Mississippi Rice Variety Trials, 2003

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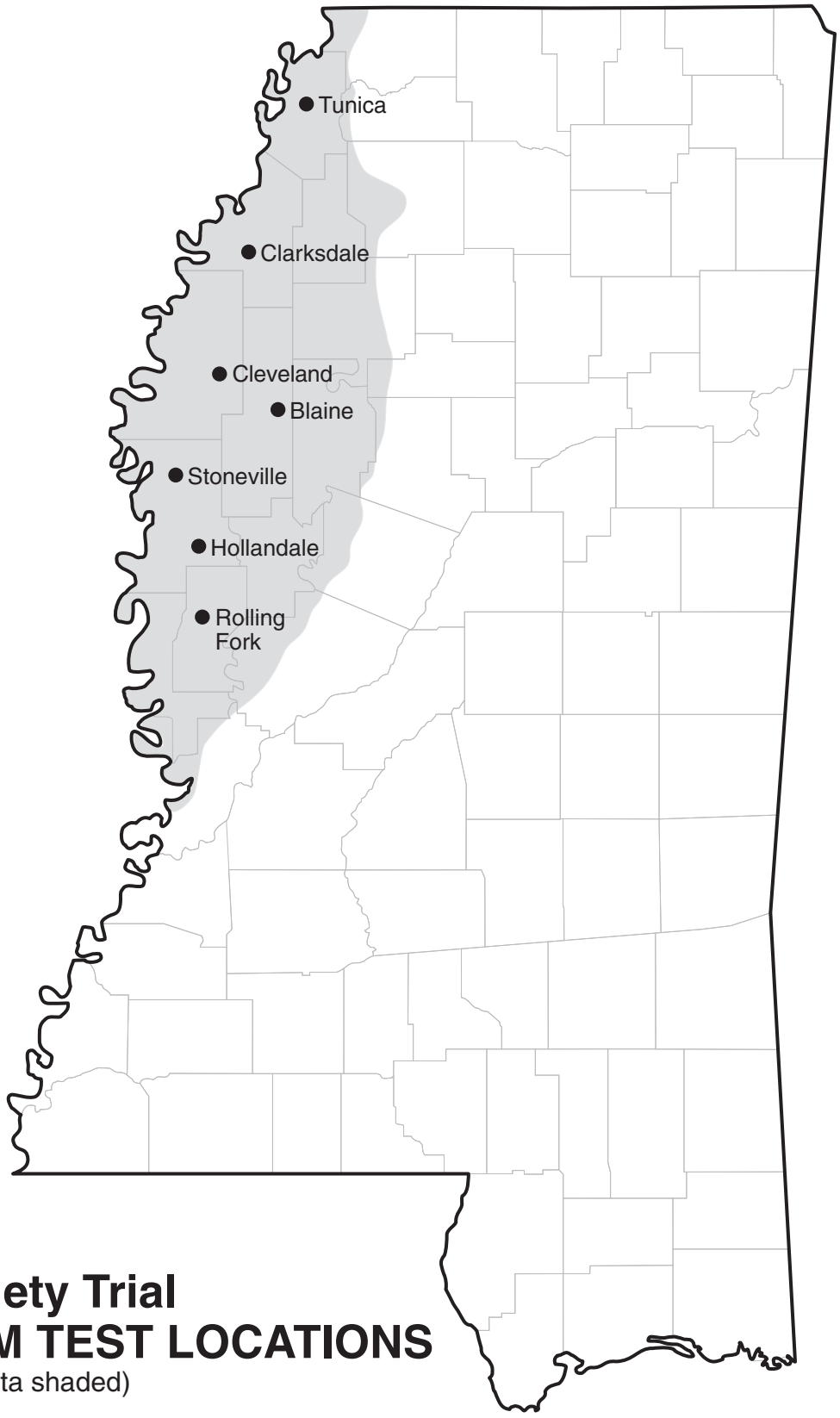

Rice Variety Trial
ON-FARM TEST LOCATIONS

(Mississippi Delta shaded)

Mississippi Rice Variety Trials, 2003

INTRODUCTION

In 2003, approximately 242,325 acres of rice were planted in 14 Delta counties of Mississippi compared with 268,666 acres planted in 2002. Bolivar County had the highest planted acreage at 74,480 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 67% of the rice acreage followed by Priscilla at 13%, Clearfield 161 at 12%, Wells at 3%, and other varieties at 5%.

