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MISSISSIPPI RICE

VARIETY TRIALS, 2006

Experiment Station
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NOTICE TO USER

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.

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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, 2006

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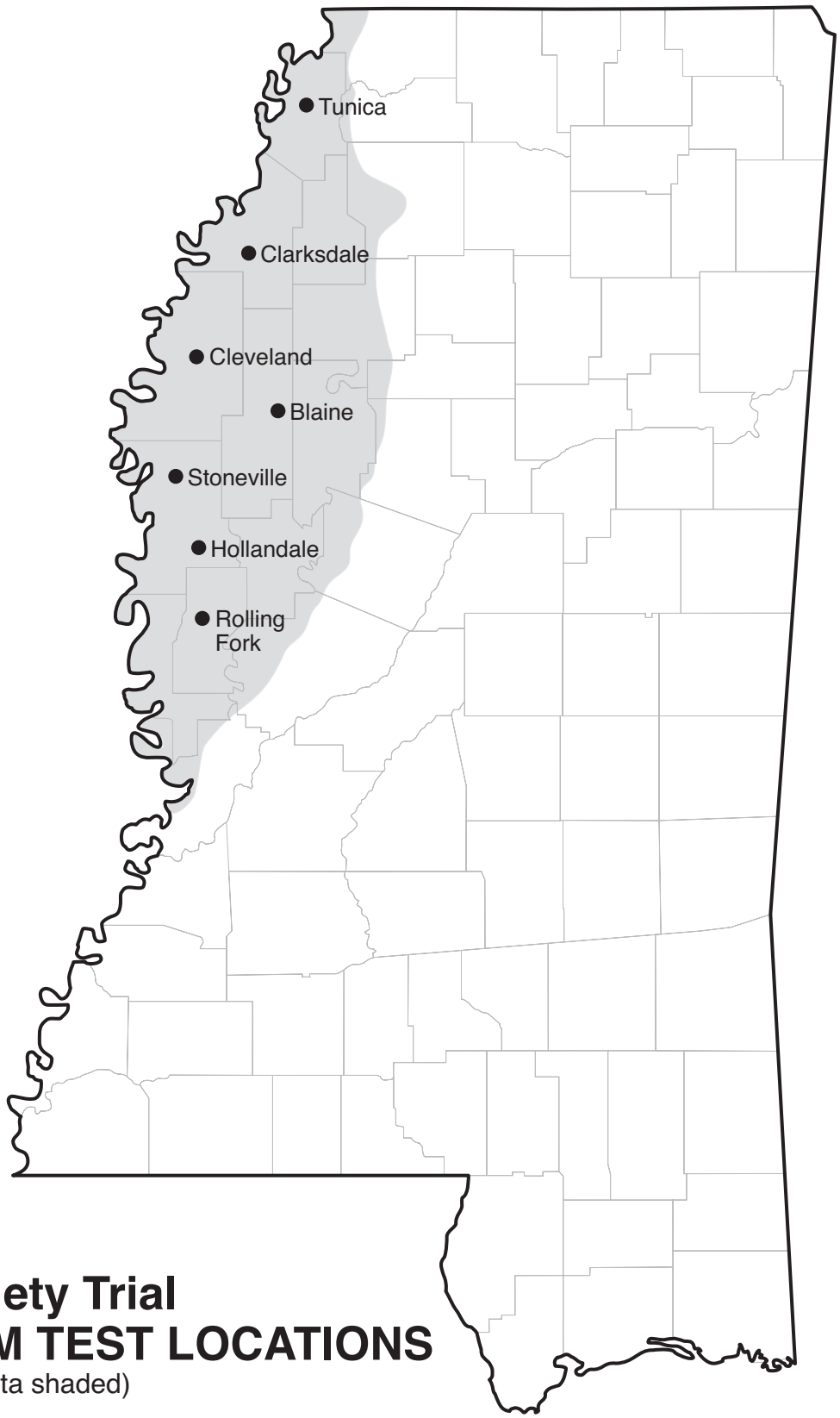

Rice Variety Trial
ON-FARM TEST LOCATIONS
(Mississippi Delta shaded)

Mississippi Rice Variety Trials, 2006

Introduction

In 2006, approximately 190,000 acres of rice were planted in 14 Delta counties of Mississippi compared with 263,000 acres planted in 2005. Bolivar County had the highest planted acreage at 53,000 acres. Essentially all the production in Mississippi was from long-grain rice. Cocodrie was the predominant variety grown in the Mississippi Delta this year, occupying 45% of the rice acreage, followed by Clearfield 131 at 29% and Cheniere at 18%. Other varieties and hybrids including Sabine, Francis, and Priscilla were grown on about 7% of the acreage.

The on-farm rice variety tests represent the final step in the breeding program's yield performance evaluations before a variety is released for commercial production in Mississippi. Conducting these tests on commercial farms across the Delta provides important information on variety performance and adaptability under diverse environmental and management conditions. These test locations give a partial sampling of actual production situations in the Delta, where practically all Mississippi rice is produced. These multiple locations also permit evaluation of test entries for resistance to pests and/or other field related stresses, which often have a greater natural incidence at locations other than at the Delta Research and Extension Center (DREC). There was no observed incidence of blast at any of the test locations. The incidence of sheath blight at the on-farm test locations ranged from light to moderate in 2006. False smut was observed at some test locations at very low infestation levels. Kernel smut was not observed at any of the on-farm tests.

Planting dates for the different locations ranged from April 11 to May 17, which are within the typical period for planting rice in the Delta. Three tests, Cleveland, Stoneville, and Hollandale, were planted into conventionally prepared seedbeds, and the other four were planted into stale seedbeds. Four of the test location fields were flushed: Blaine, Hollandale, Rolling Fork, and Stoneville. Light to moderate sheath blight infection developed on susceptible entries at the Blaine, Cleveland, Rolling Fork, and Stoneville sites. Soil samples were taken at planting within the test area at each location. All results indicated nutrient levels were generally high at all locations. However, the Blaine location had medium levels of sulfur and zinc, Hollandale had a medium level of phosphorus, and Rolling Fork had a medium level of sulfur.

