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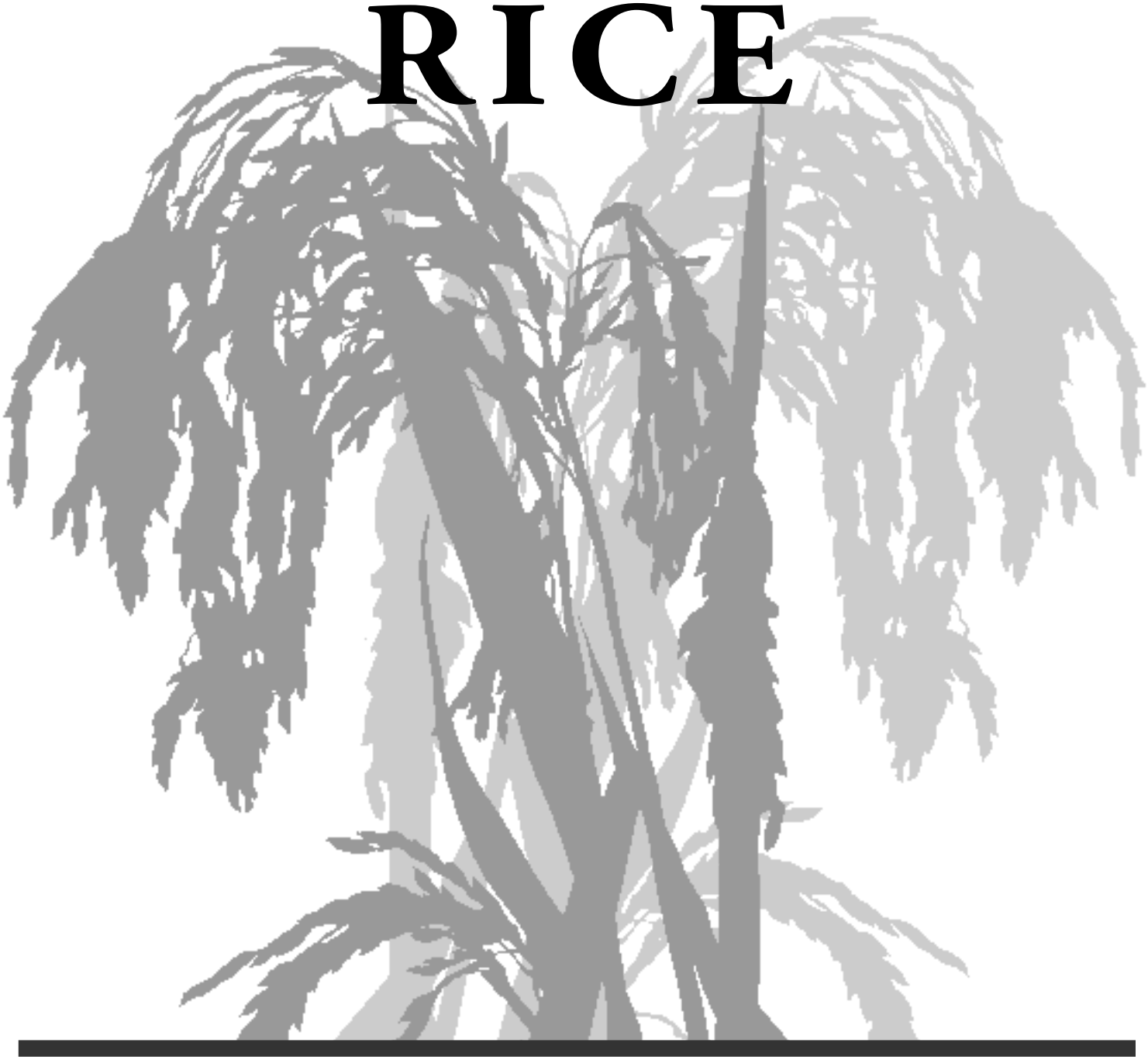
MISSISSIPPI RICE



VARIETY TRIALS, 2007

MAFES

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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, 2007

