	

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

† Subjective rating 1 to 9, where 1 = extremely poor, 9 = ideal type.

Table 2. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 12, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
783	CPRS/…/L201/…/7/CCDR/5/MARS/…	4	85	89		11031	66.2	70.3	5
778	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	86	94		10123	58.2	67.8	4
800	WELLS	3	88	102	80	9902	51.5	69.5	5
791	BNGL/…/5/CCDR/…/7/CPRS/5/…/6/CCDR/…	4	87	106	45	9811	67.1	71.0	4
798	MBLE/ALAN/4/BNGL/…/7/CPRS/…/6/CCDR/…	4	84	90		9525	55.5	64.2	4
786	JSMNX2//AR1121/9602082	3	85	93	58	9361	65.2	70.3	4
790	BNGL/…/5/CCDR/…/7/CPRS/5/…/6/CCDR/…	4	87	100	45	9208	64.5	70.4	4
797	TXMT/…/5/AR1053/7/CCDR/…/6/CCDR/5/MARS/…	4	84	75		8949	63.6	70.7	6
795	9602097/…/5/CCDR/../7/CPRS/…/6/CCDR/…	5	87	99	23	8848	59.6	68.3	4
799	CCDR	4	86	85		8798	57.3	69.3	6
776	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	87	94		8495	62.7	70.7	5
777	CCDR/4/CPRS/…/6/CCDR/5/MARS/…	4	84	89	40	8480	65.5	70.0	4
796	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	85	86		8398	63.3	69.5	4
784	CPRS/…/6/CPRS/5/MBLE/7/TXMT/…/5/AR1053	4	79	86	55	8312	65.3	70.1	4
793	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	86	82		8255	38.5	67.7	7
780	CCDR/5/MARS/…/6/CPRS/…/7/CCDR/…	4	89	80		8208	61.5	69.1	5
781	BNGL/…/5/CCDR/…/7/CPRS/5/…/6/CCDR/…	4	87	91		8169	68.0	70.8	4
794	DREW//98PIM0071/5/9602097/…/4/L201/...	4	89	95		8158	60.2	70.8	5
785	JODN/AR1121/7/CCDR/…/6/CCDR/5/MARS/…	4	82	89	3	8070	63.6	70.3	5
789	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	83	93	28	8026	61.6	68.3	4
782	DREW//CCDR/KDM 105/3/JSMNX2	4	86	80		7976	65.1	69.9	6
792	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	85	89	15	7930	61.2	68.9	4
779	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	5	83	92	68	7907	62.1	67.9	5
787	CCDR/5/MARS/…/6/CCDR/4/CPRS/…	4	84	84		7662	65.3	69.8	7
788	CCDR/5/MARS/…/6/L201/…/7/FRNS	4	80	78		6944	60.7	67.6	6
c.v.%		10.0	0.9	4.1		13.2	3.1	2.1	
$LSD_{0.05}$		0.8	1.6	7.6		2359	3.9	3.1	

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

† Subjective rating 1 to 9, where 1 = extremely poor, 9 = ideal type.

Table 3. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 13, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
808	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	5	86	88		10921	62.1	68.0	5
801	JODN/AR1121/7/CCDR/…/6/CCDR/5/MARS/…	4	80	91		10318	62.2	67.1	4
805	9602097/…/5/CCDR/../7/CPRS/…/6/CCDR/…	4	87	91		10102	64.3	70.1	5
813	9602097/…/5/CCDR/../7/CPRS/…/6/CCDR/…	4	86	91		10094	65.2	70.4	5
819	9602097/…/5/CCDR/../7/CPRS/…/6/CCDR/…	4	85	96	23	9934	61.7	74.6	4
825	BANKS	5	88	109	73	9903	65.2	70.5	6
817	CCDR/FRNS	4	80	100	15	9428	63.3	69.4	4
815	CCDR/4/CPRS/…/6/CCDR/5/MARS/…	3	86	84	3	9068	61.9	70.4	4
814	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	84	84		8938	63.1	68.7	5
823	9602097/…/5/CCDR/../7/CPRS/…/6/CCDR/…	4	84	89	25	8742	68.0	71.5	5
812	CCDR/5/MARS/…/6/CCDR/4/CPRS//L201/…	4	86	87		8500	64.9	68.7	7
810	9602097/…/4/L201/…/5/AR1121/9602082	4	79	86		8490	68.1	71.4	6
821	JSMNX2	4	83	80		8476	55.0	69.8	6
822	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	84	82		8464	60.5	68.8	7
820	CCDR/4/CPRS/…/6/CCDR/5/MARS/…	3	86	88		8463	63.2	70.3	5
818	DREW//CCDR/KDM 105/7/CCDR/5/…/6/MBLE/…	3	89	71		8403	62.8	68.8	5
804	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	87	79		8201	56.7	61.6	7
811	CCDR/4/CPRS//L201/…/5/MBLE/ALAN	3	86	84		8012	60.0	70.8	7
824	CPRS	4	89	85	3	7682	55.6	68.6	5
806	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	85	80		7620	65.0	72.5	5
816	L201//TBNT/3/NWBT/…/4/BNGL//9602097/...	4	83	82		7520	66.8	70.3	6
809	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	4	85	85		7512	58.2	64.2	7
807	CCDR/5/MARS/…/6/CCDR/4/CPRS/…	4	86	86		7474	57.9	68.1	7
802	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	85	74		7454	63.4	69.6	4
803	CCDR/5/MARS/…/6/CCDR/M201	4	87	83		6540	60.7	67.1	6
c.v.%		9.9	0.8	3.4		18.6	5.2	4.7	
$LSD_{0.05}$		0.8	1.5	6.1		2811	6.6	6.7	

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

† Subjective rating 1 to 9, where 1 = extremely poor, 9 = ideal type.

Table 4. Agronomic and milling performance of 2006 Preliminary Yield Test, Group 14, long-grain entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
837	A-201//ADAR/JODN	4	85	95	50	10251	48.6	68.5	4
832	DLRS//KBNT/JODN	4	88	86		9817	63.3	70.2	5
848	DLRS//AR1142/LA2031/3/JSMN/DLLA	4	94	87		9216	57.5	66.5	6
842	CPRS//L-205/DLLA	5	86	89	3	9116	59.4	69.0	4
841	A-201//JSMN/DLLA	4	87	91	3	9093	53.0	66.4	5
830	DLMT 8642…/4/DMSI/3/RSMT/5/WELLS	4	86	89		8731	57.0	69.9	5
839	DLRS//AR1142/LA2031/3/JSMN/DLLA	4	87	90		8669	57.4	69.1	5
845	A-201/SADRI TYPE//DLRS	4	86	83		8516	65.3	70.1	4
850	CCDR	4	87	78		8377	56.7	70.0	7
843	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	89	97	40	8299	53.6	68.5	4
847	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	86	94		8254	55.1	71.3	4
849	DLRS	4	88	95		7795	66.8	71.5	4
826	A-201/SADRI TYPE	4	85	79		7739	54.9	67.1	5
846	CPRS//L-205/DLLA	4	90	85		7709	60.4	68.4	5
844	JSMN/DLLA/3/9302065//20001-5/LMNT	4	88	89		7637	63.0	68.5	5
838	DLRS//AR1142/LA2031/3/JSMN/DLLA	4	85	91		7581	55.1	63.2	5
834	A-201/SADRI TYPE	4	84	82		7319	57.9	66.1	4
840	DLMT 8642…/4/DMSI/3/RSMT/5/WELLS	5	82	79		7235	61.2	70.8	6
827	DLRS//AR 1142/LA 2031	5	86	87		6979	59.2	69.5	4
835	A-201/SADRI TYPE	5	83	86	73	6517	53.5	67.0	4
828	DLMT 8642…/4/DMSI/3/RSMT/5/WELLS	5	84	80		6500	61.7	68.9	7
836	A-201/SADRI TYPE	4	86	80		6470	63.9	69.4	4
829	97 KDMX2-1/WELLS	4	84	76		6381	61.8	70.5	7
831	DLMT/3/NWBT/KATY//82CAY21	4	83	80		6341	69.4	72.2	5
833	A-201/SADRI TYPE	5	83	83		5665	54.0	66.6	4
c.v.%		8.5	1.3	3.7		22.7	8.8	1.0	
$LSD_{0.05}$		0.7	2.3	6.5		3153	10.8	1.5	

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

† Subjective rating 1 to 9, where 1 = extremely poor, 9 = ideal type..

Table 5. Agronomic and milling performance of 2006 Preliminary Yield Test, Puerto Rico entries. Rice Research Station, Crowley, LA.

Entry	Pedigree	Vigor*	Days to 50% Heading	Plant Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
011	03PY824/0381105	3	71	99		7365	65.9	71.5	4
020	TRNS	3	66	104	3	7232	60.2	68.4	4
017	04PY774/04AY4	4	75	96		7114	66.1	71.3	7
012	04PY780/0376333	5	72	95		7077	66.1	71.9	6
010	03PY824/0381105	4	72	114		6823	62.6	68.4	4
005	JSMN/DLLA//96SP287/3/DLMT	5	70	108	40	6539	58.3	70.9	4
018	04AY2/04PY780	4	72	98		6460	64.8	70.8	7
019	JSMN/DLLA/4/KATY/NWBT/3/LBNT/9902//NWBT	4	73	98		6370	64.8	69.7	5
016	04URN62/04PY780	6	72	94		6314	63.0	70.3	6
002	JSMN/DLLA//96SP287/3/DLMT	4	69	99	5	6128	61.3	72.1	5
003	JSMN/DLLA//96SP287/3/DLMT	4	69	98		6098	60.4	70.2	5
013	04PY780/0376333	6	71	95		6010	64.5	71.5	6
007	9502008//KATY/9902207x2/3/JSMN/DLLA//LEAH/DLLA	4	71	98	40	5870	57.9	70.0	6
014	04PY780/0376333	5	72	92		5620	62.2	67.2	6
001	JSMN/DLLA//96SP287/3/DLMT	5	77	88		5590	65.6	73.5	6
015	04PY780/0376333	6	72	100		5575	61.5	70.5	7
004	JSMN/DLLA//96SP287/3/DLMT	4	71	100	40	5530	62.0	70.5	5
008	9502008//KATY/9902207x2/3/JSMN/DLLA//LEAH/DLLA	5	69	95	40	5477	58.4	70.1	6
009	DLMT 8462…/4/DMSI/5/RSMT	3	73	107	43	5406	61.7	71.3	6
006	JSMN/DLLA//96SP287/3/DLMT	5	70	95		5315	66.1	71.5	6

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

† Subjective rating 1 to 9, where 1 = extremely poor, 9 = ideal type..

Table 6. Agronomic and milling performance of 2006 Single Plot Test. Long-grain and specialty lines, Rice Research Station, Crowley, LA.

SP Entry	Pedigree	Vigor*	Days to 50% Heading	Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
219	CPRS/KBNT//JSMN/DLLA	5	87	91		10212	56.0	67.4	6
110	HATSABASHI/3/CR1113/…/4/ORIN/NPB	4	88	96		10068	57.1	70.6	6
208	FRANCIS//JSMN/DLLA	5	87	96		9583	51.4	66.0	6
153	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	84	83	5	9581	58.0	69.0	5
200	WELLS	3	89	101	85	9580	58.6	69.6	5
123	CPRS/5/…/6/CCDR/5/MARS/…/7/BNGL/...	4	84	97		9565	44.8	69.0	4
104	A-201/FRAN	5	88	89		9483	64.3	70.5	7
222	A-201/SADRI TYPE//DLRS	5	86	85		9436	62.7	70.1	5
185	CPRS/5/MBLE/…/6/CCDR/5/MARS/…	4	83	87	5	9367	58.0	69.4	4
206	CPRS//L-205/DLLA	5	88	97		9326	65.9	69.8	6
125	TRENASSE	4	80	91	5	9309	58.6	67.3	4
201	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	84	100		9299	56.9	67.4	4
210	A-201//JSMN/DLLA	5	87	88	5	9275	50.0	64.0	7
138	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	5	86	80		9272	64.5	71.6	6
212	A-201/SADRI TYPE//DLRS	4	85	80	85	9249	47.0	67.7	4
129	CCDR/5/MARS/…/6/L201/…/7/AR1121/9602082	4	81	79		9160	59.6	67.7	6
167	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	84	84		9159	65.4	71.3	7
226	A-201/SADRI TYPE//DLRS	3	85	84		9098	67.9	70.9	5
232	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	85	89	30	9082	63.1	68.9	5
142	9602097/…/5/CCDR/../7/CPRS/…/6/CCDR/…	4	87	91	5	9067	60.0	68.6	4
203	A-201/SADRI TYPE//CCDR	4	87	89	20	9052	55.3	67.3	5
107	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	83	86		9024	67.2	70.4	7
178	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	84	83		9014	64.5	70.8	7
126	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	86	83		9003	60.6	69.7	6
103	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	85	90	30	8999	56.4	70.6	6
223	A-201/SADRI TYPE//DLRS	4	83	83		8982	62.8	69.2	5
116	TXMT/…/5/AR1053/7/CCDR/…/6/CCDR/5/MARS/…	4	84	82		8979	68.0	72.6	7
117	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	87	91		8935	57.2	68.1	7
150	COCODRIE	4	86	90		8910	55.4	70.2	6
166	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	86	78		8852	61.3	70.8	7
131	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	83	83		8798	65.7	71.7	6
120	JODN/3/CPRS//L201/…/6/CCDR/5/MARS/…	5	84	82		8750	42.1	71.2	5
198	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	84	82		8735	67.1	72.0	7
149	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	3	84	83	10	8721	64.5	71.3	5
216	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	5	82	101	80	8656	59.0	69.6	4
191	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	86	85	10	8649	55.0	67.7	6
220	JSMN/TORO-2//DLMT/3/A-201	5	87	91		8626	60.8	68.5	6
151	CCDR/HAKATOMACHI/6/BNGL/…/5/CCDR…	3	85	90		8621	64.6	71.7	6
196	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	86	82	15	8621	52.6	69.2	6
164	CCDR/5/MARS/…/6/L201/…/7/9602082/AR1121	4	88	84		8597	62.6	70.8	6
118	JODN/AR1121/7/CCDR/…/6/CCDR/5/MARS/…	4	80	90		8592	65.1	68.8	4
248	ALAN//JKSN/KDM 105	4	83	86	5	8572	48.4	66.8	5
130	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	80	88		8564	61.4	70.0	4
238	A-201/SADRI TYPE//CCDR	6	85	83		8539	63.8	68.7	6
211	A-201/SADRI TYPE//DLRS	5	84	86		8515	63.1	68.4	4
250	DELLROSE	4	87	100	15	8494	62.0	70.4	4
217	JSMN/TORO-2//DLMT/3/A-201	5	88	100		8468	56.6	65.4	5

Continued.

Table 6. Continued.

SP Entry	Pedigree	Vigor*	Days to 50% Heading	Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
143	JODN/AR1121/7/CCDR/…/6/CCDR/5/MARS/…	4	80	93		8466	64.8	71.3	4
231	CPRS//L-205/DLLA	5	83	95	50	8461	59.2	67.5	4
144	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	86	87		8456	59.6	69.7	4
237	CPRS/LGRU//97 KDM X2-5	4	86	91	5	8441	49.8	52.0	4
171	9602097/…/4/L201/…/5/AR1121/9602082	4	79	90		8411	65.4	69.5	6
112	CCDR/5/MARS/…/6/L202/…/7/CPRS/…	5	85	89		8375	63.5	70.2	7
159	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	5	83	87	5	8371	61.8	71.5	4
235	A-201/SADRI TYPE//DLRS	4	84	84		8365	62.7	70.7	4
155	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	86	76		8344	65.4	70.6	6
174	CCDR/5/MARS/…/6/L201/…/AR1121/9602082	4	84	86		8337	68.9	72.6	6
207	DLRS//AR1142/LA2031/3/JSMN/DLLA	4	90	90		8308	51.1	64.4	6
137	DREW//CCDR/KDM 105/7/CCDR/5/…/6/MBLE/…	3	89	76		8301	59.1	71.3	6
184	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	5	81	88		8286	56.1	64.6	4
176	CCDR/5/MARS/…/6/L201//TBNT/…	4	80	90	10	8271	54.9	71.3	4
234	CPRS//L-205/DLLA	4	87	86		8261	55.6	65.3	5
147	CCDR/5/MARS/…/6/CCDR/4/CPRS/…/5/JODN/…	3	88	87		8242	59.5	67.9	6
190	CCDR/5/MARS/…/6/BNGL/…/7/CCDR/…	4	83	90		8224	62.2	72.2	5
172	9602097/9602082/5/CCDR/4/CPRS/…/JSMNX2	4	87	83		8183	36.8	69.4	5
199	CCDR/5/MARS/…/6/CCDR/…/7/CCDR…	6	87	95		8182	63.1	68.0	4
106	DREW//CCDR/KDM 105/7/CCDR/5/…/6/MBLE/…	4	89	80		8165	63.6	72.2	7
224	DLMT 8462…/4/DMSI/5/RSMT/5/WELLS	4	84	85		8145	58.2	68.7	7
160	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	5	85	87	10	8115	61.6	68.1	4
148	JSMNX2//AR1121/9602082	3	87	91	40	8075	53.6	69.8	6
152	CCDR/5/MARS/…/6/L201//TBNT/…	4	80	84	50	8071	58.6	71.3	4
169	CCDR/5/MARS/…/6/CCDR/…/7/9602097/…	4	85	91		8062	67.9	72.7	6
189	CCDR/5/MARS/…/6/CCDR/…/7/9602097/…	4	83	85		8003	66.4	70.8	6
230	DLMT 8462…/4/DMSI/5/RSMT/5/WELLS	5	83	82		7980	56.9	67.4	6
179	MBLE/ALAN//CCDR/HAKA/5/JSMNX2/4/9602097/...	4	86	85		7971	53.1	68.7	5
182	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	4	84	86		7950	61.6	71.2	5
170	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	4	86	79		7948	61.6	70.1	6
156	9602097/…/4/L201/…/5/AR1121/9602082	4	78	83		7932	67.8	71.4	5
214	A-201/SADRI TYPE//DLRS	4	84	87		7912	63.3	67.5	5
124	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	4	87	90		7901	67.0	71.6	7
175	CHENIERE	4	88	87		7890	58.6	71.3	5
243	CPRS//L-205/DLLA	4	89	92		7877	60.2	69.7	4
119	CCDR/HAKATOMACHI/4/L201/5/JSMNX2	4	84	89		7819	44.9	54.9	5
140	CCDR/HAKATOMACHI/6/BNGL/…/5/CCDR…	4	84	89		7811	60.9	71.2	6
108	MBLE/ALAN/4/BNGL/…/7/CPRS/…/6/CCDR/…	4	86	93	20	7768	53.5	65.8	4
154	DREW//CCDR/KDM 105/7/CCDR/5/…/6/MBLE/…	4	90	79		7764	48.3	59.6	6
227	A-201/SADRI TYPE//DLRS	5	86	96	5	7759	38.4	68.7	5
204	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	86	86	80	7758	51.2	66.2	4
113	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	5	80	87		7732	64.0	71.4	5
133	MBLE/ALAN/4/BNGL/…/7/CPRS/…/6/CCDR/…	4	85	96	80	7728	60.7	68.7	4
132	9302065/6/CPRS/5/MBLE/4/DMSI/…	4	89	78		7726	56.5	70.9	5
225	COCODRIE	4	86	84	10	7691	61.1	69.3	5
158	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	85	86	30	7673	61.3	71.3	5
111	CCDR/5/MARS/…/6/CPRS/…/7/CCDR/…	4	88	87		7652	65.5	72.0	5
194	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	4	84	83		7645	63.4	70.3	5

Continued.

Table 6. Continued.

SP Entry	Pedigree	Vigor*	Days to 50% Heading	Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
233	A-201//JSMN/DLLA	4	86	86		7580	48.8	62.8	5
101	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	82	95	60	7551	60.4	70.7	5
213	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	85	90	5	7548	57.1	68.0	5
114	CCDR/5/MARS/…/6/L201/…/7/CPRS/…	5	83	96	95	7540	59.8	68.5	4
242	DLMT 8462…/4/DMSI/5/RSMT - 1500	4	83	93		7540	57.2	68.9	4
229	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	86	92	85	7532	53.0	68.6	4
228	97 KDMX2-1/WELLS	4	84	80		7468	64.8	70.9	7
168	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	5	85	88		7465	58.5	69.2	5
127	CCDR/5/MARS/…/7/CCDR/…/6/BNGL/…	5	86	90	5	7452	60.6	69.2	5
109	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	4	83	86		7418	64.5	69.8	6
202	A-201/SADRI TYPE//DLRS	4	85	90	5	7396	50.6	70.5	4
197	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	4	84	85		7370	65.5	70.6	5
218	JSMN/DLLA/3/9302065//20001-5/LMNT	4	86	92		7358	54.4	66.4	5
161	CCDR/5/MARS/…/6/L202/…/7/CCDR/…	5	87	86		7349	62.2	71.2	6
163	JSMNX2//AR1121/9602082	5	83	94	35	7292	62.9	71.1	5
135	CPRS/5/MBLE/…/6/CCDR/5/MARS/…	4	89	88		7287	51.1	70.5	4
195	CCDR/4/CPRS/…/7/CCDR/…/6/CCDR/…	4	85	88		7255	54.8	70.5	4
128	CCDR/4/CPRS/…/6/CCDR/5/MARS/…/7/CPRS/…	5	80	86	10	7249	57.4	72.8	4
221	LBLE/L201//MBLE/3/BSMT PAK372A/4/DLMT …	4	84	90	60	7229	55.7	68.5	4
134	CCDR/HAKATOMACHI/6/BNGL/…/5/CCDR…	4	88	93	10	7222	55.7	70.4	5
241	DLRS//AR 1142/LA 2031 - 1200	4	88	81		7140	65.4	70.0	6
121	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	4	85	86		7120	65.0	71.1	6
139	CCDR/5/MARS/…/6/CCDR/M201	5	85	85		7095	64.8	71.2	6
247	JSMN/DLLA/3/9302065//20001-5/LMNT	3	89	92		7078	50.8	67.6	4
193	CCDR/5/MARS/…/6/BNGL/HATSABASHI	4	85	84		7044	60.7	69.5	5
244	A-201/SADRI TYPE	5	84	92	80	6982	63.7	68.0	4
102	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	85	106	95	6894	64.0	72.0	4
187	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	83	85	30	6852	66.2	71.1	6
145	CCDR/5/MARS/…/6/CCDR/4/CPRS/…/5/JODN/…	4	83	83	5	6828	67.9	71.7	5
177	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	5	88	83	20	6815	55.8	66.6	4
186	DREW//CCDR/KDM 105/7/CCDR/5/…/6/MBLE/…	4	86	78		6814	64.0	68.9	5
246	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	4	85	97	50	6766	48.3	67.1	4
239	DLRS//AR1142/LA2031/3/JSMN/DLLA	5	82	92		6765	61.0	66.3	6
245	A-201/SADRI TYPE//DLRS	4	85	98	90	6701	57.8	65.2	4
209	LBLE/L201//MBLE/3/BSMT PAK372A/4/…	6	85	102	40	6579	55.2	67.6	4
173	CPRS/5/MBLE/…/6/CCDR/5/MARS/…	5	88	75		6521	49.2	70.9	5
122	CPRS/5/MBLE/…/6/CCDR/5/MARS/…	4	89	78		6500	50.2	71.0	6
180	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	3	86	89	5	6451	67.0	72.0	5
136	DREW//CCDR/KDM 105/7/CCDR/5/…/6/MBLE/…	4	88	67		6148	65.5	70.0	4
236	DLRS//AR1142/LA2031/3/JSMN/DLLA	4	89	89		6058	57.1	63.6	4
157	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	83	80		6003	67.1	71.8	6
105	CCDR/5/MARS/…/6/L201/…/4/JSMNX2	5	83	93	45	5896	66.0	71.5	5
141	BNGL/…/5/CCDR/…/6/AR1121/9602082	5	82	85		5764	64.2	70.8	4
115	BNGL/…//CCDR/HAKA/6/CCDR/…/5/L201/…	4	83	85		5762	65.4	69.0	4
240	JODN//CPRS/MBLE/3/DLRS	5	81	93	5	5670	51.1	69.0	4
183	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	83	82	50	5617	66.2	70.5	6
162	CCDR/4/CPRS//L201/…/6/CCDR/5/MARS/…	4	84	85	90	5548	67.0	71.6	6
181	CPRS/…/6/CCDR/…/7/L201/…/4/BNGL/…	4	83	87	90	5488	66.4	70.3	5

Continued.

Table 6 continued.

SP Entry	Pedigree	Vigor*	Days to 50% Heading	Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)		Visual Score†
							Head	Total	
146	JSMNX2/7/CCDR/5/MARS/…/6/L201//TBNT/…	4	83	85	5	5258	64.8	70.6	5
165	CCDR/5/MARS/M201//MARS/3/MERC/RICO/…	4	82	73		5216	67.5	71.9	5
205	A-201/SADRI TYPE//CCDR	5	83	88	80	5093	65.5	69.6	4
215	JSMN/DLLA//CCDR/LGRU	5	85	85		4863	65.9	69.7	4
249	A-201/SADRI TYPE	4	83	84	85	4819	59.5	65.9	4
188	CPRS/…/L201/…/7/CCDR/5/MARS/…	4	83	81	90	4427	69.8	72.7	4
192	CPRS/…/6/CCDR/…/7/L201/…/4/BNGL/…	5	84	85	80	4047	68.1	72.5	4

* Subjective rating 1 to 9, where 1 = excellent, 9 = poor.
† Subjective rating 1 to 9, where 1 = extremely poor, 9 = ideal type.

Table 7. Yield, milling, and agronomic performance of 13 experimental long, medium, and aromatic lines and check varieties in the Uniform Regional Rice Nursery (URN), Crowley, LA. 2006.

Entry	Source	Grain Type†	Vigor‡	Days to 50% heading	Plant Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)	
								Head	Total
028	RU0402028	M	3	83	88		11250	64.4	70.1
037	JUPITER	M	4	82	93	57	10799	61.3	65.9
031	RU0502125	M	4	84	92	27	10455	64.8	68.6
039	MEDARK	M	4	82	95	17	10013	65.2	69.3
034	RU0502137	M	4	84	95	23	9849	63.1	67.0
128	RU0602128	L	4	80	98		9782	60.7	68.5
038	BENGAL	M	4	84	92		9562	63.5	67.6
134	RU0602134	L	3	82	104		9316	65.4	71.4
022	RU0502094	L	4	78	89		9315	62.6	67.7
146	RU0602146	L(A)	5	80	94		9084	63.9	68.6
025	RU0602025	L	5	79	93		8937	56.7	63.9
149	RU0602149	L(A)	4	80	83	40	8900	67.4	72.6
131	RU0602131	L	4	79	95	30	8739	61.3	68.6
125	RU0502091	L	4	78	93	45	8469	65.6	72.6
059	COCODRIE	L	4	79	91	7	8446	59.9	67.5
140	RU0502177	L(A)	4	78	95	90	7522	62.4	71.5
137	RU0602137	L	3	77	87	90	7053	59.1	69.5
158	DELLROSE	L(A)	5	81	105	70	7025	64.3	71.7

† L = Long grain, L(A) = Aromatic long grains, and M = Medium grain.
‡ Subjective rating 1 to 9, where 1 = excellent, 9 = poor.

Table 8. Average yield, milling, and agronomic performance of eight experimental long, medium, and aromatic lines and five check varieties in the Commercial-Advanced (CA) trial at six Louisiana locations, 2006.

Entry	Source	Grain Type†	Vigor‡	Days to 50% heading	Plant Height (cm)	Lodging (%)	Yield (lb/A)	Milling (%)	
								Head	Total
207	Cocodrie	L	5	80	89		7937	62.5	68.8
213	Medark	M	4	80	92		8333	63.3	67.9
214	Jupiter	M	5	82	94		9633	60.1	64.8
215	Bengal	M	4	82	94		8401	64.0	68.0
241	RU0502094	L	5	79	94		7973	64.9	69.8
242	RU0602025	L	5	79	95		8411	63.8	69.2
243	RU0502091	L	5	78	96		8655	63.3	69.6
244	RU0402028	M	5	83	92		8972	65.3	69.0
245	RU0502125	M	4	81	94		8959	63.1	67.2
246	RU0502137	M	5	82	93		8463	64.3	68.1
247	RU0502177	L(A)	5	77	96		6705	62.6	69.5
248	RU0602146	L(A)	5	79	92		7553	64.3	68.8

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

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

PEDIGREES OF ANTHER CULTURE (AC)-RELATED CROSSES

X.Y. Sha, Q.R. Chu, and S.D. Linscombe

The anther culture breeding project at the Rice Research Station that was carried out by Dr. Q. Chu from 1996 to 2005 generated a significant amount of segregating populations by crossing the elite U.S. rice genotypes with bridge parents. These bridge parents are primarily temperate Japonica origin and have high regeneration ability. A great number of intra-crosses were later produced by crossing the double haploid lines derived from those initial populations. Because only the temporary experimental designation (such as row number, entry number, and generation) instead of the permanent identifier (such as variety name, RU#, or the original cross ID) was used for one or both parents, the old pedigree information on the majority of these intra-crosses is confusing. In this report, we tried to trace each parent of a given anther culture cross into its permanent identifier. Since those crosses made before 2000 (AC101-643) had already been published in the previous Rice Research Station annual reports (1997-2000), only the remaining crosses made after 2000 (AC644-1446) are reported here.

Table 1. Pedigrees of anther culture-related crosses AC644-1446.

Cross#	Pedigree	Other Identifier
AC644	AC231/AC272	AC231DH2/AC272DH2
AC645	AC231/AC431	AC231DH2/AC431DH2
AC646	AC231/AC347	AC231DH2/AC347DH2
AC647	AC231/AC401	AC231DH2/AC401DH2
AC648	AC231/AC401	AC231DH2/AC401DH2
AC649	AC231/AC402	AC231DH2/AC402DH2
AC650	AC231/AC468	AC231DH2/AC468DH2
AC651	AC231/AC248	AC231DH2/AC248DH2
AC652	AC231/AC248	AC231DH2/AC248DH2
AC653	AC231/AC468	AC231DH2/AC468DH2
AC654	AC231/AC405	AC231DH2/AC405DH2
AC655	AC242/AC402	AC242DH2/AC402DH2
AC656	AC242/AC272	AC242DH2/AC272DH2
AC657	AC242/AC425	AC242DH2/AC425DH2
AC658	AC242/AC347	AC242DH2/AC347DH2
AC659	AC242/AC401	AC242DH2/AC401DH2
AC660	AC242/AC468	AC242DH2/AC468DH2
AC661	AC242/AC468	AC242DH2/AC468DH2
AC662	AC242/AC468	AC242DH2/AC468DH2
AC663	AC242/3/M/M//K	AC242DH2/3/M/M//K
AC664	AC242/AC272	AC242DH2/AC272DH2
AC665	AC242/AC423	AC242DH2/AC423DH2
AC666	AC242/AC468	AC242DH2/AC468DH2
AC667	AC262/AC231	AC262DH2/AC231DH2
AC668	AC262/AC272	AC262DH2/AC272DH2
AC669	AC262/AC402	AC262DH2/AC402DH2
AC670	AC262/AC272	AC262DH2/AC272DH2
AC671	AC262/AC431	AC262DH2/AC431DH2
AC672	AC262/AC640	AC262DH2/AC640DH1
AC673	AC262/AC467	AC262DH2/AC467F2DH1
AC674	AC262/AC425	AC262DH2/AC425DH2
AC675	AC262/AC638	AC262DH2/AC638DH1
AC676	AC262/AC403	AC262DH2/AC403F2DH1

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC677	AC262/AC425	AC262DH2/AC425DH2
AC678	AC262/AC407	AC262DH2/AC407DH2
AC679	AC262/AC468	AC262DH2/AC468DH2
AC680	AC262/AC347	AC262DH2/AC347DH2
AC681	AC263/AC642	AC263DH2/AC642DH1
AC682	AC263/AC423	AC263DH2/AC423DH2
AC683	AC263/AC616	AC263DH2/AC616DH1
AC684	AC263/AC248	AC263DH2/AC248DH2
AC685	AC263/AC468	AC263DH2/AC468DH2
AC686	AC263/AC423	AC263DH2/AC423DH2
AC687	AC273/AC638	AC273DH2/AC638DH1
AC688	AC273/AC274	AC273DH2/AC274DH2
AC689	AC273/AC641	AC273DH2/AC641DH1
AC690	AC273/AC358	AC273DH2/AC358DH2
AC691	AC273/AC402	AC273DH2/AC402DH2
AC692	AC273/AC347	AC273DH2/AC347DH2
AC693	AC274/AC231	AC274DH2/AC231DH2
AC694	AC274/AC407	AC274DH2/AC407DH2
AC695	AC274/AC401	AC274DH2/AC401DH2
AC696	AC274/3/M//M//K	AC274DH2/M/M//K
AC697	AC274/AC362	AC274DH2/AC362DH2
AC698	AC274/AC407	AC274DH2/AC407DH2
AC699	AC274/AC405	AC274DH2/AC405DH2
AC700	AC274/AC626	AC274DH2/AC626DH1
AC701	AC274/AC440	AC274DH2/AC440F2DH1
AC702	AC274/AC638	AC274DH2/AC638DH1
AC703	AC274/AC352	AC274DH2/AC352DH2
AC704	AC274/AC468	AC274DH2/AC468DH2
AC705	AC274/AC642	AC274DH2/AC642DH1
AC706	AC274/AC407	AC274DH2/AC407DH2
AC707	AC274/AC639	AC274DH2/AC639DH1
AC708	AC274/AC641	AC274DH2/AC641DH1
AC709	AC274/AC347	AC274DH2/AC347DH2
AC710	AC274/AC402	AC274DH2/AC402DH2
AC711	AC274/AC407	AC274DH2/AC407DH2
AC712	AC274/AC352	AC274DH2/AC352DH2
AC713	AC317/AC431	AC317DH2/AC431DH2
AC714	AC317/AC357	AC317DH2/AC357DH2
AC715	AC317/AC423	AC317DH2/AC423DH2
AC716	AC317/AC273	AC317DH2/AC273DH2
AC717	AC317/AC401	AC317DH2/AC401DH2
AC718	AC317/AC425	AC317DH2/AC425DH2
AC719	AC355/AC467	AC355DH2/AC467F2DH1
AC720	AC355/AC403	AC355DH2/AC403F2DH1
AC721	AC355/AC347	AC355DH2/AC347DH2
AC722	AC355/AC347	AC355DH2/AC347DH2
AC723	AC355/AC358	AC355DH2/AC358DH2
AC724	AC355/AC423	AC355DH2/AC423DH2
AC725	AC355/AC468	AC355DH2/AC468F2DH1
AC726	AC355/AC463	AC355DH2/AC463F2DH1

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC727	AC355/AC641	AC355DH2/AC641DH1
AC728	AC355/AC468	AC355DH2/AC468F2DH1
AC729	AC357/AC347	AC357DH2/AC347DH2
AC730	AC358/AC347	AC358DH2/AC347DH2
AC731	AC358/AC231	AC358DH2/AC231DH2
AC732	AC468/AC638	AC468DH2/AC638DH1
AC733	AC167/AC273	AC167DH3/AC273DH2
AC734	AC167/AC273	AC167DH3/AC273DH2
AC735	AC167/AC317	AC167DH3/AC317DH2
AC736	AC167/AC357	AC167DH3/AC357DH2
AC737	AC401/AC407	AC401DH2/AC407DH2
AC738	AC401/AC347	AC401DH2/AC347DH2
AC739	AC401/AC638	AC401DH2/AC638DH1
AC740	AC401/AC347	AC401DH2/AC347DH2
AC741	AC402/AC616	AC402DH2/AC616DH1
AC742	AC402/AC467	AC402DH2/AC467F2DH1
AC743	AC402/AC268	AC402DH2/AC268DH2
AC744	AC402/AC638	AC402DH2/AC638DH1
AC745	AC402/AC347	AC402DH2/AC347DH2
AC746	AC405/AC401	AC405DH2/AC401DH2
AC747	AC405/AC231	AC405DH2/AC231DH2
AC748	AC405/AC468	AC405DH2/AC468DH2
AC749	AC405/AC355	AC405DH2/AC355DH2
AC750	AC405/AC639	AC405DH2/AC639DH1
AC751	AC405/AC403	AC405DH2/AC403F2DH1
AC752	AC405/AC347	AC405DH2/AC347DH2
AC753	AC407/AC273	AC407DH2/AC273DH2
AC754	AC407/AC440	AC407DH2/AC440F2DH1
AC755	AC407/AC403	AC407DH2/AC403F2DH1
AC756	AC407/AC347	AC407DH2/AC347DH2
AC757	AC407/AC262	AC407DH2/AC262DH2
AC758	AC407/AC431	AC407DH2/AC431DH2
AC759	AC407/AC274	AC407DH2/AC274DH2
AC760	AC407/AC440	AC407DH2/AC440F2DH1
AC761	AC407/AC425	AC407DH2/AC425DH2
AC762	AC407/AC352	AC407DH2/AC352DH2
AC763	AC423/AC262	AC423DH2/AC262DH2
AC764	AC423/AC431	AC423DH2/AC431DH2
AC765	AC423/AC425	AC423DH2/AC425DH2
AC766	AC423/AC639	AC423DH2/AC639DH1
AC767	AC423/AC355	AC423DH2/AC355DH2
AC768	AC423/AC468	AC423DH2/AC468DH2
AC769	AC423/AC347	AC423DH2/AC347DH2
AC770	AC425/AC616	AC425DH2/AC616DH1
AC771	AC425/AC431	AC425DH2/AC431DH2
AC772	AC425/AC431	AC425DH2/AC431DH2
AC773	AC425/AC636	AC425DH2/AC636DH1
AC774	AC425/AC347	AC425DH2/AC347DH2
AC775	AC425/AC401	AC425DH2/AC401DH2
AC776	AC425/AC468	AC425DH2/AC468DH2
AC777	AC431/AC274	AC431DH2/AC274DH2

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC778	AC468/AC423	AC468DH2/AC423DH2
AC779	AC468/AC401	AC468DH2/AC401DH2
AC780	AC468/AC401	AC468DH2/AC401DH2
AC781	AC468/AC431	AC468DH2/AC431DH2
AC782	AC468/AC405	AC468DH2/AC405DH2
AC783	AC468/AC468	AC468DH2/AC468DH2
AC784	AC237/3/M//M/K	42855/45333
AC785	AC347	44681/44688
AC786	AC401/AC431	49204/49469
AC787	AC237/AC639	42855/AC639DH1
AC788	AC237/AC626	42855/AC626DH1
AC789	AC237/AC629	42855/AC629DH1
AC790	AC237/AC431	42855/AC431F2DH1
AC791	AC431/AC628	49469/AC628DH1
AC792	DREW/98PIM0071//AC534	PY654/SP296
AC793	DREW/98PIM0071//AC410	PY654/PY729
AC794	DREW/98PIM0071//LGRU/WELLS	PY654/H526
AC795	DREW/98PIM0071//9802008/LGRU	PY654/H270
AC796	DREW/98PIM0071//FRCS	PY654/FRCS
AC803	AC268//JODN/AR 1121	PY661/SP271
AC804	AC268/FRCS	PY661/FRCS
AC805	AC421/3/JODN/AR 1121	PY662/SP271
AC806	AC421//LGRU/9502002	PY662/H34
AC807	AC421/9602082	PY662/H287
AC808	AC439/AC433	PY671/PY748
AC809	AC439//AR 1121/9602082	PY671/H327
AC810	AC439//AR 1121/9602082	PY671/H226
AC811	AC439/FRCS	PY671/FRCS
AC812	AC467/AC534	PY673/SP297
AC813	AC303/AC359	PY728/SP273
AC814	AC303/AC430	PY728/PY749
AC815	AC303/AC426	PY728/PY737
AC816	AC303/AC421	PY728/PY662
AC817	AC303//DREW/98PIM0071	PY728/PY654
AC818	AC303//LGRU/WELLS	PY728/H526
AC819	AC303//9802008/LGRU	PY728/H270
AC820	AC303/FRCS	PY728/FRCS
AC821	AC303/CRRI-A	PY728/CNNI-A
AC822	AC547//TACAURI/CCDR	PY729/SP264
AC823	AC547/3/CPRS/KBNT//AR 1188	PY729/H15
AC824	AC411//AR1121/9602082	PY730/H167
AC825	AC411/3/CPRS/KBNT//AR 1188	PY730/H15
AC826	AC468/AC361	PY731/SP324
AC827	AC468/AC534	PY731/SP296
AC828	AC468//CCDR/98PIM0151	PY731/PY653
AC829	AC468//9802008/LGRU	PY731/H270
AC830	AC468/5/KATY/CPRS//NWBT/…/4/NWBT/3/LBNT/…	PY731/H229
AC831	AC468//AR 1121/3/9602082	PY731/H167
AC832	AC468/3/CPRS/KBNT//AR 1188	PY731/H15
AC833	AC468/FRCS	PY731/FRCS
AC834	AC426/AC431	PY737/SP316

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC835	AC426//JODN/AR 1121	PY737/SP271
AC836	AC426/FRCS	PY737/FRCS
AC837	AC358/AC268	PY743/PY661
AC838	AC358//AR 1121/9602082	PY743/H327
AC839	AC358//AR 1121/9602082	PY743/H226
AC840	AC358//9602082/AR 1121	PY743/H174
AC841	AC542/AC361	PY749/SP324
AC842	AC542/AC303	PY749/PY728
AC843	AC542/AC421	PY749/PY662
AC844	AC542//9802008/LGRU	PY749/H270
AC845	AC542/5/KATY/CPRS//NWBT/…/4/NWBT/3/LBNT/…	PY749/H229
AC850	TACAURI/CCDR//AC361	SP264/SP324
AC851	TACAURI/CCDR//AC431	SP264/SP316
AC852	TACAURI/CCDR//LGRU/9502002	SP264/H34
AC853	TACAURI/CCDR//AR 1121/9602082	SP264/H327
AC854	TACAURI/CCDR//9602082/AR 1121	SP264/H287
AC855	TACAURI/CCDR//FRCS	SP264/FRCS
AC856	JODN/AR 1121//AC439	SP271/PY671
AC857	JODN/AR 1121//LGRU/9502002	SP271/H34
AC858	JODN/AR 1121//9502008/LGRU	SP271/H289
AC859	JODN/AR 1121//FRCS	SP271/FRCS
AC860	JODN/AR 1121//FRCS	SP271/FRCS
AC861	AC359/FRCS	SP273/FRCS
AC862	AC410/AC470	SP274/SP322
AC863	AC417/AC534	SP274/SP296
AC864	AC417/AC426	SP274/PY737
AC865	AC417//DREW/98PIM0071	SP274/PY654
AC866	AC417//AR 1121/9602082	SP274/H327
AC867	AC417//9802008/LGRU	SP274/H270
AC868	AC417/3/CPRS/KBNT//AR 1188	SP274/H15
AC869	AC417/FRCS	SP274/FRCS
AC870	AC418/AC431	SP275/SP316
AC871	AC418/AC439	SP275/SP294
AC872	AC418/AC438	SP275/SP290
AC873	AC418//9502008/TACAURI	SP275/SP269
AC874	AC418/AC358	SP275/PY743
AC875	AC418/AC426	SP275/PY737
AC876	AC418//9602082/AR 1121	SP275/H287
AC877	AC418//9602082/AR 1121	SP275/H174
AC878	AC418/FRCS	SP275/H131
AC879	AC418/FRCS	SP275/FRCS
AC880	AC431/AC361	SP289/SP324
AC881	AC431/AC439	SP289/SP294
AC882	AC431/AC358	SP289/PY743
AC883	AC431/AC426	SP289/PY737
AC884	AC431/FRCS	SP289/FRCS
AC885	AC431/FRCS	SP289/FRCS
AC886	AC438/AC421	SP290/PY662
AC887	AC438//AR 1121/9602082	SP290/H327
AC888	AC438//9602082/AR 1121	SP290/H287

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC889	AC438/3/CPRS/KBNT//AR 1188	SP290/H15
AC890	AC438/FRCS	SP290/FRCS
AC891	AC438/AC431	SP291/SP314
AC892	AC438/AC439	SP291/SP294
AC893	AC438	SP291/SP290
AC894	AC438//TACAURI/CCDR	SP291/SP264
AC895	AC438//TACAURI/CCDR	SP291/SP264
AC896	AC438//LGRU/9502002	SP291/H34
AC897	AC438//AR 1121/9602082	SP291/H327
AC898	AC438//9602082/AR 1121	SP291/H287
AC899	AC438//AR 1121/9602082	SP291/H226
AC900	AC438//9602082/AR 1121	SP291/H174
AC901	AC438/FRCS	SP291/FRCS
AC902	AC438/AC431	SP292/SP314
AC903	AC438	SP292/SP275
AC904	AC438//TACAURI/CCDR	SP292/SP264
AC905	AC438//AR 1121/9602082	SP292/H327
AC906	AC438//AR 1121/9602082	SP292/H327
AC907	AC438//9602082/AR 1121	SP292/H174
AC908	AC438/FRCS	SP292/FRCS
AC909	AC438/FRCS	SP292/FRCS
AC910	AC439//AR 1121/9602082	SP294/H327
AC911	AC439//AR 1121/9602082	SP294/H226
AC912	AC439//AR 1121/9602082	SP294/H226
AC913	AC439//9602082/AR 1121	SP294/H174
AC914	AC439/3/CPRS/KBNT//AR 1188	SP294/H15
AC915	JA/AC486	SP295/SP294
AC916	JA//JODN/AR 1121	SP295/SP271
AC917	JA//TACAURI/CCDR	SP295/SP264
AC918	JA//AR 1121/9602082	SP295/H327
AC919	JA//AR 1121/9602082	SP295/H226
AC920	JA/3/CPRS/KBNT//AR 1188	SP295/H15
AC921	AC534/AC486	SP301/SP294
AC922	AC534/AC548	SP301/SP290
AC923	AC534/AC543	SP301/SP289
AC924	AC534//AR 1121/9602082	SP301/H327
AC925	AC534//9602082/AR 1121	SP301/H287
AC926	AC534//9602082/AR 1121	SP301/H226
AC927	AC538/AC486	SP305/SP294
AC928	AC538/AC437	SP305/SP292
AC929	AC538/AC437	SP305/SP290
AC930	AC538//TACAURI/CCDR	SP305/SP264
AC931	AC538//9602082/AR 1121	SP305/H287
AC932	AC428/AC486	SP306/SP294
AC933	AC428/AC437	SP306/SP290
AC934	AC428//JODN/AR 1121	SP306/SP271
AC935	AC428/AC358	SP306/PY743
AC936	AC428//AR 1121/9602082	SP306/H327
AC937	AC431/AC437	SP314/SP292
AC938	AC431/AC437	SP314/SP290

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC939	AC431//JODN/AR 1121	SP314/SP271
AC940	AC431//TACAURI/CCDR	SP314/SP264
AC941	AC431/AC358	SP314/PY743
AC942	AC431/AC421	SP314/PY662
AC943	AC431//AR 1121/9602082	SP314/H327
AC944	AC431//9602082/AR 1121	SP314/H287
AC945	AC431//9602082/AR 1121	SP314/H226
AC946	AC431//LGRU/WELLS	SP316/H526
AC947	AC431//LGRU/9502002	SP316/H34
AC948	AC431//AR 1121/9602082	SP316/H327
AC949	AC431//9802008/LGRU	SP316/H270
AC950	AC431/FRCS	SP316/H131
AC951	AC431/3/CPRS/KBNT//AR 1188	SP318/H15
AC952	AC431/FRCS	SP318/FRCS
AC953	9502008-A/CRRI-A	PY651/CRRI-A
AC954	9502008-A/FRCS	PY651/FRCS
AC955	9502008-A/3/CPRS/KBNT//AR 1188	PY651/H15
AC956	9502008-A///9802008/LGRU	PY651/H270
AC957	9502008-A/AC361	PY651/SP324
AC958	DREW/98PIM0071/AC467	PY654/PY673
AC959	DREW/98PIM0071/AC534	PY654/SP297
AC960	AC467/CRRI-A	PY673/CRRI-A
AC961	AC467//CCDR/98PIM0151	PY673/PY653
AC962	AC467//DREW/98PIM0071	PY673/PY654
AC963	AC467/AC110	PY673/PY727
AC964	AC467/AC428	PY673/SP282
AC965	AC467/AC438	PY673/SP290
AC966	AC469/FRCS	PY674/FRCS
AC967	AC469//AR 1121/9602082	PY674/H167
AC968	AC469//9502008/TACAURI	PY674/SP269
AC969	AC469/AC419	PY674/SP275
AC970	AC303/AC421	PY727/PY662
AC971	AC303/AC467	PY727/PY673
AC972	AC303/JA	PY727/SP295
AC973	AC303/AC534	PY727/SP297
AC974	AC303/AC536	PY727/SP304
AC975	AC303/AC468	PY727/SP322
AC976	AC412/CRRI-A	PY730/CRRI-A
AC977	AC412/AC467	PY730/PY673
AC978	AC412/AC110	PY730/PY727
AC979	AC412//9502008/TACAURI	PY730/SP269
AC980	AC412/AC419	PY730/SP275
AC981	AC412/AC438	PY730/SP290
AC982	AC426/FRCS	PY737/H131
AC983	AC426//DREW/98PIM0071	PY737/PY654
AC984	AC426/AC428	PY737/SP282
AC985	AC426/AC438	PY737/SP290
AC986	AC538//DREW/98PIM0071	PY739/PY654
AC987	AC538/AC467	PY739/PY673
AC988	AC538/AC358	PY739/PY743

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC989	AC538/AC438	PY739/SP290
AC990	AC513//9502008/TACAURI	PY745/SP269
AC991	AC513/AC421	PY745/PY662
AC992	AC513/AC431	PY745/PY669
AC993	AC513/AC433	PY745/PY748
AC994	9502008/TACAURI//MBLE/AR 1121	SP269/73148
AC995	9502008/TACAURI//CRRI-A	SP269/CRRI-A
AC996	9502008/TACAURI//CRRI-A	SP269/CRRI-A
AC997	9502008/TACAURI//FRCS	SP269/FRCS
AC998	9502008/TACAURI//DREW/98PIM0071	SP269/PY654
AC999	9502008/TACAURI//AC421	SP269/PY662
AC1000	9502008/TACAURI//AC358	SP269/PY743
AC1001	9502008/TACAURI//AC428	SP269/SP282
AC1002	9502008/TACAURI//AC534	SP269/SP297
AC1003	9502008/TACAURI//AC468	SP269/SP322
AC1004	AC427/AC628	SP282/63689
AC1005	AC427/AC421	SP282/PY662
AC1006	AC427/AC467	SP282/PY673
AC1007	AC427/AC469	SP282/PY674
AC1008	AC427/AC534	SP282/SP297
AC1009	AC427/AC534	SP282/SP297
AC1010	AC438/AC467	SP290/PY673
AC1011	AC438/AC426	SP290/PY737
AC1012	AC438/JA	SP290/SP295
AC1013	JA//MBLE/AR 1121	SP295/73148
AC1014	JA/CRRI-A	SP295/CRRI-A
AC1015	JA//AR 1121/9602082	SP295/H167
AC1016	JA/AC421	SP295/PY662
AC1017	JA/AC419	SP295/SP275
AC1018	JA/AC428	SP295/SP282
AC1019	JA/AC438	SP295/SP290
AC1020	AC536/AC421	SP304/PY662
AC1021	AC536/JA	SP304/SP295
AC1022	AC105/AC605	81801/PY533
AC1023	AC105/AC629	81801/SP119
AC1024	AC105/AC622	81801/SP123
AC1025	AC105//JODN/AR 1121	81801/SP158
AC1026	AC468/AC404	81837/PY527
AC1027	AC468/AC622	81837/SP114
AC1028	AC468/AC528	81837/SP170
AC1029	AC622/AC468	PY509/81841
AC1030	AC622/AC404	PY509/PY527
AC1031	AC622/AC528	PY509/SP170
AC1032	AC404/AC358	PY527/81834
AC1033	AC404/AC605	PY527/PY533
AC1034	AC404/AC509	PY527/SP112
AC1035	AC404/AC622	PY527/SP114
AC1036	AC404/AC622	PY527/SP114
AC1037	AC404/AC622	PY527/SP115
AC1038	AC404/JODN/AR 1121	PY527/SP158

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1039	AC404/JODN/AR 1121	PY527/SP158
AC1040	AC604/AC468	PY533/81837
AC1041	AC604/AC404	PY533/PY527
AC1042	AC604/AC404	PY533/PY527
AC1043	AC604/AC622	PY533/SP114
AC1044	AC604/AC629	PY533/SP119
AC1045	AC604/AC358	PY533/SP120
AC1046	AC604/AC528	PY533/SP170
AC1047	AC604/AC630	PY533/SP190
AC1048	AC536/AC622	PY567/SP114
AC1049	AC625/AC468	PY633/81837
AC1050	AC414/AC779	SP105/76532
AC1051	AC414/AC105	SP105/81801
AC1052	AC414//EPAGRI 107/LMNT	SP105/81857
AC1053	AC414//EPAGRI 107/LMNT	SP105/81857
AC1054	AC414/AC404	SP105/PY527
AC1055	AC414/AC627	SP105/SP110
AC1056	AC414/AC629	SP105/SP119
AC1057	AC414/AC514	SP105/SP138
AC1058	AC414//JODN/AR 1121	SP105/SP158
AC1059	AC414/AC438	SP105/SP182
AC1060	AC414/AC630	SP105/SP190
AC1061	AC408/AC468	SP109/81841
AC1062	AC408/AC468	SP109/81912
AC1063	AC408/AC404	SP109/PY527
AC1064	AC408/AC605	SP109/PY533
AC1065	AC408/AC358	SP109/SP120
AC1066	AC408/AC358	SP109/SP120
AC1067	AC408/AC538	SP109/SP154
AC1068	AC408/AC438	SP109/SP182
AC1069	AC627/AC622	SP110/PY509
AC1070	AC627/AC630	SP110/SP111
AC1071	AC627/AC622	SP110/SP114
AC1072	AC627/AC622	SP110/SP114
AC1073	AC627/AC622	SP110/SP122
AC1074	AC627//JODN/AR 1121	SP110/SP158
AC1075	AC627/AC630	SP110/SP190
AC1076	AC627/AC630	SP110/SP190
AC1077	AC630/AC105	SP111/81801
AC1078	AC630/AC404	SP111/PY527
AC1079	AC630/AC604	SP111/PY533
AC1080	AC630/AC604	SP111/PY533
AC1081	AC630/AC622	SP111/SP114
AC1082	AC630/AC528	SP111/SP170
AC1083	AC622/AC468	SP114/81912
AC1084	AC622/AC404	SP114/PY527
AC1085	AC622/AC404	SP114/PY527
AC1086	AC622/AC404	SP114/PY527
AC1087	AC622/AC604	SP114/PY533
AC1088	AC622/AC604	SP114/PY533

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1089	AC622/AC627	SP114/SP110
AC1090	AC622	SP114/SP115
AC1091	AC622/AC640	SP114/SP180
AC1092	AC622/AC404	SP115/PY527
AC1093	AC622/AC604	SP115/PY533
AC1094	AC622	SP115/SP114
AC1095	AC622/JEFF	SP115/SP150
AC1096	AC622/AC528	SP115/SP170
AC1097	AC629/AC431	SP119/81863
AC1098	AC629//AR 1188/SAN ANTONIO PERU	SP119/81866
AC1099	AC629/AC404	SP119/PY527
AC1100	AC629/AC438	SP119/SP182
AC1101	AC358//EPAGRI 107/LMNT	SP120/81857
AC1102	AC358//AR 1188/SAN ANTONIO PERU	SP120/81866
AC1103	AC358/AC468	SP120/81912
AC1104	AC358/AC622	SP120/PY505
AC1105	AC358/AC627	SP120/SP110
AC1106	AC358/AC622	SP120/SP123
AC1107	AC358	SP120/SP120
AC1108	AC358/AC438	SP120/SP182
AC1109	AC622/AC468	SP122/81841
AC1110	AC622/AC469	SP122/81887
AC1111	AC622/AC469	SP122/81958
AC1112	AC622/AC404	SP122/PY527
AC1113	AC622/AC630	SP122/SP111
AC1114	AC622/AC514	SP122/SP138
AC1115	AC622/AC640	SP122/SP180
AC1116	AC622/AC404	SP123/PY527
AC1117	AC622	SP123/SP132
AC1118	AC622/AC528	SP123/SP170
AC1119	AC622//AR 1188/SAN ANTONIO PERU	SP132/81866
AC1120	AC622/AC629	SP132/SP119
AC1121	AC622/AC548	SP132/SP182
AC1122	AC622/AC438	SP132/SP182
AC1123	AC625/AC779	SP133/76532
AC1124	AC625/AC468	SP133/81837
AC1125	AC625/AC468	SP133/81889
AC1126	AC625/AC622	SP133/PY509
AC1127	AC625/AC629	SP133/SP119
AC1128	AC625/AC358	SP133/SP120
AC1129	AC625/AC640	SP133/SP180
AC1130	AC514/AC779	SP138/76532
AC1131	AC514/AC468	SP138/81837
AC1132	AC514/FRCS	SP138/FRANCIS
AC1133	AC514/AC622	SP138/PY509
AC1134	AC514/AC438	SP138/SP182
AC1135	AC514/AC438	SP138/SP182
AC1136	AC515/AC407	SP139/SP105
AC1137	AC515/AC627	SP139/SP109
AC1138	AC515/AC630	SP139/SP111

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1139	AC622/AC779	SP142/76523
AC1140	AC622/AC546	SP142/76675
AC1141	AC622/AC630	SP142/SP111
AC1142	AC622	SP142/SP149
AC1143	9502008/TACAURI//AC468	SP144/81841
AC1144	9502008/TACAURI//AC468	SP144/81912
AC1145	9502008/TACAURI//AC438	SP144/SP182
AC1146	AC622/AC420	SP147/81854
AC1147	AC355/AC622	SP148/PY505
AC1148	AC355/AC623	SP148/PY509
AC1149	AC355/AC622	SP148/PY509
AC1150	AC355/AC627	SP148/SP110
AC1151	AC355/AC629	SP148/SP119
AC1152	AC355/AC358	SP148/SP120
AC1153	AC622/AC534	SP149/81847
AC1154	AC622/AC404	SP149/PY527
AC1155	AC622/AC604	SP149/PY533
AC1156	AC622	SP149/SP114
AC1157	AC622/AC779	SP156/76532
AC1158	AC622	SP156/SP114
AC1159	AC622//JODN/AR 1121	SP156/SP158
AC1160	AC622/SP2	SP156/SP159
AC1161	JODN/AR 1121//AC622	SP158/SP114
AC1162	JODN/AR 1121//AC629	SP158/SP119
AC1163	JODN/AR 1121//AC538	SP158/SP154
AC1164	AC533/AC358	SP162/81834
AC1165	AC533/AC469	SP162/81958
AC1166	AC533/AC630	SP162/SP111
AC1167	AC533/AC622	SP162/SP147
AC1168	AC533/AC355	SP162/SP148
AC1169	AC103/AC105	SP169/81801
AC1170	AC103/AC622	SP169/PY505
AC1171	AC103/AC622	SP169/PY509
AC1172	AC103/AC622	SP169/SP115
AC1173	AC103/AC622	SP169/SP122
AC1174	AC103/AC622	SP169/SP123
AC1175	AC103//9502008/TACAURI	SP169/SP144
AC1176	AC103/AC528	SP169/SP170
AC1177	AC528/AC468	SP170/81837
AC1178	AC528/AC604	SP170/PY533
AC1179	AC438/AC746	SP182/74824
AC1180	AC438/AC780	SP182/76532
AC1181	AC438/AC780	SP182/76532
AC1182	AC438/AC468	SP182/81841
AC1183	AC438/AC469	SP182/81958
AC1184	AC438/AC622	SP182/PY505
AC1185	AC438/AC622	SP182/PY509
AC1186	AC438/AC404	SP182/PY527
AC1187	AC438/AC622	SP182/SP122
AC1188	AC438/AC622	SP182/SP122

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1189	AC438/AC622	SP182/SP149
AC1190	AC438/AC622	SP182/SP149
AC1191	AC438/AC622	SP182/SP156
AC1192	AC438	SP182/SP182
AC1193	AC622//EPAGRI 107/LMNT	SP188/81857
AC1194	AC622/AC431	SP188/81863
AC1195	AC622	SP188/PY505
AC1196	AC622/AC630	SP188/SP111
AC1197	AC622/AC629	SP188/SP119
AC1198	AC622/AC358	SP188/SP120
AC1199	AC622	SP188/SP122
AC1200	AC622/AC438	SP188/SP182
AC1201	AC622/AC430	SP188/SP190
AC1202	AC630/AC780	SP190/76532
AC1203	AC630/AC468	SP190/81841
AC1204	AC630/AC469	SP190/81887
AC1205	AC630/AC404	SP190/PY527
AC1206	AC630/AC404	SP190/PY527
AC1207	AC630/AC604	SP190/PY533
AC1208	AC630/AC627	SP190/SP110
AC1209	AC630//JODN/AR 1121	SP190/SP158
AC1210	AC622/AC438	SP147/SP182
AC1211	AC622/AC468	SP147/81841
AC1212	AC622	SP147/SP122
AC1213	AC630/AC431	SP111/81863
AC1214	AC622/AC629	SP188/SP119
AC1215	AC622/AC514	SP132/SP138
AC1216	AC358/AC623	03PY776/03PY814
AC1217	AC358	03PY776/03SP160
AC1218	AC439/AC622	03PY788/03SP199
AC1219	AC439/AC638	03PY788/03PY762
AC1220	AC439/AC623	03PY788/03PY814
AC1221	AC305/AC413	03SP151/03PY824
AC1222	AC358/AC305	03SP160/03SP151
AC1223	AC358/AC623	03SP160/03PY814
AC1224	AC433/AC622	03PY824/03SP199
AC1225	AC433/AC305	03PY824/03SP151
AC1226	AC433/3/9502008/CPRS//9502008/LGRU	03PY824/03-69371
AC1227	AC358/AC433	03SP160/03PY824
AC1228	CCDR/98PIM0141//AC780	03URN128/03-76525
AC1229	AC358/AC638	03SP160/03PY762
AC1230	AC358	03SP160/03PY776
AC1231	AC358/AC729	03PY776/03-74338
AC1232	AC358/AC305	03PY776/03SP151
AC1233	AC358/AC780	03PY776/03-76525
AC1234	AC622/AC433	03SP199/03PY824
AC1235	AC623/AC622	03PY814/03SP199
AC1236	AC623//MS103/MS114	03PY814//MS103/MS114
AC1237	AC623/AC433	03PY814/03PY824
AC1238	AC772/AC780	03-76331/03-76525

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1239	AC433/AC358	03PY824/03SP160
AC1240	AC433/AC638	03PY824/03PY762
AC1241	AC433/AC623	03PY824/03PY814
AC1242	AC358/AC433	03PY776/03PY824
AC1243	AC358/AC110	03PY776/AC110
AC1244	AC855/AC358	03-91565/03PY776
AC1245	AC772/AC638	03-76333/03PY762
AC1246	AC622/AC305	03PY758/03SP151
AC1247	AC638/AC625	03PY762/03PY815
AC1248	AC638/AC1026	03PY762/AC1026DH4
AC1249	AC638/AC733	03PY762/03-74518
AC1250	AC625/AC768	03PY815/03-76233
AC1251	AC305/AC772	03SP151/03-76333
AC1252	AC305/AC358	03SP151/03PY776
AC1253	AC305//9502192/9602134	03SP151/03PY830
AC1254	AC625	03SP151/03PY815
AC1255	AC625/AC622	03PY815/04PY570
AC1256	AC625/AC433	03PY815/03-80870
AC1257	AC625/AC630	03PY815/04PY556
AC1258	AC625/AC420	03PY815/03-81853
AC1259	AC625/SB003	03PY815/SB003
AC1260	AC625/DG1657	03PY815/DG1657
AC1261	AC625/AC738	03PY815/04PY512
AC1262	AC622/AC633	03PY758/80034
AC1263	AC622/AC772	03PY758/04PY523
AC1264	AC622/AC625	03PY758/03PY815
AC1265	AC622/DG1657	03PY758/DG1657
AC1266	AC622/AC738	03PY758/04PY512
AC1267	AC633/AC772	80034/04PY523
AC1268	AC633/AC625	80034/03PY815
AC1269	AC535/AC625	04PY566/03PY815
AC1270	SB003/AC625	SB003/03PY815
AC1271	AC772/AC633	76333/80034
AC1272	AC433/AC622	03PY824/04PY570
AC1273	AC433/AC630	03PY824/04PY556
AC1274	AC433/AC623	03PY824/04URN62
AC1275	AC433/AC428	03PY824/80857
AC1276	AC433/AC110	03PY824/80859
AC1277	AC433//9502008/TACAURI	03PY824/80895
AC1278	AC433/AC772	03PY824/04PY523
AC1279	AC433/AC110	03PY824/81105
AC1280	AC433/SB003	03PY824/SB003
AC1281	AC428/AC433	80857/03PY824
AC1282	AC428/AC623	80857/03AY9
AC1283	AC428//9502008/TACAURI	80857/80895
AC1284	AC428/AC420	80857/81853
AC1285	AC428/0202091	80857/04URN71
AC1286	AC110/AC428	81105/80857
AC1287	AC110//9502008/TACAURI	81105/80895
AC1288	AC110/AC420	81105/81853

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1289	AC110/AC622	81105/03PY758
AC1290	AC110/AC433	81105/03PY824
AC1291	AC110/AC623	81105/03AY9
AC1292	AC110/0202091	81105/04URN71
AC1293	AC638/AC110	03PY762/81105
AC1294	AC638/AC433	03PY762/03PY824
AC1295	AC638/0202091	03PY762/04URN71
AC1296	AC638/SB003	03PY762/SB003
AC1297	AC638/AC622	03PY762/03PY758
AC1298	AC638/AC623	03PY762/03AY9
AC1299	AC623/0202091	03AY9/04URN71
AC1300	AC623/AC622	03AY9/04PY570
AC1301	AC623/AC622	03AY9/03PY758
AC1302	AC623/AC772	03AY9/04PY523
AC1303	AC623/AC772	03AY9/76333
AC1304	AC623/AC428	03AY9/80857
AC1305	AC623/AC110	03AY9/80859
AC1306	AC623//9502008/TACAURI	03AY9/80895
AC1307	AC623/AC625	03AY9/03PY815
AC1308	AC623	03AY9/03PY824
AC1309	AC623/SB003	03AY9/SB003
AC1310	AC623/Zhenxian 241	03AY9/Zhenxian 241
AC1311	AC623/AC638	03AY9/03PY762
AC1312	AC623/AC110	03AY9/81105
AC1313	AC361/AC623	80970/03AY9
AC1314	AC361/AC433	80970/03PY824
AC1315	AC535//9502008/TACAURI	04PY566/03-80895
AC1316	AC535/AC772	04PY566/04PY523
AC1317	AC622/AC535	04PY570/04PY566
AC1318	AC633//9502008/TACAURI	80034/80895
AC1319	Zhenxian 241/AC433	Zhenxian 241/03PY824
AC1320	Zhenxian 241/AC623	Zhenxian 241/03AY9
AC1321	Zhenxian 241/AC110	Zhenxian 241/81105
AC1322	AC433/AC772	03PY824/76333
AC1323	AC433/AC110	03PY824/81105
AC1324	AC433/Zhenxian 241	03PY824/Zhenxian 241
AC1325	AC433/AC630	03PY824/04PY556
AC1326	AC420/AC638	81853/03PY762
AC1327	AC110/AC625	04AY2/03PY815
AC1328	AC110/AC622	04AY2/04AY9
AC1329	AC110/0202091	04AY2/04URN71
AC1330	AC110/AC358	04AY2/04AY6
AC1331	AC110/AC772	04AY2/04PY523
AC1332	AC110/AC428	04AY2/04AY4
AC1333	AC110/JA	04AY2/04PY814
AC1334	AC110/AC622	04AY2/04AY24
AC1335	AC110/AC627	04AY2/04PY780
AC1336	AC110/AC687	04AY2/04PY756
AC1337	AC428/AC772	04AY4/03-76333
AC1338	AC428	04AY4/03-80857

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1339	AC428/AC634	04AY4/04PY560
AC1340	AC428/AC773	04AY4/04PY774
AC1341	AC428/AC627	04AY4/04PY780
AC1342	AC428/AC630	04AY4/04PY781
AC1343	AC428/JA	04AY4/04PY814
AC1344	AC428/JA	04AY4/04PY815
AC1345	AC428/AC358	04AY4/04AY6
AC1346	AC428/AC622	04AY4/04AY24
AC1347	AC358/AC428	04AY6/04AY4
AC1348	AC358/AC622	04AY6/04AY24
AC1349	AC358/AC627	04AY6/04PY784
AC1350	AC358/JA	04AY6/04PY814
AC1351	AC358/JA	04AY6/04PY815
AC1352	AC622/AC110	04AY9/04AY2
AC1353	AC622/AC428	04AY9/04AY4
AC1354	AC622/AC358	04AY9/04AY6
AC1355	AC622/AC687	04AY9/04PY756
AC1356	AC622/AC627	04AY9/04PY780
AC1357	AC622/AC630	04AY9/04PY781
AC1358	AC622/AC110	04AY24/04AY2
AC1359	AC622/AC428	04AY24/04AY4
AC1360	AC622/AC358	04AY24/04AY6
AC1361	AC622/AC623	04AY24/04URN62
AC1362	AC622/0202091	04AY24/04URN71
AC1363	AC622/AC305	04AY24/03SP151
AC1364	AC622/AC773	04AY24/04PY774
AC1365	AC622/AC627	04AY24/04PY780
AC1366	AC622/AC630	04AY24/04PY781
AC1367	AC622/JA	04AY24/04PY814
AC1368	AC622/AC772	04AY24/76333
AC1369	AC623/AC110	04URN62/04AY2
AC1370	AC623/AC358	04URN62/04AY6
AC1371	AC623/AC773	04URN62/04PY774
AC1372	AC623/AC627	04URN62/04PY780
AC1373	AC623/AC630	04URN62/04PY781
AC1374	AC773/AC110	04PY774/04AY2
AC1375	AC773/AC428	04PY774/04AY4
AC1376	AC773/AC358	04PY774/04AY6
AC1377	AC773/AC622	04PY774/04AY24
AC1378	AC773/AC622	04PY774/03PY758
AC1379	AC773/AC638	04PY774/03PY762
AC1380	AC773/AC687	04PY774/04PY756
AC1381	AC773/AC627	04PY774/04PY780
AC1382	AC773/AC630	04PY774/04PY781
AC1383	AC773/JA	04PY774/04PY814
AC1384	AC773/0202091	04PY774/04URN71
AC1385	AC687/0202091	04PY756/04URN71
AC1386	AC687/AC627	04PY756/04PY780
AC1387	AC687/AC630	04PY756/04PY781
AC1388	AC687/AC634	04PY756/04PY784

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1389	AC687/JA	04PY756/04PY814
AC1390	AC687/JA	04PY756/04PY815
AC1391	AC687/AC110	04PY756/04AY2
AC1392	AC687/AC428	04PY756/04AY4
AC1393	AC687/AC358	04PY756/04AY6
AC1394	AC687/AC622	04PY756/04AY9
AC1395	AC687/AC622	04PY756/04AY24
AC1396	AC638/AC361	03PY762/03-80970
AC1397	AC627/AC305	04PY780/03SP151
AC1398	AC627/AC772	04PY780/03-76333
AC1399	AC627/AC110	04PY780/04AY2
AC1400	AC627/AC358	04PY780/04AY6
AC1401	AC627/AC622	04PY780/04AY24
AC1402	AC627/AC773	04PY780/04PY774
AC1403	AC627/AC634	04PY780/04PY784
AC1404	AC627/AC630	04PY780/04PY781
AC1405	AC627/JA	04PY780/04PY814
AC1406	AC627/JA	04PY780/04PY815
AC1407	AC630/AC110	04PY781/04AY2
AC1408	AC630/AC428	04PY781/04AY4
AC1409	AC630/AC358	04PY781/04AY6
AC1410	AC630	04PY781/04PY556
AC1411	AC630/AC687	04PY781/04PY756
AC1412	AC630/AC627	04PY781/04PY780
AC1413	AC630/JA	04PY781/04PY814
AC1414	AC634/AC687	04PY784/04PY756
AC1415	AC634/AC627	04PY784/04PY780
AC1416	AC634/AC428	04PY784/04AY4
AC1417	AC634/AC622	04PY784/04AY24
AC1418	JA/AC110	04PY814/04AY2
AC1419	JA/AC428	04PY814/04AY4
AC1420	JA/AC358	04PY814/04AY6
AC1421	JA/AC622	04PY814/04AY9
AC1422	JA/AC622	04PY814/04AY24
AC1423	JA/AC687	04PY814/04PY756
AC1424	JA/AC773	04PY814/04PY774
AC1425	Huandao 6/AC361	Huandao 6/03-80970
AC1426	Huandao 6/AC638	Huandao 6/03PY762
AC1427	AC773/Zhenxian 122	04PY774/Zhenxian 122
AC1428	AC630/Zhenxian 84	04PY781/Zhenhui 084
AC1429	Zhenxian 96/TRNS	Zhenxian 96/04URN008
AC1430	Zhenxian 96//9502192/9602134	Zhenxian 96/04URN11
AC1431	Zhenxian 96/AC413	Zhenxian 96/04URN42
AC1432	Zhenxian 96/AC638	Zhenxian 96/04URN88
AC1433	Zhenxian 96/AC623	Zhenxian 96/04URN62
AC1434	AC623/Zhenxian 96	04URN62/Zhenxian 96
AC1435	AC358/Zhenxian 96	04AY6/Zhenxian 96
AC1436	AC622/Zhenxian 96	04AY24/Zhenxian 96
AC1437	AC687/Zhenxian 96	04PY756/Zhenxian 96
AC1438	AC773/Zhenxian 96	04PY774/Zhenxian 96

Continued.

Table 1. Continued.

Cross#	Pedigree	Other Identifier
AC1439	AC627/Zhenxian 96	04PY780/Zhenxian 96
AC1440	9502192/9602134/Zhenxian 96	04PY814/Zhenxian 96
AC1441	AC622/C418	04AY24/C418
AC1442	C418/AC622	C418/04AY24
AC1443	AC623/C418	04URN62/C418
AC1444	AC773/C418	04PY774/C418
AC1445	AC627/C418	04PY780/C418
AC1446	9502192/9602134//C418	04PY814/C418

RICE GENETICS AND GERMPLASM DEVELOPMENT

J.H. Oard, D. Groth, S.D. Linscombe, X. Sha, N. Zhang, S. Kadaru, S. Ordonez, and W. Zhang

Summary

Research in 2006 produced the following results: (1) One mapping population for sheath blight resistance (SB2) and three germplasm lines for enhanced sheath blight resistance were developed and released to the rice community; (2) Candidate genes associated with sheath blight resistance were identified by protein chemistry (proteomic) methods; (3) Candidate molecular markers for grain and cooking quality were identified using a new, cost-efficient procedure; (4) Statistical models to identify DNA markers associated with agronomic traits were developed; (5) Regulatory gene for resistance to rice bacterial disease was identified with implications for DNA markers for sheath bight resistance; and (6) Numerous sheath blight-resistant lines were developed (SB rating ≤ 5) and used as parents for production of 410 F_1 hybrids.

Registration of one mapping population and three germplasm lines for enhanced disease resistance

Resistance to the rice sheath blight disease remains a priority research objective for the Louisiana rice industry and the LSU AgCenter. Identification of genetic markers associated with sheath blight resistance is considered one of two principal goals for the USDA-funded RiceCAP Project (www.uark.edu/ua/ricecap/ricecap.org). During the last 2 years, Dr. Oard and six other AgCenter rice researchers (Drs. Chu, Groth, Linscombe, Rush, Sha, and Utomo) cooperated in the development, evaluation, and public release in 2006 of the SB2 genetic mapping population for identification of DNA markers associated with resistance to sheath blight. SB2 was evaluated for the last two years in field trials at the LSU AgCenter's Rice Research Station and at Stuttgart, AR, in cooperation with Dr. Karen Moldenhauer's breeding program. The 325 doubled haploid lines in the population exhibited a wide range of resistance to the sheath blight fungus in inoculated field trials – a desirable outcome for genetic mapping studies of this type. Field evaluations will be repeated in Louisiana and Arkansas during 2007 to confirm results obtained in 2006. DNA marker profiles of the 325 lines will be obtained in 2007 by Dr. Herry Utomo with laboratory assistance from Brian Sheffler's USDA laboratory in Stoneville, MS. We expect to identify regions of the rice genome (quantitative trait loci aka QTLs) associated with sheath blight resistance in 2007.

Development of sheath blight lines with acceptable agronomic characteristics is a primary focus for applied rice genetics in the southern U.S. rice growing region. Dr. Oard has cooperated in 2006 with Dr. Groth, Rice Research Station, and Dr. Pinson, USDA-Beaumont, for development and release of three germplasm lines suitable for transferring resistance to elite commercial varieties.

Identification of candidate genes associated with sheath blight resistance

Sheath blight, caused by the fungus *R. solani*, is a major disease of rice worldwide, but little is known about the host response to infection. The objective of this study was to identify proteins and DNA markers in resistant and susceptible rice associated with response to infection by *R. solani.* Replicated two-dimensional polyacrylamide gel electrophoresis experiments were conducted to detect proteins differentially expressed under inoculated and non-inoculated conditions. Tandem mass spectra analysis using electrospray ionization quadrupole-time of flight mass spectrometry (ESI Q-TOF MS) was carried out for protein identification with the NCBI non-redundant protein database. Seven proteins were increased after inoculation in both susceptible and resistant plants. Six of the seven proteins were identified with presumed antifungal, photosynthetic, and proteolytic activities. An additional 14 proteins were detected in the response of the resistant line. Eleven of the 14 proteins were identified with presumed functions relating to antifungal activity, signal transduction, energy metabolism, photosynthesis, molecular chaperone, proteolysis, and antioxidation. The induction of 3-β –hydroxysteroid dehydrogenase/isomerase was detected for the first time in resistant rice plants after pathogen challenge, suggesting a defensive role of this enzyme in rice against attack by *R. solani*. The chromosomal locations of four induced proteins were found to be in close proximity to genetic markers for sheath blight resistance in two genetic mapping populations. The proteomic and genetic results from this study highlighted a complex response of rice to challenge by *R. solani* that involves simultaneous induction of proteins from multiple defense pathways.

Completed research and published findings regarding development of stewardship program for Clearfield rice in Louisiana

Hybridization between Clearfield rice and weedy red rice would have a direct impact on management and long-term strategies of imazethapyr technology for rice weed control. The objective of this research was to determine rates and agronomic consequences for outcrossing between Clearfield rice and red rice. Red rice populations showed extensive variation for plant height, panicle length, tillers/plant, seeds/plant, seed set, and grain weight. Outcrossing was detected from all Clearfield rice cultivars ('CL121,' 'CL141,' 'CL161,' and 'CLXL8') to red rice and was confirmed by phenotypic and DNA marker analyses. An overall outcrossing frequency of 0.17% was observed in 2002 red rice samples, with a range from 0 to 0.46%. Tolerance of 2002 red rice samples to imazethapyr corresponded to levels of acetohydroxyacid synthase (AHAS) activity. A majority (94%) of the progeny from the 2002 samples segregated 3 resistant:1 susceptible for tolerance to imazethapyr, indicating that a single dominant gene from Clearfield rice was associated with tolerance in the hybrid material. The remaining samples did not segregate for tolerance, suggesting that spontaneous mutations for tolerance were present in this material before or after crossing with Clearfield rice. A 4-fold increase in outcrossing frequency of 0.68% was observed in 2003 red rice samples, with the highest outcrossing frequency for a single location at 3.2%. This research shows that outcrossing between Clearfield and red rice will occur rapidly at rates that warrant early-season field scouting and a crop rotation scheme to prolong usefulness of the Clearfield technology. We continued to monitor outcrossing events during 2006 in commercial fields. Molecular markers developed from our previous published research showed that outcrossing continued at a low rate in 2006 and that producers need to be ever vigilant to prolong the usefulness of the Clearfield technology.

Identification of molecular markers for grain and cooking quality in rice

Molecular variation at the single nucleotide level is becoming the genetic marker of choice for rice and other agronomic crops. We recently developed a rapid, accurate, and cost-efficient procedure for discovery and application of single nucleotide polymorphism (SNP) in rice. This procedure is a modified version of the "Eco-Tilling" procedure. Eco-tilling is a high-throughput method of discovery and analysis of SNP variations in natural populations but requires a substantial investment in sophisticated equipment, costly reagents, specialized software programs, and implementation of several time-consuming steps that limit its use in laboratories with modest financial resources. Moreover, labeling efficiency of PCR primers with fluorescent dyes during Eco-tilling can be reduced by unwanted exonuclease activity of single strand-specific (sss) nucleases. A new alternative protocol involving a simplified gel system, unlabeled primers, DNA staining after S-1 nuclease digestion, and standard gel data analysis was optimized to address these constraints. Using the alternative protocol, we successfully identified four new SNPs verified by sequencing in a collection of 57 diverse rice accessions along with two previously reported SNPs in a 922 bp DNA region from the alk gene that is associated with cooking quality in rice. A SNP cluster containing a deletion within a 472-bp fragment of the waxy gene, known to be associated with both grain and cooking quality, was also characterized by alternative Eco-tilling. In addition, four previously reported SNPs in the alk and waxy genes were faithfully genotyped among the 57 accessions based on comparisons with sequencing results. Associations between the genotyped SNPs and amylose class and starch gelatinization temperature were as anticipated. These results, along with detailed time and cost comparisons between the two methods, suggest that alternative Eco-tilling is a simple and reproducible method for SNP discovery and genotyping in rice that leads to substantial savings in equipment, reagents, software, and time as compared with the standard Eco-tilling procedure.

Development of aroma rice varieties has been a long-term goal for the Rice Breeding Project at Crowley. Because the aroma trait is recessive in rice, extra time, money, and labor are needed for successful varietal development. Molecular markers that can identify aroma-specific alleles can hasten development of aromatic rice for an expanding global market. The objective of our research was to develop haplotype-specific assays for genotyping the rice aroma gene. Aroma is controlled by a single recessive gene on chromosome 8 that encodes for the betaine aldehyde dehydrogenase (BAD2) enzyme. We initially identified two haplotypes of the BAD2 gene among 20 U.S. and Asian aromatic and non-aromatic inbred varieties that were consistent with aroma phenotypes and exon 7 sequences. An additional 50 U.S. breeding lines that tested positive for seed aroma were advanced to the next generation, and four to five progeny from each line were scored for haplotypes and aroma. Aromatic/non-aromatic phenotypes were consistent with corresponding haplotypes for all 226 progeny tested. Results from this study demonstrate that our haplotype-specific primers and modified assay can serve as rapid, accurate, and effective tools for marker-assisted development of aromatic rice varieties.

Development of statistical models with validation for marker-assisted selection in rice

Association genetics has been proposed as a powerful tool to capture genetic data stored in unrelated individuals for identification of markers associated with complex traits. Standard hypothesis-driven methods are routinely used for such studies, but few have been validated in separate populations. Our first objective was to evaluate the mixed model as presented in the TASSEL software program (http://www.maizegenetics.net) for three agronomic traits in a diverse group of 177 rice inbred lines and validate results in a subset of 41 lines not involved in the original analysis. The results showed, in contrast to previous maize studies, that kinship estimates incorporated into the mixed model did not increase power nor enhance predictive ability of selected markers. We evaluated an alternative model selection strategy based on specific information criteria to identify markers associated with the three agronomic traits in the same population mentioned above. A comparison of different models showed that consideration for epistasis and population structure in a flexible general linear model resulted in identification of microsatellite alleles that explained a large proportion of phenotypic variance for all three agronomic traits in separate test populations. A high percentage of selected markers mapped to QTL regions previously identified by standard mapping and discriminant analysis procedures. Results from this study indicate that model selection strategies should be considered for association genetics and validation of selected markers in rice.

Cooperative study to identify genes for resistance to bacterial diseases in rice

We cooperated in a multi-institutional study to evaluate basic aspects of resistance against the rice bacterial blight disease. It is important to note that no field or greenhouse trial was conducted in Louisiana with the pathogen *Xanthomonas oryzae pv oryzae*. This study revealed that the rice resistance gene Xa21 binds to the rice Xb3 protein, which is classified as an E3 ubiquitin ligase. The results indicated that Xb3 was necessary for full expression of the Xa21-mediated resistance. This study has relevance for resistance to sheath blight because our previous study identified an ubiquitin ligase that was induced in resistant rice after inoculation with *R. solani.*

Development of sheath blight-resistant Germplasm

The primary goal of this project is to develop improved germplasm lines for sheath blight resistance from both wild and domesticated sources by crossing to high yielding Louisiana varieties. In 2006, more than 1,000 F_2 - F_5 families were evaluated in inoculated field trials at the Rice Research Station. A total of 189 sheath blight-resistant lines (SB rating ≤ 5) were identified with numerous lines showing good agronomic characteristics for height and maturity. For our crossing program, a total of 410 hybrids were produced in 2006 using multiple sources of resistance. This material, along with the selected families, will be evaluated in 2007 field trials at the Rice Research Station.

MARKER-ASSISTED BREEDING: INCORPORATION OF DNA MARKERS TO DEVELOP IMPROVED BREEDING LINES

H.S. Utomo, S.D. Linscombe, and X. Sha

DNA markers provide an excellent opportunity to conduct systematic selection for a number of important traits. Though its utility at present is somewhat limited to relatively few traits such as disease resistance and simple quality traits, it will undoubtedly be a crucial tool in modern breeding practice. A wealth of information that is available since the completion of the rice genome sequence has contributed to faster development of molecular markers aimed to tag various important traits in rice, including sheath blight resistance, milling quality, drought resistance, grain dimension and quality specifications, grain nutritional quality, and various yield components. To take advantage of this current development, this molecular tool must be integrated into conventional breeding methods. Emerging potentially from various genetic backgrounds identified by scientists around the world, DNA markers for various traits currently of a local or ethnic preference can be used to introgress these traits into the U.S. rice background of already premium quality to meet specific demands in a wider market of more diversified consumers. A high level of precision in selecting the traits can be used to fast-tract such development and will make them a crucial part in developing high quality superior varieties.

One of the practical uses of markers at present is to pyramid genes during development of breeding lines. Pyramiding several disease-resistant genes evidently showed improved durability against important rice diseases, such as blast. Traditionally, breeding for superior lines that possess durable resistance against blast disease is challenging due to complexity of disease reaction caused by each race and overlapping spectra of resistance genes. DNA markers linked to the individual gene provide an effective means to stack these genes. Various crossing schemes were made to pyramid blast genes to provide a broader resistant range against *Pyricularia grisea* pathogens. SSR markers for blast-resistant genes, Pi-ta2, Pi-z, Pi-kh, and Pi-b, were used during development of improved breeding lines. Pi-ta2 gene is located in chromosome 12 near the centromer of its short arm. The gene can be found in several cultivars, including Katy and Kaybonnet. Two microsatellite markers, OSM89 and RM155, are closely linked to the gene. OSM89 is approximately 2.4 cM away from the gene and RM155 about 1.1 cM from the gene. Pi-b gene is located in chromosome 2. Cultivars Saber and Bolivar carry Pi-b gene. Pi-z gene can be found in Jefferson and Bengal. Pi-kh gene is located on the long arm of chromosome 11 near the telomere. Closely linked to Pi-kh gene, SSR marker RM224 can be used to track this gene.

Even though the southern U.S. rice germplasm has a very narrow genetic background, new cultivars being released from this narrow gene pool have shown considerable yield improvement from time to time. Grain quality generally can be maintained rather easily by crossing parents of southern U.S. types. Significant total yield improvement, however, is relative hard to achieve. Wide crossing such as using indica types to breed long-grain rice can improve yield substantially but typically has poor grain quality and exhibits other undesirable traits not suitable for commercial production. Three types of crosses have been made; crosses of long-grain southern U.S. lines, crosses of long-grain and medium grain U.S. rice, and crosses of U.S. long-grain and indica types. Three hundred and twelve crosses were made by crossing blast-resistant donors from the long-grain adapted lines with other long-grain southern U.S. lines in multi-way crosses.

Markers provide a direct means to tract the accumulation of blast-resistant genes. It involves scoring for the presence, or absence, of blast markers based on the specific chromosomal segment carrying the alleles. Marker screening, however, only represents a portion of the whole selection activities. Field selection leading to acceptable characteristics typically found in commercial cultivars was carried out in the field among progeny rows of blast-resistant lines. A total of 14,000 rice headrows of F_3 to F_5 progeny lines derived from various crosses (two and multi-way) was evaluated in the field at the LSU AgCenter's Rice Research Station in 2006. Four hundred headrows were selected based on blast markers and high yielding characteristics, including more productive tillers, longer panicles, and bigger panicle size. Heading date, plant height, lodging, grain appearance, and plant stature were also included in the selection process. The phenotypic performance of 100 selected F_5 lines carrying blast resistant genes planted at the LSU Rice Research Station plots are shown in Table 1.

Progeny lines from long-grain/medium-grain crosses and long-grain/indica type crosses are currently in the F_3 stage. Novel traits such as drought tolerance, grain dimention, submergence, bacterial leaf blight tolerance, iron grain content, and protein content are being evaluated for their usefulness in the U.S. genetic background.

Marker analysis:

Leaf sample collection: The tip of leaf was cut and placed in the 96-plastic sample holder. Using a paper hole puncher, a sample was taken from each leaf cut inside a holder pocket and placed into the corresponding tube in the 96-well PCR plate. Three stainless-steel beads were added into each microtube. A 40 µl TE1 buffer (10 mM Tris HCL, 1 mM EDTA, pH 8.0) was added to each tube. The plate was covered with strip caps and ground for 1 minute using the Mini-BeadBeater-96. The plate was placed in the thermal cycler and programmed to 93°C for 3 minutes. After heating, a 160 µl TE2 buffer (10 mM Tris-HCL, 0.1 mM EDTA, pH 8.0) was added into each well and mixed. The crude DNA extracts were then ready for use in PCR reactions. A typical volume of DNA extract used in the reactions was 1.87 µl. The unused portions of DNA samples were stored in -20°C or -80°C.

Microsatellite Marker and PCR Reaction:

Microsatellite markers for each blast resistance gene, example using primer OSM89 for *Pi-ta*[2], were used to screen plants for the presence of the gene. Amplified products were generated through the PCR mix consisted of 3.13 µl of Sigma Jumpstart™ (Sigma, MO, USA; Cat. # P0982), 1.87 µl DNA template, and 0.63 µl (0.1 µM) each of forward and reverse microsatellite primers. PCR amplification was performed on a PTC 100 thermal cycler (MJ Research, Inc., MA, USA) using a 96-well plate, programmed to initial denaturation at 94°C for 4 min followed by 35 cycles of 45 sec at 94°C, 45 sec at 55°C, and 1 min at 72°C, with a final extension step of 1 min at 72°C for amplification. The PCR product was held at 4°C before analysis.

Electrophoresis and Band Scoring:

PCR products were separated on a polyacrylamide gel in a Mega-Gel dual high-throughput vertical electrophoresis unit (C.B.S. Scientific, CA, USA). 100 µl of 10 mg ml^{-1} ethidium bromide was added to the lower buffer reservoir before pre-running the gel. The PCR product of 6.25 µl volume was loaded into the well and run at 300 volts for 2 hours and 30 minutes. The resulting bands were visualized under 254-nm UV light and the band images were captured on the KODAK EDAS 290. Files containing band images were stored in the computer. The size of bands was determined using the KODAK EDAS 290 companion software.

Table 1. Seedling vigor, panicle length, type, and weight, plant height, number of stems, and heading date of 100 selected F_5 lines carrying blast resistant genes grown near Crowley, LA.

Row #	Plant ID	Seedling Vigor[¶]	Panicle Length[†] (cm)	Panicle and grain type[‡]	Cleaned panicle weight (g) [††]	Plant height (cm)	Row yield (g)	Heading date[§]
6428	07F397	3	28.8	N, L	8.29	90	701	85
3579	07F374	3	28.4	Y, L	7.14	94	504	84
5698	07F479	3	29.2	Y, L	7.00	90	670	88
5274	07F490	3	26.4	Y, L	6.40	89	1202	84
56	07F513	3	28.2	Y, L	6.40	88	899	82
1238	07F540	2	28.9	Y, L	6.30	97	930	83
5109	07F475	3	30.1	Y, L	6.14	96	1603	84
10361	07F437	2	26.1	Y, L	6.10	94	500	88
4851	07F345	2	29.7	Y, L	5.98	90	506	83
10399	07F440	2	26.7	Y, L	6.00	89	435	80
5791	07F762	3	26.5	Y, L	5.90	89	436	80
6259	07F571	3	26.3	Y, L	5.87	90	367	76
5793	07F772	3	29.3	Y, L	5.90	92	509	88
12001	07F467	3	27.5	Y, L	5.85	96	806	80
764	07F538	3	27.4	Y, L	5.82	87	344	81
9282	07F717	3	24.4	Y, L	5.81	89	435	81
6341	07F582	3	27.0	Y, M	5.80	88	367	82

Continued.

Table 1. Continued.