Variety selection is one of the most important decisions a rice producer makes in preparing production plans each season. This information 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. Data summarized over locations and years are generally a more reliable measure to show future variety performance than individual test results. 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 19 long-grain varieties, hybrids, and breeding lines reported here were included in the variety test planted at each of the seven locations. Among the 19 test entries were six varieties. One variety, Sabine, is a specialty type for canning but also can be used for other purposes. The three hybrids were provided by RiceTec, Inc. Seed of Clearfield 131 and Clearfield 171-AR were provided by Horizon Ag. Among the 10 Mississippi lines, five are considered to have processing characteristics comparable to Sabine based on preliminary quality laboratory results. Each test consisted of three replications. The plots at all locations consisted of six 7.5-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 and 35 pounds per acre for the hybrids. The 20% higher seeding rate was used to compensate for the limited seed treatment applied to the experimental lines planted in the tests and possible harsh seedbed conditions. Cultural practices were decided by and were performed by the cooperator and varied by location. Overall, the tests were grown under field conditions of high productivity. The three hybrids were not fertilized according to recommendations under these test conditions. Therefore, their yields may be lower than normal. The field management practices applied for each location are recorded in the footnotes of Tables 1-7. [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 *2005 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 plot-wise basis at seven locations. The natural occurrence of other diseases and insects present in these test plots was monitored during the growing season and noted accordingly. Plots were harvested with a small-plot binder, except for Blaine and Tunica, which were harvested with a small-plot combine because the stands were very poor. Standard procedures were used in processing the samples for grain and milling yield determinations.

Statistical analyses were performed on the yield data for each location. The data combined over the seven locations were analyzed using the SAS PROCGLM procedure. The least significant difference (LSD) for yield at the 5% significance level was 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 the variety with the higher yield is superior to the variety with the lower yield.

The coefficient of variation (CV) provides a general indication of the level of precision of each variety test. Lower CV values indicate greater reliability of the test. LSD and CV values are reported in the footnotes of the first 11 tables, except for Table 9.

Results

The field performance of each variety in the seven individual test locations is presented in Tables 1-7. Sheath blight ratings are listed in the location and summary tables (Tables 1–7 and 10-12). Average grain yields ranged from 144 bushels per acre at Tunica to 221 bushels per acre at Rolling Fork (Table 8). The CVs for grain yields across locations were within an acceptable range at six locations in 2006. The Tunica location had an unacceptable CV. Rough rice along with total and whole-grain milling yields were higher in 2006 than in 2005. The intense sunlight resulting from the many cloudless days during the grain-filling period probably contributed to higher grain yields. The associated above-average temperatures did not appear to be detrimental to higher grain milling quality. In addition, the low incidence of diseases, insects, and lodging were also favorable for higher grain and milling yields. There were stand problems in the tests located at Blaine and Tunica. Glyphosate herbicide drifted across the test area at Blaine, severely reducing rice stands. The rice at Tunica emerged to a poor stand due to dry seedbed conditions. Seven varieties and 10 breeding lines that were in both the 2005 and 2006 on-farm tests averaged 12% to 13% higher grain yield this year. Straighthead and blast were not observed in any of the on-farm tests.

Table 8 provides a seven-location summary of grain yields for the 11 varieties and 10 experimental lines. The highest yielding variety was the hybrid XL 723 at 221 bushels an acre. It significantly outyielded all other varieties, except the hybrids Clearfield XP 729 and Clearfield XL 730. However, it did not significantly outyield six experimental lines, RU040154, RU0404194, RU0404191, RU0504191, 0011580, and RU0504198 (Table 8 and 10). Clearfield 171-AR was released in 2006 by Arkansas as an additional public Clearfield variety.

Table 11 and Figure 1 are included to compare with Table 10. The data from only five locations are used for the averages in Table 11 and Figure 1. Data from the two locations (Tunica and Blaine) that sustained stand establishment problems were excluded. The yield averages are higher when the data from the two affected tests are not included (Table 10 and 11 and Figure 1).

Suggested varieties for Mississippi rice growers would be Cocodrie, Priscilla, Sabine, and Wells. Suggested hybrids are XL 723, Clearfield XP 729, and Clearfield XL 730. 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 three Clearfield varieties that would be available, Clearfield XP 729, Clearfield XL 730, and Clearfield 131. Seed of Clearfield 171-AR may or may not be available since it is a new variety just released by Arkansas (Table 10).

Average values for milling and agronomic characteristics, along with sheath blight ratings, for all locations are also summarized in Table 10. Head rice yields are reported to convey a variety's overall performance in terms of whole-grain milled rice

produced per acre. The variety Trenasse produced comparatively less head rice than the other varieties (Table 10). Milling yields for most breeding lines are generally good to excellent and very comparable to released varieties (Table 10).

Lodging resistance should be seriously considered when selecting a variety to grow. This is especially important when it occurs before fields are normally drained or when rainy weather persists before harvest. Among the varieties and breeding lines, lodging was generally negligible to light (Tables 1-7). The entries that lodged the most were Clearfield XP 729 at 38%, Clearfield XL 730 at 31%, XL 723 at 18%, and Trenasse at 15% (Table 10).

The long-term performance of 19 varieties in the on-farm tests is presented in Table 12. 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. Average grain yields in 2006 for the commercial varieties were numerically higher than the 2005 yields.

The performances of 13 commercial rice varieties included in other yield trials conducted at the Delta Research and Extension Center are reported in Table 9. 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 yield average compares varieties from 2003 to 2005. The yield data includes both standing and lodged plants as the plots were hand-harvested or harvested with a small-plot binder. Important consideration should be given to the lodging data as an indication of straw strength. Efficiency in combine harvesting requires varieties with lodging resistance, particularly when adverse weather conditions may occur as the crop ripens and matures.

