Mississippi Rice Variety Trials, 2004

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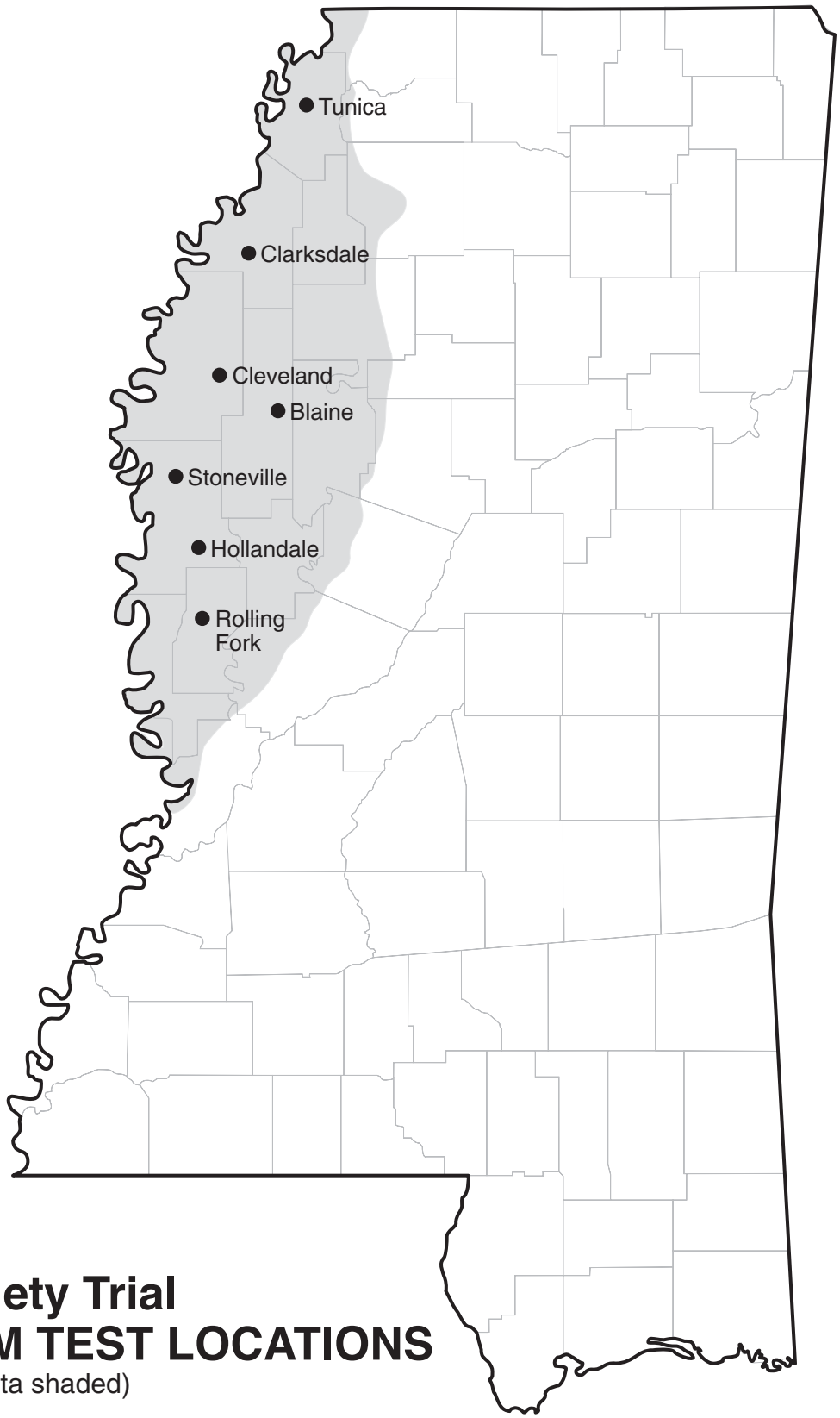

Rice Variety Trial
ON-FARM TEST LOCATIONS

(Mississippi Delta shaded)

Mississippi Rice Variety Trials, 2004

INTRODUCTION

In 2004, approximately 235,000 acres of rice were planted in 14 Delta counties of Mississippi compared with 242,325 acres planted in 2003. Bolivar County had the highest planted acreage at 70,970 acres. Essentially all the production in Mississippi was from long-grain rice. Cocodrie was the predominate variety grown in the Mississippi Delta this year, occupying 59% of the rice acreage followed by Clearfield 161 at 18%, Priscilla at 9%, Wells at 6%, and all other varieties at 8%.

