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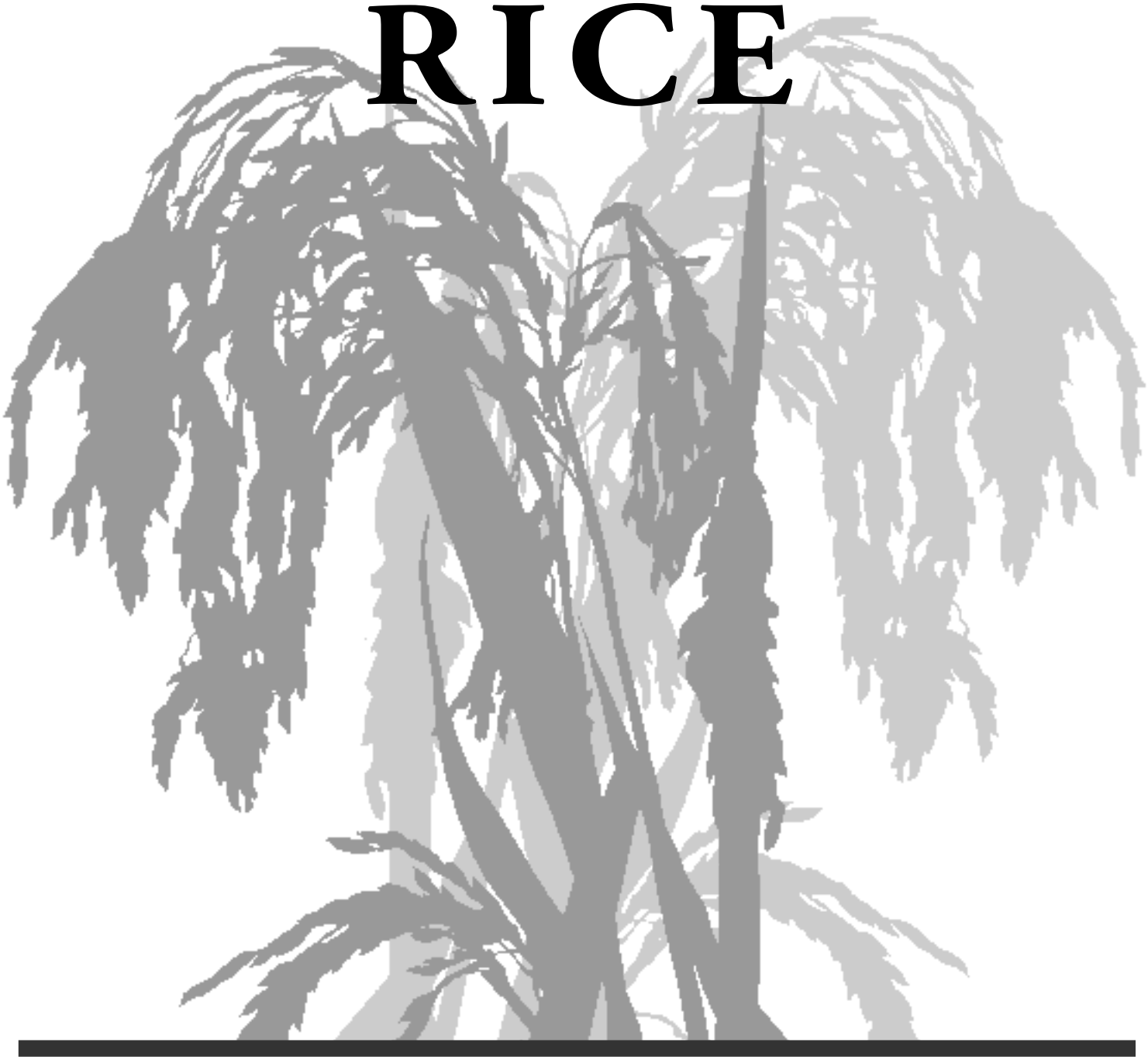
MISSISSIPPI RICE



VARIETY TRIALS, 2008

MAFES

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This Mississippi Agricultural and Forestry Experiment Station Information Bulletin is a summary of research conducted under project number MIS-1530 at the Delta Research and Extension Center in Stoneville, Mississippi, and several other locations shown on the map on the second page. It is intended for colleagues, cooperators, and sponsors. The interpretation of data presented in this publication may change after additional experimentation. This information is not to be construed either as a recommendation for use or as an endorsement of a specific variety or product by Mississippi State University or the Mississippi Agricultural and Forestry Experiment Station.

This report contains data generated as part of the Mississippi Agricultural and Forestry Experiment Station research program. Joint sponsorship by the Mississippi Rice Promotion Board is gratefully acknowledged.

Trade names of commercial products used in this research project are included only for clarity and understanding. All available names (i.e., trade names, chemical names, experimental product code names or numbers, etc.) of products used in this research project are listed in the tables and footnotes contained in this report.