Row #	Plant ID	Seedling Vigor¶	Panicle Length† (cm)	Panicle and grain type‡	Cleaned panicle weight (g) ††	Plant height (cm)	Row yield (g)	Heading date§
5759	07F124	3	26.6	Y, L	5.76	90	390	84
5799	07F775	2	27.6	Y, L	5.72	90	566	85
9319	07F719	3	27.0	Y, L	5.66	92	678	85
5992	07F511	3	29.4	Y, L	5.65	91	466	86
105	07F515	3	27.5	Y, L	5.64	93	578	83
715	07F533	3	26.7	Y, L	5.60	94	432	83
4299	07F282	3	27.0	N, M	5.60	93	343	83
6230	07F385	3	24.9	Y, L	5.60	92	356	84
1494	07F548	3	28.9	Y, L	5.59	92	564	85
6504	07F584	3	27.1	Y, L	5.59	92	454	87
5712	07F481	3	27.8	N, M	5.58	91	345	85
3533	07F367	3	30.8	Y, L	5.57	89	340	85
5702	07F480	3	25.9	Y, L	5.56	87	504	85
848	07F539	3	25.6	N, M	5.50	91	205	83
5695	07F478	3	28.3	Y, L	5.50	94	246	83
10402	07F442	3	26.0	N, L	5.47	94	356	84
310	07F517	2	24.2	N, L	5.46	94	788	79
728	07F535	2	27.8	Y, L	5.38	95	678	80
9270	07F716	2	24.7	Y, L	5.40	87	345	84
8664	07F713	2	24.2	N, L	5.36	88	435	84
5856	07F501	2	29.7	Y, L	5.36	96	300	85
764	07F328	3	27.8	Y, M	5.33	90	678	87
4501	07F793	3	28.2	Y, L	5.28	90	298	87
771	07F331	3	27.6	Y, L	5.27	91	380	87
364	07F521	3	28.2	N, L	5.20	92	564	83
4478	07F287	3	27.9	N, L	5.23	98	424	83
1467	07F547	3	27.1	N, L	5.23	97	456	82
4061	07F277	3	27.7	Y, L	5.22	91	790	81
5693	07F476	3	26.4	Y, L	5.20	98	435	84
5695	07F477	3	30.2	Y, L	5.20	88	356	84
5791	07F319	3	24.6	N, L	5.20	89	734	83
5785	07F127	3	26.8	Y, L	5.19	94	546	83
5719	07F310	3	24.2	N, L	5.20	94	403	82
8091	07F426	3	29.2	Y, L	5.10	96	512	82
5387	07F492	2	25.6	Y, L	5.10	94	221	81
1259	07F541	3	28.4	Y, L	5.12	93	435	80
3549	07F373	2	28.8	N, L	5.10	92	344	80
764	07F329	2	27.7	N, L	5.09	98	390	86
4802	07F343	2	29.0	Y, L	5.08	94	290	86
5708	07F123	3	26.7	N, L	5.07	95	340	83
4361	07F284	3	25.6	Y, L	5.04	90	442	82
8077	07F712	3	29.8	Y, L	5.00	90	345	82
4402	07F285	3	25.2	N, L	5.04	92	788	84

Continued.

Table 1. Continued.

Row #	Plant ID	Seedling Vigor¶	Panicle Length† (cm)	Panicle and grain type‡	Cleaned panicle weight (g) ††	Plant height (cm)	Row yield (g)	Heading date§
755	07F536	2	27.0	Y, L	5.03	91	440	84
3621	07F756	2	26.9	N, L	5.00	92	345	89
5714	07F730	2	25.8	Y, L	4.94	90	439	88
12151	07F484	2	26.9	N, L	4.93	89	1240	84
6281	07F574	3	24.9	Y, L	4.90	88	324	84
5594	07F121	3	27.4	Y, L	4.92	86	245	83
8037	07F711	3	26.6	Y, L	4.90	97	690	83
7803	07F181	3	26.9	Y, L	4.92	93	560	84
5861	07F320	3	30.8	Y, L	4.91	90	450	81
10404	07F443	3	30.3	N, L	4.90	90	443	79
757	07F537	3	24.8	N, L	4.90	91	335	88
81	07F514	3	28.8	N, L	4.90	92	450	90
5219	07F274	3	30.0	Y, L	4.85	92	340	90
5690	07F769	3	26.9	N, L	4.90	89	390	90
8096	07F429	3	30.0	Y, L	4.80	88	235	89
6272	07F573	3	28.4	N, L	4.81	90	790	94
5393	07F493	3	26.7	Y, L	4.80	94	334	93
735	07F324	3	26.9	Y, L	4.80	96	220	90
13048	07F256	3	25.6	Y, L	4.80	95	450	89
5982	07F510	3	29.3	N, L	4.80	94	356	88
5714	07F731	3	24.3	Y, L	4.70	94	780	90
4747	07F294	3	25.6	Y, L	4.72	90	567	94
793	07F335	3	26.4	Y, L	4.72	92	345	93
3795	07F567	2	21.2	Y, L	4.70	92	367	94
9205	07F650	2	29.2	N, L	4.70	94	458	96
9629	07F718	3	25.2	Y, L	4.71	89	343	97
12132	07F482	2	32.6	N, L	4.70	88	298	88
6258	07F133	3	23.9	Y, L	4.69	88	450	90
2739	07F356	3	27.8	Y, L	4.67	89	320	89
751	07F326	3	27.5	Y, L	4.70	90	330	89
717	07F534	3	25.6	N, L	4.65	90	439	90
341	07F519	3	24.5	Y, L	4.60	91	459	94
4732	07F293	3	25.8	Y, L	4.63	89	765	93
5729	07F315	3	23.5	N, L	4.63	93	658	94
775	07F332	3	25.8	Y, L	4.61	97	454	94
7802	07F417	3	28.6	Y, L	4.60	93	376	95
5977	07F509	3	28.0	N, L	4.59	93	456	92
4357	07F283	3	22.6	N, L	4.58	94	334	89
5297	07F276	3	27.1	N, L	4.56	90	299	90
5802	07F495	3	24.3	N, L	4.56	88	657	91

¶Subjective rating (1=strongest, 9=weakest)
†Length averaged of three panicles.
‡N=non branchy type; Y=branchy type; L=long-grain ; M=medium-grain.
††Weight based on three replicates.
§Days from emergence to 50% heading.

MUTATION INDUCTION IN RICE – DEVELOPMENT OF HIGH PROTEIN RICE

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

Background

Almost half of rice produced in the United States (6.4 million metric tons) is exported, and long-grain rice is the most commonly grown and traded type of rice in the world. U.S. rice commands a premium in many export markets. Even though accounting for less than 2% of global rice production, the United States is typically the third or fourth largest rice exporter. Nearly 70% of U.S. rice production is long grain. Louisiana is the third largest rice producer, with six rice mill establishments. High protein rice is currently in development. This added value to the already premium quality will secure its premium price.

Rice is a good source of thiamine, riboflavin, and niacin and provides 35 to 75% of the calories for over 3 billion people. Typical protein content of rice is 6 to 8%. Rice is high in glutamic and aspartic acid, but it is low in lysine. Lysine is the limiting factor in a nutritional value of amino acids in rice. Since rice is an excellent source of complex carbohydrates, high protein rice may become more appealing to the beer and cereal industry and, therefore, will create new domestic and international demand for U.S. rice. Thus, improving lysine and/or total protein content will bring important implications to the health of a great portion of the world's population, as well as strengthen the economic returns for U.S. rice producers and provide a competitive advantage in the global markets.

Objectives

(1) Determine the total crude protein content among 900 newly developed high protein lines
(2) Conduct first year nitrogen test
(3) Select the most promising lines
(4) Conduct amino acid profiling among top 10 high protein lines selected from the newly developed high protein lines

Progress

Two years of data indicated that some high protein lines exhibit significant variation in their protein content. Several of them, however, performed consistently. Promising high protein lines are currently under extensive evaluation. Future studies will be focused on these lines, including expression profiling and DNA marker development. A set of 507 head rows of newly developed lines from different cultivars were field planted in the 2006 growing season last summer. Out of 84 lines that have been analyzed to date, total crude protein content for the most promising lines ranges between 10.71 to 13.40%. Total crude protein content, ranging between 10.71 and 11.80%, were obtained from lines FR936, FR937, and FR783. These lines are Francis-derived lines. Total crude protein contents between 12.56 to 13.40% were observed from WLS07, WLS97, and WLS115, which are Wells-derived lines. These high protein lines can potentially be used to overcome a current barrier of improving nutritional quality in rice grain. Amino acid profiles from each improved line are variable (Figures 1-4). The composition of essential amino acids in FR936, for example, is 18.2, 36.8, 29.9, 15.4, 13.3, 19.4, 44.4, 40.0, and 34.9% more in lysine, histidine, arginine, tryptophan, methionine, threonine, valine, isoleucine, and phenylalanine, respectively, compared with that found in its parental Francis wild-type check. While WLS97 has 46.5, 20.0, 21.2, 29.6, 17.6, 11.1, 33.9, 35.0, 36.5, and 46.2% more in lysine, histidine, arginine, tryptophan, methionine, threonine, valine, leucine, isoleucine, and phenylalanine, respectively, compared with that found in its parental Wells wild-type check. Two lines have an increase in lysine content as much as 46% compared with their parental lines. Expression profiling is currently being conducted to determine a molecular basis underlying high protein content in the grain. Information obtained will be used to establish candidate genes associated with this trait. A better understanding on the genetics controlling this trait will be critical in developing high protein cultivars. DNA markers will be developed to provide a necessary breeding tool for future development of high protein cultivars.

These high protein lines have phenotypic characteristics and adaptability similar to their original parental lines. Development of high protein rice lines from well-adapted cultivars is crucial since they can potentially be released as commercial cultivars in a relatively short period allowing the farmer and the rice industry to immediately benefit from this development.

Figure 1. Amino acid profile of high protein line WLS07 expressed in percent of increase compared with its parental line wild-type Wells.

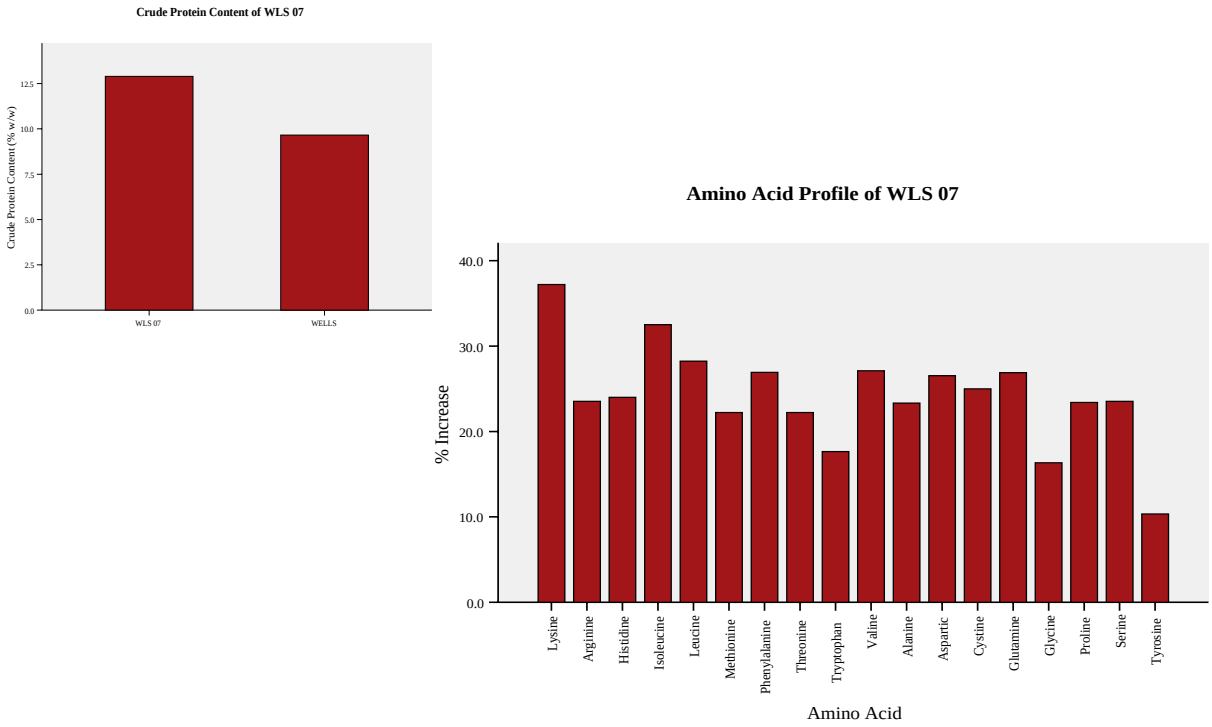


Figure 2. Amino acid profile of high protein line WLS97 expressed in percent of increase compared with its parental line wild-type Wells.

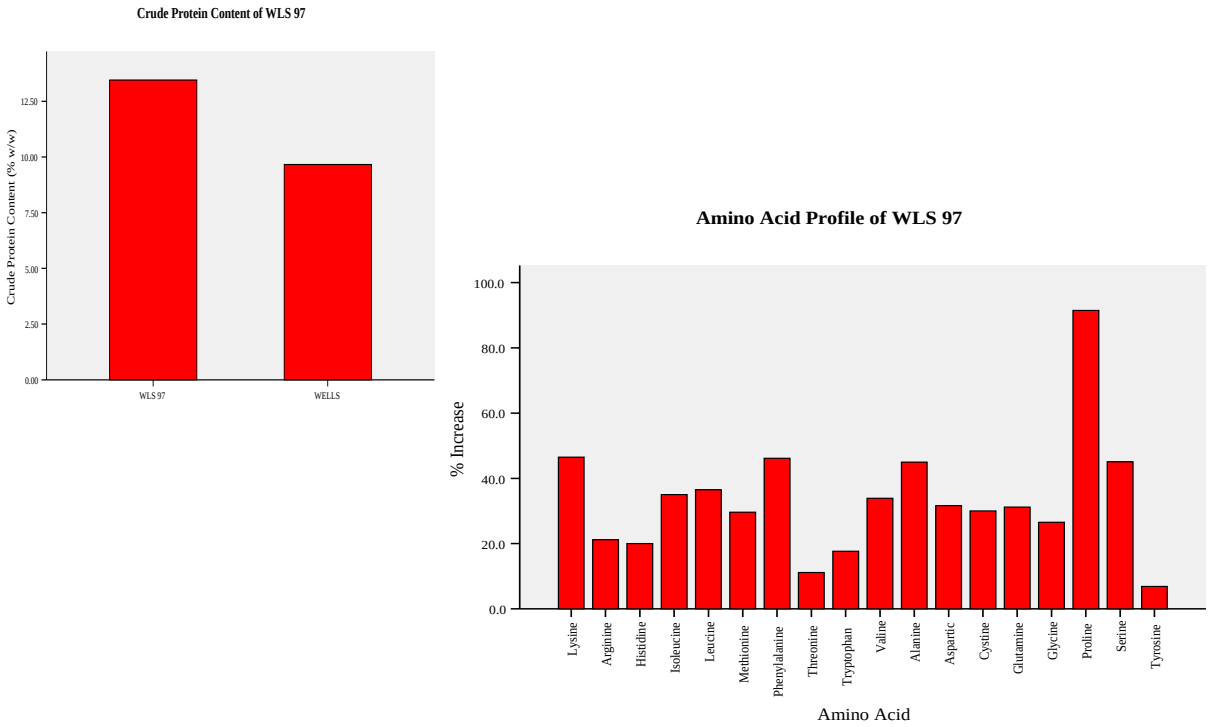


Figure 3. Amino acid profile of high protein line FR936 expressed in percent of increase compared with its parental line wild-type Francis

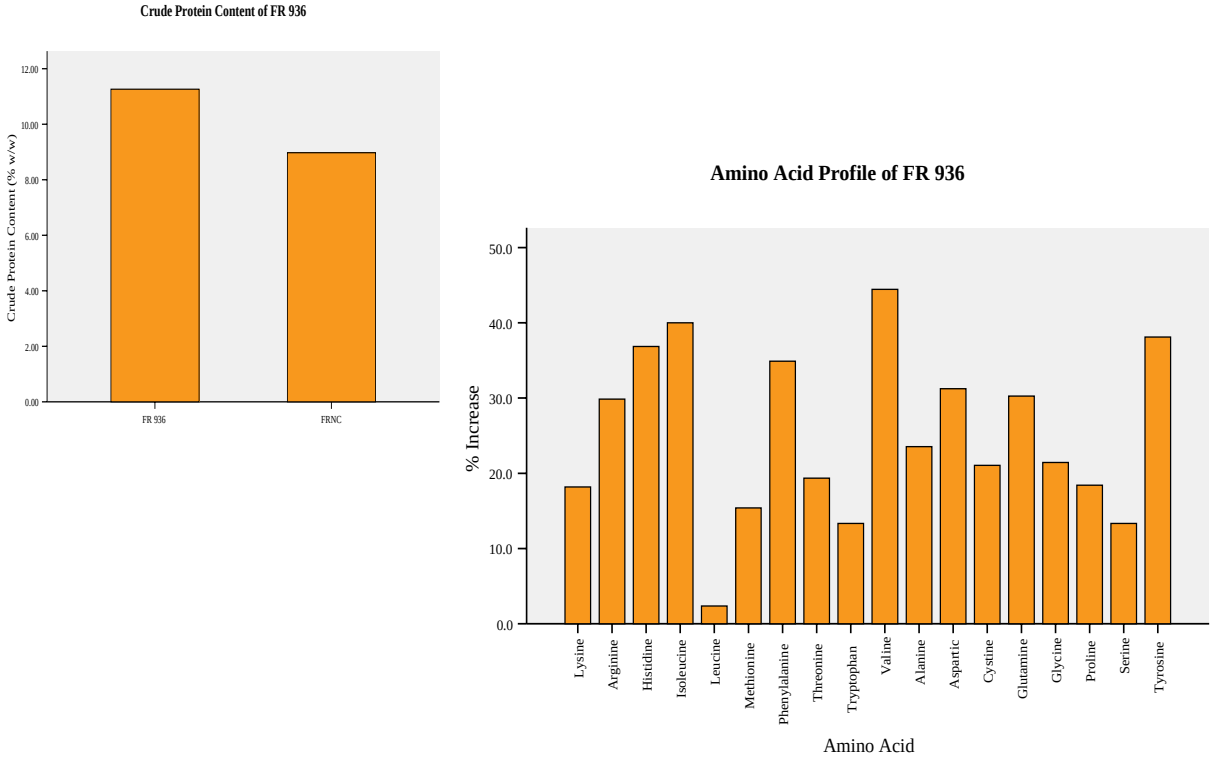
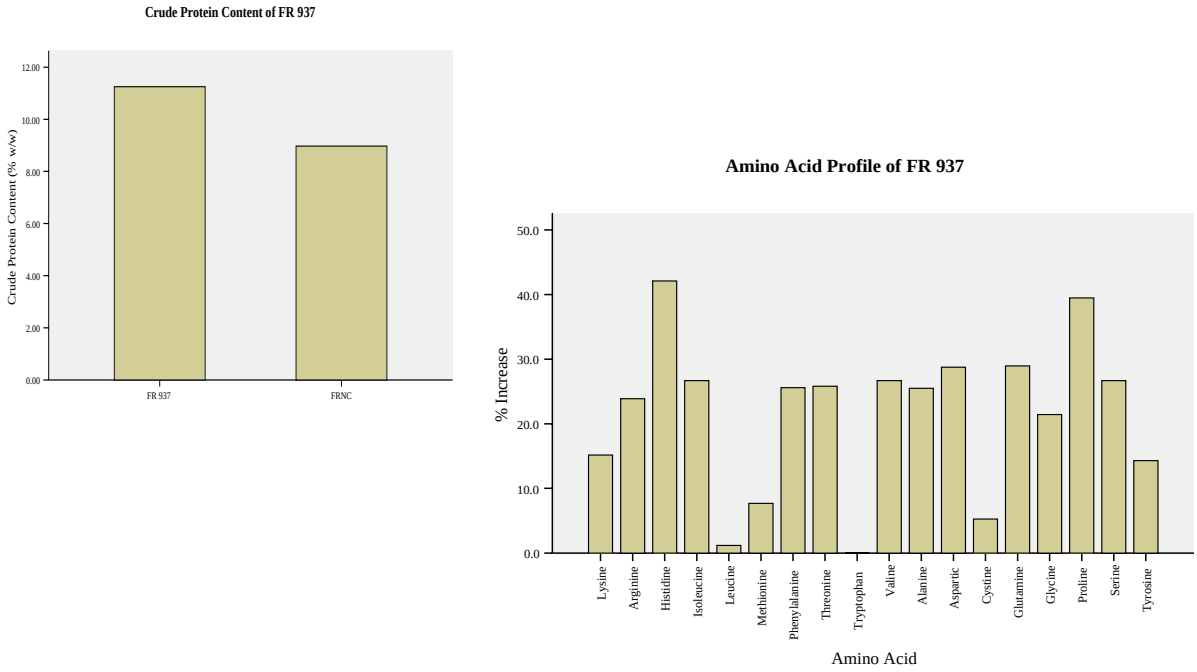


Figure 4. Amino acid profile of high protein line FR937 expressed in percent of increase compared with its parental line wild-type Francis



RICE AGRONOMY[1]

D.L. Harrell, J.P. Leonards, R.P. Regan, and D.M. Walker

INRODUCTION

The following two sections of the report document research conducted in rice plant nutrition and cultural management. Rice plant nutrition and cultural management studies were conducted at the LSU AgCenter's Rice Research Station, as well as multiple off-station locations in an effort to generate agronomic production information representative of all Louisiana rice production areas. Rice nutrition studies were conducted in Acadia Parish at the Rice Research Station, as well as on cooperators' farms located in Vermilion, Richland, and Morehouse parishes. Cultural management studies were conducted at the Rice Research Station and on on-farm locations in Evangeline, Morehouse, Richland, and Vermilion parishes.

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

Lounsberry Farms – Vermilion Parish
Roland Crymes and Zaunbrecher Farms – Morehouse Parish
Woodsland Plantation – Todd Bridges, Morgan Smith, and Des Woods – Richland Parish
Larry and Kody Bieber - Evangeline Parish

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

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

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

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

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

Trade Name	Common Name	Formulation	Company
Herbicides			
Aim			
Arrosolo	Propanil + molinate	3 lb + 3 lb	RiceCo
Basagran	Bentazon	4 lb	BASF
Clincher	Cyhalofop	2.38 lb	Dow Agro Science LLC
Command	Clomazone	3ME	FMC Corp.
Duet	Propanil + bensulfuron	4 lb + 0.48 oz	Rice Co.
Grandstand R	Triclopyr	3 lb	Dow Agro Science LLC
Liberty	Glufosinate ammonium	18.19%	Bayer CropScience
Londax	Bensulfuron	60% DF	DuPont
Newpath	Imazethapyr	2 lb	BASF
Permit	Halosulfuron	75% WSG	Monsanto
Regiment	Bispyribac-sodium	80% DF	Valent USA
Roundup Weatherman	Glyphosate	4 lb	Monsanto
Stam M4	Propanil	4 lb	Dow Agro Science LLC
Weedar 64	2,4-D	3.8 lb	Aventis
Insectides			
Icon	Fipronil	6.2 FS	Aventis
Karate Z	Cyhalothrin	2.08 lb	Syngenta
Mustang Max	Zeta-cypermethrin	0.8	FMC Corp.
Fungicides			
Dithane DF	Mancozeb	75% DF	Dow Agro Science LLC
Quadris	Azoxystrobin	2.08 lb	Syngenta

RICE NUTRITION EXPERIMENTS

D.L. Harrell, J.P. Leonards, R.P. Regan, and D.M. Walker

Variety/Hybrid by Nitrogen Rate and Application Timing Experiments

Variety and hybrid by nitrogen (N) experiments are conducted yearly throughout Louisiana to establish N requirements for new commercial varieties, advanced experimental lines, and hybrids. Rice varieties and hybrids may vary in their response to N application rates and timing of applications. These varietial N response differences can be attributed to several factors, including such traits as lodging, disease susceptibility, and N uptake efficiency. Environmental influences also impact the N rate needed to produce optimum yields. These include such factors as soil type and weather, as well as disease and insect pressure. For this reason, trials are conducted not only at the Rice Research Station in Crowley, but also at cooperator sites in Vermilion, Richland, and Morehouse parishes. The N requirement, days to 50% heading, lodging susceptibility, and plant height are all determined. Ratoon data are also determined for trials in Southwest Louisiana. A minimum of 3 years for each variety is needed before final recommendations are established. These recommendations can be found in Rice Varieties and Management Tips 2007, LAES publication number 2270. Electronic copies of this publication can be accessed from the LSU AgCenter Website (http://www.lsuagcenter.com).

Four rice varieties (CL131, Trenasse, Jupiter, and Spring), three advanced experimental lines (402097, 302082, and Clearfield003) and three commercial hybrids (XL 723, Clearfield XL730, and Clearfield XL729) were evaluated in a conventional tillage drill-seeded system in 2006. In addition, three varieties (CL131, Trenasse, and Jupiter) were also evaluated in a conventional tillage water-seeded system at the Rice Research Station. Yields in Vermilion Parish were greater than those from the Rice Research Station. The three hybrids (Clearfield XP729, Clearfield XL730, and XL723) outperformed all other varieties. Jupiter, the only medium grain in the study, consistently outperformed all commercial long-grain varieties (Spring, Trenasse, and CL131) and advanced experimental lines (402097, 302082, and Clearfield003) at both sites.

At the Rice Research Station using a drill-seeded cultural system, N was optimized for Spring and for experimental line 0402097 at a rate of 150 lb N/A. Trenasse, experimental lines 0302082 and Clearfield003, and RiceTec hybrids Clearfield XL730 and Clearfield XL729 were optimized at rate of 120 lb N/A. Yields of all other varieties/hybrids were not significantly increased at N rates above 90 lb N/A. In a water-seeded system, Trenasse was optimized at 90 lb N/A while Spring and Jupiter required 120 lb N/A.

At the Richland Parish site, yields for Jupiter and the RiceTec hybrid XL723 were optimized at the 120 lb N/A rate. All other varieties, experimental lines, and hybrid yields were not significantly increased at N rates above 90 lb N/A. Similar results were found at the Vermilion Parish site with the exception of CL131 which was optimized at the 120 lb N/A rate. Furthermore, N application rates of 180 lb N/A and greater caused all varieties at the Vermilion site to lodge, resulting in significant losses in grain yields.

Nitrogen Source and/or Application Timing Experiments

A study was conducted to evaluate different N sources (urea, ammonium sulfate, and a 50% blend of urea and ammonium sulfate) and times of application. Grain yields were equivalent among urea, ammonium sulfate, and a 50% blend of urea and ammonium sulfate applied as single or split-season applications at rates of 150 lb N/A. However, maturity was delayed when N was applied in a single-season preflood application as compared with split applications, regardless of N source.

Agrotain, a commercially available urease inhibitor, was evaluated in a drill-seeded system. Agrotain-treated urea at the 150 lb N/A rate significantly increased yields by 880.6 lb/A compared with urea alone. The increased cost of Agrotain-treated urea per acre at this rate was $3.48.

An experiment was conducted to evaluate N source, rate, and time of application on Cocodrie rice yields. Nitrogen sources included urea, Agrotain-treated urea, and the Georgia Pacific product Nitamin. Two N rates (120 and 180 lb N/A) and three application timings (preplant, 5 days prior to permanent flood establishment, and 0 days prior to permanent flood establishment) were used in the trial. Regardless of N source, application of N immediately prior to flooding provided the highest grain yields at both rates. Neither Agrotain-treated urea nor Nitamin provided a yield advantage over urea alone when compared at equivalent application timings.

Ratoon Rice Fertility Experiments

Cocodrie and Trenasse ratoon rice yields were evaluated for their response to various N application rates applied immediately after main crop harvest. Nitrogen rates of 60, 90, 120, and 150 lb/A, applied as urea, were used in the study. The optimum ratoon N rate for both varieties was 90 lb N/A.

Two rice hybrids, XP723 and CLXL8, were evaluated for their ratoon yield response to four post-harvest N rates. Rates were 60, 90, 120, and 150 lb N/A applied as urea immediately after harvest. Ratoon grain yields for XL723 were significantly increased by approximately 1113 lb/A between the 60 and 90 lb N/A rates. Higher N rates above 90 lb N/A did not increase ratoon rice yields. Ratoon grain yields for CLXL8 were optimized at 60 lb N/A.

Nitrogen application timing for ratoon rice production was evaluated for two rice varieties, Cocodrie and Trenasse. Nitrogen was applied at 90 lb/A at one of six different application timings: 1) main crop heading, 2) 7 days prior to draining, 3) main crop harvest, 4) a 60/30 split between heading and harvest, 5) a 60/30 split between 7 days prior to draining and harvest, or 6) 60/30 split between harvest and 21 days after harvest. Nitrogen applied at main crop harvest provided the highest grain yields for both varieties.

A trial was conducted to evaluate the ratoon yield response to P and K applications after main crop harvest. A factorial arrangement of three K rates (0, 30, and 60 lb/A) and three P rates (0, 30, and 60 lb/A) were used in the experiment. A significant ratoon yield increase was not seen for any of the treatment combinations.

Rice Variety by Nitrogen Validation Experiments at the Rice Research Station.

Experiment number ..... : 06-CS-01 to 06-CS-08

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.33
- **pH** ..... : 7.0
- **Extractable nutrients** ..... : P-11; K-103; Ca-1352; Mg-311; Na-126; S-10; Zn-5.0; Cu-1.8 ppm

Crop/Variety ..... : Rice/Multiple (see summary reports)
- **Planting method/date** ..... : Drill seeded/March 28
- **Seeding rate/depth** ..... : 40 seed/ft^2/.5 in
- **Emergence date** ..... : April 13
- **Harvest date** ..... : Variable

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 28
90 lb N/A 46-0-0, August 15

Water management ..... :
- **Flush** ..... : April 3, 11, 15
- **Flood** ..... : May 11
- **Drain** ..... : July 20

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
1 gal/A Arrosolo + 2.1 pt/A Prowl + 1.3 oz/A Permit, May 10
22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, March 27
- **Fungicides** ..... : None

Table 3. CL131 Nitrogen Rate Validation 2.1 (Rice Research Station).

Crop Name				Rice	Rice	Rice
Rating Date					8/3/2006	8/3/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				days	inches	lb/A
Crop Stage				Main	Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preflood	98 c	29 c	6637 a
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preflood	98 c	29 c	6898 a
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preflood	98 bc	30 abc	6942 a
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preflood	99 bc	29 bc	6895 a
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preflood	99 bc	30 abc	7303 a
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preflood	99 bc	30 abc	7192 a
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preflood	99 b	31 a	6677 a
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preflood	99 bc	31 ab	6889 a
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preflood	100 a	31 a	6945 a
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preflood	101 a	31 a	6693 a
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preflood	101 a	31 ab	6988 a
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preflood	101 a	31 a	6871 a
	60	lb ai/a	Midseason			
LSD (P=.05)				0.8	1.3	675.5
Standard Deviation				0.6	0.8	467.8
CV				0.6	2.5	6.8
Replicate F				1.406	3.542	6.553
Replicate Prob(F)				0.2584	0.0464	0.0013
Treatment F				14.459	3.504	0.698
Treatment Prob(F)				0.0001	0.0059	0.7308

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 4. Trenasse Nitrogen Rate Validation 3.1 (Rice Research Station).

Crop Name				Rice	Rice	Rice
Rating Date					8/3/2006	8/3/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				Days	inches	lb/A
Crop Stage				Main	Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preflood	91 d	30.7 b	6821 b
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preflood	91 d	30.7 b	7299 ab
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preflood	91 d	32.3 ab	7212 ab
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preflood	91 d	31.7 ab	7460 a
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preflood	91 cd	33.3 a	7162 ab
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preflood	92 bcd	31.7 ab	7485 a
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preflood	92 abc	33 ab	7429 a
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preflood	93 a	31.3 ab	7664 a
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preflood	92 bcd	33.3 a	7403 ab
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preflood	93 ab	33.3 a	7404 ab
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preflood	92 bcd	33 ab	7550 a
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preflood	92 abc	33.7 a	7442 a
	60	lb ai/a	Midseason			
LSD (P=.05)				1.1	2.04	519.7
Standard Deviation				0.7	1.21	359.9
CV				0.8	3.73	4.89
Replicate F				7.637	17.417	12.563
Replicate Prob(F)				0.0005	0.0001	0.0001
Treatment F				4.967	2.458	1.474
Treatment Prob(F)				0.0002	0.0349	0.1883

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 5. Jupiter Nitrogen Rate Validation 3.1 (Rice Research Station).

Crop Name			Rice	Rice	Rice	Rice	Rice
Rating Date				8/3/2006	8/9/2006	11/13/2006	
Rating Data Type			50% Head	Height	Yield	Yield	Yield
Rating Unit			Days	inches	lb/A	lb/A	lb/A
Crop Stage				Main	Main	Ratoon	Total
Trt No.	Rate	Rate Unit	Growth Stage				
1	90	lb ai/a	Preflood	100 b	31.3 de	8485 ab	1917.4 a	10402.9 a
	0	lb ai/a	Midseason					
2	90	lb ai/a	Preflood	101 ab	32 b-e	8604 ab	1687.1 abc	10291 ab
	30	lb ai/a	Midseason					
3	90	lb ai/a	Preflood	101 ab	31 e	8275 ab	1411.5 bc	9686.1 ab
	60	lb ai/a	Midseason					
4	120	lb ai/a	Preflood	101 ab	32 b-e	8125 b	1752.8 ab	9877.7 ab
	0	lb ai/a	Midseason					
5	120	lb ai/a	Preflood	101 ab	32 b-e	8520 ab	1688.6 abc	10209 ab
	30	lb ai/a	Midseason					
6	120	lb ai/a	Preflood	101 ab	32 b-e	8822 a	1323.3 bc	10145.1 ab
	60	lb ai/a	Midseason					
7	150	lb ai/a	Preflood	101 ab	31.7 cde	8173 b	1316 bc	9488.6 b
	0	lb ai/a	Midseason					
8	150	lb ai/a	Preflood	101 ab	32 b-e	8770 a	1391.8 bc	10161.8 ab
	30	lb ai/a	Midseason					
9	150	lb ai/a	Preflood	101 ab	33 b	8442 ab	1378.6 bc	9820.9 ab
	60	lb ai/a	Midseason					
10	180	lb ai/a	Preflood	101 ab	34.3 a	8576 ab	1402.4 bc	9978.5 ab
	0	lb ai/a	Midseason					
11	180	lb ai/a	Preflood	101 ab	32.7 bc	8535 ab	1313.4 bc	9848.5 ab
	30	lb ai/a	Midseason					
12	180	lb ai/a	Preflood	101 a	32.3 bcd	8551 ab	1195.1 c	9746.1 ab
	60	lb ai/a	Midseason					
LSD (P=.05)				0.7	1.09	474.6	449.81	726.45
Standard Deviation				0.5	0.64	328.7	311.52	503.11
CV				0.5	2	3.87	21.03	5.05
Replicate F				2.333	24.415	4.739	9.35	10.976
Replicate Prob(F)				0.092	0.0001	0.0074	0.0001	0.0001
Treatment F				1.424	5.335	1.677	2.028	1.182
Treatment Prob(F)				0.2085	0.0004	0.1228	0.0576	0.3364

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 6. Spring Nitrogen Rate Validation 1.1 (Rice Research Station).

Crop Name				Rice	Rice	Rice	Rice	Rice
Rating Date					8/3/2006	8/3/2006	11/16/2006	11/16/2006
Rating Data Type				50% Head	Height	Yield	Yield	Yield
Rating Unit				Days	inches	lb/A	lb/A	lb/A
Crop Stage					Main	Main	Ratoon	Total
Trt No.	Rate	Rate Unit	Growth Stage					
1	90	lb ai/a	Preflood	89 a	33 a	6775 d	1478.2 a	8253.3 c
	0	lb ai/a	Midseason					
2	90	lb ai/a	Preflood	89 a	32.7 a	7123 cd	1312.6 ab	8435.8 bc
	30	lb ai/a	Midseason					
3	90	lb ai/a	Preflood	89 a	33 a	7169 bcd	1247.3 ab	8416.3 bc
	60	lb ai/a	Midseason					
4	120	lb ai/a	Preflood	89 a	33 a	7114 cd	1254.2 ab	8368.6 bc
	0	lb ai/a	Midseason					
5	120	lb ai/a	Preflood	89 a	33.3 a	7453 a-d	1312.4 ab	8765.8 abc
	30	lb ai/a	Midseason					
6	120	lb ai/a	Preflood	90 a	34.3 a	7722 abc	1101 b	8823.5 abc
	60	lb ai/a	Midseason					
7	150	lb ai/a	Preflood	89 a	34.3 a	7808 abc	1103.5 b	8911.7 abc
	0	lb ai/a	Midseason					
8	150	lb ai/a	Preflood	90 a	33.7 a	7614 abc	1304.3 ab	8917.9 abc
	30	lb ai/a	Midseason					
9	150	lb ai/a	Preflood	89 a	33.7 a	7997 a	1196.1 b	9192.8 a
	60	lb ai/a	Midseason					
10	180	lb ai/a	Preflood	90 a	33.7 a	7608 abc	1363.4 ab	8971.9 abc
	0	lb ai/a	Midseason					
11	180	lb ai/a	Preflood	90 a	34 a	7852 ab	1170.3 b	9022.5 ab
	30	lb ai/a	Midseason					
12	180	lb ai/a	Preflood	89 a	33.3 a	8072 a	1197 b	9269.3 a
	60	lb ai/a	Midseason					
LSD (P=.05)				0.9	1.95	621.2	226.57	624.69
Standard Deviation				0.6	1.15	430.2	156.91	432.64
CV				0.72	3.44	5.72	12.52	4.93
Replicate F				5.068	18.92	8.516	1.894	8.097
Replicate Prob(F)				0.0054	0.0001	0.0002	0.1498	0.0004
Treatment F				1.271	0.663	3.511	1.939	2.411
Treatment Prob(F)				0.2833	0.7571	0.0025	0.0698	0.0251

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 7. Advanced Experimental Line 0402097 Nitrogen Rate Validation 1.1 (Rice Research Station).

Crop Name				Rice	Rice	Rice
Rating Date					8/3/2006	8/3/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				Days	inches	lb/A
Crop Stage					Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preflood	92 f	31 b	6192 d
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preflood	94 c-f	31.7 ab	6240 d
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preflood	93 ef	31.7 ab	6424 cd
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preflood	94 b-f	33.3 a	6674 bcd
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preflood	93 def	31 b	6576 bcd
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preflood	93 def	31.3 ab	6750 a-d
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preflood	95 b-e	32 ab	6902 a-d
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preflood	94 c-f	32 ab	7158 ab
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preflood	95 a-d	33.3 a	7432 a
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preflood	97 a	33 ab	6751 a-d
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preflood	96 ab	33.3 a	7103 abc
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preflood	96 abc	33 ab	7416 a
	60	lb ai/a	Midseason			
LSD (P=.05)				1.9	1.78	638.1
Standard Deviation				1.3	1.05	441.9
CV				1.38	3.26	6.5
Replicate F				9.384	28.872	9.609
Replicate Prob(F)				0.0001	0.0001	0.0001
Treatment F				5.015	2.325	3.546
Treatment Prob(F)				0.0001	0.0443	0.0023

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 8. Advanced Experimental Line 0302082 Nitrogen Rate Validation 1.1 (Rice Research Station).

Crop Name				Rice	Rice	Rice	Rice	Rice
Rating Date					8/3/2006	8/7/2006	11/16/2006	11/16/2006
Rating Data Type				50% Head	Height	Yield	Yield	Yield
Rating Unit				Days	inches	lb/A	lb/A	lb/A
Crop Stage					Main	Main	Ratoon	Total
Trt No.	Rate	Rate Unit	Growth Stage					
1	90	lb ai/a	Preflood	95 e	31.7 ab	6394 c	1139 ab	7532 b
	0	lb ai/a	Midseason					
2	90	lb ai/a	Preflood	95 de	30.7 b	7208 b	1172 a	8380 a
	30	lb ai/a	Midseason					
3	90	lb ai/a	Preflood	95 cde	32 ab	7216 b	1074 ab	8290 a
	60	lb ai/a	Midseason					
4	120	lb ai/a	Preflood	95 b-e	33 a	7814 ab	1204 a	9019 a
	0	lb ai/a	Midseason					
5	120	lb ai/a	Preflood	95 de	32.7 a	7789 ab	1057 ab	8846 a
	30	lb ai/a	Midseason					
6	120	lb ai/a	Preflood	96 a-e	32.7 a	7832 ab	1091 ab	8924 a
	60	lb ai/a	Midseason					
7	150	lb ai/a	Preflood	94 e	32.3 ab	7662 ab	1135 ab	8797 a
	0	lb ai/a	Midseason					
8	150	lb ai/a	Preflood	97 a	33.3 a	7912 ab	945 ab	8857 a
	30	lb ai/a	Midseason					
9	150	lb ai/a	Preflood	96 a-d	32.3 ab	7666 ab	882 b	8548 a
	60	lb ai/a	Midseason					
10	180	lb ai/a	Preflood	97 a	33.3 a	7748 ab	994 ab	8742 a
	0	lb ai/a	Midseason					
11	180	lb ai/a	Preflood	97 abc	33.3 a	7781 ab	1065 ab	8846 a
	30	lb ai/a	Midseason					
12	180	lb ai/a	Preflood	97 ab	32.7 a	8020 a	1006 ab	9026 a
	60	lb ai/a	Midseason					
LSD (P=.05)				1.5	1.7	656.5	235.1	709.8
Standard Deviation				1.1	1.0	454.6	162.8	491.6
CV				1.1	3.1	6.0	15.3	5.7
Replicate F				14.677	30.393	1.749	4.658	2.001
Replicate Prob(F)				0.0001	0.0001	0.1762	0.008	0.133
Treatment F				3.756	1.807	3.917	1.349	2.956
Treatment Prob(F)				0.0015	0.1143	0.0011	0.2428	0.0078

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 9. Advanced Experimental Line Clearfield 003 Nitrogen Rate Validation 1.1 (Rice Research Station).

Crop Name				Rice	Rice	Rice
Rating Date					8/3/2006	8/7/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				Days	inches	lb/A
Crop Stage					Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preflood	94 b	31 a-e	6136.3 d
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preflood	95 ab	29 e	6064 d
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preflood	94 b	29 de	6423 cd
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preflood	94 b	30 cde	6775 abc
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preflood	94 b	29 de	6794 abc
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preflood	95 ab	30 b-e	6768 abc
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preflood	94 b	32 a-d	6546 bcd
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preflood	96 ab	32 abc	7111 a
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preflood	96 ab	31 a-e	6785 abc
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preflood	96 a	32 ab	6955 abc
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preflood	96 ab	31 a-e	6741 abc
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preflood	95 b	33 a	6977 ab
	60	lb ai/a	Midseason			
LSD (P=.05)				1.4	2.1	465.1
Standard Deviation				1.0	1.3	322.1
CV				1.0	4.1	4.8
Replicate F				7.78	16.756	0.681
Replicate Prob(F)				0.0005	0.0001	0.5697
Treatment F				2.285	3.138	4.037
Treatment Prob(F)				0.033	0.0108	0.0009

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Variety by Nitrogen Validation Experiments at Vermilion Parish.

Experiment number ..... : 06-VP-01 to 06-VP-04

Site and design ..... :
- **Location/Cooperator** ..... : Vermilion Parish/Lounsberry Farm
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.70
- **pH** ..... : 5.8
- **Extractable nutrients** ..... : P-21; K-108; Ca-1,759; Mg-318; Na-34; S-8; Zn-2.7; Cu-1.9 ppm

Crop/Variety ..... : Rice/Multiple (see summary reports)
- **Planting method/date** ..... : Drill seeded/March 15
- **Seeding rate/depth** ..... : 40 seed/ft^2/1 in
- **Emergence date** ..... : Variable
- **Harvest date** ..... : August 2

Fertilization ..... : 195 lb/A 8-24-24, March 15
90 lb N/A 46-0-0, August 9 (ratoon)

Water management ..... :
- **Flush** ..... : March 25; April 4 and 13
- **Flood** ..... : April 22
- **Drain** ..... : July 17

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Stam + 1 oz/A Londax, April 11
  3 qt/A Arrosolo, April 20
- **Insecticides** ..... : 4 oz/A Mustang Max, April 27
- **Fungicides** ..... : 12 oz/A Quadris, June 12

Table 10. CL131 Nitrogen Rate Validation 2.2 (Vermilion Parish).

Crop Name			Rice	Rice	Rice	Rice	Rice
Rating Date				7/27/2006	8/2/2006	10/31/2006	
Rating Data Type			50% Head	Height	Yield	Yield	Yield
Rating Unit			Days	inches	lb/A	lb/A	lb/A
Crop Stage				Main	Main	Ratoon	Total
Trt No.	Rate	Rate Unit	Growth Stage				
1	90	lb ai/a	Preflood	97 f	32 ab	8413 b	2318 ab	10731 ab
	0	lb ai/a	Midseason					
2	90	lb ai/a	Preflood	97 ef	33 ab	8987 a	2223 b	11210 a
	30	lb ai/a	Midseason					
3	90	lb ai/a	Preflood	97 ef	32 ab	8803 ab	2127 b	10931 ab
	60	lb ai/a	Midseason					
4	120	lb ai/a	Preflood	98 de	32 ab	8822 ab	1946 b	10767 ab
	0	lb ai/a	Midseason					
5	120	lb ai/a	Preflood	98 cd	32 ab	8691 ab	1905 b	10596 abc
	30	lb ai/a	Midseason					
6	120	lb ai/a	Preflood	98 d	32 ab	8771 ab	2154 b	10925 ab
	60	lb ai/a	Midseason					
7	150	lb ai/a	Preflood	99 bc	32 ab	8422 b	2045 b	10467 abc
	0	lb ai/a	Midseason					
8	150	lb ai/a	Preflood	99 b	31 b	8585 ab	2135 b	10720 ab
	30	lb ai/a	Midseason					
9	150	lb ai/a	Preflood	99 b	32 ab	8708 ab	2167 b	10875 ab
	60	lb ai/a	Midseason					
10	180	lb ai/a	Preflood	101 a	33 a	7745 c	2156 b	9901 c
	0	lb ai/a	Midseason					
11	180	lb ai/a	Preflood	101 a	33 ab	7804 c	2656 a	10460 abc
	30	lb ai/a	Midseason					
12	180	lb ai/a	Preflood	101 a	31 b	7905 c	2264 ab	10168 bc
	60	lb ai/a	Midseason					
LSD (P=.05)				0.6	1.4	439.0	378.4	677.0
Standard Deviation				0.4	0.9	304.0	262.1	468.9
CV				0.4	2.7	3.6	12.1	4.4
Replicate F				0.897	3.208	1.472	0.708	0.211
Replicate Prob(F)				0.4531	0.0599	0.2401	0.5542	0.8883
Treatment F				64.313	1.51	7.889	2.169	2.331
Treatment Prob(F)				0.0001	0.1973	0.0001	0.0424	0.0298

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 11. Trenasse Nitrogen Rate Validation 3.2 (Vermilion Parish).

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date				7/27/2006	8/2/2006	8/2/2006	8/2/2006	10/31/2006	
Rating Data Type			50% Head	Height	Ldg-Rate	Ldg-Type	Main Yield	Yield	Yield
Rating Unit			Days	inches	%	1-5	lb/A	lb/A	lb/A
Crop Stage				Main	Main	Main	Main	Ratoon	Total
Trt No.	Rate	Rate Unit	Growth Stage						
1	90	lb ai/a	Preflood	90 e	36.3 ab			9224 abc	2063 d	11287 a
	0	lb ai/a	Midseason						
2	90	lb ai/a	Preflood	89 e	36 b			9734 ab	2335 cd	12070 a
	30	lb ai/a	Midseason						
3	90	lb ai/a	Preflood	90 e	35.7 b	80	4	9960 a	2168 d	12128 a
	60	lb ai/a	Midseason						
4	120	lb ai/a	Preflood	90 de	35.7 b	20	3	9926 a	2297 cd	12223 a
	0	lb ai/a	Midseason						
5	120	lb ai/a	Preflood	91 cd	38 ab	43	3	9454 ab	2296 cd	11750 a
	30	lb ai/a	Midseason						
6	120	lb ai/a	Preflood	91 cd	38 ab	40	3	9631 ab	2332 cd	11963 a
	60	lb ai/a	Midseason						
7	150	lb ai/a	Preflood	91 bcd	37.3 ab	25	4	9356 abc	2084 d	11440 a
	0	lb ai/a	Midseason						
8	150	lb ai/a	Preflood	91 bc	37.7 ab	37	4	9225 abc	2432 bcd	11657 a
	30	lb ai/a	Midseason						
9	150	lb ai/a	Preflood	92 b	37.7 ab	53	4	8728 bc	2711 abc	11439 a
	60	lb ai/a	Midseason						
10	180	lb ai/a	Preflood	93 a	36.7 ab	88	5	8320 c	2809 abc	11129 a
	0	lb ai/a	Midseason						
11	180	lb ai/a	Preflood	94 a	37.3 ab	90	5	8267 c	2951 a	11217 a
	30	lb ai/a	Midseason						
12	180	lb ai/a	Preflood	94 a	38.7 a	90	5	8319 c	2852 ab	11171 a
	60	lb ai/a	Midseason						
LSD (P=.05)				0.8	2.2			987.4	458.4	1157.4
Standard Deviation				0.5	1.3			683.9	317.5	801.6
CV				0.6	3.5			7.5	13.0	6.9
Replicate F				12.048	4.529			0.605	5.098	1.336
Replicate Prob(F)				0.0001	0.0225			0.6167	0.0052	0.2794
Treatment F				35.122	1.778			3.348	3.775	0.985
Treatment Prob(F)				0.0001	0.1207			0.0035	0.0015	0.4793

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 12. Jupiter Nitrogen Rate Validation 3.2 (Vermilion Parish).

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date					7/27/2006	8/2/2006	8/2/2006	8/2/2006	10/31/2006	
Rating Data Type				50% Head	Height	Ldg-Rate	Lod-Type	Yield	Yield	Yield
Rating Unit				Days	inches	%	1-5	lb/A	lb/A	lb/A
Crop Stage					Main	Main	Main	Main	Ratoon	Total
Trt No.	Rate	Rate Unit	Growth Stage							
1	90	lb ai/a	Preflood	103 d	36 e			10595 a	2091 ab	12686 a
	0	lb ai/a	Midseason							
2	90	lb ai/a	Preflood	103 d	38 cd			10691 a	1927 ab	12618 a
	30	lb ai/a	Midseason							
3	90	lb ai/a	Preflood	103 cd	37 d			10480 a	1728 b	12207 a
	60	lb ai/a	Midseason							
4	120	lb ai/a	Preflood	103 d	38 bcd			10903 a	2007 ab	12910 a
	0	lb ai/a	Midseason							
5	120	lb ai/a	Preflood	103 cd	38 bcd			10261 a	1966 ab	12227 a
	30	lb ai/a	Midseason							
6	120	lb ai/a	Preflood	104 bc	40 a			10149 a	1951 ab	12100 a
	60	lb ai/a	Midseason							
7	150	lb ai/a	Preflood	104 bcd	38 bcd			10310 a	1962 ab	12272 a
	0	lb ai/a	Midseason							
8	150	lb ai/a	Preflood	105 b	40 a			10569 a	2251 a	12820 a
	30	lb ai/a	Midseason							
9	150	lb ai/a	Preflood	104 b	39 abc			10597 a	1917 ab	12514 a
	60	lb ai/a	Midseason							
10	180	lb ai/a	Preflood	106 a	40 ab	44	4	9318 b	1760 b	11078 b
	0	lb ai/a	Midseason							
11	180	lb ai/a	Preflood	106 a	41 a	60	4	9118 b	1802 ab	10921 b
	30	lb ai/a	Midseason							
12	180	lb ai/a	Preflood	106 a	40 a	68	5	9148 b	1842 ab	10990 b
	60	lb ai/a	Midseason							
LSD (P=.05)				0.8	1.6			676.4	392.2	759.9
Standard Deviation				0.5	0.9			468.4	271.6	526.3
CV				0.5	2.4			4.6	14.1	4.4
Replicate F				2.424	0.282			0.945	4.164	3.642
Replicate Prob(F)				0.0833	0.7569			0.4301	0.0132	0.0225
Treatment F				19.729	8.077			7.177	1.14	7.458
Treatment Prob(F)				0.0001	0.0001			0.0001	0.3641	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 13. Spring Nitrogen Rate Validation 1.2 (Vermilion Parish).

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date					7/27/2006	8/2/2006	8/2/2006	8/2/2006	10/31/2006	
Rating Data Type				50% Head	Height	Ldg-Rate	Ldg-Type	Yield	Yield	Yield
Rating Unit				Days	inches	%	1-5	lb/A	lb/A	lb/A
Crop Stage					Main	Main	Main	Main	Ratoon	Total
Trt No.	Rate	Rate Unit	Growth Stage							
1	90	lb ai/a	Preflood	85 g	39 ab	50	2	8796 a	2669 abc	11465 ab
	0	lb ai/a	Midseason							
2	90	lb ai/a	Preflood	86 efg	40 ab	95	3	9027 a	2552 abc	11579 a
	30	lb ai/a	Midseason							
3	90	lb ai/a	Preflood	86 fg	39 ab	65	4	8937 a	2348 bc	11285 ab
	60	lb ai/a	Midseason							
4	120	lb ai/a	Preflood	88 bcd	40 ab	76	4	8080 ab	2484 abc	10564 a-d
	0	lb ai/a	Midseason							
5	120	lb ai/a	Preflood	87 def	40 ab	93	5	8537 ab	2226 c	10763 abc
	30	lb ai/a	Midseason							
6	120	lb ai/a	Preflood	87 cde	39 ab	90	5	8120 ab	2766 ab	10886 abc
	60	lb ai/a	Midseason							
7	150	lb ai/a	Preflood	87 b-e	40 ab	91	5	7392 bc	2721 abc	10113 bcd
	0	lb ai/a	Midseason							
8	150	lb ai/a	Preflood	89 b	40 ab	96	5	6657 c	2892 a	9549 cd
	30	lb ai/a	Midseason							
9	150	lb ai/a	Preflood	88 bc	39 b	99	5	6681 c	2675 abc	9356 d
	60	lb ai/a	Midseason							
10	180	lb ai/a	Preflood	90 a	41 ab	98	5	4917 d	2674 abc	7591 e
	0	lb ai/a	Midseason							
11	180	lb ai/a	Preflood	91 a	40 ab	100	5	4368 d	2535 abc	6902 e
	30	lb ai/a	Midseason							
12	180	lb ai/a	Preflood	91 a	41 a	100	5	4769 d	2733 abc	7502 e
	60	lb ai/a	Midseason							
LSD (P=.05)				1.2	1.99			1077.8	450.52	1248.67
Standard Deviation				0.9	1.18			746.44	312.01	864.78
CV				0.98	2.95			10.38	11.97	8.83
Replicate F				0.673	0.541			2.426	12.457	0.742
Replicate Prob(F)				0.5745	0.5897			0.083	0.0001	0.5346
Treatment F				19.714	0.967			20.921	1.436	14.464
Treatment Prob(F)				0.0001	0.5017			0.0001	0.2036	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Variety by Nitrogen Validation Experiments at Richland Parish.

Experiment number ..... : 06-RP-01 to 06-RP-04 and 06-RP-06 to 06-RP-07

Site and design ..... :
- **Location/Cooperator** ..... : Richland Parish/Woodsland Plantation/Todd Bridges
- **Tillage type** ..... : Fall stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Hebert silty clay
- **% organic matter** ..... : 2.03
- **pH** ..... : 5.6
- **Extractable nutrients** ..... : P-14; K-191; Ca-1991; Mg-1003; Na-127; S-19; Zn-.8; Cu-2.2 ppm

Crop/Variety ..... : Rice/Multiple (see summary reports)
- **Planting method/date** ..... : Drill seeded/May 3
- **Seeding rate/depth** ..... : 40 seed/ft^2/.75 in
- **Emergence date** ..... : May 10
- **Harvest date** ..... : September 12

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 100 lb/A DAP, May 1

Water management ..... :
- **Flush** ..... : May 4 and 22
- **Flood** ..... : June 6
- **Drain** ..... : August 30

Pest management ..... :
- **Herbicides** ..... : 1 qt/A Roundup + 16 oz/A Command 3ME, May 4
  1 gal/A Duet + 1 pt/A Grandstand, June 5
  15 oz/A Clincher + 2 qt/A Crop oil, June 27
- **Insecticides** ..... : 1.8 oz/A Karate Z, July 19 and August 2
- **Fungicides** ..... : 14 oz/A Quilt, July 19

Table 14. CL131 Nitrogen Rate Validation 2.3 (Richland Parish).

Crop Name				Rice	Rice	Rice
Rating Date					9/12/2006	9/12/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				Days	in	lb/A
Crop Stage					Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preflood	88 d	29 c	7945 a
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preflood	89 cd	30 abc	8258 a
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preflood	88 cd	29 abc	8261 a
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preflood	89 cd	29 c	8389 a
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preflood	89 cd	29 abc	8068 a
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preflood	90 bc	29 bc	8027 a
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preflood	90 bc	30 abc	7889 a
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preflood	90 bc	29 bc	8001 a
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preflood	90 ab	30 ab	7920 a
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preflood	91 a	30 abc	7720 a
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preflood	91 ab	30 ab	8187 a
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preflood	91 ab	30 a	8095 a
	60	lb ai/a	Midseason			
LSD (P=.05)				1.2	1.0	645.8
Standard Deviation				0.9	0.6	447.3
CV				1.0	2.0	5.6
Replicate F				5.784	2.2	1.225
Replicate Prob(F)				0.0027	0.1346	0.316
Treatment F				6.464	2.457	0.704
Treatment Prob(F)				0.0001	0.035	0.7255

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 15. Trenasse Nitrogen Rate Validation 3.3 (Richland Parish).

Crop Name				Rice	Rice	Rice	Rice	Rice
Rating Date					9/12/2006	9/12/2006	9/12/2006	9/12/2006
Rating Data Type				50% Head	Height	Ldg-Rate	Ldg-Type	Yield
Rating Unit				Days	in	%	1-5	lb/A
Crop Stage					Main	Main	Main	Main
Trt No.	Rate	Rate Unit	Growth Stage					
1	90	lb ai/a	Preflood	80 f	35 bc	10	3	8800 ab
	0	lb ai/a	Midseason					
2	90	lb ai/a	Preflood	80 ef	35 bc			9321 a
	30	lb ai/a	Midseason					
3	90	lb ai/a	Preflood	81 de	35 bc			8974 ab
	60	lb ai/a	Midseason					
4	120	lb ai/a	Preflood	81 cde	35 bc			9125 ab
	0	lb ai/a	Midseason					
5	120	lb ai/a	Preflood	81 de	35 bc			8942 ab
	30	lb ai/a	Midseason					
6	120	lb ai/a	Preflood	82 a-d	36 ab	10	3	8500 ab
	60	lb ai/a	Midseason					
7	150	lb ai/a	Preflood	82 bcd	36 ab	25	4	8613 ab
	0	lb ai/a	Midseason					
8	150	lb ai/a	Preflood	82 bcd	36 a	25	4	8516 ab
	30	lb ai/a	Midseason					
9	150	lb ai/a	Preflood	82 abc	36 ab	20	4	8712 ab
	60	lb ai/a	Midseason					
10	180	lb ai/a	Preflood	82 ab	35 c	5	2	8432 ab
	0	lb ai/a	Midseason					
11	180	lb ai/a	Preflood	82 ab	34 c	30	4	8319 b
	30	lb ai/a	Midseason					
12	180	lb ai/a	Preflood	83 a	35 bc	53	4	8296 b
	60	lb ai/a	Midseason					
LSD (P=.05)				1.1	0.8			777.5
Standard Deviation				0.7	0.5			538.5
CV				0.9	1.4			6.2
Replicate F				0.917	21.645			2.75
Replicate Prob(F)				0.4435	0.0001			0.0583
Treatment F				6.861	2.968			1.467
Treatment Prob(F)				0.0001	0.0144			0.1912

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 16. Jupiter Nitrogen Rate Validation 3.3 (Richland Parish).

Crop Name				Rice		Rice		Rice	
Rating Date						9/12/2006		9/12/2006	
Rating Data Type				50% Head		Height		Yield	
Rating Unit				days		in		lb/A	
Crop Stage						Main		Main	
Trt No.	Rate	Rate Unit	Growth Stage						
1	90	lb ai/a	Preflood	92	e	33	abc	9042	b
	0	lb ai/a	Midseason						
2	90	lb ai/a	Preflood	92	de	32	c	9588	ab
	30	lb ai/a	Midseason						
3	90	lb ai/a	Preflood	93	bcd	34	ab	9731	ab
	60	lb ai/a	Midseason						
4	120	lb ai/a	Preflood	92	de	32	c	9297	b
	0	lb ai/a	Midseason						
5	120	lb ai/a	Preflood	92	cde	34	ab	9784	ab
	30	lb ai/a	Midseason						
6	120	lb ai/a	Preflood	92	e	34	ab	10154	a
	60	lb ai/a	Midseason						
7	150	lb ai/a	Preflood	93	bcd	33	bc	9594	ab
	0	lb ai/a	Midseason						
8	150	lb ai/a	Preflood	93	ab	32	bc	9524	ab
	30	lb ai/a	Midseason						
9	150	lb ai/a	Preflood	93	abc	33	bc	9348	b
	60	lb ai/a	Midseason						
10	180	lb ai/a	Preflood	93	bcd	33	bc	9780	ab
	0	lb ai/a	Midseason						
11	180	lb ai/a	Preflood	93	ab	34	a	9391	ab
	30	lb ai/a	Midseason						
12	180	lb ai/a	Preflood	94	a	33	abc	9714	ab
	60	lb ai/a	Midseason						
LSD (P=.05)				0.79		1.29		678.56	
Standard Deviation				0.55		0.76		469.94	
CV				0.59		2.31		4.91	
Replicate F				3.233		13		6.007	
Replicate Prob(F)				0.0347		0.0002		0.0022	
Treatment F				5.702		2.805		1.507	
Treatment Prob(F)				0.0001		0.019		0.1759	

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 17. Spring Nitrogen Rate Validation 1.3 (Richland Parish).

Crop Name			Rice	Rice	Rice	Rice	Rice
Rating Date				9/12/2006	9/12/2006	9/12/2006	9/12/2006
Rating Data Type			50% Head	Height	Ldg-Rate	Ldg-Type	Yield
Rating Unit			Days	in	%	1-5	lb/A
Crop Stage				Main	Main	Main	Main
Trt No.	Rate	Rate Unit	Growth Stage				
1	90	lb ai/a	Preflood	79 c	38 ab		7275 abc
	0	lb ai/a	Midseason				
2	90	lb ai/a	Preflood	80 bc	38 ab		7415 a
	30	lb ai/a	Midseason				
3	90	lb ai/a	Preflood	80 abc	39 a	28	4 7095 abc
	60	lb ai/a	Midseason				
4	120	lb ai/a	Preflood	79 bc	37 ab		7301 abc
	0	lb ai/a	Midseason				
5	120	lb ai/a	Preflood	80 abc	38 ab	20	3 6672 bc
	30	lb ai/a	Midseason				
6	120	lb ai/a	Preflood	80 ab	37 ab	80	5 6936 abc
	60	lb ai/a	Midseason				
7	150	lb ai/a	Preflood	80 abc	37 ab	50	5 6574 c
	0	lb ai/a	Midseason				
8	150	lb ai/a	Preflood	80 ab	38 ab	40	3 7324 ab
	30	lb ai/a	Midseason				
9	150	lb ai/a	Preflood	81 a	37 ab	80	5 6602 bc
	60	lb ai/a	Midseason				
10	180	lb ai/a	Preflood	80 ab	37 b	30	3 7621 a
	0	lb ai/a	Midseason				
11	180	lb ai/a	Preflood	81 a	37 b	35	3 7102 abc
	30	lb ai/a	Midseason				
12	180	lb ai/a	Preflood	81 a	38 ab	48	5 6983 abc
	60	lb ai/a	Midseason				
LSD (P=.05)				1.0	1.2		629.4
Standard Deviation				0.7	0.7		435.9
CV				0.9	1.9		6.2
Replicate F				3.19	13.792		4.02
Replicate Prob(F)				0.0363	0.0001		0.0153
Treatment F				2.91	1.883		2.361
Treatment Prob(F)				0.0086	0.0994		0.0279

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 18. Advanced Experimental Line 0402097 Nitrogen Rate Validation 1.2 (Richland Parish).

Crop Name				Rice	Rice	Rice
Rating Date					9/12/2006	9/12/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				Days	inches	lb/A
Crop Stage					Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preflood	90 cd	34 a	8874 a
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preflood	90 d	35 a	8071 b
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preflood	91 cd	35 a	8467 ab
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preflood	90 cd	34 a	8744 a
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preflood	91 bcd	35 a	8646 ab
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preflood	92 abc	35 a	8489 ab
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preflood	90 cd	35 a	8370 ab
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preflood	92 abc	35 a	8578 ab
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preflood	92 abc	35 a	8358 ab
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preflood	92 ab	35 a	8308 ab
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preflood	92 ab	36 a	8543 ab
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preflood	93 a	35 a	8362 ab
	60	lb ai/a	Midseason			
LSD (P=.05)				1.3	1.8	550.3
Standard Deviation				0.9	1.1	381.1
CV				1.0	3.0	4.5
Replicate F				18.624	8.964	4.979
Replicate Prob(F)				0.0001	0.0014	0.0059
Treatment F				3.95	0.56	1.263
Treatment Prob(F)				0.001	0.8401	0.2878

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 19. Advanced Experimental Line 0302082 Nitrogen Rate Validation 1.2 (Richland Parish).

Crop Name				Rice	Rice	Rice
Rating Date					9/12/2006	9/12/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				Days	inches	lb/A
Crop Stage					Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preflood	90 c	33 b	8093 ab
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preflood	91 bc	33 b	7940 ab
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preflood	92 ab	33 ab	7821 b
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preflood	92 ab	34 ab	8199 ab
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preflood	92 ab	34 ab	8414 ab
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preflood	92 ab	35 a	8272 ab
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preflood	93 a	34 ab	8131 ab
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preflood	93 a	34 ab	8563 a
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preflood	93 a	34 ab	8023 ab
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preflood	93 a	34 ab	8170 ab
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preflood	93 a	34 ab	8192 ab
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preflood	93 a	34 ab	7884 ab
	60	lb ai/a	Midseason			
LSD (P=.05)				1.5	1.5	625.9
Standard Deviation				1.1	0.9	433.5
CV				1.2	2.7	5.3
Replicate F				5.051	3.303	7.083
Replicate Prob(F)				0.0055	0.0557	0.0008
Treatment F				4.576	1.808	0.97
Treatment Prob(F)				0.0003	0.1142	0.4912

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Medium-Grain Rice Response to Preflood Nitrogen Rates.

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

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.03
- **pH** ..... : 7.2
- **Extractable nutrients** ..... : P-6; K-69; Ca-1215; Mg-264; Na-96; S-7; Zn-2.8; Cu-1.5 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : 33 seed/ft^2/.75 in
- **Emergence date** ..... : March 31
- **Harvest date** ..... : July 31

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
90 lb N/A 46-0-0, August 3

Water management ..... :
- **Flush** ..... : March 22, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 11

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 20. Medium-Grain Rice Response to Preflood Nitrogen Rates (Rice Research Station).

Crop Name							Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date								7/31/2006	7/31/2006	10/25/2006	10/25/2006		
Rating Data Type							50% Head	Height	Yield	Yield	Yield	Mill-Head	Mill-Total
Rating Unit							Days	inches	lb/A	lb/A	lb/A	%	%
Crop Stage							Main	Main	Main	Ratoon	Total	Main	Main
Trt No.	Treatmen Name	Form Conc	Form Unit	Rate	Rate Unit	Growth Stage							
1	402028						99 abc	28 g	6565 ef	2552 a	9117 c-f	55 d	69 ab
	Urea	46	%W/W	90	lb ai/a	Preflood							
2	402028						100 ab	30 fg	6924 cde	2227 ab	9151 cde	61 abc	68 abc
	Urea	46	%W/W	120	lb ai/a	Preflood							
3	402028						99 abc	31 cde	7426 bc	2238 ab	9664 abc	63 ab	68 a-d
	Urea	46	%W/W	150	lb ai/a	Preflood							
4	402028						100 a	31 cde	7978 a	2197 ab	10175 a	63 a	68 a-d
	Urea	46	%W/W	180	lb ai/a	Preflood							
5	502125						98 d	31 cde	5984 g	1897 bc	7880 j	58 a-d	68 a-d
	Urea	46	%W/W	90	lb ai/a	Preflood							
6	502125						98 d	32 bc	6941 cde	2209 ab	9150 cde	60 a-d	67 a-d
	Urea	46	%W/W	120	lb ai/a	Preflood							
7	502125						98 d	33 abc	7226 cd	1982 bc	9208 cde	59 a-d	67 a-d
	Urea	46	%W/W	150	lb ai/a	Preflood							
8	502125						98 d	34 a	7778 ab	1692 cde	9470 bcd	60 abc	66 a-d
	Urea	46	%W/W	180	lb ai/a	Preflood							
9	502137						98 d	32 cde	6246 fg	1798 bcd	8044 ij	58 bcd	69 a
	Urea	46	%W/W	90	lb ai/a	Preflood							
10	502137						98 d	31 cde	7036 cde	1440 def	8476 f-j	57 cd	67 a-d
	Urea	46	%W/W	120	lb ai/a	Preflood							
11	502137						99 cd	33 abc	7015 cde	1289 ef	8303 g-j	60 abc	68 a-d
	Urea	46	%W/W	150	lb ai/a	Preflood							
12	502137						99 bcd	33 abc	7123 cde	1072 f	8194 hij	58 bcd	66 bcd
	Urea	46	%W/W	180	lb ai/a	Preflood							
13	Jupiter						99 abc	30 fg	6567 ef	2046 bc	8612 e-i	61 abc	65 d
	Urea	46	%W/W	90	lb ai/a	Preflood							
14	Jupiter						99 abc	31 cde	7413 bc	2059 bc	9472 bcd	59 a-d	66 cd
	Urea	46	%W/W	120	lb ai/a	Preflood							
15	Jupiter						100 ab	32 cde	7944 ab	2030 bc	9974 ab	63 ab	67 a-d
	Urea	46	%W/W	150	lb ai/a	Preflood							
16	Jupiter						100 ab	33 ab	8120 a	1976 bc	10095 ab	60 a-d	65 d
	Urea	46	%W/W	180	lb ai/a	Preflood							
17	Bengal						99 cd	30 ef	6204 fg	2188 ab	8392 g-j	59 a-d	66 cd
	Urea	46	%W/W	90	lb ai/a	Preflood							
18	Bengal						99 cd	31 def	6683 def	2031 bc	8713 e-h	62 ab	67 a-d
	Urea	46	%W/W	120	lb ai/a	Preflood							
19	Bengal						99 bcd	32 bcd	7003 cde	1826 bcd	8829 d-h	58 a-d	65 d
	Urea	46	%W/W	150	lb ai/a	Preflood							
20	Bengal						99 bcd	32 bc	7210 cd	1675 cde	8886 d-g	56 cd	67 a-d
	Urea	46	%W/W	180	lb ai/a	Preflood							
LSD (P=.05)							0.7	1.4	498.8	373.5	580.7	4.4	2.3
Standard Deviation							0.5	0.9	352.7	264.1	410.6	2.1	1.1
CV							0.5	2.7	5.0	13.8	4.6	3.5	1.6
Replicate F							2.111	18.219	1.388	1.776	1.442	2.564	7.376
Replicate Prob(F)							0.1089	0.0001	0.256	0.1622	0.2402	0.1258	0.0137
Treatment F							6.531	8.023	11.501	7.178	10.906	2.223	2.001
Treatment Prob(F)							0.0001	0.0001	0.0001	0.0001	0.0001	0.0449	0.0698

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Nitrogen Rate Validation in a Water-seeded Cultural System.

Experiment number ..... : 06-CS-12 to 06-CS-14

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : NA

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.40
- **pH** ..... : 7.1
- **Extractable nutrients** ..... : P-11; K-89; Ca-1571; Mg-337; Na-100; S-10; Zn-4.6; Cu-2.0 ppm

Crop/Variety ..... : Rice/CL131
- **Planting method/date** ..... : Water seeded/March 31
- **Seeding rate/depth** ..... : 60 seed/ft^2
- **Emergence date** ..... : NA
- **Harvest date** ..... : August 3

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 0-24-24 + 2.8 Zn, March 28

Water management ..... :
- **Flush** ..... : NA
- **Flood** ..... : April 6 (permanent flood)
- **Drain** ..... : July 17

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, March 27
- **Fungicides** ..... : None

Table 21. CL131 Nitrogen Rate Validation in a Water-seeded Cultural System 2.1.

Crop Name				Rice	Rice	Rice
Rating Date					8/3/2006	8/3/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				Days	inches	lb/A
Crop Stage					Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preplant	80 f	25 b	5793 b
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preplant	81 ef	26 ab	6658 a
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preplant	81 ef	26 ab	6232 ab
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preplant	82 de	26 a	6707 a
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preplant	82 cd	27 a	6610 a
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preplant	82 cd	27 a	6599 a
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preplant	82 cd	26 a	6602 a
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preplant	83 abc	27 a	6669 a
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preplant	83 bcd	26 a	6432 ab
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preplant	84 ab	26 a	6870 a
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preplant	84 a	27 a	6732 a
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preplant	84 ab	27 a	6692 a
	60	lb ai/a	Midseason			
LSD (P=.05)				1.0	1.5	673.9
Standard Deviation				0.7	0.9	466.7
CV				0.9	3.3	7.1
Replicate F				0.68	3.416	1.198
Replicate Prob(F)				0.5706	0.051	0.3256
Treatment F				11.124	2.403	1.508
Treatment Prob(F)				0.0001	0.0386	0.1755

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 22. Trenasse Nitrogen Rate Validation in a Water-seeded Cultural System 2.1.

Crop Name			Rice	Rice	Rice	Rice	Rice
Rating Date				8/3/2006	8/3/2006	8/3/2006	8/3/2006
Rating Data Type			50% Head	Height	Ldg-Rate	Ldg-Type	Yield
Rating Unit			Days	inches	%	1-5	lb/A
Crop Stage				Main	Main	Main	Main
Trt No.	Rate	Rate Unit	Growth Stage				
1	90	lb ai/a	Preplant	75 c	28 a	43	3	7078 ab
	0	lb ai/a	Midseason				
2	90	lb ai/a	Preplant	76 c	29 a	75	3	7560 a
	30	lb ai/a	Midseason				
3	90	lb ai/a	Preplant	75 c	29 a	53	2	7017 ab
	60	lb ai/a	Midseason				
4	120	lb ai/a	Preplant	77 ab	29 a	78	4	7482 a
	0	lb ai/a	Midseason				
5	120	lb ai/a	Preplant	77 b	30 a	85	4	6873 ab
	30	lb ai/a	Midseason				
6	120	lb ai/a	Preplant	77 b	30 a	83	4	6465 ab
	60	lb ai/a	Midseason				
7	150	lb ai/a	Preplant	77 ab	29 a	100	5	5720 b
	0	lb ai/a	Midseason				
8	150	lb ai/a	Preplant	77 ab	29 a	98	5	6876 ab
	30	lb ai/a	Midseason				
9	150	lb ai/a	Preplant	77 ab	30 a	95	5	6424 ab
	60	lb ai/a	Midseason				
10	180	lb ai/a	Preplant	78 ab	30 a	100	5	6195 ab
	0	lb ai/a	Midseason				
11	180	lb ai/a	Preplant	78 ab	28 a	100	5	6182 ab
	30	lb ai/a	Midseason				
12	180	lb ai/a	Preplant	78 a	29 a	100	5	6827 ab
	60	lb ai/a	Midseason				
LSD (P=.05)				0.9	2.3			1399.4
Standard Deviation				0.6	1.4			969.2
CV				0.8	4.7			14.4
Replicate F				0.798	6.492			0.158
Replicate Prob(F)				0.504	0.0061			0.9235
Treatment F				10.133	0.705			1.27
Treatment Prob(F)				0.0001	0.7213			0.2841

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 23. Jupiter Nitrogen Rate Validation in a Water-seeded Cultural System 1.1.

Crop Name				Rice	Rice	Rice
Rating Date					8/3/2006	8/9/2006
Rating Data Type				50% Head	Height	Yield
Rating Unit				Days	inches	lb/A
Crop Stage					Main	Main
Trt No.	Rate	Rate Unit	Growth Stage			
1	90	lb ai/a	Preplant	87 bc	28 b	9205 c
	0	lb ai/a	Midseason			
2	90	lb ai/a	Preplant	87 c	28 b	9810 b
	30	lb ai/a	Midseason			
3	90	lb ai/a	Preplant	87 c	28 b	9911 b
	60	lb ai/a	Midseason			
4	120	lb ai/a	Preplant	87 abc	30 ab	10057 ab
	0	lb ai/a	Midseason			
5	120	lb ai/a	Preplant	87 abc	30 ab	10313 ab
	30	lb ai/a	Midseason			
6	120	lb ai/a	Preplant	87 bc	30 a	10250 ab
	60	lb ai/a	Midseason			
7	150	lb ai/a	Preplant	87 abc	30 a	10369 ab
	0	lb ai/a	Midseason			
8	150	lb ai/a	Preplant	87 abc	30 ab	10126 ab
	30	lb ai/a	Midseason			
9	150	lb ai/a	Preplant	88 ab	30 a	10375 ab
	60	lb ai/a	Midseason			
10	180	lb ai/a	Preplant	88 a	31 a	10064 ab
	0	lb ai/a	Midseason			
11	180	lb ai/a	Preplant	87 abc	30 a	10641 a
	30	lb ai/a	Midseason			
12	180	lb ai/a	Preplant	88 ab	31 a	10406 ab
	60	lb ai/a	Midseason			
LSD (P=.05)				0.8	1.6	605.5
Standard Deviation				0.5	1.0	419.4
CV				0.6	3.2	4.1
Replicate F				1.833	11.061	0.32
Replicate Prob(F)				0.1603	0.0005	0.8112
Treatment F				2.389	3.666	3.138
Treatment Prob(F)				0.0263	0.0046	0.0053

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Nitrogen Sources and Application Timings 2.

Experiment number ..... : 06-CM-04

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.06
- **pH** ..... : 7.2
- **Extractable nutrients** ..... : P-8; K-70; Ca-1406; Mg-248; Na-85; S-8; Zn-3.1; Cu-1.7 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : 33 seed/ft^2/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 21

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
90 lb N/A 46-0-0, July 24

Water management ..... :
- **Flush** ..... : March 23, April 4 and 12
- **Flood** ..... : April 24
- **Drain** ..... : July 5

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 24. Nitrogen Sources and Application Timings 2.

Crop Name						Rice	Rice	Rice	Rice	Rice
Rating Date							7/18/2006	8/21/2006	10/25/2006	
Rating Data Type						50% Head	Height	Yield	Yield	Yield
Rating Unit						Days	inches	lb/A	lb/A	lb/A
Crop Stage							Main	Main	Ratoon	Total
Trt No.	Treatment Name	Form Conc	Form Unit	Rate	Rate Unit	Growth Stage				
1	Urea						97 ab	31 a	8089 a	892 abc	8981 ab
	Urea	46	%	150	lb ai/a	Preflood					
2	Urea						94 cd	31 a	8275 a	688 de	8963 ab
	Urea	46	%	90	lb ai/a	Preflood					
	Urea	46	%	60	lb ai/a	Midseason					
3	Urea						96 bc	32 a	7960 a	881 abc	8841 b
	Urea	46	%	120	lb ai/a	Preflood					
	Urea	46	%	30	lb ai/a	Midseason					
4	Ammonium sulfate						97 ab	31 a	8845 a	1003 ab	9847 a
	Ammonium sulfate	21	%	150	lb ai/a	Preflood					
5	Ammonium sulfate						94 d	31 a	8130 a	661 e	8791 b
	Ammonium sulfate	21	%	90	lb ai/a	Preflood					
	Ammonium sulfate	21	%	60	lb ai/a	Midseason					
6	Ammonium sulfate						95 cd	31 a	8150 a	810 cde	8960 ab
	Ammonium sulfate	21	%	120	lb ai/a	Preflood					
	Ammonium sulfate	21	%	30	lb ai/a	Midseason					
7	Urea/ammonium sulfate						98 a	32 a	8206 a	1033 a	9238 ab
	Urea/ammonium sulfate	33	%	150	lb ai/a	Preflood					
8	Urea/ammonium sulfate						94 cd	30 a	8229 a	931 abc	9160 ab
	Urea/ammonium sulfate	33	%	90	lb ai/a	Preflood					
	Urea/ammonium sulfate	33	%	60	lb ai/a	Midseason					
9	Urea/ammonium sulfate						96 bc	30 a	8276 a	852 bcd	9127 ab
	Urea/ammonium sulfate	33	%	120	lb ai/a	Preflood					
	Urea/ammonium sulfate	33	%	30	lb ai/a	Midseason					
LSD (P=.05)							1.3	2.08	821.89	161.08	854.21
Standard Deviation							0.9	1.2	563.15	110.37	585.29
CV							0.93	3.89	6.83	12.82	6.43
Replicate F							0.095	0.077	2.194	0.88	2.376
Replicate Prob(F)							0.9622	0.9263	0.1149	0.4651	0.095
Treatment F							8.929	0.808	0.773	5.264	1.163
Treatment Prob(F)							0.0001	0.6057	0.6297	0.0007	0.3604

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Economic Agrotain Comparison 2.

Experiment number ..... : 06-CM-05

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.06
- **pH** ..... : 7.2
- **Extractable nutrients** ..... : P-8; K-70; Ca-1406; Mg-248; Na-85; S-8; Zn-3.1; Cu-1.7 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded /March 14
- **Seeding rate/depth** ..... : 33 seed/ft^2/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 21

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
90 lb N/A 46-0-0, July 24

Water management ..... :
- **Flush** ..... : March 23, April 4 and 12
- **Flood** ..... : April 24
- **Drain** ..... : July 5

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 25. Economic Agrotain Comparison 2.

Crop Name			Rice	Rice	Rice	Rice	Rice
Rating Date				7/18/2006	7/21/2006	10/25/2006	
Rating Data Type			50% Head	Height	Yield	Yield	Yield
Rating Unit			days	inches	lb/A	lb/A	lb/A
Crop Stage				Main	Main	Ratoon	Total
Trt No.	Rate	Rate Unit	Growth Stage				
1	90	lb ai/a	7 d Preflood	92 c	28 b	7230 bc	579 ab	7809 c
2	115	lb ai/a	7 d Preflood	92 c	28 b	6787 c	354 c	7140 d
3	120	lb ai/a	7 d Preflood	94 b	29 ab	7715 ab	696 a	8411 ab
4	152	lb ai/a	7 d Preflood	94 b	30 ab	7332 b	513 b	7845 c
5	150	lb ai/a	7 d Preflood	96 a	32 a	8213 a	635 ab	8848 a
6	190	lb ai/a	7 d Preflood	95 b	30 ab	7463 b	551 ab	8014 bc
LSD (P=.05)				1.2	2.2	506.7	153.5	456.0
Standard Deviation				0.8	1.2	336.3	101.9	302.6
CV				0.8	4.1	4.5	18.4	3.8
Replicate F				0.833	0.954	1.569	3.502	3.343
Replicate Prob(F)				0.4962	0.4176	0.2382	0.0419	0.0477
Treatment F				14.667	4	8.166	5.329	14.73
Treatment Prob(F)				0.0001	0.0297	0.0007	0.0052	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Variety and Hybrid Response to Nitrogen at Different Application Timings.

Experiment number ..... : 06-CM-15

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.12
- **pH** ..... : 6.9
- **Extractable nutrients** ..... : P-8; K-66; Ca-1174; Mg-265; Na-92; S-7; Zn-3.4; Cu-1.7 ppm

Crop/Variety ..... : Rice/XL723, Cheniere
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : Hybrid-14 seed/ft^2, Commercial-40 seed/ft^2/.75 in
- **Emergence date** ..... : March 31
- **Harvest date** ..... : July 31

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
90 lb N/A 46-0-0, August 3

Water management ..... :
- **Flush** ..... : March 22, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 7

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 26. Rice Variety and Hybrid Response to Nitrogen at Different Application Timings.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date						7/17/2006	7/31/2006	7/31/2006	7/31/2006	10/24/2006	
Rating Data Type					50% Head	Height	Ldg-Rate	Ldg-Type	Yield	Yield	Yield
Rating Unit					days	inches	%	1-5	lb/A	lb/A	lb/A
Crop Stage						Main	Main	Main	Main	Ratoon	Total
Trt No.	Variety	Rate	Rate Unit	Growth Stage							
1	Cheniere	90	lb ai/a	Preflood	94 hi	30 i			8486 l	1040 ghi	9526 k
		0	lb ai/a	PD							
		0	lb ai/a	5% heading							
2	Cheniere	90	lb ai/a	Preflood	94 ghi	31 hi			8799 jkl	1676 cde	10475 g-k
		0	lb ai/a	PD							
		45	lb ai/a	5% heading							
3	Cheniere	90	lb ai/a	Preflood	94 ghi	31 ghi			8572 kl	977 ghi	9550 jk
		45	lb ai/a	PD							
		0	lb ai/a	5% heading							
4	Cheniere	90	lb ai/a	Preflood	94 ghi	30 i			9539 g-l	1341 efg	10880 g-j
		45	lb ai/a	PD							
		45	lb ai/a	5% heading							
5	Cheniere	135	lb ai/a	Preflood	96 def	32 f-i			8514 l	1078 ghi	9592 jk
		0	lb ai/a	PD							
		0	lb ai/a	5% heading							
6	Cheniere	135	lb ai/a	Preflood	96 def	32 fgh			10137 e-h	1532 def	11669 efg
		0	lb ai/a	PD							
		45	lb ai/a	5% heading							
7	Cheniere	135	lb ai/a	Preflood	95 efg	33 fgh			9072 h-l	935 ghi	10006 h-k
		45	lb ai/a	PD							
		0	lb ai/a	5% heading							
8	Cheniere	135	lb ai/a	Preflood	96 cde	33 e-h			9777 f-j	1165 fgh	10941 ghi
		45	lb ai/a	PD							
		45	lb ai/a	5% heading							
9	Cheniere	180	lb ai/a	Preflood	97 bc	34 d-g			9643 f-k	925 ghi	10569 g-k
		0	lb ai/a	PD							
		0	lb ai/a	5% heading							
10	Cheniere	180	lb ai/a	Preflood	97 bc	34 efg			9805 f-j	955 ghi	10759 g-k
		0	lb ai/a	PD							
		45	lb ai/a	5% heading							
11	Cheniere	180	lb ai/a	Preflood	97 ab	34 def			9659 f-k	738 hi	10396 g-k
		45	lb ai/a	PD							
		0	lb ai/a	5% heading							
12	Cheniere	180	lb ai/a	Preflood	97 bcd	33 e-h			9949 e-i	1188 fgh	11138 fgh
		45	lb ai/a	PD							
		45	lb ai/a	5% heading							
13	XL723	90	lb ai/a	Preflood	92 j	37 cd			10455 d-g	2212 ab	12667 b-e
		0	lb ai/a	PD							
		0	lb ai/a	5% heading							
14	XL723	90	lb ai/a	Preflood	92 j	37 cd			10161 e-h	2274 ab	12435 cde
		0	lb ai/a	PD							
		45	lb ai/a	5% heading							
15	XL723	90	lb ai/a	Preflood	92 j	37 bc			10427 d-g	1966 bcd	12393 cde
		45	lb ai/a	PD							
		0	lb ai/a	5% heading							

Table 26. (Continued).

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date						7/17/2006	7/31/2006	7/31/2006	7/31/2006	10/24/2006	
Rating Data Type					50% Head	Height	Ldg-Rate	Ldg-Type	Yield	Yield	Yield
Rating Unit					days	inches	%	1-5	lb/A	lb/A	lb/A
Crop Stage						Main	Main	Main	Main	Ratoon	Total
Trt No.	Variety	Rate	Rate Unit	Growth Stage							
16	XL723	90	lb ai/a	Preflood	92 j	37 cd			10765 a-f	1910 bcd	12676 b-e
		45	lb ai/a	PD							
		45	lb ai/a	5% heading							
17	XL723	135	lb ai/a	Preflood	93 i	40 ab			10551 c-g	2011 bc	12562 cde
		0	lb ai/a	PD							
		0	lb ai/a	5% heading							
18	XL723	135	lb ai/a	Preflood	93 i	41 a			11092 a-e	2350 ab	13442 a-d
		0	lb ai/a	PD							
		45	lb ai/a	5% heading							
19	XL723	135	lb ai/a	Preflood	94 ghi	42 a			11354 a-d	1934 bcd	13288 a-d
		45	lb ai/a	PD							
		0	lb ai/a	5% heading							
20	XL723	135	lb ai/a	Preflood	94 ghi	42 a			11874 a	2503 a	14377 a
		45	lb ai/a	PD							
		45	lb ai/a	5% heading							
21	XL723	180	lb ai/a	Preflood	95 fgh	41 a			11631 abc	2355 ab	13986 ab
		0	lb ai/a	PD							
		0	lb ai/a	5% heading							
22	XL723	180	lb ai/a	Preflood	95 fgh	42 a			11696 ab	1920 bcd	13615 abc
		0	lb ai/a	PD							
		45	lb ai/a	5% heading							
23	XL723	180	lb ai/a	Preflood	94 ghi	42 a			11011 a-e	2341 ab	13352 a-d
		45	lb ai/a	PD							
		0	lb ai/a	5% heading							
24	XL723	180	lb ai/a	Preflood	94 ghi	42 a			11775 ab	2380 ab	14155 a
		45	lb ai/a	PD							
		45	lb ai/a	5% heading							
25	Cheniere	225	lb ai/a	Preflood	98 a	34 def	20	2	8637 kl	820 hi	9458 k
26	Cheniere	270	lb ai/a	Preflood	98 a	36 cde	33	3	8923 i-l	698 i	9621 ijk
27	XL723	225	lb ai/a	Preflood	96 cde	41 a	40	3	10705 b-f	2066 abc	12771 b-e
28	XL723	270	lb ai/a	Preflood	97 bcd	42 a	63	4	10232 d-g	1982 bc	12215 def
LSD (P=.05)					1	2.33			968.54	392.64	1147.91
Standard Deviation					0.7	1.43			684.86	277.64	811.69
CV					0.74	3.93			6.77	17.17	6.92
Replicate F					5.958	18.056			0.88	0.151	0.519
Replicate Prob(F)					0.001	0.0001			0.4553	0.9285	0.6705
Treatment F					24.844	26.66			9.524	18.817	15.37
Treatment Prob(F)					0.0001	0.0001			0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Comparison of Urea, Agrotain-Treated Urea, and Nitamin as Nitrogen Sources in Rice.

Experiment number ..... : 06-CS-22

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.33
- **pH** ..... : 7.0
- **Extractable nutrients** ..... : P-11; K-103; Ca-1352; Mg-311; Na-126; S-10; Zn-5.0; Cu-1.8 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded/March 28
- **Seeding rate/depth** ..... : 33 seed/ft^2/.5 in
- **Emergence date** ..... : April 16
- **Harvest date** ..... : August 8

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 28
90 lb N/A 46-0-0, August 15 (ratoon)

Water management ..... :
- **Flush** ..... : April 3, 11, and 18
- **Flood** ..... : May 11
- **Drain** ..... : July 20

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
1 gal/A Arrosolo + 2.1 pt/A Prowl + 1.3 oz/A Permit, May 10
22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, March 27
- **Fungicides** ..... : None

Table 27. Comparison of Urea, Agrotain-Treated Urea, and Nitamin as Nitrogen Sources in Rice.

Crop Name					Rice	Rice	Rice	Rice
Rating Date						4/24/2006	8/3/2006	8/7/2006
Rating Data Type					50% Head	Height	Height	Yield
Rating Unit					days	cm	inches	lb/A
Crop Stage						2 Leaf	Maturity	Main
Trt	Treatment	Form		Rate				
No.	Name	Conc	Rate	Unit				
1	Urea Preplant	46	120	lb ai/a	76 d	14 ab	29 e	4109 f
2	Urea 5 d preflood	46	120	lb ai/a	76 d	13 bc	29 e	4805 ef
3	Urea 0 d preflood	46	120	lb ai/a	80 b	14 abc	35 ab	6989 a
4	Urea Preplant	46	180	lb ai/a	76 d	13 bc	33 bcd	5640 cd
5	Urea 5 d preflood	46	180	lb ai/a	76 d	14 abc	30 de	5861 c
6	Urea 0 d preflood	46	180	lb ai/a	82 a	13 abc	34 ab	7093 a
7	Agrotain-treated urea Preplant	46	120	lb ai/a	76 d	14 abc	30 de	4211 f
8	Agrotain-treated urea 5 d preflood	46	120	lb ai/a	77 d	15 a	30 e	5115 de
9	Agrotain-treated urea 0 d preflood	46	120	lb ai/a	80 bc	13 abc	34 ab	6944 ab
10	Agrotain-treated urea Preplant	46	180	lb ai/a	76 d	13 bc	31 cde	4791 ef
11	Agrotain-treated urea 5 d preflood	46	180	lb ai/a	79 c	14 abc	34 ab	6255 bc
12	Agrotain-treated urea 0 d preflood	46	180	lb ai/a	82 a	14 ab	34 ab	6659 ab
13	Nitamin Preplant	44	120	lb ai/a	76 d	14 ab	30 e	4248 f
14	Nitamin 5 d preflood	44	120	lb ai/a	76 d	13 abc	30 e	5078 de
15	Nitamin 0 d preflood	44	120	lb ai/a	80 bc	15 ab	33 bc	6745 ab
16	Nitamin Preplant	44	180	lb ai/a	76 d	14 ab	30 de	4712 ef
17	Nitamin 5 d preflood	44	180	lb ai/a	76 d	12 c	30 de	5648 cd
18	Nitamin 0 d preflood	44	180	lb ai/a	82 a	14 ab	36 a	6943 ab
LSD (P=.05)					0.9	1.6	2.3	631.4
Standard Deviation					0.6	1.1	1.4	446.4
CV					0.8	8.4	4.3	7.9
Replicate F					0.904	1.658	6.068	3.663
Replicate Prob(F)					0.4456	0.1877	0.0056	0.0182
Treatment F					56.872	1.566	7.221	22.672
Treatment Prob(F)					0.0001	0.1096	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Ratoon Response of Rice Varieties and Hybrids to Nitrogen Fertilizer Rates.