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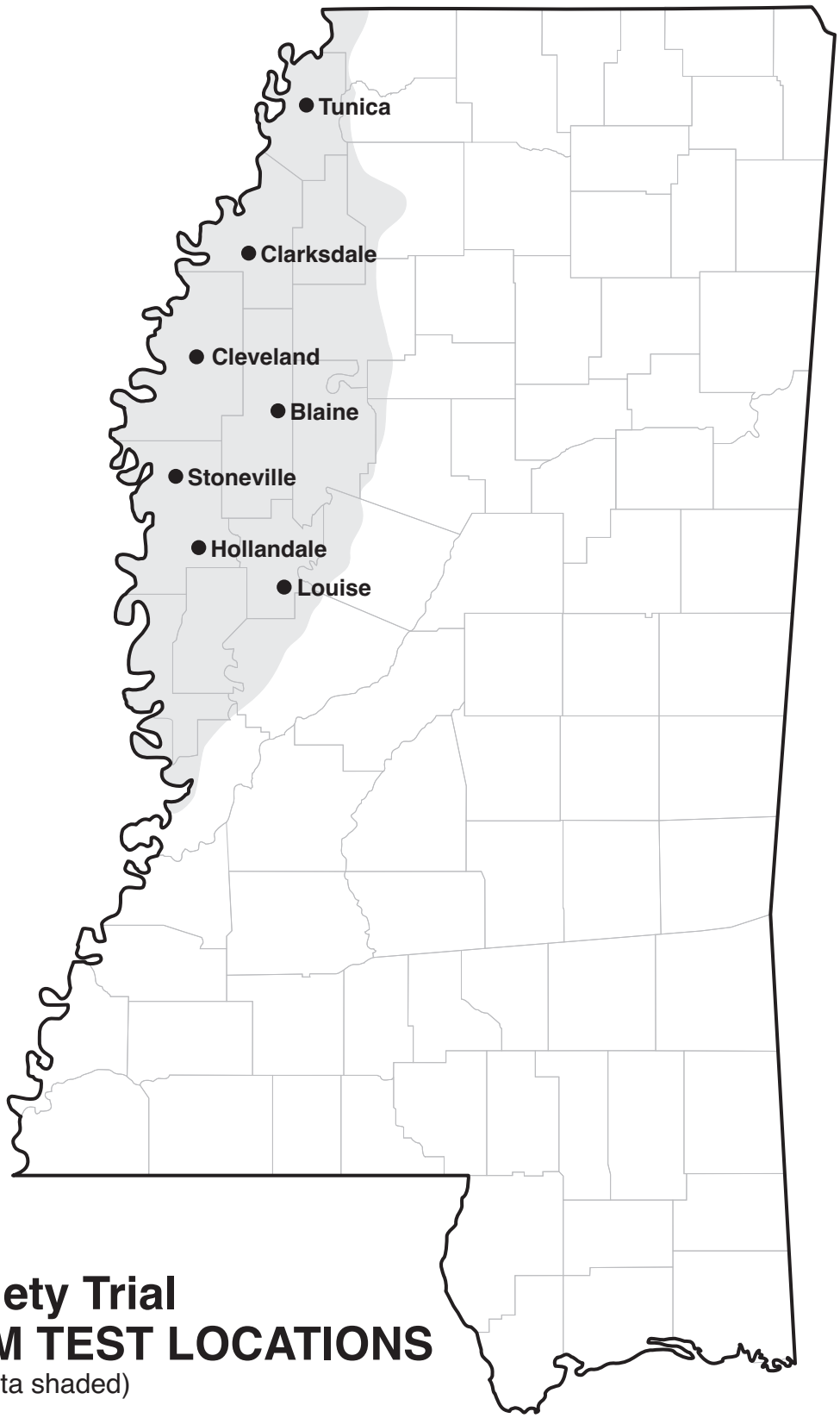

Rice Variety Trial
ON-FARM TEST LOCATIONS

(Mississippi Delta shaded)

Mississippi Rice Variety Trials, 2007

Introduction

In 2007, approximately 190,000 acres of rice were planted in 14 Delta counties of Mississippi, where practically all rice is produced in the state. In 2006, Mississippi producers also planted 190,000 acres of rice. Bolivar County had the highest planted acreage at 56,821 acres. Essentially all of the production in Mississippi was long-grain rice. Cocodrie was the predominant variety grown in Mississippi this year, occupying nearly 62% of the rice acreage, followed by Clearfield 161 at 15% and hybrid cultivars at 15%. Other varieties, including Wells, Sabine, Clearfield 171-AR, and Hidalgo, were grown on about 8% 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 2007. The incidence of sheath blight at the on-farm sites ranged from light to moderate in 2007. 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 April 24, which are within the typical period for planting rice in the Delta. Three sites, Cleveland, Blaine, and Stoneville, were planted into conventionally prepared seedbeds, and the other four were planted into stale seedbeds. Four of the sites were flushed: Blaine, Stoneville, Hollandale, and Louise. Light to moderate sheath blight infection developed on susceptible entries at all seven sites with the least being observed at Stoneville. Soil samples were collected at planting within the test area at each site. Results indicated nutrient levels were generally high at all sites. However, the Blaine location had a low level of sulfur.

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 stress, 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 seven sites. Among the 21 test entries, 11 were varieties and 10 were breeding lines. One variety, Sabine, is a specialty type for canning but also can be used for other purposes. The two hybrids were provided by RiceTec, Inc. Seed of Clearfield 171-AR was provided by Horizon Ag. 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. 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. The two hybrids were seeded at 35 pounds per acre. 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 two hybrids were not fertilized according to RiceTec's recommendations under these test conditions. Therefore, their yields may be lower than normal. The field management practices applied for each site 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 *2007 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 seven locations. The natural occurrence of other diseases and insects present in these tests was 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 seven sites. Subsequently, the data were combined over the seven sites and analyzed using the SAS PROC GLM 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 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 1-8 and 10.

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 10-11). Average grain yields for individual sites ranged from 185 bushels per acre at Tunica to 240 bushels per acre at Hollandale (Table 8). The CVs for grain yields across sites were within an acceptable range at all locations in 2007, ranging from 5.1 to 14.1. Rough rice yields were higher, but milling yields were lower in 2007 than in 2006. The intense sunlight resulting from the many cloudless days during the grain-filling period probably contributed to higher grain yields. The rainy weather at maturity, which delayed harvesting, was mostly responsible for the lower milling yields in 2007. Grain yields averaged 5% higher in the 2007 on-farm test as compared with those in 2006. Blast was not observed in any of the on-farm test locations, although some straighthead-type symptoms occurred in several plots at the Louise location.