Mississippi Rice Variety Trials, 2008

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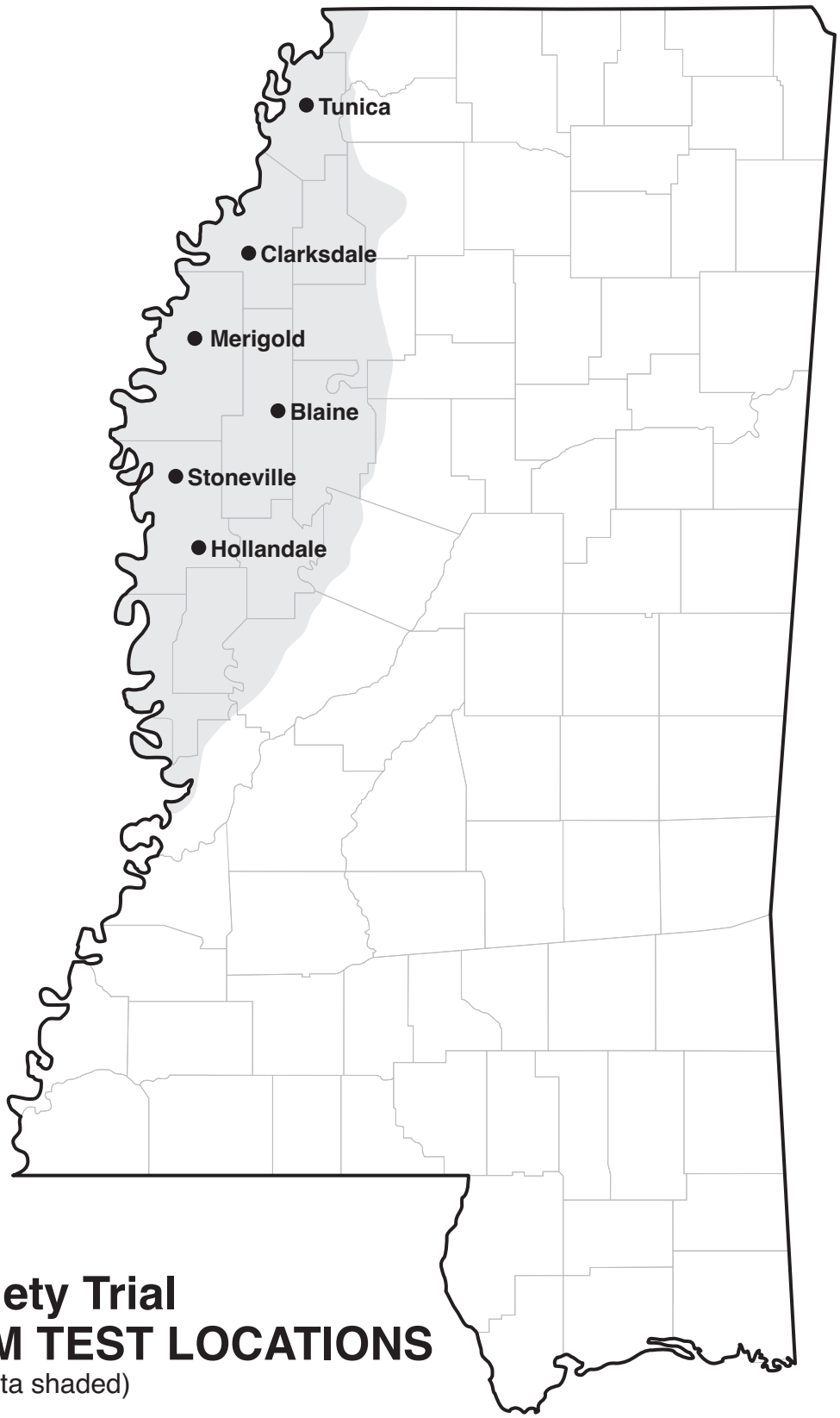

Rice Variety Trial
ON-FARM TEST LOCATIONS

(Mississippi Delta shaded)

Mississippi Rice Variety Trials, 2008

Introduction

In 2008, approximately 230,000 acres of rice were planted in 14 Delta counties of Mississippi, where practically all rice is produced in the state. In 2007, Mississippi producers planted 189,000 acres of rice. Bolivar County had the highest planted acreage at 66,867 acres. Essentially all of the production in Mississippi was long-grain rice. Cocodrie was the predominant variety grown in Mississippi this year, occupying nearly 52% of the rice acreage, followed by Clearfield 171-AR at 23% and Clearfield 161 at 16%. All other varieties, including Clearfield XL 729, Clearfield XL 730, Wells, Sabine, Francis and XL 723, were grown on about 9% of the acreage.

The on-farm rice variety trials represent the final step in the breeding program's yield performance evaluations before a variety is released for commercial production in Mississippi. Conducting these trials on commercial farms across the Delta provides important information on variety performance and adaptability under diverse environmental and management conditions. These sites give a partial sampling of actual production situations in the Delta. These multiple sites also permit evaluation of test entries for resistance to pests and/or other field-related stresses, such as soil crusting and straighthead, which often have a greater natural incidence at locations other than the Delta Research and Extension Center (DREC). There was no observed incidence of blast at any site in 2008. The incidence of sheath blight at the on-farm sites ranged from light to moderate in 2008. False smut was detected at some sites at very low infestation levels. Kernel smut was not detected at any of the on-farm sites. Symptoms resembling straighthead were observed in some plots at one site.

Planting dates for the different locations ranged from March 27 to May 6, which are within the typical period for planting rice in the Delta. Stoneville was the only test location planted into a conventionally prepared seedbed and also flushed. The other five were planted into a stale seedbed and not flushed. The occurrence of sufficient rainfall was probably the reason the other locations did not require flushing. Light to moderate sheath blight infection developed on susceptible entries at four sites, but none was observed at Clarksdale or Hollandale. Soil samples were collected at planting within the test area at each site. Results indicate that lower nutrient levels were reported as follows: Tunica – medium phosphorous, low sulfur, and low organic matter; Merigold – medium phosphorous, sulfur, and zinc; Hollandale – medium phosphorous and sulfur. All other locations had high to high-plus nutrient levels (Clarksdale, Blaine, and Stoneville). A series of tropical weather systems moved through the Midsouth and Delta areas during the later part of August and continued on into September. This weather significantly impacted crop grain filling, ripening, and scheduling of harvesting operations. Crop lodging was significant in numerous areas. Prolonged wet weather delayed timely harvest, resulting in reduced grain yields and milling quality. Depending on the location, these on-farm variety trials were similarly affected.

Variety selection is one of the most important decisions a rice producer makes in preparing production plans each season. The information in this bulletin is intended to help the producer with this decision-making process. In addition to the yield performance of a variety, consideration needs to be given to whole-grain and total milling percentages, maturity, lodging, and disease reactions. The milling percentages reported here are relative among the entries included and may not equal commercial milling yields. Factors that influenced these milling yields are location, variable emergence, harvest interval following heading, and lodging. Weather-related stresses, harvest delays due to untimely rainfall, and the specific harvesting and processing equipment used for these tests may also affect milling yields. Some of these factors may not have the same influence on rice that has been commercially harvested or processed. The widely grown variety, Cocodrie, which has known milling characteristics, can serve as the milling reference check for relative comparisons with other test entries. Data summarized over locations and years are a more reliable measure to show future variety performance than results from individual tests. Other sources of information may include past production experience with a particular variety and consulting with local and state rice Extension personnel.

Test Procedures

The 21 long-grain varieties, hybrids, and breeding lines reported here were included in the variety trials planted at each of the six sites. Among the 21 test entries, 15 were varieties and 6 were breeding lines. The one variety, Sabine, is a specialty type for canning but also can be used for other purposes. One hybrid was provided by RiceTec. Seed of all four Clearfield varieties were provided by Horizon Ag. Each test consisted of three replications. The plots at all locations consisted of five 8-inch-spaced drill rows with a seeding depth of approximately 1 inch. The varieties and breeding lines were seeded at an equivalent rate of 108 pounds per acre. The 20% higher seeding rate than the recommended seeding rate of 90 pounds per acre was used to compensate for the limited seed treatment applied to the test entries and possible harsh seedbed conditions. XL723 was seeded at RiceTec's recommended rate. Cultural practices were decided upon and implemented by the cooperator and varied by site. Overall, the trials were grown under field conditions of high productivity. The hybrid XL 723 was not fertilized according to RiceTec's recommendations under these test conditions. Therefore, its yield may be lower than normal. The field management practices applied for each site are recorded in the footnotes of Tables 1–6 [Note: Readers who may be less familiar with pesticide formulations and application rates may wish to refer to pesticide product label information available on the web or to the *2008 Weed Control Guidelines for Mississippi* (MSU-ES/MAFES Pub. No. 1532)].