The on-farm rice variety tests represent the final step in the yield evaluation program 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 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 low to moderate in 2004. 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 5 to April 28, which are within the typical period for planting rice in the Delta. Two tests (Cleveland and Stoneville) were planted into conventionally prepared seedbeds, and the other five were planted into stale seedbeds. Early-season showers relieved the need for flushing to obtain a stand at most test locations. Light to moderate sheath blight infection developed on susceptible entries at the Tunica and Cleveland sites. Soil samples were taken at planting within the test area at each location. All results indicated nutrient levels were medium to high at all locations. The medium phosphorus levels at Cleveland and Rolling Fork were sufficient for normal rice production. The medium sulfur levels at Cleveland and Rolling Fork were compensated to some extent by the preflood application of ammonium thiosulfate and ammonium sulfate, respectively.

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. 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 18 long-grain varieties, hybrids, and breeding lines reported here were included in the variety test planted at each of the seven locations. Each test consisted of three replications. The plots at all locations consisted of six 8-inch wide 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 *2004 Weed Control Guidelines for Mississippi* (Mississippi State University Extension Service/Mississippi Agricultural and Forestry Experiment Station 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. Less-than-favorable conditions for optimum disease development in the blast nursery delayed data collection and availability at the time this bulletin was prepared. Plots were harvested with a small plot binder, and standard procedures were used in processing the samples for grain and milling yield determinations. Readers may refer to MAFES Information Bulletin 283, *1994 Rice Variety Trials*, dated March 1995, for further details on experimental procedures.

Statistical analyses were performed on the yield data for each location. The data combined over the seven locations were analyzed using the SAS PROC-GLM procedure. The least significant difference (LSD) for yield at the 5% probability 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 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 nine tables.

RESULTS

The field performance of each variety in the seven individual tests is presented in Tables 1-7. Sheath blight ratings are listed in the location and summary tables (Tables 1–7, 10 and 11). Average test yields ranged from 172 bushels per acre at Tunica to 224 bushels per acre at Clarksdale (Table 8). The CV's for grain yields at all locations were within an acceptable range in 2004. Rough rice, total, and whole grain milling yields were higher in 2004 than they were in 2003. There were generally no stand problems in the tests except at Tunica. 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 12 varieties and six experimental lines. The Newpath® tolerant hybrid, Clearfield XL8, at 228 bushels per acre, significantly outyielded all other varieties, hybrids, and experimental lines except XP723 for average grain yield across all seven on-farm locations (Table 10). XP723 significantly outyielded all varieties, hybrids, and experimental lines except XP710, Cheniere, and Francis. Numerically, XP723 produced more whole-grain milled rice than all other varieties, hybrids, and lines in the tests although not significantly more than Cheniere, Clearfield XL8, or Cocodrie. Cheniere is a high-yielding, long-grain variety with excellent milling quality and lodging resistance released by Louisiana in 2002. Cheniere is reported to be moderately resistant to the straighthead disorder and susceptible to rice blast and sheath blight diseases. Cocodrie continues to be a high-yielding variety and continues to have excellent milling quality. Clearfield 161 is a variety that is tolerant to the herbicide Newpath® that controls red rice. Clearfield 161 has more tolerance to Newpath® than its predecessors, Clearfield 121 and Clearfield 141. Three new rice varieties have been released recently and are included in this bulletin. Banks and Cybonnet were released by Arkansas in 2004. Sabine, a Dixibelle/Rexmont type variety, was released by Texas in 2004.

Suggested varieties for the Mississippi rice grower would be Cheniere, Cocodrie, Wells, and Priscilla. Suggested hybrids are Clearfield XL8, XP723, and XP710. Keep in mind that the cost of hybrid seed is substantially higher than for conventional varieties. If a grower has a red rice problem, Clearfield XL8 would be a better choice than Clearfield 161 because its yield is significantly more as indicated in Table 10.

Average values for milling and agronomic characteristics 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. Seven varieties and experimental lines produced more head rice per acre than Francis, and 11 produced more per acre than Wells (Table 10). Breeding line MS04Y26 performed well at most test locations. When averaged over all seven locations, MS04Y26 yielded 6 bushels per acre more than Priscilla and produced more head rice.

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. Lodging was light to severe with most occurring at the Cleveland and Hollandale locations (Tables 3 and 6). The varieties that lodged the most in the 2004 on-farm variety tests were Clearfield XL-8 (35%), XP710 (32%), Francis (27%), and Wells (24%) (Table 10). Lodging among the hybrid entries may have resulted from the fertilizer being applied prior to the early-heading period as recommended.

The long-term performance of 13 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. Average grain yields in 2004 for the commercial varieties were numerically higher than the 2003 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 1984. Individual varieties have been tested for different numbers of years. The 3-year yield average compares varieties from 2001 to 2003. The yield data includes both standing and lodged plants as the plots were hand-harvested. 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 12. The nitrogen fertility guidelines for commonly grown commercial varieties in Mississippi are provided by Tim Walker and are presented in Table 13.