Experiment number ..... : 06-CM-09 and 06-CM-10

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.13
- **pH** ..... : 7.0
- **Extractable nutrients** ..... : P-8; K-63; Ca-1256; Mg-233; Na-79; S-7; Zn-3.0; Cu-1.6 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : 33 seed/ft^2/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 24

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
165 lb N/A 46-0-0, April 18

Water management ..... :
- **Flush** ..... : March 23, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 5

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 28. Ratoon Response of Rice Varieties to Nitrogen Fertilizer Rates.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Rating Date						7/18/2006	7/24/2006		10/24/2006	
Rating Data Type					50% Head	Height	Yield	50% Head	Yield	Yield
Rating Unit					Days	inches	lb/A	Days	lb/A	lb/A
Crop Stage					Main	Main	Main	Ratoon	Ratoon	Total
Trt No.	Var.	Rate	Rate Unit	Growth Stage						
1	Cocodrie	60	lb ai/a	Postharvest	95 a	31 d	9072 b	43 abc	1033 a	10105 c
2	Cocodrie	90	lb ai/a	Postharvest	95 a	32 cd	9280 ab	44 ab	1367 a	10648 abc
3	Cocodrie	120	lb ai/a	Postharvest	95 a	32 cd	9096 b	45 a	1313 a	10409 abc
4	Cocodrie	150	lb ai/a	Postharvest	95 a	33 bcd	9100 b	45 a	1192 a	10292 bc
5	Trenasse	60	lb ai/a	Postharvest	90 b	33 bc	9688 ab	39 d	1285 a	10972 ab
6	Trenasse	90	lb ai/a	Postharvest	91 b	33 bc	9958 a	42 bc	1209 a	11167 a
7	Trenasse	120	lb ai/a	Postharvest	91 b	36 a	9712 ab	42 bc	1270 a	10982 ab
8	Trenasse	150	lb ai/a	Postharvest	90 b	34 b	9761 ab	41 cd	1212 a	10972 ab
LSD (P=.05)					0.8	1.5	616.2	2.5	317.3	757.3
Standard Deviation					0.6	0.8	418.9	1.7	215.7	514.9
CV					0.6	2.5	4.4	3.9	17.5	4.8
Replicate F					1.676	0.724	1.113	2.092	1.558	1.896
Replicate Prob(F)					0.2026	0.502	0.366	0.1318	0.2293	0.1612
Treatment F					79.986	7.44	2.925	6.368	0.872	2.271
Treatment Prob(F)					0.0001	0.0008	0.0266	0.0004	0.5443	0.0689

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 29. Ratoon Response of Rice Hybrids to Nitrogen Fertilizer Rates.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Rating Date						7/18/2006	7/24/2006		10/24/2006	10/24/2006
Rating Data Type					50% Head	Height	Yield	50% Head	Yield	Yield
Rating Unit					Days	inches	lb/A	Days	lb/A	lb/A
Crop Stage					Main	Main	Main	Ratoon	Ratoon	Total
Trt No.	Var.	Rate	Rate Unit	Growth Stage						
1	XP723	60	lb ai/a	Postharvest	94 b	39 ab	10952 a	38 a	2425 b	13376 b
2	XP723	90	lb ai/a	Postharvest	94 b	39 b	11376 a	39 a	3113 a	14489 a
3	XP723	120	lb ai/a	Postharvest	94 b	39 b	11066 a	39 a	3235 a	14301 a
4	XP723	150	lb ai/a	Postharvest	94 b	39 ab	11128 a	39 a	3128 a	14256 a
5	CLXL8	60	lb ai/a	Postharvest	95 a	39 b	8197 b	30 b	1621 c	9817 c
6	CLXL8	90	lb ai/a	Postharvest	96 a	41 a	8290 b	30 b	1604 c	9894 c
7	CLXL8	120	lb ai/a	Postharvest	95 a	39 b	8330 b	30 b	1322 c	9652 c
8	CLXL8	150	lb ai/a	Postharvest	95 a	39 b	7995 b	30 b	1569 c	9564 c
LSD (P=.05)					0.7	1.5	586.3	1.0	423.8	674.7
Standard Deviation					0.5	0.8	398.6	0.7	288.2	458.8
CV					0.5	2.1	4.1	2.1	12.8	3.9
Replicate F					2.396	5.444	2.842	1	1.454	4.583
Replicate Prob(F)					0.0969	0.0178	0.0624	0.4123	0.2556	0.0128
Treatment F					11.255	1.769	62.214	175.857	32.035	106.047
Treatment Prob(F)					0.0001	0.1722	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Ratoon Response to Nitrogen Fertilizer Application Timings.

Experiment number ..... : 06-CM-11

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.20
- **pH** ..... : 6.6
- **Extractable nutrients** ..... : P-7; K-60; Ca-1024; Mg-225; Na-79; S-6; Zn-3.2; Cu-1.5 ppm

Crop/Variety ..... : Rice/Cocodrie, Trenasse
- **Planting method/date** ..... : Drill seeded/March14
- **Seeding rate/depth** ..... : 33 seed/ft^2/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 21

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
165 lb N/A 46-0-0, April 18

Water management ..... :
- **Flush** ..... : March 22, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 7

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 30. Ratoon Response to Nitrogen Fertilizer Application Timings.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Rating Date						7/17/2006	7/21/2006		10/24/2006	
Rating Data Type					50% Head	Height	Yield	50% Head	Yield	Yield
Rating Unit					Days	inches	lb/A	days	lb/A	lb/A
Crop Stage					Main	Main	Main	Ratoon	Ratoon	Total
Trt No.	Rate	Var.	Rate Unit	Growth Stage						
1	90	Cocodrie	lb ai/a	MC Head	94 a	31 c	9674 d	42 c	653 c	10326 d
2	90	Cocodrie	lb ai/a	7 d Predrain	95 a	31 c	9774 cd	43 bc	717 bc	10490 cd
3	90	Cocodrie	lb ai/a	MC Harvest	94 a	31 c	10036 bcd	46 ab	894 ab	10930 a-d
4	60	Cocodrie	lb ai/a	MC Head	94 a	31 bc	9771 cd	43 bc	909 ab	10680 bcd
	30		lb ai/a	MC Harvest						
5	60	Cocodrie	lb ai/a	7 d Predrain	94 a	32 bc	9656 d	42 c	844 abc	10500 cd
	30		lb ai/a	MC Harvest						
6	60	Cocodrie	lb ai/a	MC Harvest	94 a	32 abc	9833 cd	46 a	906 ab	10739 bcd
	30		lb ai/a	Harv. + 21 d						
7	90	Trenasse	lb ai/a	MC Head	90 bc	34 a	10815 a	43 bc	626 c	11441 ab
8	90	Trenasse	lb ai/a	7 d Predrain	89 c	33 ab	10897 a	44 abc	717 bc	11614 a
9	90	Trenasse	lb ai/a	MC Harvest	89 c	33 ab	10659 ab	44 abc	993 a	11652 a
10	60	Trenasse	lb ai/a	MC Head	89 c	34 a	10562 ab	44 abc	811 abc	11373 ab
	30		lb ai/a	MC Harvest						
11	60	Trenasse	lb ai/a	7 d Predrain	90 b	34 a	10408 abc	42 c	946 ab	11354 ab
	30		lb ai/a	MC Harvest						
12	60	Trenasse	lb ai/a	MC Harvest	90 b	33 ab	10280 a-d	44 abc	917 ab	11197 abc
	30		lb ai/a	Harv. + 21 d						
LSD (P=.05)					0.9	1.8	589.4	2.2	208.2	686.0
Standard Deviation					0.6	1.1	408.2	1.5	144.2	475.1
CV					0.7	3.3	4.0	3.5	17.4	4.3
Replicate F					0.326	1.571	2.734	4.637	1.021	2.808
Replicate Prob(F)					0.8065	0.2302	0.0593	0.0082	0.3957	0.0547
Treatment F					59.359	5.143	5.14	2.878	2.85	3.918
Treatment Prob(F)					0.0001	0.0005	0.0001	0.0092	0.0098	0.0011

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Ratoon Response to Phosphorus and Potassium Fertilization.

Experiment number ..... : 06-CM-12

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.20
- **pH** ..... : 6.6
- **Extractable nutrients** ..... : P-7; K-60; Ca-1024; Mg-225; Na-79; S-6; Zn-3.2; Cu-1.5 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : 33 seed/ft^2/.75 in
- **Emergence date** ..... : March 27
- **Harvest date** ..... : July 21

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 165 lb N/A, April 18
90 lb N/A 46-0-0, July 24

Water management ..... :
- **Flush** ..... : March 22, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 7

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 31. Ratoon Response to Phosphorus and Potassium Fertilization.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice
Rating Date					7/17/2006	7/21/2006		10/24/2006	
Rating Data Type				50% Head	Height	Yield	50% Head	Yield	Yield
Rating Unit				Days	inches	lb/A	days	lb/A	lb/A
Crop Stage				Main	Main	Main	Ratoon	Ratoon	Total
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage					
1	Triple superphosphate	0	lb ai/a	Postharvest	97 a	30 a	8284 ab	51 a	824 a	9108 ab
	Potassium chloride	0	lb ai/a	Postharvest						
2	Triple superphosphate	0	lb ai/a	Postharvest	97 a	31 a	8643 ab	52 a	999 a	9642 ab
	Potassium chloride	30	lb ai/a	Postharvest						
3	Triple superphosphate	0	lb ai/a	Postharvest	96 a	31 a	8714 ab	50 a	893 a	9608 ab
	Potassium chloride	60	lb ai/a	Postharvest						
4	Triple superphosphate	30	lb ai/a	Postharvest	96 a	31 a	8756 a	50 a	987 a	9742 a
	Potassium chloride	0	lb ai/a	Postharvest						
5	Triple superphosphate	30	lb ai/a	Postharvest	97 a	31 a	8316 ab	51 a	959 a	9275 ab
	Potassium chloride	30	lb ai/a	Postharvest						
6	Triple superphosphate	30	lb ai/a	Postharvest	96 a	30 a	8840 a	50 a	948 a	9788 a
	Potassium chloride	60	lb ai/a	Postharvest						
7	Triple superphosphate	60	lb ai/a	Postharvest	96 a	31 a	8710 ab	50 a	913 a	9623 ab
	Potassium chloride	0	lb ai/a	Postharvest						
8	Triple superphosphate	60	lb ai/a	Postharvest	96 a	31 a	8097 b	51 a	823 a	8919 b
	Potassium chloride	30	lb ai/a	Postharvest						
9	Triple superphosphate	60	lb ai/a	Postharvest	96 a	31 a	8636 ab	49 a	926 a	9563 ab
	Potassium chloride	60	lb ai/a	Postharvest						
LSD (P=.05)					0.6	1.3	550.4	2.8	175.9	646.2
Standard Deviation					0.4	0.8	377.1	1.9	120.5	442.8
CV					0.4	2.5	4.4	3.9	13.1	4.7
Replicate F					6.769	2.286	21.225	3.536	12.652	21.881
Replicate Prob(F)					0.0018	0.1339	0.0001	0.0298	0.0001	0.0001
Treatment F					0.846	0.571	1.85	0.632	1.112	1.855
Treatment Prob(F)					0.5726	0.7864	0.1166	0.7433	0.39	0.1154

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Stand Establishment Study.

Experiment number ..... : 06-CS-24

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.71
- **pH** ..... : 6.7
- **Extractable nutrients** ..... : P-12; K-79; Ca-1239; Mg-275; Na-90; S-8; Zn-6.3; Cu-1.9 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded/March 27
- **Seeding rate/depth** ..... : 33 seed/ft^2/.5 in
- **Emergence date** ..... : April 10
- **Harvest date** ..... : August 9

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : See treatment sheet

Water management ..... :
- **Flush** ..... : April 3, 11, and 18
- **Flood** ..... : May 11
- **Drain** ..... : July 20

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
  1 gal/A Arrosolo + 2.1 pt/A Prowl + 1.3 oz/A Permit, May 10
  22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, March 27
- **Fungicides** ..... : None

Table 32a. Stand Establishment Study (Agronomic Data).

Crop Name					Rice	Rice	Rice	Rice	Rice
Description									
Part Rated									
Rating Date					4/24/2006	4/25/2006		8/3/2006	8/9/2006
Rating Data Type					Height	Stand Ct	50% Head	Height	Yield
Rating Unit					cm	Pl/sq m	Days	inches	lbs/A
Crop Stage					2-3 leaf	2-3 leaf		Maturity	Main
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage				
1	0:24:24	48	250	lb/a	Preplant	17 a	152 a	98 a	34 a	7271 a
	Urea	46	360	lb/a	Preflood					
2	8:24:24	56	250	lb/a	Preplant	17 a	173 a	97 b	35 a	7402 a
	Urea	46	360	lb/a	Preflood					
3	0:24:24	48	250	lb/a	Preplant	17 a	194 a	99 a	35 a	7334 a
	21:0:0	21	100	lb/a	1- to 2-leaf					
	Urea	46	360	lb/a	Preflood					
4	Establish	10	1	qt/a	Preplant	18 a	184 a	93 c	26 b	3441 c
5	Establish	10	1	qt/a	Preplant	16 a	186 a	93 c	27 b	3539 c
	Huma-Cal Plus	10	2	qt/a	Preplant					
6	Establish	10	2	qt/a	Preplant	18 a	168 a	93 c	27 b	3651 c
7	Establish	10	2	qt/a	Preplant	16 a	173 a	93 c	28 b	3457 c
	Huma-Cal Plus	10	2	qt/a	Preplant					
8	Establish	10	1	qt/a	Preplant	17 a	172 a	99 a	33 a	6529 b
	Huma-Cal Plus	10	2	qt/a	Preplant					
	Urea	46	360	lb/a	Preflood					
LSD (P=.05)						3.2	42.1	1.4	2.1	470.2
Standard Deviation						2.2	28.6	1.0	1.2	319.7
CV						13.0	16.3	1.0	4.0	6.0
Replicate F						6.271	0.17	4.696	1.032	16.091
Replicate Prob(F)						0.0033	0.9154	0.0116	0.3819	0.0001
Treatment F						0.317	0.807	31.747	31.92	148.827
Treatment Prob(F)						0.9379	0.5909	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 32b. Stand Establishment Study (Plant Tissue Data).

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Description					Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Part Rated					FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf
Rating Date					6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006
Rating Data Type					Al	B	Ca	Cu	Fe	Mg	Mn	Mo	N	P	K	Na	S	Zn
Rating Unit					ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	%	%	ppm	%	ppm
Crop Stage					Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage													
1	0:24:24	48	250	lb/a	Preplant	8.4 a	7.5 a	0.3 a	5.1 a	87.8 a	0.2 a	326.6 a	5.5 a	2.6 a	0.2 a	1.2 al	298 a	0.2 a	29.4 a
	Urea	46	360	lb/a	Preflood														
2	8:24:24	56	250	lb/a	Preplant	7.5 a	6.2 al	0.2 a	4.8 a	65.8 a	0.2 a	304 a	4.8 a	2.5 a	0.2 al	1.2 b	240.5 al	0.2 b	28.2 a
	Urea	46	360	lb/a	Preflood														
3	0:24:24	48	250	lb/a	Preplant	8.8 a	7.2 a	0.2 a	5.2 a	88 a	0.2 a	318.2 a	3.2 b	2.5 a	0.3 a	1.3 a	285.6 al	0.2 a	31.1 a
	21:0:0	21	100	lb/a	1- to 2-leaf														
	Urea	46	360	lb/a	Preflood														
4	Establish	10	1	qt/a	Preplant	8.5 a	4.3 b	0.2 a	4.3 a	74.5 a	0.1 c	283.1 b	2.2 b	1.9 c	0.2 c	1.1 c	117.5 b	0.1 d	21.8 b
5	Establish	10	1	qt/a	Preplant	7.6 a	4.4 b	0.2 a	4.6 a	55.8 b	0.1 c	291.9 a	2 b	1.9 c	0.2 d	1.1 c	105.6 c	0.1 d	20.3 b
	Huma-Cal P	10	2	qt/a	Preplant														
6	Establish	10	2	qt/a	Preplant	8.6 a	5.4 al	0.2 a	4.3 a	55.8 b	0.1 c	277.1 c	2 b	1.9 c	0.2 d	1.1 c	100.6 c	0.1 d	21.1 b
7	Establish	10	2	qt/a	Preplant	7.7 a	5.4 al	0.3 a	5.2 a	71.4 a	0.1 c	299.9 a	2.2 b	2 c	0.2 c	1.1 c	90.7 c	0.1 d	21.2 b
	Huma-Cal P	10	2	qt/a	Preplant														
8	Establish	10	1	qt/a	Preplant	7.2 a	5.8 al	0.2 b	4.7 a	69.2 a	0.2 b	282.5 b	4.6 a	2.3 b	0.2 b	1.1 c	343.9 a	0.2 c	30.7 a
	Huma-Cal P	10	2	qt/a	Preplant														
	Urea	46	360	lb/a	Preflood														
LSD (P=.05)						1.77	2.38	0.03	0.94	27.23	0.01	34.58	1.3	0.2	0.02	0.08	160.6	0.01	2.88
Standard Deviation						1.2	1.62	0.02	0.64	18.51	0.01	23.51	0.88	0.14	0.02	0.06	109.2	0.01	1.96
CV						15	27.98	8.29	13.37	26.06	6.06	7.89	26.55	6.26	7.02	4.93	55.21	6.33	7.7
Replicate F						1.583	0.365	0.487	4.038	1.536	1.297	13.648	3.729	0.929	2.141	6.604	4.088	0.623	3.185
Replicate Prob(F)						0.2232	0.7792	0.695	0.0205	0.2346	0.3017	0.0001	0.0271	0.4441	0.1254	0.0026	0.0197	0.6077	0.0449
Treatment F						0.996	2.129	1.48	1.211	1.789	18.041	2.281	10.725	22.504	9.76	8.954	3.68	13.979	23.756
Treatment Prob(F)						0.4611	0.0852	0.228	0.3397	0.1426	0.0001	0.0679	0.0001	0.0001	0.0001	0.0001	0.0095	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Response to Humic Acid--Low Fertility.

Experiment number ..... : 06-CS-23

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.71
- **pH** ..... : 6.7
- **Extractable nutrients** ..... : P-12; K-79; Ca-1239; Mg-275; Na-90; S-8; Zn-6.3; Cu-1.9 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded /March 27
- **Seeding rate/depth** ..... : 33 seed/ft^2/.5 in
- **Emergence date** ..... : April 10
- **Harvest date** ..... : August 9

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 165 lb N/A 46-0-0, May 9

Water management ..... :
- **Flush** ..... : April 3, 11, and 18
- **Flood** ..... : May 11
- **Drain** ..... : July 20

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
  1 gal/A Arrosolo + 2.1 pt/A Prowl + 1.3 oz/A Permit, May 10
  22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, March 27
- **Fungicides** ..... : None

Table 33a. Rice Response to Humic Acid--Low Fertility (Agronomic Data).

Crop Name						Rice	Rice	Rice	Rice	Rice
Description										
Part Rated										
Rating Date						4/24/2006	4/25/2006		8/3/2006	8/9/2006
Rating Data Type						Height	Stand count	50% Head	Height	Yield
Rating Unit						cm	Pl/sq m	Days	inches	lbs/A
Crop Stage						2-3 leaf	2-3 leaf		Maturity	Main
Trt No.	Treatment Name	Form Conc	Form Unit	Rate	Rate Unit	Growth Stage				
1	Biosalt	10		1	gal/a	Preplant	15 a	171 a	99 a	33 abc	6486 bc
	Bioactivator	10		2	gal/a	Preplant					
	0:24:24	48	% P2O5	0	lb/a	Preplant					
2	Biosalt	10		1	gal/a	Preplant	15 a	158 a	98 ab	34 a	6873 ab
	Bioactivator	10		2	gal/a	Preplant					
	0:24:24	48	% P2O5	250	lb/a	Preplant					
3	Biosalt	10		2	gal/a	Preplant	15 a	157 a	98 ab	32 c	6394 bc
	Bioactivator	100		4	gal/a	Preplant					
	0:24:24	48	% P2O5	0	lb/a	Preplant					
4	Biosalt	10		2	gal/a	Preplant	15 a	178 a	98 b	33 abc	7275 a
	Bioactivator	100		4	gal/a	Preplant					
	0:24:24	48	% P2O5	250	lb/a	Preplant					
5	Organolyze	12		50	lb/a	Preplant	15 a	158 a	99 ab	33 abc	6152 c
	0:24:24	48	% P2O5	0	lb/a	Preplant					
6	Organolyze	12		50	lb/a	Preplant	15 a	156 a	98 ab	33 ab	6840 ab
	0:24:24	48	% P2O5	250	lb/a	Preplant					
7	HM9754A	75		10	lb/a	Preplant	15 a	147 a	99 a	33 abc	6398 bc
	0:24:24	48	% P2O5	0	lb/a	Preplant					
8	HM9754A	75		10	lb/a	Preplant	14 a	169 a	98 b	34 a	6610 bc
	0:24:24	48	% P2O5	250	lb/a	Preplant					
9	HM9754A	75		40	lb/a	Preplant	15 a	170 a	98 ab	32 bc	6410 bc
	0:24:24	48	% P2O5	0	lb/a	Preplant					
10	HM9754A	75		40	lb/a	Preplant	15 a	178 a	98 ab	32 bc	6884 ab
	0:24:24	48	% P2O5	250	lb/a	Preplant					
11	Huma-Cal Plus	10		2	qt/a	Preplant	15 a	177 a	98 ab	34 ab	6813 ab
	0:24:24	48	% P2O5	0	lb/a	Preplant					
12	Huma-Cal Plus	10		2	qt/a	Preplant	14 a	158 a	98 b	34 a	6952 ab
	0:24:24	48	% P2O5	250	lb/a	Preplant					
13	Nontreated						15 a	158 a	99 ab	33 abc	6544 bc
	0:24:24	48	% P2O5	0	lb/a	Preplant					
14	Nontreated						16 a	164 a	98 b	33 abc	6771 abc
	0:24:24	48	% P2O5	250	lb/a	Preplant					
LSD (P=.05)							2.1	46.6	1.0	1.3	565.3
Standard Deviation							1.5	32.6	0.7	0.8	395.6
CV							9.9	19.9	0.7	2.3	5.9
Replicate F							9.457	0.78	24.572	10.689	6.59
Replicate Prob(F)							0.0001	0.5124	0.0001	0.0004	0.001
Treatment F							0.503	0.352	1.818	2.438	2.223
Treatment Prob(F)							0.9091	0.9769	0.0748	0.0257	0.0272

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 33b. Rice Response to Humic Acid--Low Fertility (Plant Tissue Data).

Description						Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Part Rated						FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf	FlagLf
Rating Date						6/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006	6/26/2006
Rating Data Type						Al	B	Ca	Cu	Fe	Mg	Mn	Mo	N	P	K	Na	S	Zn
Rating Unit						ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	%	%	ppm	%	ppm
Crop Stage						Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot	Boot
Trt No.	Treatment Name	Form Conc	Form Unit	Rate	Rate Unit	Growth Stage													
1	Biosalt	10		1	gal/a	Preplant	6 b	7.1 a	0.3 a	4 b	61.2 a	0.2 b	286 ab	4.7 b	2.4 ab	0.2 b	1.1 ab	364.2 a	0.2 a	25.9 a
	Bioactivator	10		2	gal/a	Preplant														
	0:24:24	48	% P2O5	0	lb/a	Preplant														
2	Biosalt	10		1	gal/a	Preplant	6 b	7.1 a	0.2 a	4.2 ab	66.1 a	0.2 b	293.1 ab	4.1 b	2.4 ab	0.2 b	1.2 ab	166.8 bc	0.2 a	26.9 a
	Bioactivator	10		2	gal/a	Preplant														
	0:24:24	48	% P2O5	250	lb/a	Preplant														
3	Biosalt	10		2	gal/a	Preplant	7 b	6.3 a	0.3 a	5.4 a	84.5 a	0.2 b	283.7 ab	3.7 b	2.3 ab	0.2 b	1.2 ab	340.6 ab	0.2 a	28.6 a
	Bioactivator	100		4	gal/a	Preplant														
	0:24:24	48	% P2O5	0	lb/a	Preplant														
4	Biosalt	10		2	gal/a	Preplant	8 b	8.4 a	0.3 a	5 ab	68.8 a	0.2 b	288.8 ab	5.1 b	2.4 ab	0.2 b	1.3 a	200.3 abc	0.2 a	26.8 a
	Bioactivator	100		4	gal/a	Preplant														
	0:24:24	48	% P2O5	250	lb/a	Preplant														
5	Organolyze	12		50	lb/a	Preplant	6 b	6.3 a	0.3 a	4.8 ab	108.9 a	0.2 b	308.7 a	4.4 b	2.4 ab	0.2 b	1.2 ab	138.2 c	52.5 a	21.7 a
	0:24:24	48	% P2O5	0	lb/a	Preplant														
6	Organolyze	12		50	lb/a	Preplant	8 b	7.6 a	0.3 a	4.9 ab	91.8 a	0.2 b	284.6 ab	6 b	2.4 ab	0.2 b	1.2 ab	111.2 c	37.4 a	20.3 a
	0:24:24	48	% P2O5	250	lb/a	Preplant														
7	HM9754A	75		10	lb/a	Preplant	# a	8.6 a	0.3 a	4.5 ab	71.5 a	0.2 b	292.9 ab	4.2 b	2.4 ab	0.2 b	1.2 ab	262.8 abc	0.2 a	28.4 a
	0:24:24	48	% P2O5	0	lb/a	Preplant														
8	HM9754A	75		10	lb/a	Preplant	7 b	6.6 a	0.3 a	4.6 ab	81.1 a	0.2 b	275.3 ab	4.7 b	2.4 ab	0.2 b	1.2 ab	165.6 bc	0.2 a	26.8 a
	0:24:24	48	% P2O5	250	lb/a	Preplant														
9	HM9754A	75		40	lb/a	Preplant	6 b	6.9 a	0.3 a	4.6 ab	74.3 a	0.2 b	295.4 ab	4.4 b	2.3 b	0.2 b	1.2 ab	208.9 abc	0.2 a	29.4 a
	0:24:24	48	% P2O5	0	lb/a	Preplant														
10	HM9754A	75		40	lb/a	Preplant	7 b	7 a	0.2 a	4.8 ab	120 a	0.2 b	275.1 ab	4.2 b	2.3 ab	0.2 b	1.3 a	123.2 c	0.2 a	27.8 a
	0:24:24	48	% P2O5	250	lb/a	Preplant														
11	Huma-Cal Plus	10		2	qt/a	Preplant	9 ab	8.2 a	0.2 a	5 ab	51.3 a	86.4 a	218.6 b	68.8 a	2.8 a	0.7 a	1 b	153.1 bc	49.3 a	21 a
	0:24:24	48	% P2O5	0	lb/a	Preplant														
12	Huma-Cal Plus	10		2	qt/a	Preplant	7 b	7.3 a	0.2 a	4.5 ab	72.8 a	0.2 b	289.5 ab	4.2 b	2.3 b	0.2 b	1.2 ab	180.6 abc	0.2 a	26.6 a
	0:24:24	48	% P2O5	250	lb/a	Preplant														
13	Nontreated						6 b	7.4 a	0.2 a	3.9 b	58.7 a	0.2 b	262.5 ab	4.2 b	2.3 b	0.2 b	1.1 ab	256.7 abc	0.2 a	27.6 a
	0:24:24	48	% P2O5	0	lb/a	Preplant														
14	Nontreated						7 b	8.1 a	0.2 a	4.8 ab	97.4 a	0.2 b	288 ab	4.5 b	2.3 ab	0.2 b	1.2 ab	154.4 bc	0.2 a	28.2 a
	0:24:24	48	% P2O5	250	lb/a	Preplant														
LSD (P=.05)							5.98	2.06	0.05	1.03	59.74	65.84	68.76	48.74	0.42	0.36	0.23	168.73	57.00	9.22
Standard Deviation							4.18	1.44	0.03	0.72	41.81	46.08	48.12	34.11	0.30	0.26	0.16	118.07	39.88	6.45
CV							56.03	19.65	13.28	15.54	52.80	728.69	17.09	375.36	12.36	96.17	13.98	58.48	395.61	24.68
Replicate F							0.906	0.684	3.487	1.224	0.451	1.002	3.024	1.218	2.959	1.221	0.062	1.488	3.463	3.654
Replicate Prob(F)							0.447	0.5669	0.0246	0.3138	0.7177	0.4024	0.041	0.316	0.044	0.3151	0.9797	0.2329	0.0253	0.0205
Treatment F							1.083	1.056	0.619	1.248	0.88	1	0.769	1.017	0.816	1.031	0.85	1.732	1	0.836
Treatment Prob(F)							0.401	0.4224	0.823	0.2849	0.5791	0.4696	0.6859	0.455	0.6405	0.4428	0.6076	0.0925	0.4696	0.6213

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Loveland Products Study.

Experiment number ..... : 06-VP-08

Site and design ..... :
- **Location/Cooperator** ..... : Vermilion Parish/Lounsberry Farm
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.62
- **pH** ..... : 5.4
- **Extractable nutrients** ..... : P-22; K-101; Ca-1413; Mg-261; Na-33; S-8; Zn-2.1; Ca-1.7 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded/March 15
- **Seeding rate/depth** ..... : 33 seeds/ft^2/1 in
- **Emergence date** ..... : April 3
- **Harvest date** ..... : August 2

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24+ 2.8 Zn, March 15
165 lb N/A 46-0-0, April 20
90 lb N/A 46-0-0, August 9 (ratoon)

Water management ..... :
- **Flush** ..... : March 24, April 4 and 13
- **Flood** ..... : April 22
- **Drain** ..... : July 17

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Stam + 1 oz/A Londax, April 11
  3 qt/A Arrosolo, April 20
- **Insecticides** ..... : 4 oz/A Mustang Max, April 27
- **Fungicides** ..... : 12 oz/A Quadris, June 12

Table 34. Loveland Products Study.

Crop Name					Rice	Rice	Rice	Rice	Rice
Rating Date						7/27/2006	8/2/2006	10/31/2006	
Rating Data Type					50% Head	Height	Yield	Yield	Yield
Rating Unit					Days	inches	lb/A	lb/A	lb/A
Crop Stage						Main	Main	Ratoon	Total
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage				
1	Awaken	10	2	qt/a	Tillering	98 a	35 a	9165 a	1564 a	10729 a
	Awaken	10	2	qt/a	PD					
2	LI 6136	10	1	qt/a	Tillering	98 a	36 a	9226 a	1395 a	10620 a
	LI 6136	10	1	qt/a	PD					
3	LI 6136	10	2	qt/a	Tillering	98 a	36 a	9175 a	1718 a	10893 a
	LI 6136	2	2	qt/a	PD					
4	Radiate	60	2	oz wt/a	Tillering	99 a	35 a	9165 a	1483 a	10648 a
	Validate	60	2	oz wt/a	PD					
5	Nontreated					98 a	35 a	9306 a	1608 a	10914 a
LSD (P=.05)						0.6	1.4	302.5	391.8	461.0
Standard Deviation						0.4	0.7	196.4	254.3	299.2
CV						0.4	2.0	2.1	16.4	2.8
Replicate F						16	1.161	3.221	8.756	12.533
Replicate Prob(F)						0.0002	0.3608	0.0613	0.0024	0.0005
Treatment F						1.235	1.484	0.383	0.933	0.83
Treatment Prob(F)						0.3473	0.2937	0.8166	0.4773	0.5312

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

RiceTec Hybrid Nitrogen Validation Studies (Rice Research Station).

Experiment number ..... : 06-CS-09 to 06-CS-11

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.33
- **pH** ..... : 7.0
- **Extractable nutrients** ..... : P-11; K-103; Ca-1,352; Mg-311; Na-126; S-10; Zn-5.0; Cu-1.8 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 28
- **Seeding rate/depth** ..... : Hybrid, 14 seed/ft^2; Commercial, 40 seed/ft^2/1/2 in
- **Emergence date** ..... : April 16
- **Harvest date** ..... : August 8

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 28
90 lb N/A 46-0-0, August 15 (ratoon)

Water management ..... :
- **Flush** ..... : April 3, 11, and 18
- **Flood** ..... : May 11
- **Drain** ..... : July 20

Pest management ..... :
- **Herbicides** ..... : 3qt/A Propanil + 1.5pt/A Basagran, April 17
1 gal/A Arrosolo + 2.1 pt/A Prowl + 1.3 oz/A Permit, May 10
22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, March 27
- **Fungicides** ..... : None

Table 35. RiceTec XL723 Nitrogen Validation 3.1 (Rice Research Station).

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date						8/3/2006	8/8/2006	11/13/2006			
Rating Data Type					50% Head	Height	Yield	Yield	Yield	Whole Mill	Total Mill
Rating Unit					days	inches	lb/A	lb/A	lb/A	%	%
Crop Stage					Main	Main	Main	Ratoon	Total	Main	Main
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage							
1	Urea	90	lb ai/a	Preflood	94 b	40 ab	10991 a	2366 a	13357 a	55 abc	68 b
	Urea	0	lb ai/a	5% heading							
2	Urea	90	lb ai/a	Preflood	94 b	39 ab	11248 a	2312 a	13560 a	54 abc	68 b
	Urea	30	lb ai/a	5% heading							
3	Urea	90	lb ai/a	Preflood	94 b	38 b	10437 a	1878 a	12315 a	54 abc	68 b
	Urea	60	lb ai/a	5% heading							
4	Urea	120	lb ai/a	Preflood	94 b	40 ab	11372 a	2296 a	13668 a	54 abc	68 b
	Urea	0	lb ai/a	5% heading							
5	Urea	120	lb ai/a	Preflood	94 b	41 ab	11210 a	2347 a	13557 a	56 a	68 b
	Urea	30	lb ai/a	5% heading							
6	Urea	120	lb ai/a	Preflood	94 b	40 ab	11092 a	2234 a	13325 a	55 abc	69 ab
	Urea	60	lb ai/a	5% heading							
7	Urea	90	lb ai/a	Preflood	94 b	40 ab	11222 a	2516 a	13738 a	55 ab	67 b
	Urea	30	lb ai/a	PD							
8	Urea	90	lb ai/a	Preflood	94 b	40 ab	11664 a	2322 a	13985 a	56 ab	68 b
	Urea	30	lb ai/a	PD							
	Urea	30	lb ai/a	5% heading							
9	Urea	120	lb ai/a	Preflood	94 b	41 ab	11514 a	2302 a	13816 a	52 abc	67 b
	Urea	30	lb ai/a	PD							
10	Urea	150	lb ai/a	Preflood	95 b	41 a	11647 a	2394 a	14041 a	55 ab	68 b
11	Nontreated				92 c	34 c	7219 b	1969 a	9188 b	51 c	68 b
12	Cheniere				98 a	33 c	8058 b	756 b	8814 b	52 bc	70 a
	Urea	120	lb ai/a	Preflood							
	Urea	30	lb ai/a	PD							
LSD (P=.05)					1.3	2.1	1266.0	617.6	1601.9	3.6	1.3
Standard Deviation					0.9	1.2	876.8	427.7	1109.4	1.6	0.6
CV					1.0	3.2	8.2	20.0	8.7	3.0	0.9
Replicate F					1.66	1.478	0.94	2.799	1.696	0.722	0.794
Replicate Prob(F)					0.1945	0.25	0.4323	0.0553	0.1869	0.4135	0.3919
Treatment F					9.018	12.716	10.943	4.842	10.788	1.933	2.536
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0002	0.0001	0.1447	0.069

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 36. RiceTec CL XL730 Nitrogen Validation 2.1 (Rice Research Station).

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date						8/3/2006	8/8/2006	11/13/2006			
Rating Data Type					50% Head	Height	Yield	Yield	Yield	Whole Mill	Total Mill
Rating Unit					days	inches	lb/A	lb/A	lb/A	%	%
Crop Stage					Main	Main	Main	Ratoon	Total	Main	Main
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage							
1	Urea	90	lb ai/a	Preflood	94 bc	41 ab	10129 abc	1849 bc	11978 b	54 a	70 ab
	Urea	0	lb ai/a	5% heading							
2	Urea	90	lb ai/a	Preflood	94 bc	40 ab	10598 abc	2021 abc	12619 ab	51 ab	71 a
	Urea	30	lb ai/a	5% heading							
3	Urea	90	lb ai/a	Preflood	93 cd	39 ab	10254 abc	2404 a	12659 ab	53 a	68 bc
	Urea	60	lb ai/a	5% heading							
4	Urea	120	lb ai/a	Preflood	94 bc	40 ab	11019 a	2349 ab	13368 a	52 ab	67 c
	Urea	0	lb ai/a	5% heading							
5	Urea	120	lb ai/a	Preflood	94 bc	38 b	9855 c	2047 abc	11902 b	51 ab	67 c
	Urea	30	lb ai/a	5% heading							
6	Urea	120	lb ai/a	Preflood	93 cd	41 ab	10533 abc	2400 a	12933 ab	49 ab	68 abc
	Urea	60	lb ai/a	5% heading							
7	Urea	90	lb ai/a	Preflood	93 cd	39 ab	10011 bc	1735 c	11746 b	54 a	68 abc
	Urea	30	lb ai/a	PD							
8	Urea	90	lb ai/a	Preflood	93 cd	39 ab	9899 c	1854 bc	11753 b	53 a	68 bc
	Urea	30	lb ai/a	PD							
	Urea	30	lb ai/a	5% heading							
9	Urea	120	lb ai/a	Preflood	94 bc	41 ab	10900 ab	1831 bc	12731 ab	52 ab	68 bc
	Urea	30	lb ai/a	PD							
10	Urea	150	lb ai/a	Preflood	95 b	42 a	10675 abc	2066 abc	12742 ab	52 ab	68 bc
11	Nontreated				92 d	34 c	6581 e	1908 abc	8490 c	46 b	69 abc
12	Cheniere				98 a	34 c	7803 d	703 d	8506 c	49 ab	68 abc
	Urea	120	lb ai/a	Preflood							
	Urea	30	lb ai/a	PD							
LSD (P=.05)					1.1	3.1	813.2	460.3	1058.2	6.7	2.1
Standard Deviation					0.8	1.8	563.2	318.8	732.9	3.0	1.0
CV					0.8	4.7	5.7	16.5	6.2	5.9	1.4
Replicate F					0.594	1.723	1.882	11.705	6.386	0.254	1.652
Replicate Prob(F)					0.6236	0.2018	0.1518	0.0001	0.0016	0.6239	0.2251
Treatment F					14.816	6.078	22.149	7.976	19.471	1.333	2.388
Treatment Prob(F)					0.0001	0.0002	0.0001	0.0001	0.0001	0.3208	0.0823

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 37. RiceTec CL XP729 Nitrogen Validation 1.1(Rice Research Station).

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date					8/3/2006	8/9/2006	11/13/2006			
Rating Data Type				50% Head	Height	Yield	Yield	Yield	Whole Mill	Total Mill
Rating Unit				days	inches	lb/A	lb/A	lb/A	%	%
Crop Stage				Main	Main	Main	Ratoon	Total	Main	Main
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage						
1	Urea	90	lb ai/a	Preflood	94 cd	38 a	8756 b	2698 b	11454 b	51 de	69 a-e
	Urea	0	lb ai/a	5% heading							
2	Urea	90	lb ai/a	Preflood	94 cd	37 a	9725 ab	3267 a	12992 a	51 de	68 b-e
	Urea	30	lb ai/a	5% heading							
3	Urea	90	lb ai/a	Preflood	94 cd	35 ab	9063 ab	3190 ab	12253 ab	55 abc	70 ab
	Urea	60	lb ai/a	5% heading							
4	Urea	120	lb ai/a	Preflood	95 b	36 ab	9822 ab	2983 ab	12805 ab	52 bcd	68 cde
	Urea	0	lb ai/a	5% heading							
5	Urea	120	lb ai/a	Preflood	94 cd	38 a	9838 ab	3343 a	13181 a	56 a	69 abc
	Urea	30	lb ai/a	5% heading							
6	Urea	120	lb ai/a	Preflood	94 d	37 a	9224 ab	2879 ab	12102 ab	56 ab	70 a
	Urea	60	lb ai/a	5% heading							
7	Urea	90	lb ai/a	Preflood	94 cd	39 a	10154 ab	3013 ab	13166 a	53 a-d	69 a-e
	Urea	30	lb ai/a	PD							
8	Urea	90	lb ai/a	Preflood	94 cd	39 a	9880 ab	3294 a	13174 a	55 ab	69 a-d
	Urea	30	lb ai/a	PD							
	Urea	30	lb ai/a	5% heading							
9	Urea	120	lb ai/a	Preflood	94 cd	37 a	10089 ab	2984 ab	13073 a	53 a-d	69 a-e
	Urea	30	lb ai/a	PD							
10	Urea	150	lb ai/a	Preflood	95 c	38 a	10323 a	3318 a	13642 a	53 a-d	68 de
11	Nontreated				92 e	32 b	5703 c	3264 a	8968 c	49 e	68 e
12	Cheniere				98 a	32 b	6859 c	772 c	7631 c	52 cde	69 a-e
	Urea	120	lb ai/a	Preflood							
	Urea	30	lb ai/a	PD							
LSD (P=.05)					0.5	3.5	1283.1	493.2	1382.3	3.0	1.2
Standard Deviation					0.3	2.1	888.6	341.6	957.3	1.4	0.6
CV					0.4	5.7	9.7	11.7	8.0	2.6	0.8
Replicate F					0.478	0.058	0.739	7.055	2.646	3.106	0.845
Replicate Prob(F)					0.6996	0.9434	0.5366	0.0009	0.0653	0.1057	0.3778
Treatment F					64.957	3.448	10.287	17.054	15.177	5.196	2.65
Treatment Prob(F)					0.0001	0.0065	0.0001	0.0001	0.0001	0.0055	0.0605

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

RiceTec Hybrid Nitrogen Validation Studies (Richland Parish).

Experiment number ..... : 06-RP-08 to 06-RP-10

Site and design ..... :
- **Location/Cooperator** ..... : Richland Parish/Woodsland Plantation/Todd Bridges
- **Tillage type** ..... : Fall Stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Hebert silty clay
- **% organic matter** ..... : 2.18
- **pH** ..... : 5.4
- **Extractable nutrients** ..... : P-24; K-172; Ca-1829; Mg-651; Na-94; S- 22; Zn-1.0; Cu-2.1 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/May 3
- **Seeding rate/depth** ..... : Hybrid- 14 seed/ft^2; Commercial- 40 seed/ft^2/.75 in
- **Emergence date** ..... : May 12
- **Harvest date** ..... : September 12

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 100 lb/A DAP, April

Water management ..... :
- **Flush** ..... : May 4 and 22
- **Flood** ..... : June 6
- **Drain** ..... : August 30

Pest management ..... :
- **Herbicides** ..... : 1 qt/A Roundup + 16 oz/A Command 3ME, May 4
  1 gal/A Duet + 1 pt/A Grandstand, June 5
  15 oz/A Clincher + 2 qt/A Crop oil, June 27
- **Insecticides** ..... : 1.8 oz/A Karate Z, July 19 and August 2
- **Fungicides** ..... : 14 oz/A Quilt, July 19

Table 38. RiceTec XL723 Nitrogen Validation 3.2 (Richland Parish).

Crop Name				Rice	Rice	Rice	Rice	Rice
Rating Date					9/12/2006	9/12/2006		
Rating Data Type				50% Head	Height	Yield	Whole Mill	Total Mill
Rating Unit				days	in	lb/A	%	%
Crop Stage				Main	Main	Main	Main	Main
No. Name	Rate	Unit	Stage					
1 Urea	90	lb ai/a	Preflood	87 cd	40 a	11305 bc	59 b	71 ab
Urea	0	lb ai/a	5% heading					
2 Urea	90	lb ai/a	Preflood	88 cd	41 a	11677 abc	60 b	71 ab
Urea	30	lb ai/a	5% heading					
3 Urea	90	lb ai/a	Preflood	88 c	41 a	11250 c	63 ab	72 a
Urea	60	lb ai/a	5% heading					
4 Urea	120	lb ai/a	Preflood	88 c	42 a	12043 abc	60 b	71 ab
Urea	0	lb ai/a	5% heading					
5 Urea	120	lb ai/a	Preflood	88 c	42 a	12020 abc	62 ab	72 ab
Urea	30	lb ai/a	5% heading					
6 Urea	120	lb ai/a	Preflood	88 c	42 a	11887 abc	67 a	39 b
Urea	60	lb ai/a	5% heading					
7 Urea	90	lb ai/a	Preflood	87 cd	41 a	12036 abc	61 b	70 ab
Urea	30	lb ai/a	PD					
8 Urea	90	lb ai/a	Preflood	87 d	41 a	12258 a	62 ab	70 ab
Urea	30	lb ai/a	PD					
Urea	30	lb ai/a	5% heading					
9 Urea	120	lb ai/a	Preflood	87 cd	41 a	12216 ab	60 b	70 ab
Urea	30	lb ai/a	PD					
10 Urea	150	lb ai/a	Preflood	90 b	42 a	12093 abc	63 ab	71 ab
11 Nontreated				82 e	33 b	7211 e	51 c	67 ab
12 Cheniere				93 a	36 b	9209 d	64 ab	72 a
Urea	120	lb ai/a	Preflood					
Urea	30	lb ai/a	PD					
LSD (P=.05)				1.0	3.2	805.1	4.9	28.8
Standard Deviation				0.7	1.9	557.6	2.2	13.1
CV				0.8	4.7	5.0	3.7	19.3
Replicate F				13.891	4.44	1.392	1.587	0.972
Replicate Prob(F)				0.0001	0.024	0.2624	0.2338	0.3454
Treatment F				54.497	6.437	29.905	5.928	0.974
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0032	0.5168

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 39. RiceTec CL XL730 Nitrogen Validation 2.2 (Richland Parish).

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date					9/12/2006	9/12/2006	9/12/2006	9/12/2006		
Rating Data Type				50% Head	Height	Ldg-Rate	Ldg-Type	Yield	Whole Mill	Total Mill
Rating Unit				days	in	%	1-5	lb/A	%	%
Crop Stage				Main	Main	Main	Main	Main	Main	Main
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage						
1	Urea	90	lb ai/a	Preflood	89 bc	42 a	.	.	11073 a	58 b	70 ab
	Urea	0	lb ai/a	5% heading							
2	Urea	90	lb ai/a	Preflood	89 bc	42 a	.	.	11209 a	60 ab	70 ab
	Urea	30	lb ai/a	5% heading							
3	Urea	90	lb ai/a	Preflood	89 bc	44 a	50	1	11507 a	62 ab	71 a
	Urea	60	lb ai/a	5% heading							
4	Urea	120	lb ai/a	Preflood	89 bc	42 a	30	1	11529 a	61 ab	69 b
	Urea	0	lb ai/a	5% heading							
5	Urea	120	lb ai/a	Preflood	89 bc	43 a	30	3	11471 a	61 ab	71 ab
	Urea	30	lb ai/a	5% heading							
6	Urea	120	lb ai/a	Preflood	89 bc	42 a	.	.	11714 a	61 ab	71 a
	Urea	60	lb ai/a	5% heading							
7	Urea	90	lb ai/a	Preflood	90 bc	42 a	.	.	11658 a	60 b	70 ab
	Urea	30	lb ai/a	PD							
8	Urea	90	lb ai/a	Preflood	88 c	42 a	73	1	11747 a	62 ab	71 a
	Urea	30	lb ai/a	PD							
	Urea	30	lb ai/a	5% heading							
9	Urea	120	lb ai/a	Preflood	89 bc	43 a	55	2	11411 a	61 ab	71 ab
	Urea	30	lb ai/a	PD							
10	Urea	150	lb ai/a	Preflood	90 b	42 a	45	2	11941 a	60 ab	70 ab
11	Nontreated				83 d	35 b	.	.	8061 b	50 c	67 c
12	Cheniere				92 a	35 b	.	.	8655 b	64 a	72 a
	Urea	120	lb ai/a	Preflood							
	Urea	30	lb ai/a	PD							
LSD (P=.05)					1.5	3.4	.	.	950.6	3.7	1.4
Standard Deviation					1.0	2.0	.	.	658.3	1.7	0.7
CV					1.1	4.9	.	.	6.0	2.8	0.9
Replicate F					7.786	2.054			6.751	5.088	3.539
Replicate Prob(F)					0.0005	0.1521			0.0011	0.0454	0.0867
Treatment F					17.539	6.425			14.684	8.207	6.471
Treatment Prob(F)					0.0001	0.0001			0.0001	0.0008	0.0022

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 40. RiceTec CL XP729 Nitrogen Validation 1.2 (Richland Parish).

Crop Name					Rice	Rice	Rice	Rice	Rice
Rating Date						9/12/2006	9/12/2006		
Rating Data Type					50% Head	Height	Yield	Whole Mill	Total Mill
Rating Unit					days	in	lb/A	%	%
Crop Stage					Main	Main	Main	Main	Main
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage					
1	Urea	90	lb ai/a	Preflood	88 c	40 a	10440 a	60 c	70 d
	Urea	0	lb ai/a	5% heading					
2	Urea	90	lb ai/a	Preflood	88 c	40 a	11189 a	61 bc	70 bcd
	Urea	30	lb ai/a	5% heading					
3	Urea	90	lb ai/a	Preflood	88 bc	41 a	10633 a	61 bc	71 bc
	Urea	60	lb ai/a	5% heading					
4	Urea	120	lb ai/a	Preflood	89 bc	41 a	11156 a	60 c	70 bcd
	Urea	0	lb ai/a	5% heading					
5	Urea	120	lb ai/a	Preflood	89 bc	40 a	10624 a	61 bc	70 bcd
	Urea	30	lb ai/a	5% heading					
6	Urea	120	lb ai/a	Preflood	88 bc	40 a	10806 a	62 bc	70 bcd
	Urea	60	lb ai/a	5% heading					
7	Urea	90	lb ai/a	Preflood	89 bc	41 a	11371 a	61 bc	70 d
	Urea	30	lb ai/a	PD					
8	Urea	90	lb ai/a	Preflood	88 c	39 a	11589 a	62 b	71 b
	Urea	30	lb ai/a	PD					
	Urea	30	lb ai/a	5% heading					
9	Urea	120	lb ai/a	Preflood	89 bc	39 a	10789 a	61 bc	70 cd
	Urea	30	lb ai/a	PD					
10	Urea	150	lb ai/a	Preflood	89 b	39 a	11571 a	60 c	70 d
11	Nontreated				83 d	35 b	8888 b	49 d	66 e
12	Cheniere				92 a	32 c	10257 a	64 a	72 a
	Urea	120	lb ai/a	Preflood					
	Urea	30	lb ai/a	PD					
LSD (P=.05)					1.3	1.9	1340.5	1.6	0.7
Standard Deviation					0.9	1.1	928.4	0.7	0.3
CV					1.0	2.9	8.6	1.2	0.5
Replicate F					15.357	5.467	1.098	4.717	1.063
Replicate Prob(F)					0.0001	0.0118	0.364	0.0526	0.3248
Treatment F					18.19	17.406	2.511	54.884	34.424
Treatment Prob(F)					0.0001	0.0001	0.0202	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

CULTURAL MANAGEMENT EXPERIMENTS

D.L. Harrell, J.P. Leonards, R.P. Regan, and D.M. Walker

Rice Seeding Rate

A study was initiated to investigate the interaction between seeding rate and nitrogen (N) rate in a drill-seeded system for three rice cultivars: Cheniere, CL131, and Wells. Seeding rates included in the study were 7.5, 15, 30, and 60 seeds/ft^2. Nitrogen rates were 60, 120, and 180 lb/A applied as urea prior to permanent flood establishment. This study was conducted at the Rice Research Station in Crowley, as well as at an off-station location in Morehouse Parish. At the Rice Research Station, main crop grain yields for Cheniere and CL131 were optimized at 15 seeds/ft^2 and 180 lb N/A, while Wells was optimized at a lower seeding rate of 7.5 seeds/ft^2 and 180 lb N/A. At the Morehouse Parish site, Wells and Cheniere were both optimized at 15 seeds/ft^2 and 180 lb N/A, while CL131 was optimized at 30 seeds/ft^2 and 180 lb N/A. In general, as seeding rates increased, stand densities increased and less N was required to obtain statistically equivalent main crop grain yields for all varieties evaluated.

Two trials were initiated to investigate the interaction of early-season N application rates and four seeding rate in a drill-seeded system. Two varieties, Cheniere and Wells, were used in the study. Seeding rates were 7.5, 15, 30, and 60 seeds/ft^2. Nitrogen was applied as ammonium sulfate at the 1- to 2-leaf growth stage at two different rates, 0 and 21 lb/A. The trial was conducted at the Rice Research Station and at an on-farm location in Morehouse Parish. Application of early-season N did not significantly increase main crop grain yields at either location. Seeding rates of 15 seeds/ft^2 were determined to be the optimum seeding rate for both Cheniere and Wells at both locations.

Seeding rates were evaluated in a drill-seeded system at the Rice Research Station. Two varieties (CL131 and Trenasse) and five seeding rates (10, 20, 30, 40, and 50 seeds/ft^2) were used in the study. Grain yields were optimized at 20 and 30 seeds/ft^2 for CL131 and Trenasse, respectively.

Seeding rates in a water-seeded system were also evaluated at the Rice Research Station. Two varieties (CL131 and Trenasse) and five seeding rates (30, 40, 50, 60, and 70 seeds/ft^2) were used in the study. Optimum grain yields were obtained at 50 and 40 seeds/ft^2 for CL131 and Trenasse, respectively.

Ratoon Crop Management

Two studies were conducted to evaluate the effects of main crop stubble manipulation on ratoon rice crop yields. Stubble management practices included cutting the main crop rice at the traditional height, cutting at a lower height of 12 inches, cutting at a traditional height followed by rolling of the stubble, and cutting followed by flail-mowing of the stubble. Two commercial varieties were used in the first study, Cocodrie and Trenasse, and two hybrid varieties, XP723 and CLXL8, were used in the second. Stubble management practices did not increase grain yields as compared with the traditional harvesting procedures. Furthermore, when 12-inch cutting, flail-mowing, and rolling were used, days to 50% heading for XP723 was increased by approximately 5, 8, and 10 days, respectively.

A study evaluating the ratoon yield response to main crop cutting height in both a water- and drill-seeded cultural management system was established at the Rice Research Station South Farm. Two varieties, Cocodrie and Trenasse, and two cutting heights, 6 and 20 inches, were used in the study. Due to lodging and heavy rutting which occurred at main crop harvest, the water-seeded portion of this study was compromised. In the drill-seeded portion of the study, the 6-inch cutting height statistically increased days to 50% heading in both varieties. Nonetheless, a statistically higher ratoon grain yield was obtained by the lower cutting height for the Cocodrie variety. Grain yields were also increased for the Trenasse variety using the lower cutting height, however, the increase was not statistically significant.

A study was established to evaluate multiple ratoon rice weed management strategies. Herbicides evaluated included Grandstand R, 2,4-D Amine, Basagran, Permit, and Grasp. Two varieties, Cocodrie and Trenasse, were used in the experiment. All treatments provided 100% control in the experimental plots. No yield differences were seen among treatments.

Miscellaneous Cultural Management Experiments

A crop rotation study was established in 2005 at the Rice Research Station South Unit. Rice rotations included in the study were rice-rice, rice-soybean, rice-grain sorghum, and rice-fallow. Two tillage systems, no-till and conventional till, were also included in the study. In 2006, the rice grain yields from the rice-rice rotation was approximately 5,653 and 5,472 lb/A for the no-till and conventional tillage systems, respectively. These yields were much lower than the 8,000 lb/A average that was seen in 2005. Changes in the soil chemical and physical properties will be evaluated on a multi-year basis following the conclusion of this long-term experiment.

Experiments were conducted at the Rice Research Station and at on-farm sites in Vermilion, Evangeline, Morehouse, and Richland parishes to compare grain yields of rice varieties and hybrids. Hybrids in the study included two Clearfield hybrids, CLXL729 and CLXL730, and two Clearfield varieties, CL131 and CL161. Other non-Clearfield varieties and hybrids included in the study were XL723, Presidio, Wells, Cocodrie, Trenasse, and Cheniere. The hybrid CLXL730 was the highest yielding Clearfield variety/hybrid in three of the four trials. The hybrid XL723 out yielded all non-Clearfield varieties in four of the five trials.

A trial was conducted to evaluate Valor rate in a Valor/Roundup tank mix in a drill seeded stale seedbed system. Time of application was also evaluated. Burndown applications were applied at 30, 15, or 0 days prior to planting. Two rates of Valor, 1 and 2 oz/A, were used in the experiment and tank-mixed with Roundup Weathermax at rate of 23 oz/A. A non-treated control and a tillage treatment were also included in the study for comparisons. All burndown time by rate combinations out yielded the non-treated control. The 1 oz/A Valor/Roundup combination applied at 15 days prior to planting out yielded all other time by rate combinations.

Another related study evaluated the tolerance of rice varieties to the Grasp herbicide. The trial was conducted at the Rice Research Station, as well as at an on-farm location in Morehouse Parish. The two Grasp rates used were 0 and 3.96 oz/A. Varieties and hybrids evaluated included Cocodrie, Cheniere, Trenasse, Bengal, Jupiter, CL161, CL131, Cybonnet, Pirogue, and XL723. Days to 50% heading, height at harvest, and yield were determined. Grain yields of all varieties and hybrids tested were equivalent following application of Grasp at the 3.96 oz/A rate, which corresponds to two times the labeled application rate.

Rice Response to Seeding and Nitrogen Rates 2.1 (Rice Research Station).

Experiment number ..... : 06-CM-01

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.13
- **pH** ..... : 6.8
- **Extractable nutrients** ..... : P-9; K-78; Ca-1386; Mg-289; Na-85; S-8; Zn-3.1; Cu-1.8 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : Variable/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 31

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
90 lb N/A 46-0-0, August 3

Water management ..... :
- **Flush** ..... : March 23, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 10

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 41. Rice Response to Seeding and Nitrogen Rates 2.1 (Rice Research Station).

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date			4/10/2006		7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006		10/25/2006	
Rating Data Type			Density	50% Head	Height	Yield	WP dry wt.	Panicle #	Grain wt.	10 P wt.	10 P seed	Milling	Yield	Yield
Rating Unit			pl/sq. m	Days	inches	lbs./A	grams		grams	grams	number	total	lb/A	lb/A
Crop Stage			2-3 leaf		Main	Main	Maturity	Maturity	Maturity	Maturity	Maturity	Main	Ratoon	Total
Trt No.	Treatment Name	Rate	Rate Unit											
1	Cheniere 7.5 seeds/sq ft			65 f-i	96 e-h	31 i-l	5779 s	408 klm	101 gh	193 fgh	28 a	1245 a	89 ab	356 r	6135 p
	Urea	60	lb ai/a												
2	Cheniere 7.5 seeds/sq ft			51 i	98 a-d	32 g-j	7055 m-p	429 i-m	93 h	211 d-h	27 ab	1213 ab	89 ab	436 qr	7492 mno
	Urea	120	lb ai/a												
3	Cheniere 7.5 seeds/sq ft			73 f-i	99 a	35 b-e	8010 c-j	521 c-k	120 d-h	245 a-h	24 a-f	1156 abc	88 ab	499 pqr	8509 h-k
	Urea	180	lb ai/a												
4	Cheniere 15 seeds/sq ft			103 f-i	94 k-n	30 j-m	6458 p-s	426 i-m	113 e-h	192 fgh	23 a-f	986 a-e	89 ab	720 n-r	7178 no
	Urea	60	lb ai/a												
5	Cheniere 15 seeds/sq ft			108 f-i	97 c-f	32 f-i	7718 g-m	519 c-k	127 c-h	247 a-g	22 a-g	1033 a-d	89 ab	628 o-r	8346 i-l
	Urea	120	lb ai/a												
6	Cheniere 15 seeds/sq ft			121 fg	98 b-e	34 c-g	8510 a-e	587 a-e	138 c-g	264 a-d	25 abc	1224 ab	88 ab	828 m-q	9338 c-g
	Urea	180	lb ai/a												
7	Cheniere 30 seeds/sq ft			251 de	94 l-o	29 lmn	6795 n-q	464 f-m	134 c-g	240 a-h	19 c-i	847 d-i	88 ab	945 k-o	7740 l-o
	Urea	60	lb ai/a												
8	Cheniere 30 seeds/sq ft			233 e	95 i-m	32 h-k	8042 c-j	530 c-j	122 c-h	260 a-d	21 a-i	859 d-i	90 a	1169 i-m	9211 d-h
	Urea	120	lb ai/a												
9	Cheniere 30 seeds/sq ft			244 de	97 e-h	34 c-h	8450 a-f	521 c-k	143 c-f	232 c-h	21 a-h	1031 a-d	87 ab	1190 i-m	9640 c-f
	Urea	180	lb ai/a												
10	Cheniere 60 seeds/sq ft			487 a	92 p	29 mn	7367 j-n	497 d-m	150 a-f	249 a-g	21 a-h	913 c-h	89 ab	1343 h-k	8710 g-j
	Urea	60	lb ai/a												
11	Cheniere 60 seeds/sq ft			440 ab	94 l-o	31 i-l	7983 d-j	487 d-m	137 c-g	237 b-h	18 c-i	824 d-i	90 a	1731 e-h	9714 cde
	Urea	120	lb ai/a												

Table 41. Continued.

Trt No.	Treatment Name	Rate	Rate Unit	Crop Name	Rating Date	Rating Data Type	Rating Unit	Crop Stage	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
					4/10/2006		7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006		10/25/2006		
					Density	50% Head	Height	Yield	WP dry wt.	Panicle #	Grain wt.	10 P wt.	10 P seed	Milling	Yield	Yield
					pl/sq. m	Days	inches	lbs./A	grams		grams	grams	number	total	lb/A	lb/A
					2-3 leaf		Main	Main	Maturity	Maturity	Maturity	Maturity	Maturity	Main	Ratoon	Total
12	Cheniere				429 abc	95 h-k	33 e-i	8399 a-g	545 b-i	152 a-f	233 c-h	21 a-i	971 b-f	87 ab	1343 h-k	9742 cde
	60 seeds/sq ft															
	Urea	180	lb ai/a													
13	CL131				52 i	94 j-n	29 mn	5777 s	383 m	122 c-h	186 h	17 e-i	764 d-i	88 ab	545 o-r	6321 p
	7.5 seeds/sq ft															
	Urea	60	lb ai/a													
14	CL131				53 hi	97 c-f	30 klm	6587 o-r	500 d-m	144 c-f	249 a-g	19 c-i	789 d-i	90 ab	732 n-r	7319 no
	7.5 seeds/sq ft															
	Urea	120	lb ai/a													
15	CL131				67 f-i	98 abc	31 i-l	7552 h-m	520 c-k	148 b-f	252 a-f	23 a-f	1041 a-d	89 ab	504 pqr	8056 j-m
	7.5 seeds/sq ft															
	Urea	180	lb ai/a													
16	CL131				107 f-i	93 op	27 no	6162 qrs	396 lm	129 c-h	198 e-h	15 ghi	684 ghi	87 b	924 l-o	7086 o
	15 seeds/sq ft															
	Urea	60	lb ai/a													
17	CL131				98 f-i	95 i-l	29 mn	7396 i-n	492 d-m	137 c-g	239 a-h	19 c-i	848 d-i	89 ab	1081 i-n	8476 h-k
	15 seeds/sq ft															
	Urea	120	lb ai/a													
18	CL131				128 f	97 cde	31 ijk	7916 e-k	520 c-k	162 abc	239 a-h	19 c-i	888 c-h	89 ab	882 m-p	8797 ghi
	15 seeds/sq ft															
	Urea	180	lb ai/a													
19	CL131				237 de	92 p	25 p	6163 qrs	458 g-m	151 a-f	207 d-h	15 ghi	674 ghi	87 b	1291 i-l	7454 mno
	30 seeds/sq ft															
	Urea	60	lb ai/a													
20	CL131				221 e	94 j-n	28 mn	7778 f-l	503 c-l	163 abc	237 b-h	15 hi	687 f-i	89 ab	1434 g-j	9212 d-h
	30 seeds/sq ft															
	Urea	120	lb ai/a													
21	CL131				221 e	96 f-i	31 i-l	7859 e-k	551 a-h	186 ab	246 a-h	17 f-i	794 d-i	88 ab	1051 j-n	8910 f-i
	30 seeds/sq ft															
	Urea	180	lb ai/a													
22	CL131				412 bc	92 p	25 p	6380 qrs	481 e-m	150 a-f	237 b-h	14 i	591 i	88 ab	1466 f-i	7846 k-n
	60 seeds/sq ft															
	Urea	60	lb ai/a													

Table 41. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date			4/10/2006		7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006		10/25/2006	
Rating Data Type			Density	50% Head	Height	Yield	WP dry wt.	Panicle #	Grain wt.	10 P wt.	10 P seed	Milling	Yield	Yield
Rating Unit			pl/sq. m	Days	inches	lbs./A	grams		grams	grams	number	total	lb/A	lb/A
Crop Stage			2-3 leaf		Main	Main	Maturity	Maturity	Maturity	Maturity	Maturity	Main	Ratoon	Total
Trt No.	Treatment Name	Rate	Rate Unit											
23	CL131			300 d	93 op	26 op	7155 l-o	489 d-m	158 a-d	243 a-h	15 ghi	642 hi	89 ab	1815 efg	8970 f-i
	60 seeds/sq ft														
	Urea	120	lb ai/a												
24	CL131			375 c	95 h-k	30 j-m	8029 c-j	567 a-h	188 a	256 a-e	14 hi	656 hi	89 ab	1396 hij	9425 c-g
	60 seeds/sq ft														
	Urea	180	lb ai/a												
25	Wells			60 ghi	94 k-n	34 c-h	6097 rs	448 h-m	101 gh	211 d-h	25 a-d	955 b-g	89 ab	1732 e-h	7828 k-n
	7.5 seeds/sq ft														
	Urea	60	lb ai/a												
26	Wells			68 f-i	97 cde	36 b	7233 k-o	528 c-k	114 e-h	249 a-g	25 a-d	956 b-g	89 ab	1839 ef	9072 e-i
	7.5 seeds/sq ft														
	Urea	120	lb ai/a												
27	Wells			71 f-i	99 ab	39 a	8702 abc	619 abc	130 c-h	279 abc	24 a-e	973 b-e	88 ab	1293 i-l	9995 bc
	7.5 seeds/sq ft														
	Urea	180	lb ai/a												
28	Wells			120 fgh	93 nop	33 d-i	6275 qrs	420 j-m	111 fgh	192 gh	21 a-i	705 e-i	89 ab	2276 cd	8550 h-k
	15 seeds/sq ft														
	Urea	60	lb ai/a												
29	Wells			110 f-i	96 g-j	35 bcd	7560 h-m	566 a-h	131 c-h	266 a-d	21 a-h	827 d-i	87 ab	2214 cd	9775 cde
	15 seeds/sq ft														
	Urea	120	lb ai/a												
30	Wells			128 f	98 a-d	39 a	8747 ab	655 ab	146 b-f	298 a	20 b-i	844 d-i	87 ab	1909 de	10655 ab
	15 seeds/sq ft														
	Urea	180	lb ai/a												
31	Wells			264 de	92 p	32 f-i	6568 o-r	497 d-m	134 c-g	246 a-h	19 c-i	720 e-i	89 ab	2347 bc	8915 f-i
	30 seeds/sq ft														
	Urea	60	lb ai/a												
32	Wells			249 de	94 l-o	36 bc	8145 b-h	579 a-f	138 c-g	263 a-d	21 a-h	807 d-i	88 ab	2662 ab	10807 a
	30 seeds/sq ft														
	Urea	120	lb ai/a												
33	Wells			235 e	97 c-f	39 a	8651 a-d	662 a	160 a-d	297 ab	19 c-i	779 d-i	87 ab	2240 cd	10891 a
	30 seeds/sq ft														
	Urea	180	lb ai/a												

Table 41. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date			4/10/2006		7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006	7/31/2006		10/25/2006	
Rating Data Type			Density	50% Head	Height	Yield	WP dry wt.	Panicle #	Grain wt.	10 P wt.	10 P seed	Milling	Yield	Yield
Rating Unit			pl/sq. m	Days	inches	lbs./A	grams		grams	grams	number	total	lb/A	lb/A
Crop Stage			2-3 leaf		Main	Main	Maturity	Maturity	Maturity	Maturity	Maturity	Main	Ratoon	Total
Trt No.	Treatment Name	Rate	Rate Unit											
34	Wells 60 seeds/sq ft Urea	60	lb ai/a	395 bc	92 p	31 ijk	7065 m-p	486 e-m	133 c-h	234 c-h	18 e-i	677 ghi	90 ab	2841 a	9906 cd
35	Wells 60 seeds/sq ft Urea	120	lb ai/a	396 bc	93 m-p	34 c-f	8101 b-i	570 a-g	132 c-h	273 abc	18 d-i	706 e-i	89 ab	2555 abc	10656 ab
36	Wells 60 seeds/sq ft Urea	180	lb ai/a	436 abc	97 d-g	38 a	9035 a	607 a-d	155 a-e	273 abc	21 a-h	839 d-i	88 ab	2302 bc	11337 a
LSD (P=.05)				55.8	1.2	1.8	587.8	97.5	33.8	49.0	5.8	230.9	2.4	345.5	633.6
Standard Deviation				34.1	0.9	1.1	419.8	59.7	20.7	30.0	3.5	141.4	1.5	246.8	452.5
CV				16.6	0.9	3.4	5.7	11.7	15.1	12.4	17.7	16.3	1.7	17.6	5.1
Replicate F				3.211	2.194	6.688	1.896	4.274	3.437	4.758	1.085	2.253	4.554	11.633	0.492
Replicate Prob(F)				0.0463	0.0932	0.0022	0.1348	0.0177	0.0377	0.0116	0.3434	0.1127	0.0138	0.0001	0.6884
Treatment F				48.79	26.107	34.898	19.217	3.924	3.196	2.644	3.059	4.441	1.066	31.819	32.028
Treatment Prob(F)				0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.4015	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Response to Seeding and Nitrogen Rates 2.2 (Morehouse Parish).

Experiment number ..... : 06-MP-02

Site and design ..... :
- **Location/Cooperator** ..... : Morehouse Parish/Don Andrews and Roland Crymes
- **Tillage type** ..... : Spring stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Hebert silty clay
- **% organic matter** ..... : 2.79
- **pH** ..... : 6.7
- **Extractable nutrients** ..... : P-20; K-289; Ca-2890; Mg-916; Na-225; S-20; Zn-6.2; Cu-3.4 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/May 16
- **Seeding rate/depth** ..... : Variable/.5 in
- **Emergence date** ..... : May 27
- **Harvest date** ..... : September 25

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : See Treatment sheet

Water management ..... :
- **Flush** ..... : May 22, June 8
- **Flood** ..... : June 15
- **Drain** ..... : September 8

Pest management ..... :
- **Herbicides** ..... : 1 qt Glyphosate, May 17
  4 qt Arrosolo, June 7
  15 oz Clincher, June 30
- **Insecticides** ..... : 2 oz Karate, June 22, August 3 and 18
- **Fungicides** ..... : 12 oz Quadris, August 3

Table 42. Rice Response to Seeding and Nitrogen Rates 2.2 (Morehouse Parish).

Crop Name					Rice	Rice	Rice	Rice	Rice
Rating Date						9/25/2006	9/25/2006		
Rating Data Type					50% Head	Height	Yield	Milling	Milling
Rating Unit					Days	inches	lb/A	Whole	Total
Crop Stage					Main	Main	Main	Main	Main
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage					
1	Cheniere 7.5 seeds/sq ft Urea	60	lb ai/a	Preflood	94 bcd	29 kl	4846 mn	63 i-l	71 lmn
2	Cheniere 7.5 seeds/sq ft Urea	120	lb ai/a	Preflood	94 abc	31 g-j	6258 d-m	70 abc	73 a-h
3	Cheniere 7.5 seeds/sq ft Urea	180	lb ai/a	Preflood	96 a	32 fg	5460 klm	71 a	74 a
4	Cheniere 15 seeds/sq ft Urea	60	lb ai/a	Preflood	91 hi	29 kl	5521 j-m	68 a-e	72 e-l
5	Cheniere 15 seeds/sq ft Urea	120	lb ai/a	Preflood	93 b-f	30 h-k	7051 b-i	69 a-d	73 a-h
6	Cheniere 15 seeds/sq ft Urea	180	lb ai/a	Preflood	95 ab	32 fg	7674 a-d	70 abc	74 a-g
7	Cheniere 30 seeds/sq ft Urea	60	lb ai/a	Preflood	88 klm	29 kl	5790 g-m	66 e-j	71 j-n
8	Cheniere 30 seeds/sq ft Urea	120	lb ai/a	Preflood	90 ij	30 h-k	6985 b-i	69 a-e	73 b-j
9	Cheniere 30 seeds/sq ft Urea	180	lb ai/a	Preflood	93 c-g	32 fgh	7610 a-d	69 a-d	73 a-h
10	Cheniere 60 seeds/sq ft Urea	60	lb ai/a	Preflood	87 mn	28 lmn	5943 f-m	67 b-h	72 h-l
11	Cheniere 60 seeds/sq ft Urea	120	lb ai/a	Preflood	89 kl	29 jkl	6868 b-k	67 a-g	72 h-l

Table 42. Continued.

Crop Name					Rice		Rice		Rice		Rice	Rice
Rating Date							9/25/2006		9/25/2006			
Rating Data Type					50% Head		Height		Yield		Milling	Milling
Rating Unit					Days		inches		lb/A		Whole	Total
Crop Stage					Main		Main		Main		Main	Main
12	Cheniere				92	e-h	31	g-j	7650	a-d	70 abc	74 ab
	60 seeds/sq ft											
	Urea	180	lb ai/a	Preflood								
13	CL131				89	kl	27	mn	3912	n	67 b-h	71 i-m
	7.5 seeds/sq ft											
	Urea	60	lb ai/a	Preflood								
14	CL131				90	ij	29	kl	4957	mn	69 a-e	72 c-k
	7.5 seeds/sq ft											
	Urea	120	lb ai/a	Preflood								
15	CL131				93	d-g	29	kl	5667	i-m	68 a-e	73 a-h
	7.5 seeds/sq ft											
	Urea	180	lb ai/a	Preflood								
16	CL131				86	n	26	mn	5225	lm	69 a-e	72 f-l
	15 seeds/sq ft											
	Urea	60	lb ai/a	Preflood								
17	CL131				89	jk	28	klm	5807	g-m	69 abc	72 d-l
	15 seeds/sq ft											
	Urea	120	lb ai/a	Preflood								
18	CL131				92	f-i	29	kl	7427	b-e	70 ab	74 a-f
	15 seeds/sq ft											
	Urea	180	lb ai/a	Preflood								
19	CL131				84	o	26	mn	5814	g-m	65 f-k	71 k-n
	30 seeds/sq ft											
	Urea	60	lb ai/a	Preflood								
20	CL131				87	lmn	28	klm	7330	b-f	70 abc	72 g-l
	30 seeds/sq ft											
	Urea	120	lb ai/a	Preflood								
21	CL131				90	ij	29	jkl	8897	a	71 a	74 a-d
	30 seeds/sq ft											
	Urea	180	lb ai/a	Preflood								
22	CL131				84	o	26	n	6122	e-m	67 b-h	71 j-n
	60 seeds/sq ft											
	Urea	60	lb ai/a	Preflood								

Table 42. Continued.

Crop Name				Rice		Rice		Rice		Rice		Rice	
Rating Date						9/25/2006		9/25/2006					
Rating Data Type				50% Head		Height		Yield		Milling		Milling	
Rating Unit				Days		inches		lb/A		Whole		Total	
Crop Stage				Main		Main		Main		Main		Main	
23	CL131			86	n	28	lmn	6790	b-k	69	a-e	72	c-k
	60 seeds/sq ft												
	Urea	120 lb ai/a	Preflood										
24	CL131			88	kl	30	i-l	6918	b-j	71	a	74	abc
	60 seeds/sq ft												
	Urea	180 lb ai/a	Preflood										
25	Wells			91	hi	33	ef	5315	lm	61	kl	70	n
	7.5 seeds/sq ft												
	Urea	60 lb ai/a	Preflood										
26	Wells			94	bcd	36	bc	6112	e-m	67	b-h	72	f-l
	7.5 seeds/sq ft												
	Urea	120 lb ai/a	Preflood										
27	Wells			96	a	39	a	7213	b-g	68	a-f	73	a-h
	7.5 seeds/sq ft												
	Urea	180 lb ai/a	Preflood										
28	Wells			89	jk	33	efg	5726	h-m	61	l	70	mn
	15 seeds/sq ft												
	Urea	60 lb ai/a	Preflood										
29	Wells			92	ghi	36	bcd	6588	b-l	67	c-i	73	a-i
	15 seeds/sq ft												
	Urea	120 lb ai/a	Preflood										
30	Wells			94	abc	38	ab	7894	ab	68	a-e	73	a-h
	15 seeds/sq ft												
	Urea	180 lb ai/a	Preflood										
31	Wells			86	n	31	f-i	6181	e-m	63	jkl	71	j-n
	30 seeds/sq ft												
	Urea	60 lb ai/a	Preflood										
32	Wells			89	kl	35	cd	7123	b-h	66	e-j	72	d-l
	30 seeds/sq ft												
	Urea	120 lb ai/a	Preflood										
33	Wells			94	b-e	38	ab	7731	abc	69	a-e	74	a-e
	30 seeds/sq ft												
	Urea	180 lb ai/a	Preflood										

Table 42. Continued.

Crop Name			Rice	Rice	Rice	Rice	Rice
Rating Date				9/25/2006	9/25/2006		
Rating Data Type			50% Head	Height	Yield	Milling	Milling
Rating Unit			Days	inches	lb/A	Whole	Total
Crop Stage			Main	Main	Main	Main	Main
34 Wells			84 o	32 fg	6438 c-l	64 h-l	72 d-l
60 seeds/sq ft							
Urea	60 lb ai/a	Preflood					
35 Wells			87 k-n	34 de	7173 b-g	64 g-l	72 d-l
60 seeds/sq ft							
Urea	120 lb ai/a	Preflood					
36 Wells			91 hi	36 bcd	7842 abc	66 d-j	72 d-l
60 seeds/sq ft							
Urea	180 lb ai/a	Preflood					
LSD (P=.05)			1.4	1.7	1167.3	2.9	1.3
Standard Deviation			1.0	1.0	833.7	1.4	0.7
CV			1.1	3.3	12.8	2.1	0.9
Replicate F			9.534	3.803	0.168	0.986	0.816
Replicate Prob(F)			0.0001	0.0271	0.9177	0.3276	0.3726
Treatment F			42.516	34.874	6.441	6.854	5.826
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Response to Seeding Rate and Early-Season Nitrogen Fertilizer 2.1 (Rice Research Station).

Experiment number ..... : 06-CM-02

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.13
- **pH** ..... : 6.8
- **Extractable nutrients** ..... : P-9; K-78; Ca-1386; Mg-289; Na-85; S-8; Zn-3.1; Cu-1.8 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : Variable/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 31

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
165 lb N/A 46-0-0, April 18
90 lb N/A 46-0-0, August 3

Water management ..... :
- **Flush** ..... : March 23, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 10

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 43. Rice Response to Seeding Rate and Early-Season Nitrogen Fertilizer 2.1 (Rice Research Station).

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date				4/10/2006		7/18/2006	7/31/2006								10/25/2006	
Rating Data Type				Density	50% Head	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P wt.	10 P seed	Milling	Milling	Yield	Yield
Rating Unit				pl/sq. m	Days	inches	lb/A	grams	number	grams	grams	number	whole	total	lb/A	lb/A
Crop Stage				2-3 leaf		Main	Main	Main	Main	Main	Main	Main			Ratoon	Total
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage												
1	Cheniere 7.5 seeds/square foot Ammonium sulfate	0	lb ai/a	1- to 2-leaf	70 c	100 a	34 d	7705 d	521 b	125 cde	245 b	25 ab	1206 a	4 ab	90 ab	326 i	8030 e
2	Cheniere 7.5 seeds/square foot Ammonium sulfate	21	lb ai/a	1- to 2-leaf	84 c	100 ab	33 de	7708 d	577 ab	134 b-e	265 ab	21 bc	1019 b-f	18 ab	90 ab	456 hi	8163 e
3	Cheniere 15 seeds/square foot Ammonium sulfate	0	lb ai/a	1- to 2-leaf	118 c	98 cde	33 de	8598 bc	537 ab	131 b-e	246 b	24 abc	1074 a-d	7 ab	90 ab	475 hi	9073 d
4	Cheniere 15 seeds/square foot Ammonium sulfate	21	lb ai/a	1- to 2-leaf	118 c	98 cd	34 de	8403 c	569 ab	138 bcd	261 ab	23 abc	1070 a-d	8 ab	90 ab	761 gh	9164 d
5	Cheniere 30 seeds/square foot Ammonium sulfate	0	lb ai/a	1- to 2-leaf	225 b	97 ef	33 de	8777 bc	569 ab	141 a-d	257 ab	23 abc	1129 ab	22 ab	90 ab	916 fg	9692 bcd
6	Cheniere 30 seeds/square foot Ammonium sulfate	21	lb ai/a	1- to 2-leaf	210 b	97 fg	33 de	8708 bc	610 ab	154 abc	280 ab	22 abc	1046 b-e	35 a	90 ab	1274 ef	9981 bc
7	Cheniere 60 seeds/square foot Ammonium sulfate	0	lb ai/a	1- to 2-leaf	371 a	97 fg	34 de	8337 c	540 ab	134 b-e	244 b	23 abc	1090 a-d	1 b	90 ab	1159 efg	9496 cd
8	Cheniere 60 seeds/square foot Ammonium sulfate	21	lb ai/a	1- to 2-leaf	342 a	96 g	32 e	8399 c	512 b	142 a-d	236 b	20 c	938 d-g	18 ab	90 ab	1418 de	9817 bcd
9	Wells 7.5 seeds/square foot Ammonium sulfate	0	lb ai/a	1- to 2-leaf	58 c	100 a	39 abc	8551 bc	532 ab	104 e	251 b	26 a	1101 abc	18 ab	91 a	1752 cd	10303 b
10	Wells 7.5 seeds/square foot Ammonium sulfate	21	lb ai/a	1- to 2-leaf	63 c	100 ab	39 ab	8586 bc	534 ab	114 de	247 b	23 abc	946 c-g	3 b	90 ab	1685 cd	10272 b
11	Wells 15 seeds/square foot Ammonium sulfate	0	lb ai/a	1- to 2-leaf	110 c	99 bc	39 a	8821 abc	671 a	150 abc	316 a	20 c	821 gh	1 b	90 ab	2276 ab	11097 a
12	Wells 15 seeds/square foot Ammonium sulfate	21	lb ai/a	1- to 2-leaf	117 c	99 c	38 abc	9182 ab	609 ab	140 a-d	281 ab	23 abc	894 e-h	17 ab	91 ab	2058 bc	11240 a
13	Wells 30 seeds/square foot Ammonium sulfate	0	lb ai/a	1- to 2-leaf	234 b	97 def	37 c	8777 bc	619 ab	149 abc	291 ab	24 abc	911 e-h	4 ab	90 ab	2342 ab	11119 a

Table 43. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date				4/10/2006		7/18/2006	7/31/2006								10/25/2006	
Rating Data Type				Density	50% Head	Height	Yield	WP dry wt.	Panicle	Grain wt.	10 P wt.	10 P seed	Milling	Milling	Yield	Yield
Rating Unit				pl/sq. m	Days	inches	lb/A	grams	number	grams	grams	number	whole	total	lb/A	lb/A
Crop Stage				2-3 leaf		Main	Main	Main	Main	Main	Main	Main			Ratoon	Total
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage												
14	Wells				249 b	97 ef	38 bc	9083 ab	632 ab	161 ab	280 ab	21 bc	851 gh	2 b	89 ab	2469 ab	11552 a
	30 seeds/square foot															
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf												
15	Wells				392 a	97 def	37 c	9435 a	623 ab	156 abc	283 ab	22 bc	867 fgh	3 b	90 ab	2293 ab	11728 a
	60 seeds/square foot															
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf												
16	Wells				385 a	97 ef	38 abc	9210 ab	633 ab	174 a	297 ab	20 c	771 h	1 b	89 b	2579 a	11788 a
	60 seeds/square foot															
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf												
LSD (P=.05)					83.2	1.0	1.2	572.0	117.5	29.2	53.7	3.7	138.5	27.2	1.4	380.2	681.5
Standard Deviation					49.9	0.7	0.7	400.3	70.5	17.5	32.2	2.2	83.1	16.3	0.8	266.0	476.9
CV					25.4	0.7	2.0	4.6	12.1	12.5	12.0	9.7	8.5	160.9	0.9	17.6	4.7
Replicate F					1.153	5.63	10.692	0.728	0.596	0.419	0.916	2.947	2.292	2.527	1.132	3.185	2.281
Replicate Prob(F)					0.3294	0.0023	0.0003	0.5409	0.5573	0.6617	0.411	0.0678	0.1185	0.0967	0.3359	0.0327	0.0921
Treatment F					17.88	17.321	38.809	5.801	1.414	2.966	1.525	1.961	6.847	1.145	0.862	34.016	25.266
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0001	0.2034	0.0055	0.1582	0.0568	0.0001	0.3627	0.6086	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Response to Seeding Rate and Early-Season Nitrogen Fertilizer 2.2 (Morehouse Parish).

Experiment number ..... : 06-MP-03

Site and design ..... :
- **Location/Cooperator** ..... : Morehouse Parish/Don Andrews and Roland Crymes
- **Tillage type** ..... : Spring stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Hebert silty clay
- **% organic matter** ..... : 2.79
- **pH** ..... : 6.7
- **Extractable nutrients** ..... : P-20; K-289; Ca-2890; Mg-916; Na-225; S-20; Zn-6.2; Cu-3.4 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/May 16
- **Seeding rate/depth** ..... : Variable/.5 in
- **Emergence date** ..... : May 27
- **Harvest date** ..... : September 25

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : See treatment sheet

Water management ..... :
- **Flush** ..... : May 22, June 8
- **Flood** ..... : June 15
- **Drain** ..... : September 8

Pest management ..... :
- **Herbicides** ..... : 1 qt Glyphosate, May 17
  4 qt Arrosolo, June 7
  15 oz Clincher, June 30
- **Insecticides** ..... : 2 oz Karate, June 22, August 3 and 18
- **Fungicides** ..... : 12 oz Quadris, August 3

Table 44. Rice Response to Seeding Rate and Early-Season Nitrogen Fertilizer 2.2 (Morehouse Parish).

Crop Name				Rice	Rice	Rice	Rice	Rice
Rating Date					9/25/2006	9/25/2006		
Rating Data Type				50% Head	Height	Yield	Milling	Milling
Rating Unit				Days	inches	lb/A	whole	total
Crop Stage					Main	Main		
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage				
1	Cheniere				95 ab	31 c	6734 d	70 a	56 a
	7.5 seeds/square foot								
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf					
2	Cheniere				95 a	32 c	6690 d	69 abc	55 abc
	7.5 seeds/square foot								
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf					
3	Cheniere				94 a-d	32 c	7425 bcd	70 a	56 a
	15 seeds/square foot								
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf					
4	Cheniere				94 abc	32 c	7682 abc	69 abc	55 abc
	15 seeds/square foot								
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf					
5	Cheniere				92 efg	32 c	7452 bcd	70 ab	56 ab
	30 seeds/square foot								
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf					
6	Cheniere				92 efg	32 c	7852 abc	69 abc	55 abc
	30 seeds/square foot								
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf					
7	Cheniere				91 gh	32 c	7735 abc	70 a	56 a
	60 seeds/square foot								
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf					
8	Cheniere				91 h	32 c	7456 bcd	70 ab	56 ab
	60 seeds/square foot								
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf					
9	Wells				95 ab	39 ab	7154 cd	68 abc	54 abc
	7.5 seeds/square foot								
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf					
10	Wells				95 ab	38 ab	7613 abc	66 bc	53 bc
	7.5 seeds/square foot								
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf					
11	Wells				94 b-e	38 ab	8371 a	69 abc	55 abc
	15 seeds/square foot								
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf					
12	Wells				94 b-e	39 a	8180 ab	69 ab	56 ab
	15 seeds/square foot								
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf					
13	Wells				93 c-f	37 b	8264 ab	66 c	53 c
	30 seeds/square foot								
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf					
14	Wells				93 d-g	38 ab	7992 abc	67 abc	54 abc
	30 seeds/square foot								
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf					

Table 44. Continued.

Crop Name				Rice	Rice	Rice	Rice	Rice
Rating Date					9/25/2006	9/25/2006		
Rating Data Type				50% Head	Height	Yield	Milling	Milling
Rating Unit				Days	inches	lb/A	whole	total
Crop Stage					Main	Main		
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage				
15	Wells				92 e-h	39 ab	8164 ab	68 abc	55 abc
	60 seeds/square foot								
	Ammonium sulfate	0	lb ai/a	1- to 2-leaf					
16	Wells				91 fgh	38 ab	8246 ab	66 bc	53 bc
	60 seeds/square foot								
	Ammonium sulfate	21	lb ai/a	1- to 2-leaf					
LSD (P=.05)					1.5	1.3	748.8	2.9	2.3
Standard Deviation					1.0	0.8	524.0	1.4	1.1
CV					1.1	2.2	6.8	2.0	2.0
Replicate F					11.877	21.028	7.274	0.669	0.673
Replicate Prob(F)					0.0001	0.0001	0.0004	0.4264	0.4248
Treatment F					8.764	55.686	3.957	1.918	1.918
Treatment Prob(F)					0.0001	0.0001	0.0002	0.1094	0.1093

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Seeding Rates in a Drill-Seeded Cultural System 2.

Experiment number ..... : 06-CM-03

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.13
- **pH** ..... : 6.8
- **Extractable nutrients** ..... : P-9; K-78; Ca-1386; Mg-289; Na-85; S-8; Zn-3.1; Cu-1.8 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : Variable/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 31

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
165 lb N/A 46-0-0, April 18
90 lb N/A 46-0-0, August 3

Water management ..... :
- **Flush** ..... : March 23, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 10

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 45. Seeding Rates in a Drill-seeded Cultural System 2.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice
Description			Avg.				
Rating Date			4/11/2006	7/18/2006	7/31/2006	10/25/2006	
Rating Data Type		50% Head	Stand Count	Height	Yield	Yield	Yield
Rating Unit		Days	pl/sq m	inches	lb/A	lb/A	lb/A
Crop Stage			2-3 leaf	Main	Main	Ratoon	Total
Trt No.	Treatment Name						
1	CL131 10 seed/square foot	98 a	63 g	32 bc	8031 d	636 e	8667 c
2	CL131 20 seed/square foot	98 ab	130 f	31 cd	8551 cd	948 de	9499 b
3	CL131 30 seed/square foot	96 b	207 d	31 cd	8506 d	1041 cd	9547 b
4	CL131 40 seed/square foot	96 ab	244 c	30 cd	8493 d	1092 bcd	9585 b
5	CL131 50 seed/square foot	96 b	318 a	29 d	8272 d	1264 bcd	9536 b
6	Trenasse 10 seed/square foot	94 c	64 g	37 a	9024 bc	972 cde	9995 b
7	Trenasse 20 seed/square foot	93 cd	154 e	36 a	9447 ab	1224 bcd	10671 a
8	Trenasse 30 seed/square foot	92 de	221 d	36 a	9642 a	1345 abc	10987 a
9	Trenasse 40 seed/square foot	92 de	268 b	35 a	9654 a	1464 ab	11117 a
10	Trenasse 50 seed/square foot	91 e	321 a	33 b	9423 ab	1699 a	11122 a
LSD (P=.05)		1.5	22.4	1.6	479.4	346.3	576.6
Standard Deviation		1.1	13.0	1.0	330.4	238.7	397.4
CV		1.1	6.6	2.9	3.7	20.4	4.0
Replicate F		4.088	5.187	2.341	1.047	4.616	4.163
Replicate Prob(F)		0.0163	0.0166	0.1248	0.3877	0.0099	0.0151
Treatment F		23.863	157.184	25.89	13.435	6.281	18.295
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Seeding Rates in a Water-Seeded Cultural System 2.