Agronomic data were collected at appropriate times during the season. Sheath blight ratings were obtained on a plotwise basis at six locations. The natural occurrence of other diseases and insects present in these tests is monitored during the growing season and noted accordingly. Plots were harvested with a small-plot binder and threshed with a spike-tooth Vogel plot thresher. Standard procedures were used in processing the samples for grain and milling yield determinations.

Statistical analyses were performed on the yield data for each of the six sites. Subsequently, the data were combined over the six sites and analyzed using the SAS PROC GLM procedure. The least significant difference (LSD) for yield at the 5% significance level has been included in the tables to aid in comparing varieties. If the yields of any two varieties or lines differ by more than the LSD value, it can be concluded that their grain yields are significantly different.

The coefficient of variation (CV) provides a general indication of the level of precision of each variety trial. Lower CV values indicate greater reliability of the test. LSD and CV values are reported in the footnotes of Tables 1–7 and 9.

Results

The field performance of each variety in the six individual test locations is presented in Tables 1–6. Sheath blight ratings are listed in the location and summary tables (Tables 1–6 and 9–10). Average grain yields for individual sites ranged from 168 bushels per acre at Merigold to 213 bushels per acre at Hollandale (Table 6). The CV's for grain yields across sites were within an acceptable range at all locations in 2008, ranging from 7.6 to 17.7. Rough rice yields were lower, but milling yields were higher in 2008 than in 2007. The time of occurrence of environmental conditions such as sunlight intensity, heat, and cooler conditions at night probably influenced the lower yields and better milling yields of rice in 2008 as it did in a different way in 2007. Grain yields averaged 5% lower in the 2008 on-farm tests as compared with those in 2007. Blast was not observed in any of the on-farm test locations. Straighthead-type symptoms occurred in several plots at the Tunica location. The Tunica test was located in a freshly zero-grade land-formed field, which may help to explain the straighthead symptoms observed in some plots.

Table 7 provides a seven-location summary of grain yields for the 15 varieties and 6 experimental lines. The highest yielding entries were the experimental lines RU0804083 and RU0804114, each averaging 219 bushels per acre. They produced significantly higher yields than RU0704122 (195 bushels per acre) and all other 11 varieties (Table 7). These two experimental lines lodged less than all other varieties included in the 2008 on-farm test, which is an indication of their excellent straw strength. Bowman, Wells, and Sabine significantly outyielded Clearfield 161, Clearfield 171-AR, and Spring (Tables 7 and 9). Cocodrie averaged 68.4% total and 54.4% whole-grain milled rice across all six test locations (Table 9). The milling yield results obtained for the other varieties and lines are relative to Cocodrie as the reference check. Their relative rankings to one another are generally similar to previous years. The rain events for several weeks during maturity and resulting harvest delays were undoubtedly factors for some of the lower milling yields.

Bowman, a new high-yielding variety from Mississippi, was released in March 2007. Its yield is equal to that of Wells and averaged 3.4% higher whole-grain milling yield, resulting in a 130-pound-per-acre milled rice advantage as shown in the head rice yield column in Table 9. Milled head rice yields are reported to convey a variety's overall performance in terms of both milling quality and production per acre. Bowman has a larger grain and lodged less than Clearfield 151, Cheniere, and Clearfield 161. The Mississippi breeding line RU0704197 produced numerically more head rice (5,316 pounds per acre) than all other varieties except Sabine (Table 9), an indication of its superior milling quality.

Suggested varieties for Mississippi rice growers are Bowman, Cocodrie, Priscilla, Sabine, and Wells. The suggested hybrid is XL723. Keep in mind that the cost of hybrid seed is substantially higher than for conventional varieties. If growers

have red rice problems, they have a choice of at least four Clearfield varieties: Clearfield 151, Clearfield 131, Clearfield 161, and Clearfield 171-AR.

Average values for milling and agronomic characteristics, along with sheath blight ratings and approximate number of seed per pound per variety, for all locations are summarized in Table 9. The varieties Clearfield 171-AR and Spring produced less head rice than other varieties (Table 9). Milling yields for most breeding lines are generally good to excellent and comparable to commercial varieties (Table 9).

Lodging resistance should be considered when selecting a variety to grow. This is especially important when lodging occurs before fields are normally drained or when periods of rainy weather persist before harvest. This was well documented by the rainy weather that prevented timely harvest at Tunica, Blaine, and Hollandale (Tables 1, 4, and 6). Among the varieties and breeding lines, lodging was generally moderate to light (Tables 1–6). The entries that lodged the most were Clearfield 151 (53%), Clearfield 161 (50%), and Cheniere (38%) (Table 9).

The long-term performance of 15 varieties in the on-farm tests is presented in Table 10. Three-year and multiyear averages are indicated for individual varieties. Data averaged over several years are generally more reliable for predicting variety performance for yield and other characteristics. Grain yields of the commercial varieties in the 2007 tests averaged numerically higher than in the 2008 tests.

The performances of 11 commercial rice varieties included in other yield trials conducted at the Delta Research and Extension Center are reported in Table 8. The column labeled "average grain yield" indicates the performance of individual varieties for all years they were included in these tests since 1990. Individual varieties have been tested for different numbers of years. The 3-year average for yield compares varieties from 2005 through 2007. The yield data includes both standing and lodged plants, as the plots were harvested with a small-plot binder or hand-harvested. Important consideration should be given to the lodging data as an indication of straw strength. Efficient combine harvesting requires varieties with lodging resistance, particularly when adverse weather conditions may occur as the crop ripens and matures. Lodging also can reduce milling quality.

Information on disease reactions of individual varieties is presented in Table 11. The nitrogen fertility guidelines for commonly grown commercial varieties in Mississippi were provided by Tim Walker (Table 12).