Table 1. Performance of long-grain rice varieties, hybrids, and lines grown on Sharkey-Alligator clay soil near Tunica, Tunica County, Mississippi, 2004.[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*
XP723	232	6585	74.4	63.0	41.6	42	90	141	30	27.4	0.3
XP710	225	6102	72.2	60.2	40.3	43	98	148	30	29.3	0.0
Cheniere	215	6457	74.5	66.6	43.5	37	97	146	0	22.4	0.3
Clearfield XL8	214	5688	73.9	58.9	41.0	43	89	139	52	24.4	3.3
Cocodrie	212	6317	74.4	66.3	44.9	37	95	142	20	24.6	0.7
Priscilla	193	5263	71.8	60.5	43.1	40	93	144	2	27.3	0.0
Clearfield 161	192	5745	73.2	66.4	43.8	40	10	150	2	22.4	1.3
Sabine	186	5407	74.3	64.3	44.9	36	89	134	0	24.3	0.7
MSO4Y16	185	5521	73.2	66.4	42.9	35	88	138	0	22.3	0.7
Francis	172	4763	72.0	61.7	43.9	39	91	142	8	24.3	1.0
Wells	171	4492	73.0	58.0	44.9	39	87	133	0	24.8	0.0
MS04Y10	170	3908	72.5	51.1	45.5	38	83	130	0	25.2	0.0
MS04Y27	159	4740	73.8	66.2	43.4	36	90	140	0	24.0	0.0
MS04Y15	157	4064	70.7	57.6	42.0	39	85	136	0	26.7	0.0
MS04Y26	155	4333	71.5	62.1	42.0	43	86	134	30	24.6	0.7
Cybonnet	153	4221	73.6	64.1	44.9	38	89	134	0	25.3	0.0
Banks	147	4050	71.7	61.1	43.7	41	90	137	0	24.1	0.3
MS04Y05	141	3368	71.9	52.7	44.4	34	87	135	0	24.0	0.0

[1]**Planting date**: April 6. **Emerged**: May 3. **Herbicides**: Stam® at 4 lb/A + Facet® at 0.5 lb/A plus Crop Oil at 1 qt/A on May 20; **Fertilizer**: Urea at 270 lb/A on May 21 and 130 lb/A on June 17. **Permanent flood**: May 22. **Fungicide**: Tilt® at 6 oz/A on July 2. **Drained field**: July 28.
[2]Rough rice at 12% moisture. A difference of 39 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 14%.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight rating using a 1 (least susceptible) to 9 (most susceptible) scale.

Table 2. Performance of long-grain rice varieties, hybrids, and lines grown on Alligator clay soil near Clarksdale, Coahoma County, Mississippi, 2004.[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 XL8	277	7689	71.5	61.7	41.8	42	80	124	0	24.9	0.0
XP710	274	7429	70.3	60.3	40.2	40	83	129	25	30.3	0.0
XP723	273	8479	74.8	69.2	42.1	42	80	128	0	27.6	0.0
MS04Y26	248	7353	72.3	65.8	44.0	43	81	129	0	25.5	0.3
Francis	246	7303	73.6	66.1	44.9	40	80	132	0	23.4	0.7
MS04Y05	241	6146	74.8	56.5	46.8	36	80	126	0	24.6	0.0
Wells	235	6900	73.1	65.2	46.4	39	82	128	0	25.7	0.0
Priscilla	233	6235	69.4	59.6	44.3	36	82	126	0	28.4	0.0
Cheniere	231	6982	73.8	67.3	44.5	37	82	133	0	22.8	0.7
Banks	230	7047	74.2	68.2	46.1	43	87	132	0	24.1	0.0
MS04Y15	228	5812	69.1	56.8	43.7	39	84	127	0	28.4	0.0
MS04Y16	227	6982	72.8	68.4	44.1	37	80	130	0	22.6	0.0
Cocodrie	227	6910	72.4	67.8	45.3	40	80	128	0	23.5	0.0
MS04Y27	219	6774	74.2	68.7	46.1	37	82	131	0	25.4	0.0
MS04Y10	213	5853	70.5	61.1	45.5	40	80	122	0	24.8	0.3
Clearfield 161	205	6211	71.9	67.4	44.3	38	83	129	0	22.9	0.0
Cybonnet	205	6204	73.0	67.3	45.0	37	81	123	0	23.9	0.0
Sabine	196	5959	71.6	67.5	45.1	33	81	123	0	24.9	0.0

[1]**Planting date**: April 27. **Emerged**: May 8. **Herbicides**: Roundup® at 1 qt/A plus Command® at 1 gallon to 6 acres on April 27; Bolero® at 4 pt/A plus Facet® at 0.4 lb/A plus Grandstand® at 0.67 pt/A on May 22. **Fertilizer**: 41-0-0-4 at 310 lb/A on May 26; urea at 114 lb/A on June 21. **Permanent flood**: May 27. **Insecticide**: Karate® at 1 gallon to 70 acres on August 11. **Fungicide**: Quadris® at 1 gallon to 11 acres on July 5. **Drained field**: August 20.
[2]Rough rice at 12% moisture. A difference of 20 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 5.4%.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight rating using a 1 (least susceptible) to 9 (most susceptible) scale.