Experiment number ..... : 06-CS-15

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : NA

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.40
- **pH** ..... : 7.1
- **Extractable nutrients** ..... : P-11; K-89; Ca-1571; Mg-337; Na-100; S-10; Zn-4.6; Cu-2.0 ppm

Crop/Variety ..... : Rice/CL131, Trenasse
- **Planting method/date** ..... : Water seeded/March 31
- **Seeding rate/depth** ..... : 30, 40, 50, 60, 70 seed/ft^2
- **Emergence date** ..... : NA
- **Harvest date** ..... : August 3

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 0-24-24 + 2.8 Zn, March 28
165 lb N/A 46-0-0, March 29

Water management ..... :
- **Flush** ..... : NA
- **Flood** ..... : April 6 (permanent flood)
- **Drain** ..... : July 17

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1oz/A Icon, March 27
- **Fungicides** ..... : None

Table 46. Seeding Rates in Water-Seeded Cultural System 2.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice
Description			Avg.				
Rating Date			4/24/2006	8/3/2006	8/3/2006	8/3/2006	8/3/2006
Rating Data Type		50% Head	Stand Count	Height	Ldg-Rate	Ldg-Type	Yield
Rating Unit		Days	pl/sq m	inches	%	1-5	lb/A
Crop Stage			2-3 leaf	Main	Main	Main	Main
Trt No.	Treatment Name						
1	CL131 30 seed/square foot	85 a	70 c	28 b			6000 e
2	CL131 40 seed/square foot	84 ab	105 bc	28 b			6683 cde
3	CL131 50 seed/square foot	83 bc	141 ab	28 b			7190 bcd
4	CL131 60 seed/square foot	83 c	142 ab	28 b			6913 bcd
5	CL131 70 seed/square foot	83 c	182 a	28 b	40	1	6547 de
6	Trenasse 30 seed/square foot	80 d	110 bc	30 ab	73	3	7501 abc
7	Trenasse 40 seed/square foot	79 e	133 ab	30 a	63	3	8162 a
8	Trenasse 50 seed/square foot	78 ef	155 ab	30 ab	85	4	7518 abc
9	Trenasse 60 seed/square foot	78 f	171 a	31 a	80	4	7645 ab
10	Trenasse 70 seed/square foot	78 f	180 a	30 ab	80	4	7305 a-d
LSD (P=.05)		0.8	51.2	2.1			823.1
Standard Deviation		0.5	35.3	1.3			567.3
CV		0.7	25.5	4.3			7.9
Replicate F		2.288	3.565	10.117			1.815
Replicate Prob(F)		0.1011	0.0271	0.0011			0.1682
Treatment F		112.729	4.173	3.391			4.851
Treatment Prob(F)		0.0001	0.0018	0.0132			0.0007

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Glyphosate Burndown Combinations for Rice 2.

Experiment number ..... : 06-CS-16

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Fall stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.50
- **pH** ..... : 6.7
- **Extractable nutrients** ..... : P-13; K-123; Ca-1231; Mg-315; Na-103; S-8; Zn-5.8; Cu-2.0 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded/March 27
- **Seeding rate/depth** ..... : 33 seed/ft^2/.5 in
- **Emergence date** ..... : April 13
- **Harvest date** ..... : August 9

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 250 lb/A 8-24-24 + 2.8 Zn, September 16, 2005
165 lb N/A 46-0-0, May 9

Water management ..... :
- **Flush** ..... : April 3, 11, and 18
- **Flood** ..... : May 11
- **Drain** ..... : July 24

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
1 gal/A Arrosolo + 1 oz/A Permit, April 28
1 gal/A Arrosolo + 2.1 pt/A Prowl + 1.3 oz Permit, May 10
22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, Seed treatment
- **Fungicides** ..... : None

Table 47. Glyphosate Burndown Combinations for Rice 2.

Crop Code								TRFRS	TRFRS	TRFRS	TRFRS
BBCH Scale								BDIC	BDIC	BDIC	BDIC
Crop Name					Rice	Rice	Rice	Persian clover	Persian clover	Persian clover	Persian clover
Rating Date						8/7/2006	8/9/2006	3/2/2006	3/9/2006	3/16/2006	3/23/2006
Rating Data Type					50% Head	Height	Yield	Control	Control	Control	Control
Rating Unit					Days	inches	lb/A	%	%	%	%
Crop Stage						Main	Main	Preplant	Preplant	Preplant	Preplant
Trt-Eval Interval								7DAT	14DAT	21DAT	28DAT
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage						
1	Valor	51	1	oz/a	30 DPP	101 b	28 ab	3242 b	78 bc	74 c	50 d	49 d
	Agridex		1.25	% v/v	30 DPP							
	Roundup Weathermax	5.5	0	oz/a	30 DPP							
2	Valor	51	1	oz/a	30 DPP	102 b	27 abc	3326 b	91 a	95 a	95 a	96 a
	Agridex		1.25	% v/v	30 DPP							
	Roundup Weathermax	5.5	23	oz/a	30 DPP							
3	Valor	51	2	oz/a	30 DPP	102 b	27 abc	2840 b	81 b	79 bc	83 b	79 b
	Agridex		1.25	% v/v	30 DPP							
	Roundup Weathermax	5.5	0	oz/a	30 DPP							
4	Valor	51	2	oz/a	30 DPP	102 b	28 ab	3203 b	91 a	93 a	97 a	97 a
	Agridex		1.25	% v/v	30 DPP							
	Roundup Weathermax	5.5	23	oz/a	30 DPP							
5	Harmony Extra	50	0.5	oz/a	30 DPP	102 b	26 bc	2646 b	28 f	55 d	65 c	69 c
	Ag-98		0.25	% v/v	30 DPP							
	Roundup Weathermax	5.5	0	oz/a	30 DPP							
6	Harmony Extra	50	0.5	oz/a	30 DPP	102 b	27 abc	3245 b	73 c	83 abc	91 a	95 a
	Ag-98		0.25	% v/v	30 DPP							
	Roundup Weathermax	5.5	23	oz/a	30 DPP							
7	2,4-D	4	2	pt/a	30 DPP	101 b	27 abc	2859 b	40 e	48 de	54 d	64 c
	Roundup Weathermax	5.5	0	oz/a	30 DPP							
8	2,4-D	4	2	pt/a	30 DPP	102 b	26 abc	3410 b	40 e	88 ab	93 a	97 a
	Roundup Weathermax	5.5	23	oz/a	30 DPP							
9	Grandstand	3	1	pt/a	30 DPP	101 b	26 abc	3019 b	21 f	39 e	43 e	53 d
	Agridex		1.25	% v/v	30 DPP							
	Roundup Weathermax	5.5	0	oz/a	30 DPP							
10	Grandstand	3	1	pt/a	30 DPP	102 b	26 abc	3336 b	56 d	73 c	91 a	96 a
	Agridex		1.25	% v/v	30 DPP							
	Roundup Weathermax	5.5	23	oz/a	30 DPP							
11	Nontreated					102 b	25 c	2510 b	0 g	0 f	0 f	0 e
12	Tillage					107 a	28.7 a	4818 a	0 g	0 f	0 f	0 e
LSD (P=.05)						2.5	2.0	897.2	6.9	11.7	6.0	9.2
Standard Deviation						1.7	1.2	621.4	4.8	8.1	4.2	6.4
CV						1.7	4.5	19.4	9.6	13.5	6.6	9.6
Replicate F						7.042	0.135	3.061	1.322	1.546	1.355	0.908
Replicate Prob(F)						0.0009	0.8742	0.0417	0.2839	0.2211	0.2735	0.4475
Treatment F						3.789	2.17	3.544	191.502	66.59	286.478	124.635
Treatment Prob(F)						0.0014	0.0587	0.0023	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Table 47. Continued.

Crop Code						POAAN	POAAN	CYNDA	CYNDA	CYNDA	CYNDA
BBCH Scale						BGRM	BGRM	BGRM	BGRM	BGRM	BGRM
Crop Name						Annual bluegrass	Annual bluegrass	Bermuda grass	Bermuda grass	Bermuda grass	Bermuda grass
Rating Date						3/2/2006	3/9/2006	3/2/2006	3/9/2006	3/16/2006	3/22/2006
Rating Data Type						Control	Control	Control	Control	Control	Control
Rating Unit						%	%	%	%	%	%
Crop Stage						Preplant	Preplant	Preplant	Preplant	Preplant	Preplant
Trt-Eval Interval						7DAT	14DAT	7DAT	14DAT	21DAT	28DAT
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage						
1	Valor	51	1	oz/a	30 DPP	28 e	15 c	21 d	13 c	0 e	0 c
	Agridex		1.25	% v/v	30 DPP						
	Roundup Weathermax	5.5	0	oz/a	30 DPP						
2	Valor	51	1	oz/a	30 DPP	92 ab	100 a	89 a	88 a	91 ab	86 ab
	Agridex		1.25	% v/v	30 DPP						
	Roundup Weathermax	5.5	23	oz/a	30 DPP						
3	Valor	51	2	oz/a	30 DPP	36 d	11 c	20 d	10 c	6 d	3 c
	Agridex		1.25	% v/v	30 DPP						
	Roundup Weathermax	5.5	0	oz/a	30 DPP						
4	Valor	51	2	oz/a	30 DPP	94 a	100 a	92 a	86 ab	94 a	89 a
	Agridex		1.25	% v/v	30 DPP						
	Roundup Weathermax	5.5	23	oz/a	30 DPP						
5	Harmony Extra	50	0.5	oz/a	30 DPP	24 e	25 b	20 d	10 c	9 d	0 c
	Ag-98		0.25	% v/v	30 DPP						
	Roundup Weathermax	5.5	0	oz/a	30 DPP						
6	Harmony Extra	50	0.5	oz/a	30 DPP	83 c	100 a	55 c	79 b	84 c	85 ab
	Ag-98		0.25	% v/v	30 DPP						
	Roundup Weathermax	5.5	23	oz/a	30 DPP						
7	2,4-D	4	2	pt/a	30 DPP	0 f	0 d	0 e	0 d	0 e	0 c
	Roundup Weathermax	5.5	0	oz/a	30 DPP						
8	2,4-D	4	2	pt/a	30 DPP	88 bc	100 a	79 b	80 b	88 bc	85 ab
	Roundup Weathermax	5.5	23	oz/a	30 DPP						
9	Grandstand	3	1	pt/a	30 DPP	0 f	0 d	0 e	0 d	0 e	0 c
	Agridex		1.25	% v/v	30 DPP						
	Roundup Weathermax	5.5	0	oz/a	30 DPP						
10	Grandstand	3	1	pt/a	30 DPP	85 c	99 a	73 b	80 b	88 bc	83 b
	Agridex		1.25	% v/v	30 DPP						
	Roundup Weathermax	5.5	23	oz/a	30 DPP						
11	Nontreated					0 f	0 d	0 e	0 d	0 e	0 c
12	Tillage					0 f	0 d	0 e	0 d	0 e	0 c
LSD (P=.05)						5.9	4.2	8.3	6.8	4.2	4.8
Standard Deviation						4.1	2.9	5.8	4.7	2.9	3.3
CV						9.4	6.3	15.5	12.6	7.7	9.3
Replicate F						0.785	0.5	3.504	0.042	0.383	0.625
Replicate Prob(F)						0.5109	0.6849	0.026	0.9884	0.7656	0.6039
Treatment F						393.366	1113.591	167.228	297.233	930.908	692.83
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Valor Burndown Application Timings 2.

Experiment number ..... : 06-CS-17

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Fall stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.50
- **pH** ..... : 6.7
- **Extractable nutrients** ..... : P-13; K-123; Ca-1231; Mg-315; Na-103; S-8; Zn-5.8; Cu-2.0 ppm

Crop/Variety ..... : Rice/Cocodrie
- **Planting method/date** ..... : Drill seeded/March 27
- **Seeding rate/depth** ..... : 33 seed/ft^2/.5 in
- **Emergence date** ..... : April 13
- **Harvest date** ..... : August 9

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 250 lb/A 8-24-24 + 2.8 Zn, September 16, 2005
165 lb N/A 46-0-0, May 9

Water management ..... :
- **Flush** ..... : April 3, 11, and 18
- **Flood** ..... : May 11
- **Drain** ..... : July 24

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
1 gal/A Arrosolo + 1 oz/A Permit, April 28
1 gal/A Arrosolo + 2.1 pt/A Prowl + 1.3 oz Permit, May 10
22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, Seed treatment
- **Fungicides** ..... : None

Table 48. Valor Burndown Application Timings 2.

Crop Name					Rice	Rice	Rice
Rating Date						8/7/2006	8/9/2006
Rating Data Type					50% Head	Height	Yield
Rating Unit					Days	inches	lb/A
Crop Stage						Main	Main
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit			
1	30 days preplant				101 c	28 ab	3013 cde
	Valor	51	1	oz/a			
	Roundup Weathermax	5.5	23	oz/a			
	Agridex		1.25	% v/v			
2	30 days preplant				104 b	28 ab	2987 de
	Valor	51	2	oz/a			
	Roundup Weathermax	5.5	23	oz/a			
	Agridex		1.25	% v/v			
3	15 days preplant				101 c	29 ab	3750 b
	Valor	51	1	oz/a			
	Roundup Weathermax	5.5	23	oz/a			
	Agridex		1.25	% v/v			
4	15 days preplant				101 c	28 b	3732 bc
	Valor	51	2	oz/a			
	Roundup Weathermax	5.5	23	oz/a			
	Agridex		1.25	% v/v			
5	0 days preplant				101 c	28 ab	3575 bcd
	Valor	51	1	oz/a			
	Roundup Weathermax	5.5	23	oz/a			
	Agridex		1.25	% v/v			
6	0 days preplant				102 c	28 b	3408 bcd
	Valor	51	2	oz/a			
	Roundup Weathermax	5.5	23	oz/a			
	Agridex		1.25	% v/v			
7	Nontreated				102 c	27 b	2601 e
8	Tillage				107 a	30 a	4712 a
LSD (P=.05)					1.7	2.2	666.1
Standard Deviation					1.2	1.3	452.9
CV					1.2	4.5	13.0
Replicate F					44.073	8.638	11.597
Replicate Prob(F)					0.0001	0.0036	0.0001
Treatment F					12.811	2.109	8.081
Treatment Prob(F)					0.0001	0.1111	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Tolerance to Grasp Herbicide 2.1 (Rice Research Station).

Experiment number ..... : 06-CM-17

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.12
- **pH** ..... : 6.9
- **Extractable nutrients** ..... : P-8; K-66; Ca-1174; Mg-265; Na-92; S-7; Zn-3.4; Cu-1.7 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : Hybrid-14 seed/ft^2, Commercial-40 seed/ft^2
- **Emergence date** ..... : March 31
- **Harvest date** ..... : July 31

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
165 lb N/A 46-0-0, April 18
90 lb N/A 46-0-0, August 3

Water management ..... :
- **Flush** ..... : March 22, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 7

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 49. Rice Tolerance to Grasp Herbicide 2.1 (Rice Research Station).

Crop Name						Rice	Rice	Rice
Rating Date							7/18/2006	7/31/2006
Rating Data Type						50% Head	Height	Yield
Rating Unit						Days	inches	lb/A
Crop Stage							Main	Main
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage			
1	Cocodrie					94 g	32 ghi	8609 fgh
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
2	Cocodrie					94 g	33 fgh	8755 e-h
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
3	Cheneire					96 ef	33 fgh	8830 e-h
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
4	Cheneire					97 e	34 d-g	8754 e-h
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
5	Trenasse					89 i	35 b-e	9390 def
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
6	Trenasse					90 h	35 bcd	9390 def
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
7	Bengal					100 b	34 d-g	9567 de
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
8	Bengal					99 c	33 efg	9214 d-g
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
9	Jupiter					101 a	35 bcd	11663 a
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
10	Jupiter					99 c	34 c-f	11141 ab
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
11	CL161					97 e	35 bcd	8964 e-h
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
12	CL161					98 d	36 b	9457 def
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
13	CL131					95 g	30 i	8234 h
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			

Table 49. (Continued).

Crop Name						Rice	Rice	Rice
Rating Date							7/18/2006	7/31/2006
Rating Data Type						50% Head	Height	Yield
Rating Unit						Days	inches	lb/A
Crop Stage							Main	Main
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage			
14	CL131					96 f	31 hi	8702 e-h
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
15	Cybonnet					94 g	33 fgh	8471 gh
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
16	Cybonnet					94 g	33 efg	8383 gh
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
17	Pirogue					101 a	36 b	10743 bc
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
18	Pirogue					98 d	36 bc	10066 cd
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
19	XL723					94 g	41 a	11134 ab
	Grasp	2	0	oz/a	2- to 3-leaf			
	Agridex		0	% v/v	2- to 3-leaf			
20	XL723					94 g	40 a	10907 ab
	Grasp	2	3.96	oz/a	2- to 3-leaf			
	Agridex		2.5	% v/v	2- to 3-leaf			
LSD (P=.05)						0.7	1.7	774.1
Standard Deviation						0.5	1.0	547.4
CV						0.6	3.0	5.8
Replicate F						1.508	0.446	3.505
Replicate Prob(F)						0.2222	0.6433	0.021
Treatment F						159.724	20.009	14.88
Treatment Prob(F)						0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice Tolerance to Grasp Herbicide 2.2 (Morehouse Parish).

Experiment number ..... : 06-MP-04

Site and design ..... :
- **Location/Cooperator** ..... : Morehouse Parish / Don Andrews and Roland Crymes
- **Tillage type** ..... : Spring stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Hebert silty clay
- **% organic matter** ..... : 3.32
- **pH** ..... : 6.5
- **Extractable nutrients** ..... : P-24; K-301; Ca-2863; Mg-834; Na-157; S-17; Zn-5.5; Cu-3.3 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/May 16
- **Seeding rate/depth** ..... : Hybrid-14 seed/ft^2, Commercial-40 seed/ft^2/.5 in
- **Emergence date** ..... : May 27 and 28
- **Harvest date** ..... : September 26

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 165 lb N/A 46-0-0, June 15

Water management ..... :
- **Flush** ..... : May 22, June 8
- **Flood** ..... : June 15
- **Drain** ..... : September 8

Pest management ..... :
- **Herbicides** ..... : 1 qt Glyphosate, May 17
  4 qt Arrosolo, June 7
  15 oz Clincher, June 30
- **Insecticides** ..... : 2 oz Karate, June 22, August 3 and 18
- **Fungicides** ..... : 12 oz Quadris, August 3

Table 50. Rice Tolerance to Grasp Herbicide 2.2 (Morehouse Parish).

Crop Name						Rice	Rice	Rice	Rice	Rice
Rating Date							9/25/2006	9/25/2006	9/25/2006	9/26/2006
Rating Data Type						50% Head	Height	Ldg-Rate	Ldg-Type	Yield
Rating Unit						Days	inches	%	1-5	lb/A
Crop Stage						Main	Main	Main	Main	Main
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage					
1	Cocodrie					89 de	32 ghi			8273 d-h
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
2	Cocodrie					91 c	32 ghi			8063 e-i
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
3	Cheneire					93 b	32 hi			8066 e-i
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
4	Cheneire					93 b	31 i			8619 c-f
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
5	Trenasse					83 h	36 b-e	23	2	9048 bcd
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
6	Trenasse					83 h	36 bcd	38	2	9049 bcd
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
7	Bengal					90 cd	34 e-h			8824 cde
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
8	Bengal					91 c	34 d-g			8390 d-g
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
9	Jupiter					89 e	32 f-i			9904 ab
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
10	Jupiter					89 e	32 f-i			10313 a
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
11	CL161					96 a	36 bcd			7889 e-i
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
12	CL161					96 a	37 b			7911 e-i
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
13	CL131					89 de	30 i			7379 hi
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					

Table 50. (Continued).

Crop Name						Rice	Rice	Rice	Rice	Rice
Rating Date							9/25/2006	9/25/2006	9/25/2006	9/26/2006
Rating Data Type						50% Head	Height	Ldg-Rate	Ldg-Type	Yield
Rating Unit						Days	inches	%	1-5	lb/A
Crop Stage						Main	Main	Main	Main	Main
Trt No.	Treatment Name	Form Conc	Rate	Rate Unit	Growth Stage					
14	CL131					89 de	30 i			7608 ghi
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
15	Cybonnet					92 bc	34 c-f			7212 i
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
16	Cybonnet					92 bc	34 d-g			7739 f-i
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
17	Pirogue					87 fg	36 bc			9140 bcd
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
18	Pirogue					86 g	36 bc			9377 bc
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
19	XL723					88 ef	41 a	40	1	9549 abc
	Grasp	2	0	oz/a	2-3 leaf					
	Agridex		0	% v/v	2-3 leaf					
20	XL723					89 e	41 a	50	1	10313 a
	Grasp	2	3.96	oz/a	2-3 leaf					
	Agridex		2.5	% v/v	2-3 leaf					
LSD (P=.05)						1.2	1.8			812.9
Standard Deviation						0.9	1.1			574.8
CV						1.0	3.3			6.7
Replicate F						11.99	0.372			2.713
Replicate Prob(F)						0.0001	0.6922			0.0532
Treatment F						58.195	22.857			10.604
Treatment Prob(F)						0.0001	0.0001			0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Ratoon Response of Rice Varieties to Main-Crop Stubble Manipulation.

Experiment number ..... : 06-CM-07

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 50 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.13
- **pH** ..... : 7.0
- **Extractable nutrients** ..... : P-8; K-63; Ca-1256; Mg-233; Na-79; S-7; Zn-3.0; Cu-1.6 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : 33 seed/ft^2/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 24

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
165 lb N/A 46-0-0, April 18
90 lb N/A 46-0-0, July 24

Water management ..... :
- **Flush** ..... : March 23, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 5

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 51. Ratoon Response of Rice Varieties to Main-Crop Stubble Manipulation.

Crop Name		Rice	Rice	Rice	Rice
Description					
Rating Date			7/18/2006		10/24/2006
Rating Data Type		50% Head	Height	50% Head	Yield
Rating Unit		Days	inches		lb/A
Crop Stage		Main	Main	Ratoon	Ratoon
Trt No.	Treatment Name				
1	Standard cutting height Cocodrie	94 a	31 b	45 ab	863 b
2	Standard cutting height Trenasse	90 b	34 a	48 a	1222 a
3	12-inch cutting height Cocodrie	94 a	31 b	44 b	967 ab
4	12-inch cutting height Trenasse	90 b	34 a	46 ab	1243 a
5	Rolled Cocodrie	95 a	31 b	36 d	807 b
6	Rolled Trenasse	90 b	33 ab	38 cd	981 ab
7	Flail-mowed Cocodrie	94 a	31 b	39 cd	995 ab
8	Flail-mowed Trenasse	90 b	34 a	41 c	1057 ab
LSD (P=.05)		0.7	1.9	3.1	278.9
Standard Deviation		0.5	1.0	2.0	181.0
CV		0.5	3.2	4.8	17.8
Replicate F		0.364	0.76	0.985	2.065
Replicate Prob(F)		0.7805	0.4987	0.4326	0.1585
Treatment F		101.61	6.56	18.668	2.913
Treatment Prob(F)		0.0001	0.0083	0.0001	0.05

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
Mean separations are based on the complete error term.

Ratoon Response of Rice Hybrids to Main-Crop Stubble Manipulation.

Experiment number ..... : 06-CM-08

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 50 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.13
- **pH** ..... : 7.0
- **Extractable nutrients** ..... : P-8; K-63; Ca-1256; Mg-233; Na-79; S-7; Zn-3.0; Cu-1.6 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : 14 seed/ft^2/.75 in
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 24

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
165 lb N/A 46-0-0, April 18
90 lb N/A 46-0-0, July 24

Water management ..... :
- **Flush** ..... : March 23, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 5

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 52. Ratoon Response of Rice Hybrids to Main-Crop Stubble Manipulation.

Crop Name			Rice	Rice	Rice	Rice
Rating Date				7/18/2006		10/24/2006
Rating Data Type			50% Head	Height	50% Head	Yield
Rating Unit			days	inches	days	lb/A
Crop Stage			Main	Main	Ratoon	Ratoon
Trt No.	Treatment Name	Rate Unit				
1	Standard cutting height XP723		94 b	38 a	47 c	2866 a
2	Standard cutting height Clearfield XL8		95 a	38 a	45 c	1662 b
3	12-inch cutting height XP723		94 b	37 a	52 b	2497 a
4	12-inch cutting height Clearfield XL8		95 a	38 a	45 c	1496 b
5	Rolled XP723		94 b	38 a	57 a	2598 a
6	Rolled Clearfield XL8		95 a	39 a	45 c	1197 b
7	Flail-mowed XP723		94 b	38 a	55 ab	2609 a
8	Flail-mowed Clearfield XL8		95 a	39 a	45 c	1509 b
LSD (P=.05)			0.4	2.8	3.6	611.6
Standard Deviation			0.3	1.5	2.4	396.9
CV			0.3	3.9	4.8	19.3
Replicate F			1.333	3.792	1.627	3.368
Replicate Prob(F)			0.3096	0.0694	0.2352	0.0548
Treatment F			14.857	0.472	18.102	10.724
Treatment Prob(F)			0.0001	0.8309	0.0001	0.0002

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
Mean separations are based on the complete error term.

Ratoon Rice Weed Management.

Experiment number ..... : 06-CM-14

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.20
- **pH** ..... : 6.6
- **Extractable nutrients** ..... : P-7; K-60; Ca-1024; Mg-225; Na-79; S-6; Zn-3.2; Cu-1.5 ppm

Crop/Variety ..... : Rice/Cocodrie, Trenasse
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : 33 seed/ft^2
- **Emergence date** ..... : March 29
- **Harvest date** ..... : July 21

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 14
165 lb N/A 46-0-0, April 18
90 lb N/A 46-0-0, July 24

Water management ..... :
- **Flush** ..... : March 22, April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 7

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13
  4 oz/A Mustang Max, April 27 and June 12
- **Fungicides** ..... : None

Table 53. Ratoon Rice Weed Management.

Crop Name					Rice	Rice	Rice	Rice	Rice	Rice
Rating Date						7/17/2006	7/21/2006		10/24/2006	10/24/2006
Rating Data Type					50% Head	Height	Yield	50% Head	Yield	Yield
Rating Unit					Days	inches	lb/A	Days	lb/A	lb/A
Crop Stage					Main	Main	Main	Ratoon	Ratoon	Total
Trt No.	Treatment Name	Rate	Rate Unit	Growth Stage						
1	Cocodrie				94 a	31 d	8941 c	47 b	889 abc	9831 d
	Nontreated									
2	Cocodrie				94 a	30 d	9120 c	50 a	736 c	9856 d
	Grandstand R	1	pt/a	Ratoon						
	Ag-98	0.25	% v/v	Ratoon						
3	Cocodrie				94 a	31 d	8998 c	50 a	790 bc	9788 d
	2,4-D Amine	2	pt/a	Ratoon						
4	Cocodrie				94 a	32 bcd	9217 c	47 ab	876 abc	10093 cd
	Basagran	1.5	pt/a	Ratoon						
	Agridex	2.5	% v/v	Ratoon						
5	Cocodrie				94 a	31 cd	9330 bc	48 ab	983 ab	10312 bcd
	Permit	1	oz/a	Ratoon						
	Ag-98	0.25	% v/v	Ratoon						
6	Cocodrie				94 a	31 d	9546 abc	47 b	819 bc	10365 bcd
	Grasp	1.98	oz/a	Ratoon						
	Agridex	2.5	% v/v	Ratoon						
7	Trenasse				89 b	33 ab	10074 a	46 b	847 bc	10922 ab
	Nontreated									
8	Trenasse				89 b	33 ab	9860 ab	50 a	759 bc	10619 abc
	Grandstand R	1	pt/a	Ratoon						
	Ag-98	0.25	% v/v	Ratoon						
9	Trenasse				89 b	34 a	9985 a	49 ab	953 abc	10938 ab
	2,4-D Amine	2	pt/a	Ratoon						
10	Trenasse				89 b	33 ab	10151 a	46 b	1083 a	11234 a
	Basagran	1.5	pt/a	Ratoon						
	Agridex	2.5	% v/v	Ratoon						
11	Trenasse				89 b	33 ab	9968 a	47 b	984 ab	10952 ab
	Permit	1	oz/a	Ratoon						
	Ag-98	0.25	% v/v	Ratoon						
12	Trenasse				89 b	32 bc	10088 a	47 ab	991 ab	11079 a
	Grasp	1.98	oz/a	Ratoon						
	Agridex	2.5	% v/v	Ratoon						
LSD (P=.05)					0.3	1.3	574.3	2.6	205.3	623.4
Standard Deviation					0.2	0.8	397.7	1.8	142.2	431.8
CV					0.2	2.4	4.1	3.8	15.9	4.1
Replicate F					2.2	5.211	6.485	12.175	5.427	9.465
Replicate Prob(F)					0.1066	0.014	0.0014	0.0001	0.0038	0.0001
Treatment F					697	7.908	5.44	2.368	2.285	5.954
Treatment Prob(F)					0.0001	0.0001	0.0001	0.0275	0.033	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Ratoon Response to Planting Method and Main-Crop Cutting Height.

Experiment number ..... : 06-CS-18 (Drill seeded)

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.71
- **pH** ..... : 6.7
- **Extractable nutrients** ..... : P-12; K-79; Ca-1239; Mg-275; Na-90; S-8; Zn-6.3; Cu-1.9 ppm

Crop/Variety ..... : Rice/Trenasse, Cocodrie
- **Planting method/date** ..... : Drill seeded/March 28
- **Seeding rate/depth** ..... : 33 seed/ft^2/.5 in
- **Emergence date** ..... : April 14
- **Harvest date** ..... : August 9

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March 28
165 lb N/A 46-0-0, May 9
90 lb N/A 46-0-0, August 15

Water management ..... :
- **Flush** ..... : April 3, 11, and 18
- **Flood** ..... : May 11
- **Drain** ..... : July 20

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Propanil + 1.5 pt/A Basagran, April 17
1 gal/A Arrosolo + 2.1 pt/A Prowl + 1.3 oz/A Permit, May 10
22 oz/A Ricestar, May 31
- **Insecticides** ..... : 1 oz/A Icon, March 27
- **Fungicides** ..... : None

Comments ..... : Water seeded portion lost due to heavy rutting during harvest.

Table 54. Ratoon Response to Planting Method and Main-Crop Cutting Height.

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date			8/3/2006	8/3/2006	8/3/2006	8/9/2006			
Rating Data Type		50% Head	Height	Ldg-Rate	Ldg-Type	Yield	50% Head	Yield	Yield
Rating Unit		Days	inches	%	1-5	lb/A	Days	lb/A	lb/A
Crop Stage		Main	Main	Main	Main	Main	Ratoon	Ratoon	Total
Trt No.	Treatment Name								
1	Drill-seeded Cocodrie 20-inch cutting height	94 a	33 a			7487 abc	55 b	661 b	8147 b
2	Drill-seeded Cocodrie 6-inch cutting height	94 a	33 a			8059 a	58 a	746 b	8805 a
3	Drill-seeded Trenasse 20-inch cutting height	87 b	33 a	20 c	2 b	7701 ab	42 d	763 b	8464 ab
4	Drill-seeded Trenasse 6-inch cutting height	87 b	33 a	15 c	2 b	8003 a	45 c	1009 a	9012 a
5	Water-seeded Cocodrie 20-inch cutting height	84 c	29 b			7075 bcd			
6	Water-seeded Cocodrie 6-inch cutting height	84 c	29 b			6953 cd			
7	Water-seeded Trenasse 20-inch cutting height	79 e	28 b	85 b	4 a	6166 e			
8	Water-seeded Trenasse 6-inch cutting height	80 d	29 b	98 a	5 a	6491 de			
LSD (P=.05)		0.7	3.0			684.5	2.2	107.2	574.2
Standard Deviation		0.4	1.6			444.2	1.4	69.6	372.7
CV		0.5	5.2			6.1	2.9	8.8	4.3
Replicate F		3.105	2.048			1.472	1.388	6.498	5.659
Replicate Prob(F)		0.067	0.1913			0.2717	0.294	0.0074	0.0119
Treatment F		703.376	5.694			9.702	117.306	18.573	4.176
Treatment Prob(F)		0.0001	0.0128			0.0004	0.0001	0.0001	0.0306

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
Mean separations are based on the complete error term.

Hybrid Yield Comparison (Rice Research Station).

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

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.12
- **pH** ..... : 6.9
- **Extractable nutrients** ..... : P-8; K-66; Ca-1,174; Mg-265; Na-92; S-7; Zn-3.4; Cu-1.7 ppm

Crop/Variety ..... : Rice/multiple
- **Planting method/date** ..... : Drill seeded/March 14
- **Seeding rate/depth** ..... : Hybrids, 14 seed/ft^2; Commercial, 40 seed/ft^2/.75in
- **Emergence date** ..... : March 31
- **Harvest date** ..... : July 24

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March14
120 lb N/A 46-0-0, April 18
45 lb N/A 46-0-0, midseason (commercial), May 19
30 lb N/A 46-0-0, 5% heading (hybrids), June 12
90 lb N/A 46-0-0, August 3 (ratoon)

Water management ..... :
- **Flush** ..... : March 22; April 4 and 12
- **Flood** ..... : April 20
- **Drain** ..... : July 7

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1 qt/A Propanil, April 11
- **Insecticides** ..... : 1 oz/A Icon, March 13; 4 oz/A Mustang Max, April 27, June 12
- **Fungicides** ..... : None

Comments ..... : CL XL8 was removed from the analysis due to due to seed purity problems that we recognized after planting.

Table 55. Hybrid Yield Comparison (Rice Research Station).

Crop Name		Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date			7/17/2006	7/24/2006	10/24/2006			
Rating Data Type		50% Head	Height	Yield	Yield	Yield	Total Mill	Whole Mill
Rating Unit		days	inches	lb/A	lb/A	lb/A	%	%
Crop Stage		Main	Main	Main	Ratoon	Total	Main	Main
Trt No.	Treatment Name							
1	Clearfield XL8	. .	. .	. .	. .	. .	. .	. .
2	Clearfield XL730	94 b	40 a	10204 ab	1888 c	12092 ab	71 ab	56 abc
3	Clearfield XP729	94 b	39 ab	9506 bc	2311 b	11817 ab	70 abc	52 cd
4	XL723	92 c	37 b	10480 a	2134 bc	12614 a	71 a	53 cd
5	Cocodrie	92 c	30 fg	8815 cde	1235 ef	10051 def	70 abc	60 a
6	Cheneire	94 b	32 de	9408 bcd	1009 f	10416 de	70 abc	60 ab
7	Trenasse	89 d	34 cd	9529 bc	1180 ef	10709 cd	70 abc	55 a-d
8	CL161	96 a	35 c	8833 cde	1136 ef	9969 def	69 bc	61 a
9	CL131	94 b	28 g	8273 ef	1229 ef	9501 ef	70 abc	57 abc
10	Wells	94 b	35 c	9625 bc	1819 cd	11445 bc	71 ab	52 cd
11	Presidio	92 c	31 ef	8629 de	3024 a	11653 b	71 a	49 d
LSD (P=.05)		0	2	744	361	854	2	6
Standard Deviation		0	1	515	250	592	1	3
CV		0	3	6	15	5	1	5
Replicate F		0	18.045	0.991	1.728	1.882	0.279	0.035
Replicate Prob(F)		1	0.0001	0.4102	0.1824	0.1539	0.6089	0.8552
Treatment F		0	40.578	10.025	25.014	14.543	2.312	3.964
Treatment Prob(F)		1	0.0001	0.0001	0.0001	0.0001	0.1012	0.0202

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Hybrid Yield Comparison (Vermilion Parish).

Experiment number ..... : 06-VP-06

Site and design ..... :
- **Location/Cooperator** ..... : Vermilion Parish/Lounsberry Farm
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Crowley silt loam
- **% organic matter** ..... : 1.70
- **pH** ..... : 5.8
- **Extractable nutrients** ..... : P-21; K-108; Ca-1,759; Mg-318; Na-34; S-8; Zn-2.7; Cu-1.9 ppm

Crop/Variety ..... : Rice/Multiple
- **Planting method/date** ..... : Drill seeded/March 15
- **Seeding rate/depth** ..... : Hybrids, 14 seed/ft^2; Commercial varieties, 40 seed/ft^2/1 in
- **Emergence date** ..... : See plot map
- **Harvest date** ..... : August 2

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 195 lb/A 8-24-24 + 2.8 Zn, March15
120 lb N/A 46-0-0, April 20
45 lb N/A 46-0-0, midseason (commercial) May 19
30 lb N/A 46-0-0, 5% heading (hybrids) variable dates
90 lb N/A 46-0-0, August 9 (ratoon)

Water management ..... :
- **Flush** ..... : March, 25; April, 4 and 13
- **Flood** ..... : April 22
- **Drain** ..... : July 17

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Stam + 1 oz/A Londax, April 11
  3 qt/A Arrosolo, April 20
- **Insecticides** ..... : 4 oz/A Mustang Max, April 27
- **Fungicides** ..... : 12 oz/A Quadris, June 12

Comments ..... : CL XL8 was removed from the analysis due to due to seed purity problems that we recognized after planting.

Table 56. Hybrid Yield Comparison (Vermilion Parish).

Crop Name	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice	Rice
Rating Date		7/27/2006	8/2/2006	8/2/2006	8/2/2006	10/31/2006			
Rating Data Type	50% Head	Height	Ldg-Rate	Ldg-Type	Yield	Yield	Yield	Total Mill	Whole Mill
Rating Unit	days	inches	%	1-5	lb/A	lb/A	lb/A	%	%
Crop Stage	Main	Main	Main	Main	Main	Ratoon	Total	Main	Main
Trt No. Treatment Name									
1 Clearfield XL8	.	.	.	.	.	.	.	.	.
2 Clearfield XL730	97 c	42 a	83	4	9937 abc	2918 bc	12856 abc	68 ab	56 cd
3 Clearfield XP729	97 c	41 a	57	1	10031 abc	3474 ab	13504 a	68 b	54 d
4 XL723	96 c	42 a	.	.	10425 ab	3201 ab	13626 a	76 a	59 bc
5 Cocodrie	96 c	34 de	.	.	9527 abc	1858 e	11385 cd	69 ab	60 abc
6 Cheneire	99 b	35 cd	.	.	9453 abc	2122 de	11576 bcd	71 ab	62 ab
7 Trenasse	91 d	37 bc	55	4	9431 abc	2404 cde	11834 bcd	69 ab	61 abc
8 CL161	100 a	37 b	.	.	9227 bc	2434 cde	11661 bcd	68 ab	62 ab
9 CL131	99 b	33 e	.	.	9526 abc	1899 e	11425 cd	71 ab	64 ab
10 Wells	97 c	41 a	.	.	10633 a	2434 cde	13066 ab	71 ab	62 ab
11 Presidio	97 c	36 bcd	.	.	8902 cd	3653 a	12555 abc	71 ab	64 a
LSD (P=.05)	1	2	.	.	1131	638	1338	7	4
Standard Deviation	1	1	.	.	783	442	927	3	2
CV	1	3	.	.	8	17	8	4	3
Replicate F	2.963	2.189	.	.	0.107	4.964	1.687	0.448	2.716
Replicate Prob(F)	0.0479	0.1381	.	.	0.9551	0.0065	0.1909	0.5186	0.1304
Treatment F	35.856	30.968	.	.	3.783	7.605	4.457	1.084	5.673
Treatment Prob(F)	0.0001	0.0001	.	.	0.0022	0.0001	0.0007	0.4507	0.0056

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Hybrid Yield Comparison (Evangeline Parish).

Experiment number ..... : 06-EP-01

Site and design ..... :
- **Location/Cooperator** ..... : Evangeline Parish
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 5 x 16 ft
- **Row width/rows per plot** ..... : 8 in/7

Soil type ..... : Crowley silt loam
- **% organic matter** ..... :
- **pH** ..... :
- **Extractable nutrients** ..... :

Crop/Variety ..... : Rice/ multiple
- **Planting method/date** ..... : Drill seeded/April 5
- **Seeding rate/depth** ..... : Hybrids, 14 seed/ft^2; Commercial, 40 seed/ft^2/1/2in
- **Emergence date** ..... :
- **Harvest date** ..... : August 9

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 250 lb 8-24-24 April 5; 120 lb N/A (46-0-0) May 3; 45 lb N/A (46-0-0) commercial varieties only on June 5; 30 lb N/A (46-0-0) hybrids June 23

Water management ..... :
- **Flush** ..... : as needed
- **Flood** ..... : May 4
- **Drain** ..... : July 27

Pest management ..... :
- **Herbicides** ..... : 20oz. Clincher + 2 oz. Grasp on May 3
- **Insecticides** ..... : None
- **Fungicides** ..... : None

Comments ..... : CL XL8 was removed from the analysis due to seed purity problems that we recognized after planting. Also, cultural management information was not available at time of printing.

Table 57. Hybrid Yield Comparison (Evangeline Parish).

Crop Name	Rice	Rice	Rice	Rice	Rice
Rating Date		8/10/2006	8/10/2006		
Rating Data Type	50% Head	Height	Yield	Total Mill	Whole Mill
Rating Unit	days	inches	lb/A	%	%
Crop Stage	Main	Main	Main	Main	Main
Trt No. Treatment Name					
1 Clearfield XL8	.	.	.	.	.
2 Clearfield XL730	81 b	38 a	8801 b	68 cd	58 de
3 Clearfield XP729	81 b	37 a	8802 b	69 bc	59 de
4 XL723	79 c	38 a	10638 a	70 ab	61 a-d
5 Cocodrie	81 b	29 ef	7997 bc	71 a	63 a-d
6 Cheneire	84 a	30 de	7888 bc	71 a	65 ab
7 Trenasse	73 d	34 bc	8868 b	67 d	60 bcd
8 CL161	84 a	33 c	7857 bc	70 ab	65 a
9 CL131	84 a	28 f	7754 bc	72 a	64 abc
10 Wells	85 a	35 bc	8780 b	70 ab	60 cd
11 Presidio	78 c	31 d	7120 cd	69 bc	64 abc
LSD (P=.05)	1.2	1.5	1483.8	1.6	4.2
Standard Deviation	0.9	1.0	666.0	0.7	1.9
CV	1.0	3.0	8.1	1.0	3.1
Replicate F	2.585	13.985	2.14	1.699	4.216
Replicate Prob(F)	0.0716	0.0001	0.1743	0.2216	0.0671
Treatment F	69.763	48.05	6.029	8.817	5.654
Treatment Prob(F)	0.0001	0.0001	0.0044	0.001	0.0057

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Hybrid Yield Comparison (Morehouse Parish).

Experiment number ..... : 06-MP-01

Site and design ..... :
- **Location/Cooperator** ..... : Morehouse Parish/Don Andrews and Roland Crymes
- **Tillage type** ..... : Spring stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Hebert silty clay
- **% organic matter** ..... : 2.79
- **pH** ..... : 6.7
- **Extractable nutrients** ..... : P-20; K-289; Ca-2890; Mg-916; Na-225; S-20; Zn-6.2; Cu-3.4 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/May 16
- **Seeding rate/depth** ..... : Hybrids-14 seed/ft^2; Commercial-40 seed/ft^2/.5 in
- **Emergence date** ..... : May 27 and 28
- **Harvest date** ..... : September 25

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 250 lb 8-24-24 June 15; 120 lb N/A (46-0-0) July 10; 45 lb N/A (46-0-0) commercial varieties only on August 8; 30 lb N/A (46-0-0) hybrids August 8

Water management ..... :
- **Flush** ..... : May 22, June 8
- **Flood** ..... : June 15
- **Drain** ..... : September 8

Pest management ..... :
- **Herbicides** ..... : 1 qt Glyphosate, May 17
  4 qt Arrosolo, June 7
  15 oz Clincher, June 30
- **Insecticides** ..... : 2 oz Karate, June 22, August 3 and 18
- **Fungicides** ..... : 12 oz Quadris, August 3

Comments ..... : CL XL8 was removed from the analysis due to seed purity problems that we recognized after planting.

Table 58. Hybrid Yield Comparison (Morehouse Parish).

Crop Name		Rice	Rice	Rice	Rice	Rice
Rating Date			9/25/2006	9/25/2006		
Rating Data Type		50% Head	Height	Yield	Total Mill	Whole Mill
Rating Unit		days	inches	lb/A	%	%
Crop Stage		Main	Main	Main	Main	Main
Trt No.	Treatment Name					
1	Clearfield XL8	.	.	.	.	.
2	Clearfield XL730	90 b	40 a	10183 a	72 a	64 abc
3	Clearfield XP729	88 c	38 ab	9880 ab	71 abc	63 a-d
4	XL723	87 d	39 a	10192 a	69 bc	59 cd
5	Cocodrie	88 c	31 de	8022 cde	71 a	66 ab
6	Cheneire	91 b	30 de	8436 cd	71 ab	61 a-d
7	Trenasse	81 e	36 c	9027 bc	69 c	60 bcd
8	CL161	95 a	35 c	8192 cde	72 a	67 ab
9	CL131	88 cd	29 e	8045 cde	72 a	67 a
10	Wells	90 b	37 bc	9107 abc	71 abc	62 a-d
11	Presidio	87 cd	32 d	7673 de	69 bc	64 abc
LSD (P=.05)		1.2	2.0	1037.2	1.5	6.0
Standard Deviation		0.8	1.2	718.3	0.7	2.7
CV		0.9	3.3	8.2	1.0	4.3
Replicate F		7.705	2.304	1.338	0.251	0.387
Replicate Prob(F)		0.0006	0.1257	0.2807	0.6275	0.5477
Treatment F		66.233	28.805	8.509	4.931	3.316
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0094	0.036

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Hybrid Yield Comparison (Richland Parish).

Experiment number ..... : 06-RP-11

Site and design ..... :
- **Location/Cooperator** ..... : Richland Parish/Woodsland Plantation/Todd Bridges
- **Tillage type** ..... : Fall stale seedbed
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 7 x 20 ft
- **Row width/rows per plot** ..... : 7 in/12

Soil type ..... : Hebert silty clay
- **% organic matter** ..... : 2.18
- **pH** ..... : 5.4
- **Extractable nutrients** ..... : P-24; K-172; Ca-1829; Mg-651; Na-94; S- 22; Zn-1.0; Cu-2.1 ppm

Crop/Variety ..... : Rice/Multiple (See data sheet)
- **Planting method/date** ..... : Drill seeded/May 3
- **Seeding rate/depth** ..... : Hybrid- 14 seed/ft^2; Commercial- 40 seed/ft^2/.75 in
- **Emergence date** ..... : May 11 and 12
- **Harvest date** ..... : September 13

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 100 lb/A DAP, May 1

Water management ..... :
- **Flush** ..... : May 4 and 22
- **Flood** ..... : June 6
- **Drain** ..... : August 30

Pest management ..... :
- **Herbicides** ..... : 1 qt/A Roundup + 16 oz/A Command 3ME, May 4
  1 gal/A Duet + 1 pt/A Grandstand, June 5
  15 oz/A Clincher + 2 qt/A Crop oil, June 27
- **Insecticides** ..... : 1.8 oz/A Karate Z, July 19 and August 2
- **Fungicides** ..... : 14 oz/A Quilt, July 19

Comments ..... : CL XL8 was removed from the analysis due to seed purity problems that we recognized after planting.

Table 59. Hybrid Yield Comparison (Richland Parish).

Crop Name		Rice	Rice	Rice	Rice	Rice
Rating Date			9/12/2006	9/13/2006		
Rating Data Type		50% Head	Height	Yield	Total Mill	Whole Mill
Rating Unit		days	in	lb/A	%	%
Crop Stage		Main	Main	Main	Main	Main
Trt No.	Treatment Name					
1	Clearfield XL8	.	.	.	.	.
2	Clearfield XL730	89 d	41 a	11112 a	71 ab	63 e
3	Clearfield XP729	89 d	39 b	10375 a	71 abc	64 de
4	XL723	88 d	40 ab	10750 a	71 abc	64 cde
5	Cocodrie	91 c	34 cd	9302 b	70 bcd	63 e
6	Cheneire	92 b	32 d	9252 b	71 abc	65 bc
7	Trenasse	81 f	34 cd	8317 cd	69 e	60 f
8	CL161	96 a	34 cd	8481 bc	70 cd	66 a
9	CL131	89 d	28 e	8718 bc	71 abc	65 ab
10	Wells	91 bc	35 c	9392 b	71 a	60 f
11	Presidio	87 e	34 c	7454 d	69 de	65 bcd
LSD (P=.05)		1.3	1.8	826.8	0.8	1.1
Standard Deviation		0.9	1.1	572.6	0.4	0.5
CV		1.0	3.0	6.3	0.5	0.8
Replicate F		12.47	0.849	2.179	1.222	0.007
Replicate Prob(F)		0.0001	0.4426	0.1112	0.2948	0.9334
Treatment F		76.537	42.301	17.974	10.038	139.828
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0006	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice-Based Cropping Systems in a No-Till Production System 2: *Rice-Rice*.

Experiment number ..... : 06-CS-20 (rice, rice)

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : No Till
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 20 x 50 ft
- **Row width/rows per plot** ..... : 7 in/34

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

Crop/Variety ..... : Rice/Cheniere
- **Planting method/date** ..... : Drill seeded/May 12
- **Seeding rate/depth** ..... : 75 lb/A/2 in
- **Emergence date** ..... : May 22
- **Harvest date** ..... : September 8

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 250 lb/A 8-24-24 + 2.8 Zn, May 15
165 lb N/A 46-0-0, June 12

Water management ..... :
- **Flush** ..... : May 24
- **Flood** ..... : June 13
- **Drain** ..... : August 29

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1.5 pt Basagran, June 2
- **Insecticides** ..... : 1 oz/A Icon seed treatment
- **Fungicides** ..... : None

Rice-Based Cropping Systems in a No-Till Production System 2: *Rice-Sorghum*.

Experiment number ..... : 06-CS-20 (rice, grain sorghum)

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : No Till
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 20 x 50 ft
- **Row width/rows per plot** ..... : 30 in/8

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

Crop/Variety ..... : Grain sorghum/TV9421
- **Planting method/date** ..... : Drill seeded/May 12
- **Seeding rate/depth** ..... : 5 seed per linear ft/2 in
- **Emergence date** ..... : May 20
- **Harvest date** ..... : September 5

Fertilization ..... : 250 lb/A 8-24-24 + 2.8 Zn, May 15
25 lb N/A 46-0-0, May 24
80 lb N/A 46-0-0, June 12

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

Pest management ..... :
- **Herbicides** ..... : 1.5 lb/A Glyphosate, May 12
  1.33 pt/A Dual 2 Magnum + 3.5 pt/A Atrazine 4.0, May 29
- **Insecticides** ..... : None
- **Fungicides** ..... : None

Rice-Based Cropping Systems in a No-Till Production System 2: *Rice-Soybean*.

Experiment number ..... : 06-CS-20 (rice, soybean)

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : No Till
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 20 x 50 ft
- **Row width/rows per plot** ..... : 30 in/8

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

Crop/Variety ..... : Soybeans/DP5414
- **Planting method/date** ..... : Drill seeded/May 12
- **Seeding rate/depth** ..... : 50 lb/A/2 in
- **Emergence date** ..... : May 20
- **Harvest date** ..... : October 9

Fertilization ..... : 250 lb/A 8-24-24 + 2.8 Zn, May 15

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

Pest management ..... :
- **Herbicides** ..... : 1.5 lb/A Glyphosate at 10 GPA, May 12
  1.5 lb/A Glyphosate at 10 GPA, June 19
- **Insecticides** ..... : .75 lb/A Orthene + 9.2 oz/A Steward, August 22
- **Fungicides** ..... : None

Table 60. Rice-Based Cropping Systems in a No-Till Production System 2.

Crop Name	Rice	Sorghum	Soybean	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Description	Yield	Yield	Yield	P_d	OM	OM	pH	pH	Ca	Ca	Cu	Cu
Rating Date	9/8/2006	9/5/2006	10/9/2006									
Rating Unit	lbs/A	Bu/A	Bu/A	g/cm^3	%	%			ppm	ppm	ppm	ppm
Crop Stage	Maturity	Maturity	Maturity	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Trt No. Treatment Name												
1 Continuous Rice	5652.8			1.59 a	2.02 b	1.95 a	7.1 a	7.5 a	1938 a	2033 a	1.65 ab	1.90 ab
2 1:1 Rice-Soybean			43.8	1.53 a	2.21 a	2.14 a	7.2 a	6.9 b	2001 a	1990 a	1.41 b	1.85 b
3 1:1 Rice-Grain Sorghum		53.2		1.56 a	2.17 ab	2.12 a	7.1 a	7.2 ab	1934 a	2059 a	1.40 b	2.10 a
4 1:1 Rice-Fallow Ground				1.56 a	2.17 ab	1.99 a	7.2 a	7.3 ab	1929 a	2041 a	1.75 a	1.98 ab
LSD (P=.05)	.	.	.	0.1	0.2	0.2	0.2	0.4	222.9	203.8	0.3	0.2
Standard Deviation	.	.	.	0.1	0.1	0.1	0.1	0.3	139.4	127.4	0.2	0.1
CV	.	.	.	4.1	5.0	7.2	1.5	3.8	7.2	6.3	11.9	7.1
Replicate F				2.60	19.88	4.94	6.51	3.28	12.53	24.48	2.63	2.77
Replicate Prob(F)				0.12	0.00	0.03	0.01	0.07	0.00	0.00	0.11	0.10
Treatment F				0.61	2.29	1.56	0.33	3.00	0.24	0.21	3.49	2.42
Treatment Prob(F)				0.63	0.15	0.27	0.80	0.09	0.87	0.89	0.06	0.13

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plot 202 was an outlier caused by a poor soybean stand and was removed prior to statistical analysis.

Rice, soybeans, and sorghum yields were adjusted to a moisture content of 12,13, and 14%, respectively.

P_d is bulk density.

Table 60. Continued.

Crop Name	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Description	Mg	Mg	P	P	K	K	Na	Na	S	S	Zn	Zn
Rating Date												
Rating Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Crop Stage	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Trt Treatment												
No. Name												
1 Continuous Rice	221 a	231 a	65 a	61 a	110 b	104 a	102 a	134 a	8.44 a	9.98 ab	6.00 a	7.90 a
2 1:1 Rice-Soybean	214 a	234 a	76 a	70 a	117 ab	110 a	104 a	97 b	7.81 a	8.78 b	5.49 a	6.78 a
3 1:1 Rice-Grain Sorghum	216 a	249 a	76 a	72 a	122 a	111 a	97 a	105 b	7.54 a	9.45 ab	6.05 a	12.95 a
4 1:1 Rice-Fallow Ground	220 a	240 a	71 a	67 a	110 b	114 a	103 a	114 ab	8.00 a	10.23 a	5.28 a	6.65 a
LSD (P=.05)	18.9	26.2	16.5	17.7	10.9	18.9	12.9	23.3	1.5	1.2	1.9	7.2
Standard Deviation	11.8	16.4	10.3	11.1	6.8	11.8	8.0	14.6	1.0	0.7	1.2	4.5
CV	5.4	6.9	14.4	16.4	5.9	10.8	7.9	13.0	12.2	7.7	20.4	52.9
Replicate F	4.82	4.67	14.12	5.00	20.54	14.05	6.94	0.30	0.95	6.67	4.48	1.95
Replicate Prob(F)	0.03	0.03	0.00	0.03	0.00	0.00	0.01	0.82	0.46	0.01	0.03	0.19
Treatment F	0.33	0.97	0.97	0.78	2.94	0.43	0.58	4.71	0.62	2.97	0.43	1.73
Treatment Prob(F)	0.80	0.45	0.45	0.53	0.09	0.74	0.64	0.03	0.62	0.09	0.74	0.23

Table 60. Continued.

Crop Name	Soil	Soil	Soil	Soil
Description	Total C	Total C	Total N	Total N
Rating Date				
Rating Unit	g/kg	g/kg	g/kg	g/kg
Crop Stage	Spring	Fall	Spring	Fall
Trt Treatment No. Name				
1 Continuous Rice	10.04 b	10.14 a	1.32 b	1.35 a
2 1:1 Rice-Soybean	11.20 a	10.93 a	1.48 a	1.49 a
3 1:1 Rice-Grain Sorghum	10.90 ab	10.59 a	1.44 a	1.47 a
4 1:1 Rice-Fallow Ground	11.09 ab	10.52 a	1.45 a	1.42 a
LSD (P=.05)	1.0	1.2	0.1	0.1
Standard Deviation	0.7	0.8	0.1	0.1
CV	6.0	7.1	4.4	6.2
Replicate F	25.28	7.59	31.29	6.40
Replicate Prob(F)	0.00	0.01	0.00	0.01
Treatment F	2.63	0.74	4.73	1.93
Treatment Prob(F)	0.11	0.55	0.03	0.20

Rice-Based Cropping Systems in a Conventional Tillage Production System 2: *Rice-Rice*.

Experiment number ..... : 06-CS-21 (rice, rice)

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 20 x 50 ft
- **Row width/rows per plot** ..... : 7 in/34

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

Crop/Variety ..... : Rice/Cheniere
- **Planting method/date** ..... : Drill seeded/May 15
- **Seeding rate/depth** ..... : 75 lb/A/2 in
- **Emergence date** ..... : May 25
- **Harvest date** ..... : September 8

Seed treatment/cwt ..... : Dithane (fungicide)-114 g
Release (gibberellic acid)-10 g
Zinche (40.5% Zn)-236 ml

Fertilization ..... : 250 lb/A 8-24-24 + 2.8 Zn, May 15
165 lb N/A 46-0-0, June 12

Water management ..... :
- **Flush** ..... : May 24
- **Flood** ..... : June 13
- **Drain** ..... : August 29

Pest management ..... :
- **Herbicides** ..... : 3 qt/A Arrosolo + 1.5 pt Basagran, June 2
- **Insecticides** ..... : 1 oz/A Icon seed treatment
- **Fungicides** ..... : None

Rice-Based Cropping Systems in a Conventional Tillage Production System 2: *Rice-Sorghum*.

Experiment number ..... : 06-CS-21 (rice, grain sorghum)

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 20 x 50 ft
- **Row width/rows per plot** ..... : 30 in/8

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

Crop/Variety ..... : Grain Sorghum/TV9421
- **Planting method/date** ..... : Drill seeded/May 15
- **Seeding rate/depth** ..... : 5 seed per linear ft/2 in
- **Emergence date** ..... : May 22
- **Harvest date** ..... : September 5

Fertilization ..... : 250 lb/A 8-24-24 + 2.8 Zn, May 15
25 lb N/A 46-0-0, May 24
80 lb N/A 46-0-0, June 12

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

Pest management ..... :
- **Herbicides** ..... : 1.33 pt/A Dual 2 Magnum + 3.5 pt/A Atrazine 4.0, May 29
- **Insecticides** ..... : None
- **Fungicides** ..... : None

Rice-Based Cropping Systems in a Conventional Tillage Production System 2: *Rice-Soybean*.

Experiment number ..... : 06-CS-21 (rice, soybean)

Site and design ..... :
- **Location/Cooperator** ..... : Rice Research Station (South Unit)
- **Tillage type** ..... : Conventional
- **Experimental design** ..... : Randomized complete block
- **Number of reps** ..... : 4
- **Plot size** ..... : 20 x 50 ft
- **Row width/rows per plot** ..... : 30 in/8

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

Crop/Variety ..... : Soybean/DP5414
- **Planting method/date** ..... : Drill seeded/May 15
- **Seeding rate/depth** ..... : 9 seed per linear ft/2 in
- **Emergence date** ..... : May 22
- **Harvest date** ..... : October 9

Fertilization ..... : 250 lb/A 8-24-24 + 2.8 Zn, May 15

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

Pest management ..... :
- **Herbicides** ..... : 1.5 lb/A Glyphosate at 10 GPA, June 19
- **Insecticides** ..... : .75 lb/A Orthene + 9.2 oz/A Steward, August 22
- **Fungicides** ..... : None

Table 61. Rice-Based Cropping Systems in a Conventional Tillage Production System 2.

Crop Variety	Rice	Sorghum	Soybean	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Description	Yield	Yield	Yield	P_d	OM	OM	pH	pH	Ca	Ca	Cu	Cu
Rating Date	9/8/2006	9/5/2006	10/9/2006									
Rating Unit	lb/A	bu/A	bu/A	g/cm^3	%	%	ppm	ppm	ppm	ppm	ppm	ppm
Crop Stage	Maturity	Maturity	Maturity	Fall	Spring	Fall	Spring	Fall	Spring	fall	Spring	Fall
Trt No. Treatment Name												
1 Continuous Rice	5472			1.50 a	1.77 a	2.04 ab	6.8 b	7.1 a	1710 a	1944 a	1.96 a	1.92 b
2 1:1 Rice-Soybean			60	1.39 a	1.85 a	2.08 ab	7.0 a	6.7 a	1800 a	2026 a	1.82 a	2.12 b
3 1:1 Rice-Grain Sorghum		44		1.41 a	2.06 a	2.23 a	6.9 ab	6.8 a	1853 a	1991 a	2.82 a	2.27 ab
4 1:1 Rice-Fallow Ground				1.46 a	1.81 a	1.97 b	6.9 ab	7.0 a	1788 a	1963 a	2.08 a	2.50 a
LSD (P=.05)	.	.	.	0.1	0.3	0.2	0.2	0.4	203.0	252.9	1.6	0.3
Standard Deviation	.	.	.	0.1	0.2	0.1	0.1	0.2	126.9	158.1	1.0	0.2
CV	.	.	.	5.3	10.0	6.9	1.5	3.5	7.1	8.0	46.9	9.5
Replicate F				4.43	0.69	1.60	9.07	4.98	2.56	3.55	1.38	9.65
Replicate Prob(F)				0.04	0.58	0.26	0.00	0.03	0.12	0.06	0.31	0.00
Treatment F				1.53	1.98	2.27	2.95	2.03	0.87	0.21	0.77	5.46
Treatment Prob(F)				0.27	0.19	0.15	0.09	0.19	0.49	0.89	0.54	0.02

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Rice, soybeans, and sorghum yields were adjusted to a moisture content of 12,13, and 14%, respectively.

P_d is bulk density.

Table 61. Continued.

Crop Variety	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Description	Mg	Mg	P	P	K	K	Na	Na	S	S	Zn	Zn
Rating Date												
Rating Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Crop Stage	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Trt Treatment												
No. Name												
1 Continuous Rice	315 a	301 a	49 a	63 a	111 a	114 b	117 a	159 a	7.9 a	10.0 a	5.2 b	8.8 a
2 1:1 Rice-Soybean	251 a	290 a	63 a	76 a	111 a	129 ab	107 a	133 ab	8.3 a	11.2 a	6.8 a	9.9 a
3 1:1 Rice-Grain Sorghum	292 a	303 a	56 a	68 a	125 a	125 ab	121 a	123 b	8.5 a	10.2 a	6.3 ab	9.7 a
4 1:1 Rice-Fallow Ground	277 a	304 a	55 a	61 a	121 a	136 a	112 a	128 b	8.4 a	11.5 a	7.0 a	8.2 a
LSD (P=.05)	118.8	42.2	20.3	25.0	19.9	16.0	17.4	28.6	1.2	2.5	1.2	3.8
Standard Deviation	74.3	26.4	12.7	15.6	12.4	10.0	10.9	17.9	0.8	1.6	0.8	2.4
CV	26.2	8.8	22.7	23.3	10.6	7.9	9.5	13.2	9.1	14.5	12.2	25.8
Replicate F	0.96	3.00	2.04	1.32	0.86	6.36	1.50	4.95	15.94	1.08	10.36	2.46
Replicate Prob(F)	0.45	0.09	0.18	0.33	0.50	0.01	0.28	0.03	0.00	0.40	0.00	0.13
Treatment F	0.51	0.22	0.83	0.73	1.27	3.17	1.18	3.23	0.42	0.89	4.21	0.42
Treatment Prob(F)	0.69	0.88	0.51	0.56	0.34	0.08	0.37	0.07	0.74	0.48	0.04	0.75

Table 61. Continued.

Crop Variety	Soil	Soil	Soil	Soil
Description	Total C	Total C	Total N	Total N
Rating Date				
Rating Unit	g/kg	g/kg	g/kg	g/kg
Crop Stage	Spring	Fall	Spring	Fall
Trt Treatment No. Name				
1 Continuous Rice	8.41 b	10.27 b	1.19 a	1.37 b
2 1:1 Rice-Soybean	9.23 ab	10.88 ab	1.29 a	1.41 ab
3 1:1 Rice-Grain Sorghum	9.56 a	11.05 a	1.34 a	1.47 a
4 1:1 Rice-Fallow Ground	9.20 ab	10.24 b	1.30 a	1.41 ab
LSD (P=.05)	1.0	0.7	0.1	0.1
Standard Deviation	0.6	0.4	0.1	0.0
CV	6.7	3.8	7.0	3.5
Replicate F	3.10	2.84	1.21	1.86
Replicate Prob(F)	0.08	0.10	0.36	0.21
Treatment F	2.58	4.16	1.83	2.84
Treatment Prob(F)	0.12	0.04	0.21	0.10

FOUNDATION SEED RICE PROGRAM

Lawrence M. White III

INTRODUCTION

Foundation seed rice has been produced by the Rice Research Station for distribution to Louisiana farmers since 1949. The Rice Research Station's seed rice program was instituted in response to the critical shortage of pure planting stocks that existed during and after World War II. Since its inception, the program has made available to Louisiana growers more than 152,000 cwt. of pedigreed stock of 37 rice varieties.

Concurrent with the distribution of pure seed by the Rice Research Station, an industry was developed in Louisiana an industry comprised 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 of successive generations of selection and testing to establish its value as crop seed and eventually as a commercial commodity. For this reason, foundation seed and the basic stocks from which it is produced must be grown and conditioned in a manner that will ensure that viability is maintained and that it be genetically pure and free from mechanical mixtures or contamination by noxious weeds.

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

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

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

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

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

PRODUCTION PRACTICES

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

Seedbed preparation of foundation fields are performed in the fall. Burndown herbicides are applied prior to seeding. The foundation fields are planted into a stale seedbed by means of a 24-runner minimum tillage drill. The breeder stock is planted at rates that may vary from 25 to 100 lb/A. The rice receives a preflood application of urea in which the rate of N may vary from 45 to 90 lb/A, as well as basic fertilizer applications based on soil test recommendations. A midseason application of N in rates from 21 to 55 lb/A is also applied.

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

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

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

Cleaning of foundation and breeder seed usually commences in late October and continues until late December. The rice first moves through an air-and-screen cleaner that removes chaff, straw, and other foreign material and grades the grain according to width and thickness.

It then flows through three length-grading machines that consist of rotating, indented metal cylinders. The first two remove small grains and broken or dehulled kernels of rice. The third one removes stemmy rice, grains that have very long awns that are attached to portions of the panicle. In the next phase of cleaning, the rice moves through a machine that performs precision grading of the grain by means of rotating perforated cylinders. This machine is designed to separate medium-grain and/or red rice from long-grain rice. It is also capable of removing shriveled and other slender kernels from medium-grain rice.

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

From the cleaning machines, foundation and breeder seed rice are bagged, assigned lot numbers, and placed in storage in the Rice Research Station's seed rice warehouse where they remain until they are distributed to Louisiana farmers.

The field and laboratory purity standards for foundation seed rice are very strict with regard to varietal mixtures and noxious weeds. In all phases of production, therefore, great care must be exercised to prevent these impurities from contaminating the seed stocks. To that end, it is routine procedure at the Rice Research Station to partially disassemble all planting and harvesting equipment and to clean it thoroughly with water and/or compressed air before using it in the field. The dryer and cleaning plant, including all elevators and other conveying equipment, are also subjected to meticulous cleaning and inspection before and after having been used in stubble fields. Therefore, tractors, plows, harrows, and land levelers are carefully washed before they enter land that is in a fallow cycle. These measures, together with the inspection and roguing, which are done during the growing season, help to ensure that foundation seed is genetically pure and free of mechanical mixtures and noxious weed seeds.

2006 ACTIVITIES

Of the 1063 cwt. of foundation seed rice sold in 2006, the varieties and quantities were as follows: Cheniere, 390 cwt.; Trenasse, 292 cwt.; Cocodrie, 271 cwt.; Jupiter, 49 cwt.; Pirogue, 36 cwt.; and Cypress, 25 cwt.

The Rice Research Station's foundation seed crop in 2006 consisted of 18 acres of Cocodrie, 10 acres of Trenasse, 1 acre of Bengal, 1 acre of Dellrose, .75 acre of Toro-2, .75 acre of Pirogue, and .75 acre of Della.

Headrows of Cocodrie, Cheniere, Trenasse, Jupiter, Bengal, Toro-2, Pirogue, and Della were grown for replenishment of breeder seed stock.

RICE PHYSIOLOGY

INTRODUCTION

Plant growth regulators (PGRs) have a significant effect on crop production because of their ability to alter plant growth and development. Therefore, studies of PGR modifications to plant growth and development that improve rice production were conducted.

In greenhouse and small plot trials, emergence has been improved with PGRs that cause mesocotyl, coleoptile, and leaf elongation. The mesocotyl and coleoptile are short in semidwarf cultivars, and seeding more than 2 inches below the soil surface can result in poor stands. In addition, seedling height of semidwarf rice increases slowly, resulting in poor seedling vigor. Small plot studies were conducted to evaluate the effects of PGRs on seedling vigor of new and existing varieties and experimental lines.

Ratoon or second crop production in rice is directly dependent on growth from buds located at the base and at nodes on first crop stubble remaining after harvest. These buds remain dormant during the first crop. Plant growth regulators and stubble management were evaluated to determine the effect on ratoon crop growth and development.

Some PGRs are reported to increase grain yield directly. Several were evaluated.

To address the objectives of emergence and seedling vigor improvement and yield enhancement in rice, PGRs were tested for their effects on rice growth and development.

NORTH UNIT GENERAL METHODOLOGY

Location: Rice Research Station, Crowley, LA (North Unit, Field N8)

Seeding Method/Depth/Rate: Drilled on 7-inch rows/1.5 inches/80 lb/A

Fertilizer: 8-24-24 with 3.5% Zn and 2% S at 250 lb/A by JD drill, 27 Mar
Urea (46% N) at 200 lb/A (10 May) and 100 lb/A (6 June) by airplane

Plot Size/Treated Area: 262.5 ft^2 – 8.75 (15 rows) x 30 ft

Seed Treater: Cement mixer

Sprayer: CO_2-driven, backpack, 35 psi, 15 GPA, 8001VS tips, 20-inch nozzle spacings

Planting Date: 27 Mar

Emergence: 11 Apr

Water Management: Flushed, 3, 11, and 19 Apr; permanent flood (3-inch), 11 May;
preharvest drain, 24 July

Pertinent Rainfall: 0.4 inch, 25 Apr; 0.9 inch, 26 Apr; 3.0 inches, 29 Apr; 0.4 inch, 4 May; see individual experiments

Growth Stage Definitions: Late Tiller (LT), 3 to 4 tillers per plant
Internode Initiation (II), beginning of internode elongation inside main stem
Panicle Differentiation (PD), 2-mm panicle inside main stem
Early Boot (EB), 1- to 2-inch panicle inside main stem
Early Heading (EH), <5% of stems with some degree of panicle exsertion
Milk Stage (MS), endosperm is white liquid in uppermost florets
Dough Stage (DS), endosperm is white dough in uppermost florets

Pesticide(s): Dithane DF (4 oz/cwt) seed treatment, 20 Mar
Icon (0.9 fl oz/A) seed treatment, 20 Mar
Stam (3 qt/A) by airplane, 17 Apr
Arrosolo (1 gal/A) + Prowl (2.4 pt/A) by airplane, 3 May
Clincher (15 fl oz/A) + COC (1 qt/A) by airplane, 24 May
Londax (1.67 oz/A) by airplane, 31 May
Quadris (12 fl oz/A) by airplane, 28 June

Plant Growth Regulator(s): Release (0.35 oz/cwt) seed treatment, 20 Mar

Harvest Date/Area: 4 Aug/192.5 ft^2 - 8.75 (15 rows) x 22 ft

SEEDLING VIGOR STUDIES – SEED TREATMENT

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Valent BioSciences Corporation Experimental Seed Treatments and Seedling Vigor in Drill-Seeded Rice – March Planting Date

Location: Rice Research Station, Crowley, LA (North Unit, Field N9-A)

Variety: See Treatments

Planting Method: Drilled on 7-inch rows

Planting Depth: 2-inch

Seeding Rate: 80 lb/A

Fertilizer: None

Plot Size: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treated Area: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treatment(s): **Variety(s)**
Proprietary (V2 and V3 are standard industry rice varieties)

Plant Growth Regulator(s)
Proprietary (Treatment 1 and Treatment 2 are standard industry seed treatments and Vx-1, 2, 3, 5, 6, 7, 13, 14, and 15 are VBC experimental seed treatments, x=2 or 3)

Seed Treater: Proprietary

Sprayer: Not applicable

Planting Date: 16 Mar

Emergence: See Treatments

Water Management: None

Pertinent Rainfall: 0.3 inch, 20 Mar; 0.1 inch, 29 Mar; 0.1 inch, 8 Apr; 0.2 inch, 21 Apr

Herbicide(s): None

Insecticide(s): Proprietary

Fungicide(s): Proprietary

Plant Growth Regulator(s): See Treatments

Harvest Date: Not applicable

Harvested Area: Not applicable

Experimental Design: Randomized complete block design and four replications. Treatment arrangement was as follows. A given plot contained a different variety and/or experimental seed treatment in each row. The position of a variety and/or experimental seed treatment within a given plot was constant. Each given plot contained six or seven rows in accommodating 20 varieties and experimental seed treatment combinations.

Comments: **Seedling Vigor – Emergence and Plant Population Density (Stand)**

Variety and experimental seed treatment had a significant effect on emergence of rice (Table 1). Time to stand, an evaluation of emergence, was the number of days from planting to establishment of an adequate stand (10 plants/ft^2). In general, emergence was slow, with time to stand ranging between 16 and 28 days after planting (DAP). The evaluation period was 28 days. Any entry that had not obtained an adequate stand by 28 DAP was assigned a time of stand of 28 DAP. These entries were considered unable to reach an adequate stand under the experimental conditions that existed. On average, V2 (25 days) was slower emerging compared with V3 (23 days), and both were generally slower to emerge compared with the industry standards (Treatments 1 and 2 – 20 days). The earliest emerging entries (16 to 19 days) were Treatment 1, V3-3, V3-6, and V3-7. Entries that did not attain an adequate stand were V3-1, V3-13, V3-14, V2-7, V2-13, and V2-15.

Variety and experimental seed treatment had a significant effect on stand (Table 1). Final stand was measured as number of viable (green) 1-leaf stage or older plants at 28 DAP. All entries exhibited poor to fair (as opposed to good to excellent) seedling vigor with final stands of 3 to 8 plants/ft^2 and could be separated into primarily two categories according to final stand. The least vigorous category with stands of 3 to 5 plants/ft^2 included V2-1, V2-2, V2-3, V2-5, V2-6, V2-7, V2-13, V2-15, V3-1, V3-13, V3-14, and V3-15. The moderately vigorous category with stands of 6 to 8 plants/ft^2 included Treatments 1 and 2, V2-14, V3-2, V3-3, V3-5, V3-6, and V3-7. On average, the V2 entries had a lower stand (4 plants/ft^2) compared with the V3 entries (6 plants/ft^2), and the industry standards (Treatments 1 and 2) averaged a slightly higher stand (7 plants/ft^2) compared with V2 and V3.

For reference and to account for differences in seeding rates among runners on the drill, final stand was also presented as percent of seed planted (Table 1). Only minor differences were noted between the results on final stand presented as plant density or percent of seed planted.

The poor to fair levels of seedling vigor noted across the board were related in large measure to low soil moisture. Even though planting deep (2 inches or more below the soil surface) placed seed in adequate moisture for germination, soil moisture declined during the course of the study. With flushing disallowed for this study, seedlings died from the lack of soil moisture and dead seedlings were not included in the final count. Seedling mortality was noted and a rough estimate was determined. Mortality was based on the portion of the highest stand count (obtained during evaluation of emergence) not accounted for by the final stand and expressed as a percent. Estimated seedling mortality averaged between 20 and 53% and was highly variable (Table 1). Some general trends in mortality were noted. Treatments 1 and 2 had the lowest mortality (20 and 31%, respectively). For V3, mortality averaged lower (32%) for the V3-1, V3-2, V3-3, V3-5, and V3-6 group of entries compared with 48% for the V3-7, V3-13, V3-14, and V3-15 group of entries. For V2, the trend was reversed. For the V2-7, V2-13, V2-14, and V2-15 group of entries mortality averaged 42% compared with 50% for the V2-1, V2-2, V2-3, V2-5, and V2-6 group of entries.

Temperatures were adequate for germination and emergence, and drought had the greatest effect on the results. Following planting (16 Mar) and during the evaluation period for emergence and stand (30 Mar - 13 Apr), daily average soil temperatures averaged 69ºF and ranged between 59 and 76ºF, and daily average air temperatures averaged 66ºF and ranged between 50 and 78ºF. Drought conditions existed during this same time frame (see Pertinent Rainfall).

Seedling Vigor – Seedling Stature

Variety and seed treatment had a significant effect on seedling height at 36 DAP (Table 1). On average, the V3 entries (15 cm) were taller compared with the V2 entries (13 cm), while the range in seedling height was similar (12 to 17 cm for the V3 entries and 11 to 17 for the V2 entries). Consistently, between the entries, Vx-1 and Vx-13 were the shortest entries, Vx-5 and Vx-7 had intermediate height, and Vx-3 was among the taller entries.

Temperature was not a limiting factor on seedling growth although drought conditions (see Pertinent Rainfall) persisted during the evaluation period (14 – 21 Apr). Daily average air temperature for the 8-day period following the final stand count averaged 76ºF and ranged between 70 and 80ºF.

Table 1. The effects of experimental plant growth regulator seed treatments from Valent BioSciences on seedling vigor of rice drill seeded in March. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Time to Stand (days)	Final Stand (plants/ sq ft) 28 DAP	Final Stand (%) 28 DAP	Estimated Mortality (%) 28 DAP	Pl. Ht. (cm) 36 DAP
Treatment #1	17cd	8a	22a	20d	17a
Treatment #2	22a-d	6b-f	17abc	31a-d	16ab
V3-1	28a	4d-h	14b-e	26cd	12cd
V3-2	24ab	6a-e	18abc	34a-d	17a
V3-3	19bcd	7abc	19ab	35a-d	17a
V3-5	21bcd	8ab	21a	30bcd	13bcd
V3-6	17cd	8ab	19ab	36a-d	17a
V3-7	16d	7a-d	17a-d	51ab	14a-d
V3-13	28a	4e-h	12c-f	46abc	12cd
V3-14	28a	3gh	9ef	49ab	16abc
V3-15	25ab	3gh	10ef	47abc	13bcd
V2-1	21bcd	5c-g	14b-e	53a	11d
V2-2	25ab	4fgh	9ef	53a	13a-d
V2-3	23abc	5c-h	12c-f	47abc	15abc
V2-5	22a-d	5c-g	14b-e	49ab	12cd
V2-6	24ab	3gh	9ef	48abc	12cd
V2-7	28a	3gh	11def	45abc	15abc
V2-13	28a	3h	7f	40a-d	10d
V2-14	22a-d	6b-f	17a-d	39a-d	14a-d
V2-15	28a	4fgh	10ef	45abc	17a
LSD (.05) =	6	2	5	19	3
Standard Dev. =	4.1829	1.44	3.7793	13.204	2.3982
CV =	18.05	29.09	27.04	32.18	17.16

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

SEEDLING VIGOR STUDIES – SEED TREATMENT

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Valent BioSciences Corporation Experimental Seed Treatments and Seedling Vigor in Drill-Seeded Rice – April Planting Date

Location: Rice Research Station, Crowley, LA (North Unit, Field N9-A)

Variety: See Treatments

Planting Method: Drilled on 7-inch rows

Planting Depth: 3-inch

Seeding Rate: 80 lb/A

Fertilizer: None

Plot Size: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treated Area: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treatment(s): **Variety(s)**
Proprietary (V2 and V3 represent current commercial rice varieties)

Plant Growth Regulator(s)
Proprietary (Treatment 1 and Treatment 2 are standard industry seed treatments and Vx-1, 2, 3, 5, 6, 7, 13, 14, and 15 are VBC experimental seed treatments, x = 2 or 3)

Seed Treater: Proprietary

Sprayer: Not applicable

Planting Date: 18 Apr

Emergence: See Treatments

Water Management: None

Pertinent Rainfall: 0.2 inch, 21 Apr; 0.4 inch, 25 Apr; 0.9 inch, 26 Apr; 3.0 inches, 29 Apr; 0.5 inch, 4 May; 1.4 inches, 5 May; 0.5 inch, 6 May; 0.1 inch, 15 May

Herbicide(s): None

Insecticide(s): Proprietary

Fungicide(s): Proprietary

Plant Growth Regulator(s): See Treatments

Harvest Date: Not applicable

Harvested Area: Not applicable

Experimental Design: Randomized complete block design and four replications. Treatment arrangement was as follows. A given plot contained a different variety and/or experimental seed treatment in each row. The position of a variety and/or experimental seed treatment within a given plot was constant. Each given plot contained six or seven rows in accommodating 20 varieties and experimental seed treatment combinations.

Comments: **Seedling Vigor – Emergence and Plant Population Density (Stand)**

Variety and experimental seed treatment had a significant effect on emergence of rice (Table 1). Time to stand, an evaluation of emergence, was the number of days from planting to establishment of an adequate stand (10 plants/ft^2). In general, emergence was fast, with time to stand ranging between 8 and 25 days after planting (DAP). The evaluation period was 27 days. Any entry that had not obtained an adequate stand by 27 DAP was assigned a time of stand of 27 DAP. These entries were considered unable to reach an adequate stand under the experimental conditions that existed. On average, V2 (13 days) was slightly slower emerging compared with V3 (11 days) and both were generally slower to emerge compared with the industry standards (Treatments 1 and 2 – 8 days). Most entries (15 of 20) had times to stand of 8 to 11 days. The main exceptions were V3-1 (21 days), V2-1 and V2-2 (14 days), V2-13 (25 days), and V2-15 (16 days). All entries attained an adequate stand.

Variety and experimental seed treatment had a significant effect on stand (Table 1). Final stand was measured as number of viable (green) 1-leaf stage or older plants at 27 DAP. On average, all entries exhibited fair to excellent seedling vigor, with final stands of 8 to 22 plants/ft^2, and could be separated into primarily two categories according to final stand. The less vigorous category with fair to good stands of 8 to 15 plants/ft^2 included V3-1, V3-2, V3-3, V3-13, V3-14, V3-15, V2-2, V2-3, V2-6, V2-7, V2-13, V2-14, and V2-15. The more vigorous category with good to excellent stands of 16 to 22 plants/ft^2 included Treatments 1 and 2, V3-5, V3-6, V3-7, V2-1, and V2-5. On average, the V2 entries had a lower stand (13 plants/ft^2) compared with the V3 entries (15 plants/ft^2), and the industry standards (Treatments 1 and 2) averaged a slightly higher stand (19 plants/ft^2) compared with V2 and V3.

For reference and to account for differences in seeding rates among runners on the drill, final stand was also presented as percent of seed planted (Table 1). Only minor differences were noted between the results on final stand presented as plant density or percent of seed planted.

The fair to excellent levels of seedling vigor associated with rate of emergence and seedling population and noted across the board were related in large measure to the warm environmental conditions following planting and timely, adequate rainfall. Seedling mortality was low (<15% in the worse case) and data are not presented. Following planting (18 Apr) and during the evaluation period for emergence and stand (25 Apr – 15 May), daily average soil temperatures averaged 76ºF and ranged between 72 and 80ºF, and daily average air temperatures averaged 73ºF and ranged between 66 and 80ºF. Significant rain (>0.33 inches) occurred at 7, 8, 11, 16, 17, and 18 DAP, contributing to excellent soil moisture conditions during the same time frame (see Pertinent Rainfall).

Seedling Vigor – Seedling Stature

Variety and seed treatment had a significant effect on seedling height at 30 DAP (Table 1). On average, the V3 entries (21 cm) were taller compared with the V2 entries (19 cm) and the range in seedling height within a variety, though small, reflects to some degree the differences (19 to 22 cm for the V3 entries and 18 to 19 for the V2 entries). Within the V3 group of entries, V3-1, V3-2, and V3-3 were shorter than the other entries. No differences between entries were noted for the V2 group.

Temperature and soil moisture (see Pertinent Rainfall) were not limiting factors on seedling growth during the evaluation period (15-18 May). Daily average air temperature for the 3-day period following the final stand count averaged 69ºF and ranged between 66 and 71ºF.

Table 1. The effects of experimental plant growth regulator seed treatments from Valent BioSciences on seedling vigor of rice drill seeded in April. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Time to Stand (days)	Final Stand (plants/ sq ft) 27 DAP	Final Stand (%) 27 DAP	Pl. Ht. (cm) 30 DAP
Treatment #1	8d	21ab	57a	23ab
Treatment #2	8d	17cd	48ab	23a
V3-1	21ab	8g	25e	19cd
V3-2	10cd	12efg	35cde	19cd
V3-3	9cd	14def	37bcd	19cd
V3-5	10cd	17bcd	48ab	21bc
V3-6	8d	22a	55a	22ab
V3-7	8d	21ab	56a	22ab
V3-13	10cd	15c-f	43bc	22ab
V3-14	10cd	13def	40bcd	21ab
V3-15	10cd	12efg	35cde	22ab
V2-1	14cd	16cde	43bc	19d
V2-2	14cd	11fg	29de	19d
V2-3	10cd	13def	32cde	19cd
V2-5	9cd	18bc	47ab	18d
V2-6	10cd	12efg	35cde	19cd
V2-7	11cd	10fg	33cde	19cd
V2-13	25a	8g	24e	19d
V2-14	10cd	15c-f	40bcd	18d
V2-15	16bc	11efg	31cde	19cd
LSD (.05) =	6	4	10	2
Standard Dev.=	4.1371	2.6009	7.2503	1.2774
CV =	36.29	18.38	18.38	6.43

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

SEEDLING VIGOR STUDIES – SEED TREATMENT

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Loveland Experimental Seed Treatments and Seedling Vigor in Drill-Seeded Rice – April Planting Date

Location: Rice Research Station, Crowley, LA (North Unit, Field N9-A)

Variety: See Treatments

Planting Method: Drilled on 7-inch rows

Planting Depth: 3-inch

Seeding Rate: 80 lb/A

Fertilizer: None

Plot Size: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treated Area: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treatment(s):

Variety
Cocodrie

Plant Growth Regulator(s)
LI 6132 (4 and 8 fl oz/cwt)
LI 6141 (4 and 8 fl oz/cwt)
Release (0.35 oz/cwt)

Micronutrient
Zinche ST (8 fl oz/cwt)

Timing
Seed treatment, 7 Mar

Seed Treater: Jar mill tumble mixer

Sprayer: Not applicable

Planting Date: 18 Apr

Emergence: See Treatments

Water Management: None

Pertinent Rainfall: 0.2 inch, 21 Apr; 0.4 inch, 25 Apr; 0.9 inch, 26 Apr; 3.0 inches, 29 Apr; 0.5 inch, 4 May; 1.4 inches, 5 May; 0.5 inch, 6 May

Herbicide(s): None

Insecticide(s): Icon (0.9 fl oz/cwt) seed treatment, 7 Mar

Fungicide(s): Dithane DF (4 oz/cwt) seed treatment, 7 Mar

Plant Growth Regulator(s): See Treatments

Harvest Date: Not applicable

Harvested Area: Not applicable

Experimental Design: Randomized complete block design and four replications. Treatment arrangement was as follows. A given plot contained a different seed treatment in each row. The position of a seed treatment within a given plot was constant. Each given plot contained six rows in accommodating six seed treatments.

Comments: **Seedling Vigor – Emergence and Plant Population Density (Stand)**

Seed treatment did not have a significant effect on emergence of rice (Table 1). Time to stand, an evaluation of emergence, was the number of days from planting to establishment of an adequate stand (10 plants/ft^2). In general, emergence was good, with time to stand ranging between 9 and 16 days after planting (DAP). The evaluation period was 23 days. Any entry that had not obtained an adequate stand by 23 DAP was assigned a time of stand of 23 DAP. These entries were considered unable to reach an adequate stand under the experimental conditions that existed. All replicates of all seed treatments had an adequate stand. On average, treatments with the higher rate of LI6141 and Release tended to hasten time to stand (9 days) compared with the control (13 days). Seed treatment with the high rate of LI6132 tended to delay time to stand (16 days). The low rates of LI6132 and LI6141 (13 and 14 days, respectively) were similar to the control.

Seed treatment had a significant effect on stand (Table 1). Final stand was measured as number of viable (green) 1-leaf stage or older plants at 23 DAP. In general, seedling populations were good to excellent (11 to 18 plants/ft^2). Seed treatments with Release and the high rate of LI6141 tended to increase stand (16 and 18 plants/ft^2, respectively) compared with the control (11 plants/ft^2). Seed treatment with either rate of LI6132 and the low rate of LI6141 had stands (11 to 13 plants/ft^2) similar to the control.

For reference and to account for differences in seeding rates among runners on the drill, final stand was also presented as percent of seed planted (Table 1). Only minor differences were noted between the results on final stand presented as plant density or percent of seed planted.

The good to excellent levels of seedling vigor associated with rate of emergence and seedling population and noted across the board were related in large measure to the warm environmental conditions following planting and timely, adequate rainfall. Following planting (18 Apr) and during the evaluation period for emergence and stand (25 Apr – 11 May), daily average soil temperatures averaged 76ºF and ranged between 72 and 80ºF, and daily average air temperatures averaged 74ºF and ranged between 66 and 80ºF. Significant rain (>0.33 inch) occurred at 7, 8, 11, 16, 17, and 18 DAP, contributing to excellent soil moisture conditions during the same time frame (see Pertinent Rainfall).

Seedling Vigor – Seedling Stature

Seed treatment had no significant effect on seedling height at 30 DAP (Table 1). Seedling heights ranged between 17 and 19 cm across all seed treatment entries.

Temperature and soil moisture (see Pertinent Rainfall) were not limiting factors on seedling growth during the period following stand evaluations (11 – 18 May). Daily average air temperature for the 7-day period following the final stand count averaged 68ºF and ranged between 62 and 72ºF.

Table 1. The effect of experimental plant growth regulator seed treatments from Loveland Products on seedling vigor of rice drill seeded in April. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 23 DAP	Final Stand (%) 23 DAP	Pl. Ht. (cm) 30 DAP
Control				13ab	11c	34c	19a
LI 6132	l	4	seed	13ab	13bc	37bc	18a
LI 6132	l	8	seed	16a	11c	33c	17a
LI 6141	l	4	seed	14ab	11c	34c	18a
LI 6141	l	8	seed	9b	18a	49a	18a
Release	d	0.35	seed	9b	16ab	44ab	18a
Zinche ST	l	8	seed				
LSD (.05) =				5	3	9	2
Standard Dev. =				3.4071	1.9571	5.7288	1.2416
CV =				27.72	14.82	15.03	6.98

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

SEEDLING VIGOR STUDIES – SEED TREATMENT

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Stoller Enterprises Inc. Experimental Seed Treatments and Seedling Vigor in Drill-Seeded Rice – April Planting Date

Location: Rice Research Station, Crowley, LA (North Unit, Field N9-A)

Variety: See Treatments

Planting Method: Drilled on 7-inch rows

Planting Depth: 3-inch

Seeding Rate: 80 lb/A

Fertilizer: None

Plot Size: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treated Area: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treatment(s):

Variety
Cocodrie

Plant Growth Regulator(s)
N-Large Premier (0.5 fl oz/cwt)
Release (0.35 oz/cwt)
STO-4 (6 fl oz/cwt)
STO-44 (6 fl oz/cwt)

Timing
Seed treatment, 7 Mar

Seed Treater: Jar mill tumble mixer

Sprayer: Not applicable

Planting Date: 18 Apr

Emergence: See Treatments

Water Management: None

Pertinent Rainfall: 0.2 inch, 21 Apr; 0.4 inch, 25 Apr; 0.9 inch, 26 Apr; 3.0 inches, 29 Apr; 0.5 inch, 4 May; 1.4 inches, 5 May; 0.5 inch, 6 May

Herbicide(s): None

Insecticide(s): Icon (0.9 fl oz/cwt) seed treatment, 7 Mar

Fungicide(s): Dithane DF (4 oz/cwt) seed treatment, 7 Mar

Plant Growth Regulator(s): See Treatments

Harvest Date: Not applicable

Harvested Area: Not applicable

Experimental Design: Randomized complete block design and four replications. Treatment arrangement was as follows. A given plot contained a different seed treatment in each row. The position of a seed treatment within a given plot was constant. Each given plot contained six rows in accommodating six seed treatments.

Comments: **Seedling Vigor – Emergence and Plant Population Density (Stand)**

Seed treatment had a significant effect on emergence of rice (Table 1). Time to stand, an evaluation of emergence, was the number of days from planting to establishment of an adequate stand (10 plants/ft^2). In general, emergence was good, with time to stand ranging between 8 and 18 days after planting (DAP). The evaluation period was 24 days. Any entry that had not obtained an adequate stand by 24 DAP was assigned a time of stand of 24 DAP. These entries were considered unable to reach an adequate stand under the experimental conditions that existed. Two replicates of the STO-4 treatment did not have an adequate stand. On average, treatments with N-Large Premier and Release tended to hasten time to stand (8 to 10 days) compared with the control (13 days). Seed treatment with STO-4 and STO-44 alone tended to delay time to stand (18 and 15 days, respectively). STO-4 did not affect the activity of N-Large Premier when the two were used in combination.

Seed treatment had a significant effect on stand (Table 1). Final stand was measured as number of viable (green) 1-leaf stage or older plants at 24 DAP. In general, seedling populations were good to excellent (11 to 18 plants/ft^2). Treatments with N-Large Premier and Release alone tended to increase stand (14 to 16 plants/ft^2, respectively) compared with the control (11 plants/ft^2). Seed treatment with STO-4 and STO-44 alone resulted in stands equal to the control. STO-4 tended to increase the effectiveness of N-Large Premier increasing stand by 4 plants/ft^2 compared with N-Large Premier alone.

For reference and to account for differences in seeding rates among runners on the drill, final stand was also presented as percentage of seed planted (Table 1). Only minor differences were noted between the results on final stand presented as plant density or percent of seed planted.