Information on disease reactions of individual varieties is presented in Table 13. The nitrogen fertility guidelines for commonly grown commercial varieties in Mississippi were provided by Tim Walker (Table 14).

Table 1. Performance of long-grain rice varieties, hybrids, and lines grown on Sharkey-Alligator clay soil near Tunica, Tunica County, Mississippi, 2006.[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*
XL 723	204	4333	67.6	47.2	47.7	42	85	130	7	25.6	0
RU0504198	185	4138	68.2	49.7	42.4	37	90	134	0	26.6	0
Clearfield XL 730	181	3657	68.5	44.9	42.3	43	85	128	0	24.8	0
RU0404194	173	3986	69.5	51.2	44.4	38	89	131	2	24.4	7
Clearfield 131	169	3361	68.2	44.2	43.6	33	91	132	0	23.5	0
RU0504191	166	3481	69.5	46.6	44.0	39	88	129	0	24.6	0
RU0504196	165	4165	69.0	56.1	43.7	36	91	135	0	23.7	0
Clearfield XP 729	161	3420	68.4	47.2	42.1	39	84	128	0	25.4	0
Sabine	161	3883	69.0	53.6	43.8	36	93	134	0	24.5	0
0011580	156	2948	68.7	42.0	43.9	38	89	132	0	25.5	0
RU0404154	153	2761	68.7	40.1	44.0	38	90	133	0	24.6	0
Clearfield 171-AR	150	3382	69.8	50.1	44.1	36	92	132	0	24.3	0
Trenasse	150	3227	69.8	47.8	43.1	35	83	128	0	25.6	0
RU0404191	147	3321	69.9	50.2	43.5	39	92	137	3	24.7	0
RU0504193	144	3234	68.7	49.9	43.0	36	89	133	0	29.5	0
RU0504122	139	3146	69.1	50.3	43.0	35	87	129	0	24.6	0
Cocodrie	138	2975	68.2	47.9	44.1	36	88	134	0	25.4	0
Presidio	138	2639	69.1	42.5	42.7	34	87	122	0	23.8	0
RU0504083	103	2484	71.1	53.6	44.1	29	84	127	0	26.6	0

[1]**Planting date**: April 12. **Emerged**: April 29. **Herbicides**: Command® at 1 gallon to 6 acres plus Roundup® at 1 qt/A on April 11; Clincher® at 20 oz/A plus Permit® at 0.5 oz/A plus crop oil concentrate at 13 oz/A on May 22. **Fertilizer**: Urea at 260 lb/A on May 24 and 140 lb/A on June 14. **Permanent flood**: May 25. **Insecticide**: Karate® at 1 gallon to 80 acres on July 20. **Fungicide**: Quilt® at 17 oz/A on June 25. **Drained field**: August 10. 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 60 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 25.7%.

[3]Days after emergence

[4]Weight of 1000 kernels at 12% moisture.

[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 2. Performance of long-grain rice varieties, hybrids, and lines grown on Dowling clay soil near Clarksdale, Coahoma County, Mississippi, 2006.[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*
Clearfield XL 730	251	7025	71.4	62.2	40.5	45	92	129	0	25.8	0
Clearfield XP 729	246	6874	70.1	62.1	40.0	43	85	131	0	26.5	0
RU0404154	243	5642	68.3	51.6	43.6	40	84	126	0	25.5	0
RU0404191	242	6904	71.2	63.4	44.4	37	87	132	0	28.2	0
XL 723	238	6308	69.9	58.9	40.0	43	85	126	0	28.8	0
0011580	237	6186	70.0	58.0	44.0	37	87	130	0	26.6	0
RU0404194	233	6668	71.5	63.6	44.9	39	87	128	0	27.5	0
RU0504191	232	6515	70.9	62.4	44.1	41	86	127	0	26.6	0
Cocodrie	225	6065	69.2	59.9	43.1	37	88	129	0	26.4	0
RU0504198	222	6294	70.8	63.0	41.6	38	86	130	0	31.6	0
RU0504196	216	6299	70.5	64.8	43.7	37	90	136	0	25.7	0
RU0504122	213	5856	69.6	61.1	41.9	37	89	132	0	25.7	0
RU0504193	211	5858	68.4	61.7	41.9	37	87	131	0	26.7	0
Trenasse	208	5139	68.3	54.9	41.8	38	84	127	0	28.6	0
Sabine	203	5709	70.2	62.5	43.6	36	87	127	0	26.7	0
RU0504083	202	5599	73.0	61.6	43.5	31	86	125	0	27.7	0
Presidio	194	4592	70.8	52.6	42.4	36	84	117	0	26.8	0
Clearfield 131	193	5489	71.6	63.2	42.4	33	89	129	0	25.4	0
Clearfield 171-AR	182	5307	70.9	64.8	44.4	37	89	128	0	24.7	0