Table 8 provides a seven-location summary of grain yields for the 11 varieties and 10 experimental lines. The highest-yielding entry was the hybrid XL723 at 219 bushels an acre. This was the second year that XL723 produced the highest yield in the on-farm test (2006 and 2007). It produced higher yields than Sabine, Presidio, RU0504156, RU0604114, RU0504196, RU0504083, Clearfield 171-AR, and Spring. Wells, Bowman, XP744, and 001580 — all at 216 bushels per acre — produced higher yields than RU0604114, RU0504196, RU0504083, Clearfield 171-AR, and Spring (Table 8 and 10). Cocodrie averaged 65.7% total and 52.4% whole-grain milled rice, across all seven test locations (Table 10). 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 during maturity and resulting harvest delays were a factor for the lower milling yields.

Clearfield 171-AR and Spring were released by Arkansas in 2006. Bowman, a new high-yielding variety from Mississippi, was released in March 2007. Its yield is equal to that of Wells and averaged 3.2% higher whole-grain milling yield, resulting in a 288-pound-per-acre milled rice advantage as shown in the head rice yield column in Table 10. Milled head rice yields were 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 Wells, Cocodrie, Trenasse, and Spring. The Mississippi breeding lines RU0504193 and RU0504156 produced numerically more head rice (5,138 and 5,160 pounds per acre) than all other varieties except XL723 (Table 10). Three breeding lines, RU0604035, RU0504156, and

RU0504083, had 2% or less average lodging, which is an indication of their excellent straw strength.

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 two available Clearfield varieties, 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, for all locations also are summarized in Table 10. The varieties Clearfield 171-AR and Spring produced less head rice than other varieties (Table 10). Milling yields for most breeding lines were generally good to excellent and comparable to commercial varieties (Table 10).

Lodging resistance should be considered when selecting a variety. Lodging is especially problematic when it occurs before fields normally are drained or when rainy weather persists before harvest. This problem was demonstrated 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 1-7). The entries that lodged the most were XP744 (39%), Trenasse (36%), Spring (33%), Wells (25%), and XL723 (22%) (Table 10).

The long-term performance of 15 varieties in the on-farm tests is presented in Table 11. 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 2006 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 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 average for yield compares varieties from 2004 through 2006. 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 12. The nitrogen fertility guidelines for commonly grown commercial varieties in Mississippi were provided by Tim Walker (Table 13).

Table 1. Performance of long-grain rice varieties, hybrids, and lines grown on Sharkey-Alligator clay soil near Tunica, Tunica County, Mississippi, 2007.[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*
RU0704083	226	3586	62.6	35.1	42.7	45	80	124	8	19.9	0
Trenasse	219	4402	62.8	44.7	41.6	43	79	125	55	24.9	0
Wells	217	3856	62.3	39.1	41.9	44	87	127	65	22.1	0
Cocodrie	213	4864	63.2	50.6	42.4	41	86	126	25	20.3	0
XL723	213	4494	63.7	46.8	37.0	45	81	127	90	24.4	15
Sabine	213	4887	64.5	51.0	43.2	39	84	125	0	23.3	0
RU0704122	210	4777	62.8	50.6	42.1	44	86	124	10	20.4	0
Bowman	207	4392	65.7	47.1	44.4	40	87	128	25	24.4	0
RU0504198	200	4942	66.8	55.0	40.2	42	88	128	5	24.4	0
RU0504156	199	5084	64.9	56.8	42.2	40	88	128	0	22.3	0
RU0604035	199	4086	64.2	45.6	40.2	40	86	127	0	21.5	15
Presidio	189	4145	67.1	48.6	41.7	39	88	125	40	22.4	10
RU0504196	184	4149	61.3	49.9	41.9	41	89	126	25	22.1	0
0011580	180	3565	65.6	43.7	44.5	41	85	127	75	24.1	0
Priscilla	176	3089	60.6	38.6	41.2	40	87	129	88	25.1	5
Clearfield 171-AR	175	4142	65.5	52.5	43.5	42	90	127	25	21.5	10
RU0504083	175	3642	66.8	46.6	44.0	33	87	127	0	25.2	5
RU0504193	173	4036	65.6	51.3	40.9	39	86	126	35	23.1	10
Spring	166	3199	65.1	42.9	42.3	48	78	119	60	20.6	5
XP744	143	1637	55.4	25.2	35.7	46	77	121	100	22.7	45
RU0604114	92	1317	57.8	31.5	38.9	39	90	128	100	23.1	35