The good to excellent levels of seedling vigor associated with rate of emergence and seedling population and noted across the board were related in large measure to the warm environmental conditions following planting and timely, adequate rainfall. Following planting (18 Apr) and during the evaluation period for emergence and stand (25 Apr – 12 May), daily average soil temperatures averaged 76ºF and ranged between 72 and 80ºF, and daily average air temperatures averaged 74ºF and ranged between 66 and 80ºF. Significant rain (>0.33 inch) occurred at 7, 8, 11, 16, 17, and 18 DAP contributing to excellent soil moisture conditions during the same time frame (see Pertinent Rainfall).

Seedling Vigor – Seedling Stature

Seed treatment had no significant effect on seedling height at 30 DAP (Table 1). Seedling heights ranged between 17 and 19 cm across all seed treatment entries.

Temperature and soil moisture (see Pertinent Rainfall) were not limiting factors on seedling growth during the period following stand evaluations (12 – 18 May). Daily average air temperature for the 6-day period following the final stand count averaged 68ºF and ranged between 62 and 72ºF.

Table 1. The effect of plant growth regulator seed treatments from Stoller Enterprises on seedling vigor of rice drill seeded in April. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 24 DAP	Final Stand (%) 24 DAP	Pl. Ht. (cm) 30 DAP
Control				13abc	11b	34b	19a
N-Large Premier	l	0.5	seed	10bc	14ab	41ab	19a
STO-4	l	6	seed	18a	11b	33b	18a
STO-44	l	6	seed	15ab	11b	33b	18a
STO-4	l	6	seed	8c	18a	48a	17a
N-Large Premier	l	0.5	seed				
Release	d	0.35	seed	9c	16a	43a	19a
LSD (.05) =				6	3	9	2
Standard Dev. =				3.8514	2.29	5.9953	1.2144
CV =				32.10	17.07	15.54	6.70

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

SEEDLING VIGOR STUDIES – SEED AND FOLIAR TREATMENT

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Gibberellic Acid and Seedling Vigor in Drill-Seeded Rice – March Planting Date

Location: Rice Research Station, Crowley, LA (North Unit, Field N9-A)

Variety: See Treatments

Planting Method: Drilled on 7-inch rows

Planting Depth: 2-inch

Seeding Rate: 80 lb/A

Fertilizer: None

Plot Size: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treated Area: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treatment(s):

Varieties/Experimental Lines

Banks	Cocodrie	Hidalgo	Pace	Spring
Bengal	CL131	Jefferson	Presidio	LA2097
Cala	Ecrevisse	Jupiter	Sabine	

CL – imidazolinone (Clearfield)-resistant lines

Plant Growth Regulators

Seed treatment – N-Large Premier (0.17 oz/cwt) and Release (0.35 oz/cwt)
Foliar treatment – N-Large Premier (0.75 fl oz/A) and Ryzup (1.5 fl oz/A)

Timing

Seed treatment, 7 Mar
Foliar treatment (3- to 4-leaf stage), 13 Apr

Seed Treater: Jar mill tumble mixer

Sprayer: See North Farm General Methodology

Planting Date: 16 Mar

Emergence: See Treatments

Water Management: None

Pertinent Rainfall: 0.3 inch, 20 Mar; 0.1 inch, 29 Mar; 0.1 inch, 8 Apr

Herbicide(s): Stam M4 (3 qt/A), 13 Apr (tank mixed with foliar PGRs)

Insecticide(s): Icon (0.9 fl oz/cwt) seed treatment, 7 Mar

Fungicide(s): Dithane DF (4 oz/cwt) seed treatment, 7 Mar

Plant Growth Regulator(s): See Treatments

Harvest Date: Not applicable

Harvested Area: Not applicable

Experimental Design: Randomized complete block design and four replications. Factorial treatment arrangement was as follows. A given plot contained a different variety or experimental line in each row. The position of a variety or experimental line within a given plot was constant. Each given plot was planted in triplicate in each replicate. Each given plot contained seven rows in accommodating 13 varieties and one experimental line. Of each triplicate, one plot had untreated seed (no gibberellic acid) and the other two plots had seed treated with N-Large Premier or Release according to the randomization of plots.

Comments: **Seedling Vigor – Emergence and Plant Population Density (Stand)**

Germplasm (varieties/experimental lines) and seed treatment with gibberellic acid had a significant effect on emergence of rice (Table 1). Time to stand, an evaluation of emergence, was the number of days from planting to establishment of an adequate stand (10 plants/ft^2). Germplasm on average had slow emergence with a time to stand of 18 to 28 days after planting (DAP). The evaluation period was 28 days. Any germplasm that had not obtained an adequate stand by 28 DAP was assigned a time to stand of 28 DAP. This germplasm was considered unable to reach an adequate stand under the experimental conditions that existed. Germplasm separated into primarily two categories according to time to stand. The earlier emerging category represented by five entries, Banks, CL131, LA2097, Sabine, and Spring, had a time to stand of 18 to 21 DAP. The later emerging category had times to stand of 23 to 28 DAP and included the remainder of the entries. On average, across all germplasm, time to stand without a gibberellic acid seed treatment occurred 24 DAP, and seed treatment with N-Large Premier and Release resulted in an average time to stand of 23 DAP. Cocodrie, Jefferson, and Jupiter were the most responsive germplasm and had earlier emergence of 3, 8, and 3 days, respectively, with gibberellic acid seed treatments (Table 2). The remainder of the germplasm exhibited little to no response (0 to 2 days earlier emergence).

Germplasm (varieties/experimental lines) had a significant effect on stand, and seed treatment with gibberellic acid had none (Table 1). Final stand was measured as number of viable (green) 1-leaf stage or older plants at 28 DAP. Germplasm, on average, exhibited poor to good (as opposed to good to excellent) seedling vigor with final stands of 2 to 10 plants/ft^2 and separated into primarily two categories according to final stand. The least vigorous category had stands of 2 to 4 plants/ft^2 and included Cala, Ecrevisse, and Pace (4, 2, and 3 plants/ft^2, respectively). The moderately vigorous category had stands of 6 to 10 plants/ft^2 and included Bengal and Presidio (6 plants/ft^2); Cocodrie, Hidalgo, Jefferson, and Jupiter (7 plants/ft^2); LA2097 (8 plants/ft^2); CL131 and Sabine (9 plants/ft^2); and Banks and Spring (10 plants/ft^2). On average, across germplasm, final stand without gibberellic acid seed treatment was 6 plants/ft^2 compared with 7 plants/ft^2 for seed treatment with N-Large Premier and Release (Table 1). Banks was the only entry with an adequate stand (minimum of 10 plants/ft^2) without gibberellic acid seed treatment, and CL131, Spring, and LA2097 were the only entries with an adequate stand with gibberellic acid seed treatment. There were no interactions between germplasm and seed treatment with gibberellic acid (Table 2). To account for differences in seeding rates between runners on the drill, final stand was also presented as percent of seed planted for reference.

The poor to good levels of seedling vigor noted across the board were related in large measure to low soil moisture. Even though planting deep (2 inches or more below the soil surface) placed seed in adequate moisture for germination, soil moisture declined during the course of the study. With flushing disallowed for this study, seedlings died from the lack of soil moisture and dead seedlings were not included in the final count. Seedling mortality was noted and a rough estimate was determined. Mortality was based on the portion of the highest stand count (obtained during evaluation of emergence) not accounted for by the final stand and expressed as a percent. Estimated seedling

mortality ranged between 0 and 32% and was highly variable and unrelated to entry or seed treatment (Tables 1 and 2).

Temperatures were adequate for germination and emergence following planting (16 Mar) and during the evaluation period for emergence and stand (30 Mar - 13 Apr). Daily average soil temperatures averaged 69ºF and ranged between 59 and 76ºF, and daily average air temperatures averaged 66ºF and ranged between 50 and 78ºF.

Seedling Vigor – Seedling Stature

Germplasm (varieties/experimental lines) and foliar treatment with gibberellic acid had a significant effect on seedling height (Table 3). On average, the shortest germplasm was Jefferson (11 cm) and the tallest was Bengal (16 cm). The other germplasm ranged in height from 12 to 15 cm. Overspraying each plot with gibberellic acid at the 3- to 4-leaf stage resulted in a significant increase in seedling height (Table 3), and the effect was relatively constant across germplasm (Table 4). The average increase in seedling height (distance from the soil surface to the tip of the longest leaf extended vertically) at 7 days after treatment (DAT) with N-Large Premier and RyzUp was 6 and 4 cm, respectively. There was a significant difference in plant response between the formulations of gibberellic acid (16 vs 14 cm in average height with N-Large Premier and RyzUp, respectively, compared with the control, 10 cm).

Daily average air temperature for the 7-day period following foliar application of gibberellic acid averaged 76ºF and ranged between 70 and 80ºF. The recommended rate of foliar gibberellic acid at those temperatures is 0.5 to 1.5 g/A, and the rate of 1.5 g/A (0.75 fl oz N-Large Premier/A and 1.5 fl oz RyzUp/A) was used based on weather forecasts at the time.

Table 1. The main effects of germplasm and plant growth regulator seed treatment on seedling vigor of rice drill seeded in March. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 28 DAP	Final Stand (%) 28 DAP	Estimated Mortality (%) 28 DAP
TABLE OF GERMPLASM MEANS							
Banks				18f	10a	26a	14
Bengal				27ab	6d	18c	15
Cala				28a	4e	11d	31
Cocodrie				24bc	7cd	21bc	22
CL131				19ef	9ab	26a	11
Ecrevisse				28a	2f	6e	17
Hidalgo				24bc	7cd	18c	20
Jefferson				23cd	7cd	20b	18
Jupiter				25bc	7cd	21b	16
Pace				28a	3ef	10de	12
Presidio				26ab	6d	18c	20
Sabine				21de	9ab	24ab	18
Spring				18f	10a	28a	7
LA2097				19ef	8bc	20bc	24
TABLE OF PLANT GROWTH REGULATOR MEANS							
Control				24a	6	18	14
N-Large Premier	l	0.15	seed	23b	7	20	19
Release	l	0.30	seed	23b	7	20	19

Within the same table, means followed by the same letter do not differ significantly (Duncan’s multiple range test, P=.05).

Table 2. The simple effects of germplasm and plant growth regulator seed treatment on seedling vigor of rice drill seeded in March. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 28 DAP	Final Stand (%) 28 DAP	Estimated Mortality (%) 28 DAP
Banks Control				19c-f	11ab	28ab	9bcd
Banks N-Large Premier	l	0.15	seed	18ef	9b-f	26bcd	11a-d
Banks Release	l	0.30	seed	18f	9b-g	25b-e	21a-d
Bengal Control				28a	6g-k	17d-i	0d
Bengal N-Large Premier	l	0.15	seed	28a	6f-k	18d-i	21a-d
Bengal Release	l	0.30	seed	24abc	6e-k	18d-i	26a-d
Cala Control				28a	3k-n	10ijk	21a-d
Cala N-Large Premier	l	0.15	seed	28a	4j-n	12h-k	31abc
Cala Release	l	0.30	seed	28a	4j-n	12g-k	41a
Cocodrie Control				26ab	7c-i	21b-g	20a-d
Cocodrie N-Large Premier	l	0.15	seed	24a-d	7b-i	21b-f	25a-d
Cocodrie Release	l	0.30	seed	22b-f	8b-i	22b-f	21a-d
CL131 Control				20c-f	9b-f	26bcd	14a-d
CL131 N-Large Premier	l	0.15	seed	18ef	9b-i	24b-e	18a-d
CL131 Release	l	0.30	seed	17f	10abc	28ab	2bcd
Ecrevisse Control				28a	1n	4k	10bcd
Ecrevisse N-Large Premier	l	0.15	seed	28a	2mn	7jk	25a-d
Ecrevisse Release	l	0.30	seed	28a	2n	6k	16a-d

Continued.

Table 2. Continued.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 28 DAP	Final Stand (%) 28 DAP	Estimated Mortality (%) 28 DAP
Hidalgo Control				26ab	8b-i	20b-h	13a-d
Hidalgo N-Large Premier	l	0.15	seed	24a-d	6e-k	16e-i	26a-d
Hidalgo Release	l	0.30	seed	23a-e	8b-i	19d-h	22a-d
Jefferson Control				28a	6h-l	15f-j	15a-d
Jefferson N-Large Premier	l	0.15	seed	21c-f	8b-i	22b-f	24a-d
Jefferson Release	l	0.30	seed	19c-f	9b-h	24b-f	17a-d
Jupiter Control				27ab	7d-j	19c-h	8bcd
Jupiter N-Large Premier	l	0.15	seed	22b-f	8b-i	22b-f	22a-d
Jupiter Release	l	0.30	seed	26ab	7b-i	21b-f	20a-d
Pace Control				28a	4j-n	11h-k	0d
Pace N-Large Premier	l	0.15	seed	28a	4j-n	11h-k	25a-d
Pace Release	l	0.30	seed	28a	3lmn	8jk	13a-d
Presidio Control				26ab	6g-k	17d-i	24a-d
Presidio N-Large Premier	l	0.15	seed	24a-d	7b-i	22b-f	18a-d
Presidio Release	l	0.30	seed	28a	5i-m	16e-i	20a-d
Sabine Control				22b-f	9b-h	24b-e	17a-d
Sabine N-Large Premier	l	0.15	seed	20c-f	9b-h	24b-e	18a-d
Sabine Release	l	0.30	seed	20c-f	9b-g	25b-e	18a-d

Continued.

Table 2. Continued.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 28 DAP	Final Stand (%) 28 DAP	Estimated Mortality (%) 28 DAP
Spring Control				18ef	8b-i	23b-f	23a-d
Spring N-Large Premier	l	0.15	seed	20c-f	10a-d	28abc	0cd
Spring Release	l	0.30	seed	17f	13a	35a	0d
LA2097 Control				20c-f	7b-i	18d-i	31ab
LA2097 N-Large Premier	l	0.15	seed	18f	10b-e	24b-e	9bcd
LA2097 Release	l	0.30	seed	19def	7b-i	18d-h	32ab
LSD (.05)	=			4	3	7	25
Standard Dev.	=			2.9908	1.8883	5.0966	17.634
CV	=			12.85	27.68	26.72	100.73

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

Table 3. The main effects of germplasm and plant growth regulator foliar treatment on seedling vigor of rice drill seeded in March. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Pl. Ht. (cm) 7 DAT
TABLE OF GERMPLASM MEANS				
Banks				13c
Bengal				16a
Cala				12de
Cocodrie				15ab
CL131				15ab
Ecrevisse				12de
Hidalgo				13cd
Jefferson				11e
Jupiter				13cd
Pace				13cd
Presidio				14bc
Sabine				14bc
Spring				15ab
LA2097				15ab
TABLE OF PLANT GROWTH REGULATOR MEANS				
Control				10a
N-Large Premier		0.75	3-4lf	16c
RyzUp		1.5	3-4lf	14b

Within the same table, means followed by the same letter do not differ significantly (Duncan’s multiple range test, P=.05).

Table 4. The simple effects of germplasm and plant growth regulator foliar treatment on seedling vigor of rice drill seeded in March. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Pl. Ht. (cm) 7 DAT
Banks Control			10klm
Banks N-Large Premier	0.75	3-4lf	16a-g
Banks RyzUp	1.5	3-4lf	13e-k
Bengal Control			12g-m
Bengal N-Large Premier	0.75	3-4lf	17a-d
Bengal RyzUp	1.5	3-4lf	18abc
Cala Control			11i-m
Cala N-Large Premier	0.75	3-4lf	12f-l
Cala RyzUp	1.5	3-4lf	12f-m
Cocodrie Control			12f-m
Cocodrie N-Large Premier	0.75	3-4lf	18ab
Cocodrie RyzUp	1.5	3-4lf	14b-j
CL131 Control			12h-m
CL131 N-Large Premier	0.75	3-4lf	17a-e
CL131 RyzUp	1.5	3-4lf	16a-f
Ecrevisse Control			9lm
Ecrevisse N-Large Premier	0.75	3-4lf	14d-k
Ecrevisse RyzUp	1.5	3-4lf	14b-j

Continued.

Table 4. Continued.

Treatment Name	Fm Ds Rate	Grow Stg	Pl. Ht. (cm) 7 DAT
Hidalgo Control			10klm
Hidalgo N-Large Premier	0.75	3-4lf	15a-h
Hidalgo RyzUp	1.5	3-4lf	15a-h
Jefferson Control			8m
Jefferson N-Large Premier	0.75	3-4lf	14d-k
Jefferson RyzUp	1.5	3-4lf	12g-m
Jupiter Control			10j-m
Jupiter N-Large Premier	0.75	3-4lf	14b-j
Jupiter RyzUp	1.5	3-4lf	15b-i
Pace Control			10j-m
Pace N-Large Premier	0.75	3-4lf	15b-i
Pace RyzUp	1.5	3-4lf	13d-k
Presidio Control			11i-m
Presidio N-Large Premier	0.75	3-4lf	17a-e
Presidio RyzUp	1.5	3-4lf	13e-k
Sabine Control			11i-m
Sabine N-Large Premier	0.75	3-4lf	17a-e
Sabine RyzUp	1.5	3-4lf	14c-k
Spring Control			10j-m

Continued.

Table 4. Continued.

Treatment Name	Fm Ds	Rate	Grow Stg	Pl. Ht. (cm) 7 DAT
Spring N-Large Premier		0.75	3-4lf	16a-g
Spring RyzUp		1.5	3-4lf	19a
LA2097 Control				11i-m
LA2097 N-Large Premier		0.75	3-4lf	19a
LA2097 RyzUp		1.5	3-4lf	16a-f
LSD (.05)	=			3
Standard Dev.	=			2.3118
CV	=			17.15

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

SEEDLING VIGOR STUDIES – SEED AND FOLIAR TREATMENT

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Gibberellic Acid and Seedling Vigor in Drill-Seeded Rice – April Planting Date

Location: Rice Research Station, Crowley, LA (North Unit, Field N9-A)

Variety: See Treatments

Planting Method: Drilled on 7-inch rows

Planting Depth: 3-inch

Seeding Rate: 80 lb/A

Fertilizer: None

Plot Size: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treated Area: 11.6 ft^2 – 0.58 (1 row) x 20 ft

Treatment(s):

Varieties/Experimental Lines

Banks	Cocodrie	Hidalgo	Pace	Spring
Bengal	CL131	Jefferson	Presidio	LA2097
Cala	Ecrevisse	Jupiter	Sabine	

CL – imidazolinone (Clearfield)-resistant lines

Plant Growth Regulators

Seed treatment – N-Large Premier (0.17 oz/cwt) and Release (0.35 oz/cwt)
Foliar treatment – N-Large Premier (0.50 fl oz/A) and Ryzup (1.0 fl oz/A)

Timing

Seed treatment, 7 Mar
Foliar treatment (3- to 4-leaf stage), 17 May

Seed Treater: Jar mill tumble mixer

Sprayer: See North Farm General Methodology

Planting Date: 18 Apr

Emergence: See Treatments

Water Management: None

Pertinent Rainfall: 0.2 inch, 21 Apr; 0.4 inch, 25 Apr; 0.9 inch, 26 Apr; 3.0 inches, 29 Apr; 0.5 inch, 4 May; 1.4 inches, 5 May; 0.5 inch, 6 May; 0.1 inch, 15 May

Herbicide(s): RiceShot (1 gal/A), 17 May (tank mixed with foliar PGRs)

Insecticide(s): Icon (0.9 fl oz/cwt) seed treatment, 7 Mar

Fungicide(s): Dithane DF (4 oz/cwt) seed treatment, 7 Mar

Plant Growth Regulator(s): See Treatments

Harvest Date: Not applicable

Harvested Area: Not applicable

Experimental Design: Randomized complete block design and four replications. Factorial treatment arrangement was as follows. A given plot contained a different variety or experimental line in each row. The position of a variety or experimental line within a given plot was constant. Each given plot was planted in triplicate in each replicate. Each given plot contained seven rows in accommodating 13 varieties and one experimental line. Of each triplicate, one plot had untreated seed (no gibberellic acid) and the other two plots had seed treated with N-Large Premier or Release according to the randomization of plots.

Comments: **Seedling Vigor – Emergence and Plant Population Density (Stand)**

Germplasm (varieties/experimental lines) and seed treatment with gibberellic acid had a significant effect on emergence of rice (Table 1). Time to stand, an evaluation of emergence, was the number of days from planting to establishment of an adequate stand (10 plants/ft^2). Germplasm, on average, had a wide range in speed of emergence, with a time to stand of 8 to 27 days after planting (DAP). The evaluation period was 27 days. Any germplasm that had not obtained an adequate stand by 27 DAP was assigned a time to stand of 27 DAP. This germplasm was considered unable to reach an adequate stand under the experimental conditions that existed. Germplasm separated into primarily two categories according to time to stand. The earlier emerging category represented by 11 entries, Banks, CL131, Bengal, Spring, LA2097, Cocodrie, Hidalgo, Sabine, Presidio, Jefferson, and Jupiter, had a time to stand of 8 to 13 DAP. The later emerging category had times to stand of 21 to 27 DAP and included the remainder of the entries, Cala, Pace, and Ecrevisse. On average, across all germplasm, time to stand without a gibberellic acid seed treatment occurred 16 DAP, and seed treatment with N-Large Premier and Release resulted in an average time to stand of 12 DAP. Germplasm responded differently to gibberellic acid seed treatment (Table 2). Response of germplasm to gibberellic acid seed treatment fell into two categories. The least responsive germplasm had 0 to 4 days earlier emergence and included Bengal, Ecrevisse, and LA2097 (0 days); Banks, CL131, and Spring (1 day); Pace (2 days); Sabine (3 days); and Cocodrie and Hidalgo (4 days). The most responsive germplasm had 6 to 13 days earlier emergence and included Presidio (6 days), Jupiter (7 days), Cala (8 days), and Jefferson (13 days).

Germplasm (varieties/experimental lines) and seed treatment with gibberellic acid had a significant effect on stand, (Table 1). Final stand was measured as number of viable (green) 1-leaf stage or older plants at 27 DAP. Germplasm, on average, exhibited poor to excellent seedling vigor with final stands of 4 to 22 plants/ft^2 and separated into primarily three categories according to final stand. The least vigorous category had stands of 4 and 8 plants/ft^2 and included Ecrevisse, Cala, and Pace (4, 8, and 8 plants/ft^2, respectively). The intermediately vigorous category had stands of 12 to 16 plants/ft^2 and included Presidio (12 plants/ft^2); Bengal, Cocodrie, Jefferson, and Jupiter (14 plants/ft^2); Sabine (15 plants/ft^2); and Hidalgo (16 plants/ft^2). The most vigorous category had stands of 19 to 22 plants/ft^2 and included Spring and LA2097 (19 plants/ft^2), CL131 (20 plants/ft^2), and Banks (22 plants/ft^2). On average, across germplasm, final stand without gibberellic acid seed treatment was 13 plants/ft^2 compared with 14 and 15 plants/ft^2 for seed treatment with N-Large Premier and Release, respectively (Table 1). Germplasm responded differently to gibberellic acid seed treatment (Table 2). Response of germplasm to gibberellic acid seed

treatment fell into two categories. Banks, Bengal, CL131, Ecrevisse, Pace, Presidio, Sabine, Spring, and LA2097 had no increase in final stand with the gibberellic acid seed treatment. On the other hand, Cala, Cocodrie, Hidalgo, Jefferson, and Jupiter had an increase in stand of 3, 5, 5, 4, and 4 plants/ft^2, respectively. Banks, Bengal, Cocodrie, CL131, Hidalgo, Jefferson, Jupiter, Presidio, Sabine, Spring, and LA2097 had adequate stands (minimum of 10 plants/ft^2) without gibberellic acid seed treatment, and Cala, Ecrevisse, and Pace had inadequate stands with gibberellic acid seed treatment.

For reference and to account for differences in seeding rates between runners on the drill, final stand was also presented as percent of seed planted (Table 1). Only minor differences were noted between the results on final stand presented as plant density or percent of seed planted.

Adequate levels of seedling vigor associated with rate of emergence and seedling population were related in part to the warm environmental conditions following planting and timely, adequate rainfall. Following planting (18 Apr) and during the evaluation period for emergence and stand (25 Apr – 15 May), daily average soil temperatures averaged 76ºF and ranged between 72 and 80ºF, and daily average air temperatures averaged 73ºF and ranged between 66 and 80ºF. Significant rain (>0.33 inch) occurred at 7, 8, 11, 16, 17, and 18 DAP contributing to excellent soil moisture conditions during the same time frame (see Pertinent Rainfall).

Seedling Vigor – Seedling Stature

Germplasm (varieties/experimental lines) and foliar treatment with gibberellic acid had a significant effect on seedling height (Table 3). On average, the shortest germplasms were Ecrevisse, Jefferson, and Jupiter (20 cm), and the tallest were Banks, Bengal, Cocodrie, CL131, and Hidalgo (24 cm). The other germplasm ranged in height from 21 to 23 cm. Overspraying each plot with gibberellic acid at the 3- to 4-leaf stage resulted in a significant increase in seedling height (Table 3), and the effect was relatively constant across germplasm (Table 4). The average increase in seedling height (distance from the soil surface to the tip of the longest leaf extended vertically) at 7 days after treatment (DAT) with N-Large Premier and RyzUp was 5 cm (19 versus 24 cm). There was no significant difference in plant response between the formulations of gibberellic acid.

Daily average air temperature for the 7-day period following foliar application of gibberellic acid averaged 76ºF and ranged between 72 and 78ºF. The recommended rate of foliar gibberellic acid at those temperatures is 0.5 to 1.5 g/A, and the rate of 1 g/A (0.5 fl oz N-Large Premier/A and 1 fl oz RyzUp/A) was used based on weather forecasts at the time.

Table 1. The main effects of germplasm and plant growth regulator seed treatment on seedling vigor of rice drill seeded in April. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 27 DAT	Final Stand (%) 27 DAT
TABLE OF GERMPLASM MEANS						
Banks				8	22	57
Bengal				9	14	42
Cala				21	8	25
Cocodrie				10	14	42
CL131				8	20	54
Ecrevisse				27	4	11
Hidalgo				10	16	39
Jefferson				13	14	36
Jupiter				13	14	40
Pace				24	8	26
Presidio				12	12	36
Sabine				10	15	41
Spring				9	19	54
LA2097				9	19	47
TABLE OF PLANT GROWTH REGULATOR MEANS						
Control				16	13	37
N-Large Premier	l	0.5	seed	12	14	40
Release	sp	1.0	seed	12	15	41

Within the same table, means followed by the same letter do not differ significantly (Duncan’s multiple range test, P=.05).

Table 2. The simple effects of germplasm and plant growth regulator seed treatment on seedling vigor of rice drill seeded in April. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 27 DAT	Final Stand (%) 27 DAT
Banks Control				9f	23a	61a
Banks N-Large Premier	l	0.5	seed	8f	20abc	54a-d
Banks Release	sp	1.0	seed	8f	21ab	56abc
Bengal Control				10f	16d-i	46d-g
Bengal N-Large Premier	l	0.5	seed	10f	13i-l	36g-l
Bengal Release	sp	1.0	seed	9f	15g-j	43e-h
Cala Control				27a	6no	20no
Cala N-Large Premier	l	0.5	seed	19bc	9lmn	29k-n
Cala Release	sp	1.0	seed	18bcd	9mn	27lmn
Cocodrie Control				13def	11j-m	34h-m
Cocodrie N-Large Premier	l	0.5	seed	9f	15e-i	45d-g
Cocodrie Release	sp	1.0	seed	8f	17d-h	48b-f
CL131 Control				9f	21abc	57ab
CL131 N-Large Premier	l	0.5	seed	8f	19bcd	53a-e
CL131 Release	sp	1.0	seed	8f	19b-f	51a-e
Ecrevisse Control				27a	4o	10p
Ecrevisse N-Large Premier	l	0.5	seed	27a	4o	11op

Continued.

Table 2. Continued.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 27 DAT	Final Stand (%) 27 DAT
Ecrevisse Release	sp	1.0	seed	27a	4o	11op
Hidalgo Control				13def	13h-k	33i-m
Hidalgo N-Large Premier	l	0.5	seed	9f	18c-g	44d-h
Hidalgo Release	sp	1.0	seed	9f	17d-h	41f-j
Jefferson Control				22ab	11klm	28lmn
Jefferson N-Large Premier	l	0.5	seed	9f	16d-i	43e-h
Jefferson Release	sp	1.0	seed	9f	14g-j	38f-k
Jupiter Control				18bc	11j-m	33i-m
Jupiter N-Large Premier	l	0.5	seed	11ef	15f-i	43e-i
Jupiter Release	sp	1.0	seed	10f	15f-i	43e-h
Pace Control				25a	8mn	24mn
Pace N-Large Premier	l	0.5	seed	20bc	8mn	27lmn
Pace Release	sp	1.0	seed	27a	9mn	27lmn
Presidio Control				16cde	11klm	31j-m
Presidio N-Large Premier	l	0.5	seed	10f	13h-l	39f-k
Presidio Release	sp	1.0	seed	9f	13h-k	40f-j
Sabine Control				12ef	14g-j	40f-j
Sabine N-Large Premier	l	0.5	seed	10f	14g-j	39f-k

Continued.

Table 2. Continued.

Treatment Name	Fm Ds	Rate	Grow Stg	Time to Stand (days)	Final Stand (plants/ sq ft) 27 DAT	Final Stand (%) 27 DAT
Sabine Release	sp	1.0	seed	8f	16d-i	45d-g
Spring Control				9f	19b-e	53a-e
Spring N-Large Premier	l	0.5	seed	9f	19bcd	53a-e
Spring Release	sp	1.0	seed	8f	20abc	56abc
LA2097 Control				9f	19b-e	47b-f
LA2097 N-Large Premier	l	0.5	seed	9f	19b-f	46c-g
LA2097 Release	sp	1.0	seed	8f	19bcd	48b-f
LSD (.05)	=			5	3	9
Standard Dev.	=			3.3968	2.224	6.1539
CV	=			25.95	15.71	15.68

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

Table 3. The main effect of germplasm and plant growth regulator foliar treatment on seedling vigor of rice drill seeded in April. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Pl. Ht. (cm) 7 DAT
TABLE OF GERMPLASM MEANS				
Banks				24a
Bengal				24a
Cala				22b
Cocodrie				24a
CL131				24a
Ecrevisse				20d
Hidalgo				24a
Jefferson				20d
Jupiter				20d
Pace				21cd
Presidio				22bc
Sabine				22bc
Spring				23ab
LA2097				23ab
TABLE OF PLANT GROWTH REGULATOR MEANS				
Control				19a
N-Large Premier		0.75	3-4lf	24b
RyzUp		1.5	3-4lf	24b

Within the same table, means followed by the same letter do not differ significantly (Duncan’s multiple range test, P=.05).

Table 4. The simple effect of germplasm and plant growth regulator foliar treatment on seedling vigor of rice drill seeded in April. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Pl. Ht. (cm) 7 DAT
Banks Control				19i-l
Banks N-Large Premier		0.75	3-4lf	27ab
Banks RyzUp		1.5	3-4lf	26abc
Bengal Control				20g-k
Bengal N-Large Premier		0.75	3-4lf	26ab
Bengal RyzUp		1.5	3-4lf	27a

Continued.

Table 4. Continued.

Treatment Name	Fm Ds	Rate	Grow Stg	Pl. Ht. (cm) 7 DAT
Cala Control				19h-l
Cala N-Large Premier		0.75	3-4lf	24b-f
Cala RyzUp		1.5	3-4lf	24b-f
Cocodrie Control				19h-l
Cocodrie N-Large Premier		0.75	3-4lf	26ab
Cocodrie RyzUp		1.5	3-4lf	27ab
CL131 Control				20g-j
CL131 N-Large Premier		0.75	3-4lf	25a-d
CL131 RyzUp		1.5	3-4lf	27ab
Ecrevisse Control				18jkl
Ecrevisse N-Large Premier		0.75	3-4lf	21f-i
Ecrevisse RyzUp		1.5	3-4lf	22e-i
Hidalgo Control				20g-j
Hidalgo N-Large Premier		0.75	3-4lf	25a-d
Hidalgo RyzUp		1.5	3-4lf	26abc
Jefferson Control				17kl
Jefferson N-Large Premier		0.75	3-4lf	22d-g
Jefferson RyzUp		1.5	3-4lf	22e-h
Jupiter Control				16l

Continued.

Table 4. Continued.

Treatment Name	Fm Ds	Rate	Grow Stg	Pl. Ht. (cm) 7 DAT
Jupiter N-Large Premier		0.75	3-4lf	22e-h
Jupiter RyzUp		1.5	3-4lf	22e-i
Pace Control				17jkl
Pace N-Large Premier		0.75	3-4lf	22d-g
Pace RyzUp		1.5	3-4lf	23c-g
Presidio Control				19h-l
Presidio N-Large Premier		0.75	3-4lf	24b-f
Presidio RyzUp		1.5	3-4lf	24b-f
Sabine Control				19h-l
Sabine N-Large Premier		0.75	3-4lf	24b-f
Sabine RyzUp		1.5	3-4lf	25a-e
Spring Control				20g-j
Spring N-Large Premier		0.75	3-4lf	25a-e
Spring RyzUp		1.5	3-4lf	25a-d
LA2097 Control				19h-l
LA2097 N-Large Premier		0.75	3-4lf	25a-d
LA2097 RyzUp		1.5	3-4lf	26abc
LSD (.05) =				3
Standard Dev. =				1.8905
CV =				8.47

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

YIELD ENHANCEMENT STUDIES – FIRST CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Anti-ethylene Plant Growth Regulator and Crop Production in Drill-Seeded Rice

General Methodology: See North Unit General Methodology (pg. 219)

Variety: Cocodrie

Treatment(s):

Plant Growth Regulator
AFxRD-038 (3.757, 9.4, and 18.8 fl oz/A) + Adjuvant

Adjuvant
Dyne-Amic (7.2 fl oz/A)

Timing
Panicle Differentiation (PD), 8 June
Early Boot (EB), 16 June
Early Heading (EH), 26 June

Pertinent Rainfall: No significant rain within 8 hr after foliar applications

Experimental Design: Randomized complete block and seven replications

Comments:

Crop Phytotoxicity and Stature

There was no phytotoxicity observed at approximately 1 and 2 weeks following any of the treatments (results not presented), and plant height (distance from the soil surface to tip of the longest leaf extended vertically) was not significantly affected at each of the observation times (Table 1). Plant height increased with time and ranged from 69 to 71 cm at 8 days after treatment (DAT) following the PD timing, from 77 to 80 cm at 14 DAT following PD and 6 DAT following EB, from 84 to 87 cm at 14 DAT following EB, from 89 to 90 cm at 9 DAT following EH, and from 90 to 91 cm at 14 DAT following EH.

Crop Production

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the applications of AFxRD-038 (Table 1). Mature plant height (distance from the soil surface to the tip of the panicle extended vertically) of the treatments ranged between 85 and 89 cm (control = 84 cm). Grain moisture (an indicator of crop maturity) of the treatments ranged between 17.5 and 18.4% (control = 17.9%). Grain yield (adjusted to 12% moisture) of the treatments ranged between 8006 and 8524 lb/A (control = 8007 lb/A). The average of all treatments excluding Dyne-Amic alone was 8276 lb/A.

Table 1. The effects of time and rate of application of AFxRD-038 on crop stature and production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Pl. Ht. 8 DAT	Pl. Ht. 14/6DAT	Pl. Ht. 14 DAT	Pl. Ht. 9 DAT	Pl. Ht. 14 DAT	Mature Pl. Ht. (cm)	Grain Moisture (%)	Grain Yield (lb/A)
Control				69a	79a	86a	89a	90a	84a	17.9ab	8007a
AFxRD-038	d	3.757	PD	70a	77a				86a	18.4a	8215a
AFxRD-038	d	9.4	PD	69a	79a				86a	17.8ab	8253a
AFxRD-038	d	18.8	PD	70a	78a				89a	17.8ab	8233a
Dyne-Amic	l	7.2	PD	71a	78a				88a	17.9ab	8524a
AFxRD-038	d	3.757	EB		80a	86a			88a	17.7ab	8523a
AFxRD-038	d	9.4	EB		79a	84a			88a	17.8ab	8064a
AFxRD-038	d	18.8	EB		77a	85a			86a	17.5b	8283a
Dyne-Amic	l	7.2	EB		77a	87a			88a	18.1ab	8062a
AFxRD-038	d	3.757	EH				89a	90a	87a	17.7ab	8264a
AFxRD-038	d	9.4	EH				89a	90a	89a	17.5b	8325a
AFxRD-038	d	18.8	EH				90a	91a	89a	17.8ab	8324a
Dyne-Amic	l	7.2	EH				89a	90a	85a	18.2ab	8006a
LSD (.05)	=			2	3	3	2	2	4	0.7	577
Standard Dev.	=			1.5591	2.6488	2.2892	1.7861	1.6438	3.9759	.63781	539.95
CV	=			2.23	3.39	2.68	2.00	1.82	4.56	3.57	6.56

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

YIELD ENHANCEMENT STUDIES – FIRST CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Prestige and Crop Production in Drill-Seeded Rice

General Methodology: See North Unit General Methodology (pg. 219)

Variety: Cocodrie

Treatment(s): **Plant Growth Regulator**
Prestige (4 and 8 fl oz/A)

Timing
Milk Stage (MS), 12 July
Dough Stage (DS), 19 July

Pertinent Rainfall: No significant rain within 8 hr after foliar applications

Experimental Design: Randomized complete block and seven replications

Comments: **Crop Production**

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the applications of Prestige (Table 1). Mature plant height (distance from the soil surface to the tip of the panicle extended vertically) for treatments ranged between 91 and 94 cm (control = 92 cm). Grain moisture (an indicator of crop maturity) for treatments ranged between 18.4 and 19.1% (control = 18.5%). Grain yield (adjusted to 12% moisture) was highest (8400 lb/A) with the low rate of Prestige applied during MS compared with the control (8155 lb/A) and other Prestige treatments that ranged between 8051 and 8199 lb/A.

Table 1. The effects of post-heading applications of Prestige on crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Mature Pl. Ht. (cm)	Grain Moisture (%)	Grain Yield (lb/A)
Control				92ab	18.5a	8155a
Prestige	l	4	MS	94a	18.5a	8400a
Prestige	l	8	MS	91b	18.4a	8051a
Prestige	l	4	DS	92ab	19.1a	8199a
Prestige	l	8	DS	93ab	18.4a	8195a
LSD (.05)	=			2	0.7	406
Standard Dev.	=			1.9832	.62458	368.12
CV	=			2.14	3.36	4.49

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

YIELD ENHANCEMENT STUDIES – FIRST CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Cutting Height and Crop Production in Drill-Seeded Rice

General Methodology: See North Unit General Methodology (pg. 219)

Variety: Cheniere

Treatment(s): **Cutting Height** – 12 and 17 inches

Pertinent Rainfall: 0.2 inch, 25 July; 0.4 inch, 26 July; trace (<0.05 inch), 29 July; trace, 30 July; trace, 2 Aug

Experimental Design: Randomized complete block and 10 replications with seven subplots

Comments: **Crop Production**

Due to the rainy period following draining, the soil remained wet at harvest. The ruts caused by the combine tires precluded the proposed low cutting height of 8 inches.

Crop maturity was unaffected by cutting height, and grain production was significantly increased by the lower cutting height (Table 1). Grain moisture (an indicator of crop maturity) was 17.2 and 17.1% for the lower than standard (12- inch) and standard (17-inch) cutting heights, respectively. Grain yield was higher (7639 lb/A) for the lower cutting height compared with the higher cutting height (7429 lb/A). The high number of replications and subplots allowed small differences to be detected. In addition, plants along the edges of plots had stems that leaned into alleyways. The lower cutting height tended to harvest those plants more completely than the higher cutting height.

Table 1. The effect of cutting height on crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Grain Moisture (%)	Grain Yield (lb/A)
12-inch Stubble			17.2a	7639a
17-inch Stubble			17.1a	7429b
LSD (.05)	=		0.3	150
Standard Dev.	=		.30338	147.79
CV	=		1.77	1.96

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

YIELD ENHANCEMENT STUDIES – FIRST CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Auxin and Crop Production in Drill-Seeded Rice

General Methodology: See North Unit General Methodology (pg. 219)

Variety: Cheniere

Treatment(s): **Plant Growth Regulator**
Amine 4 2,4-D Weed Killer (0.075, 0.15, and 0.225 fl oz/A)

Timing
Late Tiller (LT), 29 May
Internode Initiation (II) or green ring, 6 June
Panicle Differentiation (PD), 16 June

Pertinent Rainfall: Trace (<0.05 inch), 29 May within 2 hours after application

Experimental Design: Randomized complete block and seven replications

Comments: **Crop Production**

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the applications of Amine 4 2,4-D Weed Killer (Table 1). Mature plant height (distance from the soil surface to the tip of the panicle extended vertically) for treatments ranged between 91 and 93 cm (control = 92 cm). Grain moisture (an indicator of crop maturity) for treatments ranged between 17.0 and 17.7% (control = 17.3%). Grain yield (adjusted to 12% moisture) was highest (8233 lb/A) with the II application compared with the control (8198 lb/A) and other Amine 4 2,4-D Weed Killer treatments that were 8043 and 8220 lb/A.

Table 1. The effect of auxin on crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm	Rate	Grow Stg	Mature Pl. Ht. (cm)	Grain Moisture (%)	Grain Yield (lb/A)
Control				92a	17.3a	8198a
Amine 4	l	0.075	LT	92a	17.0a	8043a
Amine 4	l	0.150	II	91a	17.2a	8233a
Amine 4	l	0.225	PD	93a	17.7a	8220a
LSD (.05)	=			2	0.7	352
Standard Dev.	=			1.9158	.66591	313.41
CV	=			2.08	3.85	3.83

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

SOUTH UNIT GENERAL METHODOLOGY

First (Main) Crop

Location: Rice Research Station, Crowley, LA (South Unit, Field 7A)

Seeding Method/Depth/Rate: Drilled on 7-inch rows/1.5 inches/80 lb/A

Fertilizer: 8-24-24 with 3.5% Zn and 2% S at 250 lb/A by tractor-mounted spreader, 28 Mar
Urea (46% N) at 200 lb/A (10 May) and 100 lb/A (6 June) by airplane

Plot Size/Treated Area: 262.5 ft^2 – 8.75 (15 rows) x 33 ft

Seed Treater: Cement mixer

Sprayer: CO_2-driven, backpack, 35 psi, 15 GPA, 8001VS tips, 20-inch nozzle spacings

Planting Date: 29 Mar

Emergence: 11 Apr

Water Management: Flushed, 3, 11, and 18 Apr; permanent flood (3-inch), 12 May; preharvest drain, 1 Aug

Pertinent Rainfall/Weather: See individual studies/0.9 inch, 26 Apr; 2.5 inches, 30 Apr; 1.3 inches, 4 May

Growth Stage Definitions: 3- to 4-Leaf Stage (3/4L), 3 or 4 leaf collars visible
4- to 5-Leaf Stage (4/5L), 4 or 5 leaf collars visible
Late Boot Stage (LB), 5- to 8-inch panicle inside main stem
100% Heading Stage (HD), all stem with panicles exserted
Milk Stage (MS), endosperm is white liquid in uppermost florets
Dough Stage (DS), endosperm is white dough in uppermost florets

Pesticide(s): Dithane DF (4 oz/cwt) seed treatment, 20 Mar
Icon (0.9 fl oz/A) seed treatment, 20 Mar
Stam (3 qt/A) + Basagran (1.5 pt/A) by airplane, 17 Apr
Arrosolo (1 gal/A) + Prowl (2.4 pt/A) by airplane, 3 May
Karate (4 fl oz/A) by airplane, 16 May
Clincher (15 fl oz/A) + COC (1 qt/A), 24 May
Londax (1.67 oz/A) by airplane, 31 May
Quadris (12 fl oz/A) by airplane, 28 June

Plant Growth Regulator(s): Release (0.35 oz/cwt) seed treatment, 20 Mar

Harvest Date/Area: 14 Aug/183.75 ft^2 – 8.75 (15 rows) x 21 ft

Second (Ratoon) Crop

Fertilizer: Urea (46% N) at 100 lb/A by airplane, 1 Sept

Water Management: Flush, 16 Aug; permanent flood (3-inch), 30 Aug; preharvest drain, 18 Oct

Pertinent Rainfall/Weather: 1.1 inches, 16 Aug; 0.8 inch, 17 Aug; 0.4 inch, 21 Aug; 0.3 inch, 22 Aug; 1.3 inches, 24 Aug; 3.2 inches, 27 Aug

Harvest Date/Area: 15 and 16 Nov/288.75 ft^2 – 8.75 (15 rows) x 33 ft

YIELD ENHANCEMENT STUDIES – FIRST AND SECOND CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Early- and Late-Season Plant Growth Regulator Treatments and Crop Production in Drill-Seeded Rice

General Methodology: See South Unit General Methodology (pg. 256)

Variety: Cocodrie

Treatment(s): **Plant Growth Regulator(s)**

- BioForge (8 and 16 fl oz/A)
- ReZist (16 and 32 fl oz/A)
- Royal MH-30 SG (40 oz/A)
- Sett (16 fl oz/A)
- Stimulate (4 and 6 fl oz/A)
- Sugar Mover (16 fl oz/A)
- STO-3 (16 fl oz/A)
- STO-4 (16 and 32 fl oz/A)

Timing

- 3- to 4-leaf (3/4L), followed each preflood herbicide (see South Farm/General Methodology)
- 4- to 5-leaf (4/5L), 23 May
- Late Boot (LB), 27 June
- Milk Stage (MS), 18 July
- Dough Stage (DS), 25 July

Pertinent Rainfall: 0.07 inch between 2.5 and 3 hours after application as a steady, light rain and no rain between 3 and 4 hours after application, 25 July. A tropical-type system was approaching from the south. Total rain accumulation for the 8-hour period following treatment was <0.2 inch.

Experimental Design: Randomized complete block and six replications.

Comments: **First (Main) Crop Production**

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the early- and late-season applications of several plant growth regulators (Table 1). Mature plant height (distance from the soil surface to the tip of the panicle extended vertically) of the treatments ranged between 97 and 101 cm (control = 101 cm). Grain moisture (an indicator of crop maturity) of the treatments ranged between 15.6 and 16.7% (control = 16.5%). Grain yield (adjusted to 12% moisture) was highest (8227 and 8341 lb/A) with Sugar Mover in combination with BioForge and STO-3, respectively, applied at DS. Grain yield of the remaining plant growth regulator treatments ranged between 7738 and 8151 lb/A (control = 7961 lb/A). Early- and late-season applications of these plant growth regulators had no adverse effect on the first crop, allowing an unbiased evaluation of the effects on the second crop.

Second (Ratoon) and Total Crop Production

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the early- and late-season applications of several plant growth regulators (Table 1). Mature plant height of the treatments ranged between 64 and 65 cm (control = 65 cm); grain moisture of the treatments ranged between 19 and 20.6% (control = 20.2%); and grain yield was highest (1424 and 1428 lb/A) with Royal MH-30 SG plus Stimulate applied at DS and STO-4 applied at MS, respectively. Grain yield of the remaining plant growth regulator treatments ranged between 1154 and 1395 lb/A (control = 1372 lb/A). With no consistent effects on grain yield in first and second crop, total crop grain yield was relatively unaffected by the plant growth regulator treatments.

Table 1. The effects of early- and late-season applications of plant growth regulators to the first crop on first and second crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm	Rate	Grow Stg	Mature Pl. Ht. (cm)	Grain Mositure (%)	Grain Yield (lb/A)	Ratoon Pl. Ht. (cm)	Ratoon Grain Moisture (%)	Ratoon Grain Yield (lb/A)	Total Grain Yield (lb/A)
Control				101a	16.5ab	7961ab	65ab	20.2a	1372ab	9333a
ReZist	l	16	3/4L	97b	15.6b	8110ab	65ab	19.9ab	1291ab	9401a
Stimulate	l	4	3/4L							
Sett	l	16	3/4L							
BioForge	l	16	4/5L	98ab	15.8ab	8095ab	65ab	20.7a	1244ab	9338a
ReZist	l	16	4/5L							
BioForge	l	16	LB	100a	16.1ab	7896ab	65ab	20.0ab	1316ab	9212a
Stimulate	l	6	LB							
STO-4	l	16	MS	100a	15.7ab	8014ab	65ab	20.6a	1254ab	9267a
STO-4	l	32	MS	101a	16.6ab	8151ab	65ab	20.2a	1428a	9580a
BioForge	l	16	DS	100a	16.3ab	7970ab	65b	20.1ab	1154b	9123a
ReZist	l	32	DS							
BioForge	l	8	DS	100a	16.7a	8227ab	65ab	19.6ab	1246ab	9473a
Sugar Mover	l	16	DS							
BioForge	l	16	DS	100a	16.2ab	8049ab	65b	20.3a	1346ab	9395a
X-Cyte	l	16	DS							
Royal MH-30 SG	d	40	DS	100a	16.1ab	7962ab	64b	19.5ab	1424a	9386a
Stimulate	l	6	DS							
STO-3	l	16	DS	99ab	16.4ab	7738b	66a	20.5a	1245ab	8984a
STO-3	l	16	DS	99ab	15.6b	8341a	65ab	19.0b	1232ab	9573a
Sugar Mover	l	16	DS							
Sugar Mover	l	16	DS	98ab	16.4ab	7932ab	65ab	19.6ab	1395ab	9327a
LSD (.05)	=			3	0.9	443	1	1.0	224	526
Standard Dev.	=			2.2167	.77893	383.55	1.0315	.89103	193.87	455.42
CV	=			2.23	4.82	4.77	1.58	4.45	14.87	4.88

Means followed by same letter do not differ significantly (Duncan's multiple range test, P=.05).

YIELD ENHANCEMENT STUDIES – FIRST AND SECOND CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Post-Heading Timing of N-Large Premier and Crop Production in Drill-Seeded Rice

General Methodology: See South Unit General Methodology (pg. 256)

Variety: Cheniere

Treatment(s): **Plant Growth Regulator(s)**
N-Large Premier (0.5, 0.8, 1.6, 3.2, and 16 fl oz/A)

Timing
Milk Stage (MS), 18 July
Dough Stage (DS), 25 July

Pertinent Rainfall: 0.07 inch between 2.5 and 3 hours after application as a steady, light rain and no rain between 3 and 4 hours after application, 25 July. A tropical-type system was approaching from the south. Total rain accumulation for the 8-hour period following treatment was <0.2 inch.

Experimental Design: Randomized complete block and six replications.

Comments:

First (Main) Crop Production

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the post heading applications of N-Large Premier (Table 1). Mature plant height (distance from the soil surface to the tip of the panicle extended vertically) of the treatments ranged between 93 and 97 cm (control = 97 cm). Grain moisture (an indicator of crop maturity) of the treatments ranged between 13.7 and 14.8% (control = 13.8%). Grain yield (adjusted to 12% moisture) of the treatments ranged between 7719 and 8170 lb/A (control = 8152 lb/A). Post-heading application of N-Large Premier had no adverse effect on the first crop, allowing an unbiased evaluation of the effects on the second crop.

Second (Ratoon) and Total Crop Production

Crop stature, maturity, and production were evaluated at harvest, and grain yield was significantly affected by the applications of the plant growth regulators (Table 1). In the second crop, mature plant height ranged between 68 and 70 cm (control=69 cm), and grain moisture ranged between 20.3 and 22.2% (control = 21%). In general, the higher rates of N-Large Premier (3.2 and 16 fl oz/A) applied during MS produced higher grain yields (989 and 1230 lb/A, respectively) compared with the control (835 lb/A) and other plant growth regulator treatments (ranged from 711 to 929 lb/A). Grain yield from the 16 fl oz N-Large Premier/A treatment was significantly higher compared with the control. Although similar results were noted in total grain yield (first plus second crop grain yields), grain yields of the plant growth regulator treatments (ranged from 8211 to 9253 lb/A) were not significantly different from the control (8829 lb/A).

Table 1. The effects of post-heading time and rate of application of a plant growth regulator to the first crop on first and second crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Mature Pl. Ht. (cm)	Grain Moisture (%)	Grain Yield (lb/A)	Ratoon Pl. Ht. (cm)	Ratoon Grain Moisture (%)	Ratoon Grain Yield (lb/A)	Total Grain Yield (lb/A)
Control				97a	13.8a	8174a	69ab	21.0ab	835bc	8829ab
N-LargePremier	l	0.5	MS	95ab	14.4a	7719b	69ab	22.2a	766bc	8485ab
N-LargePremier	l	0.8	MS	95ab	14.8a	8049ab	68b	20.8ab	719c	8768ab
N-LargePremier	l	1.6	MS	96ab	14.2a	8049ab	69ab	20.2b	864bc	8912ab
N-LargePremier	l	3.2	MS	96ab	14.5a	7891ab	69ab	21.4ab	989b	8880ab
N-LargePremier	l	16.0	MS	96ab	14.0a	8023ab	68ab	21.0ab	1230a	9253a
N-LargePremier	l	0.5	DS	96ab	14.5a	8171a	69ab	21.1ab	771bc	8253b
N-LargePremier	l	0.8	DS	96ab	13.9a	7954ab	69ab	21.4ab	929bc	8211b
N-LargePremier	l	1.6	DS	97a	14.0a	8071ab	70a	20.3b	834bc	8653ab
N-LargePremier	l	3.2	DS	93b	14.2a	8170a	69ab	21.0ab	711c	8881ab
N-LargePremier	l	16.0	DS	95ab	13.7a	8032ab	69ab	20.9ab	771bc	8803ab
LSD (.05)	=			3	1.3	370	2	1.5	203	749
Standard Dev.	=			2.2747	1.1098	316.72	1.3248	1.2681	173.81	641.87
CV	=			2.38	7.82	3.95	1.92	6.04	20.30	7.36

Means followed by same letter do not differ significantly (Duncan's multiple range test, P=.05).

YIELD ENHANCEMENT STUDIES – FIRST AND SECOND CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Post Boot Timing of RyzUp and Crop Production in Drill-Seeded Rice

General Methodology: See South Unit General Methodology (pg. 256)

Variety: Cocodrie

Treatment(s):

Plant Growth Regulator
RyzUp (2 and 4 fl oz/A)

Timing
100% Heading (HD), 10 July
Milk Stage (MS), 17 July
Dough Stage (DS), 27 July
Physiological Maturity (PM), 1 Aug

Pertinent Rainfall: 0.67 inch at 2 hours after treatment on 10 July

Experimental Design: Randomized complete block with four replications. Factorial arrangement of treatments with four times of application and three rates (4x3) for a total of 12 treatments.

Comments:

First (Main) Crop Production

Crop stature, maturity, and production were evaluated at harvest, and none was significantly affected by time or rate of application of RyzUp (Table 1). For times of application, mature plant height (distance from the soil surface to the tip of the panicle extended vertically) averaged between 97 and 99 cm. Grain moisture (an indicator of crop maturity) averaged between 15.8 and 16.1 %. Grain yield (adjusted to 12% moisture) averaged between 7187 and 7418 lb/A. For rate of RyzUp, mature plant height averaged between 98 and 99 cm; grain moisture averaged between 15.6 and 16.2 %; and grain yield averaged between 7228 and 7490 lb/A. There were no interactions between time and rate of application (Table 2). Early and late season application of RyzUp had no adverse effect on the first crop allowing an unbiased evaluation of the effects on the second crop.

Second (Ratoon) Crop Production

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by time or rate of application of RyzUp (Table 1). For times of application, mature plant height averaged 65 cm. Grain moisture averaged between 19.2 and 20.2%. Grain yield averaged between 1314 and 1378 lb/A. For rate of RyzUp, mature plant height averaged 65 cm, grain moisture averaged between 19.6 and 20%, and grain yield averaged between 1315 and 1363 lb/A. With no significant effects on grain yield in first and second crop, total crop grain was similarly unaffected (Table 1). There were no interactions between time and rate of application for second and total crop production (Table 2).

Table 1. The main effects of time and rate of application of plant growth regulator treatments to the first crop on first and second crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Mature Pl. Ht. (cm)	Grain Mositure (%)	Grain Yield (lb/A)	Ratoon Pl. Ht. (cm)	Ratoon Grain Moisture (%)	Ratoon Grain Yield (lb/A)	Total Grain Yield (lb/A)
TABLE OF TIME OF APPLICATION MEANS										
100% Headed			HD	98a	15.9a	7384a	65a	20.2a	1334a	8718a
Milk Stage			MS	98a	15.8a	7325a	65a	19.9a	1378a	8703a
Dough Stage			DS	99a	16.1a	7187a	65a	19.2a	1337a	8524a
Phys. Maturity			PM	97a	16.0a	7418a	65a	19.8a	1314a	8732a
TABLE OF PLANT GROWTH REGULATOR MEANS										
Check				98a	16.2a	7268a	65a	19.7a	1344a	8612a
RyzUp	l	2		98a	15.6a	7228a	65a	20.0a	1315a	8543a
RyzUp	l	4		99a	16.1a	7490a	65a	19.6a	1363a	8853a

Within the same table, means followed by the same letter do not differ significantly (Duncan's multiple range test, P=.05).

Table 2. The simple effects of time and rate of application of plant growth regulator treatments to the first crop on first and second crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Mature Pl. Ht. (cm)	Grain Mositure (%)	Grain Yield (lb/A)	Ratoon Pl. Ht. (cm)	Ratoon Grain Moisture (%)	Ratoon Grain Yield (lb/A)	Total Grain Yield (lb/A)
100% Headed Check			HD	98a	16.0a	7407a	65a	20.0a	1383a	8791a
100% Headed RyzUp	l	2	HD	98a	15.3a	7281a	65a	20.4a	1240a	8521a
100% Headed RyzUp	l	4	HD	98a	16.3a	7463a	65a	20.2a	1379a	8842a
Milk Stage Check			MS	97a	15.7a	7303a	65a	20.4a	1213a	8516a
Milk Stage RyzUp	l	2	MS	99a	15.7a	7162a	65a	19.9a	1437a	8598a
Milk Stage RyzUp	l	4	MS	98a	15.9a	7512a	65a	19.3a	1483a	8995a
Dough Stage Check			DS	100a	16.7a	7144a	65a	18.8a	1317a	8461a
Dough Stage RyzUp	l	2	DS	97a	15.8a	7030a	65a	19.4a	1284a	8314a
Dough Stage RyzUp	l	4	DS	101a	16.0a	7389a	66a	19.4a	1409a	8798a
Phys. Maturity Check			PM	99a	16.3a	7217a	65a	19.5a	1462a	8679a
Phys. Maturity RyzUp	l	2	PM	96a	15.6a	7439a	64a	20.3a	1300a	8739a
Phys. Maturity RyzUp	l	4	PM	98a	16.1a	7598a	65a	19.5a	1181a	8779a
LSD (.05)	=			4	1.5	497	2	1.5	294	593
Standard Dev.	=			3.0814	1.0073	344.28	1.1157	1.0357	203.6	410.97
CV	=			3.14	6.31	4.70	1.72	5.24	15.19	4.74

Means followed by same letter do not differ significantly (Duncan's multiple range test, P=.05).

YIELD ENHANCEMENT STUDIES – FIRST AND SECOND CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Growth Suppressants, Growth Stimulants, and Crop Production in Drill-Seeded Rice

General Methodology: See South Unit General Methodology (pg. 256)

Variety: Cheniere

Treatment(s):

Plant Growth Regulator

Embark 2S (1 pt/A)
N-Large Premier (2 fl oz/A)
Royal MH-30 SG (40 oz/A)
RyzUp (4 fl oz/A)

Timing

Dough Stage (DS), 27 July

Pertinent Rainfall: No significant rain within 8 hours of application.

Experimental Design: Randomized complete block with eight replications.

Comments:

First (Main) Crop Production

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the pre-drain applications of plant growth regulators (Table 1). For the plant growth regulator treatments, mature plant height (distance from the soil surface to the tip of the panicle extended vertically) ranged between 93 and 97 cm (control = 95 cm). Grain moisture (an indicator of crop maturity) ranged between 14.2 and 14.7% (control = 14.6%). Grain yield (adjusted to 12% moisture) ranged between 7295 and 7544 lb/A (control = 7350 lb/A). Growth suppressant and growth stimulants had no adverse effect on the first crop, allowing an unbiased evaluation of the effects on the second crop.

Second (Ratoon) and Total Crop Production

Crop stature, maturity, and production were evaluated at harvest, and grain yield was significantly affected by the applications of the plant growth regulators (Table 1). In the second crop, mature plant height ranged between 68 and 69 cm (control=69 cm), and grain moisture ranged between 19.7 and 20.5% (control=20.1%). In general, the mitotic inhibitors (Embark 2S and Royal MH-30 SG) had higher yields (ranged from 1152 to 1159 lb/A) compared with the control (964 lb/A), and the gibberellic acid treatments (N-Large Premier and RyzUp) had lower yields (ranged from 822 to 906 lb/A) compared with the control. Grain yield with Embark 2S was significantly higher compared with grain yield with N-Large Premier. Although similar results were noted in total grain yield (first plus second crop grain yields), grain yields of the plant growth regulator treatments (ranged from 8159 to 8703 lb/A) were not significantly different from the control (8314 lb/A).

Table 1. The effect of a pre-drain application of plant growth regulators to the first crop on first and second crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Mature Pl. Ht. (cm)	Grain Moisture (%)	Grain Yield (lb/A)	Ratoon Pl. Ht. (cm)	Ratoon Grain Moisture (%)	Ratoon Grain Yield (lb/A)	Total Grain Yield (lb/A)
Control				95ab	14.6a	7350a	69a	20.1a	964ab	8314ab
Embark 2S	l	16	DS	97a	14.2a	7544a	69a	20.5a	1159a	8703a
Royal MH-30 SG	d	40	DS	95ab	14.4a	7367a	69a	19.7a	1152a	8519ab
N-LargePremier	l	2	DS	93b	14.2a	7337a	69a	20.2a	822b	8159b
RyzUp	l	4	DS	93b	14.7a	7295a	68a	19.9a	906ab	8201ab
LSD (.05)	=			3	1.0	458	1	1.0	237	489
Standard Dev.	=			3.0133	.96903	447.08	1.2063	.96376	231.47	477.2
CV	=			3.19	6.72	6.06	1.76	4.80	23.13	5.70

Means followed by same letter do not differ significantly (Duncan's multiple range test, P=.05).

YIELD ENCHANCEMENT STUDIES – SECOND CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: First Crop Cutting Height and Second Crop Production in Drill-Seeded Rice

General Methodology: See South Unit General Methodology (pg. 256)

Variety: See Treatments

Treatment(s): **Variety(s)** – Cocodrie, CLXL730, Jupiter, and Trenasse

First Crop Cutting Height (attempted) – 8 and 16 inches

Pertinent Rainfall: Not Applicable

Experimental Design: Randomized complete block and two replications with four subplots per replication. Factorial arrangement of treatments with four varieties and two cutting heights (4x2) for a total of eight treatments.

Comments:

First (Main) Crop Status

There was a significant difference in crop stature and erectness at harvest (Table 1). For mature plant height (distance from the soil surface to the tip of the panicle extended vertically), CLXL730 at 111 cm and Trenasse at 103 cm were taller than Cocodrie at 97 cm and Jupiter at 99 cm. CLXL730 had slightly more lodging (18% on average) compared with the other varieties (<2%). Stubble height averaged 8 and 18 inches for the two cutting heights. The amount of stubble remaining after harvest relative to mature plant height varied between varieties, 30% for CLXL730, 32% for Cocodrie and Trenasse, and 34% for Jupiter. Amount of stubble remaining as affected by cutting height was 20% for the lower than normal cutting height and 44% for the normal cutting height. The effects of variety and cutting height were independent of each other (Table 2).

Plots were harvested using a combine with straw shredder and in one continuous motion without stopping between subplots. This produced an even layer of straw over each subplot and replicate and precluded evaluating grain yield in the first crop.

Second (Ratoon) Crop Growth

The rate of reproductive growth and development was affected by variety and first crop cutting height (Table 3). Significant panicle emergence was not noted at 3 and 4 weeks after first crop harvest (WAH) and began to appear at 5 WAH. Panicle emergence was slightly earlier and number of panicles was higher for CLXL730 and Trenasse compared with Cocodrie and Jupiter. On average, panicle densities were 3, 5, 9, 16, 21, and 24 panicles/ft^2 for CLXL730 and Trenasse, and panicle densities were 0, 0, 3, 7, 10, and 13 panicles/ft^2 for Cocodrie and Jupiter at 5, 6, 7, 8, 9, and 10 WAH, respectively. Panicle emergence was slightly earlier and number of panicles was higher with the higher cutting height. On average, panicle densities were 1, 1, 4, 9, 13, and 15 panicles/ft^2 with the lower cutting height, and panicle densities were 2, 4, 8, 13, 19, and 22 panicles/ft^2 with the higher cutting height at 5, 6, 7, 8, 9, and 10 WAH, respectively.

For the most part, the effects of variety and cutting height were independent until 9 and 10 WAH (Table 4). At the later dates, cutting height had minimal effects on panicle density in CLXL730 and Jupiter.

Second (Ratoon) Crop Production

Crop stature, maturity, and production were evaluated at harvest, and all were significantly affected by variety and cutting height (Table 5). Mature plant height (distance from the soil surface to the tip of the panicle extended vertically) averaged 65, 69, 66, and 69 cm for Cocodrie, CLXL730, Jupiter, and Trenasse, respectively. On average, mature plant height increased slightly from 67 to 68 cm when cutting height was reduced from 18 to 8 inches. Grain moisture (an indicator of crop maturity) averaged 20.5, 17.5, 20.3, and 18.6% for Cocodrie, CLXL730, Jupiter, and Trenasse, respectively. On average, grain moisture increased slightly (19.1% vs. 19.4%) as cutting height increased. These results, along with the previously discussed panicle emergence results, indicate a trend toward delaying maturity by lowering cutting height. On average, grain yields (adjusted to 12% moisture) were 1136, 1805, 1586, and 1888 lb/A for Cocodrie, CLXL730, Jupiter, and Trenasse, respectively, and grain yields were 1651 and 1556 lb/A for the 9- and 18-inch stubble heights, respectively.

Certain varieties responded differently to change in cutting height (Table 6). Mature plant height was relatively unaffected by cutting height in Cocodrie, CLXL730, and Jupiter with only a 1- to 2-cm change. With Trenasse, the shorter cutting height produced taller ratoon growth (4 cm) compared with the higher cutting height. Grain yield of Cocodrie and Trenasse was unaffected by cutting height. In comparison, grain yield was higher (1485 vs 2126 lb/A) with the lower cutting height in CLXL730, and grain yield was lower (1366 vs 1807 lb/A) with the low cutting height in Jupiter.

Second (Ratoon) Crop Panicle Development

At harvest (0 WBH) and 3 weeks before harvest (3 WBH), panicle development was evaluated. Both panicle density and panicle weight were measured. At 3 WBH, panicles which were present were expected to be productive (mature at harvest), and panicles that emerged after that time were expected to be unproductive (immature at harvest).

Panicle density was significantly affected by variety and cutting height (Table 7). At 0 WBH, Cocodrie and Jupiter produced significantly less total panicles (16 panicles/ft^2) compared with Trenasse (28 panicles/ft^2) and CLXL730 (31 panicles/ft^2). On average, the lower cutting height (8 inches) had a lower panicle density (19 panicles/ft^2) compared with the higher cutting height (16 inches) which had 26 panicles/ft^2. Mature panicles (3 WBH) followed the same trend and accounted for the majority of the panicles at harvest with mature panicle densities averaging 13 to 21 panicles/ft^2 compared with 4 to 9 panicles/ft^2 for the immature panicles. Of the mature panicles (3 WBH), almost all arose from the base of the first crop stubble. On average, panicle densities on stems arising from the base ranged between 9 and 21 panicles/ft^2 across varieties and cutting heights compared with 0 to 2 panicles/ft^2 for those on stems arising from the upper nodes of the first crop stubble. There were no interactions between variety and cutting height on panicle density (Table 8).

Panicle weight was significantly affected by variety and cutting height, and the effects were not independent. Although there appears to have been only slight differences between varieties and no difference between cutting heights (Table 9), total panicle weight in the hybrid and Jupiter was affected by cutting height compared with Cocodrie and Trenasse (Table 10). For the hybrid, panicle weights averaged 13 and 22 g/ft^2 for the high and low cutting heights, respectively. In contrast, panicle weights for Jupiter were 20 and 14 g/ft^2, respectively. Cocodrie and Trenasse had no significant differences in panicle weight between the low and high cutting heights. Similar trends were noted for mature panicle weight (3 WBH) with the overwhelming majority of the weight associated with panicles formed on stems arising from the base of the first crop stubble. Immature panicle weight (0 WBH) was unaffected by variety and cutting height.

Table 1. The main effects of variety and first (main) crop cutting height on first crop development and stubble production. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Mature Pl. Ht. (cm)	Lodging (%)	Stubble Height (cm)	Stubble Height (%)
TABLE OF VARIETY MEANS						
Cocodrie			97a	0	31	32ab
CLXL730			111b	18	33	30b
Jupiter			99a	0	34	34a
Trenasse			103b	1	33	32ab
TABLE OF CUTTING HEIGHT MEANS						
8-inch			103	8	21a	20a
16-inch			103	2	45b	44b

Within the same table, means followed by the same letter do not differ significantly (Duncan’s multiple range test, P=.05).

Table 2. The simple effects of variety and first (main) crop cutting height on first crop development and stubble production. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Mature Pl. Ht. (cm)	Lodging (%)	Stubble Height (cm)	Stubble Height (%)
Cocodrie 8-inch			97d	0c	19b	19de
Cocodrie 16-inch			98d	0c	44a	45ab
CLXL730 8-inch			112a	31a	21b	19e
CLXL730 16-inch			111a	4b	45a	40c
Jupiter 8-inch			99cd	0c	22b	22d
Jupiter 16-inch			99cd	0c	46a	46a
Trenasse 8-inch			103bc	0c	21b	21de
Trenasse 16-inch			103b	3bc	44a	43b
LSD (.05)	=		4	3	4	3
Standard Dev.	=		1.7006	1.2884	1.5081	1.109
CV	=		1.66	27.04	4.63	3.48

Means followed by same letter do not differ significantly (Duncan's multiple range test, P=.05).

Table 3. The main effects of variety and first (main) crop cutting height on second (ratoon) crop heading. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Panicle Density (pan./ft^2)							
			3 WAH	4 WAH	5 WAH	6 WAH	7 WAH	8 WAH	9 WAH	10 WAH
TABLE OF VARIETY MEANS										
Cocodrie			0	0	0a	1a	4a	9a	12	14
CLXL730			0	1	3b	5b	10b	15b	22	26
Jupiter			0	0	0a	0a	2a	5a	8	12
Trenasse			0	0	2b	4b	8b	16b	21	23
TABLE OF STUBBLE HEIGHT MEANS										
8-inch			0	0	1a	1a	4a	9a	13	15
16-inch			0	0	2b	4b	8b	13b	19	22

Within the same table, means followed by the same letter do not differ significantly (Duncan's multiple range test, P=.05).

Table 4. The simple effects of variety and first (main) crop cutting height on second (ratoon) crop heading. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Panicle Density (pan./ft^2)							
			3 WAH	4 WAH	5 WAH	6 WAH	7 WAH	8 WAH	9 WAH	10 WAH
Cocodrie 8-inch			0b	0b	0b	0c	2cd	6cd	8d	10de
Cocodrie 16-inch			0b	0b	0b	2bc	5bc	13b	16c	18c
CLXL730 8-inch			0b	0b	2ab	4b	7b	14ab	21b	25b
CLXL730 16-inch			0a	2a	4a	7a	13a	16ab	23ab	27ab
Jupiter 8-inch			0b	0b	0b	0c	2d	4d	6d	9e
Jupiter 16-inch			0b	0b	0b	0c	3cd	6cd	10d	14cd
Trenasse 8-inch			0b	0b	0b	1bc	5bc	11bc	15c	17c
Trenasse 16-inch			0b	0b	3a	7a	11a	20a	27a	30a
LSD (.05)	=		0	1	2	3	3	6	4	5
Standard Dev.	=		.0625	.22033	.96333	1.2491	1.331	2.5016	1.8991	1.9931
CV	=		133.33	94.01	82.20	48.16	21.90	22.39	12.00	10.64

Means followed by same letter do not differ significantly (Duncan's multiple range test, P=.05).

Table 5. The main effects of variety and first (main) crop cutting height on second (ratoon) crop production. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Ratoon Pl. Ht. (cm)	Ratoon Grain Moisture (%)	Ratoon Grain Yield (lb/A)
TABLE OF VARIETY MEANS					
Cocodrie			65	20.5a	1136
CLXL730			69	17.5b	1805
Jupiter			66	20.3a	1586
Trenasse			69	18.6b	1888
TABLE OF STUBBLE HEIGHT MEANS					
8-inch			68	19.1	1651
16-inch			67	19.4	1556

Within the same table, means followed by the same letter do not differ significantly (Duncan’s multiple range test, P=.05).

Table 6. The simple effects of variety and first (main) crop cutting height on second (ratoon) crop production. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Ratoon Pl. Ht. (cm)	Ratoon Grain Moisture (%)	Ratoon Grain Yield (lb/A)
Cocodrie 8-inch			64d	20.5a	1107d
Cocodrie 16-inch			66cd	20.5a	1166d
CLXL730 8-inch			69ab	17.2b	2126a
CLXL730 16-inch			70ab	17.9b	1485c
Jupiter 8-inch			67cd	21.0a	1366cd
Jupiter 16-inch			66cd	19.7ab	1807b
Trenasse 8-inch			71a	17.8b	2008ab
Trenasse 16-inch			67bc	19.4ab	1768b
LSD (.05)	=		2	2.4	269
Standard Dev.	=		1.034	1.006	113.73
CV	=		1.53	5.23	7.09

Means followed by same letter do not differ significantly (Duncan's multiple range test, P=.05).

Table 7. The main effects of variety and first (main) crop cutting height on second (ratoon) crop panicle growth. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Pan. Den (pan./ sq ft) 0 WBH total	Pan. Den (pan./ sq ft) 3 WBH mature	Pan. Den (pan./ sq ft) 0 WBH immature	Pan. Den (pan./ sq ft) 3 WBH base	Pan. Den (pan./ sq ft) 3 WBH upper
TABLE OF VARIETY MEANS							
Cocodrie			16a	12a	4a	12a	0a
CLXL730			31b	21b	9a	21b	1ab
Jupiter			16a	10a	6a	9a	2b
Trenasse			28b	19b	9a	20b	0a
TABLE OF CUTTING HEIGHT MEANS							
8 inch			19a	13a	6a	13a	1a
16 inch			26b	18b	8a	18b	1a

Within the same table, means followed by the same letter do not differ significantly (Duncan’s multiple range test, P=.05).

Table 8. The simple effects of variety and first (main) crop cutting height on second (ratoon) crop panicle growth. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Pan. Den (pan./ sq ft) 0 WBH total	Pan. Den (pan./ sq ft) 3 WBH mature	Pan. Den (pan./ sq ft) 0 WBH immature	Pan. Den (pan./ sq ft) 3 WBH base	Pan. Den (pan./ sq ft) 3 WBH upper
Cocodrie 8-inch			12d	9d	3c	9d	0c
Cocodrie 16-inch			20cd	15c	5abc	15bc	1bc
CLXL730 8-inch			31ab	21ab	10ab	20ab	2ab
CLXL730 16-inch			30abc	22a	8abc	22a	1bc
Jupiter 8-inch			13d	8d	5bc	8d	1bc
Jupiter 16-inch			20cd	13cd	7abc	10cd	3a
Trenasse 8-inch			22bcd	16bc	6abc	16b	0c
Trenasse 16-inch			34a	23a	11a	24a	1bc
LSD (.05)	=		10	5	6	5	1
Standard Dev.	=		4.3143	2.2057	2.5546	2.0143	.60503
CV	=		19.04	14.07	36.58	12.90	71.71

Means followed by same letter do not significantly differ (Duncan's MRT, P=.05).

Table 9. The main effects of variety and first (main) crop cutting height on second (ratoon) crop panicle production. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Pan. Wt. g/sq ft 0 WBH total	Pan. Wt. g/sq ft 3 WBH mature	Pan. Wt. g/sq ft 0 WBH immature	Pan. Wt. g/sq ft 3 WBH base	Pan. Wt. g/sq ft 3 WBH upper
TABLE OF VARIETY MEANS							
Cocodrie			13	11	2a	11	0
CLXL730			17	13	4a	13	1
Jupiter			17	13	4a	12	2
Trenasse			19	16	3a	16	0
TABLE OF CUTTING HEIGHT MEANS							
8-inch			17	13	3a	13	0
16-inch			17	14	3a	13	1

Within the same table, means followed by the same letter do not differ significantly (Duncan’s multiple range test, P=.05).

Table 10. The simple effects of variety and first (main) crop cutting height on second (ratoon) crop panicle production. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds Rate	Grow Stg	Pan. Wt. g/sq ft 0 WBH total	Pan. Wt. g/sq ft 3 WBH mature	Pan. Wt. g/sq ft 0 WBH immature	Pan. Wt. g/sq ft 3 WBH base	Pan. Wt. g/sq ft 3 WBH upper
Cocodrie 8-inch			11d	10c	2a	10b	0b
Cocodrie 16-inch			15bcd	12bc	2a	12ab	0b
CLXL730 8-inch			22a	17a	5a	16a	1b
CLXL730 16-inch			13d	10c	3a	10b	0b
Jupiter 8-inch			14cd	11c	3a	11b	0b
Jupiter 16-inch			20a	16ab	4a	13ab	3a
Trenasse 8-inch			19ab	16a	3a	16a	0b
Trenasse 16-inch			19abc	16ab	3a	16a	1b
LSD (.05)	=		5	4	3	4	1
Standard Dev.	=		1.9535	1.4992	1.3788	1.7536	.41659
CV	=		11.81	11.11	45.25	13.60	68.36

Means followed by same letter do not significantly differ (Duncan's MRT, P=.05).

YIELD ENHANCEMENT STUDIES – SECOND CROP

R.T. Dunand and R.R. Dilly, Jr.

Experiment: AFxRD-038 and Second Crop Production in Drill-Seeded Rice

General Methodology: See South Unit General Methodology – Second Crop (pg. 256)

Variety: Trenasse

Treatment(s): **Plant Growth Regulator**
AFxRD-038 (9.4 oz/A)

Timing(s) – Sequential Single Treatment
Milk Stage (MS), 3 Oct
Dough Stage (DS), 10 Oct

Pertinent Rainfall: No significant rainfall within 24 hours after application.

Experimental Design: Randomized complete block and five replications.

Comments: **Second (Ratoon) Crop Production**

Second crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the late-season applications of AFxRD-038 (Table 1). Mature plant height (distance from the soil surface to the tip of the panicle extended vertically) of the treatment was 68 cm (control = 69 cm). Grain moisture (an indicator of crop maturity) of the treatment was 20.0% (control = 19.5%). Grain yield (adjusted to 12% moisture) was essentially the same for the sequential single treatment (1721 lb/A) and control (1715 lb/A).

Table 1. The effects of AFxRD-038 on second crop production in drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Ratoon Pl. Ht. (cm)	Ratoon Grain Moisture (%)	Ratoon Grain Yield (lb/A)
Control				69a	19.5a	1715a
AFxRD-038	d	9.4	MS	68a	20.0a	1721a
AFXRD-038	d	9.4	MS+7			
LSD (.05)	=			2	1.1	398
Standard Dev.	=			1.1618	.60067	226.45
CV	=			1.69	3.04	13.18

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

NO/MINIMUM TILLAGE STUDIES

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Roundup WEATHERMAX, N-Large Premier, and Weed Control

Location: Rice Research Station, Crowley, LA (North Unit, Field N9-A)

Variety: None/Fallow

Fertilizer: None

Treated Area: 160 ft^2 – 8 x 20 ft

Treatment(s): **Plant Growth Regulator**
N-Large Premier (3 and 4 fl oz/A)

Herbicide
Roundup WEATHERMAX (22 fl oz/A)

Timing – 2 Aug

Sprayer: See North Farm General Methodology

Water Management/Rain: 1.5 inches, 20 July thru 1 Aug; trace (<0.05 inch), 2, 5, and 6 Aug; 0.4 inch, 7 Aug; trace, 12 Aug

Pertinent Rainfall: Trace of rain at 3 hours after application

Experimental Design: Randomized complete block and six replications.

Comments:

Weed Injury

At 7 days after treatment (DAT), Roundup WEATHERMAX alone or in combination with N-Large Premier caused 55 to 63% injury on a fallow field with a natural infestation of primarily barnyard grass and yellow nutsedge (Table 1). The largest weeds were 8 to 10 inches tall. The injury was significantly different from the control, and there were no differences between treatments.

At 14 DAT, Roundup WEATHERMAX with N-Large Premier continued to sustain the injury levels noted at 7 DAT and Roundup WEATHERMAX alone did not appear to be sustaining its original level of injury (Table 1). General weed control ratings were 48, 53, and 63% for Roundup WEATHERMAX alone and in combination with N-Large Premier at 3 and 4 fl oz/A, respectively. At this time, there were noticeable differences between treatments with respect to reproductive development in the yellow nutsedge (Table 1). Yellow nutsedge was shorter as a result of less heading in Roundup WEATHERMAX plus N-Large Premier treatments (18 and 12% heading for the 3 and 4 fl oz/A rates, respectively) compared with Roundup WEATHERMAX alone (38%).

Table 1 The effect of herbicide and plant growth regulator on weed growth on late-season fallow land. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm	Ds	Rate	Grow Stg	Weed Injury (%) weeds 7 DAT	Weed Injury (%) weeds 14 DAT	Sedge Heading (%) weeds 14 DAT
Control					0b	0c	90a
Roundup	l		22	PRE	60a	48b	38b
WEATHERMAX				PRE			
Roundup	l		22	PRE	55a	53ab	18c
WEATHERMAX				PRE			
N-LargePremier	l		3	PRE			
RoundupMAX	l		22	PRE	63a	63a	12c
WEATHERMAX				PRE			
N-LargePremier	l		4	PRE			
LSD (.05)	=				13	10	13
Standard Dev.	=				10.206	8.2158	10.58
CV	=				22.89	19.92	26.73

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

NO/MINIMUM TILLAGE STUDIES

R.T. Dunand and R.R. Dilly, Jr.

Experiment: Roundup WEATHERMAX, ReZist, Weed Control, and Crop Production in Drill-Seeded Rice

Location: Rice Research Station, Crowley, LA (South Unit, Field 8-B)

Variety: Cocodrie

Seeding Method/Depth/Rate: Marliss No-Till Drill on 7-inch rows/0.5 inch/70 lb/A

Fertilizer: 8-24-24 w/3.5% Zn and 2% S at 250 lb/A by airplane, 16 Sept
Urea at 350 lb/A by fertilizer buggy, 9 May

Plot Size/Treated Area: 140 ft^2 – 7 x 20 ft

Seed Treater: Cement mixer

Sprayer: CO_2-driven, backpack, 35 psi, 15 GPA, 8001VS tips, 20-inch nozzle spacings

Planting Date: 27 Mar

Emergence: 14 Apr

Water Management: Flushed, 4, 12, and 18 Apr
Permanent flood, 11 and 12 May
Preharvest drain, 24 July

Treatment(s): **Plant Growth Regulator**
ReZist (16 fl oz/A)

Herbicide
Roundup WEATHERMAX (5.5, 11, and 22 fl oz/A)

Timing – 21 Feb

Pertinent Rainfall: 0.14 inch beginning 2 hours after application; 0.7 inch, 28 Feb; 0.1 inch, 9 Mar; 0.2 inch, 20 Mar; 0.1 inch, 28 Mar; 0.3 inch, 21 Apr; 0.9 inch, 25 Apr; 2.5 inches, 28-30 Apr; 1.3 inches, 4 May; 0.6 inch, 5-7 May

Herbicide(s): RiceShot (3 qt/A) + Basagran (1.5 pt/A), 17 Apr
Arrosolo (1 gal/A) + Permit (1 oz/A) by ATV, 28 Apr
Arrosolo (1 gal/A) + Permit (1.5 oz/A) + Prowl (1 qt/A) by ATV, 9 May
RiceStar (22 fl oz/A) by airplane, 31 May

Insecticide(s): Icon (1 fl oz/70 lb seed), 20 Mar

Fungicide(s): Dithane (0.25 lb/cwt), 20 Mar

Plant Growth Regulator(s): Release (0.35 oz/cwt), 20 Mar

Micronutrient(s): Zinche (8 fl oz/cwt), 20 Mar

Harvest Date: 9 Aug

Harvested Area: 140 ft^2 – 7 (12 7-inch rows) x 20 ft

Experimental Design: Factorial arrangement (two rates of plant growth regulator and four rates of herbicide) in a randomized complete block with four replications.

Comments:

Weed Control

The area in which the experiment was conducted was uniformly covered with Bermuda grass, which is relatively unaffected by glyphosate. In the weed evaluations, Bermuda grass was ignored for this reason. Although the permanent flood generally suppressed Bermuda grass, Bermuda grass was present during all of the growing season. This may have in part impacted the results. Also, the area in which the test was situated was relatively unproductive. It is unclear whether there was a soil nutrition problem. Shorter than expected plants and lower than expected grain yields reflect the poor growing conditions. Other major weeds in the area were clovers and bluegrass.

At 16 days after treatment (DAT), on average, weed control increased significantly with increasing rates of Roundup WEATHERMAX and was relatively unaffected by ReZist (Table 1). With the 0, 5.5, 11, and 22 fl oz/A rates of Roundup WEATHERMAX, weed control averaged 18, 31, 51, and 81%, respectively. Similar results were noted at 23 and 29 DAT with one exception. The 0 and 5.5 fl oz/A rates produced very little weed control while weed control increased significantly with the 11 and 22 fl oz/A rates. For example, at 29 DAT, weed control averaged 0, 2, 21, and 69% for the four rates of Roundup WEATHERMAX. The effects of Roundup WEATHERMAX and ReZist on weed control were independent (Table 2).

Crop Production

Crop stature, maturity, and production were evaluated at harvest, and none were significantly affected by the applications of Roundup WEATHERMAX and ReZist (Table 1). Mature plant height (distance from the soil surface to the tip of the panicle extended vertically) for treatments averaged between 76 and 79 cm (control = 77 cm). Grain moisture (an indicator of crop maturity) for treatments averaged between 19.7 and 21.0% (control = 20.4%). Grain yield (adjusted to 12% moisture) was highest (3526 lb/A) with the low rate of Roundup WEATHERMAX compared with the control (3448 lb/A) and other Roundup WEATHERMAX treatments, which averaged between 2730 and 2996 lb/A. The effects of Roundup WEATHERMAX and ReZist on crop production were independent (Table 2).

Table 1. The main effects of herbicide and plant growth regulator on weed control and first crop production in no/minimum tillage drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Control (%) 16 DAT	Control (%) 23 DAT	Control (%) 29 DAT	Mature Pl. Ht. (cm)	Grain Moisture (%)	Grain Yield (lb/A)
TABLE OF HERBICIDE MEANS									
Roundup WEATHERMAX	l	0	PrePl	18a	4a	0a	77	20.4	3448
Roundup WEATHERMAX	l	5.5	PrePl	31b	9a	2a	79	19.7	3526
Roundup WEATHERMAX	l	11	PrePl	51c	29b	21b	78	19.9	2996
Roundup WEATHERMAX	l	22	PrePl	81d	71c	69c	76	21.0	2730
TABLE OF PLANT GROWTH REGULATOR MEANS									
ReZist	l	0		41	28	25	77	20.3	3226
ReZist	l	16		49	28	21	78	20.2	3124

Within the same table, means followed by the same letter do not differ significantly (Duncan's multiple range test, P=.05).

Table 2. The simple effects of herbicide and plant growth regulator on weed control and first crop production in no/minimum tillage drill-seeded rice. Rice Research Station, Crowley, LA. 2006.

Treatment Name	Fm Ds	Rate	Grow Stg	Control (%) 16 DAT	Control (%) 23 DAT	Control (%) 29 DAT	Mature Pl. Ht. (cm)	Grain Moisture (%)	Grain Yield (lb/A)
Roundup WEATHERMAX	l	0	PrePl	0d	0c	0c	77a	20.7a	3493a
ReZist	l	0							
Roundup WEATHERMAX	l	0	PrePl	35c	9c	0c	77a	20.1a	3402a
ReZist	l	16							
Roundup WEATHERMAX	l	5.5	PrePl	29c	9c	4c	78a	19.4a	3728a
ReZist	l	0							
Roundup WEATHERMAX	l	5.5	PrePl	33c	9c	0c	79a	20.0a	3325a
ReZist	l	16							
Roundup WEATHERMAX	l	11	PrePl	53b	30b	24b	77a	20.1a	2995a
ReZist	l	0							
Roundup WEATHERMAX	l	11	PrePl	49b	28b	18b	78a	19.7a	2997a
ReZist	l	16							
Roundup WEATHERMAX	l	22	PrePl	81a	74a	73a	76a	21.2a	2690a
ReZist	l	0							
Roundup WEATHERMAX	l	22	PrePl	80a	69a	65a	77a	20.9a	2770a
ReZist	l	16							
LSD (.05)	=			10	12	14	3	3.3	1161
Standard Dev.	=			6.6731	8.2307	9.3302	2.3745	2.2261	789.35
CV	=			14.88	29.10	40.90	3.07	10.99	24.86

Means followed by same letter do not significantly differ (Duncan's multiple range test, P=.05).

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, 2005-2006 season, crawfish research project, Rice Research Station, Crowley, LA. The catch consisted almost exclusively of red swamp crawfish (*Procambarus clarkii*). The production summary is composed of averages across all experimental plots and treatments.

Pond History: Ponds were fallow for a period of 9 months following the previous crawfish season of 2003-2004. Rice crops were planted in Apr and harvested in Aug 2005, and fields were stocked with brood crawfish at a rate of 50 lb/A on May 27-June 9, 2005.

Soil Type: Crowley silt loam

Water Source: Groundwater

Pond Area: Twelve 1-acre ponds

Forage Crops: Rice, variety 'Cypress,' was seeded by air on 21 Apr 2005 at 120 lb/A. Grain was harvested by rice combine on 23-24 Aug 2005, and a ratoon forage crop was managed for crawfish production.

Permanent Flood Date: 26 Sept 2005

Trap Type: 3-funnel pyramid trap; 0.75-inch square mesh wire

Bait Used: Manufactured baits: *Cajun World* and *Early On* (Purina Mills, Inc., St. Louis, MO); Southern Pride (Country Acres Feed, Inc., Brentwood MO); and Acadiana Choice (Peoples Moss Gin Inc., Palmetto, LA).

Crawfish Harvest: 10 to 22 traps/A, 3 Mar - 1 June 2006 (36 total trapping days resulting in 360, 576, or 792 total trap-sets/A, averaging 576 trap-sets/A).

Crawfish Grades: Harvested crawfish were subjected to a grader (passive, water type) and sorted into three size-grade categories as follows: "Large" - <15 count/lb, "Medium" - 15-21 count/lb, and "Small" - > 21 count/lb.

Table 1. Annual environmental conditions and crawfish production (averaged or totaled weekly). Rice Research Station, Crowley, LA. 2005-2006.

Weeks	Soil Temp.[1] Min.	Soil Temp.[1] Max.	Air Temp. Min.	Air Temp. Max.	Water Temp. Min.	Water Temp. Max.	Avg. D.O.[2]	Total Rainfall	Large Crawfish Count	Crawfish Harvest	Crawfish Size	Total Trapsets
	----------deg. F----------						(mg/L)	(inches)	(#/trap)	(lb/A)	(cnt/lb)	(#/A)
June 1-4	77.8	82.0	75.3	86.0				0.10				
June 5-11	77.3	86.3	71.0	90.4				3.44				
June 12-18	81.4	93.7	74.0	94.4				0.22				
June 19-25	80.7	96.0	72.1	92.4								
June 26-July 2	84.9	96.9	74.3	96.7				0.70				
July 3-9	80.0	91.9	72.3	92.3				1.38				
July 10-16	82.7	92.3	74.7	89.0				0.60				
July 17-23	81.1	91.3	75.6	92.1				1.68				
July 24-30	84.4	96.6	76.3	92.9				0.72				
July 31-Aug 6	82.3	91.6	73.1	91.7				1.03				
Aug 7-13	81.1	90.9	73.1	93.0				0.03				
Aug 14-20	81.1	90.3	73.7	93.6				1.24				
Aug 21-27	82.7	92.1	76.0	95.9				0.18				
Aug 28-Sept 3	82.0	89.1	84.6	93.4				1.90				
Sept 4-10	80.0	87.4	69.0	92.0								
Sept 11-17	81.0	88.9	70.1	90.4								
Sept 18-24	82.4	90.9	74.1	94.0				2.90				
Sept 25-Oct 1	79.0	85.1	73.1	88.7				5.00				
Oct 2-8	77.9	88.3	68.9	87.6				0.64				
Oct 9-15	73.7	82.3	61.3	80.7	69.9	79.1	0.62					
Oct 16-22	72.4	83.4	58.3	85.0	67.0	77.0	0.65					
Oct 23-29	63.4	73.0	43.1	69.1	55.4	65.1	1.45					
Oct 30-Nov 5	59.7	69.3	49.0	74.4	58.5	66.8	2.76	0.50				
Nov 6-12	68.7	74.7	63.4	79.3	68.4	73.9	0.68	0.05				
Nov 13-19	61.3	67.4	48.4	70.3	59.4	65.1	0.70	1.10				
Nov 20-26	54.7	59.9	45.1	67.0	53.8	59.1	4.23					
Nov 27-Dec 3	54.7	61.0	45.4	67.3	55.6	61.4	1.73	1.81				
Dec 4-10	50.4	56.6	40.0	58.3	50.2	54.8						
Dec 11-17	49.1	55.3	41.1	60.1	49.1	53.8	5.02	1.65				
Dec 18-24	44.9	51.1	34.6	53.1	45.8	51.2		0.30				

Continued.

Table 1. Continued.