[1]**Planting date**: April 12. **Emerged**: April 22. **Herbicides**: Facet® at 0.5 lb/A plus Regiment® at 0.3 oz/A plus Bolero® at 4 pt/A on May 16. **Fertilizer**: 41-0-0-4 at 300 lb/A on May 18; Urea at 100 lb/A on June 21. **Permanent flood**: May 19. **Insecticide**: Karate Z® at 1 gallon to 75 acres on August 2. **Fungicide**: Quadris® at 12 oz/A on July 7. **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 22 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 6.4%.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 3. Performance of long-grain rice varieties, hybrids, and lines grown on Sharkey silty clay soil near Cleveland, Bolivar County, Mississippi, 2006.[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*
Clearfield XP 729	228	5715	68.6	55.7	37.6	45	88	140	62	24.9	0
RU0404154	220	4772	69.2	48.2	42.8	39	83	129	0	21.8	3
0011580	215	5582	70.2	57.7	44.0	39	87	134	0	24.8	3
XL 723	214	5643	69.2	58.6	38.0	38	88	143	17	24.9	7
RU0504196	209	5596	68.2	59.5	42.1	41	90	139	0	24.2	0
Presidio	208	5953	72.9	63.6	40.7	39	87	130	0	24.0	13
RU0504191	207	5766	69.8	61.9	42.3	40	86	132	3	24.0	10
Clearfield XL 730	204	5499	69.4	59.9	37.6	44	90	139	25	26.2	0
Cocodrie	203	5399	68.5	59.1	41.4	42	86	133	0	23.9	0
RU0404194	202	5436	70.2	59.8	42.7	41	87	134	2	23.9	3
RU0504122	201	5463	66.7	60.4	39.1	41	89	138	0	24.0	3
RU0504193	200	4752	64.5	52.8	38.3	40	87	138	0	22.9	0
Sabine	199	5489	70.9	61.3	41.7	39	87	135	0	24.2	3
RU0504083	197	5629	72.4	63.5	41.2	33	84	127	0	25.0	3
RU0404191	192	5098	69.8	59.0	42.6	39	87	133	0	25.0	0
Trenasse	191	5269	71.4	61.3	41.1	37	81	128	0	25.1	7
Clearfield 131	173	4905	71.0	63.0	40.6	35	90	134	0	22.0	7
Clearfield 171-AR	168	4513	69.6	59.7	42.2	42	89	135	3	22.1	7
RU0504198	168	4634	71.9	61.3	39.3	39	85	141	2	27.3	3

[1]**Planting date**: April 17. **Emerged**: April 29. **Herbicides**: Arrosolo® at 1 gal/A plus Facet® at 0.5 lb/A plus Prowl® at 2 pt/A on May 16; Clincher® at 15 oz/A plus Surfoil at 1 qt/A on June 19. **Fertilizer**: DAP at 50 lb/A plus ammonium sulfate at 50 lb/A on April 28; Urea at 125 lb/A on May 18, 125 lb/A on May 29, 100 lb/A on June 13, and 125 lb/A on June 24. **Permanent flood**: May 25. **Fungicides**: Stratego® at 16 oz/A on July 17. **Drained field**: August 14. 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 18 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 5.6%.
[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, hybrids, and lines grown on Sharkey clay soil near Blaine, Sunflower County, Mississippi, 2006.[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*
RU0404194	208	5550	72.0	59.3	44.6	41	100	141	0	25.1	0
RU0504198	196	4869	69.4	55.2	42.9	37	96	142	0	26.1	0
Clearfield XP 729	196	4022	68.9	45.6	42.4	40	95	139	95	25.0	30
RU0404154	196	3898	68.5	44.2	44.5	39	97	136	0	23.8	3
XL 723	195	5283	71.3	60.2	42.8	42	98	143	47	25.0	27
RU0404191	186	4545	70.3	54.3	44.8	39	99	141	0	24.8	3
Clearfield XL 730	186	4871	71.8	58.2	42.2	44	98	141	63	25.0	33
RU0504191	174	4017	71.0	51.3	44.7	39	98	138	0	24.8	7
0011580	172	3204	65.9	41.4	44.4	38	99	141	0	25.0	3
Presidio	165	3505	69.0	47.2	43.0	35	95	135	0	24.0	7
Clearfield 131	164	3963	71.3	53.7	44.0	31	99	139	0	23.1	27
RU0504196	163	3873	68.9	52.8	44.1	36	94	143	0	24.0	0
Trenasse	158	2759	68.1	38.8	43.6	35	89	133	0	25.0	0
RU0504122	157	3780	70.2	53.5	43.4	32	94	136	0	23.8	0
Sabine	148	3683	70.2	55.3	44.0	34	99	137	0	24.8	3
RU0504193	148	3883	71.0	58.3	43.2	33	94	142	0	24.1	3
Clearfield 171-AR	148	3157	71.1	47.4	44.5	34	97	138	0	24.0	3
Cocodrie	131	3620	72.1	61.4	44.6	34	98	140	0	24.9	10
RU0504083	86	2194	71.8	56.7	44.2	30	100	138	0	24.8	0

[1]**Planting date**: April 13. **Emerged**: April 23. **Herbicides**: Command® at 1 gallon to 6 acres plus Buccaneer® at 2 pt/A on April 14; Regiment® at 6 oz/A on May 31; Clincher® at 15 oz/A plus crop oil concentrate at 1 qt/A on July 4. **Fertilizer**: Ammonium sulfate at 100 lb/A on April 25; Urea at 100 lb/A on May 22; Urea (Agrotain® treated) at 150 lb/A on June 1; Urea at 75 lb/A on June 20 and 75 lb/A on July 1. **Date flushed**: April 13. **Permanent flood**: May 23. **Insecticides**: Mustang Max® at 1 gallon to 46 acres on June 7 and 1 gallon to 38 acres on August 9. **Fungicides**: Quilt® at 17 oz/A on July 15. **Drained field**: August 26. 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 36 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 14.2%.
[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, hybrids, and lines grown on Tunica clay soil near Stoneville, Washington County, Mississippi, 2006.[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*
XL 723	249	6857	70.1	61.2	37.1	47	79	135	28	24.6	13
Clearfield XP 729	240	6826	69.1	63.2	36.7	47	81	132	83	23.6	3
RU0404154	239	5851	68.1	54.4	41.8	44	80	129	45	21.5	3
RU0404191	234	6371	70.1	60.5	41.4	42	84	135	17	23.5	7
RU0504196	231	6466	68.9	62.2	41.8	42	82	134	0	23.3	0
Clearfield XL 730	230	6200	68.9	59.9	36.4	50	82	133	72	23.5	17
RU0504122	226	6438	70.0	63.3	40.3	41	80	128	0	22.5	0
RU0504191	225	6369	71.5	62.9	41.1	44	81	129	7	23.5	7
0011580	220	5990	70.7	60.5	43.0	43	83	132	13	23.6	0
RU0504193	220	6287	70.5	63.5	40.2	42	80	131	0	22.4	0
Cocodrie	215	5921	70.2	61.2	40.9	42	77	130	0	22.5	0
RU0404194	215	6076	71.8	62.8	42.4	44	84	131	3	25.7	7
RU0504083	214	5999	71.2	62.3	42.9	36	80	122	0	25.5	3
Sabine	210	6067	71.5	64.2	41.0	42	81	132	0	22.3	0
RU0504198	209	5859	71.9	62.3	40.0	42	81	132	0	27.5	3
Presidio	204	5425	71.5	59.1	40.9	41	77	120	0	24.1	7
Clearfield 171-AR	198	5497	70.1	61.7	42.8	45	82	131	0	21.4	3
Clearfield 131	196	5592	71.5	63.4	41.2	36	82	130	7	20.7	7
Trenasse	193	4568	65.2	52.6	39.3	42	75	121	77	24.4	0