[1]**Planting date**: April 9. **Emerged**: April 27. **Herbicides**: Command® at 1 gallon to 7 acres plus Roundup® at 1.5 quarts per acre on April 22; Aim® at 1 ounce per acre on June 13. **Fertilizer**: 41-0-0-4 at 290 pounds per acre on May 24; Urea at 130 pounds per acre on June 18. **Permanent flood**: May 25. **Insecticide**: Karate® at 1 gallon to 80 acres on July 25. **Fungicide**: Quilt® at 14 ounces per acre plus 1% crop oil per acre on July 11. **Drained field**: August 20. 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 53 bushels per acre is required for one variety to differ from another at the 5% significance level. C.V. = 14.1%.**
[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 Dundee silty clay loam soil near Clarksdale, Coahoma County, Mississippi, 2007.[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	260	6682	66.9	56.9	38.1	46	78	130	0	25.2	7
XP744	259	6060	67.5	51.9	38.0	46	76	130	12	26.1	3
RU0704122	245	6341	66.6	57.5	42.4	45	81	129	0	22.1	0
Priscilla	232	5515	64.3	52.7	41.2	40	78	132	0	27.0	3
RU0604114	231	5180	62.6	49.8	40.5	38	82	131	0	26.8	17
Trenasse	231	5533	65.0	53.4	40.6	41	74	126	0	26.7	10
Cocodrie	224	5523	65.1	54.9	43.3	38	80	130	0	23.4	10
RU0604035	224	4846	64.8	48.1	39.5	38	77	131	0	23.3	10
0011580	219	5248	66.1	53.1	44.2	39	80	131	0	25.4	17
Wells	219	4760	67.1	48.3	43.7	42	81	134	0	25.0	0
Bowman	218	4995	65.6	51.1	43.3	39	81	130	7	26.1	3
RU0504193	210	5394	65.6	56.9	42.1	38	79	131	0	23.1	3
Clearfield 171-AR	206	4364	65.1	47.0	43.4	42	78	131	0	23.1	27
RU0504198	204	4745	64.0	51.6	41.3	39	80	133	0	27.0	3
RU0504196	204	5712	66.7	62.3	43.1	39	84	134	0	23.2	10
RU0504156	201	5440	66.2	60.0	42.3	38	80	131	0	21.9	3
Spring	195	4478	68.0	51.1	43.1	44	73	118	0	24.6	0
Presidio	194	4654	68.2	53.4	41.8	38	76	125	0	26.5	0
RU0704083	191	3847	66.0	44.6	42.5	41	74	128	0	22.2	7
Sabine	189	4580	65.9	53.9	43.5	38	79	131	0	24.4	0
RU0504083	180	4254	67.9	52.6	42.6	34	76	126	0	27.3	7

[1]**Planting date**: April 9. **Emerged**: April 26. **Herbicides**: Rice Shot at 3 quarts per acre plus Bolero® at 3 pints per acre plus Grandstand® at 4 ounces per acre on May 10. **Fertilizer**: Urea at 300 pounds per acre on May 11 and 100 pounds per acre on July 13. **Permanent flood**: May 12. **Insecticide**: Karate® at 1 gallon to 86 acres on August 1. **Fungicide**: Quadris® at 12 ounces per acre on July 18. **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 25 bushels per acre is required for one variety to differ from another at the 5% significance level. C.V. = 7.0%.**
[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, 2007.[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	231	5779	69.5	55.5	39.5	44	73	124	0	26.7	23
Wells	218	5191	69.3	52.9	43.6	42	75	125	0	25.4	10
RU0504198	218	5578	66.0	56.9	40.2	40	75	126	0	27.5	0
Priscilla	214	5057	67.0	52.8	43.3	38	75	119	0	28.4	10
Bowman	212	5030	68.3	52.8	44.0	37	77	124	0	27.4	27
0011580	211	5187	69.1	55.2	41.6	39	76	125	0	26.5	33
XP744	209	4381	69.2	46.7	40.0	44	70	124	0	26.7	13
RU0604035	208	4369	64.4	46.7	41.3	37	76	121	0	23.8	7
RU0504193	208	5848	68.3	62.6	43.3	37	78	125	0	24.7	0
RU0504156	205	5823	68.3	63.2	43.5	36	80	126	0	25.4	0
Sabine	202	5223	68.3	57.2	43.9	37	75	125	0	24.5	10
Clearfield 171-AR	201	5367	70.5	59.2	44.8	39	77	125	0	24.6	3
Presidio	201	4333	68.4	47.9	41.9	37	73	120	2	25.8	33
Cocodrie	200	5434	69.2	60.5	43.5	38	74	125	0	23.5	13
RU0704122	195	4910	68.7	55.6	43.4	42	80	120	0	22.5	17
RU0604114	193	4346	67.0	50.5	43.2	38	78	126	0	25.6	20
RU0504196	191	5366	66.5	62.5	43.9	37	82	128	0	24.4	0
RU0504083	182	4253	68.2	52.1	43.9	33	75	115	0	25.7	13
RU0704083	181	2997	65.5	36.7	43.2	38	71	119	0	21.5	30
Trenasse	175	3795	65.1	48.1	42.0	38	68	118	0	25.5	3
Spring	153	2920	65.1	41.9	43.5	42	69	116	0	23.8	13