Weeks	Soil Temp.[1] Min.	Soil Temp.[1] Max.	Air Temp. Min.	Air Temp. Max.	Water Temp. Min.	Water Temp. Max.	Avg. D.O.[2]	Total Rainfall	Large Crawfish Count	Crawfish Harvest	Crawfish Size	Total Trapsets
	----------deg. F----------						(mg/L)	(inches)	(#/trap)	(lb/A)	(cnt/lb)	(#/A)
Dec 25-31	51.1	57.7	50.9	70.1	54.2	60.6		1.00				
Jan 1-7	57.6	64.0	48.4	70.6	56.8	63.1	0.79					
Jan 8-14	52.6	60.9	44.3	67.9	54.1	60.6	1.51	0.10				
Jan 15-21	52.1	58.3	45.0	65.0	52.8	59.8	4.18	1.55				
Jan 22-28	54.3	58.9	45.6	63.3	53.0	61.3	3.64	0.50				
Jan 29-Feb 4	57.0	63.3	48.6	71.3	57.6	68.1	2.11	3.20				
Feb 5-11	53.4	59.0	40.4	63.4	50.7	62.4	4.43	1.13				
Feb 12-18	52.1	57.9	44.3	61.3	50.5	62.3	7.43					
Feb 19-25	49.9	57.3	40.4	56.9	51.3	58.4	6.72	0.33				
Feb 26-Mar 4	55.4	62.1	46.3	68.7	56.6	72.4	3.23	0.70	2.35	2.2	16.8	16
Mar 5-11	62.0	71.3	57.3	73.7	65.0	76.0	0.90	0.15	3.34	3.9	13.6	16
Mar 12-18	64.4	70.9	58.3	75.7	63.1	74.9	2.00		4.23	4.7	14.3	16
Mar 19-25	60.0	66.1	51.9	67.6	56.2	70.9	1.92	0.16	3.43	7.8	14.2	32
Mar 26-Apr 1	61.4	69.4	54.6	74.6	63.3	77.1	3.66	0.10	3.83	9.2	13.3	32
Apr 2-8	70.7	78.9	64.1	83.4	69.9	81.9	1.33		5.68	7.4	12.3	16
Apr 9-15	68.6	79.4	55.1	80.0	65.8	83.8			4.28	15.8	13.0	48
Apr 16-22	74.7	84.3	68.3	86.7	73.2	88.3		0.30	5.29	20.4	12.4	48
Apr 23-29	70.9	80.9	62.9	81.6	71.5	83.6	1.75	0.92	4.70	19.9	11.3	48
Apr 30-May 6	69.9	79.7	66.6	83.7	74.1	86.2	2.46	3.80	4.03	26.2	9.8	64
May 7-13	72.7	81.1	64.9	82.0	76.1	89.6	4.79	0.56	4.55	22.1	9.9	48
May 14-20	70.4	80.9	61.0	81.6	74.3	88.8		0.16	3.69	26.6	8.9	64
May 21-27	77.0	86.7	68.0	88.6	80.7	96.5	2.93		3.70	27.4	8.6	64
May 28- June 3					83.2	94.2		0.70	3.44	25.9	8.5	64
								42.5[3]		**219.6**		**576**

[1] Soil temperature was measured at a depth of 4 inches.
[2] Dissolved oxygen readings were taken about 8:00 a.m.
[3] Rainfall total is for 1 year only (June 1, 2005 - May 31, 2006) and does not include rainfall occurring in June 2006.

EFFECTS OF TRAP DENSITY ON CRAWFISH YIELD IN A RICE-CRAWFISH FIELD ROTATIONAL MANAGEMENT SYSTEM

W.R. McClain, R.P. Romaire, and J.J. Sonnier

INTRODUCTION

The standard commercial trap used by crawfish farmers is referred to as the pyramid trap because of its pyramid-like configuration. Early pyramid traps were made from ¾-inch hexagonal shaped PVC-coated wire. However, in recent years, nearly all traps sold were constructed of ¾-inch square-mesh PVC-coated wire. The welded square-mesh wire provides for a much sturdier trap, thus increasing the useful life of the trap. Research has demonstrated that the average crawfish catch per trap was increased when using square-mesh traps. Traps constructed of square-mesh wire may be more efficient partly because of the increased structural integrity, which allows funnel openings to retain their original shape better and trap bottoms to sit flat on the bottom of the pond. The square mesh also typically retains slightly smaller crawfish, thus increasing catch efficiency. This retention is probably due to the differences in geometrical shapes of the trap mesh (square) and that of crawfish (oval). Retaining smaller crawfish can potentially increase the overall yield in a pond but also may be a problem for buyers and processors if the proportion of small crawfish in the catch becomes too great.

Because of the higher catch efficiency of the square-mesh trap, current recommendations of optimum trap density, based on the older hex-mesh design, may no longer be valid in some situations. Previous recommendations of trap density, based on over a decade of research in well-managed ponds producing in excess of 1,000 lb/A, was for 20 to 24 hex-mesh traps/A. Potentially, fewer traps of the square-mesh design with less bait and labor may be used to achieve optimum yield and with a significant savings in harvesting cost and increased profit for farmers in similar situations. Trap density and trap catch efficiency are major determinants in bait use and cost, which represent the highest variable cost for crawfish producers. Refinement of trap density has the potential to increase production efficiency by reducing bait and labor costs. Therefore, this study was conducted to obtain additional data with regard to optimal density of the square-mesh trap under a typical rice-crawfish field rotational strategy.

Pond History: Ponds were fallow for 9 months following a previous crawfish season. Rice crops were planted in Apr 2005, and fields were stocked with brood crawfish and managed to simulate commercial rice/crawfish rotational systems typical to the region.

Soil Type: Crowley silt loam

Pond Area: Twelve 1-acre ponds

Forage Crop: Rice (variety 'Cypress') was aerially seeded at 120 lb/A on 21 Apr 2005. Grain was harvested on 23-24 Aug 2005, and the ratoon forage crop was managed for crawfish production.

Fertilizer: Main Crop: 8-24-24 at 250 lb/A at planting, 46-0-0 at 200 lb/A (topdress) on 25 May, 46-0-0 80 lb/A (topdress) on 5 July; Ratoon Crop: 21-0-0 at 150 lb/A (topdress) on 26 Aug, 46-0-0 at 50 lb/A (topdress) 13 Sept

Herbicide: Arrosolo at 1 gal/A and Permit at 1 oz/A on 16 May

Insecticide: None

Stocking Rate: 50 lb/A during 27 May - 9 June

Permanent Flood Date: 26 Sept 2005

Feed: None

Trap Type and Density: 3-funnel pyramid trap constructed of ¾-inch square-mesh wire at 10, 16, or 22 traps/A. Trap density constituted the experimental treatments.

Bait Used: Manufactured baits: *Cajun World* and *Early On* (Purina Mills, Inc., St. Louis, MO); Southern Pride (Country Acres Feed, Inc., Brentwood MO); and Acadiana Choice (Peoples Moss Gin Inc., Palmetto, LA). Bait type and amounts were consistent across experimental treatments daily.

Crawfish Harvest: 3 Mar - 1 June 2006 for a total of 36 baited trapping days (360, 576, or 792 total trap-sets/A)

Crawfish Grades: Harvested crawfish were subjected to a grader (passive, water type) and sorted into three size-grade categories as follows: "Large" - <15 count/lb, "Medium" - 15-21 count/lb, and "Small" - > 21 count/lb

Exp. Design: Completely randomized design (four replications per treatment)

Parameters: Crawfish catch, by size category, was documented daily for each pond, and sub-samples were assessed weekly for size count and used to estimate total number of crawfish harvested. Crawfish catch per unit effort (CPUE) was also determined.

Statistical Analysis: Analysis of variance with means separated by Duncan's Multiple Range Test

Support: USDA Special Grants – Aquaculture

Comments: Average annual crawfish yield in this study was 219 lb/A, low for this research facility and low for most well-managed operations even under the rice-crawfish field rotational approach. Unlike the previous year, where no significant differences were observed for total yield among the different trap density treatments in a similar trial, total yield in this study for the low trap density (10 traps/A) was significantly lower than with a trap density of 22 traps/A (Table 1). Total difference between the highest yield (with 22 traps/A) and the lowest yield (with 10 traps/A) was 82 lb/A of crawfish, and since the crawfish were large (< 11 count on average), most of the yield reduction came from the largest, most valuable size grade. Although the average CPUE was significantly increased as trap density decreased (Table 1), the increase in efficiency is not likely to compensate for the decrease in catch of such valuable crawfish under these conditions. The difference in trap number between the highest and lowest trap density was 12, and with a total of 36 harvest days, the cost of bait used (one of the major expenses) with the greater trap density might only be between $19 and $26/A, assuming between 0.25 and 0.33 lb of bait per trap and a cost of $0.18/lb for bait. This expense would likely be well justified for 82 pounds of large crawfish.

Overall crawfish density was low for this trial as evidenced by the low yield and large size of harvested crawfish. The amount of forage biomass at the end of the trial (Table 2) is also an indication that the crawfish density was low. It is highly likely that crawfish density and recruitment patterns will largely dictate optimum trap densities, but it is difficult to discern exact cause and effect based on a few trials. It appears, based on these and previous results, that very low crawfish densities may require a greater number of traps to maximize the catch while moderate densities may require fewer traps and high crawfish densities may require some larger number to effect the most efficient yields from crawfish ponds. More research, under varying conditions of crawfish density and recruitment patterns, is definitely needed.

One trend that seems to hold true thus far regardless of crawfish density (within reasonable extremes) is that the CPUE is greater with fewer traps. One might expect that CPUE would be greater in ponds with lower trap densities toward the end of the harvesting season because of a presumed "build-up" of the harvestable population due to reduced trapping effort. However, this does not appear to be the case. CPUE was inversely related to trap density from the beginning of the harvesting period and this remained consistent throughout in this study (Figure 1) and in a previous trial (2005).

Table 1. Comparisons of yield (total and by grade category), size at harvest (by grade and overall weighted average), total crawfish harvested, and catch per unit effort (CPUE) for crawfish ponds harvested using three densities of ¾-inch square-mesh traps for the 2006 production season. Values within columns with the same superscript were not significantly different (P > 0.05) and NS indicates non-significant differences among the treatments for those columns. Rice Research Station, Crowley, LA. 2006.

Treatment	Tot. Yield (lb/A)	Yield by Grade[1] (lb/A)			Size by Grade[1] (cnt/lb)			Avg Size[2] (cnt/lb)	Tot. CF (#/A)	CPUE (lb)
		1	2	3	1	2	3			
10 traps/A	171^{B}	145^{B}	19	7	9.6	15.3	24.0	10.6	1813	0.48^{A}
16 traps/A	233^{AB}	197^{A}	25	11	9.4	16.2	25.2	10.7	2518	0.41^{B}
22 traps/A	253^{A}	212^{A}	29	12	9.1	15.8	26.5	10.5	2678	0.32^{C}
			NS	***NS***				***NS***	***NS***[3]	

[1] Crawfish that fall into the size grade categories 1, 2, and 3 are considered large, medium, or small, respectively.
[2] Weighted averages
[3] P=0.0858

Table 2. Average forage biomass, monthly dissolved oxygen levels, and monthly pond temperature for experimental crawfish ponds. Forage biomass is considered to be the amount of living and dead plant tissue present on a dry matter basis, collected at first killing frost, early spring, and near end of season. Rice Research Station, Crowley, LA. 2006.

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Forage Biomass (lb/A)								
*	*	6277	*	*	*	3125	*	3567
Dissolved Oxygen (mg/L)								
0.91	2.02	5.02	2.53	5.17	2.34	1.54	3.39	*
Water Temperature (F)								
67.1	62.6	52.6	57.9	56.7	67.2	76.3	83.0	85.0

*****Values were not determined.

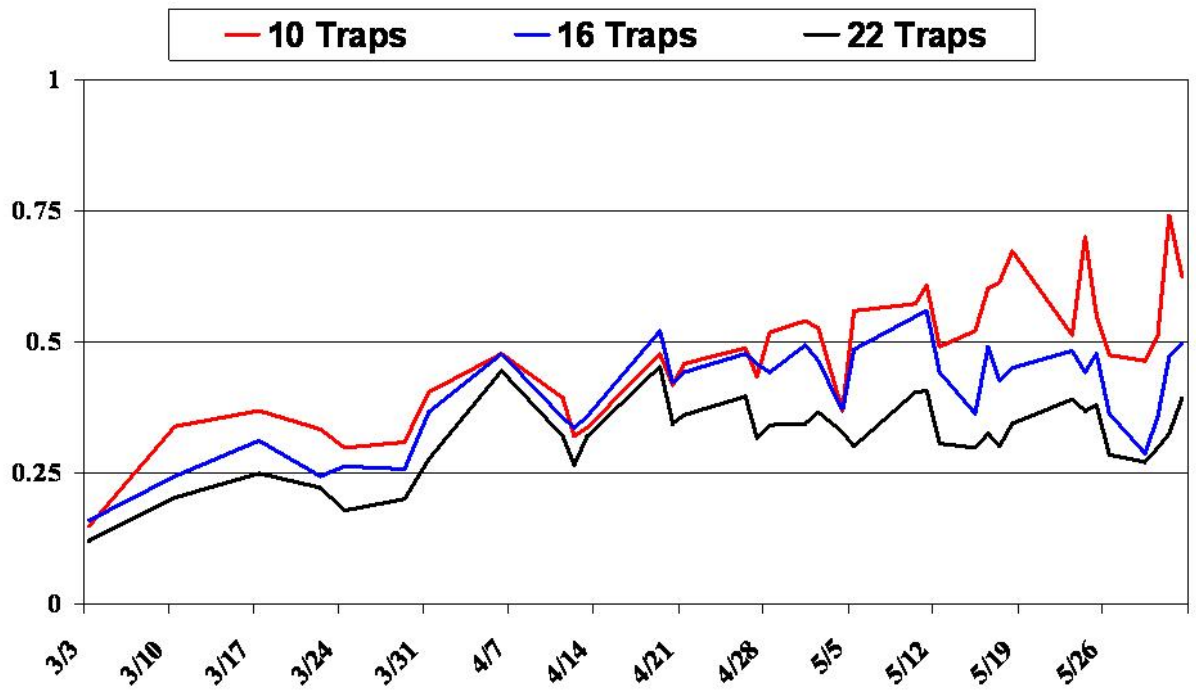


Figure 1. Average catch per unit effort (CPUE) for experimental treatments of 10, 16, and 22 traps/A over the course of a harvest season in a simulated rice-crawfish rotational system of production. Rice Research Station, Crowley, LA. 2006.

WINTER BURROW EXCAVATIONS AND SUBSEQUENT REPRODUCTION IN THE LABORATORY

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish burrows provide a moist environment necessary for crawfish to survive periods of dewatering, typically associated with the summer months in Louisiana. However, crawfish have also evolved to reproduce within the protection of the burrow. In crawfish aquaculture as in much of the natural habitat in Louisiana, dewatering occurs at the beginning of the reproductive cycle for a large percentage of crawfish. Most of the young-of-the-year crawfish in aquaculture ponds reach maturity in late spring or early summer; thus, those females enter the summer burrow during the early stages of their reproductive phase. Mature crawfish first mate in open waters whereby the sperm is deposited in an external receptacle on the female. The sperm is essentially stored there until egg laying where it is used to fertilizer the eggs upon egg extrusion from the female. Following mating, the female may retreat to a burrow.

For mature females that enter the burrow in late spring or early summer, ovary maturation occurs within the burrow over the course of the summer and ponds are reflooded to coincide with the more or less synchronized reproductive cycle of August – October spawning. However, because red swamp crawfish are not seasonal spawners and sexual maturity can be reached by some individuals at any time of year, burrowing and spawning can and does take place at other times of the year in the south while ponds are filled. In those situations, the crawfish usually retreats to burrows solely for reproduction. Although spawning can take place in open water, the burrow provides protection while the eggs and young are attached to the underside of their mother's tail. Females carrying eggs or hatchlings are highly susceptible to predators, because they cannot use their normal tail-flipping escape response.

Mature, mated females entering the reproductive phase in the fall/winter/spring, when ponds are flooded, will seek a levee or high ground at or near the water's edge to burrow. Little is known of the burrow ecology of crawfish in general, but far less is known about winter burrowing solely for reproductive purposes. Therefore, this study was initiated to develop some baseline information about winter burrowing in crawfish and to ascertain the potential for those offspring to contribute to the yields within a season.

Ponds: Nine experimental 1-acre ponds, used for other studies in 2004/2005 (such as "***Effects of Trap Design and Trap Density on Crawfish Yield in a Rice-Crawfish Field Rotational Management Approach***" in the 96th report) were employed for his study. Ponds were managed for crawfish following a rice crop in 2004, and pond history and conditions are described in detail within that 2005 report. Experimental treatments of that study did not interfere or impede with this project.

Permanent Flood Date: 7 Oct 2004

Burrows Identified: Beginning in Dec 2004 and continuing through Apr 2005, pond levees were frequently examined for burrow activity, and when a freshly sealed (capped) burrow was found, it was immediately flagged. Levee examinations occurred soon after significant rainfall events (1-inch or greater rainfall) or weekly in the absence of such events.

Burrow Excavation: At the beginning of each month, up to 30 crawfish burrows that were flagged the previous month were excavated and crawfish were retrieved. Burrow depth, volume of water, and quantity, sex, and maturity of crawfish retrieved from each burrow were noted.

Crawfish Collection: Ten mature female crawfish (*Procambarus clarkii*) retrieved each month from burrows were dissected and tissue indices determined, and approximately 20 additional mature female crawfish were placed in artificial burrows in the lab under simulated burrow conditions for subsequent reproduction.

Artificial Burrow System: Multiple half-gallon plastic containers (with lids) filled with 2 cups of soil and a similar volume of aged pond water served to simulate conditions inside naturally constructed crawfish burrows. The containers were each stocked with single female crawfish and housed in an environmentally controlled laboratory. Temperature in the lab was maintained at about 81°F.

Survival/Reproduction Assessment: Artificial burrows were inspected monthly for 12 months whereby each crawfish was examined for survival and reproduction. Spawned crawfish were dissected (following release of young) for tissue index and moisture content, and young were counted. Non-reproducing crawfish were dissected for tissue analysis at completion of the study (23 Jan 2005).

Parameters: Burrow conditions (month, depth, water volume, occupants, and reproductive status at excavation), subsequent female survival/reproduction, tissue indices, number of young, month spawned and hatched, and weight loss.

Statistical Analysis: General Linear Model analysis and means were separated by Duncan's multiple range test.

Support: USDA Special Grants – Aquaculture

Comments: When examining the initial findings of this study (Table 1), it was apparent that winter burrows were similar in some ways to typical summer crawfish burrows. Winter burrows were found to contain both male and female crawfish, and a substantial number contained more than one occupant. As with summer burrows, depths ranged greatly, from 8 to 37 inches; however, all burrows were found to have free standing water at excavation. Of the 113 burrows containing female crawfish, the average depth was 17.4 inches (Table 2), somewhat shallower than typically found in summer burrows. However, this is not surprising because length of burrow occupation is not as long as with summer burrows, and drying is probably not a factor as long as the pond remains flooded. There were no significant differences among the winter months for average burrow depth, volume of water in burrows, and percentage of animals that had spawned prior to crawfish extraction (a very low number). Also, few significant differences were associated with month of burrowing for crawfish placed in the lab for spawning (Tables 3 and 4). Survival, spawning percentages, number of offspring, and weight loss during the lab phase was similar regardless of month burrowed. As expected, however, month spawned usually was reflective of month burrowed – those that burrowed earlier usually spawned and hatched young sooner. While there were some expected differences in tissue indices between the subsample dissected immediately after burrow extraction and those that had spawned during the artificial burrow phase, other differences existed with regard to month of burrowing, but trends are difficult to discern.

Perhaps the most perplexing observation from this effort was that such a large percentage (67%) of crawfish extracted from winter burrows did not reproduce. Of those stocked, only 33% spawned. Those that spawned, did so, on average, within 1½ or 2 months after collection. Mortality was very high at 63% of those stocked. However, many deaths occurred well after the 2 to 3 months expected for spawning. Therefore, the high mortality percentage does not explain the low reproductive rate. Nonetheless, when one looks at the rate of reproduction from those that ultimately survived, it averaged 96%.

The most important finding from this study may be that, based on these results and the assumption that spawning in the lab closely followed spawning in natural burrows, few offspring from winter burrowing crawfish are likely to reach harvest size within the typical season ending in May or early June. Young from December-burrowing females were hatched, on average, in early March. Providing adequate food resources remain in the pond until June and overcrowding is not a problem, it may be possible for many of those offspring to reach harvest size by June under favorable conditions. However, for the other winter burrowing crawfish (January - March burrowers), with an average hatchling date of early to mid-April or later, there is little chance that their offspring will contribute to the annual yield in large numbers unless the season is extended and conditions remain favorable. Though under optimal growing conditions, two months may just be enough time for some percentage of offspring to reach minimal harvest size within the season. It is also possible that spawning dates were advanced somewhat in the lab because of the slightly higher temperatures in the lab when compared with probable temperatures in natural burrows at that time of year. Nonetheless, growing conditions in many commercial ponds during the last two months of the season is typically far from ideal and it seems unreasonable to expect a large percentage of hatchlings spawned during April or later to appear in the harvest.

Table 1. Aspects of burrow ecology relating to crawfish extracted from winter burrows. Rice Research Station, Crowley, LA. 2006.

Burrows	No.	Average Depth of Burrows (and Range)	Range of Water Volume (ml)	% of Burrows without Water
Single Occupancy – Males	4	19.3 10-37	100-4700	0
Single Occupancy – Females	52	16.6 8-34	100-2350	0
Double Occupancy – One Female	59	17.9 9-25	470-1880	0
Triple Occupancy – Two Female	1	20	-	-

Table 2. Burrow and reproductive status of female crawfish at time of winter burrow excavation. ***NS*** indicates non-significant differences (P > 0.05) among the treatments of those columns. Rice Research Station, Crowley, LA. 2006.

Month	No. Females	Avg Wt	Avg Burrow Depth	Water Volume (ml)	% Spawned
Dec	26	17.6	18.5	798	3.8
Jan	27	15.1	16.2	625	0
Feb	30	22.9	17.1	723	0
Mar	30	24.7	17.5	1039	6.7
			NS	*NS*	*NS*
Overall	**113**	**20.3**	**17.4**	**830**	**2.6**

Table 3. Average response variables for female crawfish extracted from burrows during winter and held in artificial burrows for reproduction. Values within columns with the same superscript were not significantly different (P > 0.05) and ***NS*** indicates non-significant differences among the treatments of those columns. Rice Research Station, Crowley, LA. 2006.

Month	No.	Intial Wt.	% Surv[1]	% Spawned[1]	% Spawned[2]	No. Young	No. Young per gram	Month Spawned[3]	Month Hatch[3]	% Wt Loss[4]
Dec	15	18.1	46.7	46.7	100	365	19.2	2.5^{C}	3.0^{C}	5.4
Jan	17	15.8	35.3	35.3	100	254	19.2	4.0^{B}	4.3^{B}	6.4
Feb	20	25.5	30.0	30.0	100	269	11.9	4.2^{B}	4.8^{B}	4.9
Mar	18	23.0	27.8	22.2	85.7	500	22.8	6.0^{A}	6.0^{A}	5.9
			NS	*NS*	*NS*	*NS*	*NS*			*NS*
Overall	**70**	**20.6**	**37.0**	**32.9**	**96.3**	**326**	**17.9**	**4.0**	**4.4**	**5.6**

[1] Based on initial number of replicates. [2] Based on surviving animals only. [3] Based on numerical representation of the months, beginning with 1 for January. [4] For spawning animals only.

Table 4. Comparisons of pre- and post-spawning indices for determining body condition, based on a sub sample of crawfish dissected following burrow extraction and those crawfish dissected after spawning. Values within columns with the same superscript were not significantly different (P > 0.05) and ***NS*** indicates non-significant differences among the treatments of those columns. Rice Research Station, Crowley, LA. 2006.

	Pre-Spawning Indices						Post-Spawning Indices			
Month	Ovary Color[1]	Hept Color[2]	% Hept Moisture	Ovary Index[3]	Hept Index[3]	Tail Index[3]	Hept Color[2]	% Hept Moisture	Hept Index[3]	Tail Index[3]
Dec	3.4^{A}	3.4^{B}	44.5	0.46^{A}	3.64	2.43	3.0	77.9	0.86^{AB}	0.81
Jan	2.3^{B}	4.4^{A}	46.1	0.09^{B}	4.24	2.53	2.4	86.6	0.59^{B}	0.77
Feb	3.4^{A}	4.6^{A}	42.6	0.56^{A}	4.27	2.56	2.4	67.7	1.36^{A}	1.47
Mar	3.7^{A}	3.6^{B}	48.8	1.22^{A}	3.44	1.95	1.7	84.6	0.49^{B}	1.13
			NS		*NS*	*NS*	*NS*	*NS*		*NS*
Overall	**3.2**	**4.0**	**44.4**	**0.58**	**3.99**	**2.42**	**2.6**	**78.5**	**0.86**	**1.02**

[1] Numerical scale given to ovary color/development upon dissection: 1=white, 2=orange, 3=tan, 4=brown, 5=black.
[2] Numerical scale given to hepatopancreas color/condition upon dissection: 1=dark amber/watery, 2=light amber/semi-watery, 3=pale/firm texture, 4=yellow/fatty texture, 5=bright yellow/full and highly fatty texture.
[3] Dry tissue weight as a percentage of wet whole animal weight.

SUMMER BURROW EXCAVATIONS AND EFFECTS OF VARIOUS FACTORS ON REPRODUCTION IN THE LABORATORY

W.R. McClain and J.J. Sonnier

INTRODUCTION

Industry wide, crawfish yields for the 2005-06 production season have been abnormally low. This is especially true for those using the production strategy whereby crawfish are cultured behind rice in a field rotation approach. This strategy, involving most of the acreage devoted to crawfish production in Louisiana, is most susceptible to crawfish population adversities because population densities are typically lower than in ponds permanently dedicated to crawfish production. When crawfish are not cultured in the same field (pond) during consecutive production seasons, there is little opportunity for the build-up of populations and development of a wide range of reproduction cycles within the population – both are aspects that tend to mitigate adverse effects on populations. Therefore, unfavorable weather patterns or other environmental conditions that impact crawfish broodstock survival and/or reproduction generally have a greater impact on crawfish production systems that employ the field rotation approach. By all perspectives, the current drought in Louisiana began during the summer of 2005 and persisted through the fall, with the exception of some short-lived rains associated with one or both hurricanes.

Prolonged summer drought when crawfish are confined to burrows (where they reproduce) can hamper reproduction if residual water within the burrows is lacking. If the drought is severe enough and burrows completely dry out, massive mortalities of broodstock can result. Drought during the fall, at a time when crawfish emerge from burrows with young, can also hamper production by preventing or delaying emergence from burrows. Crawfish remain trapped in burrows until the hardened dirt plug at the entrance of the burrow is sufficiently softened by pond flooding or rainfall. For crawfish burrowed in the levees above the normal water line of the flooded pond, timely rainfall is critical for the crawfish's emergence – and limited rainfall amounts are often not enough to adequately soften the hardened plug.

Soil type, burrow depth, burrow location, and amount of water inside the burrow at the time of initial burrowing may play a role in how well burrowed crawfish respond to prolonged drought conditions. Because very little research exists regarding the burrow ecology of crawfish, especially as it relates to crawfish aquaculture, research at the LSU AgCenter is being focused in this area. One such project examined crawfish burrows excavated in 2005 at the Rice Research Station in Crowley, approximately one month after pond draining.

Extracted crawfish were further held in artificial burrows in a lab to examine their subsequent survival and reproduction. Crawfish were also collected from open waters prior to pond draining and subjected to the artificial burrows. The objectives of this study were to examine the impact of several factors on crawfish reproduction under conditions similar to natural burrow environments.

Ponds: Crawfish from experimental 1-acre ponds receiving no supplemental feed, used in the study "***Effects of Trap Design and Trap Density on Crawfish Yield in a Rice-Crawfish Field Rotational Management Approach***" in the 96th report, and one experimental pond receiving supplemental feed were used for this study. It is assumed that the experimental trap density treatments in the previous study had no significant affect on the experimental treatments or outcomes of this study.

Permanent Flood Date: 7 Oct 2004

Feed: A commercial pelleted crustacean feed (25% crude protein) was offered twice per week, at 40 lb/A, for 4 weeks prior to crawfish collection in the "fed pond." No supplemental feed was offered in other ponds.

Crawfish Collections from Open Water: Mature crawfish (Procambarus clarkii) were collected (via baited traps) from open waters of both fed and non-fed ponds just prior to pond draining. One subset of the non-fed, trap-harvested crawfish was placed in enclosures (at a ratio 1:2.5 male to female) for 7 or 10 days prior the transfer of females to artificial burrows. Subsets (n=10) of the trap-harvested crawfish from both fed and non-fed ponds were dissected and assessed for body condition. The remaining mature females were placed directly in artificial burrows.

Enclosures: Open-end cylindrical wire-mesh enclosures (31-inches in diameter by 18 inches tall), constructed of 1/8-inch plastic-coated wire mesh, were placed over standing rice plants in a newly planted rice field with the bottom edge of the enclosure forced into the mud to contain crawfish and to serve as a confinement under typical field conditions. The enclosures contained a solid aluminum strip of sheeting (3 inches wide) around the inside top perimeter to prevent escapement from crawfish climbing up the wire mesh. Each enclosure was stocked with five mature females and two mature males.

Pond Drain Date: 16 June 2005

Burrows Identified: Prior to pond draining and within the first week following pond draining, sealed (capped) crawfish burrows on the levees and in pond bottoms, for both fed and non-fed ponds, were flagged for later excavation.

Crawfish Collections from Burrows: From 5 July to 13 July, flagged crawfish burrows were hand-excavated and crawfish retrieved. Burrow location, depth, volume of water, and quantity, sex, and maturity of crawfish retrieved from each burrow were noted. Subsets (n=5 to 10) of mature female crawfish retrieved from both pre- and post-drain constructed burrows and for each pond type (fed or non-fed) were dissected for determination of body condition. Remaining mature females were placed directly in artificial burrows for subsequent reproduction under simulated conditions.

Artificial Burrow System: Multiple half-gallon plastic containers (with lids) filled with 2 cups of soil and a similar volume of aged pond water served to simulate conditions inside naturally constructed crawfish burrows. The containers were each stocked with single female crawfish and housed in an environmentally controlled laboratory. Temperature in the lab was maintained at about 81°F to provide amenities and conditions approaching that of earthen burrows during the typical burrow occupation (reproductive period) of summer/early autumn.

Survival/Reproduction Assessment: Artificial burrows were inspected monthly, beginning in Aug, whereby each female crawfish was examined for survival and reproductive success. Spawned crawfish were dissected (following release of young) for tissue index and moisture content, and young were counted. Non-reproducing crawfish were dissected for tissue analysis at completion of the study (23 Jan 2005).

Burrow Parameters: Location, burrow depth, water volume, and number, sex, maturity and survival status of burrow occupants

Reproductive Parameters: Pre- and post-spawning body condition indices; survival, spawning status, number of offspring, month spawned, month hatched, and weight loss

Exp. Design: With respect to assessment of crawfish survival/reproduction in artificial burrows, a completely randomized design was used for each treatment comparison: (1) trap versus burrow collections; (2) pre- versus post-burrowing crawfish; (3) fed versus non-fed females and by collection method; and (4) 0, 7, or 10 days of holding prior to stocking in burrows.

Statistical Analysis: General Linear Model analysis, with means separated by Duncan's multiple range test

Support: USDA Special Grants – Aquaculture

Conclusions: Two hundred sixty burrows were excavated and crawfish were retrieved, water volume and burrow depth recorded, and location of the burrow entrances were noted (Figure 1). Average burrow depths and water volume, by crawfish survival and number of burrow occupants, are presented in Table 1. Burrows containing female crawfish only are further organized according to burrow location and depth category in Table 2. It was surprising to observe that 45% of the burrows contained no living crawfish after such a short time following pond draining. Dead crawfish were generally associated with burrows containing no measurable water, and there was a strong positive relationship between the amount of water present and burrow depth. There was also a marked difference in average water volume, percentage of burrows with no measurable water, and crawfish survival between burrows initiated at or above the pond's water line (mostly pre-drain burrows) and those made on the pond bottom (post-drain burrows). Though the average burrow depths were similar, burrows found on the pond bottom

(often near the base of the levee) generally contained much greater volumes of water, had fewer burrows without free water, and contained more living crawfish than burrows found at or above the water line on levees.

Though the implication of these findings with regard to burrow location is unclear in the Crowley silt loam soil, burrow depth and water volume appear to be highly correlated, and the volume of water found in burrows soon after burrowing may play a significant role in the ultimate survival of reproductive female crawfish within the burrow. It was surprising to observe high mortalities in burrows within the first month of summer drawdown. These findings strongly implicate summer/fall drought as a significant factor in negatively impacting crawfish reproduction and subsequent yield, at least on silt-loam soils, and may help to explain the reduced yields reported, following the unusually dry conditions during 2005 in Louisiana.

Response variables for trap harvested and burrow excavated cohorts held for spawning in artificial burrows are presented in Table 3. Overall survival in the artificial burrow system was 80%, and of those crawfish that survived, reproduction occurred in 69%. Average number of young hatched and released as stage 3 juveniles was 396 per female, or 11.9 hatchlings per gram of female. Although survival was not significantly different between crawfish collected from traps and those collected from burrows, spawning success was significantly different. The percentage of crawfish to spawn was nearly doubled for those extracted from burrows. The reason for this is unclear, but this trend has been observed before and may be associated with some aspect of maturity even though attempts were made to place only mature females in the laboratory spawning system. Burrow-extracted crawfish also spawned slightly earlier on average and had more young per g female. Few differences were observed for crawfish burrowing pre- and post-draining, but one significant difference was time of spawning. Spawning was slightly delayed in post-drain burrowing crawfish and may be similar to those collected by baited trap prior to pond draining.

Feeding of some animals for a short period prior to collecting was one treatment factor in this study. This was done to compare the survival and reproduction of animals in burrows based on the availability of nutrients and presumably their ability to use these abundant nutrients to build reserves prior to the burrow stay. Few differences were observed in the fed and non-fed groups, whether comparing animals only from burrows or traps, or overall. Lack of significant impacts associated with supplemental feeding may be explained by an apparently adequate indigenous food supply in the ponds, indicated by the large size of crawfish, abundant forage base, and lack of differences in body condition indices (Table 4).

Another treatment where comparisons in reproductive success were made in this study was trap-harvested crawfish of mixed sex that were communally held for varying lengths of time before the females were moved to the laboratory system of artificial burrows. This trial was in response to a previous trial where the results indicated a potential benefit in reproductive success to holding trap-caught animals communally prior to their burrow occupation period, presumably to ensure mating. However, contrary to the previous trial, these results did not indicate an improved response to a holding period.

Crawfish in this study were examined for evidence of recent mating before placement in the artificial burrows. Sometimes remnants of the sperm plug deposited by the male can be seen up to a few days after mating when viewed under a microscope. However, this evidence was usually observed in less than 20% of the females, and there was no apparent correlation between sperm remnants and reproductive success.

Tissue indices, especially hepatopancreas moisture content and dry weight to wet body weight ratios, seem to be good indicators of body condition, which may be suitable indicators for survival and spawning potential of burrowing crawfish. Table 4 provides some baseline information regarding pre- and post-spawning indices and comparisons between various treatments within each category.

Table 5 provides the relative timing of reproduction for crawfish held in the laboratory system of artificial burrows. Spawning began as early as August and did not occur after November. In general, it appears that trap-collected crawfish spawned later than crawfish extracted from burrows, but when compared with those crawfish extracted from post-drain burrows only, the spawning profiles were somewhat similar. Crawfish burrowing prior to pond drawdown exhibited much earlier spawning than did those burrowing following pond draining. Peak reproduction occurred during September for the pre-drain group and during October for those burrowing after pond

drawdown. This may indicate a trend whereby actual spawning correlates to time of burrowing, but this has not yet been documented.

Table 1. Aspects of burrow ecology relating to crawfish extracted from burrows following pond draining in experimental crawfish production ponds. Information is organized by crawfish burrow occupancy number and survival status. Total rainfall from pond draining until last burrow excavated was 2.48 inches for four occasions (range = 0.40 – 0.96 inches). Rice Research Station, Crowley, LA. 2006.

Burrows	No.	Average Depth of Burrows (and Range)	Range of Water Volume (ml)	% of Burrows without Water
With Remnants of Dead	113	20.8 (4-48)	0 – 1,500	90.3
Single Occupancy[1] - Live	87	24.2 (9-45)	0 – 2,820	42.5
Single Occupancy[2] - Dead	1	34	0	-
Double Occupancy[3] – Both Alive	55	28.8 (8-55)	0 – 2,000	30.9
Double Occupancy[3] – Both Dead	2	39.5 (29-50)	0	100
Double Occupancy[3] – One Alive	2	34.5 (27-42)	0 - 600	50

[1]11 of the 87 burrows contained male crawfish.
[2] Consisted of a male crawfish.
[3]All burrows containing 2 crawfish consisted of 1 male and 1 female.

Table 2. Observations obtained from burrows with female crawfish only, segregated by location of burrow and burrow depth. Rice Research Station, Crowley, LA. 2006.

Depth Group (inches)	(N)	(N) as % of Total	Avg. Depth (inches)	% Live Crawfish	Avg. Water Volume (ml)	% of Burrows with No Water
Burrows Constructed at Water Line or Above						
4 – 10	4	2.2	6.3	0	0	100
11 – 20	65	35.3	16.5	18.5	2.1	93.8
21 – 30	67	36.4	25.4	45.5	44.5	83.6
31 – 40	34	18.5	35.4	64.7	184.6	55.9
41 – 55	14	7.6	46.2	75.0	351.1	28.6
Average[1] (or Total)	**184**		**25.3**	**40.8**	**77.7**	**78.3**
Burrows Constructed on Pond Bottom						
4 – 10	9	14.1	8.3	44.4	22.2	55.6
11 – 20	24	37.5	16.2	95.8	238.3	20.8
21 – 30	24	37.5	25.0	100	579.3	4.2
31 – 40	6	9.4	35.5	100	1236.7	0
41 – 55	1	1.6	42.0	100	1200.0	0
Average[1] (or Total)	**64**		**20.6**	**90.6**	**448.1**	**17.2**

[1] Averages are weighted averages and not simply grand means from each depth category.

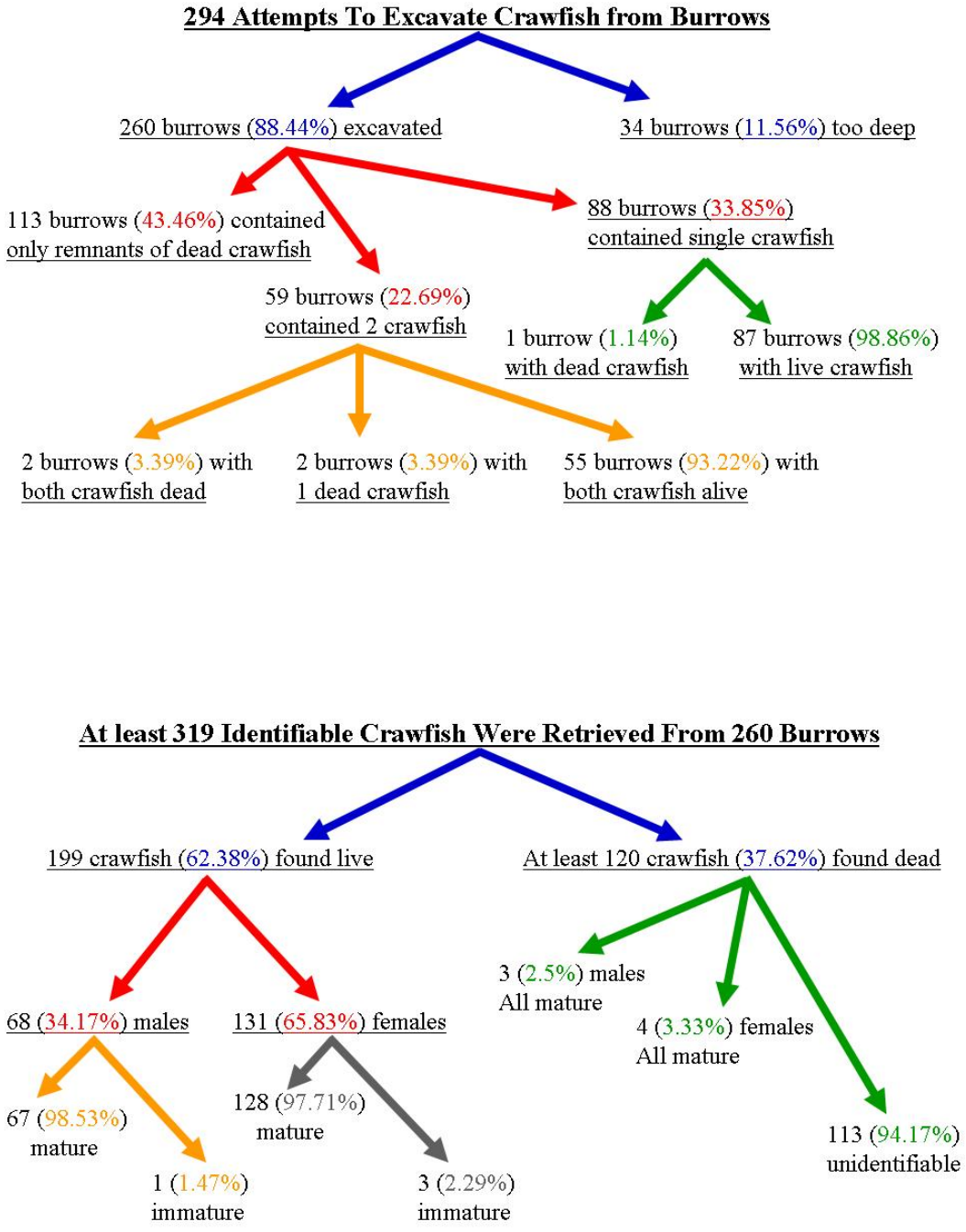


Figure 1. Categorizations from crawfish burrow excavations following draining of experimental crawfish ponds. Upper chart is organized by burrow occupants and then by their survival, while lower chart is organized by crawfish survival and then by sex and maturity.

Table 3. Average response variables for female crawfish collected with baited traps in open water or extracted from summer burrows and held in artificial burrows for reproduction. Values within columns with the same superscript were not significantly different (P > 0.05) and ***NS*** indicates non-significant differences among the treatments within columns. Rice Research Station, Crowley, LA. 2006.

Treat.	No.[1]	Intial Wt.	% Surv[1]	% with Sperm	% Spawned[1]	% Spawned[2]	No. Young	No. Young per gram	Month Spawned[3]	Month Hatch[3]	% Wt Loss[4]
Overall Averages for Summer-Collected Female Broodstock											
	218	**36.7**	**79.9**	**11.0**	**54.6**	**69.2**	**396**	**11.9**	**9.6**	**9.9**	**4.32**
Comparisons between Females Collected from Traps and those Extracted from Burrows											
Traps	124	41.1	76.6	12.9	37.9^{B}	49.5^{B}	414	10.3^{B}	9.9^{A}	10.1^{A}	4.39
Burrow	94	30.8	81.9	8.5	76.6^{A}	93.5^{A}	386	12.9^{A}	9.5^{B}	9.8^{B}	4.26
			NS	***NS***			***NS***				***NS***
Comparisons between Females Collected from Pre-Drained and Post-Drained Constructed Burrows											
Pre	40	28.7	80.0	2.5	77.5	96.9	393	13.9	9.2^{B}	9.7	4.02
Post	54	32.5	83.3	12.9	75.9	91.1	380	12.1	9.7^{A}	9.9	4.44
			NS	***NS***	***NS***	***NS***	***NS***	***NS***		***NS***	***NS***
Comparisons between Fed and Non-Fed Females											
All Fed	107	33.0	75.7	12.1	55.1	72.8	352^{B}	11.9	9.7	9.9	4.51
All NonFed	111	40.1	82.0	9.9	54.1	65.9	439^{A}	11.9	9.6	9.9	4.12
			NS	***NS***	***NS***	***NS***		***NS***	***NS***	***NS***	***NS***
Fed verses Non-Fed Females from Burrows Only											
Fed	45	26.80	82.2	8.9	77.8	94.6	316^{B}	12.8	9.5	9.8	4.32
NonFed	49	34.54	81.6	8.1	75.5	92.5	448^{A}	12.9	9.5	9.8	4.21
			NS	***NS***	***NS***	***NS***		***NS***	***NS***	***NS***	***NS***
Fed verses Non-Fed Females from Trap Collections Only											
Fed	62	37.6	71.0	14.5	38.7	54.6	405	10.4	9.9	10.2	4.80
NonFed	62	44.6	82.2	11.3	37.1	45.1	423	10.3	9.9	10.1	4.00
			NS	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***
Comparisons Among Trap-Harvested Females Held Communally before Placement in Artificial Burrows											
0 days	60	43.9	73.3	21.7^{A}	35.0	47.7	462	11.0	9.8	10.2	4.41
7days	45	37.4	80.0	2.2^{B}	35.5	44.4	354	9.9	9.9	10.1	4.47
10 days	19	40.8	78.9	10.5^{AB}	52.6	66.7	417	9.9	10.1	10.1	4.25
			NS		***NS***	***NS***	***NS***	***NS***	***NS***	***NS***	***NS***

[1] Based on initial number of replicates.
[2] Based on surviving animals only.
[3] Based on numerical representation of the months, beginning with 1 for January. Overall, 6% of females spawned in Aug, 28% in Sept, 62% in Oct, and 4% spawned in Nov. No spawns were observed before Aug and after Nov.
[4] Spawning animals only.

Table 4. Comparisons of pre- and post-spawning indices for determining body condition, based on a sub sample of crawfish dissected following burrow extraction and those crawfish dissected after spawning. Values within columns with the same superscript were not significantly different (P > 0.05) and ***NS*** indicates non-significant differences among the treatments of those columns. Rice Research Station, Crowley, LA. 2006.

	Pre-Spawning Indices						Post-Spawning Indices			
Month	**Ovary Color[1]**	**Hept Color[2]**	**% Hept Moisture**	**Ovary Index[3]**	**Hept Index[3]**	**Tail Index[3]**	**Hept Color[2]**	**% Hept Moisture**	**Hept Index[3]**	**Tail Index[3]**
Overall Averages for Summer-Collected Female Broodstock										
	2.7	**3.8**	**50.9**	**0.11**	**3.06**	**2.41**	**1.86**	**87.1**	**0.40**	**0.35**
Comparisons between Females Collected from Traps and those Extracted from Burrows										
Traps	2.4[B]	3.8	49.1	0.03[B]	3.52[A]	2.63[A]	1.78	86.7	0.41	0.41[A]
Burrow	3.0[A]	3.8	51.9	0.16[A]	2.79[B]	2.29[B]	1.90	87.4	0.39	0.31[B]
		NS	*NS*				*NS*	*NS*	*NS*	
Comparisons between Females Collected from Pre-Drained and Post-Drained Constructed Burrows										
Pre	3.0	3.9	50.7	0.23[A]	3.13[A]	2.36	2.00	87.0	0.41	0.35
Post	3.0	3.6	53.7	0.07[B]	2.37[B]	2.18	1.83	87.6	0.38	0.28
	NS	*NS*	*NS*			*NS*	*NS*	*NS*	*NS*	*NS*
Comparisons between Fed and Non-Fed Females										
Feb	2.7	3.7	48.9	0.13	3.31[A]	2.49	1.84	87.0	0.40	0.36
NonFed	2.7	3.9	52.5	0.09	2.86[B]	2.35	1.87	87.2	0.39	0.34
	NS	*NS*	*NS*	*NS*		*NS*	*NS*	*NS*	*NS*	*NS*

[1] Numerical scale given to ovary color/development upon dissection: 1=white, 2=orange, 3=tan, 4=brown, 5=black.
[2] Numerical scale given to hepatopancreas color/condition upon dissection: 1=dark amber/watery, 2=light amber/semi-watery, 3=pale/firm texture, 4=yellow/fatty texture, 5=bright yellow/full and highly fatty texture.
[3] Dry tissue weight as a percentage of wet whole animal weight.

Table 5. Percentage of spawning crawfish to spawn in artificial burrows by month for those crawfish collected from open ponds by trap and for those collected via burrow excavations. Rice Research Station, Crowley, LA. 2006.

Collection Method	N	August	September	October	November
All	119	5.88	27.73	62.18	4.20
Trap Collection	47	0	19.15	72.34	8.51
Burrow Excavations	72	9.72	33.33	55.56	1.39
Burrows – Pre-drain	31	16.13	45.16	38.71	0
Burrow – Post-drain	41	4.88	24.39	68.29	2.44

COMPARISONS OF SPAWNING ATTRIBUTES BETWEEN WINTER AND SUMMER COLLECTIONS OF CRAWFISH

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish of all ages and sizes, whether mature or immature and male or female, will dig or retreat to burrows to survive periods of dewatering. However, mature female crawfish also will retreat to burrows to reproduce. Although spawning can take place in open water, the burrow provides protection while the eggs and young are attached to the underside of their female's tail. Females carrying eggs or hatchlings are highly susceptible to predators, because they cannot use their normal tail-flipping response to escape without harming the brood. Therefore, many crawfish adapted to habitats devoid of rocky crevices tend to burrow during the reproductive phase of their life cycle. Burrowing activity can occur at any time but is most prevalent in late spring/early summer in Louisiana because that coincides with the reproductive cycle for most of the population of pond-reared crawfish. For those crawfish maturing outside of this peak period in the South, burrowing and subsequent spawning takes place upon sexual maturation, regardless of time of year. Mature crawfish mate in open water whereby the sperm is stored in a special receptacle on the female and the female soon retreats to a burrow to eventually spawn.

Little is known of the burrow ecology of summer burrows and less is known of winter-burrowing crawfish. Therefore, these comparisons are made for crawfish, from the same population, which burrowed at different times of the production season.

Experimental Conditions: See the reports "***Winter Burrow Excavations and Subsequent Reproduction in the Laboratory***" and "***Summer Burrow Excavations and Effects of Various Factors on Reproduction in the Laboratory***" for details of the experimental conditions for each comparison.

Conclusions: Comparisons between winter- and summer-burrowing crawfish can be observed in Table 1. Although average values are presented for all of the summer collections (i.e., those collected from both open waters and burrows), the most pertinent comparisons should be those of the winter burrow extractions with those of summer burrow extractions. The first apparent difference appears to be with average weight of the females. The lighter weight of the winter burrowing crawfish may simply be from a smaller size at maturity. Pre-spawning indices from subgroups of the two reflect similar body condition (Table 2). Major differences, however, lie with the much lower survival and reproduction from the winter collections. Lower survival of the winter collections can be explain by much longer holding periods in the lab as both studies terminated at the same time. However, it is unclear why the rate of spawning was much lower for winter-collected crawfish. Dissected winter-burrowing crawfish appeared to have slightly greater ovarian development and slightly better body conditioning at the time of collection, and the post-spawning indices were higher than summer-burrowing animals. Based on visual observations and ovary indices, winter-burrowing crawfish did not appear to be sexually immature. Further research is needed to determine whether the lower reproductive response for crawfish extracted from winter burrows in this study is represented of pond populations. Simply, more data are needed to determine what, if any, trends in winter-burrowing crawfish may be different from summer-burrowing animals.

Table 1. Average response variables for female crawfish collected from winter and summer burrows (and summer collections to include both burrow and open water collections) and held in artificial burrows for reproduction. Rice Research Station, Crowley, LA. 2006.

No.	Intial Wt.	% Surv[1]	% Spawned[1]	% Spawned[2]	No. Young	No. Young per gram	Month Spawned[3]	Month Hatch[3]	% Wt Loss[4]
Winter Collections – From Burrows									
70	20.6	37.0	32.9	96.3	326	17.9	4.0	4.4	5.61
Summer Collections – From Burrows Only									
94	30.8	81.9	76.6	93.5	386	12.9	9.5	9.8	4.26
Summer Collections – All (From Burrows and Open Water)									
218	36.7	79.9	54.6	69.2	396	11.9	9.6	9.9	4.32

[1] Based on initial number of replicates.
[2] Based on surviving animals only.
[3] Based on numerical representation of the months, beginning with 1 for January.
[4] For spawning animals only.

Table 2. Comparisons of pre- and post-spawning indices for female crawfish collected from winter and summer burrows (and summer collections to include both burrow and open water collections). Rice Research Station, Crowley, LA. 2006.

Pre-Spawning Indices						Post-Spawning Indices			
Ovary Color[1]	Hept Color[2]	% Hept Moisture	Ovary Index[3]	Hept Index[3]	Tail Index[3]	Hept Color[2]	% Hept Moisture	Hept Index[3]	Tail Index[3]
Winter Collections – From Burrows									
3.2	4.0	44.4	0.58	3.99	2.42	2.6	78.5	0.86	1.02
Summer Collections – From Burrows Only									
3.0	3.8	51.9	0.16	2.79	2.28	1.9	87.4	0.40	0.31
Summer Collections -- All									
2.7	3.8	50.9	0.11	3.06	2.41	1.86	87.1	0.40	0.35

[1] Numerical scale given to ovary color/development upon dissection: 1=white, 2=orange, 3=tan, 4=brown, 5=black.
[2] Numerical scale given to hepatopancreas color/condition upon dissection: 1=dark amber/watery, 2=light amber/semi-watery, 3=pale /firm texture, 4=yellow/fatty texture, 5=bright yellow/full and highly fatty texture.
[3] Dry tissue weight as a percentage of wet whole animal weight.

EVALUATION OF A NOVEL APPROACH TO ESTIMATE ANNUAL CRAWFISH YIELD

W.R. McClain and J.J. Sonnier

INTRODUCTION

Crawfish farming is the largest crustacean aquaculture industry in North America, largely located in Louisiana, with more than 70 million pounds harvested annually by about 1,300 producers farming in excess of 130,000 acres. Unlike most other forms of aquaculture, crawfish production relies solely on natural reproduction and recruitment from free ranging adults. This subjects the grower to great variations in yield and harvest size due to large variations in adult survival and reproductive success from year to year and pond to pond. Not only are yield and size variation problematic because of variations in recruitment patterns, but these problems are exacerbated by a lack of predictability and a reliable means of assessing pond inventory. Currently, no dependable means of estimating annual yield is available until the commercial harvest is well underway. This inability to estimate yield potential, and thus cash flow, hinders producers from investing necessary funds for capital improvement and even contributes to underfunding of necessary operating expenditures, which exacerbates the problem of production variability and contributes to other problematic aspects such as marketing.

Production variability and unpredictability are greatest in rice-crawfish field rotational systems of production because of the limited numbers introduced and the inherent variability of survival and reproduction. This production strategy is now used in a majority of the crawfish acreage in Louisiana. Previous efforts to establish population sampling protocols in crawfish ponds as a predictor of yield were largely ineffective in both monoculture ponds and rice-crawfish rotational ponds. Because no reliable method has been developed to accurately sample ponds or predict production yields, this project was initiated to investigate a novel approach. The relationship between crawfish broodstock emergence and annual yield was examined. This research project was limited to the field rotational approach and constitutes the second consecutive year of this study.

Pond Information: Ponds used for this study were those 12 experimental ponds employed in the previous study "***Effects of Trap Density on Crawfish Yield in a Rice-Crawfish Field Rotational Management System***" above. Pond history and conditions are described in detail within that report. Experimental treatments of that study did not interfere or impede with this project.

Pond Area: Twelve 1-acre ponds

Levees: Pond levees were constructed prior to planting of rice in April 2005 and were not renovated thereafter

Stocking Rate and Date: Red Swamp crawfish were stocked from adjacent ponds 27 May - 9 June 2005at a rate of 50 lb/A

Permanent Flood Date: 26 Sept 2005

Exp. Protocol: The interior and top surfaces of perimeter levees of each pond were systematically examined for signs of crawfish emergence, which was enumerated monthly per pond. Levees were checked after each rainfall exceeding 0.25 inches or weekly if no significant rainfall occurred. Crawfish emergence was assumed when a freshly opened burrow was discovered. Levees were checked from early October to the end of April. Emergence was enumerated for each pond, and the average was used to compute harvest yield per opened burrow based on average total crawfish yield.

Parameters: Crawfish emergence, rainfall, and crawfish yield (from previous Trap Density study)

Support: USDA Special Grants – Aquaculture

Comments: The total number of burrow openings per pond for the 7-month period varied greatly from pond to pond, ranging from 8 to 28, with an average of 17 observed burrow openings per pond levee area (Table 1). Observed burrow opening also varied greatly by month, with the greatest number occurring during the October - December period, as one might expect. Though the number of openings per month was somewhat positively correlated with monthly rainfall totals, rainfall was abnormally low during the 2005-2006 crawfish production period. Burrow openings were also positively correlated to yield as indicated by correlation coefficients of 0.4873 and 0.3886 for total crawfish yield in weight (pounds/acre) and numbers (crawfish/acre), respectively.

Working with overall averages, though the variances were greater than expected, it appears that 13.8 pounds of crawfish (or 147 individuals) were harvested per burrow opening under the conditions of this study (Table 2). These data were used with other data collected from previous companion studies ("Trap Density" and "Summer Burrow Excavations" studies in this report) to formulate a hypothetical scenario to ascertain the feasibility of using this novel approach. Females spawning and emerging in this study are presumed to be cohorts of those females examined in the previous study "***Summer Burrow Excavations and Effects of Various Factors on Reproduction in the Laboratory***." The average number of offspring from those cohorts was 396 young per female; therefore, assuming a similar rate of fecundity from females that emerged in ponds, the projection of 147 young-of-the-year (YOY) crawfish harvested per opened burrow equates to 37% of those that presumably exited the burrow.

This estimate may be realistic, but seems lower than expected even though not all YOY survive to harvest size and not all surviving crawfish are harvested. The theoretical outcome of this approach, based on overall averages, may be skewed somewhat by the fact that there were some significant differences in yield due to trap density. Therefore, the average yield used as a basis for this assumption likely introduced a greater source of error. A previous estimate based on similar observances of yield, number of young per female, and burrow opening calculated to be a retrieval rate of 55%. However, assuming a hatchling survival rate of 50% and harvest efficiency rate of 75% in the current set of data, this would equate to a retrieval rate of 149 crawfish harvested per burrow opening (396 hatchling per female x 50 % survival rate x 75% harvest efficiency), assuming all burrow openings represented a female with young. This is almost the same as calculated (147 crawfish harvested per burrow opening) and seems logical. Clearly, more research is needed to determine whether enumeration of burrow openings per linear levee area can be an effective tool in predicting crawfish yield. Though these results seem logical, this theory deserves further study before any meaningful conclusions can be made.

Table 1. Annual crawfish yield (by weight and number of crawfish harvested) and corresponding numbers of opened burrows observed (by month) from levees bordering each pond. Total rainfall and total number of burrow openings observed by month provided the basis for determining the correlation between rainfall and crawfish emergence. Rice Research Station, Crowley, LA. 2006.

Pond	Trap Density	Yield[1] (lb/A)	Yield[1] (CF/A)	Number of Burrow Openings by Month							Total Openings Per 1-Acre Pond
				Oct	Nov	Dec	Jan	Feb	Mar	Apr	
C-01	10	153.5	1672	0	5	6	2	4	1	3	21
C-05	10	143.4	1521	5	8	5	1	2	0	0	21
C-06	10	189.6	2094	4	4	0	4	0	2	1	15
D-05	10	201.6	1963	5	4	3	1	3	0	2	18
C-02	16	220.9	2454	1	1	1	2	0	0	3	8
C-03	16	241.8	2685	2	6	0	2	3	0	3	16
D-01	16	266.3	2900	2	2	1	0	4	0	5	14
D-03	16	207.1	2034	1	3	6	1	1	1	5	18
C-04	22	258.3	2635	6	11	2	2	3	0	4	28
D-02	22	173.2	1698	0	3	3	2	1	1	4	14
D-04	22	275.1	2851	4	5	4	1	2	2	2	20
D-06	22	303.8	3529	4	6	0	1	0	0	0	11
Average Number of Burrow Openings per Acre											***17***
Total Burrow Openings per Month				34	58	31	19	23	7	32	
Total Rainfall per Month (inches)				0.64	3.34	3.07	2.95	3.86	1.11	3.72	
Correlation Coefficient				***0.310949***							

[1] Derived from study "Effects of Trap Density on Crawfish Yield in a Rice-Crawfish Field Rotational Management System" summarized in this report above.

Table 2: Estimated crawfish yield per burrow, based on average number of observed burrow openings and the average annual harvest from experimental ponds, and a theoretical estimate for the percentage of young-of-the-year crawfish to reach the harvest. Rice Research Station, Crowley, LA 2006.

	Weight (lb) of Crawfish		**Number of Crawfish**	
	Avg.	Range	Avg.	Range
Crawfish Yield[1] (per acre)	220	143 - 304	2336	1521 - 3529
No. burrow openings[2] (per acre)	Avg. = 17 (Range = 8 – 28)			
Corresponding yield[3] (per burrow)	**13.8**	8 – 21.7	**147**	85 - 235
A Hypothetical				
Avg. No. young per brood female[4]	396			
Corresponding No. crawfish per burrow[3]	**147**			
Theoretical[5] percentage harvested	**37 %**			

[1] Derived from the study "***Effects of Trap Density on Crawfish Yield in a Rice-Crawfish Field Rotational Management System"*** summarized in this report above.

[2] Derived from this study.

[3] Derived from calculations based on previous study and enumerated burrow openings of this study.

[4] Derived from the study "***Summer Burrow Excavations and Effects of Various Factors on Reproduction in the Laboratory"*** summarized in the report above, based on number of offspring hatched per female cohort in simulated burrows.

[5] Theoretical percentage of offspring to have emerged from burrows and entered the harvest.

EFFECTS OF COLD SHOCK ON CRAWFISH HATCHLINGS

W.R. McClain and J.J. Sonnier

INTRODUCTION

Mature crawfish mate in open water and then usually retreat to the protection of the burrow to spawn. Although spawning can take place in open water, the burrow provides protection while the eggs/young are attached to the abdomen. Egg- or hatchling-laden females are highly susceptible to predators because the attached brood prevents the typical tail flipping escape response. Burrowing activity can occur at any time but is most prevalent before or just after pond draining in early summer in Louisiana. Flooding or heavy rainfall is usually necessary to encourage emergence of crawfish from the burrow during the peak period of recruitment (September – December). Although the temperature deep inside burrows is well buffered and may range from the low 70s to low 80s (^{o}F) in the fall, pond water temperatures can be highly variable. At times, pond water may be much colder than temperatures inside the burrow, and one unknown is whether the hatchlings are subject to cold shock if exposed to cold pond water when acclimated to the warmer burrow temperatures. Therefore, this study was devised to obtain some preliminary information regarding the ability of hatchlings to withstand cold shock conditions.

Experimental System: 10-gallon aquaria

Crawfish: Hatchling red swamp crawfish. Crawfish were spawned and hatched in the laboratory and held in artificial burrows with the brood female until stocked

Test Periods: Test 1, Dec 8 – 9 2005; Test 2, Dec 12 -13 2005; Test 3, Dec 16-21 2005; Test 4, Jan 18-25 2006

Exp. Protocol: Aquaria were set up in duplicate in either a heated or non-heated room. Water in the aquaria was allowed to equilibrate to ambient room temperature for 24 hours prior to stocking of crawfish. All aquaria were fitted with supplemental aeration and neutral buoyancy plastic mesh material that served as 3-dimensional substrate for dispersion. At each test period crawfish hatchlings, which were acclimated to the temperature of the heated room, were separated from each of 5 to 6 female broodstock, mixed together, and allotments of 50 hatchlings were stocked in each aquaria without further acclimation.

Temperature: Water temperature in the heated room remained relatively constant and water temperature in the unheated room was subject to greater variability but remained much colder. Water temperature was monitored with Hobo® temperature dataloggers (by Onset Computers) placed in one rep of each treatment, and temperature was recorded every 4 hours.

Treatments: For Tests 1 and 2, treatments consisted of 24-hr exposure to each temperature regime without further acclimation. For Test 3, treatments consisted of a 5-day exposure to each temperature without an acclimation period. For Test 4, treatments consisted of 5 days of exposure to each temperature without acclimation, followed by 2 days whereby all aquaria were held in the heated room.

Mortality: Mortality was assessed immediately following each test by visually observing each animal

Parameters: Crawfish mortality, water temperature

Statistical Analysis: General Linear Model procedure in SAS, means separated by Duncan's multiple range test

Support: LSU AgCenter

Conclusions: Results of hatchling mortality following attempts at cold shock are presented in Table 1 below. When hatchlings were acclimated to temperatures of about 72°F and suddenly exposed to water temperatures in the low to middle 40s, some 25 to 29°F cooler, and held at those cooler temperatures for 1 to 5 days (Test 1, 2, and 3), mortality remained very low (2 to 7%). This suggests that crawfish hatchlings are very tolerant to cold shock at temperatures representative of the southern USA. The results of test 4 were less conclusive. Much higher mortality was observed after 7 days in that protocol. However, the difference between the control group and cold shock group was minimal (6%) suggesting that the higher mortality was not associated with cold shock. It may be surmised that the higher mortality associated with both treatment groups in the last test may have been caused by weak and malnourished hatchlings. Whereas the hatchlings used for the first 3 tests were only several weeks past hatching, the hatchlings used for the last test were over one month older. Long-term confinements in real or artificial burrows following hatching may predispose the hatchlings to greater mortality associated with handling and/or adverse environments, and natural mortality is likely to be greater. Further research is needed to better discern the susceptibility of hatchling crawfish to cold shock, but these preliminary results suggest they are very hardy and tolerant to cold shock when healthy and young. Additional research is also needed to determine the detrimental effects of delayed emergence of hatchlings from the burrow.

Table 1. Crawfish hatchling mortality following attempts at cold shock and extended exposure to cold water temperatures from acclimation to warm water temperatures. Recorded temperatures reflect average and minimum/maximum temperatures during the test period. Rice Research Station, Crowley, LA 2006.

				1st Phase Temperature (F)		2nd Phase Temperature (F)	
Treatment	**(N)**	**# Dead**	**Avg % Mortality**	**Avg.**	**Range**	**Avg.**	**Range**
Test 1 – 24 hr							
Control A	50	0					
Control B	50	0	0	72.1	71.0 – 73.0		
Cold.Shock A	50	0					
Cold.Shock B	50	2	2	45.4	40.7 – 48.8		
Difference			***2%***	***26.7***			
Test 2 – 24 hr							
Control A	50	0					
Control B	50	0	0	73.0	72.2 – 73.7		
Cold.Shock A	50	0					
Cold.Shock B	50	2	2	47.8	44.5 – 51.0		
Difference			***2%***	***25.2***			
Test 3 – 5 day							
Control A	50	0					
Control B	50	1	1	72.2	71.0 – 73.8		
Cold.Shock A	50	2					
Cold.Shock B	50	5	7	42.9	40.0 – 45.2		
Difference			***6%***	***29.3***			
Test 4 – 5 days of cold temps followed by 2 days of warm temps							
Control A	50	23					
Control B	50	17	40	73.3	71.0 – 74.4	73.0	72.2 – 73.7
Cold.Shock A	50	18					
Cold.Shock B	50	28	46	55.3	42.4 – 63.2	67.4	56.6 – 69.5
Difference			***6%***	***18.0***		***5.6***	

A PRELIMINARY INVESTIGATION OF THE TOXICITY OF AN EXPERIMENTAL RICE INSECTICIDE TO CRAWFISH

W.R. McClain, M.J. Stout, and J.J. Sonnier

INTRODUCTION

Crawfish are cultivated in Louisiana by about 1,000 growers who, in 2005, produced about 75 million pounds in 117,000 acres of ponds. The crop was valued at about $41 million. Crawfish production is largely located in the south central region and is scattered among the many rice farms. In fact, crawfish and rice production are well integrated and coexist in rotational cropping systems where the rice field is subsequently used to produce crawfish. Moreover, most of the acreage used to produce crawfish in Louisiana is managed under this type of cropping system. Under this strategy, there is a short overlap in seasons, whereby newly planted rice fields are dispersed among crawfish ponds during the peak crawfish production season. Rice and crawfish ponds are often in close proximity and commonly are separated only by a narrow road or levee.

In recent years, numerous incidents have occurred whereby crawfish production was halted or seriously damaged because of pesticide drift from an application to a nearby rice field, at great economic loss to the crawfish producer. A reduction in available insecticides have led more rice farmers to use the pyrethroid class of insecticides for rice water weevil control, which are typically applied in aerial applications, resulting in drift. A small amount of drift of the highly toxic pyrethroid compounds into a crawfish pond can be very detrimental to the affected crawfish producer.

Efforts are under way to investigate alternative rice insecticide compounds and/or alternative methods of application, both to mitigate problems with drift and crawfish and also for increased efficacy, economical, and resistance concerns in the main rice crop. One compound, Trebon, a granular application has received a Section 18 use permit and was applied in several commercial fields during 2006. A preliminary test to examine the impact of Tebon application on crawfish was conducted in conjunction with one application under the Section 18 permit.

Location: Indian Bayou, LA.

Application Date and Method: June 1, 2006; Aerial application in the permanent flood

Treatments: Treated - Trebon was applied shortly after the permanent flood at recommended application rate in a commercial field. Non-treated Control – A nearby field, planted and flooded previously, whereby no insecticide was applied was used as a non-treated control field.

Experimental Design: Crawfish were placed in individual enclosures which were randomly placed within the respected fields, beginning one week after Trebon treatment.

Wire Mesh Enclosures: ½-inch mesh wire, width = 6 inches, length = 10 inches, height = 10 inches.

Crawfish: Red swamp crawfish (Procambarus clarkii); 12 reps (individual crawfish) per treatment (with the exception of the first bioassay, which contained 10 reps in the non-treated group). Approximately half of the caged crawfish were immature and an equal number of males and females were represented.

Parameters: Original crawfish were observed for overt toxicity systems or death 1 day following stocking and at 4 days post-stocking for bioassays 2 and 3. Water temperature was recorded with a minimum/maximum thermometer.

Comments: Though very preliminary, the results of the post-flood granular application of Trebon were conducted under actual commercial farming conditions. It appears that the first bioassay conducted 1 week after treatment is telling with 100% mortality in the treated group and only 10% in the non-treated control (Table 1). However, because the control and treated fields were managed slightly different (control field was planted earlier and had a greater canopy cover and deeper water) the water temperature varied somewhat – with the treated field having warmer water. Therefore, it is not apparent whether the mass mortality in the treated field was caused by the insecticide, elevated water temperature, or a combination of the two. Considerably less mortality was observed in the treated field during bioassays at 2 and 3 weeks post-treatment. Nonetheless, a trend of higher mortality appears to be associated with the treated field through week 3, but elevated temperatures seemed to persist in that field. Consequently, these results should be considered very preliminary and further research is needed to more accurately discern the relative toxicity and/or safety of this compound to crawfish under various conditions of culture.

Table 1. Crawfish mortality after 1, 2, and 3 weeks post treatment with Trebon. Approximately equal numbers of males and females (and mature and immature) were place individually in cages and monitored 1 and 4 days after stocking. Rice Research Station, Crowley, LA 2006.

Crawfish Bioassay 1 Week After Treatment (6/8/06)						
	Results at 1 Day Post-Stocking					
Treatment	**N**	**% Mortality**	**Min/Max Temp (F)**			
Non-Treated Control	10	10	68 - 99			
Trebon	12	100	* - 103			
Crawfish Bioassay 2 Weeks After Treatment (6/15/06)						
	Results at 1 Day Post-Stocking			***Results at 4 Days Post-Stocking***		
Treatment	**N**	**% Mortality**	**Min/Max Temp (F)**	**N**	**% Mortality**	**Min/Max Temp (F)**
Non-Treated Control	12	16.7	78 - 98	10	0	74 – 98
Trebon	12	25	76 - 105	9	11.1	74 – 99
Crawfish Bioassay 3 Weeks After Treatment (6/22/06)						
	Results at 1 Day Post-Stocking			***Results at 4 Days Post-Stocking***		
Treatment	**N**	**% Mortality**	**Min/Max Temp (F)**	**N**	**% Mortality**	**Min/Max Temp (F)**
Non-Treated Control	12	8.3	79 - 88	11	0	82 – 100
Trebon	12	16.7	82 - 92	10	20	80 – 104

* Missing data.

RICE DISEASE CONTROL STUDIES, 2006[1]

D.E. Groth, X.H. Wang, J. Nugent, and M.J. Frey

Sheath blight, bacterial panicle blight, and blast are three of the most important diseases of rice. How a farmer manages these diseases often means the difference between a profit and a loss. A number of factors affect disease development, including varietal resistance, cultural practices, cropping history, and pesticide usage. Environmental conditions also greatly affect disease development but are out of the farmer's hand. However, knowing which conditions are favorable for disease development allows the producer to initiate the appropriate disease control conditions. Cultural management often plays an important role as evidenced by the fact that sheath blight was a minor disease until the introduction of semidwarf varieties, high N rates, and soybeans as a rotational crop.

Data from research tests suggest that rice diseases annually cause at least an average range of 12 to 15% loss in yield in the South. With present production costs and price of rice, this average yield loss translates into an average 33 to 40% loss in potential net return because of rice diseases. Direct losses to disease include reduction in plant stands, lodging, spotted kernels, fewer and smaller grains per plant, and a general reduction in plant efficiency. Indirect losses include the cost of fungicides used to manage disease, application costs, and reduced yields associated with special cultural practices that reduce disease but may not be conducive to producing maximum yields.

The major diseases of rice in Louisiana are the fungal disease blast, caused by Pyricularia grisea; sheath blight, caused by Thanatephorus cucumeris (Rhizoctonia solani); stem rot, caused by Magnaporthe salvinii (Sclerotium oryzae); brown spot, caused by Cochiobolus miyabeanus; narrow brown spot, caused by Sphaerulina oryzina (Cercospora janseana); and kernel smut, caused by Neovossia horrida. Seedling diseases caused by species of Achlya and Pythium are also important in water-seeded rice. Bacterial panicle blight has been identified as a major disease and is caused by the bacterium Burkholderia glumae. Minor diseases include crown rot, causal agent unknown; leaf scald, caused by Gerlachia oryzae; leaf smut, caused by Entyloma oryzae; sheath rot, caused by Sarocladium oryzae; stackburn disease, caused by Alternaria padwickii; sheath spot, caused by Rhizoctonia oryzae; crown sheath rot, caused by Gaeumannomyces graminis var. graminis; black kernel, caused by Curvularia lunata; seedling blights, caused by various fungi; false smut, caused by Ustilaginoidea virens; root rots, caused by several fungi; and several miscellaneous leaf, stem, and glume spotting diseases.

Host resistance and fungicides play an important role in limiting these losses. The objective of these studies is to develop disease management practices that economically reduce rice diseases and increase the yield and quality of rice.

This report is on current research evaluating both registered and experimental compounds. It also represents only one year of data, and multiple years are needed to effectively evaluate agronomic practices. Therefore, no specific recommendation of a product or practice is implied. For specific recommendations and more information, contact your local Cooperative Extension Agent.

The use of a foliar fungicide to reduce rice diseases is often justified under severe disease conditions. Some factors that favor the use of a fungicide include: 1) history of disease in the field, 2) varietal susceptibility, 3) high yield potential, 4) rice being grown for seed, 5) rice planted late, and 6) rice ratooned. The primary targets for rice fungicide applications are sheath blight and blast. Generally, secondary rice diseases are not severe enough to justify a fungicide application. However, control of these secondary diseases, from sheath blight and blast applications, often contributes to the overall increase in yield and quality.

All of the fungicides tested have benefits and disadvantages. Tilt gives good sheath blight and leaf smut control but no control of blast. Moncut had good activity against sheath blight, but it had the narrowest disease control spectrum. Quadris combines excellent sheath blight activity with control of blast but is weak against narrow brown leaf spot and Cercospora sheath blotch.

[1] This research is supported in part by funds provided by rice producers through the Louisiana Rice Research Board and various agricultural chemical companies.

Many other factors affect fungicide efficacy, including application timing, cultural practices, inoculum levels, weather, varietal resistance, spray volume, type of adjuvants added to the spray solution, and the application method used. Problems can develop from these factors that limit fungicide activity. One problem occurs when fungicides are applied by air. Most of the material is deposited on the upper third of the canopy. Redistribution by rain and dew is then required to move the fungicide into the lower canopy where most of the disease is present. Redistribution into the lower canopy is necessary since these fungicides are either non-systemic, or if systemic, they are only locally systemic or only move upward in the plant. Weathering associated with redistribution is also detrimental since some fungicidal activity is lost. Other conditions that limit fungicide activity include drift, volatility, and calibration errors. Rainfall immediately after application, before the fungicide can dry on the plant or be absorbed by the plant, can remove significant amounts of fungicides from the foliage and impair yield performance. Normally, a 4-hour drying period is adequate after application.

Since all fungicides labeled are very specific as to the diseases they control, scouting rice is extremely important to determine disease incidence and severity. Fields should be scouted weekly for disease development beginning when the first tillers begin to develop and continuing through heading. Rice should be sampled at several (20 or more) locations throughout the field. The size of the field and the disease distribution will determine the extent of sampling. At each sampling location, 25 to 50 tillers should be examined for disease symptoms (refer to back pages and the Louisiana Agricultural Experiment Station Bulletin No. 828, Rice Diseases and Disorders in Louisiana). Other diseases that require fungicides for control, especially the rice blast disease, must be noted between scouting stops as damaging levels can develop from light infestations that were not detected at the scouting stops. For sheath blight, the percentage of tillers infected at the sampling locations should be averaged to determine the disease incidence for the field. Spraying a fungicide for sheath blight is warranted if an average of 5 to 10% of the tillers (approximately 20-40% positive stops) are infected during joint elongation stages of growth in susceptible varieties. Spraying moderately susceptible varieties are warranted if more than 15% of the tillers are infected (approximately 50% positive stops). Unfortunately, there is no good scouting/prediction system for blast or bacterial panicle blight at this time, and when leaf blast is found, preventative sprays to protect the head are recommended for susceptible varieties. Prevailing temperatures at heading predict bacterial panicle blight. Disease identification is extremely important since several diseases can be confused.

Table 1. List of fungicides tested in 2006.

	Common Name	**Company**
Quadris 2.08 SC	Azoxystrobin	Syngenta
Stratego 2.08 EC	Trifloxystrobin / Propiconazole	Bayer
GEM 500 SC	Trifloxystrobin	Bayer
Quilt 1.16 SC	Azoxystrobin/ Propiconazole	Syngenta
Moncut 2 SC	Flutolanil	Gowan
Tilt 3.6 EC	Propiconazole	Syngenta

2006 Varietal and URN Disease Resistance Evaluation

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Variety/Seed Rate: Various, ~75 lb/A

Plot Size: One to three 6-ft rows

Planting Method/Date: Hege planter (drill-seeded), Mar 21

Fertilization: Preplant 24-72-72, Mar 14; preflood 145-0-0, May 4; topdress 46-0-0, June 6

Experimental Design: Randomized complete block design with two to four replications

Water Management: Flushed, Apr 3, Apr 11; permanent flood, May 5

Herbicides: 4 qt Propanil, Apr 17; 3 qt Arrosolo + 2.4 qt Prowl EC, May 3; 15 oz Clincher, June 28

Insecticides: 1 oz Icon preplant, Mar 28; 4 oz Karate, May 16; 4 oz Mustang Max, June 28

Fungicides: N/A

Inoculation Dates: Inoculated with 12 ml/row of a *Rhizoctonia solani* culture grown on a rice grain:rice hull mixture, June 8; bacterial panicle blight spray inoculated at boot split. All other inoculum came from natural sources.

Application Equipment: N/A

Application Dates: N/A

Disease Ratings: Sheath blight (SB), narrow brown leaf spot (NB), and bacterial panicle blight (BPB) severity ratings, Aug 23-25; leaf blast (LB), July 18; rotten neck blast (RNB) and narrow brown leaf spot (NBLS), Sept 5.

Drained: N/A

Harvest: N/A

Results: See Tables 2-9

Comments: Sheath blight and bacterial panicle blight severities were high to moderate; other diseases were light to moderate in severity. Leaf blast ratings were collected from an upland disease nursery with moderate disease pressure.