[1]**Planting date**: May 17. **Emerged**: May 28. **Herbicides**: Command® at 1.083 pt/A on May 18; Stam® at 3.3 lb/A plus Facet® at 0.5 lb/A plus Prowl® at 2.1 pt/A on June 7; Stam® at 3.75 lb/A plus Bolero® at 4 lb/A plus Permit® at 1.3 oz/A on June 22. **Fertilizer**: Ammonium sulfate at 619 lb/A on June 21; Urea at 100 lb/A on July 18. **Date flushed**: May 19. **Permanent flood**: June 23. **Drained field**: September 11. 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 16 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 4.6%.
[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, hybrids, and lines grown on Sharkey clay soil near Hollandale, Washington County, Mississippi, 2006.[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*
XL 723	222	5664	67.8	56.7	39.5	44	74	121	17	27.0	0
RU0504198	214	5653	68.1	58.7	41.1	38	75	120	0	28.8	0
RU0404191	211	5631	69.9	59.3	43.6	39	78	122	0	27.8	0
RU0404194	210	5850	70.8	61.9	43.5	40	78	121	0	24.7	0
Cocodrie	208	5532	68.5	59.1	43.0	38	75	124	0	24.9	0
Clearfield XL 730	207	5058	69.1	54.3	39.6	44	74	121	53	26.0	0
Clearfield 131	205	5489	69.8	59.5	42.7	34	76	122	0	23.8	0
RU0504191	205	5295	70.1	57.4	43.3	40	76	118	0	26.9	0
RU0504193	204	5728	70.3	62.4	42.3	39	79	124	0	24.7	0
Clearfield XP 729	202	4690	67.9	51.6	39.9	42	76	121	5	25.9	0
0011580	199	4388	68.4	49.0	44.5	38	77	122	0	25.8	0
Trenasse	198	4838	66.2	54.3	41.4	36	72	117	0	26.5	0
Presidio	191	4925	68.2	57.3	41.5	37	73	117	0	25.7	0
RU0404154	187	4031	66.8	47.9	43.6	40	76	119	0	24.5	0
Clearfield 171-AR	187	4696	70.7	55.8	44.0	38	78	120	0	23.5	0
Sabine	186	5014	68.7	59.9	43.1	36	76	119	0	24.9	0
RU0504122	181	5107	69.6	62.7	42.0	38	79	122	0	24.9	0
RU0504083	176	4095	70.9	51.7	42.9	31	75	117	0	27.6	0
RU0504196	171	4771	67.5	62.0	43.2	37	80	122	0	25.8	0

[1]**Planting date**: April 17. **Emerged**: May 7. **Herbicides**: Command® at 1.5 pt/A plus Roundup® at 1 qt/A on April 20; Rice Pyr® at 3 qt/A plus Permit® at 0.5 oz/A on June 1. **Fertilizer**: DAP at 50 lb/A plus ammonium sulfate at 50 lb/A on May 18; Urea at 125 lb/A on June 2, 125 lb/A on June 11, 100 lb/A on June 24, and 100 lb/A on July 3. **Date flushed**: May 4 and May 19. **Permanent flood**: June 2. **Insecticide**: Prolex® at 1 gallon to 80 acres on June 1 and August 1. **Fungicide**: Stratego® at 14 oz/A on July 19. **Drained field**: August 10. 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 29 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 9.4%.
[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. Performance of long-grain rice varieties, hybrids, and lines grown on Sharkey clay soil near Rolling Fork, Sharkey County, Mississippi, 2006.[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*
RU0404154	248	6372	67.2	57.1	42.5	43	91	139	2	23.2	0
RU0404191	244	6676	69.4	60.8	42.8	39	94	141	0	24.3	0
Sabine	240	6599	70.2	61.1	42.1	41	91	140	0	25.7	3
RU0504083	235	6874	73.3	65.0	43.4	34	86	133	0	25.8	0
RU0504193	234	6571	69.1	62.4	41.6	42	86	138	0	23.2	0
Presidio	233	6731	73.0	64.2	42.8	38	90	136	0	24.2	7
Cocodrie	233	6281	68.7	59.9	42.4	39	90	142	0	22.5	0
RU0504122	232	6650	70.2	63.7	40.9	44	91	139	0	23.4	0
Clearfield XP 729	228	5746	68.2	56.0	38.5	48	80	134	22	24.7	20
0011580	227	6098	68.5	59.7	43.5	40	88	138	0	24.1	0
RU0404194	227	6252	69.6	61.2	43.6	43	92	139	0	23.5	0
RU0504191	225	6257	70.5	61.8	42.9	41	89	137	0	20.5	0
XL 723	223	5870	68.9	58.5	38.1	44	80	134	10	25.7	23
Clearfield XL 730	220	6069	70.3	61.3	38.8	47	88	134	7	23.6	0
Trenasse	219	5864	67.7	59.5	39.4	42	86	137	25	24.9	0
RU0504196	217	6064	67.4	62.1	42.7	43	94	142	0	23.3	0
Clearfield 131	211	5944	70.8	62.6	42.0	35	93	140	0	23.6	3
Clearfield 171-AR	203	5545	69.6	60.7	43.9	43	88	137	0	21.5	7
RU0504198	192	5305	69.1	61.4	40.5	42	89	141	0	25.4	0