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 on-farm test locations ranged from low to moderate in 2003. 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 3 to April 30, 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. 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 Cleveland and Blaine 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 Tunica, Cleveland, and Blaine were sufficient for normal rice production.

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 17 long-grain varieties and breeding lines reported here were included in the variety test planted at each of the seven locations. Each test consisted of four replications. All plots consisted of six rows drill-seeded at an equivalent seeding rate of 108 pounds per acre at a depth of approximately 1 inch. 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 *2003 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 six locations. Less-than-favorable conditions for optimum disease development in the blast nursery delayed data collection. Therefore, blast data was not available at the time this bulletin was prepared. Sodium chloride was applied to the entire field at Clarksdale making it impossible to collect maturity and disease ratings. Plots were hand-harvested, 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, 3-7, 10, and 11). Average test yields ranged from 156 bushels per acre at Cleveland to 202 bushels per acre at Rolling Fork (Table 8). The CV's for grain yields at all locations were within an acceptable range in 2003. Grain milling yields were lower at Blaine than at all other locations. This may have been caused by several factors, such as glyphosate drift, draining the field too early, stinkbug damage, and other unknown localized environmental or soil factors. Rough rice, total, and whole-grain milling yields were higher in 2003 than they were in 2002. There were generally no stand problems in the tests except at Hollandale. 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 eight varieties and nine experimental lines. The experimental hybrid, XP-710, at 219 bushels per acre, significantly outyielded all other varieties and experimental lines for average grain yield across all seven on-farm locations (Table 10). Francis significantly outyielded all varieties and experimental lines except MS03Y14, Wells, and Cheniere. Numerically, Cheniere produced more whole-grain milled rice than all other varieties and lines in the tests. Cheniere is a new high-yielding long-grain variety with good to 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. Priscilla continues to be a high-yielding variety that averaged 192 bushels per acre in the 2003 on-farm tests and has averaged 181 bushels per acre over 9 years. Priscilla also has good disease and lodging resistance. Its average whole-grain milling yield is slightly lower than some of the other commercial varieties. Cocodrie continues to be a high-yielding variety and continues to have excellent milling quality. CL161 is a new variety that is tolerant to the herbicide Newpath® that controls red rice. CL161 has more tolerance to Newpath® than its predecessors CL121 and CL141. However, it yielded less than all other varieties and lines reported in this bulletin.

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. Six varieties and experimental lines produced more head rice per acre than Francis, and eight produced more per acre than Wells (Table 10). Breeding line MS03Y14 performed well at most test locations. When averaged over all seven locations, MS03Y14 yielded 9 bushels per acre more than Priscilla.

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 Rolling Fork, Cleveland, and Hollandale locations (Tables 3, 6, and 7). The varieties that lodged the most in the 2003 on-farm variety tests were XL-8 (44%), Clearfield XL-8 (39%), Francis (33%), and XP-710 (21%) (Table 11). 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 2003 for the commercial varieties were numerically higher than the 2002 yields.

The performances of 12 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 2000 to 2002. 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 Joe Street and are presented in Table 13.