Table 1. Performance of long-grain rice varieties and lines grown on Alligator clay soil near Tunica, Tunica County, Mississippi, 2008.[1]

Variety or line	Grain yield[2]	Milled head rice	Milling yield		Bushel weight	Plant height	50% heading[3]	Maturity[3]	Lodging	1000 seed weight[4]	Sheath blight[5]
			Total	Whole							
	bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*g*	*score*
XL723	213	5150	69.6	53.8	40.6	42	83	139	45	25.1	7
RU0804083	211	4969	68.0	52.3	41.1	42	83	136	0	25.2	0
RU0804114	206	4396	66.7	47.4	41.6	40	82	138	2	22.9	0
Wells	202	4419	68.8	48.6	42.6	42	84	139	51	21.8	0
Trenasse	199	4222	65.3	47.1	41.5	39	78	137	17	22.9	0
Sabine	199	5145	69.4	57.6	42.3	38	85	135	22	23.0	0
Catahoula	198	4192	69.5	46.7	43.2	38	85	137	7	21.0	0
RU0804191	193	5034	70.7	57.8	42.1	39	85	136	33	21.2	7
Cocodrie	185	4389	67.6	52.7	41.9	38	83	138	22	20.9	0
Bowman	175	3862	69.3	48.8	42.9	39	84	138	95	21.9	0
RU0704197	173	4205	68.7	54.0	42.0	41	86	135	45	18.1	0
Clearfield 151	172	3726	67.9	48.0	41.5	39	83	138	87	19.9	0
Presidio	172	4262	69.8	54.9	41.7	39	84	134	18	22.0	0
RU0704122	160	3972	69.8	55.2	42.6	42	86	132	47	20.0	0
Spring	159	2751	68.0	38.1	42.8	41	78	125	22	19.1	13
Priscilla	157	3220	66.4	45.6	41.1	39	86	138	53	23.7	0
RU0604035	156	3712	70.1	52.8	40.0	39	82	136	32	20.1	0
Clearfield 171-AR	151	3359	68.5	49.0	42.8	42	86	136	55	18.9	0
Cheniere	138	3296	69.5	53.1	40.7	39	83	137	95	17.9	0
Clearfield 161	134	3162	67.3	52.6	40.5	40	87	139	98	20.1	27
Clearfield 131	125	3029	67.7	52.9	41.2	33	86	136	30	19.1	3

[1]**Planting date**: April 16. **Emerged**: April 28. **Herbicides**: Valor® at 2 ounces per acre in fall of 2007; Super Wham® at 4 pounds per acre plus Aim® at 1 ounce per acre on May 12. **Fertilizer**: 41-0-0-4 at 290 pounds per acre on May 13; Urea at 130 pounds per acre on June 12. **Permanent flood**: May 13. **Insecticide**: Mustang Max® at 1 gallon to 40 acres on July 23. **Fungicide**: Quilt® at 14 ounces per acre on July 16. **Drained field**: August 6. NOTE: All hybrids were fertilized according to the cooperator's practice and not by RiceTec recommendations.
[2]Rough rice at 12% moisture. **A difference of 41 bushels per acre is required for one variety to differ from another at the 5% probability level. C.V. = 14.3%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 2. Performance of long-grain rice varieties and lines grown on Dowling clay soil near Clarksdale, Coahoma County, Mississippi, 2008.[1]

Variety or line	Grain yield[2]	Milled head rice	Milling yield		Bushel weight	Plant height	50% heading[3]	Maturity[3]	Lodging	1000 seed weight[4]	Sheath blight[5]
			Total	Whole							
	bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*g*	*score*
RU0804114	199	4534	65.9	50.7	43.9	41	90	138	0	23.3	0
Clearfield 151	191	4770	67.6	55.3	43.7	39	94	140	0	22.2	0
RU0604035	189	4464	66.7	52.4	42.7	37	92	135	0	22.4	0
RU0704197	187	4995	68.0	58.9	45.0	42	92	134	0	20.7	0
RU0804083	187	4556	67.0	54.1	44.5	39	93	135	0	26.3	0
Cheniere	186	4443	68.7	53.2	46.8	36	93	138	0	20.5	0
RU0704122	186	4775	69.1	57.1	44.8	39	94	134	0	21.4	0
Bowman	183	4359	68.2	52.8	45.2	39	96	138	0	23.5	0
Priscilla	176	4254	68.0	53.6	44.7	37	94	137	0	26.1	3
Cocodrie	176	4615	69.1	58.4	44.5	38	92	138	0	21.7	0
Clearfield 131	169	4641	69.3	60.9	44.0	34	93	140	0	21.4	0
Sabine	165	4566	68.9	61.4	44.3	37	94	136	0	22.6	0
RU0814191	164	4430	69.1	59.9	45.0	34	93	136	0	21.6	0
Wells	163	3686	69.9	50.0	45.5	41	94	139	0	23.5	0
Presidio	161	3528	68.9	48.6	44.0	37	89	119	0	22.7	0
Trenasse	159	3620	68.0	50.5	44.2	39	84	132	0	23.6	0
Clearfield 161	158	4089	67.0	57.3	43.5	39	98	141	0	20.1	0
Clearfield 171-AR	155	3956	69.3	56.4	45.4	39	97	140	0	21.3	0
Catahoula	150	3910	70.4	57.7	44.8	37	92	135	0	21.3	0
XL723	148	3670	69.3	55.1	41.6	43	91	134	0	24.5	0
Spring	129	2943	68.0	50.6	45.1	41	86	126	0	21.7	0

[1]**Planting date**: April 14. **Emerged**: April 30. **Herbicides**: Command® at 1 gallon to 8 acres on May 15; Propamil® at 4 quarts per acre plus Ordram® 8E at 3 pints per acre plus Grandstand® at 1 gallon to 12 acres on May 28. **Fertilizer**: Urea at 300 pounds per acre on May 29 and 100 pounds per acre on June 18. **Permanent flood**: June 30. **Insecticide**: Karate Z® at 1 gallon to 75 acres on August 5. **Fungicide**: Quadris® at 12 ounces per acre on May 1. **Drained field**: August 15. NOTE: All hybrids were fertilized according to the cooperator's practice and not by RiceTec recommendations.
[2]Rough rice at 12% moisture. **A difference of 27 bushels per acre is required for one variety to differ from another at the 5% probability level. C.V. = 9.7%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 3. Performance of long-grain rice varieties and lines grown on Dundee silt loam soil, near Merigold, Bolivar County, Mississippi, 2008.[1]