[1]**Planting date**: April 11. **Emerged**: April 22. **Herbicides**: Command® at 21 oz/A plus Roundup® at 22 oz/A on April 14; Stam EDF® at 5 lb/A plus Grandstand® at 0.5 pt/A on May 8; Aim® at 1.5 oz/A plus Permit® at 0.5 oz/A on June 7; Clincher® at 15 oz/A plus crop oil concentrate at 1 qt/A on June 14. **Fertilizer**: Urea at 250 lb/A on May 30, 100 lb/A on June 14, and 100 lb/A on June 22. **Date flushed**: April 20 and May 10. **Permanent flood**: June 1. **Insecticide**: Prolex® at 1 gallon to 84 acres on June 7. **Fungicide**: Stratego® at 14 oz/A on July 19. **Drained field**: August 16. 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 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 6.6%.
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 8. Average rough rice yields of long-grain varieties, hybrids, and lines evaluated in on-farm tests at seven locations, 2006.

Variety or line	Location							Average
	Tunica	Clarksdale	Cleveland	Blaine	Stoneville	Hollandale	Rolling Fork	
	bu/A	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*
XL 723	204	238	214	195	249	222	223	221
Clearfield XP 729	161	246	228	196	240	202	228	214
RU0404154	153	243	220	196	239	187	248	212
Clearfield XL 730	181	251	204	186	230	207	220	211
RU0404194	173	233	202	208	215	210	227	209
RU0404191	147	242	192	186	234	211	244	208
RU0504191	166	232	207	174	225	205	225	205
0011580	156	237	215	172	220	199	227	204
RU0504198	185	222	168	196	209	214	192	198
RU0504196	165	216	209	163	231	171	217	196
RU0504193	144	211	200	148	220	204	234	194
Cocodrie	138	225	203	131	215	208	233	194
RU0504122	139	213	201	157	226	181	232	193
Sabine	161	203	199	148	210	186	240	192
Presidio	138	194	208	165	204	191	233	191
Trenasse	150	208	191	158	193	198	219	188
Clearfield 131	169	193	173	164	196	205	211	187
Clearfield 171-AR	150	182	168	148	198	187	203	177
RU0504083	103	202	197	86	214	176	235	173
Mean	144	213	196	157	216	189	221	191
LSD 0.05	60	22	18	36	16	29	24	24
CV %	26	6	6	14	5	9	7	19
Date Planted	4/12	4/12	4/17	4/13	5/17	4/17	4/11	

Table 9. Annual and average grain yields and agronomic characteristics of long-grain commercial varieties grown at the Delta Research and Extension Center, Stoneville, Mississippi, 1990-2005.

Variety[1]	Origin[2]	Grain yield[3]			Years in test	Milling yield		Plant height	50% heading	Lodging	Bushel weight
		2005	Avg.	3-yr avg.		Total	Whole				
		bu/A	*bu/A*	*bu/A*	*no.*	*%*	*%*	*in*	*days*	*%*	*lb*
Cocodrie	LA	179	179	189	11	71.8	61.7	39	82	6	42.5
Cybonnet	AR	173	171	173	6	72.2	62.9	39	85	4	42.9
Dellrose	LA	142	151	153	15	72.9	60.5	41	82	11	43.4
Dixiebelle	TX	140	147	138	16	72.9	63.3	34	83	<5	42.3
Francis	AR	170	197	187	7	70.1	57.8	40	84	13	42.3
Hidalgo	TX	118	161	164	6	69.4	60.7	39	81	33	40.0
Presidio	TX	183	181	175	7	71.4	60.6	38	82	8	42.1
Priscilla	MS	208	177	186	12	71.1	59.8	39	84	11	43.0
Sabine	TX	183	164	164	5	69.4	58.8	31	87	7	42.5
Trenasse	LA	184	181	184	4	68.1	56.8	41	82	11	40.4
Wells	AR	204	186	200	10	73.6	57.0	42	82	4	44.3

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

Table 10. Average agronomic and milling performance of long-grain varieties, hybrids, and lines grown at seven on-farm locations, 2006.

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.*
XL 723	RT	221	5698	69.2	57.3	39.6	43	84	133	18	25.9	10	17513
Clearfield XP 729	RT	214	5248	68.7	54.5	39.6	43	84	132	38	25.2	8	18000
RU0404154	MS	212	4684	68.1	49.1	43.3	40	86	130	7	23.6	1	19220
Clearfield XL 730	RT	211	5431	69.9	57.2	39.6	45	87	132	31	25.0	7	18144
RU0404194	MS	209	5643	70.8	60.0	43.7	41	88	132	1	24.9	2	18217
RU0404191	MS	208	5448	70.1	58.2	43.3	39	89	134	3	25.5	1	17788
RU0504191	MS	205	5332	70.5	57.8	43.2	40	86	130	1	24.4	3	18590
0011580	MS	204	4829	69.6	52.6	43.9	39	87	132	2	25.1	1	18071
RU0504198	MS	198	5239	69.9	58.8	41.1	39	86	134	0	27.6	1	16434
RU0504196	MS	196	5283	68.6	59.9	43.0	39	89	136	0	24.3	0	18666
RU0504193	MS	194	5125	68.9	58.7	41.5	38	86	134	0	24.8	0	18290
Cocodrie	LA	194	5098	69.3	58.4	42.8	38	86	133	0	24.4	1	18590
RU0504122	MS	193	5150	64.9	59.3	41.5	38	87	132	0	24.1	0	18821
Sabine	TX	192	5158	70.1	59.7	42.8	38	88	132	0	24.7	1	18364
Presidio	TX	191	4744	70.6	55.2	42.0	37	85	125	0	24.7	5	18364
Trenasse	LA	188	4458	68.1	52.7	41.4	38	81	127	15	25.7	1	17649
Clearfield 131	LA	187	4923	70.6	58.5	42.4	34	89	132	1	23.2	6	19551
Clearfield 171-AR	AR	177	4556	70.3	57.2	43.7	39	88	132	0	23.1	3	19636
RU0504083	MS	173	4609	72.0	59.2	43.2	32	85	127	0	26.2	1	17313
Mean		191	5045	69.4	56.8	42.1	38	87	132				
LSD 0.05		24.0	848.1	0.9	0.4	0.9	2.0	4.0	4.0				
CV %		19.0	28.0	2.2	14.1	3.4	8.0	8.0	5.0				