[1]**Planting date**: April 12. **Emerged**: April 26. **Herbicides**: Command® at 1 gallon to 8 acres on April 12; Arrosolo® at 2 quarts per acre plus Facet® at 0.5 pound per acre on April 18. **Fertilizer**: DAP at 50 pounds per acre plus ammonium sulfate at 50 pounds per acre on April 23; Urea at 125 pounds per acre on May 14, 125 pounds per acre on May 28, 100 pounds per acre on June 4, and 100 pounds per acre on June 23. **Permanent flood**: May 29. **Fungicides**: Quilt® at 16 ounces per acre on June 28. **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 25 bushels per acre is required for one variety to differ from another at the 5% significance level. C.V. = 7.6%.**
[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 silty clay loam soil near Blaine, Sunflower County, Mississippi, 2007.[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*
RU0704083	216	2851	61.5	29.3	42.4	39	76	121	45	19.6	3
XP744	216	2574	62.6	26.4	38.3	43	74	121	100	26.1	7
Priscilla	208	3106	61.3	33.0	41.1	39	79	121	13	24.6	20
RU0504193	205	4168	66.0	45.0	42.3	37	83	125	3	23.5	0
Cocodrie	204	3422	63.5	36.9	43.1	38	79	131	77	23.0	7
RU0604035	201	2801	60.7	30.8	39.0	37	79	121	10	23.0	13
RU0504198	200	3310	63.2	36.9	40.0	39	80	129	27	25.7	20
0011580	199	3029	63.7	33.5	43.5	41	78	125	18	24.7	7
Bowman	196	3301	65.9	37.2	44.0	38	83	128	0	25.6	0
RU0504156	196	4247	65.7	47.9	42.5	38	85	129	0	23.5	0
Wells	195	2579	60.6	29.7	42.4	40	83	130	85	24.9	0
RU0704122	194	3493	64.7	39.7	42.7	43	84	121	25	20.8	10
Spring	190	1729	62.3	20.6	42.3	45	72	116	77	22.9	10
Presidio	190	2809	62.4	32.6	41.0	40	77	117	65	23.0	13
Sabine	188	3713	64.4	43.8	43.4	37	82	130	7	24.5	3
RU0504196	188	4107	64.4	48.9	43.1	39	85	129	22	23.7	0
RU0604114	187	2687	60.4	32.0	40.3	37	86	131	8	22.9	17
XL723	186	2845	61.2	33.8	38.3	43	78	126	65	25.5	0
Trenasse	182	2214	60.7	27.7	41.0	41	74	121	93	24.8	7
Clearfield 171-AR	173	3067	64.1	40.0	43.4	40	85	129	20	21.4	10
RU0504083	173	2672	64.4	35.6	43.0	35	77	115	2	25.6	0

[1]**Planting date**: April 12. **Emerged**: April 26. **Herbicides**: Command® at 1 gallon to 10 acres on April 12. **Fertilizer**: Ammonium sulfate at 100 pounds per acre on May 3; Urea at 250 pounds per acre on May 10, 130 pounds per acre on June 8, and 100 pounds on June 21. **Date flushed**: April 13. **Permanent flood**: May 14. **Insecticides**: Prolex® at 1 gallon to 80 acres on May 23 and at 1 gallon to 90 acres on July 24. **Fungicides**: Quilt® at 14 ounces per acre on July 10. **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 25 bushels per acre is required for one variety to differ from another at the 5% significance level. C.V. = 8.2%.**
[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, 2007.[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*
XP744	239	5042	66.8	46.8	38.6	46	80	129	0	26.7	3
0011580	234	4903	65.6	46.6	44.0	39	87	133	0	25.7	3
XL723	222	5258	66.7	52.5	39.0	45	84	130	0	27.0	0
Bowman	222	5319	66.6	53.3	43.9	40	89	135	0	25.5	0
Wells	219	4335	64.5	44.0	43.6	40	89	133	0	26.6	0
RU0704083	219	3635	65.9	36.9	42.6	41	83	129	0	21.5	0
RU0604114	210	4122	64.4	43.7	40.9	38	88	131	0	26.4	0
Cocodrie	208	4880	64.0	52.1	42.2	39	85	134	0	24.5	0
Priscilla	207	4238	64.9	45.6	41.5	38	86	134	0	28.1	0
Presidio	204	4331	66.4	47.3	42.2	39	85	128	0	23.6	0
RU0604035	203	4531	64.4	49.6	40.6	37	85	130	0	22.5	0
Trenasse	199	4067	63.2	45.5	40.9	40	81	131	38	25.9	0
RU0504198	198	4740	64.2	53.2	40.9	38	88	134	0	27.3	0
RU0504196	193	4702	63.9	54.1	43.3	39	89	137	0	24.4	0
Sabine	191	4438	66.5	51.7	43.1	37	88	134	0	25.5	0
RU0504193	189	4499	64.2	52.8	42.4	39	88	136	0	24.4	0
Spring	184	3232	64.7	39.1	42.7	44	80	118	50	21.6	0
RU0704122	183	3771	65.8	45.7	42.5	43	87	127	3	22.6	0
RU0504083	182	3960	66.7	48.4	42.8	34	86	131	0	25.5	0
RU0504156	181	4297	63.5	52.6	42.2	38	88	134	0	25.5	0
Clearfield 171-AR	168	3906	66.9	51.7	44.4	40	90	135	0	24.4	0