Table 3. Performance of long-grain rice varieties, hybrids, and lines grown on Sharkey clay soil near Cleveland, Bolivar County, Mississippi, 2004.[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*
MS04Y05	209	4746	72.8	50.3	46.0	35	81	128	0	24.2	0.0
Francis	200	5096	70.6	56.7	44.3	41	81	129	86	23.0	1.3
MS04Y15	196	5335	70.8	60.3	44.7	39	82	123	0	29.1	0.0
MS04Y27	194	5809	72.2	66.5	45.8	36	84	129	0	25.0	0.3
Banks	190	5419	70.0	63.4	44.8	45	86	135	66	23.2	0.0
Priscilla	189	5034	68.6	59.3	44.2	39	82	120	0	27.9	0.0
Cheniere	187	5408	71.6	64.2	44.3	37	84	127	2	22.0	1.3
MS04Y26	184	5149	71.6	62.2	43.8	43	80	125	92	23.0	0.0
Cocodrie	182	5380	72.6	65.8	44.9	39	82	126	12	24.0	1.7
MS04Y16	179	5268	71.2	65.4	43.6	37	80	125	0	23.0	0.0
XP710	179	4751	72.4	59.1	41.7	44	83	130	76	31.2	0.0
Sabine	176	5187	70.5	65.3	45.2	38	81	119	0	23.4	0.3
Cybonnet	169	4984	71.6	65.5	44.7	39	82	124	5	23.4	1.3
MS04Y10	165	4095	68.3	55.1	44.9	40	81	122	89	23.1	0.3
Wells	163	4347	73.4	59.0	45.9	43	82	127	61	24.9	1.3
XP723	155	4430	72.4	63.5	41.6	44	78	124	22	27.3	1.7
Clearfield XL8	155	3585	69.5	51.0	41.1	44	81	115	88	23.7	1.3
Clearfield 161	151	4208	69.4	62.1	43.8	38	85	127	70	22.1	2.0

[1]**Planting date**: April 5. **Emerged**: April 24. **Herbicides**: Command® at 1 gallon to 6 acres plus ammonium thiosulfate at 10 gal/A on April 6; Stam® at 1 lb/A plus Facet® at 0.35 lb/A plus Permit® at 1 oz/A plus Soy Oil at 1 pt/A on May 11; 2-4-D amine at 3 pt/A on June 14. **Fertilizer**: Urea at 274 lb/A on May 1 and 130 lb/A on June 14. **Permanent flood**: May 2. **Fungicide**: Propimax, at 4 oz/A on July 13. **Drained field**: August 2.
[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. = 6.3%.
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using a 1 (least susceptible) to 9 (most susceptible) scale.

Table 4. Performance of long-grain rice varieties, hybrids, and lines grown on Sharkey clay soil near Blaine, Sunflower County, Mississippi, 2004.[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 XL8	238	6829	73.1	63.7	41.0	45	81	131	7	24.2	0.0
XP723	223	6864	73.7	68.3	41.1	44	82	130	0	27.2	0.0
XP710	223	6471	72.2	64.6	40.8	45	87	134	0	29.8	0.0
Banks	220	6619	71.3	66.9	45.2	46	89	137	0	24.8	0.0
Cheniere	217	6551	72.5	67.0	44.5	37	90	136	0	22.9	0.0
Wells	217	6480	72.3	66.3	45.4	43	88	135	0	26.7	0.0
Francis	212	6294	72.4	66.1	44.6	42	85	136	0	24.9	0.0
MS04Y26	210	6396	72.8	67.7	43.5	41	86	135	0	26.0	0.0
Cocodrie	204	6377	73.2	69.3	45.2	38	90	132	0	24.8	0.0
Clearfield 161	203	6235	71.8	68.2	44.3	41	93	138	0	22.7	0.0
MS04Y05	193	5164	73.2	59.3	46.4	38	88	134	0	24.7	0.0
MS04Y16	192	5905	72.7	68.3	43.5	36	85	129	0	23.1	0.0
MS04Y15	192	5529	71.6	63.9	43.3	38	87	131	0	29.1	0.0
MS04Y10	192	5381	70.4	62.4	45.5	42	85	126	0	24.8	0.0
Priscilla	190	5522	70.8	64.7	44.1	39	88	132	0	27.8	0.0
Sabine	188	5757	71.6	68.1	44.9	39	87	128	0	24.9	0.0
Cybonnet	172	5395	72.8	69.8	45.2	40	88	127	0	24.9	0.0
MS04Y27	165	5078	72.9	68.2	44.8	36	88	137	0	25.6	0.0