[1]Origin: AR = Arkansas; LA = Louisiana; 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 11. Average agronomic and milling performance of long-grain varieties, hybrids, and lines grown at five on-farm locations, 2006.[1]

Variety or line	Origin[2]	Average yield[3]		Milling yield		Bushel weight	Plant height	50% Heading[4]	Maturity[4]	Lodging	1000 seed weight[5]	Sheath blight[6]
		Rough rice	Head rice	Total	Whole							
		bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*g*	*%*
XL 723	RT	229	6059	69.2	58.8	38.5	43	81	132	14	26.2	9
Clearfield XP 729	RT	229	5946	68.8	57.7	38.5	45	82	132	34	25.1	5
RU0404154	MS	227	5291	67.9	51.8	42.9	41	83	128	9	23.3	1
RU0404191	MS	224	6108	70.0	60.6	42.9	39	86	133	3	25.8	1
Clearfield XL 730	RT	223	5971	69.8	59.5	38.6	46	85	131	31	25.1	3
0011580	MS	220	5643	69.6	57.0	43.9	39	84	131	3	25.0	1
RU0504191	MS	219	6041	70.6	61.3	42.7	41	84	129	2	24.3	3
RU0404194	MS	217	6045	70.8	61.9	43.4	41	85	131	1	25.0	2
Cocodrie	LA	217	5839	69.0	59.8	42.1	40	83	132	0	24.0	0
RU0504193	MS	214	5836	68.5	60.6	40.9	40	84	133	0	24.0	0
RU0504122	MS	210	5878	69.2	62.2	40.8	40	86	132	0	24.1	1
RU0504196	MS	209	5841	68.5	62.1	42.7	40	87	135	0	24.5	0
Sabine	TX	208	5784	70.3	61.8	42.3	39	85	131	0	24.8	1
Presidio	TX	206	5506	71.3	59.4	41.7	38	82	124	0	25.0	5
RU0504083	MS	205	5609	72.2	60.8	42.8	33	82	125	0	26.3	1
Trenasse	LA	202	5136	67.8	56.5	40.7	39	79	126	20	25.9	1
RU0504198	MS	201	5545	70.4	61.3	40.5	40	84	133	0	28.1	1
Clearfield 131	LA	196	5495	70.9	62.3	41.8	35	86	131	1	23.1	3
Clearfield 171-AR	AR	188	5118	70.2	60.5	43.5	41	85	130	1	22.7	3
Mean		207	5669	69.4	59.3	41.5	39	85	131			
LSD 0.05		15.0	782.1	1.1	0.4	0.8	2.0	4.0	5.0			
CV %		10.0	15.0	2.3	8.4	2.8	7.0	7.0	6.0			

[1]Data from five satisfactory test locations are included in this table. Data from two unsatisfactory test locations that were either damaged by herbicide drift or had very poor rice emergence were not included in this table.
[2]Origin: AR = Arkansas; LA = Louisiana; MS = Mississippi; RT = RiceTec, Inc.; TX = Texas.
[3]Rough rice at 12% moisture.
[4]Days after emergence.
[5]Weight of 1000 kernels at 12% moisture.
[6]Sheath blight rating using average percent of plants infected.

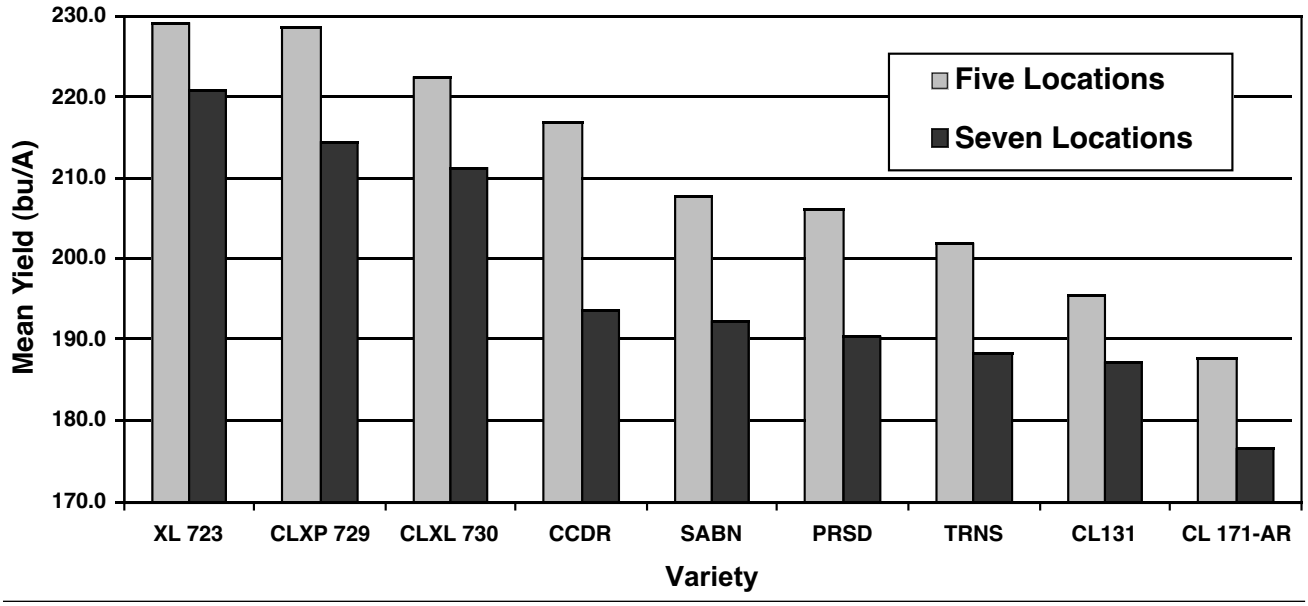

Figure 1. Long-grain rice variety and hybrid yield comparisons at five and seven on-farm locations in 2006 (CCDR = Cocodrie; SABN = Sabine; PRSD = Presidio; TRNS = Trenasse). Two of the seven on-farm rice variety test locations were either severely damaged by herbicide drift or sustained very erratic stands. The seven-location averages include all test locations. The five-location averages exclude those two locations with difficulties.