Table 2. Disease reaction of various varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), leaf blast (LB), rotten neck blast (RNB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2006. (Variety Trial)

Pathogen Code		BPB		SB		LB		RNB		NBLS	
Rating Data Type		Severity		Severity		Severity		Severity		Severity	
Rating Unit		0-9		0-9		0-9		0-9		0-9	
Rating Date		Jul-13-2006		Jul-13-2006		Jul-18-2006		Sep-05-2006		Sep-05-2006	
1	Banks	3.3	c-f	5.5	fg	0.0	e	0.0	f	0.3	e
2	CL131	6.3	a	7.8	ab	1.0	e	5.3	abc	6.3	a
3	CL161	4.5	bc	7.3	a-d	3.0	cd	5.0	abc	3.5	bc
4	CLXL8	2.3	f	5.8	efg	0.0	e	0.0	f	0.3	e
5	CLXL730	2.3	f	6.5	c-f	0.0	e	0.5	f	1.0	de
6	CLXP729	2.5	ef	5.5	fg	0.0	e	0.0	f	0.8	de
7	XL723	2.0	f	6.3	d-g	0.0	e	0.0	f	0.3	e
8	Cheniere	4.3	bcd	7.3	a-d	3.0	cd	5.8	ab	3.3	bc
9	Cocodrie	6.3	a	7.5	abc	1.3	e	5.0	abc	3.8	bc
10	Cybonnet	3.8	b-e	7.3	a-d	0.5	e	2.8	de	4.3	b
11	Spring	4.3	bcd	6.3	d-g	0.0	e	4.5	bc	1.5	de
12	Trenasse	5.0	ab	8.0	a	3.5	bc	4.5	bc	4.0	bc
13	Bengal	6.0	a	5.3	g	5.3	a	5.3	abc	0.8	de
14	Jupiter	2.5	ef	5.3	g	1.8	de	2.0	e	0.0	e
15	Medark	5.0	ab	5.5	fg	4.3	abc	3.8	cd	0.3	e
16	Pirogue	3.0	def	4.0	h	4.3	abc	0.3	f	0.8	de
17	Pace	4.8	b	5.3	g	0.0	e	5.5	abc	0.8	de
18	CL151	6.3	a	8.0	a	3.5	bc	6.5	a	3.8	bc
19	CL171	3.3	c-f	6.8	b-e	4.8	ab	4.8	abc	2.3	cd
20	0402097	6.3	a	8.0	a	0.5	e	5.5	abc	4.3	b
LSD (P=.05)		0.86		0.74		1.14		1.15		1.19	
Standard Deviation		0.61		0.52		0.80		0.82		0.84	
CV		14.59		8.1		44.0		24.47		40.24	
Replicate F		2.560		2.128		0.905		1.618		0.490	
Replicate Prob (F)		0.0638		0.1067		0.4446		0.1952		0.6905	
Treatment F		24.617		19.811		22.290		33.829		19.631	
Treatment Prob (F)		0.0001		0.0001		0.0001		0.0001		0.0001	

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

Table 3. Disease reaction of various varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), leaf blast (LB), rotten neck blast (RNB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2006. (URN Group I)

	Pathogen Code	BPB		SB		LB		RNB		NBLS	
	Rating Data Type	Severity		Severity		Severity		Severity		Severity	
	Rating Unit	0-9		0-9		0-9		0-9		0-9	
	Rating Date	Jul-13-2006		Jul-13-2006		Jul-18-2006		Sep-06-2006		Sep-06-2006	
1	NWBT/3/LBNT/9902//LB	2.8	c	5.0	e	0.0	d	0.3	e	0.3	c
2	9502008-A//AR 1188/C	5.5	ab	8.0	ab	0.5	d	4.0	bc	4.0	ab
3	((NWBT/RU8303181)/RS	5.0	ab	7.5	abc	4.3	ab	5.0	ab	0.8	c
4	LBNT/9902/3/DAWN/969	6.3	a	7.0	bcd	3.5	b	6.5	a	0.3	c
5	LGRU/LCSN	5.3	ab	8.0	ab	0.0	d	4.0	bc	4.0	ab
6	((NWBT/RU8303181)/RS	5.0	ab	6.8	bcd	4.5	ab	5.0	ab	3.8	ab
7	NWBT/3/LBNT/9902//LB	4.8	ab	6.0	d	3.5	b	4.0	bc	1.5	c
8	9502008-A//AR 1142/M	4.5	abc	7.3	a-d	0.8	d	4.5	bc	4.3	a
9	((NWBT/RU8303181)/RS	6.3	a	7.3	a-d	0.0	d	2.8	cd	1.0	c
10	DREW/UA99-52	5.3	ab	6.8	bcd	0.0	d	0.8	e	0.5	c
11	CPRS/KBNT//9502008-A	4.8	ab	7.3	a-d	0.0	d	0.8	e	1.5	c
12	((NWBT/RU8303181)/RS	4.5	abc	8.0	ab	2.0	c	4.3	bc	1.8	c
13	LBNT/9902/3/DAWN/969	4.5	abc	6.8	bcd	3.3	b	4.0	bc	1.5	c
14	8603006/3/MARS/NWRX/	4.5	abc	7.0	bcd	5.0	a	6.0	ab	0.8	c
15	TBNT/LA110//LMNT/3/T	3.8	bc	7.5	abc	0.0	d	4.8	ab	0.8	c
16	TBNT/LA110//LMNT/3/T	3.8	bc	7.3	a-d	0.0	d	4.3	bc	0.3	c
17	SPRING	4.3	abc	7.0	bcd	0.0	d	1.8	de	2.3	bc
18	TRENASSE	5.5	ab	8.5	a	4.0	ab	5.5	ab	4.0	ab
19	PRESIDIO	3.8	bc	6.5	cd	0.0	d	4.3	bc	1.8	c
20	CYBONNET	4.5	abc	6.5	cd	0.0	d	1.8	de	3.5	ab
	LSD (P=.05)	1.15		0.82		0.87		1.19		1.22	
	Standard Deviation	0.82		0.58		0.62		0.84		0.86	
	CV	17.31		8.15		39.5		22.78		45.05	
	Replicate F	4.680		1.237		2.220		10.321		0.421	
	Replicate Prob (F)	0.0054		0.3049		0.0956		0.0001		0.7387	
	Treatment F	4.363		7.280		38.886		17.948		11.425	
	Treatment Prob (F)	0.0001		0.0001		0.0001		0.0001		0.0001	

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

Table 4. Disease reaction of various varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), leaf blast (LB), rotten neck blast (RNB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2006. (URN Group II)

	Pathogen Code	BPB		SB		LB		RNB		NBLS	
	Rating Data Type	Severity		Severity		Severity		Severity		Severity	
	Rating Unit	0-9		0-9		0-9		0-9		0-9	
	Rating Date	Jul-13-2006		Jul-13-2006		Jul-18-2006		Sep-06-2006		Sep-06-2006	
21	BRAZ/TBNT/3/164986-4	5.0	a-d	5.8	cd	0.0	c	1.3	de	0.5	f
22	CCDR/5/MARS/M201//MA	5.3	abc	7.3	ab	0.0	c	4.3	bc	4.3	abc
23	(CPRS/92:1021(KATY//	3.5	bcd	6.5	bcd	0.0	c	1.5	de	3.3	b-e
24	BRAZ/TBNT/3/164986-4	5.0	a-d	6.0	bcd	4.8	a	1.3	de	0.8	f
25	CCDR/5/MARS/…/6/BNGL	5.8	ab	7.0	abc	0.0	c	5.8	ab	3.3	b-e
26	(CPRS/PELDE)/JEFF	4.5	a-d	5.3	d	0.0	c	3.5	bcd	4.0	bc
27	DREW/UA99-52	4.3	a-d	6.5	bcd	0.0	c	1.5	de	1.0	ef
28	BNGL//MERC/RICO/3/ME	2.8	cd	5.3	d	3.3	b	0.8	e	0.5	f
29	(CPRS/92:1021(KATY//	4.0	bcd	6.5	bcd	0.0	c	2.8	cde	4.8	ab
30	WLLS/UA99-52	6.8	a	6.3	bcd	0.0	c	1.3	de	3.8	bcd
31	MERC/RICO//BNGL/3/SM	3.8	bcd	5.0	d	3.5	ab	4.0	bc	1.0	ef
32	JEFF/(VSTA/LBNT//L20	4.0	bcd	5.3	d	4.3	ab	6.8	a	6.0	a
33	8603006/3/MARS/NWRX/	4.3	a-d	7.0	abc	4.5	ab	5.5	ab	0.8	f
34	MERC/RICO//BNGL/3/SM	4.5	a-d	5.0	d	4.5	ab	5.5	ab	2.3	c-f
35	RSMT/KATY	4.0	bcd	8.0	a	3.8	ab	5.0	ab	3.8	bcd
36	8603006/3/MARS/NWRX/	4.8	a-d	6.5	bcd	4.5	ab	5.5	ab	1.5	def
37	JUPITER	2.5	d	5.0	d	3.5	ab	1.3	de	1.3	ef
38	BENGAL	5.0	a-d	5.3	d	4.5	ab	5.5	ab	0.5	f
39	MEDARK	3.5	bcd	5.8	cd	4.3	ab	1.8	de	0.5	f
40	FRANCIS	5.5	ab	5.5	d	3.5	ab	7.0	a	1.5	def
	LSD (P=.05)	1.47		0.89		0.75		1.56		1.49	
	Standard Deviation	1.04		0.63		0.53		1.10		1.05	
	CV	23.52		10.44		21.74		30.83		46.8	
	Replicate F	3.154		0.379		0.875		1.440		1.894	
	Replicate Prob (F)	0.0317		0.7684		0.4594		0.2405		0.1409	
	Treatment F	3.768		7.576		61.628		14.948		10.609	
	Treatment Prob (F)	0.0001		0.0001		0.0001		0.0001		0.0001	

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

Table 5. Disease reaction of various varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), leaf blast (LB), rotten neck blast (RNB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2006. (URN Group III)

	Pathogen Code	BPB		SB		LB		RNB		NBLS	
	Rating Data Type	Severity		Severity		Severity		Severity		Severity	
	Rating Unit	0-9		0-9		0-9		0-9		0-9	
	Rating Date	Jul-13-2006		Jul-13-2006		Jul-18-2006		Sep-06-2006		Sep-06-2006	
41	LMNT//82CAY21/CICA8/	3.5	ab	5.0	f	0.3	ef	1.3	de	0.8	f
42	CCDR/JEFF	5.0	ab	7.8	ab	0.3	ef	4.3	bc	3.8	abc
43	Kaybonnet/Zhongyouza	4.5	ab	7.5	ab	4.3	ab	6.0	ab	4.3	a
44	DREW/UA99-52	5.5	a	6.5	b-e	0.3	ef	1.3	de	0.3	f
45	9502008-A/DREW	4.5	ab	7.3	abc	0.0	f	1.8	de	2.0	b-f
46	(RSMT/RU8703196//TQN	2.8	b	6.0	c-f	3.5	abc	3.0	cd	1.3	ef
47	L201//TBNT/BLMT/3/CP	4.3	ab	7.8	ab	0.0	f	5.0	abc	4.0	ab
48	DREW/3/KBNT//KATY/CP	3.8	ab	6.0	c-f	4.3	ab	5.5	ab	1.8	c-f
49	((NWBT/RU8303181)/RS	5.8	a	7.3	abc	1.5	def	4.0	bc	2.0	b-f
50	LBNT/9902//NWBT/3/KA	5.3	ab	6.0	c-f	0.8	ef	1.5	de	0.8	f
51	CCDR/JEFF	6.0	a	8.0	a	0.0	f	4.8	abc	4.0	ab
52	Texmont/TeQing	5.5	a	7.0	a-d	4.0	ab	7.0	a	3.3	a-e
53	CPRS/3/L201//TBNT/BL	4.8	ab	6.5	b-e	2.0	c-f	5.3	abc	3.5	a-d
54	8303006/3/MARS/NWRX/	4.5	ab	7.3	abc	4.8	a	5.8	ab	1.0	f
55	CPRS/3/L201//TBNT/BL	4.5	ab	6.5	b-e	2.3	cde	5.0	abc	1.5	def
56	SABER	5.8	a	5.8	def	0.0	f	0.8	e	1.0	f
57	PRISCILLA	5.3	ab	6.0	c-f	0.8	ef	5.8	ab	1.5	def
58	CHENIERE	4.0	ab	6.5	b-e	2.8	bcd	4.3	bc	2.3	a-f
59	COCODRIE	6.0	a	8.0	a	0.8	ef	4.8	abc	2.3	a-f
60	PACE	5.3	ab	5.5	ef	0.5	ef	4.8	abc	0.8	f
	LSD (P=.05)	1.47		0.86		1.27		1.45		1.29	
	Standard Deviation	1.04		0.61		0.90		1.03		0.91	
	CV	21.64		9.12		54.93		25.21		43.78	
	Replicate F	0.596		1.070		0.469		0.268		3.048	
	Replicate Prob (F)	0.6205		0.3689		0.7053		0.8478		0.0359	
	Treatment F	2.836		8.211		14.133		12.895		7.759	
	Treatment Prob (F)	0.0012		0.0001		0.0001		0.0001		0.0001	

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

Table 6. Disease reaction of various varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), leaf blast (LB), rotten neck blast (RNB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2006. (URN Group IV)

Pathogen Code		BPB		SB		LB		RNB		NBLS	
Rating Data Type		Severity		Severity		Severity		Severity		Severity	
Rating Unit		0-9		0-9		0-9		0-9		0-9	
Rating Date		Jul-13-2006		Jul-13-2006		Jul-18-2006		Sep-06-2006		Sep-06-2006	
61	RU9201176/3/NWBT/KAT	5.3	a-d	4.5	b	0.8	de	0.8	e	1.3	cd
62	MERC/RICO//BNGL/3/SM	3.8	bcd	5.3	ab	5.0	a	4.8	abc	1.5	cd
63	Kaybonnet/Zhongyouza	5.0	a-d	7.5	a	4.0	ab	5.0	abc	3.8	ab
64	DREW/5/NWBT/3/DAWN/9	5.0	a-d	5.3	ab	1.0	cde	0.5	e	0.0	d
65	BNGL/MERC/RICO/3/MER	5.8	ab	5.3	ab	3.5	ab	2.0	de	0.8	cd
66	((NWBT/RU8303181)/RS	5.3	a-d	6.0	ab	0.8	de	4.0	bc	4.8	a
67	BRAZ/TBNT/3/164986-4	5.3	a-d	6.3	ab	0.5	de	3.5	cd	1.8	cd
68	ORIN//MERC/RICO//…/3	5.5	abc	5.8	ab	3.3	abc	4.0	bc	0.5	cd
69	(RSMT/RU8703196//TQN	4.8	a-d	6.0	ab	1.3	cde	4.8	abc	4.5	a
70	LBNT/9902/3/DAWN/969	4.8	a-d	4.8	b	1.0	cde	1.8	de	1.0	cd
71	BNGL//MERC/RICO/3/ME	4.0	a-d	4.5	b	3.8	ab	0.8	e	1.0	cd
72	(CPRS/92:1021(KATY//	3.3	d	4.8	b	1.8	b-e	4.5	abc	4.8	a
73	CPRS/3/L201//TBNT/BL	6.0	a	6.5	ab	2.5	b-e	4.8	abc	3.8	ab
74	CPRS/3/L201//TBNT/BL	4.8	a-d	6.0	ab	3.0	a-d	3.5	cd	2.5	bc
75	4483-1693	3.5	cd	4.5	b	0.5	de	0.0	e	0.3	d
76	961237	3.3	d	5.3	ab	0.0	e	1.5	e	0.8	cd
77	RSMT/KATY	5.3	a-d	6.3	ab	5.0	a	6.5	a	0.3	d
78	PSCL/JEFF	5.5	abc	6.0	ab	1.0	cde	6.0	ab	2.0	cd
79	BANKS	3.5	cd	4.5	b	0.5	de	0.8	e	1.0	cd
80	WELLS	5.0	a-d	4.8	b	3.3	abc	4.8	abc	0.0	d
LSD (P=.05)		1.19		1.41		1.47		1.34		1.28	
Standard Deviation		0.84		1.00		1.04		0.95		0.90	
CV		17.8		18.18		49.22		29.7		50.12	
Replicate F		2.907		6.412		1.430		0.922		1.269	
Replicate Prob (F)		0.0423		0.0008		0.2434		0.4359		0.2935	
Treatment F		4.199		2.787		9.531		17.872		13.015	
Treatment Prob (F)		0.0001		0.0015		0.0001		0.0001		0.0001	

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

Table 7. Disease reaction of various varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), leaf blast (LB), rotten neck blast (RNB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2006. (URN Group V)

Pathogen Code		BPB		SB		LB		RNB		NBLS
Rating Data Type		Severity		Severity		Severity		Severity		Severity
Rating Unit		0-9		0-9		0-9		0-9		0-9
Rating Date		Jul-13-2006		Jul-13-2006		Jul-18-2006		Sep-06-2006		Sep-06-2006
81	19991562	5.5	a	5.5	a-d	0.0	f	0.5	g	1.0 cde
82	CCDR/JEFF	6.0	a	8.0	a	0.0	f	5.5	bc	3.5 a-e
83	GFMT/RXMT//IR36	5.0	a	7.0	abc	5.0	abc	5.5	bc	1.5 b-e
84	DREW/UA99-52	6.0	a	6.0	a-d	0.0	f	2.0	d-g	2.0 a-e
85	CCDR/9502008-A	6.0	a	7.0	abc	0.5	ef	4.0	b-f	3.5 a-e
86	(CPRS/PELDE)/JEFF	5.5	a	7.0	abc	3.0	a-f	5.5	bc	4.5 abc
87	LBNT/9902/3/DAWN/969	5.0	a	6.0	a-d	3.0	a-f	5.0	bcd	0.5 de
88	9502008-A//AR 1188/C	4.0	a	7.0	abc	0.0	f	4.0	b-f	3.0 a-e
89	((NWBT/RU8303181)/RS	4.5	a	7.5	ab	3.5	a-f	5.0	bcd	3.5 a-e
90	LBNT/9902/3/DAWN/969	4.0	a	7.0	abc	0.0	f	1.0	fg	0.0 e
91	9502008-A//AR 1188/C	4.0	a	7.5	ab	0.0	f	4.5	b-e	3.5 a-e
92	((NWBT/RU8303181)/RS	3.0	a	7.5	ab	3.0	a-f	5.5	bc	3.0 a-e
93	LBNT/9902/3/DAWN/969	6.5	a	8.0	a	3.5	a-f	5.5	bc	2.0 a-e
94	9502008-A//AR 1188/C	4.5	a	7.0	abc	0.0	f	5.0	bcd	4.0 a-d
95	ABORIO	6.0	a	3.5	d	6.0	a	9.0	a	2.5 a-e
96	L201/7402003//KATY/N	3.5	a	5.0	a-d	0.0	f	1.5	efg	1.0 cde
97	9502008-A//AR 1188/C	6.0	a	8.0	a	0.0	f	5.5	bc	3.0 a-e
98	((NWBT/RU8303181)/GF	3.5	a	7.0	abc	4.5	a-d	5.0	bcd	0.0 e
99	WLLS/PI 584698//ZHE	3.5	a	4.0	cd	2.0	b-f	1.5	efg	1.5 b-e
100	IR36/8603006	4.0	a	6.5	a-d	4.0	a-e	4.5	b-e	2.0 a-e
101	(CPRS/PELDE)/JEFF	3.5	a	6.5	a-d	0.0	f	4.0	b-f	3.5 a-e
102	LGRU2/DREW	4.5	a	4.5	bcd	1.5	c-f	2.0	d-g	0.0 e
103	KATY/CPRS//JKSN/3/AR	4.5	a	7.0	abc	0.0	f	5.0	bcd	2.5 a-e
104	(CPRS/92:1021(KATY//	3.0	a	5.5	a-d	1.5	c-f	5.5	bc	5.0ab
105	9101001/86179/6/RNS3	2.5	a	4.5	bcd	0.0	f	1.5	efg	1.0 cde
106	CCDR/LGRU	5.0	a	7.5	ab	0.0	f	5.5	bc	3.0a-e
107	(GFMT/RU8703196)TX61	2.5	a	6.0	a-d	0.0	f	3.0	c-g	0.0 e
108	LBNT/9902/3/DAWN/969	3.5	a	6.0	a-d	4.5	a-d	4.0	b-f	0.5 de
109	9901081/CCDR	4.0	a	6.5	a-d	1.0	def	6.0	bc	1.5 b-e
110	(CPRS/92:1021(KATY//	3.5	a	7.0	abc	4.0	a-e	7.0	ab	4.5 abc
111	LBNT/9902/3/DAWN/969	4.0	a	5.5	a-d	4.5	a-d	4.5	b-e	0.5 de
112	CCDR/4/NWBT/KATY/3/8	4.5	a	6.5	a-d	1.0	def	4.5	b-e	2.5 a-e
113	(CPRS/92:1021(KATY//	5.0	a	6.5	a-d	4.0	a-e	6.0	bc	4.0 a-d
114	8904186s/8803012	5.0	a	7.0	abc	4.5	a-d	6.0	bc	0.0 e
115	CPRS/KBNT//9502008-A	3.0	a	6.0	a-d	0.0	f	2.0	d-g	3.0 a-e
116	MDSN/((NWBT/RU830318	3.5	a	6.5	a-d	0.0	f	3.0	c-g	2.5 a-e
117	COCODRIE	5.0	a	7.5	ab	0.0	f	5.5	bc	3.0 a-e
118	HIDALGO	6.5	a	7.0	abc	4.0	a-e	7.0	ab	5.5 a
119	L205	6.5	a	6.5	a-d	5.5	ab	7.0	ab	5.0 ab
120	DIXIEBELLE	6.0	a	6.0	a-d	3.5	a-f	5.5	bc	2.0 a-e
LSD (P=.05)		2.27		1.60		2.05		1.85		2.07
Standard Deviation		1.12		0.79		1.01		0.91		1.02
CV		24.75		12.3		52.26		20.3		43.15
Replicate F		0.248		0.715		1.475		0.539		0.048
Replicate Prob (F)		0.6214		0.4030		0.2318		0.4672		0.8284
Treatment F		2.122		3.617		8.032		8.387		4.585
Treatment Prob (F)		0.0105		0.0001		0.0001		0.0001		0.0001

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

Table 8. Disease reaction of various varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), leaf blast (LB), rotten neck blast (RNB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2006. (URN Group VI)

Pathogen Code	BPB		SB		LB		RNB		NBLS
Rating Data Type	Severity		Severity		Severity		Severity		Severity
Rating Unit	0-9		0-9		0-9		0-9		0-9
Rating Date	Jul-13-2006		Jul-13-2006		Jul-18-2006		Sep-06-2006		Sep-06-2006
121 RU9901127/GP-2	6.0	a	6.0	abc	2.5	ab	0.5	fg	1.0 def
122 TBNT/LA110//LMNT/TBN	5.5	a	7.0	abc	4.0	a	7.0	a	5.0 abc
123 ((NWBT/RU8303181)/RS	3.5	a	5.5	abc	0.5	ab	4.5	a-e	4.0 a-e
124 CPRS/RU9201176//WLLS	4.5	a	7.0	abc	1.0	ab	3.5	a-g	0.0 f
125 CCDR/5/MARS/…/6/CPRS	5.5	a	6.5	abc	0.0	b	6.0	ab	4.0 a-e
126 ((NWBT/RU8303181)/RS	3.0	a	6.5	abc	0.0	b	1.0	efg	0.5 ef
127 CPRS/RU9201176/5/VSN	5.5	a	7.0	abc	0.0	b	3.5	a-g	3.5 a-f
128 CCDR/5/MARS/…/6/BNGL	5.0	a	7.5	ab	0.0	b	4.5	a-e	4.0 a-e
129 (CPRS/PANDA)/JEFF*2	4.0	a	6.0	abc	1.0	ab	5.0	a-d	3.5 a-f
130 WLLS/INIAP-12//ZHE 7	4.0	a	4.5	bc	0.0	b	0.5	fg	1.0 def
131 CCDR/5/MARS/M201//MA	3.0	a	7.5	ab	0.0	b	4.5	a-e	3.5 a-f
132 ((NWBT/RU8303181)/RS	4.0	a	6.5	abc	0.5	ab	3.0	b-g	4.0 a-e
133 KATY/NWBT//L201/7402	5.0	a	5.5	abc	0.0	b	4.0	a-f	0.5 ef
134 CCDR/5/MARS/…/6/ORIN	3.5	a	6.0	abc	1.0	ab	3.5	a-g	2.0 b-f
135 MDSN/((NWBT/RU830318	3.0	a	6.5	abc	0.0	b	1.0	efg	3.5 a-f
136 STG99F5-13-025/MDRK	5.0	a	6.0	abc	0.0	b	0.0	g	1.5 c-f
137 RU9602097/RU9602082/	4.5	a	7.0	abc	1.0	ab	2.5	b-g	2.5 a-f
138 MDSN/((NWBT/RU830318	5.0	a	7.5	ab	0.0	b	3.5	a-g	3.0 a-f
139 SHUFENG 121-1655	3.0	a	5.0	abc	0.0	b	0.5	fg	0.0 f
140 L202/Leah//Toro/3/IR	5.5	a	8.0	a	0.0	b	1.0	efg	1.0 def
141 (CPRS/92:1021(KATY//	5.0	a	6.5	abc	1.5	ab	5.0	a-d	5.0 abc
142 LBNT/9902//NWBT/3/MI	4.5	a	6.5	abc	0.0	b	0.5	fg	0.5 ef
143 05 SBYT 048	4.0	a	4.5	bc	4.0	a	2.5	b-g	0.0 f
144 (CPRS/92:1021(KATY//	4.5	a	6.0	abc	4.0	a	4.5	a-e	5.0 abc
145 PI 584720/ZHE 733	2.0	a	4.0	c	0.0	b	0.0	g	0.0 f
146 CPRS/LGRU//97 KDM X2	4.0	a	5.5	abc	3.5	ab	4.5	a-e	3.5 a-f
147 MDSN/((NWBT/RU830318	3.0	a	6.5	abc	1.5	ab	4.0	a-f	4.0 a-e
148 LGRU//LMNT/RA73/3/LG	4.0	a	6.0	abc	0.0	b	2.0	c-g	0.5 ef
149 DLRS//AR 1142/LA 203	5.0	a	5.5	abc	3.0	ab	6.0	ab	2.5 a-f
150 ((NWBT/RU8303181)/GF	3.0	a	6.0	abc	4.0	a	4.5	a-e	1.0 def
151 MDRK/UA99-123	3.5	a	6.0	abc	0.0	b	0.0	g	0.5 ef
152 YD-4/RSMT	6.0	a	6.0	abc	0.0	b	4.0	a-f	4.5 a-d
153 (CPRS/92:1021(KATY//	4.0	a	6.0	abc	1.0	ab	5.0	a-d	3.0 a-f
154 NWBT/C4-63	4.0	a	5.0	abc	0.0	b	1.0	efg	0.0 f
155 05 SBYT 119	4.5	a	6.0	abc	2.5	ab	3.5	a-g	0.5 ef
156 8902031/NWBT	4.0	a	6.5	abc	3.5	ab	5.5	abc	4.5 a-d
157 NWBT/C4-63	3.0	a	5.5	abc	1.0	ab	1.5	d-g	0.0 f
158 DELLROSE	5.5	a	5.5	abc	3.0	ab	4.0	a-f	2.5 a-f
159 SABINE	4.0	a	7.0	abc	1.0	ab	5.0	a-d	5.5 ab
160 FRANCIS	4.5	a	6.0	abc	4.0	a	7.0	a	6.0 a
LSD (P=.05)	2.31		1.67		2.05		1.95		2.07
Standard Deviation	1.14		0.82		1.01		0.97		1.02
CV	26.85		13.43		82.62		29.88		42.18
Replicate F	0.154		1.491		0.049		1.082		0.191
Replicate Prob(F)	0.6973		0.2294		0.8263		0.3046		0.6644
Treatment F	1.417		2.189		4.354		8.797		6.680
Treatment Prob (F)	0.1402		0.0082		0.0001		0.0001		0.0001

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

Table 9. Disease reaction of various varieties and experimental lines to bacterial panicle blight (BPB), sheath blight (SB), leaf blast (LB), rotten neck blast (RNB), and narrow brown leaf spot (NBLS) at the Rice Research Station, Crowley, LA. 2006. (URN Group VII)

Pathogen Code	BPB		SB		LB		RNB		NBLS	
Rating Data Type	Severity		Severity		Severity		Severity		Severity	
Rating Unit	0-9		0-9		0-9		0-9		0-9	
Rating Date	Jul-13-2006		Jul-13-2006		Jul-19-2006		Sep-07-2006		Sep-07-2006	
161 RNS3/RU9101001	4.0	a-e	5.5	ab	0.0	g	3.0	b-h	0.5	bc
162 BNGL//MERC/RICO/3/EA	4.5	a-e	6.5	ab	4.5	abc	5.0	a-e	2.0	abc
163 ((NWBT/RU8303181)/GF	6.0	a	8.0	a	5.0	a			5.0	a
164 LBNT/9902/3/DAWN/969	2.5	de	5.0	b	3.0	b-f	5.5	a-d	0.0	c
165 BNGL//MERC/RICO/3/EA	4.5	a-e	6.5	ab	4.5	abc	3.5	b-h	0.0	c
166 4484-1665	3.0	cde	5.5	ab	0.0	g	0.0	h	1.0	abc
167 NWBT/3/LBNT/9902//LB	4.5	a-e	6.0	ab	3.5	a-e	5.0	a-e	0.5	bc
168 BNGL//MERC/RICO/3/ME	4.5	a-e	6.0	ab	2.5	c-g	2.0	d-h	0.0	c
169 ((NWBT/RU8303181)/GF	3.5	b-e	7.5	ab	3.5	a-e	3.5	b-h	1.0	abc
170 LBNT/9902/3/DAWN/969	3.5	b-e	5.5	ab	0.0	g	1.0	fgh	2.0	abc
171 BNGL//MERC/RICO/3/EA	5.0	a-d	7.5	ab	5.0	abc	5.0	a-e	0.0	c
172 (MARS/CM101)/(LBNT_W	4.0	a-e	6.5	ab	4.0	a-d	5.5	a-d	0.0	c
173 LBNT/9902/3/DAWN/969	4.0	a-e	6.5	ab	1.5	d-g	6.5	ab	0.0	c
174 9502008-A//AR 1188/C	6.0	ab	8.0	a	0.0	g	5.5	a-d	3.0	abc
175 IR58	4.5	a-e	7.5	ab	0.0	g	1.5	e-h	0.5	bc
176 KATY/NWBT//L201/7402	4.5	a-e	6.0	ab	0.0	g	3.0	b-h	1.0	abc
177 CPRS/LGRU//LGRU	2.5	de	6.5	ab	3.0	b-f	4.0	b-g	4.5	ab
178 (GFMT/RU8703196)TX61	2.0	e	6.0	ab	0.0	g	0.0	h	3.0	abc
179 KBNT LPA1-1/BBLE	2.5	de	5.0	b	2.5	c-g	0.0	h	1.0	abc
180 KATY/CPRS//JKSN/3/AR	5.5	abc	7.0	ab	0.0	g	5.5	a-d	4.0	abc
181 (GFMT/RU8703196)TX61	3.0	cde	5.0	b	0.0	g	4.0	b-g	1.0	abcx
182 LBNT/9902/3/DAWN/969	3.0	cde	5.0	b	0.0	g	0.5	gh	0.0	c
183 9502008-A//AR 1188/C	6.0	ab	8.0	a	0.0	g	6.0	abc	4.0	abc
184 ((NWBT/RU8303181)/GF	3.5	b-e	8.0	a	3.5	a-e	5.0	a-e	0.0	c
185 RU9201176/4/LBNT/STB	3.0	cde	5.0	b	0.0	g	1.0	fgh	0.0	c
186 MBLE//82CAY21/LMNT	4.0	a-e	6.5	ab	1.5	d-g	5.0	a-e	5.0	a
187 TESANAI 2	3.5	b-e	5.0	b	0.0	g	0.0	h	0.0	c
188 LGRU//KATY/STBN/5/LG	3.0	cde	5.0	b	0.0	g	3.5	b-h	1.0	abc
189 9502008/CPRS	3.0	cde	8.0	a	4.0	a-d	5.5	a-d	3.0	abc
190 ((NWBT/RU8303181)/GF	3.5	b-e	6.0	ab	1.0	efg	2.5	c-h	0.5	bc
191 LMNT//TBNT/LA110	3.0	cde	5.5	ab	3.5	a-e	6.0	abc	0.0	c
192 CPRS/LGRU	5.5	abc	7.5	ab	0.5	fg	6.0	abc	5.0	a
193 8303116/LMNT//NWBT	3.5	b-e	6.0	ab	1.0	efg	5.0	a-e	1.0	abc
194 RSMT/KATY	4.0	a-e	5.5	ab	5.5	ab	5.5	a-d	5.0	a
195 CPRS/NWBT//KATY/3/CC	6.5	a	7.0	ab	3.5	a-e	5.5	a-d	3.5	abc
196 CPRS/3/L201//TBNT/BL	3.5	b-e	6.5	ab	1.0	efg	5.5	a-d	3.5	abc
197 A301/KATY	6.0	ab	6.5	ab	2.5	c-g	4.5	a-f	0.0	c
198 RSMT//RXMT/IR36	6.0	ab	6.5	ab	5.0	abc	5.0	a-e	1.5	abc
199 CYPRESS	5.0	a-d	7.0	ab	3.5	a-e	4.0	b-g	4.5	ab
200 XP 723	2.5	de	6.5	ab	0.0	g	2.5	c-h	0.5	bc
LSD (P=.05)	1.58		1.43		1.55		2.01		2.27	
Standard Deviation	0.78		0.71		0.77		0.99		1.12	
CV	19.59		11.18		38.71		25.52		65.94	
Replicate F	5.345		2.081		1.711		0.114		0.414	
Replicate Prob (F)	0.0264		0.1575		0.1987		0.7371		0.5237	
Treatment F	4.457		3.665		12.890		8.896		2.451	
Treatment Prob (F)	0.0001		0.0001		0.0001		0.0001		0.0001	

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

2006 Sheath Blight Rice CAPS Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Variety/Seed Rate: Various varieties and lines, ~70 lb/A

Plot Size: One 6-ft row

Planting Method/Date: Hege planter (drill-seeded), Apr 10

Fertilization: Preplant 24-72-22, Mar 14; preflood 90-0-0, May 10; topdress 46-0-0, June 6

Experimental Design: Randomized complete block design with three replications

Water Management: Flushed, Apr 12, May 2; permanent flood, May 14

Herbicides: 3 qt Arrosolo, May 3; 3 qt Arrosolo + 1 oz/A Permit, May 11; 15 oz Clincher, May 31

Insecticides: 1 oz Icon preplant, Apr 13; 4 oz Karate Z, May 16; 2.4 pt Prolex, May 3; 4 oz Karate, July 13

Fungicides: None

Inoculation Dates: 10 ml/plot of *Rhizoctonia solani* culture grown on a rice grain: rice hull mixture, June 16

Application Equipment: None

Application Dates:

Growth Stage	Date	Time	Temp	Wind	RH	Clouds	Dew
N/A							

Disease Ratings: Sheath blight severity ratings, July 22-Aug 15

Drained: Field allowed to dry naturally

Harvest: Aug 25 and 26

Results: Sheath blight ratings ranged from 2.7 to 8.0. Plant heights ranged from 50 to 146 cm. Heading dates ranged from July 13 to July 30. Data available on request.

Comments: Sheath blight severity was severe.

2006 Sheath Blight Fungicide Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Variety/Seed Rate: Cocodrie, 80 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill-seeded, Mar 21

Fertilization: Preplant 24-72-72, Mar 14; preflood 145-0-0, May 4; topdress 46-0-0, June 6

Experimental Design: Randomized complete block design

Water Management: Flushed, Apr 3 and 11; flooded, May 5

Herbicides: 4 qt Propanil, Apr 17; 3 qt Arrosolo + 2.4 qt Prowl EC, May 3; 15 oz Clincher, June 28

Insecticides: 1 oz Icon Mar 28; 4 oz Karate, May 16; 4 oz Mustang Max, May 16

Fungicides: PD+7 Spray, June 6; Boot Spray, June 20

Inoculation Date: 100 ml/plot of *Rhizoctonia solani*, June 2

Application Equipment: CO_2 backpack sprayer, 8002 tips, 15 gal/A

Application Dates:

Growth Stage	Date	Time	Temp	Wind	RH	Clouds	Dew
PD+7	6 June						
B	20 June	8:38	77.4°F	5.1 mph	83.2%	40%	Light

Disease Ratings: July 18 and 20

Drained: July 24

Harvest: Aug 7

Results: Table 10

Comments: Sheath blight severity was moderate and other diseases were light.

Table 10. Effect of various fungicides, rates and timings on sheath blight (SB) development and yield of Cocodrie rice at the Rice Research Station, Crowley, LA, 2006.

Trt No.	Treatment Name	Form Amt	Fm Ds	Rate	Rate Unit	Grow Stage	SB Severity 0-9 7-18-2006		SB Infest % 7-20-2006		Yield lb/A 8-07-2006		Milling Head % 9-10-2006		Milling Total % 9-10-2006	
1	Unsprayed Check						7.3	a	100.0	a	4931	f	58.6	a	65.2	a
2	Tilt	3.6	EC	10	FL OZ/A	B	7.0	a	99.0	a	5491	ef	59.3	a	66.3	a
3	Quadris	2.08	SC	9	FL OZ/A	B	5.3	bc	30.5	d	7213	abc	58.8	a	65.5	a
4	Quadris	2.08	SC	12	FL OZ/A	B	4.3	cd	28.0	de	6440	b-e	59.0	a	66.4	a
5	Stratego	2.08	EC	16	FL OZ/A	B	6.3	ab	94.5	a	5609	ef	57.4	a	64.3	a
6	Stratego	2.08	EC	19	FL OZ/A	B	4.5	bcd	49.0	c	6008	de	53.0	a	60.9	a
7	Gem	25	DF	8	OZ/A	B	4.0	cd	16.0	def	6365	cde	56.0	a	63.2	a
8	Gem	25	DF	9.6	OZ/A	B	3.3	d	12.5	ef	6677	a-d	55.2	a	63.3	a
9	Quilt	1.66	SC	28	FL OZ/A	B	4.3	cd	14.0	def	7451	ab	56.0	a	63.0	a
10	Quilt	1.66	SC	34	FL OZ/A	B	4.0	cd	16.5	def	7447	ab	56.3	a	64.4	a
11	Moncut	70	DF	0.7	LB/A	B	5.8	abc	64.8	b	6146	de	57.9	a	64.3	a
12	Moncut	70	DF	1.3	LB/A	B	5.8	abc	68.0	b	6643	a-d	59.7	a	65.6	a
13	Quadris	2.08	SC	6	FL OZ/A	PD+7	4.3	cd	8.3	f	7524	a	58.8	a	64.9	a
	Quilt	1.66	SC	14	FL OZ/A	B										
14	Quadris	2.08	SC	12	FL OZ/A	PD+7	4.8	bcd	10.8	ef	7131	abc	56.9	a	63.7	a
	Tilt	3.6	EC	4	FL OZ/A	B										
15	Stratego	2.08	SC	19	FL OZ/A	B	4.5	bcd	19.3	def	7285	abc	59.9	a	66.3	a
	Gem	2	SC	3	FL OZ/A	B										
LSD (P=.05)							1.16		11.70		662.4		4.45		3.54	
Standard Deviation							0.82		8.19		463.5		2.08		1.65	
CV							16.3		19.46		7.07		3.61		2.56	
Replicate F							0.803		0.524		12.151		5.808		6.925	
Replicate Prob (F)							0.4993		0.6679		0.0001		0.0303		0.0197	
Treatment F							8.226		70.553		12.019		1.737		1.710	
Treatment Prob (F)							0.0001		0.0001		0.0001		0.1566		0.1635	

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

2006 Variety by Fungicide Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam

Variety/Seed Rate: Cocodrie, 90 g/plot

Plot Size: 4 x 16 ft

Planting Method/Date: Drill-seeded, Mar 21

Fertilization: Preplant 24-72-72, Mar 14; preflood 145-0-0, May 4; topdress 46-0-0, June 6

Experimental Design: Randomized complete block design

Water Management: Flushed, Apr 3and 11; flooded, May 5

Herbicides: 4 qt Propanil, Apr 17; 3 qt Arrosolo + 2.4 qt Prowl EC, May 3; 15 oz Clincher, June 28

Insecticides: 1 oz Icon Mar 28; 4 oz Karate, May 16; 4 oz Mustang MAX, June 28

Fungicides: Boot Spray, June 19

Inoculation Dates: 100 ml/plot of *Rhizoctonia solani*, June 2

Application Equipment: CO_2 backpack sprayer, 8002 tips, 15 gal/A

Application Dates:

Growth Stage	Date	Time	Temp	Wind	RH	Clouds	Dew
B	20 June	8:38	77.4°F	5.1 mph	83.2%	40%	Light

Disease Ratings: July 17 and 20

Drained: July 24

Harvest: Aug 7

Results: Table 11

Comments: Sheath blight severity was moderate and other diseases were light.

Table 11. Effect of varietal resistance, sheath blight (SB) inoculation, and fungicide applications on sheath blight development and yield of rice at the Rice Research Station, Crowley, LA. 2006.

Trt No.	Treatment Name	Form Amt	Fm Ds	Rate	Rate Unit	Grow Stage	SB Severity 0-9 Jul-17-2006		SB Infestation % Jul-20-2006		Yield lb/A Aug-07-2006		Milling % Whole Oct-16-2006		Milling % Total Oct-16-2006	
1	CL131 Uninoculated						4.0	d-g	31.0	cd	7700	ab	62.8	a	69.4	abc
2	CL131 Inoculated Unsprayed						7.3	ab	98.5	a	5257	e	59.5	ab	68.3	abc
3	CL131 Inoculated Quadris	2.08	SC	9	oz/A	Boot	4.0	d-g	4.8	e	7429	abc	61.9	a	70.1	abc
4	Trenasse Uninoculated						5.0	de	7.0	e	6512	cd	56.8	ab	63.4	bc
5	Trenasse Inoculated Unsprayed						7.8	a	90.0	ab	3986	f	49.9	bc	62.4	c
6	Trenasse Inoculated Quadris	2.08	SC	9	oz/A	Boot	4.5	def	11.0	e	7987	ab	57.0	ab	64.7	abc
7	Cybonnet Uninoculated						5.3	cd	17.0	de	7286	abc	62.9	a	68.4	abc
8	Cybonnet Inoculated Unsprayed						7.0	ab	96.5	a	5141	e	63.2	a	69.4	abc
9	Cybonnet Inoculated Quadris	2.08	SC	9	oz/A	Boot	3.3	fg	7.0	e	7779	ab	66.2	a	71.0	ab
10	Cheniere Uninoculated						4.8	def	35.3	cd	7561	abc	58.9	ab	68.9	abc
11	Cheniere Inoculated Unsprayed						6.3	bc	76.0	b	6180	d	56.0	ab	66.6	abc
12	Cheniere Inoculated Quadris	2.08	SC	9	oz/A	Boot	3.5	efg	7.0	e	7884	ab	56.5	ab	66.3	abc
13	Spring Uninoculated						4.3	d-g	8.0	e	6946	bcd	62.6	a	71.7	a
14	Spring Inoculated Unsprayed						7.0	ab	86.0	ab	5147	e	46.1	c	66.5	abc
15	Spring Inoculated Quadris	2.08	SC	9	oz/A	Boot	4.5	def	4.8	e	7473	abc	55.7	ab	70.6	ab
16	Jupiter Uninoculated						3.8	d-g	3.5	e	8504	a	56.9	ab	64.5	abc
17	Jupiter Inoculated Unsprayed						4.8	def	71.5	b	7858	ab	62.2	a	67.4	abc
18	Jupiter Inoculated Quadris	2.08	SC	9	oz/A	Boot	3.0	g	3.3	e	8301	a	61.1	ab	66.5	abc
19	Experimental Uninoculated						5.3	cd	42.8	c	7566	abc	58.9	ab	67.7	abc
20	Experimental Inoculated Unsprayed						7.5	ab	99.0	a	5021	e	56.0	ab	64.5	abc
21	Experimental Inoculated Quadris	2.08	SC	9	oz/A	Boot	4.5	def	8.0	e	8243	a	60.8	ab	69.8	abc
LSD (P=.05)							0.91		15.19		752.9		6.26		4.21	
Standard Deviation							0.64		10.74		532.4		3.00		2.02	
CV							12.61		27.92		7.67		5.11		2.99	
Replicate F							1.383		1.078		0.438		4.115		7.630	
Replicate Prob (F)							0.2566		0.3655		0.7263		0.0560		0.0120	
Treatment F							20.666		50.148		23.977		4.804		3.314	
Treatment Prob (F)							0.0001		0.0001		0.0001		0.0005		0.0050	

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

2006 Narrow Brown Leaf Spot Fungicide Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Variety/Seed Rate: CL161, 90 gm/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill-seeded, May 22

Fertilization: Preplant 24-72-72, May 18; preflood 120-0-0, June 22, topdress 46-0-0, July 5

Experimental Design: Randomized complete block design with 4 replications

Water Management: Flushed, June 5 and 16; flooded, June 23

Herbicides: 3 qt Propanil + 2 qt Basagran, June 12; 3 qt Arrosolo + 1 oz Permit, June 22; 15 oz Clincher, June 28

Insecticides: 4 oz Mustang Max, June 28; 4 oz Karate Z, July 13

Fungicides: Boot, Aug 10; Heading, Aug 21

Inoculation Dates: From natural sources

Application Equipment: CO_2 backpack sprayer, 8002 tips, 15 gal/A

Application Dates:

Growth Stage	Date	Time	Temp	Wind	RH	Clouds	Dew
B	10 Aug						
H	21 Aug						

Disease Ratings: Sept 12

Drained: Sept 14

Harvest: Sept 25

Results: Table 12

Comments: Narrow brown leaf spot severity was high, other diseases were moderate.

Table 12. Effect of fungicide applications on narrow brown leaf spot (NBLS) development and yield of rice at the Rice Research Station, Crowley, LA. 2006.

Trt No.	Treatment Name	Form Amt	Fm Ds	Rate	Rate Unit	Grow Stg	NBLS Severity 0-9 Sep-12-2006		Yield lb/A Gram Sept-15-2006		Milling % Head Oct-17-2006		Milling % Total Oct-17-2006	
1	Unsprayed						6.5	a	6044	b	60.5	b	67.0	a
2	Quadris	2.08	SC	9	oz/A	B	6.0	a	6842	ab	61.7	ab	67.9	a
3	Quadris	2.08	SC	9	oz/A	H	6.3	a	6594	ab	61.8	ab	67.7	a
4	Tilt	3.6	EC	6	oz/A	B	2.8	c	7147	ab	61.6	ab	67.9	a
5	Topsin M	4.5	FL	16	oz/A	B	5.8	a	6252	ab	60.9	b	67.5	a
6	Topsin M	4.5	FL	24	oz/A	B	6.0	a	6603	ab	61.0	b	67.5	a
7	Domark	1.9	ME	6	oz/A	B	3.5	c	6869	ab	62.0	ab	68.5	a
8	Domark	1.9	ME	8	oz/A	B	3.8	c	6708	ab	62.3	ab	68.6	a
9	Tilt	3.6	EC	6	oz/A	H	4.8	b	7264	ab	61.3	ab	67.5	a
10	Quadris	2.08	SC	9	oz/A	B & H	6.3	a	6220	ab	61.4	ab	66.9	a
11	Stratego	2.08	EC	16	oz/A	B	3.3	c	7625	a	61.9	ab	67.7	a
12	Quilt	1.04	SC	28	oz/A	B	2.5	c	7371	ab	63.4	a	64.0	a
LSD (P=.05)							0.90		913.0		1.34		2.99	
Standard Deviation							0.62		632.3		0.93		2.07	
CV							13.0		9.31		1.5		3.08	
Replicate F							4.823		2.544		0.462		1.699	
Replicate Prob (F)							0.0068		0.0730		0.7106		0.1876	
Treatment F							24.172		2.408		2.670		1.319	
Treatment Prob (F)							0.0001		0.0252		0.0155		0.2607	

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

2006 Blast Flood Management Trial

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (pH 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Variety/Seed Rate: CL161, 90 gm/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill-seeded, May 22

Fertilization: Preplant 24-72-72, May 18; Preflood 120-0-0, June 22; 46-0-0 topdress, July 7

Experimental Design: Randomized complete block design with six replications

Water Management: Flushed, June 5; flooded, June 23; drained, July 7; reflooded, July 23

Herbicides: 3 qt Propanil + 2 qt Basagran, June 12; 3 qt Arrosolo + 1 oz Permit, June 22; 15 oz Clincher, June 28

Insecticides: 4 oz Mustang Max, June 28; 4 oz Karate Z, July 13

Fungicides: None

Inoculation Dates: From natural sources

Application Equipment: N/A

Application Dates:

Growth Stage	Date	Time	Temp	Wind	RH	Clouds	Dew
None							

Disease Ratings: 17 June and 5 Sept

Drained: June 17 and Sept 5

Harvest: Sept 25

Results: Tables 13, 14, and 15

Comments: Leaf blast was moderate, other diseases were light.

Table 13. Effects of variety and drainage on leaf blast, rotten neck blast (RNB), and rice yield at the Rice Research Station, Crowley, LA. 2006.

Disease Code		Leaf Blast		RNB		Yield		Milling Total		Milling Head	
Rating Unit		0-9		%		lb/A		%		%	
Rating Date		Jun-17-2006		Sep-05-2006		Sep-25-2006		Nov-7-2006		Nov-7-2006	
Trt	Treatment										
1	Flooded M202	6.7	a	100.0	a	1200	f	52.1	bc	62.2	c
2	Flooded Bengal	2.5	c	5.3	bc	4951	de	52.2	bc	62.7	c
3	Flooded Cocodrie	0.0	e	5.3	bc	5449	cd	50.6	bc	63.7	bc
4	Flooded XP723	4.0	b	8.3	b	4624	e	45.4	c	61.9	c
5	Flooded Jupitor	1.2	d	1.3	c	7946	a	57.7	ab	65.5	ab
6	Drained M202	6.8	a	100.0	a	1235	f	51.8	bc	63.1	c
7	Drained Bengal	4.0	b	8.0	b	4996	de	47.8	c	62.7	c
8	Drained Cocodrie	0.2	e	9.3	b	6196	b	53.0	bc	66.4	a
9	Drained XP723	4.5	b	7.7	b	5796	bc	47.2	c	64.5	abc
10	Drained Jupitor	1.8	cd	1.0	c	8270	a	59.9	a	66.6	a
LSD (P=.05)		0.74		4.70		559.2		4.95		1.77	
Standard Deviation		0.63		4.02		479.3		4.24		1.51	
CV		19.93		16.34		9.46		8.19		2.37	
Replicate F		2.577		0.943		2.048		0.365		1.473	
Replicate Prob(F)		0.0411		0.4641		0.0925		0.8694		0.2201	
Treatment F		90.563		587.525		146.159		6.788		7.760	
Treatment Prob(F)		0.0001		0.0001		0.0001		0.0001		0.0001	

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

Table 14. Factorial analysis of the effect of variety and drainage on leaf blast, rotten neck blast (RNB), and rice yield at the Rice Research Station, Crowley, LA. 2006.

Disease Code Crop Code Rating Unit Rating Date	Leaf Blast 0-9 Jun-17-2006	RNB % Sep-05-2006	Weight lb/A Sep-25-2006	Milling Total %	Milling Head %
TABLE OF R MEANS					
Replicate 1	3.4	24.4	5011	50.5	64.2
Replicate 2	3.1	23.6	5416	51.5	62.8
Replicate 3	3.3	24.8	4739	52.0	64.0
Replicate 4	3.5	23.8	5112	51.7	64.1
Replicate 5	3.1	27.0	5037	53.0	64.4
Replicate 6	2.6	24.2	5083	51.9	64.0
TABLE OF A MEANS					
1 Flooded	2.9	24.1	4834	51.6	63.2
2 Drained	3.5	25.2	5299	52.0	64.6
TABLE OF B MEANS					
1 M202	6.8	100.0	1217	51.9	62.7
2 Bengal	3.3	6.7	4973	50.0	62.7
3 Cocodrie	0.1	7.3	5822	51.8	65.0
4 XP723	4.3	8.0	5210	46.3	63.2
5 Jupiter	1.5	1.2	8108	58.8	66.0
TABLE OF AB MEANS					
1 Flooded 1 M202	6.7	100.0	1200	52.1	62.2
2 Drained 1 M202	6.8	100.0	1235	51.8	63.1
1 Flooded 2 Bengal	2.5	5.3	4951	52.2	62.7
2 Drained 2 Bengal	4.0	8.0	4996	47.8	62.7
1 Flooded 3 Cocodrie	0.0	5.3	5449	50.6	63.7
2 Drained 3 Cocodrie	0.2	9.3	6196	53.0	66.4
1 Flooded 4 XP723	4.0	8.3	4624	45.4	61.9
2 Drained 4 XP723	4.5	7.7	5796	47.2	64.5
1 Flooded 5 Jupiter	1.2	1.3	7946	57.7	65.5
2 Drained 5 Jupiter	1.8	1.0	8270	59.9	66.6

Table 15. Statistical Factorial analysis of the effect of variety and drainage on leaf blast, rotten neck blast, and rice yield at the Rice Research Station, Crowley, LA. 2006.

FACTORIAL/POOLED ERROR AOV For Leaf Blast 0-9 June-17-2006

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F	Prob(F)	LSD (.05)
Total	59	348.333333				
R	5	5.133333	1.026667	2.493	0.0447	0.6
A	1	5.400000	5.400000	13.112	0.0007	0.3
B	4	315.666667	78.916667	191.614	0.0001	0.5
AB	4	3.600000	0.900000	2.185	0.0859	0.7
ERROR	45	18.533333	0.411852			

FACTORIAL/POOLED ERROR AOV For RNB % Sep-05-2006

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F	Prob(F)	LSD (.05)
Total	59	86427.933333				
R	5	76.333333	15.266667	0.947	0.4604	3.6
A	1	19.266667	19.266667	1.195	0.2802	2.1
B	4	85554.933333	21388.733333	1326.357	0.0001	3.3
AB	4	51.733333	12.933333	0.802	0.5303	4.7
ERROR	45	725.666667	16.125926			

FACTORIAL/POOLED ERROR AOV For Weight lb/A Sep-25-2006 TY1 0

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F	Prob(F)	LSD (.05)
Total	59	315397998.312751				
R	5	2352427.009880	470485.401976	1.945	0.1056	445
A	1	3238779.304902	3238779.304902	13.386	0.0007	257
B	4	296035530.870291	74008882.717573	305.879	0.0001	406
AB	4	2883313.127527	720828.281882	2.979	0.0289	574
ERROR	45	10887948.000152	241954.400003			

FACTORIAL/POOLED ERROR AOV For Milling Total % T2 1

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F	Prob(F)	LSD (.05)
Total	59	1876.999777				
R	5	32.838300	6.567660	0.396	0.8488	3.7
A	1	2.013747	2.013747	0.121	0.7291	2.1
B	4	996.964643	249.241161	15.035	0.0001	3.4
AB	4	99.210581	24.802645	1.496	0.2193	4.8
ERROR	45	745.972506	16.577167			

FACTORIAL/POOLED ERROR AOV For Milling Head % T3 1

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F	Prob(F)	LSD (.05)
Total	59	272.811301				
R	5	16.837890	3.367578	1.580	0.1850	1.3
A	1	31.404358	31.404358	14.737	0.0004	0.8
B	4	111.720811	27.930203	13.106	0.0001	1.2
AB	4	16.950738	4.237684	1.989	0.1125	1.7
ERROR	45	95.897504	2.131056			

2006 Lake Arthur Fungicide Trial

Location: Lounsberry Farm, Lake Arthur, LA

Soil Type: Crowley silt loam

Variety/Seed Rate: CL161, 100 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill-seeded, Mar 15

Fertilization: Preplant 16-48-48, Mar 15; preflood 120-0-0, Apr 20

Experimental Design: Randomized complete block design with four replications

Water Management: Flushed, Mar 25; flushed, Apr 4; flushed, Apr 13; flooded, Apr 21

Herbicides: 3 qt Propanil + 1 oz Londax, Apr 11; 3 qt Arrosolo, Apr 20

Insecticides: 4 oz Mustang Max, Apr 17

Fungicides: PD+7, June 6; Boot, June 13; 2nd Crop, Aug 29

Inoculation Dates: Inoculum from natural sources

Application Equipment: CO_2 backpack sprayer, 8002 tips, 15 gal/A

Application Dates:

Growth Stage	Date	Time	Temp	Wind	RH	Clouds	Dew
PD+7	6 June	11:19 AM	90°F	1.6 mph	61.6%	25%	Light
B	13 June	11:26 AM	88.3°F	3.0 mph	61%	0	None
2nd Crop	29 Aug	9:40 AM	85°F	3.5 mph	80%	35%	Heavy

Disease Ratings: June 20 and 24

Drained: July 17

Harvest: Aug 8

Results: Table 16

Comments: Sheath blight severity was high, other diseases were light. Second crop was not harvested due to poor regrowth.

Table 16. Effect of fungicide applications on sheath blight (SB) development and rice yield and milling at the Lounsberry Farm, Lake Arthur, LA. 2006.

Trt No.	Treatment Name	Form Amt	Fm Ds	Rate	Rate Unit	Grow Stage	SB Severity 0-9 Jun-20-2006		SB Infest % Jun-24-2006		Yield lb/A Aug-08-2006		Milling % Whole Nov-10-2006		Milling % Total Nov-10-2006	
1	Unsprayed Check						7.0	ab	79.2	a	8997	b	63.1	a	69.1	a
2	Tilt	3.6	EC	10	FL OZ/A	B	6.8	ab	64.8	ab	9345	ab	66.3	a	71.3	a
3	Quadris	2.08	SC	9	FL OZ/A	B	6.2	ab	62.6	ab	9689	ab	65.6	a	71.2	a
4	Quadris	2.08	SC	12	FL OZ/A	B	6.0	ab	34.4	bc	9845	ab	64.4	a	70.3	a
5	Stratego	2.08	EC	16	FL OZ/A	B	5.8	ab	39.2	bc	10045	ab	65.4	a	71.0	a
6	Stratego	2.08	EC	19	FL OZ/A	B	6.0	ab	30.4	c	9955	ab	66.8	a	71.9	a
7	Gem	25	DF	8	OZ/A	B	6.4	ab	43.6	bc	9825	ab	63.9	a	69.8	a
8	Gem	25	DF	9.6	OZ/A	B	5.8	ab	37.6	bc	9820	ab	64.5	a	70.1	a
9	Quilt	1.66	SC	28	FL OZ/A	B	6.6	ab	47.2	bc	10069	ab	65.6	a	70.5	a
10	Quilt	1.66	SC	34	FL OZ/A	B	6.4	ab	30.4	c	9582	ab	66.5	a	71.5	a
11	Moncut	70	DF	0.7	LB/A	B	5.8	ab	60.0	abc	9523	ab	66.5	a	72.0	a
12	Moncut	70	DF	1.3	LB/A	B	7.2	a	79.2	a	9069	b	63.1	a	69.8	a
13	Quadris	2.08	SC	6	FL OZ/A	PD+7	5.2	b	36.4	bc	9871	ab	65.3	a	71.1	a
	Quilt	1.66	SC	14	FL OZ/A	B										
14	Quadris	2.08	SC	12	FL OZ/A	PD+7	5.2	b	34.0	bc	10581	a	64.8	a	70.8	a
	Tilt	3.6	EC	4	FL OZ/A	B										
15	Stratego	2.08	SC	19	FL OZ/A	B	5.2	b	36.4	bc	9994	ab	63.8	a	70.1	a
	Gem	2	SC	3	FL OZ/A	B										
16	JAU6476	2.7	SC	10	FL OZ/A	B	5.8	ab	44.8	bc	9698	ab	65.8	a	71.3	a
17	JAU6476	2.7	SC	12	FL OZ/A	B	6.2	ab	28.4	c	9747	ab	66.4	a	71.5	a
LSD (P=.05)							1.03		18.43		759.3		2.45		2.11	
Standard Deviation							0.82		14.57		600.2		1.16		1.00	
CV							13.38		31.41		6.16		1.77		1.41	
Replicate F							2.945		2.995		16.178		11.700		10.386	
Replicate Prob (F)							0.0268		0.0249		0.0001		0.0035		0.0053	
Treatment F							2.711		6.493		1.990		2.150		1.371	
Treatment Prob (F)							0.0025		0.0001		0.0275		0.0681		0.2677	

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

2006 Jeff Davis Fungicide Trial

Location: Jimmy Hoppe Farm, Fenton, LA

Soil Type: Crowley silt loam

Variety/Seed Rate: CL161, 80 lb/A

Plot Size: 4 x 16 ft

Planting Method/Date: Drill-seeded, Mar 8

Fertilization: Preplant 16-48-48, 15 Mar; preflood 120-0-0 Apr 19

Water Management: Flood, Apr 20

Herbicides: 6 oz Newpath + 2.5 oz Grasp + 16 oz Crop Oil, Apr 12; 3 qt Arrosolo, Apr 19

Insecticides: Karate 1.66 oz/A, Apr 30

Fungicides: PD-7 , June 6; Boot, June 13

Inoculation Dates: All inoculum was from natural sources

Application Equipment: CO_2 backpack sprayer, 8002 tips, 15 gal/A

Application Dates:

Growth Stage	Date	Time	Temp	Wind	RH	Clouds	Dew
PD+7	6 June	9:59AM	80.4°F	1.5 mph	77.8%	70%	Med
B	13 June	10:20AM	87.5°F	3.2 mph	60%	0%	Light

Disease Ratings: June 19

Drained: July 14

Harvest: Aug 2

Results: Table 17

Comments: Sheath blight severity was very high, other diseases were light.

Table 17. Effect of fungicide applications on sheath blight (SB) development rice yield and milling at the Hoppe Farm, Fenton, LA. 2006.

Trt No.	Treatment Name	Form	Amt	Fm Ds	Rate	Rate Unit	Grow Stage	SB 0-9 Jun-19-2006		SB % Jun-19-2006		Yield lb/A Aug-2-2006		Milling % Whole Oct-9-2006		Milling % Total Oct-9-2006	
1	Unsprayed Check							8.0	a	95.8	a	6005	c	55.2	a	67.7	a
2	Tilt	3.6	EC	10	FL OZ/A	B		7.8	ab	84.5	ab	6628	bc	58.6	a	69.5	a
3	Quadris	2.08	SC	9	FL OZ/A	B		6.5	c-f	67.8	bc	7204	ab	57.2	a	69.3	a
4	Quadris	2.08	SC	12	FL OZ/A	B		5.5	f	52.3	cde	7547	ab	58.7	a	69.2	a
5	Stratego	2.08	EC	16	FL OZ/A	B		6.8	cde	68.3	bc	7438	ab	56.6	a	68.6	a
6	Stratego	2.08	EC	19	FL OZ/A	B		6.0	def	52.0	cde	7835	a	59.0	a	70.7	a
7	Gem	25	DF	8	OZ/A	B		6.5	c-f	67.3	bc	7475	ab	57.9	a	69.2	a
8	Gem	25	DF	9.6	OZ/A	B		6.0	def	57.8	cde	7391	ab	58.5	a	69.8	a
9	Quilt	1.66	SC	28	FL OZ/A	B		5.5	f	39.3	e	7112	ab	60.7	a	70.0	a
10	Quilt	1.66	SC	34	FL OZ/A	B		5.8	ef	43.0	de	7446	ab	57.7	a	68.4	a
11	Moncut	70	DF	0.7	LB/A	B		7.5	abc	86.0	ab	6722	abc	57.6	a	68.6	a
12	Moncut	70	DF	1.3	LB/A	B		7.0	bcd	71.0	bc	7242	ab	57.1	a	69.6	a
13	Quadris	2.08	SC	6	FL OZ/A	PD+7		5.8	ef	41.8	de	7686	ab	57.7	a	69.8	a
	Quilt	1.66	SC	14	FL OZ/A	B											
14	Quadris	2.08	SC	12	FL OZ/A	PD+7		5.5	f	42.8	de	7855	a	59.5	a	70.5	a
	Tilt	3.6	EC	4	FL OZ/A	B											
15	Stratego	2.08	SC	19	FL OZ/A	B		5.5	f	37.3	e	7791	a	57.7	a	68.2	a
	Gem	2	SC	3	FL OZ/A	B											
16	JAU6476	2.7	SC	10	FL OZ/A	B		6.5	c-f	62.0	cd	7222	ab	58.3	a	69.3	a
17	JAU6476	2.7	SC	12	FL OZ/A	B		6.3	def	55.8	cde	7702	ab	57.7	a	69.4	a
LSD (P=.05)								0.72		13.78		649.7		3.97		2.35	
Standard Deviation								0.50		9.64		454.7		1.87		1.11	
CV								7.87		16.0		6.22		3.23		1.6	
Replicate F								4.898		3.806		16.212		0.871		0.000	
Replicate Prob (F)								0.0048		0.0158		0.0001		0.3644		0.9853	
Treatment F								10.463		13.113		4.597		0.851		0.997	
Treatment Prob (F)								0.0001		0.0001		0.0001		0.6244		0.5026	

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

DISEASE RESISTANCE AND MANAGEMENT IN RICE [1]

M.C. Rush, P.A. Bollich, R. Nandakumar, X.Y. Sha, D.E. Groth, and S.D. Linscombe

INTRODUCTION

Sheath blight (SB) is the most serious rice disease in Louisiana because of its endemic, and occasionally epidemic, development each year and the significant yield losses experienced by Louisiana rice growers. Bacterial panicle blight (BPB), identified by our laboratory in 1996, is a seedborne disease of rice that affects the florets in developing panicles and causes linear, bordered sheath lesions. In years of unusually high temperature at night, the disease can reduce potential yields up to 40%. The use of resistant cultivars, if they were available, would be the best way to control both of these diseases. At this time, only partial resistance is known for both diseases. The sources for SB resistance used in our program have different genes for partial resistance and were crossed with susceptible commercial cultivars, our elite resistant lines, and lines from our progeny row selections. Nurseries to determine the resistance levels of lines and varieties currently being used in the rice breeding program to BPB were conducted the last 4 years. Several sources of high-level partial resistance to BPB were identified, including Nipponbare, Teqing, AB649, LM-1, and LA2065. These materials were used as resistant parents in reciprocal crosses with Cocodrie, a susceptible commercial variety.

Germplasm and all progeny rows for SB and BPB resistance were evaluated in field nurseries at the Rice Research Station in Crowley, Louisiana, for disease resistance, agronomic characteristics, and yield potential in the 2006 season. Selected progeny rows harvested in 2005 and found to have the grain quality characteristics required by the rice industry were placed in the Rice Breeding/Rice Pathology yield test at the Rice Research Station in Crowley, Louisiana, for yield testing and for further disease evaluation in 2006. The intent of the current program is to identify resistance sources to SB and BPB, to determine the mode-of-inheritance of high-level partial resistance in newly obtained resistance sources, selected cultivars, and elite lines, and to transfer genes conferring partial resistance to lines typical of American long- and medium-grain varieties. The lines will be further tested in the Rice Breeding Program for use as resistance sources.

MATERIALS AND METHODS

Development of SB Resistant Lines:

Resistance sources and crosses. Our SB resistance sources include LSBR-5, LSBR-33, H4/CODF, Taducan, Rice/Grass, Teqing, Jasmine 85, Leah, Katy, Yangdao-4, Yangdao-6, Earl, Bengal, other varieties, and selected lines with combined SB resistance sources from our program. Crosses from which panicle rows tested in 2006 were derived were made from 1997 through 2004, based on the modified recurrent selection scheme that we have been using for many years. F_2 populations from these crosses were evaluated in the field during the 2001-2005 seasons, and panicle rows through the F_8 generation planted, inoculated and evaluated in 2006.

Inoculation and evaluation for SB resistance. An autoclaved grain:rice hull (1:2) mixture was inoculated with *Rhizoctonia solani* Kühn (isolate #LR 172) and cultured at room temperature for 48 hours. This grain-rice hull mixture was used as inoculum in all 6-ft panicle rows and variety control rows. Each row was inoculated evenly at the late tillering/green ring stages of growth with 50 ml inoculum per row by hand. Rows were evaluated for SB resistance at maturity based on the standard SB rating scale (0-9).

The cultivar M201, highly susceptible to the rice blast disease, was planted around each set of progeny rows. Naturally occurring blast infected the M201, which served as a source of inoculum to the progeny rows. All progeny rows were evaluated for blast resistance at green ring and maturity, and all rows showing rice blast infections were discarded.

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

Selection of SB resistant progeny rows. Lines/plants with both SB and blast resistances, as well as good agronomic characteristics, were selected for advancement in our program or for further testing in the Rice Breeding Program.

Field management. See following Field Test Method Sheets.

1. Field Test Methods - 2006 Progeny Rows

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (ph 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Plot Size: One 6-ft row/plot

Planting Method: Hege Planter (drill seeded), April 13-14

Fertilization: Preplant 24-72-72, April 13; preflood 130-0-0, May 2

Experimental Design: Sequentially planted panicle/progeny rows and check variety rows

Water Management: Flushed, April 21, May 2; permanent flood, May 24

Herbicides: 4 qt Rice shot, May 10; 4 qt propanil + 1.33 oz/A Permit, May 23

Insecticides: 1 oz Icon preplant, April 13

Inoculation Dates: 50 ml/row of *Rhizoctonia solani* culture grown on rice hull mixture, June 17

Drained: Allowed to dry naturally

Harvest: At maturity

Comments: Environmental conditions were excellent for SB development in 2006, with susceptible check varieties having 7 to 9 ratings. Three to five panicles were collected from desirable germplasm to be advanced to next years tests. Five to 10 panicles were collected from rows harvested for the 2007 yield tests. Progeny rows considered resistant had SB ratings of 1 to 4.

The SB yield test was conducted in 2006 in cooperation with Drs. Xueyan Sha and Don Groth to test 96 breeding lines selected in 2005 for their resistance to SB, yield potential, and agronomic characteristics (height, days to maturity, and lodging). The nine check varieties (Bengal, Cheniere, Cocodrie, Francis, Jupiter, M-201, Pirogue, Trenasse, and Wells) were planted with the lines for comparison purposes. The experimental lines were grown in yield plots using standard rice production practices and a split plot design with two replicates. In each replicate, one plot (split) was inoculated with *R. solani* grown on a rice grain:rice hull mixture and one plot was not inoculated (healthy rice) for determination of the effect of SB infection on yield. The lines and varieties were rated for SB development at maturity.

2. Field Test Methods - Sheath Blight Yield Test

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (ph 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Plot Size: 4 X 12 ft

Planting Method: Drill seeded, March 21, 2006

Fertilization: Preplant 24-72-72, March 25; preflood 130-0-0, May 2

Experimental Design: Split-plot block design with two replications

Water Management: Flushed, April 3 and 11; permanent flood, May 5

Herbicides: 4 qt propanil, April 7; 3 qt Arrosolo, May 3; 16 oz/A Clincher, June 28

Insecticides: 1 oz Icon preplant, March 21; 4 oz/A Karate, May 16; 4 oz/A Mustang Max, June 28

Inoculation Dates: 200 ml/plot of *Rhizoctonia solani* culture grown on a rice grain:rice hull mixture, June 13

Drained: July 24

Harvest: August 23 with small-plot combine

Comments: There was excellent SB and blast development in this test in 2006. Susceptible commercial variety checks had SB ratings from 7 to 9. Variety controls in this test were the entries 96 (Cocodrie), 97 (Bengal), 98 (Trenasse), 99 (Pirogue), 100 (Cheniere), 101 (Jupiter), 102 (Francis), and 103 (Wells) (Table 1).

Table 1. Yield, SB ratings, and heights of inoculated and non-inoculated entries in the 2006 SB yield test.

Inoculated 2006 Entry (#)	Yield (lb/A at 12% moisture) Rep 1	Yield (lb/A at 12% moisture) Rep 2	Mean Yield (lb/A at 12% Moisture)	SB rating (0-9)	Non-Inoculated 2006 Entry (#)	Yield (lb/A at 12% moisture) Rep 1	Yield (lb/A at 12% moisture) Rep 2	Mean Yield (lb/A at 12% Moisture)	Height (cm)
60-I*	9315.7	11736.7	10526.2	4	60*	9692.9	9390.4	9541.7	98
67-I	9403.2	10550.7	9976.9	3	67	10312.9	10971.8	10642.3	88
26-I	9878.5	9287.4	9583.0	4	26	9783.8	10702.6	10243.2	105
46-I	9150.4	9772.1	9461.2	4	46	9139.6	9952.3	9545.9	108
14-I	8695.2	10049.2	9372.2	6	14	10757.9	10973.9	10865.9	98
12-I	8807.0	9713.4	9260.2	2	12	10120.5	10060.0	10090.2	93
1-I*	8219.3	9714.4	8966.9	4	1*	7621.9	7732.5	7677.2	81
28-I	8708.6	9065.8	8887.2	5	28	9274.3	10874.2	10074.2	99
27-I	8522.0	9207.0	8864.5	7	27	8527.1	10403.3	9465.2	104
29-I	9453.7	8244.6	8849.2	5	29	8378.8	11111.5	9745.2	98
16-I*	8855.3	8827.7	8841.5	3	16*	9035.6	10149.9	9592.8	97
45-I*	7982.2	9137.7	8560.0	7	45*	9841.6	11107.6	10474.6	95
33-I	7602.3	9373.4	8487.8	6	33	7892.7	7808.2	7850.5	100
37-I*	8293.1	8531.3	8412.2	3	37*	9001.7	8834.7	8918.2	92
4-I*	7205.8	9553.6	8379.7	5	4*	7286.3	9152.7	8219.5	94
57-I*	8964.0	7665.5	8314.7	4	57*	7770.4	9017.4	8393.9	92

Continued.

Table 1. Continued.

Inoculated 2006 Entry (#)	Yield (lb/A at 12% moisture) Rep 1	Yield (lb/A at 12% moisture) Rep 2	Mean Yield (lb/A at 12% Moisture)	SB rating (0-9)	Non-Inoculated 2006 Entry (#)	Yield (lb/A at 12% moisture) Rep 1	Yield (lb/A at 12% moisture) Rep 2	Mean Yield (lb/A at 12% Moisture)	Height (cm)
17-I*	7592.2	8796.2	8194.2	4	17*	7508.1	7873.7	7690.9	101
65-I*	7445.3	8904.7	8175.0	4	65*	8749.7	8928.5	8839.1	88
9-I	8377.5	7876.9	8127.2	6	9	10253.8	11433.1	10843.5	94
73-I	8299.0	7747.0	8023.0	4	73	9915.5	10725.4	10320.5	110
5-I*	7588.9	8444.3	8016.6	3	5%	8113.6	8015.2	8064.4	77
2-I*	8223.7	7485.3	7854.5	5	2*	9150.3	8728.8	8939.6	83
92-I	6578.6	9077.1	7827.9	4	92	7553.3	10020.8	8787.0	110
75-I	7583.3	7914.9	7749.1	4	75	9139.1	10085.9	9612.5	109
34-I	8320.0	7008.4	7664.2	7	34	10782.7	10206.5	10494.6	100
JUPR*	7695.7	7530.8	7613.2	6	JUPR*	9815.4	9005.8	9410.6	96
48-I	8142.6	7072.1	7607.4	6	48	8058.3	9517.6	8788.0	106
18-I*	7281.6	7827.0	7554.3	5	18*	8641.5	10759.1	9700.3	83
89-I	7839.0	7182.8	7510.9	4	89	8676.1	8701.0	8688.5	107
3-I*	7295.0	7680.1	7487.6	4	3*	6730.0	8345.6	7537.8	73
15-I	7503.0	7309.7	7406.4	7	15	8800.0	9289.4	9044.7	106
30-I	8022.8	6580.0	7301.4	6	30	8854.5	6009.7	7432.1	106
72-I	7034.2	7371.9	7203.0	2	72	8925.9	8571.2	8748.6	86
51-I	6635.1	7629.4	7132.2	5	51	6517.7	9236.3	7877.0	97
10-I	7878.7	6359.1	7118.9	4	10	9227.9	8531.3	8879.6	100
21-I*	7236.2	6995.9	7116.0	7	21*	7287.8	8616.4	7952.1	75
87-I	6690.1	7523.3	7106.7	6	67	8811.4	7820.6	8316.0	95
50-I	6522.8	7680.3	7101.5	6	50	7107.7	9738.3	8423.0	101
31-I	7621.5	6411.9	7016.7	4	31	9083.9	8878.7	8981.3	102
58-I*	7182.8	6848.9	7015.9	6	58*	9535.0	8282.4	8908.7	95
63-I*	7274.8	6695.0	6984.9	4	63*	7008.6	8139.7	7574.1	87
20-I*	6407.8	7507.8	6957.8	7	20*	7724.6	8427.0	8075.8	92
55-I	6825.7	7002.9	6914.3	7	55	8753.7	9090.6	8922.2	97
82-I*	7056.0	6687.9	6872.0	5	82*	7555.7	7203.4	7379.5	98
PIRO*	7231.2	6493.1	6862.2	5	PIRO*	9180.7	8384.4	8782.5	113
8-I	7887.1	5577.7	6732.4	6	8	7893.3	8132.6	8013.0	124
36-I*	6589.1	6828.8	6709.0	8	36*	9590.2	9615.0	9602.6	88
59-I*	6515.0	6854.2	6684.6	5	59*	7625.1	7174.5	7399.8	87
24-I*	7583.0	5749.5	6666.2	7	24*	8034.6	8864.0	8449.3	91
6-I	7376.6	5953.3	6664.9	6	6	8533.4	5928.7	7231.0	97
32-I	7614.5	5512.4	6563.5	8	32	9745.7	9137.2	9441.5	95
23-I*	6874.7	6204.8	6539.8	3	23*	7854.3	7192.7	7523.5	101
35-I	6964.3	5964.9	6464.6	4	35	8159.9	7710.6	7935.3	98
66-I	6101.6	6697.6	6399.6	5	66	8781.1	7520.9	8151.0	96
43-I*	6733.9	6058.0	6395.9	4	43*	7639.0	5544.9	6591.9	98
52-I	7094.4	5583.3	6338.8	5	52	5737.6	7482.6	6610.1	113
19-I*	5835.8	6736.8	6286.3	4	19*	6522.8	7558.4	7040.6	91
81-I*	7526.9	4710.2	6118.5	2	81*	7804.0	9596.1	8700.0	83
64-I*	5988.2	6229.1	6108.6	6	64*	6256.1	7893.3	7074.7	78
7-I	6804.8	5343.7	6074.3	6	7	7765.6	7097.8	7431.7	105

Continued.

Table 1. Continued.

Inoculated 2006 Entry (#)	Yield (lb/A at 12% moisture) Rep 1	Yield (lb/A at 12% moisture) Rep 2	Mean Yield (lb/A at 12% Moisture)	SB rating (0-9)	Non-Inoculated 2006 Entry (#)	Yield (lb/A at 12% moisture) Rep 1	Yield (lb/A at 12% moisture) Rep 2	Mean Yield (lb/A at 12% Moisture)	Height (cm)
62-I*	6687.9	5431.1	6059.5	5	62*	6586.2	5537.5	6061.9	92
22-I*	6450.3	5644.4	6047.4	3	22*	8378.2	6890.4	7634.3	96
41-I*	6662.2	5369.3	6015.7	3	41*	7092.1	6599.7	6845.9	96
88-I	5663.9	6336.7	6000.3	4	88	6820.1	7286.8	7053.5	103
25-I*	7254.4	4648.4	5951.4	5	25*	6773.5	5300.8	6037.1	85
104-I*	6943.1	4949.9	5946.5	3	104*	6955.9	8534.7	7745.3	85
61-I*	6819.2	5042.9	5931.0	7	61*	7159.8	7408.4	7284.1	91
86-I	5685.2	5974.5	5829.9	4	86	5020.9	5534.8	5277.9	91
94-I	5384.5	6247.2	5815.8	4	94	5496.0	5373.8	5434.9	104
40-I*	6210.9	5363.8	5787.3	6	40*	7761.5	6774.7	7268.1	97
42-I*	6808.2	4709.7	5758.9	6	42*	8489.3	7356.1	7922.7	97
49-I	5284.4	6216.9	5750.6	7	49	8095.5	7449.5	7772.5	94
44-I*	5814.2	5646.2	5730.2	6	44*	7253.7	5875.4	6564.6	99
38-I*	6359.4	5031.6	5695.5	3	38*	6555.3	4060.8	5308.1	95
83-I*	6771.4	4587.4	5679.4	7	83*	7518.1	5564.9	6541.5	88
69-I	6301.9	5014.1	5658.0	7	69	7472.8	6619.6	7046.2	95
56-I*	5822.9	5477.2	5650.1	8	56*	7738.9	6806.2	7272.5	97
47-I	5584.8	5271.7	5428.3	4	47	4789.3	6285.8	5537.5	111
53-I	6212.3	4608.6	5410.5	7	53	10312.9	9820.3	10066.6	96
80-I*	6011.6	4753.5	5382.6	6	80*	7503.5	6997.2	7250.3	81
76-I*	5880.7	4658.1	5269.4	7	76*	5897.8	7283.4	6590.6	94
91-I	5401.5	5124.9	5263.2	6	91	7001.8	6369.0	6685.4	103
78-I*	6381.7	4058.2	5219.9	7	78*	5998.9	3961.8	4980.4	81
70-I	4748.5	5590.5	5169.5	5	70	6705.7	9461.5	8083.6	89
85-I*	6332.0	3687.7	5009.9	7	85*	7436.6	6580.0	7008.3	93
54-I	5147.6	4739.6	4943.6	6	54	4898.5	6236.6	5567.5	109
68-I	4463.0	5341.2	4902.1	6	68	9306.7	10543.6	9925.1	110
74-I	5468.3	4090.6	4779.4	7	74	8084.4	6359.6	7222.0	99
13-I	4479.9	4856.5	4668.2	8	13	11085.3	9896.7	10491.0	99
77-I*	5260.3	3651.7	4456.0	2	77*	5238.3	6609.4	5923.8	85
79-I*	4628.0	4174.5	4401.2	5	79*	5692.6	5043.4	5368.0	89
90-I	5120.1	3671.2	4395.7	7	90	5304.2	5787.4	5545.8	107
11-I	4943.7	3596.4	4270.0	6	11	6921.4	5308.8	6115.1	96
93-I	3537.9	4847.2	4192.6	7	93	5874.2	4875.0	5374.6	100
71-I	4465.2	3741.3	4103.3	5	71	5385.8	5475.1	5430.5	108
FRNS*	4554.0	2981.3	3767.7	7	FRNS*	7004.7	4115.8	5560.2	102
WELLS*	4445.8	2843.8	3644.8	7	WELLS*	6278.7	5781.3	6030.0	108
95-I	3900.0	2913.8	3406.9	7	95	4651.8	3714.2	4183.0	102
84-I*	4195.6	2563.4	3379.5	6	84*	5627.7	4252.0	4939.8	96
BNGL*	4352.3	2159.4	3255.8	6	BNGL*	7640.8	4753.1	6196.9	103
CHNR*	3834.9	2160.9	2997.9	8	CHNR*	7735.1	6063.4	6899.2	97
CCDR*	2494.9	2612.0	2553.5	9	CCDR*	7689.4	6646.6	7168.0	88
39-I*	1950.6	2232.5	2091.5	8	39*	7717.6	10168.8	8943.2	102
TREN*	-[a]	-[a]	-[a]	9	TREN*	4947.3	3879.4	4413.3[b]	103

*****Received low nitrogen rate through preplant application error. [a] Lodged early, not harvestable. [b] Lodged at maturity.

Twenty-five lines out yielded all check varieties when inoculated. Jupiter gave the highest yield among the inoculated plots of the control varieties. Lines 60, 67, 26, 46, 14, 12, 1, 28, 27, 29, 16, 45, 33, 37, 4, 57, 17, 65, 9, 73, 5, 2, 92, 75, and 34 showed superior yields and most of them had SB resistance. Line 12 had a "2" rating and high yield. It also had a wide long-grain and was late maturing. This type of line will be saved as SB-resistant "germplasm" and used in future crosses. Line 67 had high yield, was short (88 cm), SB resistant (rating = 3), and had typical long-grain character. When milled, line 67 had acceptable head rice (61.0) and total rice (66.2). This line was recommended to the rice breeding program for placement in the Uniform Regional Rice Nursery. Other lines with acceptable SB resistance, yield, milling, and agronomic characteristics were also recommended to the rice breeding program for further testing with seed provided by the pathology program.

3. Field Test Methods - Sheath Blight Tolerance Test

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (ph 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Plot Size: 4 X 12 ft

Planting Method: Drill seeded, March 21

Fertilization: Preplant 24-72-72, March 21; 145 lb/A 46-0-0, May 4; 100 lb/A 46-0-0, June 6

Experimental Design: Split-plot design (inoculated/non-inoculated) with three replications

Water Management: Flushed, April 3 and 11; permanent flood, May 5

Herbicides: 4 qt propanil, April 7; 3 qt Arrosolo, May 3; 15 oz/A Clincher, June 28; 2.4 pt/A Prowl EC, May 2

Insecticides: 1 oz Icon preplant, March 21; 4 oz/A Karate, May 16; 4 oz/A Mustang Max, June 28

Inoculation Dates: 300 ml/plot of *Rhizoctonia solani* culture grown on a rice grain:rice hull mixture, June 13

Drained: July 24

Harvest: August 23

Comments: Lines with little or no difference in yield between inoculated and non-inoculated plots in yield tests in 2003, 2004, and 2005, whatever the SB rating, were considered tolerant. Tests had excellent SB development with susceptible commercial variety checks having SB ratings from 7 to 9. In this experiment, entries RL12 (Trenasse), RL13 (Cocodrie), RL14 (Pirogue), and RL15 (Cheniere) were the variety controls (Table 2).

Table 2. Sheath blight yield test of breeding lines for tolerance.

Inoculated Plot #	Inoculated Yield (lb/A at 12% moisture) Rep 1	Yield Rep 2	Yield Rep 3	Mean yield	Sheath blight Rating (0-9)	Non-inoculated Plot #	Non-inoculated Yield (lb/A at 12% moisture) Rep 1	Yield Rep 2	Yield Rep 3	Mean yield	Height (cm)
8i*	9697	9824	8554	9358	6	8*	8417	9200	10389	9335	105
25i**	9635	9784	8111	9177	5	25	11254	11205	11194	11218	114
11i**	9185	8342	7885	8471	4	11	10023	8581	11834	10146	110
42i**	8518	7766	7592	7959	5	42	11034	7124	10612	9590	103
4i*	8586	8504	6649	7913	6	4	5297	9128	8951	7792	102
14i*	7652	9257	6546	7818	8	14	8426	9875	7571	8624	105
1i	7527	8473	7422	7807	6	1	9964	9828	10822	10205	96
7i*	8762	8174	6414	7783	5	7	7946	8075	7323	7781	108
36i	8454	7869	6781	7701	7	36	8364	8964	8976	8768	98
26i	7317	8373	7067	7586	5	26	9122	8493	7901	8505	109
33i	7807	6601	8100	7503	6	33	9110	8703	7082	8299	95
20i	6194	7757	7778	7243	6	20	8998	10451	8795	9415	111
34i	7189	6793	7529	7171	6	34	9223	8467	11817	9836	108
40i	5295	7854	7748	6966	4	40	8215	8191	7473	7960	99
38i	8420	7821	4629	6957	6	38	7233	9123	7746	8034	105
24i	7271	6640	6230	6714	6	24	9740	8655	7767	8721	104
21i	6971	8487	4601	6686	6	21	11326	8265	6731	8774	109
19i	7381	6493	5994	6622	7	19	8970	9091	8058	8706	96
12i	5326	7107	7411	6615	5	12	7168	8175	11259	8868	100
3i	4778	8784	5539	6367	8	3	7795	7862	8013	7890	92
6i	8012	3065	7922	6333	6	6	9773	10316	10825	10305	113
9i	5677	6414	6841	6311	7	9	5297	7647	7748	6897	104
30i	7997	7528	3098	6207	5	30	9652	9338	9801	9597	99
28i	4528	6124	7959	6204	8	28	8788	9123	8525	8812	106
27i	6756	5516	6145	6139	7	27	8680	5563	7642	7295	100
32i	5349	6543	6519	6137	6	32	6709	8402	7060	7390	99
17i	6300	5728	6181	6070	6	17	7230	8385	7561	7726	110
35i	6368	6910	4846	6041	8	35	8771	7733	4157	6887	83
31i	6469	6535	4282	5762	6	31	5353	7126	5532	6004	104
10i	5234	6124	5921	5760	8	10	6242	9256	7043	7514	90
41i	7633	6046	3186	5622	8	41	7081	7875	7419	7458	96
13i	6140	6273	3900	5438	7	13	6644	9323	6728	7565	103
15i	5699	6520	3913	5377	8	15	8055	7556	4945	6852	116
37i	4565	6951	4024	5180	9	37	8537	10936	7452	8975	106
5i	3766	4854	5832	4817	9	5	6023	8444	8497	7655	94
23i	5347	4412	4487	4748	7	23	6343	4425	4319	5029	95
22i	4928	3870	5428	4742	7	22	7249	6422	6355	6675	85
43i	4058	5509	4487	4685	6	43	7751	8842	10357	8984	115
16i	3846	5246	4305	4466	8	16	8786	8384	7282	8151	113
2i	4834	4576	2631	4014	8	2	3388	7080	4351	4940	99
29i	4274	4908	2638	3940	8	29	5903	5167	4373	5148	100
18i	3547	3057	4552	3719	9	18	5666	8604	6814	7028	108
39i	1691	2905	2589	2395	9	39	5812	6070	7637	6506	108

* Plots showing apparent tolerance to *Rhizoctonia solani.*

**These experimental lines appear to exhibit resistance.

Table 3. Four entries that were in the tolerance test for the 3 years 2004, 2005, and 2006.

Entries	2004 Non-inoculated Yield (lb/A at 12% moisture)	2004 Inoculated Yield (lb/A at 12% moisture)	2005 Non-Inoculated Yield (lb/A at 12% moisture)	2005 Inoculated Yield (lb/A at 12% moisture)	2006 Non-inoculated Yield (lb/A at 12% moisture)	2006 Inoculated Yield (lb/A at 12% moisture)	Mean Yield for 3 years (lb/A) Non-Inoc.	Inoc.
MCR03-0089	6881	6859	7773	8108	7677	8967	7444	7978
MCR03-2114	6963	7057	7067	6409	9442	6564	7824	6677
MCR03-2318	6999	6743	6906	7330	7538	7488	7148	7187
MCR03-3023	6298	6461	6615	6642	8940	7855	7284	6977

The characteristic of the tolerance form of disease resistance is that diseased plots do not yield significantly less than healthy plots. Three of the four lines tested for 3 years appear to meet that criterion (Tables 3 and 4).

Table 4. Pedigrees of tolerance test entries tested for 3 years.

Entries	Cross	Pedigree
MCR03-0089	C97-755	RSMT/KATY/3/LSBR5/LMNT//LSCN
MCR03-2114	C99-1164	LSBR5/LMNT//TQNG/3/CCDR/4/JEFF
MCR03-2318	C99-1249	CPRS/4/LSBR5/LMNT//TQNG/3/H4COD4
MCR03-3023	C99-1164	LSBR5/LMNT//TQNG/3/CCDR/4/JEFF

Bacterial Panicle Blight Research:

Bacterial panicle blight is a continuing problem in rice in Louisiana where it is an endemic disease, caused mainly by *Burkholderia glumae*. The disease becomes epidemic when nighttime temperatures are unusually high. This disease has a high potential for causing severe losses. In 2006, we planted three BPB yield loss tests in continued studies on the etiology or causal pathogens for the disease.

Two experimental plantings were made to determine the effect of panicle blight on yield potential of rice under field conditions. The first planting was made in March 2006 to estimate the effect of *B. glumae* infection on grain yield of the commercial rice varieties Bengal, Frances, Trenasse, Cocodrie, and Jupiter. A 2005 study indicated that Jupiter was significantly more resistant to BPB than the other varieties tested and that BPB caused significant yield loss in inoculated plots of the other commercial varieties when temperatures during the growing season were normal. The second planting of this test was in May 2006 to provide a different environment for disease development and to provide tissue samples for a microarray study of genes contributing to partial resistance. One outside row of the each plot was cut, threshed manually, and milling quality determined.

4. Field Test Methods - Bacterial Panicle Blight Test-1

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (ph 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Plot Size: 4 X 12 ft

Planting Method: Drill seeded, March 21, 2006

Fertilization: Preplant 24-72-72, March 21; 145 lb/A 46-0-0, May 4; 100 lb/A 46-0-0, June 6

Experimental Design: Randomized complete, split block design, four replications

Varieties/Seed Rate: Cocodrie, 90 lb/A; Jupiter, 90 lb/A; Trenasse, 90 lb/A; Francis, 90 lb/A; Bengal, 90 lb/A

Water Management: Flushed, April 7 and 11; permanent flood, May 5

Herbicides: 4 qt propanil, April 7; 3 qt Arrosolo, May 3; 16 oz/A Clincher, June 28

Insecticides: 1 oz Icon preplant, March 21; 4 oz/A Karate, May 16; 4 oz/A Mustang Max, June 28

Inoculation Dates: Sprayed with *B. glumae* with 20% of panicle emerging, rate 10^7–10^9 cfu/ml – Trenasse, June 19 and 23; Cocodrie, June 23; Bengal, June 28; Francis, June 28; Jupiter, July 5

Drained: July 24

Harvest: August 23

Comments: The first BPB experiment was conducted using a complete randomized block, split plot design with three varieties and four replicates. One of each split plot was inoculated in each replicate. Plots were rated for BPB 4 weeks after inoculation using a 0-9 scale, where zero means no disease and nine means 76 to 100% of the panicle were blighted with discolored, sterile spikelets or grains. After rating, 20 panicles were randomly collected from each plot to count and weigh the number of unfilled and filled grains. At maturity, the plots were harvested and grain yield at 12% moisture determined

Among the varieties tested in Experiment 1, Trenasse (rating = 8.8), Frances (rating = 8.5), Cocodrie (rating = 7.5), and Bengal (rating = 7.3) were very susceptible, whereas, Jupiter (rating = 3.3) was highly resistant. This was reflected in the grain yield where there was a non-significant 532-lb/A (8.0%) loss between the inoculated and non-inoculated plots of Jupiter. *B. glumae* inoculation caused a 2957-lb/A (45%) yield loss in Trenasse, a 2514-lb/A (35%) loss in Cocodrie, a 2207-lb/A (35%) loss in Frances, and a 2716-lb/A (34%) loss in Bengal. In the second planting, the varieties had disease ratings of Jupiter = 3.3, Trenasse = 8.8, Cocodrie = 6.0, Frances = 6.5, and Bengal = 7.3.

5. Field Test Methods - Bacterial Panicle Blight Test-2

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (ph 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Plot Size: 4 X 12 ft

Planting Method: Drill seeded, May 22

Fertilization: Preplant 24-72-72, May 18; preflood 130-0-0, June 21

Experimental Design: Randomized complete, split block design, four replications

Varieties/Seed Rate: Cocodrie, 90 lb/A; Jupiter, 90 lb/A; Trenasse, 90 lb/A; Francis, 90 lb/A; Bengal, 90 lb/A

Water Management: Flushed, June 6 and 15

Herbicides: 3 qt Propanil, June 12; 2 qt Basagran, June 12; 3 qt Arrosolo with 1oz Permit, June 22; 15 oz/A Clincher, June 28

Insecticides: 4 oz Mustang Max, June 28

Inoculation Dates: Sprayed with *B. glumae* with 20% of panicle emerging, rate 10^7–10^9 cfu/ml – Trenasse, August 8; Cocodrie, August 9; Bengal, August 11; Francis, August 11; Jupiter, August 16

Drained: September 5

Harvest: September 28

Comments: The second BPB experiment was conducted using a complete randomized block, split plot design with three varieties and four replicates. One of each split plot was inoculated in each replicate. Plots were rated for BPB 4 weeks after inoculation using a 0-9 scale, where zero means no disease and nine means 76 to 100% of the panicle were blighted with discolored, sterile spikelets or grains. After rating, 20 panicles were randomly collected from each plot to count and weigh the number of unfilled and filled grains. At maturity, the plots were harvested and grain yield at 12% moisture determined.

In the late-season test, Trenasse had a 44% yield loss and the other varieties showed 8 (Jupiter)-15% yield loss. The 2006 season did not have unusually high temperatures extending into the night. Our data in 2006 indicated again that Jupiter has significant resistance to BPB and that the disease can cause significant losses under normal growing conditions in inoculated plots.

A negative correlation was obtained between *B. glumae* infections (0-9 rating) on the tested varieties and yield (Tables 1 and 2). r^2 values of 0.90 and 0.88 were obtained for disease development vs yield in infected plots for the early and late plantings, respectively. Pathogen infection affected the milling quality of rice in the early planting but not in the late planting (Tables 3 and 4). Pathogen infection greatly reduced the milling quality of Trenasse compared with the other varieties; however, in both seasons, a strong negative correlation was obtained between the disease incidence and milling quality.

Table 1. BPB development on commercial rice varieties after inoculation with *B. glumae*.

Varieties	2006 (Early Planting)			2006 (Late Planting)		
	Disease rating (0-9 scale)			Disease rating (0-9 scale)		
	Healthy	Inoculated	Difference	Healthy	Inoculated	Difference
Francis	4.0 a	8.5 ab	4.5 **	1.0 c	6.5 bc	5.5 **
Trenasse	3.5 ab	8.8 a	5.3 **	2.5 b	8.8 a	6.3 **
Bengal	4.3 a	7.3 c	3.0 **	3.8 a	7.3 b	3.5 **
Cocodrie	2.8 bc	7.5 bc	4.8 **	0.8 c	6.0 c	5.3 **
Jupiter	2.0 c	3.0 d	1.0 ns	0.8 c	3.3 d	2.5 **

Means followed by a common letter are not significantly different at the 5% level by Duncan's multiple range tests. * Significant at 5% level, ns = no significant difference.** Significant at 1% level.

Table 2. Effect of *B. glumae* infection on yield potential of rice varieties.

Varieties	Yield (lb/A) at12% moisture			Yield (lb/A) at12% moisture		
	Early planting		Difference (Percent yield loss)	Late planting		
	Healthy	Inoculated		Healthy	Inoculated	Difference
Francis	6278 a	4071 bc	2207 ** (35)	5987 b	5106 b	881 * (15)
Trenasse	6497 a	3539 c	2958 ** (46)	4948 c	2833 c	2115 ** (44)
Bengal	7793 a	5077 ab	2716 ** (39)	5861 b	5169 b	692 ns (12)
Cocodrie	7065 a	4550 bc	2515 ** (36)	5365 bc	4847 b	518 ns (10)
Jupiter	6767 a	6235 a	532 ns (8)	7678 a	7070 a	607 ns (8)

Means followed by a common letter are not significantly different at the 5% level by Duncan's multiple range test. * Significant at 5% level, ns = no significant difference.** Significant at 1% level.

Table 3. Effect of *B. glumae* infection on milling quality (head rice) of rice varieties.

Varieties	Early planting		Difference	Late planting		Difference
	Healthy	Inoculated		Healthy	Inoculated	
Francis	31.1 b	33.2 c	2.1 ns	54.2 c	54.2 b	0.0 ns
Trenasse	45.1 a	35.8 bc	9.3 *	59.3 abc	53.2 b	6.1 *
Bengal	52.0 a	42.3 ab	9.7 *	55.5 bc	55.0 b	0.5 ns
Cocodrie	45.1 a	38.0 abc	7.1 ns	62.3 a	60.0 a	2.3 ns
Jupiter	49.9 a	43.9 a	6.0 ns	60.5 ab	60.0 a	0.5 ns

Means followed by a common letter are not significantly different at the 5% level by Duncan's multiple range test. * Significant at 5% level, ns = no significant difference. ** Significant at 1% level.

Table 4. Effect of *B. glumae* infection on milling quality (total rice) of rice varieties.

Varieties	Early planting		Difference	Late planting		Difference
	Healthy	Inoculated		Healthy	Inoculated	
Francis	59.9 b	56.7 a	3.2 ns	67.4	67.0	0.4 ns
Trenasse	65.2 a	56.0 a	9.2 **	68.0	65.0	3.0 ns
Bengal	62.3 ab	58.1 a	4.2 ns	67.1	65.4	1.7 ns
Cocodrie	62.4 ab	57.4 a	5.0 *	70.7	69.2	1.5 ns
Jupiter	61.7 ab	58.8 a	2.9 ns	69.5	68.2	1.3 ns

Means followed by a common letter are not significantly different at the 5% level by Duncan's multiple range test. * Significant at 5% level, ns = no significant difference.** Significant at 1% level.

6. Field Test Methods - Bacterial Panicle Blight Test-3

Location: Rice Research Station, Crowley, LA

Soil Type: Crowley silt loam (ph 6.0, Clay 12%, Silt 71%, Sand 17%, CEC 9.4 cmole/kg)

Plot Size: 4 X 12 ft

Planting Method: Drill seeded, March 29

Fertilization: Preplant 24-72-72, March 25; preflood 130-0-0, May 2

Experimental Design: Randomized complete, split-block design, four replications

Varieties/Seed Rate: Trenasse, 90 lb/A; Bengal, 90 lb/A

Water Management: Flushed, April 7 and 21; permanent flood, May 3

Herbicides: 4 qt propanil, April 15; 4 qt Arrosolo, April 27; 16 oz/A Clincher + 2.66 oz Permit, May 2

Insecticides: 1 oz Icon preplant, March 28

Inoculation Dates: Sprayed Trenasse on June 23 and Bengal on June 28 with soilborne or seedborne *B. gladioli* and *B. glumae* strains when 20% of the panicles were emerging at the rate of 10^7–10^9 cfu/ml.

Drained: July 24

Harvest: August 23

Comments: The third test was planted in March 2006 to determine the virulence of soilborne *B. gladioli* isolates when compared with *B. glumae* from infected panicles. Panicles from each plot were randomly collected to count and weigh the number of unfilled and filled grains. At maturity, the plots were harvested and grain yield at 12% moisture determined.

Table 5. BPB development on Trenasse and Bengal after inoculation with seedborne *B. glumae, B. gladioli,* and soilborne *B. gladioli.*

Treatments	Disease rating (0-9 scale)	
	Trenasse	Bengal
Non-sprayed control	1.7 c	1.3 c
Soilborne *B. gladioli* strain S10	3.3 b	3.7 b
Seedborne *B. gladioli* strain 223gr-1	4.0 b	3.3 b
Soilborne *B. gladioli* strain 3S4	2.7 bc	4.0 b
Soilborne *B. gladioli* strain 3S5	3.3 b	3.7 b
Soilborne *B. gladioli* strain S15	4.0 b	3.7 b
ATCC *B. gladioli* strain	2.7 bc	5.0 b
B. glumae (strain 366 gr-1)	8.7 a	8.3 a

Means followed by a common letter are not significantly different at the 5% level by Duncan's multiple range test.

All the *B. gladioli* strains, including seedborne and ATCC *B. gladioli* strains, caused significant panicle blighting on both the varieties compared with non-inoculated controls. However, none of the *B. gladioli* strains caused infections as severe on Trenasse (ratings of 2.7 – 4.0) or Bengal (ratings of 3.7-4.0) as that caused by *B. glumae* (rating = 8.7).

PCR DETECTION OF THE RICE BACTERIAL PANICLE BLIGHT PATHOGENS, *Burkholderia glumae* AND *B. gladioli*

R. Nandakumar, M.C. Rush, and A.K.M. Shahjahan

Rice bacterial panicle blight (BPB) is an important disease of rice and its sporadic occurrence in the southern United States causes unexpected loss every year for rice growers. The symptoms of BPB include seedling blight, sheath rot, and panicle blight. The casual agent of this disease was identified as the bacterial plant pathogen *Burkholderia glumae*. Further etiology studies, conducted under this project, have implicated *B. gladioli* as another potential causal agent of panicle blighting in rice. *B. glumae* is seedborne and rice crops planted with infected seeds will suffer severe losses during summers with unusually high night temperatures. Damage can be avoided by not planting seed with high levels of bacterial infection or by treating infected seed with antibacterial compounds. This will greatly reduce the potential for loss by Louisiana rice growers and loss to producers in other southern rice producing states. The purpose of this research was to use the polymerase chain reaction (PCR) method for identifying the BPB pathogen from pure culture, infected plant material, and seed samples.

MATERIAL AND METHODS

Extraction of DNA from bacterial culture, field samples, or seeds for PCR

Bacterial strains were grown in liquid King's B medium overnight, and DNA was isolated from one ml of bacterial culture using a Biorad DNA isolation Kit. For extraction of bacterial DNA from field infected sample or seed samples, a total of 10 infected florets each from field-collected, naturally infected immature panicles or 10 seeds showing symptoms were broken into small pieces, mixed with 3 ml of sterile water and shaken on an orbiting shaker for 2 hr. The bacterial cells were then pelleted by centrifugation at 6,000 rpm for 10 min. The DNA from the bacterial pellet was isolated as described above. Instead of using DNA isolation kits, the pellet was resuspended in 0.5 ml of distilled water, heated at 95°C for 8 min and centrifuged at 6,000 rpm for 5 min. Five micro liters of supernatant were used for PCR analysis.

PCR primer and PCR conditions

Specific oligonucleotide primers based on the sequences of the 16S-23S rDNA spacer region of *B. glumae* and *B. gladioli* were reported. The following primers: *B. glumae* forward-5'ACACGG AACACCTGGG TA 3' and reverse-5'TCGCTCTCCCGAAGAGAT 3', *B. gladioli* forward-5'CGAGCT AATACCGCGA AA 3', and reverse-5'AGACTCGAGTCAACTGA 3 were used. PCR reactions were carried out using Promega Master Mix Kit in a 25 µl reaction mixture containing 1 µl of total DNA, 12.5 µl of 2X PCR buffer (DNA Polymerase, 0.05 unit/µl, 3 m*M* $MgCl_2$, 400 µ*M* each dNTP), 1 µl of each primer (5 pmol of each forward and reverse) and 9.5 µl of sterile distilled water. Total DNA was amplified in a Techne-Genius PCR machine with the following temperature conditions for two PCR reactions. For amplifying *B. glumae* sequences, the following conditions were followed. A pre-incubation period of 95°C for 3 min, followed by 35 cycles of denaturation at 94°C for 1 min each, annealing at 60°C for 2 min and synthesis at 72°C for 1 min, followed by a final extension at 72°C for 5 min. For *B. gladioli*, a pre-incubation period of 95°C for 2 min, followed by 35 cycles of denaturation at 94°C for 1 min each, annealing at 50°C for 45 seconds and synthesis at 72°C for 1 min, followed by a final extension at 72°C for 7 min. The amplified PCR product (15 µl) was subjected to electrophoresis on a 1.2% agarose gel and visualized under UV light. The expected sizes of PCR products were 400 and 300 bp for *B. glumae* and *B. gladioli*, respectively. The respective ATCC cultures of these species were used as positive controls.