Variety or line	Grain yield[2]	Milled head rice	Milling yield		Bushel weight	Plant height	50% heading[3]	Maturity[3]	Lodging	1000 seed weight[4]	Sheath blight[5]
			Total	Whole							
	bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*g*	*score*
RU0804083	194	4459	66.7	51.1	43.5	39	79	124	0	25.4	0
Clearfield 151	193	4225	67.6	48.5	43.4	37	79	126	0	22.5	3
Cheniere	190	4647	69.1	54.3	43.9	36	79	127	0	20.6	13
Catahoula	188	4383	67.0	51.9	42.4	37	80	122	0	22.4	0
Trenasse	184	4274	69.3	51.5	43.4	37	71	117	2	24.4	0
XL723	184	3920	69.6	47.3	40.7	43	73	119	2	24.6	0
Bowman	180	4034	68.3	49.7	44.1	37	82	128	0	24.6	10
RU0704122	179	4321	69.5	53.6	44.4	42	80	118	7	20.6	0
Wells	174	3422	70.6	43.6	45.7	38	79	122	0	22.7	0
RU0804114	174	3169	64.5	40.5	42.1	39	76	124	0	21.5	53
Priscilla	172	3194	67.7	41.2	43.7	37	80	124	0	24.4	0
RU0704197	170	4059	67.7	53.0	44.2	39	80	121	0	19.4	13
RU0604035	169	3083	65.2	40.6	41.2	36	76	120	0	20.4	0
Presidio	168	3336	68.7	44.2	43.1	37	78	119	0	21.4	0
Clearfield 161	166	4275	68.2	57.2	43.6	38	85	128	0	21.3	3
Sabine	166	4167	68.7	55.6	44.4	36	80	127	0	22.5	0
Cocodrie	160	3707	68.4	51.5	44.9	36	78	124	0	22.6	0
Clearfield 131	158	3775	68.4	53.0	43.4	32	82	129	0	21.5	0
RU0804191	151	3485	69.2	51.3	44.7	33	79	120	0	22.4	0
Clearfield 171-AR	150	3473	69.6	51.6	45.3	37	85	129	0	21.4	0
Spring	146	2749	67.7	41.6	44.3	41	71	110	0	19.5	0

[1]**Planting date**: April 14. **Emerged**: May 4. **Herbicides**: RoundUp® at 1 quart per acre plus Command® at 1 gallon to 6 acres on April 10; Facet® at 0.5 pound-per-acre plus Permit® at 0.5 ounce per acres plus Crop Oil concentrate at 1 quart per acre on April 23. **Fertilizer**: MAP at 50 pounds per acre plus ammonium sulfate at 50 pounds per acre and Agrotain® treated urea at100 pounds per acre on May 20; urea at 100 pounds per acre on June 30; 41-0-0-4 at 155 pounds on June 13 and on June 23. **Permanent flood**: May 25. **Insecticide:** Prolex® at 1 gallon to 70 acres on May 25 and on July 28. **Fungicides**: Stratigo® at 14 ounces per acre on July 16. **Drained field**: August 15. NOTE: All hybrids were fertilized according to the cooperator's practice and not by RiceTec recommendations.
[2]Rough rice at 12% moisture. **A difference of 25 bushels per acre is required for one variety to differ from another at the 5% probability level. C.V. = 9.1%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 4. Performance of long-grain rice varieties and lines grown on Alligator clay soil, near Blaine, Sunflower County, Mississippi, 2008.[1]

Variety or line	Grain yield[2]	Milled head rice	Milling yield		Bushel weight	Plant height	50% heading[3]	Maturity[3]	Lodging	1000 seed weight[4]	Sheath blight[5]
			Total	Whole							
	bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*g*	*score*
RU0804083	246	6059	68.3	54.6	42.1	38	83	137	0	25.3	0
RU0804114	245	5531	66.6	50.1	42.3	38	80	142	0	24.8	0
Bowman	238	6364	70.8	59.3	44.3	37	87	142	17	23.6	0
RU0604035	233	6307	70.5	60.3	41.1	35	79	136	0	18.9	0
Priscilla	227	5045	68.8	49.3	42.1	37	84	140	45	24.4	0
RU0704122	225	6158	71.0	60.8	42.9	45	84	135	33	20.0	0
RU0804122	225	6262	70.9	62.1	44.3	35	82	136	0	22.8	0
Cocodrie	222	3678	69.7	56.7	43.0	37	81	142	0	21.7	3
Wells	222	5549	70.0	55.6	42.7	42	84	141	35	21.9	17
Cheniere	221	5410	69.7	54.2	41.8	38	81	139	32	18.8	0
Sabine	219	6415	71.6	65.0	43.8	34	83	140	0	23.9	0
Clearfield 151	214	5282	67.3	54.6	40.5	38	81	140	58	21.1	0
RU0704197	212	5608	69.0	58.7	42.7	42	85	137	15	18.7	0
Presidio	212	5670	71.4	59.4	42.1	36	80	135	0	22.8	0
Trenasse	209	4972	67.9	52.7	41.5	37	76	140	0	22.7	0
Catahoula	208	5703	72.6	61.2	44.5	35	80	139	0	24.1	0
Clearfield 131	206	5669	70.6	61.1	42.4	36	83	139	0	20.8	0
Clearfield 171-AR	191	4995	70.3	58.0	43.9	39	85	140	37	20.0	0
Clearfield 161	180	4476	68.4	55.4	41.7	38	86	140	63	19.8	7
XL723	160	3871	69.1	53.9	39.6	41	78	141	0	23.0	13
Spring	127	2583	67.3	44.9	42.3	3.8	77	134	0	20.0	10

[1]**Planting date**: April 15. **Emerged**: April 27. **Herbicides**: Regiment® at 0.57 ounce per acre, and Facet® at 0.5 pound per acre on May 20; 2-4D at 1 quart per acre on June 18. **Fertilizer**: Ammonium sulfate at 100 pounds per acre on April 25; Urea at 150 pounds per acre on May 20, 125 pounds per acre on June 13 and 25. **Date flushed**: May 21. **Permanent flood**: May 29. **Insecticides**: Karate Z® at 1 gallon to 66 acres on May 28 and July 31. **Fungicides**: Quilt® at 14 ounces per acre on July 18. **Drained field**: August 18. NOTE: All hybrids were fertilized according to the cooperator's practice and not by RiceTec recommendations.
[2]Rough rice at 12% moisture. **A difference of 41 bushels per acre is required for one variety to differ from another at the 5% significance level. C.V. = 12%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 5. Performance of long-grain rice varieties and lines grown on Tunica clay soil near Stoneville, Washington County, Mississippi, 2008.[1]