Table 1. Performance of long-grain rice varieties and lines grown on Sharkey-Alligator clay soil near Tunica, Tunica County, Mississippi, 2003.[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*	*%*
Francis	232	5924	70.6	56.7	42.7	42	88	139	3	22.1	0.0
Wells	230	6006	72.4	58.0	44.3	43	89	140	5	23.1	2.5
MS03Y14	221	5592	72.2	56.2	43.1	38	88	137	0	27.3	0.0
XP-710	220	5815	71.3	58.6	39.0	43	89	141	0	28.2	0.0
XL-8	214	5559	71.8	57.7	39.9	42	86	135	0	24.2	0.0
Priscilla	213	5599	71.4	58.5	43.1	40	88	136	1	26.1	0.0
MS03Y08	211	5645	71.3	59.6	43.1	39	87	136	3	27.2	0.0
Cocodrie	209	5640	70.1	59.9	43.2	38	87	138	0	23.1	0.0
Cheniere	207	5968	72.7	64.0	43.7	35	89	137	0	21.9	0.0
MS03Y19	207	5676	69.7	61.0	43.0	39	91	139	0	25.2	0.0
MS03Y07	206	5681	71.6	61.3	42.1	36	89	131	0	27.4	0.0
Clearfield XL-8	204	5369	72.5	58.5	40.2	42	85	137	6	23.3	0.0
MS03Y05	196	5316	73.7	60.1	42.7	33	85	136	3	23.0	2.5
MS03Y09	190	4679	69.5	54.8	41.0	43	87	140	39	22.0	7.5
MS03Y15	188	5243	71.0	62.0	43.3	34	85	141	0	24.0	0.0
CL161	187	5137	70.2	61.1	42.7	39	92	139	0	22.1	2.5
MS03Y13	183	4923	69.8	59.8	42.2	34	84	133	0	22.2	0.0

[1]**Planting date**: April 16. **Emerged**: April 28. **Herbicides**: Roundup® at 1 pt/A + Command® at 1 gallon to 7 acres on April 17; Aim® at 2 oz/A on May 23; Facet® at 0.5 lb/A plus Permit® at 0.5 oz/A on June 26. **Fertilizer**: Urea at 220 lb/A and ammonium sulfate at 100 lb/A on May 23; urea at 135 lb/A on June 18. **Permanent flood**: May 25. **Insecticide**: Karate Z® at 1 gallon to 70 acres on May 30 and August 13. **Fungicide**: Propimax® at 6 oz/A on July 18. **Drained field**: August 19.
[2]Rough rice at 12% moisture. A difference of 19 bu/A is required for one variety to differ from another at the 5% probability level. C.V. = 6.8%.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight percent is an estimation of the percent plot area with the upper leaves visually infected.

Table 2. Performance of long-grain rice varieties and lines grown on Alligator clay soil near Clarksdale, Coahoma County, Mississippi, 2003.[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*	*%*
MS03Y05	226	5939	70.2	58.3	43.2	35	85	—	0	22.7	—
XP-710	224	4965	65.6	49.2	38.9	46	90	—	1	27.0	—
MS03Y14	219	4756	67.9	52.5	42.1	42	90	—	0	25.5	—
MS03Y15	218	5495	68.4	49.2	42.6	36	83	—	0	22.8	—
Priscilla	213	4520	66.0	47.3	42.3	41	90	—	23	25.7	—
Francis	212	5153	66.5	54.0	41.9	40	89	—	6	21.3	—
MS03Y08	211	4573	66.6	47.5	43.2	41	87	—	1	25.5	—
Cheniere	211	5385	69.1	56.8	43.1	36	86	—	0	21.8	—
MS03Y09	210	4767	63.4	57.8	40.9	46	89	—	16	21.4	—
XL-8	209	4856	68.7	51.8	39.3	44	88	—	46	23.9	—
Wells	207	5006	67.8	53.8	43.5	42	92	—	0	23.5	—
Cocodrie	205	5193	66.9	56.2	43.1	39	90	—	0	22.6	—
MS03Y19	203	4793	67.3	52.4	42.4	39	89	—	0	23.8	—
MS03Y07	198	4999	67.6	60.2	42.6	37	88	—	0	24.7	—
MS03Y13	197	4758	64.9	51.8	41.3	36	85	—	0	20.6	—
CL161	186	5078	67.3	60.5	41.8	41	95	—	70	21.2	—
Clearfield XL-8	183	4308	68.7	52.5	39.6	45	87	—	38	23.9	—