RESULTS

The PCR method is widely used to identify plant pathogens such as fungi, bacteria, and viruses from infected plant materials, soil and water. In this study, among the 292 *Burkholderia* spp. isolated from BPB infected rice sheaths or seeds collected from the southern United States, 242 and 13 isolates reacted with *B. glumae* and *B. gladioli* primers, respectively (Figure 1). Thirty-seven isolates did not react with any of the two primers. Most of the pathogenic *Burkholderia* spp. reacted with *B. glumae* primers, indicating the possibility that most of the isolated *Burkholderia* spp. were *B. glumae.* However, 13 *B. gladioli* isolates reacted positively with *B. gladioli* primers. No amplification was seen in negative controls.

The DNA isolated from the field-infected samples or seed samples reacted with *B. glumae* primer (Figure 2) and not with *B. gladioli* primer, indicating that all the field isolates tested were *B. glumae*. Isolation of bacterial DNA from single infected seeds and PCR identification was also achieved. The implication of these findings is that PCR can be used to identify the BPB disease from fresh samples collected from commercial rice fields.

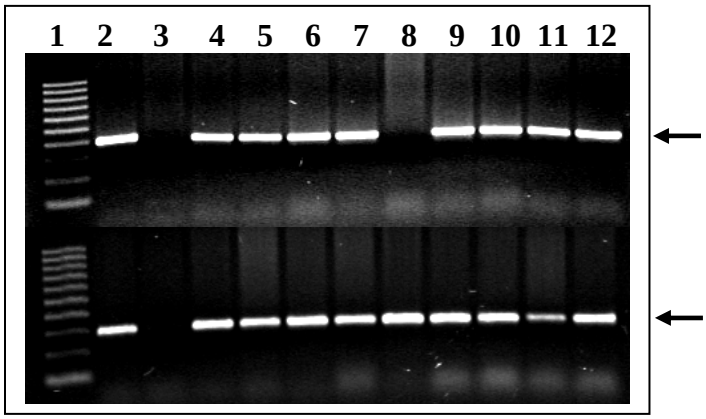


Figure 1. PCR analysis of DNA isolated from *B. glumae* (top) and *B. gladioli* (bottom) isolates with *B. glumae* and *B. gladioli* species specific primer. The expected size of 400 and 300 bp fragments is indicated by arrows.
Lane: 1: 100 bp ladder
Lane 2: Positive control - ATCC *B. glumae* (top) and ATCC *B. gladioli* (bottom)
Lane 3: Negative control - ATCC *B. gladioli* (top) and ATCC *B. glumae* (bottom)
Lanes 4-12: *B. glumae* isolates from infected rice grains/sheath (top)
Lanes 4-12: *B. gladioli* isolates from infected rice grains/sheath (bottom)

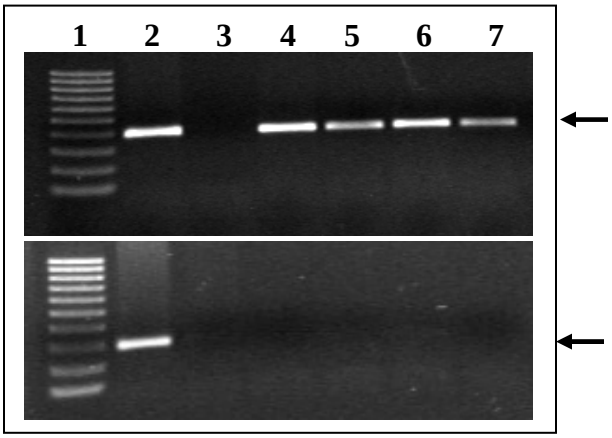


Figure 2. PCR analysis of DNA isolated from BPB infected immature grains. The expected size of 400 and 300 bp fragments is indicated by arrows.
Lane 1: 100 bp ladder
Lane 2: Positive control - ATCC *B. glumae* (top), ATCC *B. gladioli* (bottom)
Lane 3: Negative control - ATCC *B. gladioli* (top), ATCC *B. glumae* (bottom)
Lanes 4 -7: DNA isolated from field sample of BPB infected immature grains (*B. glumae* primers (top), *B. gladioli* primers (bottom)

RICE PRODUCTION ECONOMICS RESEARCH

M.E. Salassi

Enterprise budget projections for 2007 were developed in the fall of 2006 for alternative rice production systems. A summary of the enterprise budgeting analysis for rice production systems in Southwest Louisiana is presented in Tables 1 and 2. Values presented represent rice breakeven prices to cover direct (variable) and total estimated rice production costs per hundredweight and per barrel of rice produced for selected yield levels. Direct production costs include expenses for seed, fertilizer, chemicals, fuel, labor, repairs, custom charges, and interest on operating capital. Total specified expenses include direct expenses plus fixed costs on machinery and equipment. These values can also be interpreted as the breakeven price or income per output unit required to cover total production costs. Tenant-operator situations shown in the tables were budgeted for each enterprise with a 70/30 share rent arrangement with the landlord/waterlord paying the irrigation pumping costs.

Rice production costs were estimated for the following types of rice production systems: water planted, drill planted, conventional variety, Clearfield variety, conventional tillage, stale seedbed, in rotation, and fallow land. Base yield level for Southwest Louisiana was 58.0 cwt/A for water-planted and drill-planted rice. Variable production costs ranged from $8.87 to $9.68/cwt ($14.37 to $15.68/barrel) for water-planted rice and $7.81 to $8.98/cwt ($12.65 to $14.54/barrel) for drill-planted rice at the base yield level of 58.0 cwt/A (35.8 barrels/A). Cost differences were influenced by use of conventional or herbicide-resistant variety, conventional versus stale seedbed tillage system and rice production in rotation or on fallow land. Total projected rice production costs for 2007 ranged from $9.86 to $11.21/cwt ($15.98 to $18.16/barrel) for water-planted rice and $8.96 to $10.06/cwt ($14.52 to $16.3/barrel) for drill-planted rice at the base yield level of 58.0 cwt/A (35.8 barrels/A). Detailed enterprise budgets and supporting data were published in A.E.A. Information Series Number 244, January 2007 (Dept. of Agricultural Economics and Agribusiness, Louisiana Agricultural Experiment Station, L.S.U. Agricultural Center).

The Projected 2007 Rice Farm Cash Flow Model was developed to assist producers in planning for the 2007 crop year. The model is an Excel spreadsheet which allows rice producers to enter projected acreage, yield, market price, and production cost data for 2007 to estimate net returns above variable production costs and to easily evaluate the impact of changing percent of base planted on net returns. The primary purpose of the model is to evaluate the impact on net returns above variable production costs for alternative rice rental arrangements and percent of base acreage planted. The model also includes entry cells for whole farm fixed expenses to estimate projected returns from rice production over all costs. The model is available on the LSU AgCenter Web page (*Projected 2007 Rice Farm Cash Flow Model*, Dept. of Agricultural Economics and Agribusiness, Louisiana Agricultural Experiment Station, L.S.U. Agricultural Center, Staff Report No. 2007-02, January 2007).

The Louisiana Rice Share Rent Evaluation Model was developed to assist rice producers in the evaluation of producer and landlord returns for share rent arrangements on their rice farming operations. The model is an Excel spreadsheet which allows rice producers to enter projected acreage, yield, market price, and production cost data for specific tracts of land to estimate net returns per planted acre for both grower and landlord/waterlord and to easily evaluate the impact of alternative rice rental arrangements on net returns. The primary purpose of the model is to evaluate the impact on net returns per planted acre of rice for alternative rice rental arrangements and percent of base acreage planted. Estimated grower and landlord net returns per printed in both tabular and graphical form. The Excel spreadsheet model contains one worksheet page with an example and 15 additional worksheet pages to allow for several rice rental arrangements to be entered and saved. The model is available on the LSU AgCenter web page (*Louisiana Rice Share Rent Evaluation Model*, Dept. of Agricultural Economics and Agribusiness, Louisiana Agricultural Experiment Station, L.S.U. Agricultural Center, Staff Report No. 2007-01, January 2007).

Table 1. Rice Breakeven Prices to Cover Variable Production Costs for Selected Yield Levels, Southwest Louisiana, 2007.

Crop Description	Yield Level in cwt/A				
	-10%	-5%	Base	+5%	+10%
	52.2	55.1	58.0	60.9	63.8
	$/cwt				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	9.83	9.38	8.98	8.61	8.27
- Fallow Land	10.12	9.65	9.23	8.85	8.51
(ii) Stale Seedbed:					
- In Rotation	9.72	9.27	8.87	8.51	8.18
- Fallow Land	10.01	9.55	9.13	8.76	8.42
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	10.33	9.85	9.42	9.03	8.68
- Fallow Land	10.61	10.12	9.68	9.28	8.91
(ii) Stale Seedbed:					
- In Rotation	10.21	9.74	9.32	8.93	8.58
- Fallow Land	10.50	10.02	9.58	9.18	8.82
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	8.54	8.15	7.81	7.50	7.21
(ii) Stale Seedbed:					
- In Rotation	8.85	8.45	8.09	7.77	7.47
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	9.39	8.96	8.58	8.23	7.91
(ii) Stale Seedbed:					
- In Rotation	9.83	9.38	8.98	8.61	8.28

	Yield Level in Barrels/A				
	-10%	-5%	Base	+5%	+10%
	32.2	34.0	35.8	37.6	39.4
	$/ Barrel				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	15.93	15.20	14.54	13.94	13.40
- Fallow Land	16.39	15.64	14.96	14.34	13.78
(ii) Stale Seedbed:					
- In Rotation	15.74	15.02	14.37	13.78	13.25
- Fallow Land	16.21	15.47	14.80	14.19	13.64
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	16.73	15.96	15.26	14.63	14.06
- Fallow Land	17.20	16.40	15.68	15.03	14.44
(ii) Stale Seedbed:					
- In Rotation	16.54	15.78	15.09	14.47	13.91
- Fallow Land	17.02	16.23	15.52	14.88	14.29
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	13.83	13.21	12.65	12.14	11.69
(ii) Stale Seedbed:					
- In Rotation	14.34	13.69	13.11	12.58	12.10
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	15.22	14.52	13.90	13.33	12.82
(ii) Stale Seedbed:					
- In Rotation	15.93	15.20	14.54	13.95	13.41

Table 2. Rice Breakeven Prices to Cover Total Specified Production Costs for Selected Yield Levels, Southwest Louisiana, 2007.

Crop Description	Yield Level in cwt/A				
	-10%	-5%	Base	+5%	+10%
	52.2	55.1	58.0	60.9	63.8
	$/cwt				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	11.27	10.74	10.27	9.84	9.45
- Fallow Land	11.82	11.26	10.76	10.31	9.90
(ii) Stale Seedbed:					
- In Rotation	10.82	10.32	9.86	9.45	9.08
- Fallow Land	11.38	10.84	10.36	9.93	9.54
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	11.76	11.21	10.71	10.26	9.85
- Fallow Land	12.32	11.73	11.21	10.74	10.31
(ii) Stale Seedbed:					
- In Rotation	11.31	10.79	10.31	9.88	9.49
- Fallow Land	11.87	11.31	10.81	10.36	9.94
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	9.82	9.37	8.96	8.60	8.26
(ii) Stale Seedbed:					
- In Rotation	10.09	9.63	9.21	8.83	8.49
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	10.53	10.05	9.61	9.21	8.85
(ii) Stale Seedbed:					
- In Rotation	11.04	10.53	10.06	9.64	9.26

	Yield Level in Barrels/A				
	-10%	-5%	Base	+5%	+10%
	32.2	34.0	35.8	37.6	39.4
	$/ Barrel				
Southwest Louisiana:					
(1) Water Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	18.26	17.40	16.63	15.94	15.31
- Fallow Land	19.15	18.25	17.44	16.70	16.04
(ii) Stale Seedbed:					
- In Rotation	17.53	16.71	15.98	15.31	14.71
- Fallow Land	18.43	17.57	16.79	16.09	15.45
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	19.06	18.16	17.36	16.63	15.96
- Fallow Land	19.95	19.01	18.16	17.39	16.69
(ii) Stale Seedbed:					
- In Rotation	18.33	17.47	16.70	16.00	15.37
- Fallow Land	19.23	18.33	17.51	16.78	16.11
(2) Drill Planted – Tenant Operator:					
(a) Conventional Variety:					
(i) Conventional Tillage:					
- In Rotation	15.91	15.18	14.52	13.92	13.38
(ii) Stale Seedbed:					
- In Rotation	16.35	15.60	14.92	14.30	13.75
(b) Clearfield Variety:					
(i) Conventional Tillage:					
- In Rotation	17.07	16.28	15.56	14.92	14.33
(ii) Stale Seedbed:					
- In Rotation	17.89	17.05	16.30	15.62	15.00

RICE INSECTS RESEARCH

RICE INSECTICDE TRIAL: COMPARISON OF FOLIAR AND GRANULAR INSECTICIDES AGAINST THE RICE WATER WEEVIL IN A DRILL-SEEDED TRIAL

M.J. Stout and M.J. Frey

The efficacies of a new soluble granule formulation of lambda-cyhalothrin (Nufarm Americas Inc.) and of dinotefuran (granular neonicotonoid, Mitsui Chemicals, Inc.) were tested against the rice water weevil in a drill-seeded experiment. The lambda-cyhalothrin product was applied as an early post-flood foliar treatment. Dinotefuran was applied as a preflood/post-flood split treatment and as a single post-flood treatment. An early post-flood application of Karate (lambda-cyhalothrin, Syngenta Crop Protection) was made as a standard treatment for comparison.

Location: Rice Research Station, Crowley, LA

Variety/Seeding Rate: Cocodrie/100 lb/A

Plot Size: 4.1 x 16 ft. Plots were surrounded by metal flashing and separated by at least 5 ft in all directions to retard movement of insecticide between plots.

Planting Method/Date: Drill-seeded/Apr 12, 2006

Fertilization/Weed Control: Standard practices

Experimental Design: Randomized complete block, five treatments, four replicates

Treatments:

1. Non-treated control
2. Karate Z foliar application, 0.03 lb ai/A, application made 1 day post-flood
3. Lambda-cyhalothrin 24% WSG (water-soluble granule) foliar application, 0.03 lb ai/A, application made 1 day post-flood
4. Dinotefuran 240 gm ai/A total, made as a split application: 120 g ai/A applied 1 day preflood; 120 g ai/A applied 14 days post-flood
5. Dinotefuran 360 g ai/A total, made as a single post-flood application 19 days post-flood

Water Management: Permanent flood, May 11

Sampling: Cores/plot: four core samples per plot

Sampling Date: May 30 (19 dpf [days postflood]), June 7 (27 dpf), June 14 (34 dpf)

Harvested: Aug 4, with a Kubota 1300 combine

Data Analysis: A mean number of larvae per core was calculated for each plot at each sampling date by averaging numbers of larvae from the four core samples at each sampling date. Treatment effects on mean numbers of larvae per core were analyzed by PROC MIXED with treatment as fixed effect, block as random effect (Tukey mean separation).

Results:

Treatment	Larvae per core sample ± s.e. on:		
	May 30	June 7	June 14
Untreated control	19.9 ± 2.1	23.8 ± 5.0	19.3 ± 7.0
Karate Z, 0.03 lb ai/A, 1 d post-flood	0.3 ± 0.2 *	2.4 ± 0.8 *	6.1 ± 2.2
Nufarm lambda cyhalothrin 24% WSG, 0.03 lb ai/A, 1 d post-flood	2.4 ± 1.7 *	4.7 ± 1.4 *	7.7 ± 1.8
Dinotefuran, 240 gm ai/A, pre + post split	0.8 ± 0.3 *	0.6 ± 0.3 *	2.6 ± 1.0 *
Dinotefuran 360 gm ai/A, post treatment	17.4 ± 2.0	4.9 ± 0.8 *	1.2 ± 0.3 *

An * denotes a mean significantly difference from control mean (Tukey, $P < 0.05$) in the same column.

Treatment	Adjusted yields lb/A ± s.e.
Untreated control	5494.1 ± 227.0
Karate Z, 0.03 lb ai/A, 1 d post-flood	5712.7 ± 282.6
Nufarm lambda cyhalothrin 24% WSG, 0.03 lb ai/A, 1 d post-flood	6221.5 ± 211.0
Dinotefuran, 240 gm ai/A, pre + post split	6081.7 ± 394.0
Dinotefuran 360 gm ai/A, post treatment	5979.2 ± 227.6

None of the yields from treated plots were significantly different than yields from control plots.

Conclusions: The performance of the water-soluble granular formulation of lambda-cyhalothrin was similar to that of Karate Z. Both products applied at the 0.03 lb ai/A rate reduced populations of weevil larvae on the first and second core sampling dates but not the third. The preflood/post-flood split application of dinotefuran provided superior control of weevil larvae on all three core sampling dates. The single post-flood application of dinotefuran gave 80 to 90% control of weevil larvae after it was applied on May 30. This latter result is significant, because it suggests that dinotefuran is capable of killing larvae after they have established on rice roots. None of the currently registered insecticides and none of the other alternative insecticides being investigated for use against the rice water weevil are capable of killing larvae once they have begun feeding on roots.

RICE INSECTICDE TRIAL: COMPARISON OF PYRETHROIDS AGAINST THE RICE WATER WEEVIL IN A LATE-SEASON, DRILL-SEEDED TRIAL

M.J. Stout and M.J. Frey

The efficacies of three pyrethoid insecticides against the rice water weevil -- Mustang (FMC Corporation), Karate Z (Syngenta Crop Protection), and a water-soluble, granular formulation of lambda-cyhalothrin (Nufarm Americas Inc.) -- were compared in a late-season, drill-seeded test. The pyrethroids were applied as early post-flood foliar sprays or as fertilizer impregnations (i.e., urea was impregnated/coated with insecticide at the chosen rate and applied by hand to plots). Two different timings of impregnated pyrethroid applications were compared.

Location: Rice Research Station, Crowley, LA

Variety/Seeding Rate: Cocodrie/100 lb/A

Plot Size: 4.1 x 16 ft. Plots were surrounded by metal flashing and separated by at least 5 ft in all directions to retard movement of insecticide between plots.

Planting Method/Date: Drill-seeded/May 18, 2006

Fertilization/Weed Control: Preplant 26-78-78, Apr 5; 100-0-0, June 13 / 4qt/A Arrosolo + 2qt/A Basagran, June 12

Experimental Design: Randomized complete block, seven treatments, four replicates

Treatments:

6. Non-treated control
7. Mustang Max foliar application, 0.023 lb ai/A, application made 2 days post-flood
8. Karate Z foliar application, 0.03 lb ai/A, application made 2 days post-flood
9. Lambda-cyhalothrin 24% WSG (water-soluble granule) foliar application, 0.03 lb ai/A, application made 2 days post-flood
10. Mustang fertilizer impregnation, 0.025 lb ai/A, application made 2 days post-flood
11. Mustang fertilizer impregnation, 0.025 lb ai/A, application made 14 days post-flood
12. Karate fertilizer impregnation, 0.03 lb ai/A, application made 2 days post-flood

Water Management: Flushed, June 7; permanent flood, June 14

Sampling: Cores/plot: two core samples per plot, initial sampling; four core samples per plot, later samplings

Sampling Date: June 30 (16 dpf [days postflood]), July 10 (26 dpf), June 19 (35 dpf)

Harvested: Sept 5, with a Kubota 1300 combine

Data Analysis: A mean number of larvae per core sample was calculated for each plot at each sampling date by averaging numbers of larvae from the two or four core samples at each sampling date. Treatment effects on mean numbers of larvae per core were analyzed by PROC MIXED in SAS with treatment as fixed effect, block as random effect (Tukey mean separation).

Results:

Treatment	Larvae per core sample ± s.e. on:		
	June 30	July 10	July 19
Non-treated control	15.4 ± 3.3	15.6 ± 4.0	20.1 ± 5.3
Mustang Max foliar application, 0.023 lb ai/A, application made 2 days post	5.4 ± 1.1 #	15.3 ± 2.4	15.7 ± 2.3
Karate Z foliar application, 0.03 lb ai/A, application made 2 days post	5.3 ± 1.4 #	10.6 ± 2.4	19.0 ± 6.7
Lambda-cyhalothrin 24% WSG (water-soluble granule) foliar application, 0.03 lb ai/A, application made 2 days post	3.0 ± 0.9 *	10.9 ± 1.6	12.5 ± 3.2
Mustang fertilizer impregnation, 0.025 lb ai/A, application made 2 days post	10.4 ± 2.3	16.3 ± 2.8	17.2 ± 3.0
Mustang fertilizer impregnation, 0.025 lb ai/A, application made 14 days post	16.9 ± 4.0	11.9 ± 1.6	30.8 ± 2.5
Karate fertilizer impregnation, 0.03 lb ai/A, application made 2 days post	3.3 ± 1.0 *	17.5 ± 4.2	28.2 ± 8.2

An * denotes a mean significantly different from control mean (Tukey, $P < 0.05$) in the same column.
A # denotes a mean marginally different (Tukey, $0.05 < P < 0.10$) from control mean.

Treatment	Adjusted yields lb/A ± s.e.
Non-treated control	4321.1 ± 305.7
Mustang Max foliar application, 0.023 lb ai/A, application made 2 days post	4727.7 ± 470.6
Karate Z foliar application, 0.03 lb ai/A, application made 2 days post	5376.1 ± 245.9
Lambda-cyhalothrin 24% WSG (water-soluble granule) foliar application, 0.03 lb ai/A, application made 2 days post	4675.6 ± 430.4
Mustang fertilizer impregnation, 0.025 lb ai/A, application made 2 days post	5143.1 ± 301.3
Mustang fertilizer impregnation, 0.025 lb ai/A, application made 14 days post	5007.3 ± 152.8
Karate fertilizer impregnation, 0.03 lb ai/A, application made 2 days post	5396.6 ± 254.3

None of the yields from treated plots were significantly different than yields from control plots.

Conclusions: Applications of pyrethroids resulted in statistically significant reductions in larval densities on the first sampling date but not on the second or third. Applications of pyrethoids made 2 days after flooding resulted in 65 to 80% reductions in larval populations on the first sampling date, regardless of whether the applications were made as fertilizer impregnations or as foliar sprays. An application of Mustang coated on fertilizer made 14 days after flooding was not as effective as applications of Mustang made 2 days after flooding, indicating that pyrethroid impregnated on fertilizer has a limited capacity to kill larvae established on roots. The poor control of weevil larvae on the second and third core sampling dates was probably attributable to reinfestation of plots after insecticide application by the high populations of weevil adults that were present in this experiment.

The efficacy of the WSG formulation of lambda-cyhalothrin was similar to that of Karate.

RICE INSECTICIDE TRIAL 1:
COMPARISON OF INSECTICIDAL SEED TREATMENTS IN A DRILL-SEEDED TRIAL

M.J. Stout and M.J. Frey

The insecticides Avicta (abamectin) and Cruiser (thiomethoxam), alone and in combination, were tested for efficacy against the rice water weevil as seed treatments in a drill-seeded test. Both insecticides are products of Syngenta Crop Protection.

Location: Rice Research Station, Crowley, LA

Variety/Seeding Rate: Cocodrie/100 lb/A

Plot Size: 4.1 x 16 ft

Planting Method/Date: Drill-seeded/Apr 20, 2006

Emergence: Apr 28

Fertilization/Weed Control: Preplant 26-78-78, Apr 5; preflood 100-0-0, May 16 / 3qt/A Arrosolo + 1qt/A Basagran, May15

Experimental Design: Randomized complete block, seven treatments, four replicates

Treatments:

13. Non-treated control
14. Avicta 50 gm ai/100 kg seed
15. Cruiser 80 gm ai/100 kg seed
16. Avicta 25 gm ai/100 kg seed + Cruiser 40 gm ai/100 kg seed
17. Avicta 37.5 gm ai/100 kg seed + Cruiser 60 gm ai/100 kg seed
18. Avicta 50 gm ai/100 kg seed + Cruiser 80 gm ai/100 kg seed
19. Karate 80 gm ai/100 kg seed

All seed was supplied, pre-treated, by Syngenta.

Water Management: Permanent flood, May 18

Sampling: Cores/plot: four core samples per plot

Sampling Date: June 9 (22 dpf [days postflood]), June 15 (28 dpf), June 22 (35 dpf)

Harvested: Aug 14, with a Kubota 1300 combine

Data Analysis: A mean number of larvae per core sample was calculated for each plot at each sampling date by averaging numbers of larvae from the four core samples at each sampling date. Treatment effects on mean numbers of larvae per core were analyzed by PROC MIXED in SAS with treatment as fixed effect, block as random effect (Tukey mean separation).

Results:

Treatment	Larvae per core sample ± s.e. on:		
	June 9	June 15	June 22
Untreated control	32.8 ± 1.2	24.7 ± 2.9	21.7 ± 4.1
Avicta 50 gm ai/100 kg seed	9.6 ± 1.6 *	7.6 ± 0.6 *	7.0 ±1.6 *
Cruiser 80 gm ai/100 kg seed	18.0 ± 5.7 *	17.6 ± 3.0	12.4 ± 2.8
Avicta 25 gm ai/100 kg seed + Cruiser 40 gm ai/100 kg seed	13.9 ± 1.8 *	11.8 ± 2.1 *	13.2 ± 2.4
Avicta 37.5 gm ai/100 kg seed + Cruiser 60 gm ai/100 kg seed	6.4 ± 2.91 *	11.0 ± 1.7 *	6.5 ± 1.0 *
Avicta 50 gm ai/100 kg seed + Cruiser 80 gm ai/100 kg seed	6.2 ± 1.0 *	7.1 ± 1.4 *	5.7 ± 0.8 *
Karate 80 gm ai/100 kg seed	21.3 ± 2.1	26.4 ± 2.6	24.5 ± 6.6

An * denotes a mean significantly different from control mean (Tukey, $P < 0.05$) in the same column.

Treatment	Adjusted yields in lb/A ± s.e.
Untreated control	6824.0 ± 225.9
Avicta 50 gm ai/100 kg seed	7111.3 ± 387.9
Cruiser 80 gm ai/100 kg seed	7912.8 ± 138.1
Avicta 25 gm ai/100 kg seed + Cruiser 40 gm ai/100 kg seed	8038.3 ± 180.4
Avicta 37.5 gm ai/100 kg seed + Cruiser 60 gm ai/100 kg seed	7967.7 ± 123.6
Avicta 50 gm ai/100 kg seed + Cruiser 80 gm ai/100 kg seed	8113.0 ± 258.1
Karate 80 gm ai/100 kg seed	7486.9 ± 649.8

None of the yields from treated plots were significantly different than yields from control plots.

Conclusions: Both Cruiser and Avicta provided protection against the rice water weevil, but control given by Avicta was clearly superior. Numbers of larvae in plots treated with the high rate of Cruiser were lower than numbers of larvae in control plots on the first core sampling date but not the second and third sampling dates. Numbers of larvae in plots treated with the high rate of Avicta, in contrast, were lower than numbers in control plots on all three sampling dates. The combination of Avicta and Cruiser did not markedly improve efficacy against the rice water weevil (compared with Avicta alone), although means from combination treatments were lower than means from Avicta treatment (50 gm ai/100 kg seed) in most cases. Cruiser may provide control of other pests that may not be adequately controlled by Avicta (e.g., grape colaspis).

RICE INSECTICIDE TRIAL 2:
COMPARISON OF INSECTICIDAL SEED TREATMENTS IN A DRILL-SEEDED TRIAL

M.J. Stout and M.J. Frey

Two experimental seed treatments were tested for efficacy against the rice water weevil in an early-season, drill-seeded experiment. Both insecticides were products of Valent U.S.A. Corporation.

Location: Rice Research Station, Crowley, LA

Variety/Seeding Rate: Cocodrie/100 lb/A

Plot Size: 4.1 x 16 ft

Planting Method/Date: Drill-seeded/Apr 5, 2006

Emergence: Apr 13

Fertilization/Weed Control: Preplant 26-78-78, Apr 5; preflood 100-0-0, May 3; topdressed 46-0-0, June 13 / 4 qt/A Riceshot + 1 qt/A Basagran, May 3; 15oz/A Clincher + 2.5% Crop oil, May24; 2 oz/A Londax, May 31

Experimental Design: Randomized complete block, six treatments, four replicates

Treatments:

20. Non-treated control
21. Treated check: post-flood application of Karate Z (0.03 lb ai/A) impregnated on urea, application made 7 days after flooding
22. V10170 250 gm ai/100 kg seed
23. V10170 500 gm ai/100 kg seed
24. V10194 250 gm ai/100 kg seed
25. V10194 500 gm ai/100 kg seed

All seed was supplied, pre-treated, by Valent.

Water Management: Permanent flood, May 5

Sampling: Cores/plot: two or four core samples per plot

Sampling Date: May 25/26 (two core samples per plot on each day) (20/21 dpf [days postflood]), June 2 (28 dpf), June 13 (39 dpf)

Harvested: July 31, with a Kubota 1300 combine

Data Analysis: A mean number of larvae per core was calculated for each plot at each sampling date by averaging numbers of larvae from the two or four core samples at each sampling date. Treatment effects on mean numbers of larvae per core were analyzed by PROC MIXED with treatment as fixed effect, block as random effect (Tukey mean separation).

Results:

Treatment	Larvae per core sample ± s.e. on:			
	May 25	May 26	June 2	June 13
Non-treated control	21.6 ± 2.1	31.0 ± 1.6	36.7 ± 4.0	27.4 ± 3.2
Treated check: post-flood application of Karate Z (0.03 lb ai/A) impregnated on urea, application made 7 days after flooding	10.8 ± 2.5 *	19.6 ± 3.3 *	28.9 ± 3.0	22.1 ± 2.8
V10170 250 gm ai/100 kg seed	0.1 ± 0.1 *	3.1 ± 1.2 *	2.6 ±0.6 *	3.9 ± 0.8 *
V10170 500 gm ai/100 kg seed	1.4 ± 0.6 *	1.0 ± 0.2 *	0.8 ± 0.4 *	1.9 ± 0.6 *
V10194 250 gm ai/100 kg seed	0.9 ± 0.4 *	3.9 ± 1.1 *	7.1 ± 1.8 *	6.4 ± 0.5 *
V10194 500 gm ai/100 kg seed	0.6 ± 0.3 *	0.5 ± 0.2 *	2.6 ± 0.6 *	5.7 ± 1.1 *

An * denotes a mean significantly different from control mean (Tukey, $P < 0.05$) in the same column.

Treatment	Adjusted yields in lb/A ± s.e.
Non-treated control	7041.8 ± 317.0
Treated check: post-flood application of Karate Z (0.03 lb ai/A) impregnated on urea, application made 7 days after flooding	7676.9 ± 212.7
V10170 250 gm ai/100 kg seed	8448.3 ±288.3 *
V10170 500 gm ai/100 kg seed	8276.9 ± 199.9 *
V10194 250 gm ai/100 kg seed	8172.1 ± 168.7 *
V10194 500 gm ai/100 kg seed	8341.0 ± 151.0 *

An * denotes a mean significantly different from control mean (Tukey, $P < 0.05$).

Conclusions: The treated check (Karate Z, 0.03 lb ai/A, impregnated on fertilizer, applied 7 days after flood) reduced larval populations significantly on the two earliest sampling dates (20 and 21 days post-flood) but not on the two later sampling dates. Both V10170 and V10194 provided excellent control of weevil larvae on all four sampling dates. The control of larvae given by V10170 (86-99.5%) was slightly better than that given by V10194 (77-98%). Yields were 16 to 20% higher from plots treated with the two experimental compounds than from non-treated plots.

COASTAL EROSION CONTROL RESEARCH

RICE RESEARCH STATION COASTAL PLANT PROJECT: PLANT DEVELOPMENT, CULTURE, AND SEED PRODUCTION

H.S. Utomo, I. Wenefrida, and M.D. Materne

A large-scale revegetation technique to cover large areas and capable of reaching marsh interiors most affected by erosion is crucially important to successfully control widespread coastal erosion in Louisiana. Sea salt contaminates freshwater marshes and farm land with increased frequency because of seasonal hurricanes and other means. There are strong indications that marsh losses are highest where saltwater intrusion invades freshwater marshes. For decades, native coastal marsh plants have provided a natural defense against coastal marsh erosion but currently are unable to cope with the increasing pressure. In addition to developing superior marsh plants, a coastal plant development program at the Rice Research Station incorporates salt-tolerant traits into a breeding and selection process. The program involves two major marsh plant species, smooth cordgrass (*Spartina alterniflora*) and California bulrush (*Schoenoplectus californicus*). Research is also being extended to Black mangrove (*Avicennia germinans*).

A. Smooth Corgrass Research: Propagation and Production of Blend Seed

Genetic materials: 13 high seed producing lines with an average seed set of 52% (range of 33 to 94%) and an average germination rate of 60% (range of 53 to 90%).

Individual parental lines (13 lines) were planted in separate plots. These parental lines are maintained vegetatively by removing their flowers prior to opening.

Production plot of blend seed: These 13 lines were being used as parental to develop seed-based propagation technology for coastal wetlands restoration.

Fertilization: Urea (46%) at 165 lb/A (April 10); Urea (46%) at 165 lb/A (August 9)

Soil type: Crowley silt loam

Weed control: 1 qt/A RoundUp (March 20 and June 12) and 1 qt/A Basagran (August 9, and October 20) were sprayed around/adjacent to the smooth cordgrass plants.

Pond area: 0.75 acre

Water management: Permanent flood with occasional drain for weed control

Date of harvest: November 12, 2006

Amount of seed harvested: 32.54 lb of wet cleaned seed, containing approximately 325,700 full seeds.

Seed composition: Full seed (14%); Empty seed (86%)

Seed treatment: Cold stratification at 2°C, 100% humidity for 1 to 2 months. Following harvest, panicles containing seed were placed in 13 x 18-inch Ziplock bags. To control fungus contamination, 200 ml Vitavax solution (5 mg/L) were added to the bag to completely wet the seed. The Vitavax solution was drained and each bag was sealed tightly. The treated seed was stored in the cooler with the temperature set to 2±1°C for 1 to 2 months. Seed was checked periodically for contamination.

Following cold stratification, seeds were threshed. Threshed and loose seeds were collected and continued to be stored at 2±1°C until planting.

Seed will be used in the seeding rate experiment in three replications and two locations. Seeding rate of 240 lb/A of wet seed is equivalent to 120 lb/A in rice, containing approximately 2.5 million seeds. Three seeding rates (½ X, 1X, 1½ X; where 1X equals to 240 lb/A) will be applied.

½ X seeding rate	= 0.83 lb/300 ft^2
1 X seeding rate	= 1.65 lb/300 ft^2
1½ X seeding rate	= 2.48 lb/300 ft^2

Germination rate: 67%

B. California Bulrush Research

Native to Louisiana, California bulrush (*Schoenoplectus californicus*) is a herbaceous, rhizomatous perennial that forms dense vegetative colonies along shorelines, in open water, and on mudflats. Considered as a deep-water plant species, it can grow to extensive colonies in 36 inches or more of water depth. California bulrush colonies tend to grow parallel to and continuous along shorelines in solid somewhat circular stands. Because of its specific growth characteristics, California bulrush is used primarily for erosion control along shorelines, canal banks, levees, and other areas of soil-water interface. When planted as continuous vegetative barriers across open water, California bulrush can significantly reduce pond fetch and wave energy. Dense stands of California bulrush are efficient users of available nutrients, producing significant amounts of organic matter. The cumulative effects of organic matter production, sediment trapping, and erosion control not only provide shoreline protection but also accelerate sediment accumulation and near-shore building, improve water quality, and promote diverse communities of aquatic life. The objectives of California bulrush research are to (1) select superior lines for release in fresh and/or saltwater marshes and (2) develop salt-tolerant lines through cellular selection.

<u>B.1. Replicated field tests to identify promising lines among 48 Louisiana ecotypes</u>

Plant materials: 48 ecotypes from major marshes in Louisiana

Experimental design: Randomized complete block, two blocks and three replicates within the block.

Fertilization: Urea (46%) at 165 lb/A (April 10); Urea (46%) at 165 lb/A (August 9)

Soil types: Crowley silt loam

Weed control: 1 qt/A RoundUp (March 21 and June 11) and 1 qt/A Basagran (August 11 and October 18) were sprayed around/adjacent to the bulrush plants.

Pond area: 2 acres

Water management: Permanent flood with occasional drain for weed control

Data collected: Plant height, stem diameter, rate of spread, area of spread, stem density, and seed weight

Selection: Based on superior growth characteristics, 10 lines were selected. These plants are currently tested in multi-location trials.

<u>B.2. Multi location trials</u>

Plant materials: 10 top performers from Rice Research Station field tests and the cultivar 'Restorer' as control. Eight additional lines, which were selected from the salinity screening studies (0 to 18 ppt) conducted in the laboratory and greenhouse, were also included in the multi-location trials.

Locations: Point Aux Chenes (Houma), Avoca Island (Morgan City), and Cameron Wildlife Refuge

Planting date: June 15, 2006

Experimental design: Complete randomized design with three replications.

Method of planting: Actively growing shoots and roots from 10 top performers were harvested from the Rice Research Station field, grown in 1-gal containers in the greenhouse for 2 months, trimmed to 3 ft, and transported to marsh planting sites. Along newly created terraces, the plants were hand-transplanted by anchoring them to the base soil 1 to 2 ft below water level. Plants were arranged in random order in 10-ft spacings along the bank of terraces. Each plant was caged to protect from nutria with chicken wire 3 ft high and 2 ft in diameter. The cage was anchored and secured using three 5-ft wood stakes.

Plant parameters: Plant height, stem diameter, rate of spread, area of spread, stem density, and seed weight

B.3. *In vitro* selection for salt tolerance

In attempt to improve salt-tolerant levels, an elaborate cellular selection was conducted. Using an actively growing part of the flower, from one of the most tolerant lines identified, calli were produced by plating this plant part onto the media containing growth regulators. Calli produced were used to develop suspension cells and protoplasts. Enzymes were used to break down the cell wall that normally interconnects and holds plant cells to form clumps of tissue or organ. As a result, break-free individual cells were produced. Under appropriate media and laboratory growing conditions, these individual cells were screened and the surviving ones were regenerated into the whole plant. Millions of protoplasts can be produced daily in test tubes and selection pressure can be imposed more homogeneously. Since the mutational event naturally occurs at a very low rate, the number is critical. Using this approach, an equivalent of thousands of acres to grow millions of plants in a typical farm setting to carry out such selections can substantially be reduced into laboratory-size Petri dishes.

Explants: Immature inflorescences

Medium: MS, R4, and Gm containing a combination of growth regulators

Cell growth conditions: Suspension culture was initiated by placing callus in a 250-ml Erlenmeyer flask containing 50 ml liquid growth medium. Suspension cells were subcultured weekly by discarding the spent medium and replacing it with fresh medium. The same amount of suspension cells was used at the beginning of each subculture. The suspension culture was maintained at 25°C on a gyratory shaker at 100 rpm with light intensity of 9 $\mu E \cdot m^{-2} \cdot s^{-1}$. Proembryogenic masses from suspension culture were used to isolate protoplasts. Protoplasts were exposed to a toxic salt concentration for 10 days. The survivors were plated on regeneration media to produce somatic embryos and plantlets. Protoplast-derived calli were subcultured weekly and maintained at 25°C in a daily cycle of 16:8 light/dark with light intensity of 15 $\mu E \cdot m^{-2} \cdot s^{-1}$.

A total of 384 plants have been recovered from cellular selection. These plants are currently being grown in the greenhouse for further tests.

C. Black Mangrove Research

Black mangrove is an important part of the coastal landscape and vegetation in many tidal areas throughout the tropics and subtropics. It is a woody shrub that serves as sediment build-up and stabilizer. It also provides a habitat and nesting place for numerous birds and other wildlife. It grows closer inland from the shore. Black mangrove can grow in pure, dense stands on mud flats along the coast and estuaries, in brackish coastal swamps, and on river banks along lower brackish parts. The tree sometimes reaches a height of 75 ft (23 m), although normally only 25 ft (8 m), with a 2-ft (0.6-m) diameter. Black mangroves have long heavy roots that grow extensions (pneumatophores) to help in gas exchange. This pneumatophore root structure can trap silt and extend the shoreline. Seeds mature and germinate on the tree and then fall to the mud. The tree becomes shrubby toward the north of its range due to the cooler weather. Freezing temperatures prevent the range from extending northward. One of the objectives in the black mangrove research is to develop more cold-tolerant lines. Tissue culture protocols are being established and will be used for *in vitro* selection and gene transformation to incorporate cold-tolerant genes.

LOUISIANA RICE RESEARCH VERIFICATION PROGRAM 2006

J.K. Saichuk and J.P. Hebert

Introduction

The Louisiana Rice Research Verification Program (LRRVP) began in 1997 in three parishes: Allen, Calcasieu and Jeff Davis. In 1998, the program was funded and expanded to 10 parishes: Acadia, Avoyelles, Calcasieu, East Carroll, Evangeline, Jeff Davis, Madison, Morehouse, St. Landry, and Vermilion. From 1999 to 2005, 73 fields were included in the verification program. There were eight fields in the program in 2006 (Figure 1).

The fields were visited on at least a weekly basis by a specialist, county agent, or the extension associate. Production practice recommendations were made by the specialist or agent. These recommendations included, but were not limited to: fertilization, weed control, disease control, insect control, and water management to a limited degree. The fields were followed from planting to harvest.

Yield data were collected for each of the fields (Table 1). Yields of the first crop averaged 6857 lb/A (152.3 bu/A or 42.3 bbl/A) at 12% moisture.

Economic data continue to reveal large production cost differences between growers. It is also clear that more needs to be done to help farmers reduce production costs (Table 2).

The program continues to provide an accurate evaluation of current recommendations and provide insight into other areas of research. The educational value of the program to all concerned (farmers, researchers, and extension personnel) increases each year.

Acknowledgments

We would like to thank the rice producers of Louisiana whose check-off contributions help support this program and the Louisiana Rice Research Board for approving the funding of this project.

We appreciate all the time and effort put forth by the cooperators and county agents who worked diligently with us week after week in order to make this project a success.

Finally, we would like to express our gratitude to the following LSU AgCenter scientists for assisting us with their expertise: Don Groth (Plant Pathology), who assisted with the recommendations on disease control; Eric Webster (Weed Control), whose advice on weed control proved extremely useful; Steve Linscombe (Rice Breeding), whose lab provided the milling data; and Mike Stout (Entomology), who advised us on insect control.

[1] This project is supported in part by funding provided by rice producers through their check-off contributions to the Louisiana Rice Research Board.

Figure 1. 2006 Louisiana Rice Research Verification Program Parishes.

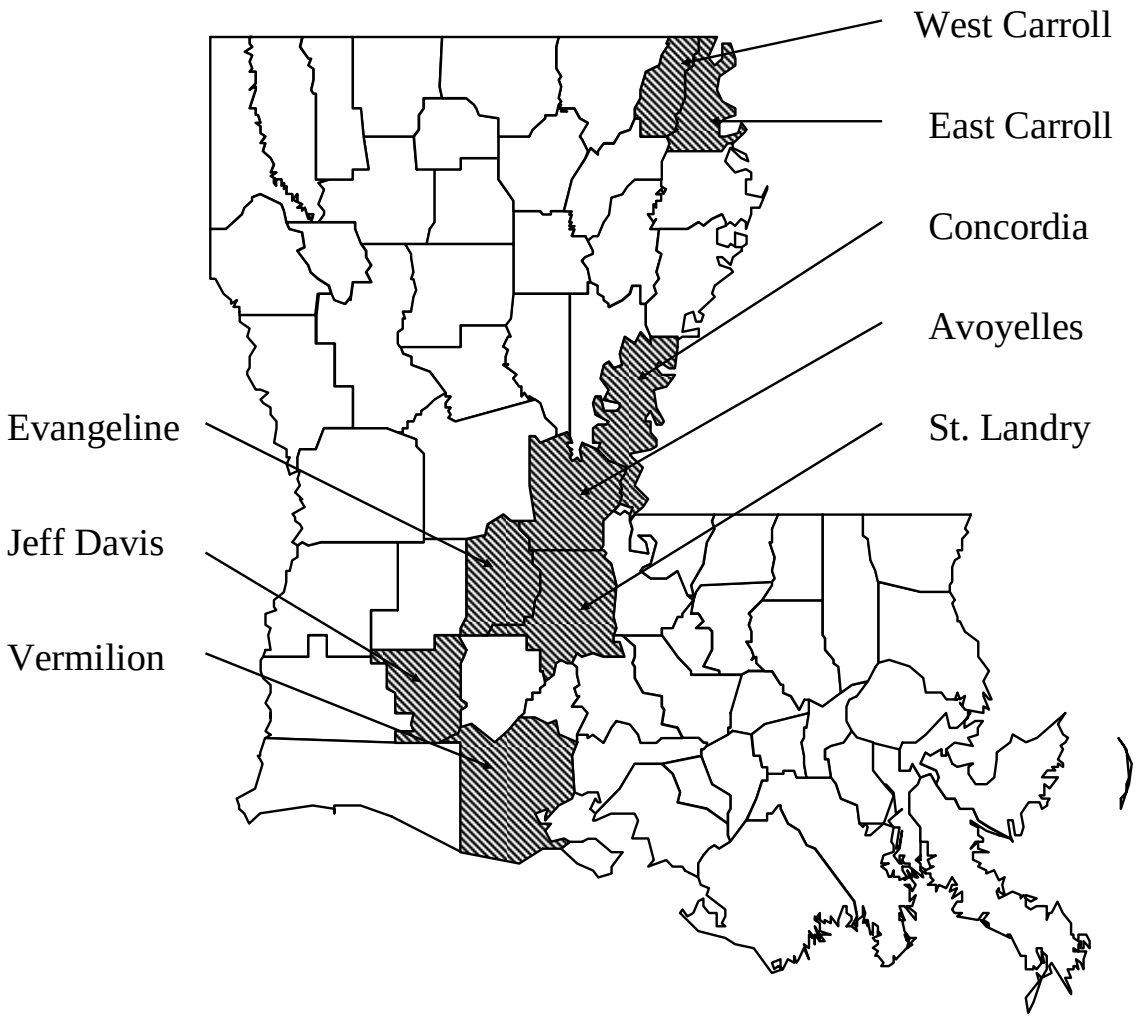


Table 1. 2006 Louisiana Rice Research Verification Program Yield Summary.										
Parish	**Acres in Verification Program**	**Verification Yield per Acre @ 12% Moisture**		**Verification Program**			**Average Parish Yield[1]**	**Parish Acreage**	**Total Parish Production**
		1st Crop Alone	**Second Crop**	**Total Yield per acre**	**1st Crop Production**	**Total Production**			
Avoyelles	41.8	6966	0	6966	291,178.8	291,178.8	6804	12,728	86,601,312
Concordia	54.7	8237	0	8237	450,563.9	450,563.9	6500	7,943	51,629,500
East Carroll	60.4	6751	0	6751	407,760.4	407,760.4	6800	11,907	80,967,600
Evangeline	29.4	5227	0	5227	153,673.8	153,673.8	5994	34,139	204,629,166
Jeff Davis	21.5	6000	0	6000	129,000.0	129,123.0	5350	60,825	325,413,750
St. Landry	40.9	5962	0	5962	238,201.6	238,201.6	5350	21,214	113,494,900
West Carroll	50.1	8603	0	8603	431,010.3	431,010.3	7650	2,950	22,567,500
Vermilion	29.6	7108	0	7108	210,396.8	210,396.8	4779	33,543	160,301,997
TOTAL	**328.4**				**2,311,785.6**	**2,311,785.6**		**185,249**	**1,045,605,725**
Average yield (lb/)					**7040**	**7040**	**5644**		

Table 2. 2006 Louisiana Rice Research Verification Program Yield, Milling and Economic Summary.						
Parish	**Variety**	**Yield @ 12% Moisture (cwt/A)[1]**	**Milling (% Whole / % Total)**	**Variable Costs ($/A)[2]**	**Cost of Production ($/cwt)[2]**	**Return on Variable Costs ($/A)[2,3]**
Avoyelles	Cheniere	6972	55.9 / 72.0	299.64	4.30	327.84
Concordia	Cheniere	8237	60.4 / 71.9	346.72	4.97	394.61
East Carroll	CL 131	6751	61.5 / 67.0	337.95	5.01	269.64
Evangeline	Cheniere	5227	50.2 / 69.6	265.05	1.49	205.38
Jeff Davis	CL 131	6000	62.8 / 69.2	432.22		
St. Landry	CL 161	5962	57.4 / 69.6	302.28	2.07	234.30
Vermilion	Jupiter	7100	57.9 / 71.1	352.74		
West Carroll	CL 131	8603	51.7 / 69.0	343.69	4.00	430.58

1 – Figure includes ratoon crop yield of cwt/A in Jeff Davis and Vermilion.

2 - Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transporting, drying, storing, or fixed costs.

3 - This value was obtained using a selling price of $9.00/cwt.

Avoyelles Parish

The field chosen to be in the verification program in Avoyelles Parish had been laser-leveled the summer and fall before, which presented several special problems. First, the soil at the location has a high pH, a problem only exacerbated by leveling. Second, we have experienced nutrient availability problems in this area for the past several years. Third, the field was not leveled properly with the result that one corner of the field was significantly lower than the rest of the field while the opposite corner was higher than the rest of the field.

As soon as the field was drilled, it was flushed to provide the needed moisture. Recent laser leveling prevented the use of Command, which had been the herbicide of choice, especially in drill-seeded rice. This forced us to experiment with a mixture of Prowl and propanil with which we were quite pleased. This mixture was applied when rice was in the one-leaf stage. This was followed by an application of diammonium phosphate and the field was flushed again.

Even though this soil will test high in phosphorus, phosphorus deficiency has been observed in this field and others nearby, we felt it would be better to anticipate a possible problem than to wait until one is visible. Crop response justified the choice. The uneven field prevented permanent flood establishment as soon as we would have liked. Poor seedling growth forced an application of zinc.

Standing water in some parts of the field and heavy rice water weevil populations required an insecticide application prior to permanent flood. Once permanent flood was established, a mixture of Londax, Permit, and Karate was applied to control broadleaf weeds and rice water weevils.

At midseason, instead of using urea, we used a blend of ammonium sulfate and urea to supply some sulfur. Most of the field responded well, however, some areas still exhibited a form of chlorosis similar to bronzing. Test applications of phosphorus did not provide a response.

Fungicide was applied to control sheath blight and the anticipated kernel smut and false smut. Insecticide was applied to control rice stink bugs later.

The harvest yield of 6972 lb/A at 12% moisture (43.0 bbl/A, 155 bu/A) was one of the best we have ever harvested in this area. A more level field would have yielded even better.

Cooperator: Matthew Zaunbrecher
Agent: Carlos Smith
Field Size: 41.8 acres

CULTURAL PRACTICES

Variety: Cheniere
Method of Planting: Drill
Water Management: Delayed Flood
Seeding Rate: 130 lb/A
Date of Planting: April 2
Date of Emergence: April 14

GROWTH AND DEVELOPMENT

Stage	Observation Date	DD50 Date
Green Ring	6-6	5-19
PD	6-24	6-2
50 % Heading	7-18	6-28
Drain for Harvest	8-1	
Harvest	8-21	7-28

YIELD, MILLING, AND ECONOMIC DATA

	Yield @ 12 % Moisture (cwt/A)	Milling Yield (% whole / % total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	69.72	55.9/72	299.64	4.30	327.84
2nd Crop	--	--	--	--	--

Average Parish Yield (1st and 2nd Crop): cwt/A.

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.

[2] This value was obtained using a selling price of $9.00/cwt.

FERTILIZATION

Date	*Source*	*Rate (lb/A)*	*N (lb/A)*	*P (lb/A)*	*K (lb/A)*
4-21	18-46-0	100	18	0	0
5-27	46-0-0	200	92	0	0
6-14	33-0-0-12S	190	63	0	0
Total	--	--	173	0	0

WEED MANAGEMENT

Weeds Present	Date of Treatment Decision	Recommendation
--	4-24	2 pt Prowl + 3 qt Propanil
Sedge, Texas Weed, Sesbania	6-3	Londax .8 oz + Permit .25 oz/A

DISEASE MANAGEMENT

Diseases Present	Date of Treatment Decision	Recommendation
Sheath Blight/Hist. of Smut	7-11	Stratego 14 oz/A

INSECT MANAGEMENT

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	5-10	Karate Z 2.13 oz/A
Rice Stink Bug	7-11	Methyl 12.79 oz/A
Rice Stink Bug	7-18	Mustang Max 2.98 oz/A
Rice Stink Bug	7-27	Methyl 1 pt/A

Concordia Parish

The field in Concordia Parish was graded to produce a flat, slightly sloping surface in each paddy and straight levees between paddies. Side inlet irrigation was set up by the farmer, which permitted quicker, more uniform flooding than flooding by the traditional method of pumping into the upper paddies and allowing water to flow to the lower ones. This method definitely helped in timing all managerial decisions related to flooding.

After drilling Cheniere rice at 85 lb/A, Command herbicide was applied and the field was flushed. Another flush and two rainfall events of more than 2 inches each kept the field moist over the next few weeks. Between two of these events ammonium sulfate was applied. When rice began to emerge two drill passes the length of the field showed very poor to no emergence ultimately determined to be a consequence of planter operation.

Duet plus Permit then 220 lb of urea were applied just ahead of permanent flood establishment. At midseason another 130 lb of urea were applied.

To control sheath blight and suppress both false and kernel smut, a fungicide containing a strobilurin and propiconazole was applied.

Although stinkbugs did not quite reach our published threshold values, they remained at the sub-threshold level long enough to cause concern. In addition, all of the surrounding fields were treated so we recommended treating this one too as a means of preventing reinfesting other fields while reducing injury. Based on the milling yield of this field, it was a good decision.

We harvested our second highest yield (single crop only) from this field. It was 8237 lb/A at 12% moisture (50.8 bbl/A, 183 bu/A).

Cooperator: Noble Guedon
Agent: Glen Daniels
Field Size: 54.7 acres

CULTURAL PRACTICES

Variety: Cheniere
Method of Planting: Drill
Water Management: Delayed Flood
Seeding Rate: 85 lb/A
Date of Planting: April 6
Date of Emergence: April 18

GROWTH AND DEVELOPMENT

Stage	Observation Date	DD50 Date
Green Ring	6-6	5-28
PD	6-20	6-11
50% Heading	7-16	7-8
Drain for Harvest	8-13	
Harvest	9-2	8-6

YIELD, MILLING, AND ECONOMIC DATA

	Yield @ 12 % Moisture (cwt/A)	Milling Yield (% whole / % total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	82.37	60.4/71.9	346.72	4.97	394.61
2nd Crop	--	--	--	--	--

Average Parish Yield (1st and 2nd Crop): cwt/A.

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.

[2] This value was obtained using a selling price of $9.00/cwt.

FERTILIZATION

Date	*Source*	*Rate (lb/A)*	*N (lb/A)*	*P (lb/A)*	*K (lb/A)*
5-4	21-0-0-24S	75	16	0	0
5-18	46-0-0	220	101	0	0
6-8	46-0-0	130	60	0	0
Total	--	--	177	0	0

WEED MANAGEMENT

Weeds Present	Date of Treatment Decision	Recommendation
--	4-14	Command 1gal/6 A
Sprangle Top, Dayflower, Sesbania, Texas Weed	5-18	Duet 5lbs +.25 Permit
Sprangle Top	6-23	Clincher 13 oz/A

DISEASE MANAGEMENT

Diseases Present	Date of Treatment Decision	Recommendation
Sheath Blight/Hist. of Smut	7-8	Quilt 14 oz + Quadris 5 oz

INSECT MANAGEMENT

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	5-10	Karate Z 1.93 oz/A
Rice Water Weevil	5-25	Karate Z 1.9 oz/A
Rice Stink Bug	7-21	Karate Z 1.93 oz/A

East Carroll Parish

The verification field in East Carroll was our last field to be planted and one of the last for the farmer. It was further delayed by a cold front that moved through the area just after planting. Blackbirds thinned the stand out enough in one area of the field to warrant replanting a portion. It was difficult to keep the soil moist enough to maintain growth of the young seedlings and allow it to dry enough to operate the machinery required to drill the affected areas. Had the field not been planted to CL131 the prolonged period without a flood would have resulted in either a major weed problem or high herbicide costs or both.

Between the first and second applications of Newpath, 100 lb/A of diammonium phosphate was applied. This field like the one in Avoyelles is on soil that will test high in phosphorus, but the high pH may be affecting its availability. Without a true comparison it is difficult to say, however, there was a positive response which could be to either phosphorus or nitrogen.

Despite the size of the replanted rice versus the rest of the field, the second application of Newpath was made along with Londax and Permit, followed by 220 lb urea/A and the field was flooded. Karate was included in the mix to control rice water weevils. At midseason, 150 lb urea/A were applied.

Fungicide containing a strobilurin and propiconazole was applied to control sheath blight and suppress stem rot, kernel smut, and false smut.

Yield was somewhat disappointing probably as a consequence of the areas that had to be replanted because of blackbird damage and an area down the center of the field where the stand was thinned because water was too deep. The yield monitor of the combine hung around the 170 to 175 bushel range most of the time. Yield was 6751 lb/A at 12% moisture (41.7 bbl/A, 150 bu/A).

Cooperator: Ken Fairchild
Agent: Donna Lee
Field Size: 60.4 acres

CULTURAL PRACTICES

Variety: CL131
Method of Planting: Drill
Water Management: Delayed Flood
Seeding Rate: 80 lb/A
Date of Planting: April 15
Date of Emergence: April 26

GROWTH AND DEVELOPMENT

Stage	Observation Date	DD50 Date
Green Ring	6-21	5-31
PD	7-6	6-10
50% Heading	7-24	7-10
Drain for Harvest	8-13	
Harvest	9-8	8-8

YIELD, MILLING, AND ECONOMIC DATA

	Yield @ 12% Moisture (cwt./acre)	Milling Yield (% whole / % total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	72.10	61.5/67	337.95	5.01	269.64
2nd Crop	--	--	--	--	--

Average Parish Yield (1st and 2nd Crop): cwt/A.

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.

[2] This value was obtained using a selling price of $9.00/cwt.

FERTILIZATION

Date	*Source*	*Rate (lb/A)*	*N (lb/A)*	*P (lb/A)*	*K (lb/A)*
5-4	18-46-0	100	18	46	0
6-7	46-0-0	220	101	0	0
6-24	46-0-0	150	69	0	0
Total	--	--	188	46	0

WEED MANAGEMENT

Weeds Present	Date of Treatment Decision	Recommendation
--	--	--
Sedge, Red Rice	5-2	Newpath 4 oz/A
Sedge, Red Rice, Duck Salad, Sesbania	6-6	.5 oz Londax + .5 oz Permit + 6 oz Newpath

DISEASE MANAGEMENT

Diseases Present	Date of Treatment Decision	Recommendation
Sheath Blight/Stem Rot	7-21	Quilt 14 oz + Quadris 5 oz

INSECT MANAGEMENT

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	6-7	Karate Z 2 oz/A

Evangeline Parish

This field was bordered on three sides by active crawfish ponds at the time of planting. The impact of this situation was significant. Cheniere was water seeded at 110 lb/A and the field drained with intentions of pinpoint flooding.

When rice seedlings were in the 1-leaf stage, Londax was applied at 1 1/3 oz/A without the recommendation of the verification team. A permanent flood could not be maintained at this time. Because rice water weevil adults were present and the field was partially drained, it provided a window of opportunity to apply urea impregnated with Mustang Max.

A couple of weeks later some areas of the field were exposed, causing concern about possible nitrogen loss. Rice water weevil adults were found in high numbers again. Due to a breakdown in communication, no insecticide was applied. When three crown nodes were visible the field was drained and allowed to dry severely. One hundred fifty lb urea/A were applied and the field flooded.

Following establishment of permanent flood again, we sampled for rice water weevil larvae. We found an average of 11 rice water weevil larvae per core. Roots were acceptable considering the heavy weevil pressure.

By the time rice reached panicle differentiation some areas of the field were showing nitrogen deficiency. Taking into account the cost of nitrogen, the price of rice at the time and the yield potential, we chose not to add more nitrogen. This may have compromised yield.

No sheath blight was detected while scouting so no fungicide was recommended. The field looked fine until very near maturity when the onset of Narrow Brown Leaf Spot in the form of net blotch on the flag leaf sheath struck the field affecting it severely.

At harvest, grain moisture averaged 13.7%, an indicator of the effect of Cercospora on the crop. We harvested 5227 lb/A at 12% moisture (32.3 bbl/A, 116 bu/A), the lowest yield in the verification program this year.

Cooperator: Richard Fontenot
Agent: Keith Fontenot
Field Size: 29.4 acres

CULTURAL PRACTICES

Variety: Cheniere
Method of Planting: Water Seeded
Water Management: Pinpoint Flood
Seeding Rate: 110 lb/A
Date of Planting: April 8
Date of Emergence: April 17

GROWTH AND DEVELOPMENT

Stage	Observation Date	DD50 Date
Green Ring	5-28	5-26
PD	6-2	6-2
50% Heading	6-29	7-1
Drain for Harvest	7-19	
Harvest	8-9	8-1

YIELD, MILLING, AND ECONOMIC DATA

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole/% total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	52.27	50.2/69.6	265.05	1.49	205.38
2nd Crop	--	--	--	--	--

Average Parish Yield (1st and 2nd Crop): cwt/A.

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.

[2] This value was obtained using a selling price of $9.00/cwt.

FERTILIZATION

Date	*Source*	*Rate (lb/A)*	*N (lb/A)*	*P (lb/A)*	*K (lb/A)*
3-8	0-18-36	200	0	36	72
4-20	46-0-0	190	87	0	0
5-25	46-0-0	150	69	0	0
Total	--	--	156	36	72

WEED MANAGEMENT

Weeds Present	Date of Treatment Decision	Recommendation
--	--	--
Sedge, Barnyard, Duck Salad	4-19	Londax 1.33 oz/A

DISEASE MANAGEMENT

Diseases Present	Date of Treatment Decision	Recommendation
--	--	--

INSECT MANAGEMENT

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	4-20	Mustang Max 4 oz/A
Rice Water Weevil Larvae	5-18	Drain

Jeff Davis Parish

The field in Jeff Davis Parish had been in the verification program a few years ago but was included this year because it could be used in another study at the same time. From the beginning, there were problems as a result of salty water in the irrigation canals. The storm surge associated with Hurricane Rita followed by extremely dry conditions left many fields too salty to be planted and many surface water supplies contaminated. In this case, the surge did not reach the field so the soil was acceptable, but it did affect the water supplies which influenced this field.

The field was planted to CL131 via water seeding after having been sprayed with glyphosate to reduce weed pressure. By the time rice had emerged, large red rice, various aquatic species, barnyardgrass and sprangletop already were present. Because of the large red rice, 6 oz of Newpath was recommended. About 2 weeks later, a second application of 6 oz of Newpath followed by fertilization and flooding.

Inability to establish a deep flood on a timely basis for the above mentioned reasons reduced the efficacy of the herbicides and may have contributed to some nitrogen loss. Beyond herbicide was recommended to pick up the escaped red rice plants.

At green ring, an additional application of nitrogen was recommended along with 2,4-D to control jointvetch and other broadleaf weeds not controlled by Newpath. Because some areas of the field continued to show nitrogen deficiency, an additional 100 lb of urea were applied to the worst areas. Looking back, the additional nitrogen should have been applied to the entire field.

Sheath blight pressure remained light except in the area of the field that received the additional nitrogen but did not warrant the application of a fungicide. Stink bugs did reach treatable levels.

On August 5, we harvested 6,000 lb/A (37.0 bbl/A or 133 bu/A) adjusted to 12% moisture. While acceptable, the last time this field was in the verification program Wells had been planted and the yield had been a little over 7,000 lb/A. The field was fertilized and flooded to produce a second crop.

Second crop was not harvested because yield potential was too low to be economically viable. No second crop yield is reported.

Cooperator: Kevin Berken
Agent: Eddie Eskew
Field Size: 21.5 acres

CULTURAL PRACTICES

Variety: CL131
Method of Planting: Water Seeded
Water Management: Delayed Flood
Seeding Rate: 100 lb/A
Date of Planting: April 12
Date of Emergence: April 16

GROWTH AND DEVELOPMENT

Stage	Observation Date	DD50 Date
Green Ring	5-30	5-23
PD	6-8	6-2
50 % Heading	7-1	7-3
Drain for Harvest	7-22	
Harvest	8-5	7-31

YIELD, MILLING, AND ECONOMIC DATA

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole/% total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	60.00	62.8/69.2	432.22	7.20	107.78
2nd Crop	--	--	--	--	--

Average Parish Yield (1st and 2nd Crop): cwt/A

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.

[2] This value was obtained using a selling price of $9.00/cwt.

FERTILIZATION

Date	*Source*	*Rate (lb/A)*	*N (lb/A)*	*P (lb/A)*	*K (lb/A)*
3-1	0-20-30	187	0	38	56
5-2	46-0-0	175	80	0	0
5-2	0-20-30	200	0	40	60
5-24	46-0-0	140	64	0	0
Total	--	--	144	78	116

WEED MANAGEMENT

Weeds Present	Date of Treatment Decision	Recommendation
Red Rice, Sagittaria, Echinodorus, Swamp Dayflower, Sedge, Sprangle Top, Alligatorweed	4-21	Newpath 6 oz/A
Barnyard, Sprangle Top, Red Rice	5-4	Newpath 6 oz/A
Red Rice	5-18	Beyond 5 oz/A
Sesbania, Jointvetch	6-2	2,4-D 2 pt/A

DISEASE MANAGEMENT

Diseases Present	Date of Treatment Decision	Recommendation
Sheath Blight	--	--

INSECT MANAGEMENT

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	5-10	Karate 2 oz/A
Rice Stink Bug	7-6	Karate 2 oz/A

St. Landry Parish

This field was actually in Acadia Parish because the road on which it is located is also the parish line. The farmer also had other fields in St. Landry Parish, and the St. Landry Parish county agent was involved from the beginning so it was referenced as the "St. Landry" field.

The fertilizer program on this field was compromised when the opportunity to apply phosphorus and potassium to dry ground with a ground rig never materialized. The farmer then flooded the weed infested poorly prepared field and flew on seed of CL161. A blend of 10-20-30 was eventually applied at the rate of 200 lb/A.

Newpath herbicide applications were similarly hampered by being delayed. The first application was at least 1 week later than it should have been. Two weeks later the second application of Newpath to which ¼ ounce of Permit had been added was applied. The plan was to then apply 160 lb/A of urea and flood. Before the fertilizer could be applied, 6.38 inches of rain flooded the field. Again, fertilizer was compromised because it was applied into water.

Heavy rice water weevil pressure necessitated an application of insecticide.

At midseason, 2,4-D was recommended to control escaped alligatorweed. This herbicide was never applied. According to the farmer, the flying service did not want to fly anything because of nearby houses. One hundred forty lb of urea were applied as a topdressing. When the crop did not respond to the topdressing, another 100 lb of ammonium sulfate were applied.

Disease pressure remained light, eliminating the need to apply a fungicide. Likewise, stink bugs did not require treatment.

The somewhat disappointing yield of 5,824 lb/A (36 bbl/A, 129 bu/A) at 12% moisture was most influenced by fertilizer inefficiency and an uneven population consequent to poor seedbed preparation. No second crop was planned.

Cooperator: Kyle Smith
Agent: Keith Normand
Field Size: 40.9 acres

CULTURAL PRACTICES

Variety: CL161
Method of Planting: Water Seeded
Water Management: Delayed Flood
Seeding Rate: 90 lb/A
Date of Planting: March 27
Date of Emergence: April 3

GROWTH AND DEVELOPMENT

Stage	Observation Date	DD50 Date
Green Ring	5-21	5-17
PD	6-2	5-24
50% Heading	6-27	6-25
Drain for Harvest	7-15	
Harvest	8-8	7-23

YIELD, MILLING, AND ECONOMIC DATA

	Yield @ 12 % Moisture (cwt/A)	Milling Yield (% whole/% total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	59.62	57.4/69.6	302.28	2.07	234.30
2nd Crop	--	--	--	--	--

Average Parish Yield (1st and 2nd Crop): cwt/A.

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.

[2] This value was obtained using a selling price of $9.00/cwt.

FERTILIZATION

Date	*Source*	*Rate (lb/A)*	*N (lb/A)*	*P (lb/A)*	*K (lb/A)*
4-12	10-20-30	200	20	40	60
4-20	46-0-0	160	74	0	0
5-18	46-0-0	140	64	0	0
6-4	21-0-0	100	21	0	0
Total	--	--	179	40	60

WEED MANAGEMENT

Weeds Present	Date of Treatment Decision	Recommendation
--	--	--
Alligatorweed, Bull Tongue, Sedge	4-10	Newpath 4 oz/A
Alligatorweed, Sedge, Saggitaria, Knotgrass, Barnyard, Signalgrass	4-24	Newpath 4 oz + Londax 1.25 oz + Permit .25 oz/A

DISEASE MANAGEMENT

Diseases Present	Date of Treatment Decision	Recommendation
Sheath Blight	--	--

INSECT MANAGEMENT

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	5-4	Karate 2 oz/A

Vermilion Parish

Jupiter was planted in the verification field in Vermilion Parish. This is the first time a medium-grain variety has been used in the verification program. According to the producer, this field had presented problems in the past because part of the field had an oil field location in it and because it had been laser leveled fairly hard. The grower had applied chicken litter to most of the field prior to the verification team becoming involved.

Seeding was on March 30 followed by emergence on April 5, at which time 160 lb/A of urea was applied and the pinpoint flood started.

When the plants reached the 4-leaf stage, rice water weevils were detected as were a variety of broadleaf weeds and grasses. A recommendation of Clincher plus either Mustang Max or Karate to be followed as a separate application of a mixture of Londax and Permit. Questions were raised about the need for a grass herbicide. Against better judgment Clincher was omitted and the insecticide plus broadleaf herbicides was applied. Later this proved to be a mistake when grass pressure warranted a Clincher application.

Nitrogen deficiency symptoms appeared prior to internode elongation. An application of 140 lb urea/A was made about 6 days before green ring was observed. Pumping problems caused some areas of the field to dry out, resulting in apparent nitrogen loss based on plant appearance. To correct the problem, 100 lb/A of ammonium sulfate were applied. While it is unusual to recommend a third application of nitrogen in the verification program, special circumstances required special recommendations. Later in the season the uneven losses in the field were apparent because lodging occurred where nitrogen rates were sufficient and other plants never quite caught up with the rest of the field.

Sheath blight pressure remained low. No fungicide was recommended. Stink bugs reached treatable levels and were sprayed.

The first crop was harvested on August 4. Had there not been a few acres of lodged rice yield might be better than the 7,108 lb/A (43.9 bbl/A, 158 bu/A) at 12% moisture. The field was immediately fertilized and flooded to produce a second crop.

A test area of the field was harvested and showed yields too low to be economically viable. No second crop yield is reported.

Cooperator: Christian Richard
Agent: Howard Cormier
Field Size: 29.6 Acres

CULTURAL PRACTICES

Variety: Jupiter
Method of Planting: Drill
Water Management: Water Seeded
Seeding Rate: 130 lb/A
Date of Planting: March 30
Date of Emergence: April 5

GROWTH AND DEVELOPMENT

Stage	Observation Date	DD50 Date
Green Ring	5-16	5-19
PD	5-30	5-30
50% Heading	6-18	6-22
Drain for Harvest	7-17	
Harvest	8-4	8-4

YIELD, MILLING, AND ECONOMIC DATA

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole/% total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	71.08	57.9/71.1	352.74	4.96	286.98
2nd Crop	--	--	--	--	--

Average Parish Yield (1st and 2nd Crop): cwt/A.

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.

[2] This value was obtained using a selling price of $10.00/cwt ($9.00 cwt + $1.00 premium).

FERTILIZATION

Date	*Source*	*Rate (lb/A)*	*N (lb/A)*	*P (lb/A)*	*K (lb/A)*
3-15	0-20-34	150	0	30	51
4-7	46-0-0	160	74	0	0
5-11	46-0-0	140	74	0	0
5-31	21-0-0	100	21	0	0
Total	--	--	169	30	51

WEED MANAGEMENT

Weeds Present	Date of Treatment Decision	Recommendation
--	--	--
Sedge, Duck Salad, Sesbania	4-21	Londax .75 oz + Permit .25 oz
Barnyard	5-5	15 oz Clincher on 17 acres

DISEASE MANAGEMENT

Diseases Present	Date of Treatment Decision	Recommendation
--	--	--

INSECT MANAGEMENT

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	4-21	Karate 2.13 oz/A
Rice Stink Bug	6-28	Karate 2.13 oz/A

West Carroll Parish

The field in West Carroll was planted with CL131 seed about 8 days earlier than the field in East Carroll. The week difference was magnified by weather conditions, which separated harvest by 3 weeks. Nearly all other conditions were similar, which demonstrates the significance of weather especially in the early stages of crop development.

Within 2 weeks of planting the first application of Newpath was made. This was followed by 100 lb/A of diammonium phosphate for the same reasons mentioned in the discussion of the East Carroll field – high pH affecting phosphorus availability. Two weeks later the second application of Newpath was made, 230 lb urea/A were applied, and the field was flooded.

About a week after establishing the permanent flood, Karate was applied to control rice water weevil.

At midseason, 150 lb urea/A were applied. A few weeks later fungicide containing a strobilurin and propiconazole was applied to control sheath blight and suppress kernel smut and false smut.

The yield of the field was the highest yielding field (first crop only) in the program. We harvested 8,603 lb/A at 12% moisture (53.1 bbl/A, 191.2 bu/A).

Cooperator: Steve Rye
Agent: Myrl Sistrunk
Field Size: 50.1 acres

CULTURAL PRACTICES

Variety: CL131
Method of Planting: Drill
Water Management: Delayed Flood
Seeding Rate: 81 lb/A
Date of Planting: April 7
Date of Emergence: April 16

GROWTH AND DEVELOPMENT

Stage	Observation Date	DD50 Date
Green Ring	6-5	5-22
PD	6-14	6-2
50% Heading	7-16	7-3
Drain for Harvest	8-1	
Harvest	8-21	7-31

YIELD, MILLING, AND ECONOMIC DATA

	Yield @ 12% Moisture (cwt/A)	Milling Yield (% whole/% total)	Variable Costs ($/A)[1]	Cost of Production ($/cwt)[1]	Return on Variable Costs ($/A)[1,2]
1st Crop	86.03	51.7/69	343.69	4.00	430.58
2nd Crop	--	--	--	--	--

Average Parish Yield (1st and 2nd Crop): cwt/A

[1] Costs captured are from land preparation to getting the crop to the truck. They do not include land rent, transportation, drying, storage, or fixed costs.

[2] This value was obtained using a selling price of $9.00/cwt.

FERTILIZATION

Date	*Source*	*Rate (lb/A)*	*N (lb/A)*	*P (lb/A)*	*K (lb/A)*
4-20	18-46-0	100	18	46	0
5-11	46-0-0	260	120	0	0
6-9	46-0-0	135	62	0	0
Total	--	--	200	46	0

WEED MANAGEMENT

Weeds Present	Date of Treatment Decision	Recommendation
--	--	--
Sedge	4-21	Newpath 4 oz/A
Red Rice, Sedge	5-11	Newpath 4 oz/A

DISEASE MANAGEMENT

Diseases Present	Date of Treatment Decision	Recommendation
Sheath Blight/Hist. of Smut	6-29	Quilt 14 oz + Quadris 5 oz/A

INSECT MANAGEMENT

Insects Present	Date of Treatment Decision	Recommendation
Rice Water Weevil	5-18	Karate 2 oz/A

Table 3. Nine-Year Louisiana Rice Research Verification Summary.

1998 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	53	32.8	118.1	5314
Avoyelles	32.5	42.9	154.4	6950
Calcasieu*	60	34.1	122.8	5524
East Carroll	33.9	41.1	148	6658
Evangeline	33	42.9	154.4	6950
Jeff Davis*	61.8	37.3	134.3	6043
Madison	36.6	39	140.4	6318
Morehouse	63	33.8	121.7	5476
St. Landry	37.1	38.2	137.5	6188
Vermilion	16.7	29.4	105.8	4763
TOTALS	427.6	37.2	133.7	6018.4

* Yields include second crop.

1999 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	31.1	37.4	134.6	6059
Avoyelles	32.5	46.6	167.8	7549
Calcasieu	49.3	34.6	124.6	5605
Catahoula	30.4	33.4	120.2	5411
East Carroll	36.1	47	169.2	7614
Evangeline	22.3	43.1	155.2	6982
Jeff Davis*	26.6	30.8	110.9	4990
Madison	38.1	39	140.4	6318
St. Landry	30.1	38.8	139.7	6286
Vermilion	23.8	36.5	131.4	5913
TOTALS	320.3	38.7	139.4	6272.7

* Yields include second crop.

2000 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	53.3	39.4	141.8	6383
Avoyelles	63.2	36.7	132.1	5945
Calcasieu	22.1	25.1	90.4	4066
Catahoula	39.6	36.4	131	5897
East Carroll	45.1	49.1	176.8	7956
Evangeline	19.9	38.2	137.5	6188
Jeff Davis	30.6	26.7	96.1	4325
Morehouse	27.7	28.3	101.9	4585
St. Landry	70.7	39.2	141.1	6350
Vermilion*	21.6	37.7	135.7	6107
TOTALS	393.8	35.7	128.4	5780.2

* Yields include second crop.

Table 3. Continued.

2001 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	60.6	50.8	182.9	8230
Allen	41.6	35.1	126.4	5686
Avoyelles	63.2	38.1	137.2	6172
Calcasieu*	61.9	39.4	142	6388
Concordia	79.6	36.1	130.1	5853
Evangeline*	20.8	52.7	189.7	8538
Jeff Davis*	21.6	57.3	206.4	9289
Richland	65.9	46	165.5	7447
St. Landry*	40.6	51.1	184	8282
Vermilion*	33.3	52.4	188.7	8493
TOTALS	489.1	45.9	165.3	7437.8

* Yields include second crop.

2002 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia*	38.4	49.8	179.3	8068
Allen*	25.1	46	165.6	7452
Avoyelles	37.4	49.9	179.6	8084
Beauregard*	49.5	53.1	191.2	8602
Calcasieu*	41.4	42.4	152.6	6869
Concordia	67.6	48.2	173.5	7808
Evangeline	42	37.6	135.4	6091
Jeff Davis*	31.7	45	162	7290
Richland	35.8	42.1	151.5	6819
St. Landry	32.7	48.8	175.7	7906
Vermilion*	32	49.8	179.4	8072
TOTALS	433.6	46.6	167.8	7551.0

* Yields include second crop.

2003 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	57.2	44	158.4	7128
Allen*	35.7	46.1	166	7469
Avoyelles	37.4	50.1	180.4	8116
Beauregard*	45.7	48.7	175.2	7884
Concordia	79.5	49.2	177.1	7970
Evangeline*	48.4	44.5	160.2	7209
Jeff Davis*	52.9	28.7	103.3	4649
Richland	40.2	44.7	160.8	7234
St. Landry*	32.7	61.1	220	9898
Vermilion*	33	40	144	6480
TOTALS	462.7	45.7	164.5	7403.7

* Yields include second crop.

Table 3. Continued.

2004 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Allen*	53.2	40.9	147.1	6620
Avoyelles	33.3	32.8	118	5307
Beauregard*	21.8	42.5	153.3	6899
Concordia	82.3	36	130	5843
East Carroll	54.8	45.8	165	7427
Evangeline	30.7	34.8	125.2	5638
Jeff Davis*	42.3	38.5	138.6	6237
Natchitoches	47.2	44.1	158.8	7144
St. Landry*	60.1	65.1	234.3	10543
Vermillion*	30	42.1	151.6	6824
TOTALS	455.7	42.26	152.19	6848.2

*Yields include second crop.

2005 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Acadia	28.9	39.6	143.8	6427
Allen	76.7	25.6	92	4140
Avoyelles	32.1	35.9	129.3	5819
Calcasieu	49	51	184	8282
Concordia	60.5	43	156	7003
East Carroll	30.4	47.9	172.7	7771
Evangeline	30	37.1	133.6	6014
Jeff Davis	39.2	32.5	117	5264
Natchitoches	30	43.3	156	7022
Richland	47.4	49.2	177.2	7974
St. Landry	61.7	47.5	170.9	7689
Vermillion	52.8	40.9	147.3	6631
TOTALS	538.7	41.12	148.3	6669.6

*Yields include second crop.

2006 Verification Acres and Yields				
		Yield @ 12% Moisture		
Parish	**Acres**	**Barrels/A**	**Bushels/A**	**Pounds/A**
Avoyelles	41.8	43.0	155	6972
Concordia	54.7	50.8	183	8237
East Carroll	60.4	44.5	150	7210
Evangeline	29.4	32.3	116	5227
Jeff Davis	21.5	43.8	157.8	6000
St. Landry	40.9	36.8	132.5	5962
Vermillion	29.6	37.0	133.3	7100
West Carroll	50.1	53.1	191.2	8603
TOTALS	328.4	43.4	156.4	7040

*Yields include second crop.

1998 - 2006 Verification Summary					
Verification Totals			**Verification Parish Totals**		
Year	**Acres**	**Pounds/A**	**Acres**	**Pounds/A**	**Verification - Parish**
1998	427.6	6018.4	475,103	5052	966.4
1999	320.3	6272.7	444,015	5502	770.7
2000	393.8	5780.2	385,824	5620	160.2
2001	489.1	7437.8	412,286	5794	1643.8
2002	433.6	7551.0	412,630	5764	1787.0
2003	462.7	7403.7	327,843	5843	1560.7
2004	455.7	6848.2	311,606	5582	1266.2
2005	538.7	6669.6	402,759	6165	504.6
2006	328.4	7039.5	185,249	5644	1395.5
Totals	3849.9	6780.12	3,357,315	5662.89	1117.23

RICE WEED CONTROL

WEED MANAGEMENT IN HERBICIDE RESISTANT/TOLERANT AND CONVENTIONAL RICE

E.P. Webster, S. Bottoms, and J. Hensley

Weed control studies were conducted at the Rice Research Station and producer locations in south Louisiana in 2006. A total of 51 studies were established with a total of 2,900 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. Many of these studies have been conducted over 2 to 3 years and have been completed. However, several of these studies have 1 year of data and need to be repeated to verify the results over time. This project continues to work on different application methods for products in drill- and water-seeded rice, and it continues to supply data for herbicide development and to aid in the expansion of current herbicide labels.

Herbicides with Residual Activity for use in Clearfield Rice

Newpath plus Command, Clearpath, Facet, and Prowl H_2O were evaluated for potential fit in Clearfield rice. Each of these combinations can be used to provide weed management and control of weeds in Clearfield rice. The use of Command PRE followed by two applications of Newpath postemergence allows for increased control of sprangletop and some broadleaf weeds such as ducksalad. However, hemp sesbania and Indian jointvetch can become a problem when Command is used in a Clearfield system. Clearpath is an excellent herbicide that can be used as the first or second postemergence application to provide control of red rice, hemp sesbania, and Indian jointvetch. However, late-season emergence of sprangletop can be a problem with the use of this herbicide. The use of Facet will provide similar results when compared with Clearpath. Prowl H_2O may be an excellent choice as a mixture herbicide with Newpath. This herbicide can be used as a DPRE or as a partner in the first or second postemergence Newpath application in drill-seeded rice. However, rice must be in the 4-leaf stage before Prowl H_2O can be used in a water-seeded system, and this is too late to obtain adequate control with this herbicide. These herbicides provide producers with viable options for use in rice weed management in a Clearfield production system, but it is important to know and understand the weed spectrum present in a given field before a herbicide program is selected.

Newpath and Beyond Application Rates and Timings for Use in Clearfield Rice

This project has conducted over 100 field, greenhouse, and laboratory trials on the Clearfield rice production system. This project has focused on application timing and rate of Newpath, Clearpath (pre-package of Newpath plus Facet), and Beyond to best control red rice and other weeds present in rice fields. With the increase in rate change for Newpath in 2006, research was established to evaluate the use 12 oz/A of Newpath applied over several application timings with or without the addition of 5 oz/A of Beyond. The results from this study indicate the most important factor for red rice control is the timing of Newpath. If the initial and sequential applications of Newpath are applied early to small actively growing red rice control will approach 100%. However, if the applications of Newpath are delayed and larger red rice is present at the time of application, control will significantly decrease. This also is true with other weeds such as barnyardgrass, sprangletop, broadleaf signalgrass, etc. This research will continue to be evaluated in the next few years to better refine our recommendations in Louisiana for weed management decisions in a Clearfield rice production system.

Clincher and Ricestar HT Grass Weed Control

This project continues to evaluate grass herbicides from a rate and application timing standpoint. When mixed with broadleaf herbicides antagonism of the grass herbicides has been common, especially when applied to grasses in the 4-leaf stage or larger. Clincher is still the herbicide choice when the predominant grass is barnyardgrass, knotgrass, or fall panicum. If sprangletop species are the most common grass present, Ricestar HT is the better choice. This project also evaluated surfactants in 2006 for use with the grass herbicides. Ricestar applied alone or with the surfactant Phase II appeared to have similar activity. Clincher performs best when applied with a crop oil concentrate with at least a concentration of 15 to 20% nonionic surfactant.

Perennial Grass Management in Rice

This project is currently evaluating the biology of creeping rivergrass. Our research shows that this weed is competitive when the population of rice is low, less than 60 lb/A, and creeping rivergrass populations are high, more than six plants per square yard. The best way to manage this weed is through highly managed cultural practices. These practices include high planting rates, tillage under dry conditions, and the use of herbicide programs in a Clearfield production system.

Evaluation of Herbicide Drift in Rice with Roundup, Liberty, Newpath, and Beyond

Four studies were established to evaluate the impact of herbicide drift (Roundup, Ignite, Newpath, and Beyond) on the first crop and ratoon rice. All of the herbicides were applied at 0.125 and 0.0625 of the labeled use rate. The labeled rates for each herbicide were Roundup Weathermax at 22 oz/A, Ignite at 24 oz/A, Newpath at 4 oz/A, and Beyond at 5 oz/A. The application timings were 3 leaf to 1 tiller, panicle differentiation (PD), early boot, and 3 days prior to maturity.

Drift Research Results

Roundup Weathermax (glyphosate): The early application timing resulted in more injury to rice compared with later applications, and the younger 3-leaf stage rice did not recover from this timing. The PD and boot applications resulted in reduced injury; however, yield was reduced compared with the nontreated. These timings also resulted in small multiple heads per tiller and short flag leafs. The maturity application did not injure rice and yield was not reduced.

Ignite (glufosinate): Ignite resulted in the least amount of damage from an injury and yield prospective. The injury was usually slight yellowing and some necrosis at the leaf margins. In most cases, within 10 to 14 days, the visual symptoms were no longer present.

Newpath (imazethapyr): Observations were very similar to Roundup Weathermax. The early application timing resulted in more injury to rice compared with later applications and the younger 3-leaf stage rice did not recover from this timing. The PD and boot applications resulted in reduced injury; however, yield was reduced compared with the nontreated. These timings also resulted in small multiple heads per tiller and short flag leafs. The maturity application did not injure rice and yield was not reduced.

Beyond (imazamox): Observations were very similar to Roundup Weathermax and Newpath. The early application timing resulted in more injury to rice compared with later applications, and the younger 3-leaf stage rice did not recover from this timing. The PD and boot applications resulted in reduced injury; however, yield was reduced compared with the nontreated. These timings also resulted in small multiple heads per tiller and short flag leafs. The maturity application did not injure rice and yield was not reduced.

This is a summary of the research that was conducted in 2006. To see the complete weed control annual report, please go to **http://www.agronomy.lsu.edu/weedscience/annualreports.asp.**

STATION PERSONNEL

Steve Linscombe, Professor ---------- Resident Coordinator

Jodie R. Gautreaux	Administrative Coordinator
Kimberly G. Guidry	Accounting Specialist
Carol D. LeDoux	Administrative Program Specialist
Darlene M. Regan	Administrative Coordinator
Donna Sonnier	Custodian

S. Brooks Blanche, Assistant Professor/Research ---------- Rice Breeding

Gabriel Anderson[1]	Research Associate

Jason Bond[2], Assistant Professor ---------- Rice Agronomy/Rotational Crops
Dustin Harrell[3], Assistant Professor ---------- Rice Agronomy/Rotational Crops

James P. Leonards	Research Associate
Ronald P. Regan	Research Associate
Douglas M. Walker	Research Associate

Michael D. Dronet, Research Farm Maintenance Manager ---------- Shop

Rayford E. Ancelet	Maintenance Repairer I
Harold J. Doucet	Maintenance Repairer Master
Joshua P. Regan[4]	Maintenance Repairer I

Richard T. Dunand, Professor---------- Rice Physiology

Raymond R. Dilly, Jr.	Research Associate

Donald E. Groth, Professor/Research Coordinator---------- Rice Pathology

Marty J. Frey (25%)	Research Associate
Joseph Nugent	Research Farm Specialist II
Xin Hua Wang	Research Associate

William J. Leonards, Jr., Research Associate/Coordinator/Manager ---------- Farm Management

Brian D. Broussard	Research Farm Specialist II
Timothy C. Miller	Research Farm Supervisor
Randal K. Morgan[5]	Research Farm Specialist II
Jimmy D. Pellerin	Research Farm Specialist II
Ronald J. Pellerin	Research Farm Manager I
Thomas J. Reed	Research Farm Specialist II
A. Rashad Shamsie	Research Farm Specialist II

---

[1] Appointed 06/12/06.
[2] Resigned 04/30/06.
[3] Appointed 08/09/06.
[4] Resigned 09/08/06.
[5] Retired 07/31/06.

STATION PERSONNEL
(Continued)

Steven D. Linscombe, Professor ---------- Rice Breeding

Karen F. Bearb	Research Associate
Corey A. Conner	Research Associate
Herman L. Hoffpauir	Research Farm Specialist II
Brent W. Theunissen	Research Associate

Mona M. Meche, Research Associate ---------- Rice Anther Culture/Tissue Culture

Jennifer Dronet	Research Farm Assistant I
Xue Jin	Research Farm Assistant II
Christie Louvier	Research Farm Assistant II

W. Ray McClain, Professor ---------- Aquaculture

John J. Sonnier	Research Farm Specialist II

John K. Saichuk, Professor---------- Rice Agronomy/Extension

Jeremy Hebert[6]	Extension Associate

Xueyan Sha, Assistant Professor ---------- Rice Breeding

Blake J. Henry[7]	Research Farm Specialist II
Shane J. Theunissen	Research Associate

Michael J. Stout (Baton Rouge) ----------Entomology

Ryan C. Pousson[8], Research Associate
Marty J. Frey, Research Associate (75%)

Herry Utomo, Assistant Professor/Research ----------Marker-Assisted Selection Breeding/Biotechnology

Anna L. McClain	Research Farm Specialist II
Jennifer L. Nash	Research Associate
Sigit Mujiharjo	Visiting Scientist

Ida Wenefrida, Post Doctoral Researcher ---------- Biotechnology

Lawrence M. White, III, Research Associate---------- Foundation Seed Rice

The Rice Research Station is especially indebted to the Agricultural Chemistry Division of Louisiana for the chemical analyses of research samples and to the Department of Experimental Statistics for their help in planning of experimental designs and statistical analyses of research data.

[6] Transferred to the Acadia Parish Extension Office 10/16/06.
[7] Resigned 03/03/06.
[8] Resigned 02/14/06.

COOPERATING PERSONNEL

Cooperating personnel on research projects at the Rice Research Station include the following:

Lucas Aviles ---------- Rice Breeding
University of Puerto Rico Research & Extension Center
Lajas, Puerto Rico

Matthew E. Baur ---------- Soybean Insects
Department of Entomology
Louisiana State University Agricultural Center

Gary A. Breitenbeck ---------- Salt Salinity
Department of Agronomy & Environmental Management
Louisiana State University Agricultural Center

Marc A. Cohn---------- Red Rice Control
Department of Plant Pathology & Crop Physiology
Louisiana State University Agricultural Center

James L. Griffin ---------- Soybean Weed Control
Department of Agronomy & Environmental Management
Louisiana State University Agricultural Center

Steve A. Harrison ---------- Wheat and Coastal Erosion Control
Department of Agronomy & Environmental Management
Louisiana State University Agricultural Center

Clayton A. Hollier---------- Plant Pathology
Louisiana Cooperative Extension Service
Louisiana State University Agricultural Center

Rick Mascagni ---------- Grain Sorghum
Northeast Research Station
Louisiana State University Agricultural Center

Mike Materne---------- Coastal Erosion Control
USDA-NRCS
Baton Rouge, Louisiana

James H. Oard ---------- Rice Genetics
Department of Agronomy & Environmental Management
Louisiana State University Agricultural Center

Anthony Rivera---------- Rice Breeding
University of Puerto Rico Research & Extension Center
Lajas, Puerto Rico

Robert Romaire---------- Aquaculture
Aquaculture Research Station
Louisiana State University Agricultural Center

COOPERATING PERSONNEL

(Continued)

Milton C. Rush ---------- Rice Diseases
Department of Plant Pathology & Crop Physiology
Louisiana State University Agricultural Center

Raymond W. Schneider ---------- Soybean Diseases
Department of Plant Pathology & Crop Physiology
Louisiana State University Agricultural Center

Michael Stout ---------- Rice Insect Control
Department of Entomology
Louisiana State University Agricultural Center

Eric Webster ---------- Weed Control
Department of Plant Pathology & Crop Physiology
Louisiana State University Agricultural Center

Bill Williams ---------- Weed Control
Northeast Research Station
Louisiana State University Agricultural Center

E. Allen Wilson ---------- Bird Control
USDA Animal Damage Control
Crowley, Louisiana