Variety or line	Grain yield[2]	Milled head rice	Milling yield		Bushel weight	Plant height	50% heading[3]	Maturity[3]	Lodging	1000 seed weight[4]	Sheath blight[5]
			Total	Whole							
	bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*g*	*score*
Wells	229	5382	69.2	52.2	43.0	45	85	138	0	23.4	0
Bowman	228	5257	66.6	51.1	42.5	41	88	138	0	23.3	0
RU0804114	224	4931	66.5	49.0	41.3	43	81	137	0	24.0	0
Priscilla	221	4289	65.5	43.2	40.6	42	84	136	1	24.4	0
Cocodrie	220	5461	68.5	55.3	42.1	40	82	137	0	20.7	3
RU0804083	219	5142	68.3	52.2	41.2	42	83	135	0	26.1	0
Sabine	219	5728	68.1	58.1	41.6	40	85	138	0	22.7	0
XL723	217	5550	71.4	56.5	39.4	48	77	134	0	24.6	7
Presidio	216	5313	70.9	54.7	41.0	40	80	135	0	23.5	7
RU0604035	208	4803	68.0	51.3	40.1	39	84	135	0	20.9	0
RU0804191	205	5634	70.7	61.3	42.7	35	86	134	0	23.2	7
RU0704122	204	5497	72.2	59.9	42.6	46	82	131	0	21.5	0
Cheniere	203	4903	69.5	53.7	40.7	40	85	136	1	20.1	7
Catahoula	199	5404	72.4	60.2	42.9	43	84	136	1	22.4	7
Trenasse	198	4313	67.3	48.6	41.5	41	76	135	62	22.5	0
Clearfield 161	196	5091	68.4	57.8	42.0	42	89	141	42	20.8	7
RU0704197	195	5061	70.1	57.6	42.4	44	84	136	0	21.1	3
Clearfield 131	187	5139	71.6	61.1	41.1	37	84	137	0	21.4	0
Spring	185	4096	69.9	49.2	42.8	43	75	125	15	20.5	3
Clearfield 171-AR	182	4542	69.5	55.5	43.5	44	88	138	2	20.6	0
Clearfield 151	177	4109	68.4	51.7	40.7	41	82	138	90	22.1	0

[1]**Planting date**: May 6. **Emerged**: May 15. **Herbicides**: Command® at 1 gallon to 7.5 acres, plus Permit® at 0.67 ounces per acre plus RoundUp® at 1 quart per acre on May 7; Facet® at 0.57 pound per acre plus Prowl® at 2.2 pints per acre on May 21; Arrosolo® at 4 quarts per acre plus Bolero® at 4 pints per acre plus Permit® at 0.67 ounce per acre on June 17. **Fertilizer**: Urea at 130 pounds per acre on June 16 and 100 pounds per acre on July 21. **Date flushed**: May 8. **Permanent flood**: June 18. **Insecticide**: Mustang Max at 1 gallon to 33 acres on June 17. **Drained field**: September 15. NOTE: All hybrids were fertilized according to the cooperator's practice and not by RiceTec recommendations.
[2]Rough rice at 12% moisture. **A difference of 24 bushels per acre is required for one variety to differ from another at the 5% probability level. C.V. = 7%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 6. Performance of long-grain rice varieties and lines grown on Dundee silty clay loam soil near Hollandale, Washington County, Mississippi, 2008.[1]

Variety or line	Grain yield[2]	Milled head rice	Milling yield		Bushel weight	Plant height	50% heading[3]	Maturity[3]	Lodging	1000 seed weight[4]	Sheath blight[5]
			Total	Whole							
	bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*g*	*score*
RU0704197	304	7967	69.6	58.2	4410	46	90	135	0	1837	0
RU0804114	264	5778	66.3	48.7	42.9	40	85	135	0	24.6	0
RU0804083	259	6484	66.7	55.7	42.3	44	87	135	0	25.4	0
RU0604035	254	6065	68.3	53.0	41.7	40	86	134	0	22.6	0
RU0804191	243	6569	70.4	60.1	44.4	35	87	135	0	22.8	0
Priscilla	227	4966	68.3	48.3	42.8	41	92	143	33	23.6	0
Clearfield 131	226	6205	70.3	61.0	43.2	35	92	141	0	21.7	0
Sabine	222	6172	69.8	61.9	44.4	38	90	137	0	22.9	0
Spring	217	4695	68.4	48.0	44.2	45	85	126	2	20.8	0
Trenasse	216	4765	68.4	47.5	42.3	41	79	137	70	21.1	0
Clearfield 151	216	5240	67.5	54.1	41.8	41	90	137	82	21.8	0
RU0704122	216	5491	70.6	56.5	43.9	45	89	134	0	20.8	0
Catahoula	215	5242	71.2	53.5	44.0	41	89	140	13	20.8	0
Presidio	215	5425	68.7	56.2	43.1	39	86	135	2	21.7	0
XL723	210	5357	70.1	55.3	40.5	44	88	140	27	24.1	0
Wells	206	4418	70.9	44.5	44.3	45	93	143	65	17.7	0
Cheniere	202	4565	71.4	50.1	42.9	40	92	147	97	19.0	0
Clearfield 161	200	4516	67.3	49.1	41.3	41	101	153	98	19.8	0
Bowman	197	4803	70.1	53.6	44.4	40	96	146	67	21.7	0
Clearfield 171-AR	192	4375	69.9	49.9	44.5	41	96	146	63	20.8	0
Cocodrie	166	3957	67.4	51.9	42.8	41	89	141	63	20.8	0

[1]**Planting date**: March 27. **Emerged**: April 14. **Herbicides**: Command® at 1 gallon to 6 acres plus RoundUp® at 1 gallon to 4 acres on March 28; Aim® at 0.75 ounce per acre plus Strada® 2.1 ounces per acre plus Prolex® at 1 gallon to 80 acres on May 22; Clincher® at 15 ounces per acre on June 1. **Fertilizer**: Ammonium sulfate at 100 pounds per acre on April 23; Urea at 100 pounds per acre on May 23, June 2, 11, and 19. **Permanent flood**: May 23. **Insecticide**: Prolex® at 1 gallon to 80 acres on July 16. **Fungicide**: Stratego® at 14 ounces per acre on July 7. **Drained field**: August 7. NOTE: All hybrids were fertilized according to the cooperator's practice and not by RiceTec recommendations.
[2]Rough rice at 12% moisture. **A difference of 61 bushels per acre is required for one variety to differ from another at the 5% probability level. C.V. = 17.7%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 7. Average rough rice yields of long-grain varieties, hybrids, and lines evaluated in on-farm trials at six locations, 2008.