[1]**Planting date**: April 5. **Emerged**: April 30. **Herbicides**: Roundup® at 1.5 pt/A plus Command® at 1 gallon to 6 acres on April 5; Basagran® at 1 qt/A plus Crop Oil Concentrate at 1 pt/A on May 19. **Fertilizer**: Ammonium sulfate at 100 lb/A on April 20; urea at 250 lb/A on May 21; 75 lb/A on June 14 and on June 29. **Permanent flood**: May 21. **Fungicides**: Quilt® at 18 oz/A plus 0.25% low foaming agent on July 10. **Drained field**: August 6.
[2]Rough rice at 12% moisture. A difference of 26 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 8%.
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using a 1 (least susceptible) to 9 (most susceptible) scale.

Table 5. Performance of long-grain rice varieties, hybrids, and lines grown on Tunica clay soil near Stoneville, Washington County, Mississippi, 2004.[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 XL8	236	6492	71.3	61.3	40.9	43	84	132	0	25.0	0.0
XP723	226	6738	72.5	66.2	41.1	41	84	134	0	25.8	0.0
Banks	213	6208	69.8	64.8	44.5	43	89	135	0	24.6	0.0
MS04Y26	208	5717	68.8	61.0	42.4	41	84	134	0	23.7	0.0
Cheniere	207	5915	70.8	63.4	43.2	34	87	131	0	21.9	0.0
Francis	207	5754	68.7	61.9	43.1	35	85	136	0	23.3	0.0
MS04Y27	205	6099	71.5	66.3	44.4	35	86	134	0	23.5	0.0
Cocodrie	203	5974	71.1	65.3	44.2	34	84	131	0	24.0	0.0
XP710	201	5023	66.1	55.4	39.1	38	89	144	0	28.4	0.0
MS04Y16	198	5752	70.3	64.7	42.3	35	83	131	0	24.0	0.0
Cybonnet	194	5714	70.9	65.4	44.3	36	86	130	0	24.7	0.0
MS04Y10	191	4932	66.0	57.4	44.2	39	84	129	0	23.9	0.0
Wells	187	5168	69.0	61.0	44.9	39	87	139	0	26.0	0.0
Clearfield 161	180	5304	70.5	65.6	43.4	36	87	137	0	21.5	0.0
Priscilla	164	4225	65.4	57.2	43.1	32	86	139	0	27.3	0.0
MS04Y15	156	4019	67.1	57.1	42.9	31	88	137	0	27.2	0.0
MS04Y05	139	3414	68.0	54.7	44.3	28	87	139	0	23.5	0.0
Sabine	131	3671	67.8	62.1	43.5	30	86	137	0	23.4	0.0

[1]**Planting date**: April 28. **Emerged**: May 10. **Herbicides**: Stam® at 3.2 qt/A plus Facet® at 0.58 lb/A plus Prowl® at 2.1 pt/A on May 26; Arrosolo® at 4 qt/A plus Bolero® at 3.75 pt/A plus Permit® at 1 oz/A on June 10. **Fertilizer**: Urea at 290 lb/A on June 9 and 110 lb/A on July 14. **Permanent flood**: June 11. **Drained field**: September 15.
[2]Rough rice at 12% moisture. A difference of 21 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 7%.
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using a 1 (least susceptible) to 9 (most susceptible) scale.

Table 6. Performance of long-grain rice varieties, hybrids, and lines grown on Dubbs silt loam soil near Hollandale, Washington County, Mississippi, 2004.[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*
MS04Y05	270	7343	75.3	60.3	45.2	39	79	126	0	24.0	0.0
Clearfield XL8	229	6762	75.4	65.6	41.0	42	80	122	100	23.3	0.0
MS04Y15	226	5999	71.3	59.0	42.4	41	82	129	73	26.1	0.0
Sabine	222	7019	74.7	70.3	45.0	41	81	124	70	23.0	0.0
MS04Y10	221	5855	71.2	58.9	43.9	39	79	125	93	22.0	0.3
Cocodrie	213	6011	70.4	62.8	43.6	41	81	130	62	22.8	0.0
Wells	213	5688	72.4	59.6	44.5	45	81	130	96	23.1	0.0
Francis	204	5146	72.0	56.1	43.6	42	80	129	97	22.1	0.0
Cybonnet	203	6422	74.6	70.3	44.5	40	81	123	51	23.2	0.0
Cheniere	201	5946	73.0	65.5	43.3	39	84	127	66	20.0	0.7
MS04Y27	199	6125	74.0	68.4	44.9	39	84	130	30	22.1	0.0
Priscilla	199	5616	71.1	62.1	42.0	41	82	126	60	25.2	0.0
MS04Y16	189	5801	73.2	68.3	43.4	39	79	124	17	21.2	0.0
MS04Y26	189	4966	70.9	58.7	41.9	43	81	130	98	21.1	0.0
XP710	188	5465	72.8	64.5	40.3	43	82	126	96	30.0	0.0
XP723	187	5763	74.5	68.2	41.3	43	77	125	95	26.4	0.0
Clearfield 161	164	4879	72.2	66.6	43.3	41	85	130	92	21.0	0.0
Banks	157	4244	69.4	60.1	43.1	47	86	130	97	20.9	0.0