[1]**Planting date**: April 24. **Emerged**: May 2. **Herbicides**: Command® at 1 gallon to 7.4 acres, plus Facet® at 0.5 pound per acre on May 1; Blue Drum® at 4 quarts per acre plus Prowl® at 2.1 pints per acre plus Permit® at 1 ounce per acre on May 30; Arrosolo® at 4 quarts per acre plus Bolero® at 4 pints per acre on June 6. **Fertilizer**: Ammonium sulfate at 595 pounds per acre on June 5; Urea at 100 pounds per acre on July 6. **Date flushed**: May 16. **Permanent flood**: June 7. **Insecticide**: Karate at 1 gallon to 72 acres on June 6. **Drained field**: September 5. 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 17 bushels per acre is required for one variety to differ from another at the 5% significance level. C.V. = 5.1%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 6. Performance of long-grain rice varieties, hybrids, and lines grown on Tunica clay soil near Hollandale, Washington County, Mississippi, 2007.[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*
0011580	266	5141	66.6	43.0	43.9	38	73	122	48	25.8	48
Trenasse	257	5424	66.8	46.9	42.0	39	70	120	37	25.9	12
Bowman	255	5171	67.8	45.1	43.6	36	75	123	25	26.6	40
RU0504193	254	6989	68.7	61.1	42.7	40	78	124	2	23.6	37
RU0604035	253	5338	68.4	46.9	40.8	39	74	123	0	24.9	22
Sabine	249	5547	69.3	49.5	43.8	37	74	122	12	25.7	40
RU0604114	249	4380	62.7	39.1	40.0	37	78	123	42	24.8	50
Priscilla	247	5119	68.3	46.0	42.5	39	74	122	3	28.5	26
RU0504198	247	5513	68.5	49.6	40.6	40	76	124	0	27.8	20
Cocodrie	247	5588	66.1	50.3	42.5	38	75	123	0	23.7	37
XL723	246	5200	68.8	46.9	40.0	40	74	124	22	26.9	32
Wells	245	5105	68.1	46.2	42.8	41	74	123	37	26.9	53
RU0504156	244	6504	68.3	59.3	43.2	39	78	122	0	23.7	25
RU0704122	242	6103	68.6	56.2	42.6	48	81	124	0	21.8	37
RU0704083	239	4572	67.8	42.5	42.3	40	70	121	12	22.7	22
RU0504083	235	5000	70.1	47.5	43.8	32	73	122	0	26.6	17
Presidio	231	4696	70.0	45.3	42.0	38	73	121	8	24.9	15
XP744	226	4236	69.0	41.6	39.5	44	71	121	83	27.0	50
Clearfield 171-AR	222	4917	68.3	49.3	44.1	41	76	124	7	23.7	48
Spring	220	4164	68.4	42.0	43.4	43	70	120	18	21.8	33
RU0504196	214	5716	66.3	59.3	44.2	41	71	124	40	26.6	50

[1]**Planting date**: March 27. **Emerged**: April 19. **Herbicides**: Roundup® at 1 gallon to 6 acres plus Command® at 1 gallon to 6 acres on April 23; Aim® at 1 ounce per acre plus Permit® at 0.5 ounce per acre plus Blazer® at 1 gallon to 20 acres plus Prolex® at 1 gallon to 80 acres on May 9; Clincher® at 15 ounces per acre on May 18. **Fertilizer**: Ammonium sulfate at 100 pounds per acre on April 26; Urea at 100 pounds per acre on May 10, May 21, June 6, and June 14. **Date flushed**: April 27. **Permanent flood**: May 10. **Insecticide**: Prolex® at 1 gallon to 80 acres on May 9 (applied tank-mixed with herbicide application) and July 11. **Fungicide**: Stratego® at 14 ounces per acre on June 29. **Drained field**: August 2. 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 20 bushels per acre is required for one variety to differ from another at the 5% significance level. C.V. = 5.1%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 7. Performance of long-grain rice varieties, hybrids, and lines grown on Alligator clay soil near Louise, Humphreys County, Mississippi, 2007.[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*
Priscilla	203	4552	65.0	49.8	41.8	38	90	141	0	25.3	0
Wells	203	5511	71.5	60.5	44.8	43	93	140	0	24.4	3
Bowman	201	5226	68.9	57.9	44.4	41	92	135	35	25.3	3
XP744	197	5321	73.0	60.2	39.8	46	82	131	0	25.8	0
RU0704083	196	4278	67.9	48.2	44.2	42	86	128	0	20.5	0
Trenasse	195	4754	66.6	53.9	42.1	41	82	126	37	24.6	0
Cocodrie	193	5287	68.2	60.7	42.9	39	91	140	0	22.5	0
0011580	192	4808	66.5	55.6	44.8	41	90	135	13	24.4	0
Presidio	189	4827	70.6	56.6	41.9	41	86	129	3	23.8	3
RU0604035	184	4623	68.6	55.9	40.6	37	89	131	5	21.7	3
XL723	175	4790	70.6	60.8	39.6	44	86	133	0	26.0	3
Sabine	175	4558	68.7	57.9	43.5	40	88	134	5	24.7	0
RU0504083	174	4185	68.2	53.4	43.4	33	87	133	0	25.7	3
RU0504198	172	4752	69.4	61.3	41.3	40	91	140	0	26.1	0
RU0504156	170	4699	68.7	61.7	43.6	39	89	140	0	24.1	0
RU0504193	168	4663	69.0	61.7	43.6	39	89	139	0	24.4	0
RU0604114	165	4123	67.4	55.4	42.1	39	94	139	17	23.5	10
RU0704122	160	4256	69.0	59.1	43.9	47	89	128	0	21.1	0
RU0504196	155	3917	66.1	56.2	43.5	39	90	142	0	23.1	3
Clearfield 171-AR	137	3606	69.9	58.3	45.2	42	92	137	0	22.5	3
Spring	120	2387	66.5	44.2	41.8	46	84	124	33	20.7	10