Variety or line	Location						Average
	Tunica	Clarksdale	Merigold	Blaine	Stoneville	Hollandale	
	bu/A	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*
RU0804083	211	187	194	246	219	259	219
RU0804114	206	199	174	245	224	264	219
RU0704197	173	187	170	212	195	304	207
RU0604035	156	189	169	233	208	254	201
Bowman	175	183	180	238	228	197	200
Wells	202	163	174	222	229	206	199
Sabine	199	165	166	219	219	222	198
RU0804191	193	164	151	225	205	243	197
Priscilla	157	176	172	227	221	227	197
RU0704122	160	186	179	225	204	216	195
Trenasse	199	159	184	209	198	216	194
Clearfield 151	172	191	193	214	177	216	194
Catahoula	198	150	188	208	199	215	193
Presidio	172	161	168	212	216	215	191
Cheniere	138	186	190	221	203	202	190
XL723	213	148	184	160	217	210	189
Cocodrie	185	176	160	222	220	166	188
Clearfield 131	125	169	158	206	187	226	179
Clearfield 161	134	158	166	180	196	200	172
Clearfield 171-AR	151	155	150	191	182	192	170
Spring	159	129	146	127	185	217	161
Mean	175	170	168	212	207	213	191
LSD 0.05	41	27	25	41	24	61	23
CV %	14.3	9.7	9.1	12.0	7.0	17.7	18.3
Location Plant Date	4/16	4/14	4/14	4/15	5/6	3/27	

Table 8. Annual and average grain yields and agronomic characteristics of long-grain commercial varieties grown at the Delta Research and Extension Center, Stoneville, Mississippi, 1990-2007.

Variety [1]	Origin [2]	Grain yield [3]			Years	Milling yield		Plant	50%	Lodging	Bushel
		2007	3-yr avg.	Avg.	in test	Total	Whole	height	heading		weight
		bu/A	*bu/A*	*bu/A*	*no.*	*%*	*%*	*in*	*days*	*%*	*lb*
Bowman	MS	207	211	212	4	65.7	47.3	40	88	14	42.3
Catahoula	MS	191	205	190	5	67.1	50.4	39	87	10	42.1
Cheniere	LA	199	208	193	8	67.1	52.8	37	85	8	41.9
Cocodrie	LA	203	203	188	13	66.8	53.9	39	82	6	42.3
Cybonnet	AR	195	186	177	8	67.1	54.6	39	85	3	42.7
Dellrose	LA	154	146	151	17	67.9	50.0	41	82	12	43.3
Francis	AR	233	207	205	9	65.5	47.5	40	84	18	42.3
Hidalgo	TX	203	174	171	8	65.2	51.2	39	81	37	40.5
Presidio	TX	220	201	187	9	66.9	51.9	39	82	6	42.0
Priscilla	MS	213	214	182	14	66.6	50.7	40	84	9	42.9
Sabine	TX	219	196	175	7	65.6	48.1	34	86	10	42.6
Spring	AR	184	182	178	7	64.1	43.2	42	78	14	41.7
Trenasse	LA	204	195	187	6	63.7	43.5	40	82	24	40.7
Wells	AR	216	230	195	12	68.7	46.9	42	82	3	44.1

[1]Dellrose = long-grain aromatic; Sabine and Bowman have the Rexmont cooking and processing qualities.
[2]Origin: AR = Arkansas, LA = Louisiana, MS = Mississippi, TX = Texas.
[3]In 2002, 2004, and 2005, variable size areas of stunted plant growth and development, perhaps from chemical drifting, occurred at random across the tests, affecting results and variety performance.

Table 9. Average agronomic and milling performance of long-grain varieties, hybrids, and lines grown at six on-farm locations, 2008.

Variety or line	Origin[1]	Average yield[2]		Milling yield		Bushel weight	Plant height	50% heading[3]	Maturity[3]	Lodging	1000 seed weight[4]	Sheath blight[5]	Approximate seed/pound
		Rough rice	Head rice	Total	Whole								
		bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*g*	*score*	*no.*
RU0804083	MS	219	5278	67.5	53.3	42.5	41	85	134	0	25.7	0	17649
RU0804114	MS	219	4723	66.1	47.7	42.3	40	82	136	0	23.5	9	19302
RU0704197	MS	207	5316	68.9	56.7	43.4	42	86	133	10	19.5	3	23261
RU0604035	MS	201	4739	68.1	51.8	41.2	38	83	133	5	20.9	0	21703
Bowman	MS	200	4780	68.9	52.5	43.9	39	89	138	30	23.1	2	19636
Wells	AR	199	4480	69.9	49.1	44.0	42	86	137	25	21.8	3	20807
Sabine	TX	198	5366	69.4	59.9	43.4	37	86	139	4	22.9	0	19808
RU0804191	MS	197	5236	70.2	58.8	43.9	35	85	133	6	22.3	2	20340
Priscilla	MS	197	4162	67.4	46.9	42.5	39	87	136	22	24.4	0	18590
RU0704122	MS	195	5036	70.4	57.2	43.5	43	85	131	15	20.7	0	21913
Trenasse	LA	194	4361	67.7	49.7	42.4	39	78	133	25	22.8	0	19894
Clearfield 151	LA-H	194	4559	67.7	52.0	41.9	39	85	136	53	21.6	1	21000
Catahoula	LA	193	4806	70.5	55.2	43.6	38	85	135	4	22.0	1	20618
Presidio	TX	191	4589	69.7	53.0	42.5	38	83	129	3	22.4	1	20250
Cheniere	LA	190	4544	69.7	53.1	42.3	38	85	137	38	19.5	3	23261
XL723	RT	189	4586	69.8	53.6	40.4	43	82	135	12	24.3	4	18666
Cocodrie	LA	188	4634	68.4	54.4	43.2	38	84	137	14	21.4	1	21196
Clearfield 131	LA-H	179	4743	69.6	58.3	42.6	34	87	137	5	21.0	1	21600
Clearfield 161	LA-H	172	4268	67.8	54.9	42.1	40	91	140	50	20.3	7	22344
Clearfield 171-AR	AR-H	170	4117	69.5	53.4	44.2	40	90	138	26	20.5	0	22126
Spring	AR	161	3303	68.2	45.4	43.6	42	79	125	6	20.2	4	22455
Mean		199	4634	68.8	53.6	42.6	39	85	134				
LSD 0.05		23	689	1.0	2.9	0.8	1.5	3.5	4.9				
CV %		18.3	22.7	2.2	8.4	2.8	6.0	6.3	5.6				

[1]Origin: AR = Arkansas (AR-H = Arkansas origin and seed marketing done by Horizon Ag, LLC.); LA = Louisiana (LA-H = Louisiana origin and seed marketing done by Horizon Ag, LLC.); MS = Mississippi; RT = RiceTec, Inc.; TX = Texas.
[2]Rough rice at 12% moisture.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight rating using average percent of plants infected.