[1]**Planting date**: April 19. **Emerged**: April 27. **Herbicides**: Roundup® at 1 qt/A plus Command® at 1 gallon to 6 acres on April 21; Aim® at 0.75 oz/A plus Permit® at 0.75 oz/A on May 21; Clincher® at 15 oz/A on July 14. **Fertilizer**: Ammonium sulfate at 100 lb/A on May 10; urea at 100 lb/A on May 22, June 2, June 16, and June 29. **Date flushed**: May 1 and May 11. **Permanent flood**: May 22. **Insecticide**: Karate Z® at 1 gallon to 70 acres on May 21 and July 22. **Fungicide**: Stratego® at 1 gallons to 9 acres on July 14. **Drained field**: August 8.
[2]Rough rice at 12% moisture. A difference of 31 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 a 1 (least susceptible) to 9 (most susceptible) scale.

Table 7. Performance of long-grain rice varieties, hybrids, and lines grown on Tunica clay soil near Rolling Fork, Sharkey County, Mississippi, 2004.[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 XL8	249	6859	71.6	61.3	41.4	45	79	125	0	23.7	0.3
XP723	239	7165	72.6	66.9	41.7	46	76	120	0	27.0	0.0
Francis	232	6861	71.6	65.7	45.2	42	79	127	0	23.7	0.0
Wells	227	6679	72.0	65.3	45.7	44	81	125	0	27.5	0.0
Cheniere	227	6853	72.3	67.1	44.8	37	82	129	0	22.8	0.0
MS04Y27	222	6842	72.7	68.4	44.7	37	83	128	0	26.5	0.0
Cocodrie	222	6897	73.7	69.0	44.8	40	81	127	0	25.7	0.0
MS04Y26	222	6567	71.5	65.8	43.4	46	79	124	0	25.7	0.0
XP710	217	6286	71.7	64.5	41.3	44	82	123	0	29.9	0.0
MS04Y16	216	6543	71.8	67.3	43.6	36	80	124	0	23.8	0.0
Banks	215	6438	70.8	66.6	45.2	48	83	129	0	24.9	0.0
MS04Y05	215	5800	74.7	60.0	46.5	37	81	125	0	24.6	0.0
Priscilla	204	6038	71.0	66.0	44.8	38	82	125	0	29.0	0.0
Cybonnet	203	6394	73.4	70.0	45.0	40	83	124	0	24.8	0.0
Clearfield 161	200	5990	71.0	66.4	44.1	41	84	129	0	22.6	0.0
MS04Y10	200	5929	71.5	65.9	46.2	41	79	120	0	25.9	0.0
MS04Y15	197	5763	72.3	65.1	44.6	38	80	123	0	27.8	0.0
Sabine	182	5707	72.5	69.7	45.3	38	81	121	0	24.9	0.0

[1]**Planting date**: April 27. **Emerged**: May 7. **Herbicides**: 2,4-D-amine at 1.5 pt/A plus Roundup® at 18 oz/A on March 16; Roundup® at 20 oz/A plus Commit 3ME® at 25.6 oz/A on April 29; Aim® at 1.25 oz/A plus Permit® at 0.66 oz/A on May 29; Clincher® at 15 oz/A plus Crop Oil at 1 qt/A on June 12. **Fertilizer**: Ammonium sulfate at 100 lb/A on May 6; urea at 250 lb/A on June 3; 100 lb/A on June 16 and June 23. **Permanent flood**: June 9. **Insecticide**: Prolex® at 1 gallon to 84 acres on July 28. **Drained field**: August 17.
[2]Rough rice at 12% moisture. A difference of 21 bu/A is required for one variety to differ from another at the 5% significance level. C.V. = 6%.
[3]Days after emergence.
[4]Weight of 1000 kernels.
[5]Sheath blight rating using a 1 (least susceptible) to 9 (most susceptible) scale.

Table 8. Average rough rice yields of long-grain varieties, hybrids, and lines evaluated in on-farm tests at seven locations, 2004.