Table 12. 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 2000 to 2006.[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]
	2000	2001	2002	2003	2004	2005	2006	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	182	198	178	192	196	179	—	179	189	84	73.6	61.3	42.1	39	83	127	9	27.5	23
Cocodrie	190	182	180	195	209	176	194	182	193	70	72.2	62.9	42.1	40	83	129	14	24.1	30
Wells	196	195	183	200	201	178	—	190	193	56	74.4	59.5	43.6	42	83	129	17	25.4	26
Clearfield 161	—	148	157	169	185	149	—	162	168	35	72.0	64.0	42.0	40	84	132	38	21.8	26
Cheniere	—	—	—	199	212	168	190	192	190	28	73.0	62.2	42.4	37	87	133	15	22.0	16
Clearfield XL 8	—	—	—	193	228	176	—	199	199	21	73.4	59.1	39.7	44	83	129	40	24.1	22
XP 710	—	—	—	219	215	183	—	206	206	21	72.8	61.5	39.5	43	87	133	35	29.1	5
Cybonnet	—	—	—	185	186	163	—	178	178	21	74.5	65.4	43.8	39	85	129	20	24.0	6
XL 723	—	—	—	—	232	165	221	206	206	21	72.1	62.2	39.6	44	83	132	29	26.4	6
Banks	—	—	—	—	196	170		183	—	14	72.4	62.9	43.1	45	90	136	41	23.5	3
Sabine	—	—	—	—	183	177	192	184	184	21	71.8	63.5	43.3	38	87	131	21	24.3	4
Clearfield 131	—	—	—	—	—	161	187	174	—	14	69.7	60.0	42.9	35	89	133	19	23.1	9
Clearfield 171-AR	—	—	—	—	—	—	177	177	—	7	70.4	57.3	43.7	39	88	132	0	23.1	3
Clearfield XL 730	—	—	—	—	—	161	211	186	—	14	68.8	58.3	38.5	46	86	131	45	25.1	8
Clearfield XP 729	—	—	—	—	—	—	214	214	—	7	68.7	55.4	39.6	43	84	132	18	25.2	8
Pace	—	—	—	—	—	184	193	189	—	14	68.8	55.7	40.2	39	88	132	22	26.7	2
Presidio	—	—	—	—	—	173	191	182	—	14	70.0	58.2	41.0	38	85	128	23	24.2	8
Trenasse	—	—	—	—	—	139	188	164	—	14	66.1	55.6	40.0	40	81	129	45	25.5	7
XP 721	—	—	—	—	—	162	—	162	—	7	67.6	57.3	37.6	40	77	129	48	27.8	5

[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 1999 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 12. 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
Banks	MS	MS	VS	MS	R	R	MR	S	S
Clearfield 131	MS	VS	—	S	—	—	—	—	—
Clearfield 161	MS	VS	S	MS	—	—	—	—	S
Clearfield 171-AR	S	MS	MS	MS	R	—	MR	S	S
Clearfield XL 8	R	MS	MS	MS	MR	R	R	S	MS
Clearfield XP 730	R	MS	MS	MR	—	—	—	S	MS
Cocodrie	MS	S	VS	S	MR	MR	MS	S	S
Cybonnet	MR	S	S	MS	R	MR	MR	S	S
Dixiebelle	MS	VS	—	MS	MS	R	R	S	—
Francis	S	MS	S	MS	MS	MR	MS	—	—
Jefferson	MS	MS	S	MS	MR	MR	MR	MS	MR
Priscilla	MS	MS	S	MR	R	MR	MR	S	S
Presidio	MR	MS	S	MR	MR	MS	—	—	—
Sabine	S	MS	—	—	—	—	—	—	—
Spring	S	S	MS	MS	—	—	—	VS	MS
Trenasse	S	S	S	VS	—	—	—	S	MS
Wells	S	MS	MS	MS	MR	R	MS	S	S
XP 710	R	MR	MS	VS	R	R	R	S	MS
XL 723	R	MR	MS	MR	MR	R	R	S	MS

[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 13. Nitrogen fertility rate guidelines.

Variety	Clay soils			Silt loam soils[1]		
	Preflood	Midseason	Boot Split	Preflood	Midseason	Boot Split
	lb/A	*lb/A*	*lb/A*	*lb/A*	*lb/A*	*lb/A*
Clearfield 131	120-150	30-60	0	90-120	46	0
Clearfield 151	120-150	30-60	0	90-120	46	0
*Clearfield 161	120-150	30-60	0	90-120	46	0
Clearfield 171-AR	120-150	30-60	0	90-120	46	0
Cybonnet	120-150	30-60	0	90-120	46	0
*Dixiebelle	90-120	30-60	0	90-120	46	0
*Francis	90-120	30-60	0	90-120	46	0
Priscilla	120-150	30-60	0	90-120	46	0
Presidio	120-150	30-60	0	90-120	46	0
Sabine	120-150	30-60	0	90-120	46	0
*Trenasse	90-120	30-60	0	90-120	46	0
Wells	90-120	30-60	0	90-120	46	0
Hybrids						
Clearfield XL 8	135	0	46	90	0	46
Clearfield XP 729	135	0	46	90	0	46
Clearfield XL 730	120	0	46	90	0	46
XL 723	135	0	46	90	0	46

*Varieties are susceptible to lodging with excessive PF N rates.

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