[1]**Planting date**: April 23. **Emerged**: May 1. **Herbicides**: Roundup® at 1 quart per acre plus HarmonyGT® at 0.6 ounce per acre on April 27; Command® at 1 gallon to 5 acres on April 29; Stam WDF® at 5 pounds per acre plus Grandstand® at 1 pint per acre plus crop oil concentrate at 1% on May 18; Grandstand® at 0.5 pint per acre plus Permit® at 0.66 ounce per acre plus 0.25% 80-20 surfactant on June 13; Clincher® at 15 ounces per acre plus 1 quart of crop oil concentrate on June 15. **Fertilizer**: Urea at 250 pounds per acre on May 30, 100 pounds on June 14, and 100 pounds on June 22. **Date flushed**: May 24. **Permanent flood**: June 28. **Insecticide**: Prolex® at 1 gallon to 84 acres on June 15 and August 3. **Fungicide**: Stratego® at 17 ounces per acre plus 0.25% 80-20 surfactant on July 19. **Drained field**: August 21. 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 21 bushels per acre is required for one variety to differ from another at the 5% significance level. C.V. = 7.2%.**
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using average percent of plants infected on a plot basis.

Table 8. Average rough rice yields of long-grain varieties, hybrids, and lines evaluated in on-farm tests at seven locations, 2007.

Variety or line	Location							Average
	Tunica	Clarksdale	Cleveland	Blaine	Stoneville	Hollandale	Louise	
	bu/A	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*
XL723	213	260	231	186	222	246	175	219
Wells	217	219	218	195	219	245	203	216
Bowman	207	218	212	196	222	255	201	216
XP744	143	259	209	216	239	226	197	216
0011580	180	219	211	199	234	266	192	216
Priscilla	176	232	214	208	207	247	203	214
Cocodrie	213	224	200	204	208	247	193	213
RU0604035	199	224	208	201	203	253	184	211
RU0704083	226	191	181	216	219	239	196	209
Trenasse	219	231	175	182	199	257	195	208
RU0504198	200	204	218	200	198	247	172	206
RU0704122	210	245	195	194	183	242	160	204
RU0504193	173	210	208	205	189	254	168	202
Sabine	213	189	202	188	191	249	175	200
Presidio	189	194	201	190	204	231	189	200
RU0504156	199	201	205	196	181	244	170	199
RU0604114	92	231	193	187	210	249	165	194
RU0504196	184	204	191	188	193	214	155	190
RU0504083	175	180	182	173	182	235	174	186
Clearfield 171-AR	175	206	201	173	168	222	137	184
Spring	166	195	153	190	184	220	120	176
Mean	185	214	199	191	200	240	174	201
LSD 0.05	53	25	25	25	17	20	21	18
CV %	14.1	7.0	7.6	8.2	5.1	5.1	7.2	14.2
Date Planted	4/9	4/9	4/12	4/12	4/24	3/27	4/23	

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, 1990-2006.

Variety [1]	Origin [2]	Grain yield [3]			Years	Milling yield		Plant	50%	Lodging	Bushel
		2006	3-yr avg.	Avg.	in test	Total	Whole	height	heading		weight
		bu/A	*bu/A*	*bu/A*	*no.*	*%*	*%*	*in*	*days*	*%*	*lb*
Bowman	MS	236	214	214	3	65.3	49.4	40	88	18	41.4
Cocodrie	LA	227	202	186	12	67.0	54.6	39	82	5	42.3
Cybonnet	AR	191	178	174	7	67.7	56.8	39	85	4	42.8
Dellrose	LA	143	148	151	16	68.3	52.0	41	82	13	43.4
Francis	AR	219	195	201	8	65.9	49.1	40	84	17	42.2
Hidalgo	TX	201	172	167	7	65.2	53.4	39	80	42	40.4
Presidio	TX	200	183	183	8	67.0	53.4	39	82	7	42.1
Priscilla	MS	222	196	180	13	66.7	51.7	40	84	10	42.9
Sabine	TX	187	161	168	6	65.7	50.6	32	86	11	42.5
Spring	AR	192	175	177	6	63.8	45.2	42	73	16	41.6
Trenasse	LA	193	188	184	5	63.5	46.4	41	81	28	40.2
Wells	AR	270	222	194	11	69.1	48.2	42	82	4	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 10. Average agronomic and milling performance of long-grain varieties, hybrids, and lines grown at seven on-farm locations, 2007.