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*
Clearfield XL8	214	277	155	238	236	230	249	228
XP723	232	273	155	223	226	187	239	219
XP710	225	274	179	223	201	188	217	215
Cheniere	215	231	187	217	207	201	227	212
Francis	172	248	200	212	207	204	232	210
Cocodrie	212	227	182	204	203	213	222	209
MS04Y26	155	248	184	210	208	189	222	202
Wells	171	235	163	217	187	213	227	201
MS04Y05	141	241	209	193	139	270	215	201
MS04Y16	185	227	179	192	198	189	216	198
Banks	147	230	190	220	213	157	215	196
Priscilla	193	233	189	190	164	199	204	196
MS04Y27	159	219	194	165	205	199	222	195
MS04Y10	170	213	179	192	191	221	200	193
MS04Y15	157	228	196	192	156	226	197	193
Cybonnet	153	205	169	172	194	203	203	186
Clearfield 161	192	205	151	203	180	164	200	185
Sabine	186	196	176	188	131	222	182	183
Mean	172	224	178	193	186	200	211	195
LSD 0.05	39	20	18	26	21	31	21	10
CV %	14	5	6	8	7	9	6	8
Date Planted	4/6	4/27	4/5	4/5	4/28	4/19	4/27	

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, 1984-2003.

Variety [1]	Origin [2]	Grain yield			Years in test	Milling yield		Plant height	50% heading [3]	Lodging	Bushel weight
		2003	Avg.	3-yr avg.		Total	Whole				
		bu/A	*bu/A*	*bu/A*	*no.*	*%*	*%*	*in*	*days*	*%*	*lb*
Ahrent	AR	177	172	164	5	63.9	47.4	42	80	9	40.5
Cheniere	LA	190	179	173	4	67.1	52.6	37	84	9	42.5
Cocodrie	LA	191	175	179	9	67.4	54.8	40	80	<1	43.1
Cybonnet	AR	174	171	165	4	67.5	57.1	40	85	<1	43.9
Cypress	LA	174	152	154	16	69.2	60.6	40	86	11	43.3
Dellrose	TX	157	152	164	13	68.3	52.6	41	81	5	43.6
Dixiebelle	TX	167	150	159	14	68.7	57.6	34	82	0	42.7
Francis	AR	205	208	199	5	65.8	48.5	41	83	1	43.6
Jefferson	TX	156	150	156	10	66.8	52.1	37	77	2	41.7
Lemont	TX	168	143	144	20	69.5	51.3	37	89	5	43.0
Priscilla	MS	194	176	176	10	67.3	51.7	40	83	3	43.5
Sabine	TX	198	175	175	3	65.3	45.9	38	85	0	43.0
Wells	AR	204	183	186	8	69.3	46.6	42	81	0	44.8

[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]Days after emergence.

Table 10. Average agronomic and milling performance of long-grain varieties, hybrids, and lines grown at seven on-farm locations, 2004.

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.*
Clearfield XL8	RT	228	6272	72.3	60.5	41.2	43	82	127	35	24.2	0.7	18743
XP723	RT	219	6575	73.6	66.5	41.5	43	81	129	21	27.0	0.3	16800
XP710	RT	215	5932	71.1	61.2	40.5	42	86	134	32	29.9	0.0	15170
Cheniere	LA	212	6302	72.6	65.9	44.0	37	87	133	10	22.1	0.4	20524
Francis	AR	210	5888	71.6	62.0	44.2	40	83	133	27	23.5	0.4	19302
Cocodrie	LA	209	6267	72.6	66.6	44.7	38	85	131	13	24.2	0.3	18743
MS04Y26	MS	202	5783	71.3	63.3	43.0	43	82	130	32	24.2	0.1	18743
Wells	AR	201	5639	72.2	61.8	45.4	42	84	131	24	25.5	0.2	17788
MS04Y05	MS	201	5140	73.0	56.3	45.7	35	83	130	0	24.2	0.0	18743
MS04Y16	MS	198	5971	72.2	66.9	43.3	36	82	129	3	22.8	0.1	19894
Banks	AR	196	5718	71.0	64.4	44.7	45	87	134	23	23.8	0.1	19058
Priscilla	MS	196	5419	69.7	61.3	43.7	38	85	130	9	27.6	0.0	16434
MS04Y27	MS	195	5924	73.0	67.5	44.9	37	85	133	4	24.6	0.1	18439
MS04Y10	MS	193	5124	70.3	58.7	45.1	40	81	125	27	24.2	0.2	18743
MS04Y15	MS	193	5217	70.4	60.0	43.4	38	84	130	11	27.8	0.0	16316
Cybonnet	AR	186	5648	72.9	67.5	44.8	39	84	126	8	24.3	0.2	18666
Clearfield 161	HA	185	5510	71.4	66.1	43.6	39	88	134	2	22.2	0.5	20432
Sabine	TX	183	5530	71.9	66.8	44.8	37	84	127	10	24.1	0.1	18821
Mean		195	5628	72.0	64.0	44.0	37	84	129				
LSD 0.05		10	324	0.8	1.4	0.3	1	1	2				
CV %		8.2	9.5	1.7	3.5	1.2	4.5	2.4	2.3				

[1]Origin: AR = Arkansas; HA = Horizon Ag LLC; 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 1 (least susceptible) to 9 (most susceptible) scale.