Table 10. Annual and average grain yields along with agronomic and milling data averages of rice varieties and lines grown in the Delta on-farm tests from 2002 to 2008.[1]

Variety or line	Grain yield [2]								3-year avg.[3]	Total tests	Milling yield [4]		Bushel weight	Plant height	Days to [5]		Lodging	1000 seed weight [6]	Sheath blight [7]
	2002	2003	2004	2005	2006	2007	2008	Avg.			Total	Whole			Heading	Maturity			
	bu/A	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*no.*	*%*	*%*	*lb*	*in*	*no.*	*no.*	*%*	*g*	*score*
Priscilla	178	192	196	179	—	214	197	187	196	97	71.2	56.3	42.2	39	84	129	12	26.8	17
Cocodrie	180	195	209	176	194	213	188	186	192	83	70.9	60.4	42.3	40	82	130	14	23.5	23
Wells	183	200	201	178	—	216	199	195	198	69	72.6	55.5	43.7	42	83	130	19	24.7	20
Clearfield 161	157	169	185	149	—	—	172	164	169	41	71.2	62.3	42.0	40	85	134	40	21.5	22
Cheniere	—	199	212	168	190	—	190	192	190	34	72.3	60.2	42.4	37	87	134	20	21.5	13
Cybonnet	—	185	186	163	—	—	—	178	178	21	74.5	65.4	43.8	39	85	129	20	24.0	6
XL723	—	—	232	165	221	219	189	205	210	34	70.6	55.8	39.6	44	81	132	24	25.9	6
Sabine	—	—	183	177	192	200	198	190	193	34	70.4	60.5	43.4	38	85	132	14	24.1	1
Clearfield 131	—	—	—	161	187	—	179	176	176	20	69.7	59.4	42.8	35	88	134	14	22.4	3
Clearfield 171-AR	—	—	—	—	177	184	170	177	177	20	68.1	53.9	44.0	40	87	133	11	22.2	3
Presidio	—	—	—	173	191	200	191	189	194	27	69.3	54.2	41.6	38	84	127	17	23.8	3
Trenasse	—	—	—	139	188	208	194	182	197	27	66.1	51.7	41.0	40	80	129	38	24.8	2
Bowman	—	—	—	—	—	216	200	208	—	13	68.0	50.9	43.9	39	83	134	22	24.5	7
Spring	—	—	—	—	—	176	161	169	—	13	67.0	42.8	43.2	43	79	124	20	21.3	8
Catahoula	—	—	—	—	—	—	193	193	—	6	70.5	55.5	43.6	38	85	135	4	22.0	1
Clearfield 151	—	—	—	—	—	—	194	194	—	6	67.7	52.0	41.9	39	85	136	53	21.6	1

[1]Test locations were in farmers' fields extending from the northern to the southern Delta area.
[2]Rough rice at 12% moisture. Data columns for 1991 to 2001 were omitted, but their numbers were included in the average yield and total test numbers.
[3]Average of the three most recent years tested.
[4]Values for milling and agronomic characteristics are accumulated means over all years of testing.
[5]Days after emergence.
[6]Weight of 1000 kernels at 12% moisture.
[7]Sheath blight score using average percent of all plants infected on a plot basis.

Table 11. Reactions of rice varieties to common diseases.[1]

Variety	Blast	Sheath blight	Kernel smut	Straight head	Brown leaf spot	Narrow brown leaf spot	Leaf smut	Stem rot	False smut	Bacterial panicle blight
Banks	MS	MS	VS	MS	R	R	MR	S	S	—
Bowman	S	S		MS	—	—	—		—	—
Catahoula	R	S		MR	—	—	—		—	—
CL 151	S	S	S	VS	R	S	—	S	S	VS
Cheniere	S	S		R	—	MR	MR		—	—
Clearfield 131	MS	VS	S	VS	R	VS	—	—	S	VS
Clearfield 161	MS	VS	S	MS	R	MS	MS	S	S	S
Clearfield 171-AR	MS	VS	S	MS	R	MS	MR	S	S	S
Clearfield XP730	MR	MS	MS	MR	—	MR	—	S	MS	MR
Cocodrie	S	VS	VS	S	MR	MR	MS	S	S	VS
Cybonnet	MR	S	S	MS	R	S	MR	S	S	—
Dixiebelle	MS	VS	—	MS	MS	R	R	S	—	—
Francis	S	MS	S	MS	MS	S	MS	S	S	—
Jefferson	MS	MS	S	MS	MR	MR	MR	MS	MR	—
Priscilla	MS	MS	S	MR	R	MR	MR	S	S	—
Presidio	MS	MS	MS	MR	MR	MS	—	—	—	—
Sabine	S	MS	—	MR	—	—	—	—	—	—
Spring	MS	S	MS	S	—	MS	—	VS	MS	S
Trenasse	MS	S	S	S	—	MS	—	S	MS	S
Wells	S	MS	MS	MS	MR	MR	MS	S	S	VS
XL723	MR	MS	MS	MR	—	MR	—	S	MS	MR

[1]Abbreviations: R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible.
Note: These ratings are subject to change as new or further information may become available.

Table 12. Nitrogen fertility rate guidelines.

Variety	Clay soils			Silt loam soils		
	Preflood	Midseason	Boot Split	Preflood	Midseason	Boot Split
	lb/A	*lb/A*	*lb/A*	*lb/A*	*lb/A*	*lb/A*
Bowman	120-150	30-60	0	120	45	0
Clearfield 131	120-150	30-60	0	120	45	0
Clearfield 151	120-150	30-60	0	120	45	0
Clearfield 161[1]	90-120	30-60	0	90	60	0
Clearfield 171-AR	120-150	30-60	0	120	45	0
Cocodrie	120-150	30-60	0	120	45	0
Sabine	120-150	30-60	0	120	45	0
Wells	120-150	30-60	0	120	45	0
Hybrids						
Clearfield XL 729	120-150	0	45	120	0	30
Clearfield XL745	120-150	0	45	120	0	30
XL723	120-150	0	45	120	0	30

[1]Variety is more prone to lodging with excessive preflood nitrogen rates.

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