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.*
XL723	RT	219	5007	66.9	50.5	38.9	44	73	128	22	26.0	11	17446
Wells	AR	216	4508	66.4	46.1	43.3	42	78	130	25	25.0	10	18144
Bowman	MS	216	4796	67.0	49.3	43.9	39	77	129	13	25.8	11	17581
XP744	RT	216	4306	66.7	43.6	38.7	45	67	126	39	25.9	16	17513
0011580	MS	216	4604	66.2	47.4	43.8	40	77	128	20	25.2	16	18000
Priscilla	MS	214	4447	64.7	45.8	41.9	39	80	128	11	26.7	9	16988
Cocodrie	LA	213	5007	65.7	52.4	42.9	39	79	130	14	23.0	10	19721
RU0604035	MS	211	4385	65.3	46.3	40.3	38	84	126	2	22.9	10	19807
RU0704083	MS	209	3686	65.5	39.2	42.8	41	77	124	9	21.1	9	21497
Trenasse	LA	208	4308	64.4	45.8	41.5	40	80	124	36	25.5	5	17788
RU0504198	MS	206	4790	66.0	51.9	40.7	40	80	131	5	26.5	7	17117
RU0704122	MS	204	4809	66.8	52.1	42.9	45	82	125	5	21.6	10	21000
RU0504193	MS	202	5138	66.8	56.2	42.5	38	80	130	4	23.8	7	19058
Sabine	TX	200	4698	66.9	52.2	43.5	38	80	129	4	24.6	8	18439
Presidio	TX	200	4262	67.6	47.3	41.8	39	81	123	16	24.3	11	18666
RU0504156	MS	199	5160	66.6	57.4	42.8	38	78	130	0	23.8	4	19058
RU0604114	MS	194	3857	63.5	43.7	40.9	38	81	130	20	24.8	21	18290
RU0504196	MS	190	4843	65.2	56.5	43.3	39	81	132	6	23.6	5	19220
RU0504083	MS	186	4013	67.5	48.1	43.3	34	78	124	0	26.0	7	17446
Clearfield 171-AR	AR	184	4198	67.3	51.1	44.1	41	84	130	7	23.0	15	19721
Spring	AR	176	3156	65.8	40.1	42.8	44	79	119	33	22.3	11	20340
Mean		201	4392	66.0	48.4	42.3	39	82	128				
LSD 0.05		18	632	1.8	5.3	0.6	1.2	3.5	3.6				
CV %		14.2	23.2	4.3	17.7	2.3	4.8	6.9	4.5				

[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. 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 2007.[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]
	2001	2002	2003	2004	2005	2006	2007	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	198	178	192	196	179	–	214	185	196	91	72.1	58.7	42.1	39	83	127	9	27.4	21
Cocodrie	182	180	195	209	176	194	213	186	194	77	71.3	61.4	42.2	40	82	129	14	23.9	27
Wells	195	183	200	201	178	–	216	194	198	63	73.1	56.8	43.6	42	82	129	18	25.3	23
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
Cybonnet	–	–	185	186	163	–	–	178	178	21	74.5	65.4	43.8	39	85	129	20	24.0	6
XP723	–	–	–	232	165	221	219	209	202	28	70.8	59.7	39.4	44	81	131	27	26.3	7
Sabine	–	–	–	183	177	192	200	188	190	28	70.6	60.7	43.4	38	85	131	17	24.4	5
Clearfield 131	–	–	–	–	161	187	–	174	–	14	69.7	60.0	42.9	35	89	133	19	23.1	9
Clearfield 171-AR	–	–	–	–	–	177	184	181	–	14	68.9	54.2	43.9	40	86	131	4	23.1	9
Presidio	–	–	–	–	173	191	200	188	188	21	69.1	54.6	41.3	38	84	126	21	24.2	9
Trenasse	–	–	–	–	139	188	208	178	178	21	65.5	52.3	40.5	40	81	127	42	25.5	6
Bowman	–	–	–	–	–	–	216	216	–	7	67.0	49.3	43.9	39	77	129	13	25.8	11
XP744	–	–	–	–	–	–	216	216	–	7	66.7	43.6	38.7	45	67	126	39	25.9	16
Spring	–	–	–	–	–	–	176	176	–	7	65.8	40.1	42.8	44	79	119	33	22.3	11

[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 2000 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
Bowman	S	S	—	MS	—	—	—	—	—
Clearfield 131	MS	VS	—	VS	—	—	—	—	—
Clearfield 161	MS	VS	S	MS	—	—	—	—	S
Clearfield 171-AR	MS	S	S	MS	R	MS	MR	S	S
Clearfield XP730	R	MS	MS	MR	—	—	—	S	MS
Cocodrie	MS	S	VS	S	MR	MR	MS	S	S
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
Trenasse	S	S	S	S	—	MS	—	S	MS
Wells	S	MS	MS	MS	MR	S	MS	S	S
XP723	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		
	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
Cybonnet	120-150	30-60	0	120	45	0
Francis[1]	90-120	30-60	0	90	60	0
Hidalgo[1]	90	45	45	90	30	30
Presidio	120-150	30-60	0	120	45	0
Sabine	120-150	30-60	0	120	45	0
Trenasse[1]	90-120	30-60	0	90	60	0
Wells	120-150	30-60	0	120	45	0
Hybrids						
Clearfield XL 729	120-150	0	45	120	0	30
Clearfield XL 730	120	0	45	120	0	30
XL723	120-150	0	45	120	0	30

[1]Varieties are more prone to lodging with excessive preflood N rates.

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