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 1998 to 2004.[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]
	1998	1999	2000	2001	2002	2003	2004	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*
Lemont	152	161	165	151	154	–	–	145	157	91	70.3	56.8	42.4	37	87	124	10	25.8	4.9
Priscilla	160	177	182	198	178	192	196	179	189	77	69.7	54.4	42.3	39	82	126	4	27.6	2.5
Jefferson	141	155	153	–	–	–	–	146	150	42	67.7	52.4	40.8	37	74	109	4	28.2	3.0
Cocodrie	164	179	190	182	180	195	209	180	194	56	68.4	57.6	42.1	40	82	128	10	24.1	3.0
Madison	145	146	–	–	–	–	–	142	142	21	68.1	57.0	39.8	37	87	122	1	23.8	2.6
Wells	174	188	196	195	183	200	201	191	195	49	70.2	51.2	43.8	42	82	128	13	25.4	2.8
Clearfield 161	–	–	–	148	157	169	185	165	170	28	68.7	59.8	42.4	40	87	132	32	21.8	2.8
Francis	–	–	–	–	182	208	210	200	200	21	68.8	54.3	43.1	41	84	133	32	22.7	4.9
Cheniere	–	–	–	–	–	199	212	206	–	14	71.8	62.8	43.7	37	86	131	6	22.1	2.3
Clearfield XL-8	–	–	–	–	–	193	228	210	–	14	71.3	56.3	40.6	43	82	128	37	24.0	2.9
XP710	–	–	–	–	–	219	215	217	–	14	70.0	56.7	40.5	43	86	133	26	29.2	0.6
Cybonnet	–	–	–	–	–	185	186	185	–	14	71.7	63.7	44.8	39	84	127	7	24.0	0.3
XP723	–	–	–	–	–	–	232	232	–	7	73.6	66.5	41.5	43	81	129	21	27.0	0.3
Banks	–	–	–	–	–	–	196	196	–	7	71.0	64.4	44.7	45	87	134	23	23.8	0.1
Sabine	–	–	–	–	–	–	183	183	–	7	71.9	66.8	44.8	37	84	127	10	24.1	0.1

[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 1989 to 1997 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 1 (least susceptible) to 9 (most susceptible) scale from selected tests since 1997 with moderate or higher disease severity.

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	R	VS	S	MR	R	R	MR	S	S
Cheniere	S	MS	—	MR	MR	MS	MR	—	—
Clearfield XL-8	R	MS	MS	MR	MR	R	R	S	MS
Clearfield 161	MS	VS	VS	MS	—	—	—	—	S
Cocodrie	MR	S	VS	S	MR	MR	MS	S	S
Cybonnet	R	MS	VS	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
Lemont	MR	VS	MR	MR	R	S	S	MS	MS
Priscilla	MS	MS	S	MR	R	MR	MR	S	S
Sabine	MS	VS	—	—	R	R	R	—	—
Wells	S	MS	MR	MR	MR	R	MS	S	S
XP-710	R	MR	MS	S	R	R	R	MS	MS
XP-723	R	MS	MS	MS	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 should new or other information become available.

Table 13. Nitrogen fertility rate guidelines.

Cultivar	Clay soils				Silt loam soils[1]			
	Total	Preflood	Midseason		Total	Preflood	Midseason	
			First	Second			First	Second
	lb/A	*lb/A*	*lb/A*	*lb/A*	*lb/A*	*lb/A*	*lb/A*	*lb/A*
Cheniere	180	120	60	—	160	115	45	—
Cocodrie	180	120	60	—	160	115	45	—
Clearfield 161	180	120	60	—	160	105	45	—
Clearfield XL82	180	120	60	—	150	90	60	—
Dixiebelle	180	90	45	45	160	80	40	40
Francis	180	90	45	45	160	80	40	40
Priscilla	180	120	60	—	160	115	45	—
Wells	180	90	45	45	160	80	40	40
XP7102	180	120	60	—	150	90	60	—
XP7232	180	120	60	—	150	90	60	—

[1]For recently leveled silt loam soils leveled within 5 years, apply the same rates as you would for clay soils.
[2]The midseason N application for RiceTec's hybrid varieties are applied in one application at booting to 5% headed.