[1]**Planting date**: April 16. **Emerged**: May 1. **Herbicides**: Touchdown® at 1.5 pt/A on April 15; Command® at 1 gallon to 6 acres on April 17; Touchdown® at 1.25 pt/A on April 22; Bolero® at 4 pt/A plus Permit® at 0.5 oz/A on May 23; Regiment® at 0.5 oz/A on May 23. **Fertilizer**: Unity 17-0-0-19 at 125 lb/A on April 30; urea at 300 lb/A on May 26, and 100 lb on June 20. **Permanent flood**: May 26. **Insecticide**: Icon® treated rice seed planted; Karate Z® at 1 gallon to 80 acres on July 28. **Fungicide**: Quadris® at 1 gallon to 10 acres on August 15; sodium chlorate at 5 lb/A on September 3. **Drained field**: August 15.
[2]Rough rice at 12% moisture. A difference of 16 bu/A is required for one variety to differ from another at the 5% probability level. C.V. = 5.8%.
[3]Days after emergence. Sodium chlorate was applied on September 3 at 5 lb/A before maturity and sheath blight ratings were taken.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight percent is an estimation of the percent plot area with upper leaves visually infected.

Table 3. Performance of long-grain rice varieties and lines grown on Sharkey clay soil near Cleveland, Bolivar County, Mississippi, 2003.[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*	
XP-710	221	5333	69.3	53.6	40.6	43	84	128	26	19.0	0.0
Cheniere	185	5026	70.8	60.5	43.6	36	82	126	3	21.2	10.0
MS03Y19	174	4547	69.9	58.2	43.3	37	81	123	0	23.9	2.5
MS03Y07	174	4661	71.4	59.9	43.2	34	82	123	31	25.1	22.5
Francis	173	4132	68.3	52.9	43.2	38	83	128	48	23.1	10.0
MS03Y09	172	4528	71.3	58.3	42.0	40	80	123	74	22.9	7.5
MS03Y14	168	4492	71.5	59.3	43.0	38	79	121	0	27.2	2.5
XL-8	167	3928	70.8	52.1	40.1	41	81	123	50	25.2	7.5
Clearfield XL-8	165	3819	70.3	51.8	40.3	40	80	123	48	23.2	15.0
MS03Y15	160	4329	71.8	60.2	43.2	34	81	124	4	24.2	7.5
Cocodrie	155	4160	70.1	59.5	43.2	39	83	128	40	24.2	17.5
MS0Y13	155	4105	70.3	58.8	42.2	35	80	126	4	22.0	25.0
Wells	151	3601	71.3	52.8	44.9	39	82	123	5	24.0	7.5
Priscilla	148	3888	68.6	58.2	43.6	37	84	121	1	27.2	0.0
MS0Y05	146	3643	74.1	55.5	43.3	32	76	122	41	23.2	45.0
MS0Y08	142	3700	70.1	57.7	43.4	38	83	121	1	26.8	0.0
CL161	131	3510	69.0	59.2	42.7	40	84	127	36	22.2	20.0

[1]**Planting date**: April 15. **Emerged**: April 30. **Herbicides**: Command® at 1 gallon to 6 acres plus ammonium thiosulfate at 10 gal/A on April 16; 2-4-D amine at 3 pt/A on June 16. **Fertilizer**: Urea at 270 lb/A on May 15 and 130 lb/A on June 16. **Permanent flood**: May 16. **Fungicide**: Propimax® at 4 oz/A on July 13. **Drained field**: August 4.
[2]Rough rice at 12% moisture. A difference of 19 bu/A is required for one variety to differ from another at the 5% probability level. C.V. = 8.8%.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight percent is an estimation of the percent plot area with upper leaves visually infected.

Table 4. Performance of long-grain rice varieties and lines grown on Sharkey clay soil near Blaine, Sunflower County, Mississippi, 2003.[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*	*%*
XP-710	210	4277	64.9	45.3	39.3	45	78	121	16	27.3	7.5
Clearfield XL-8	196	3767	65.1	42.7	38.9	45	74	114	6	23.6	15.0
MS03Y07	184	3864	65.4	46.6	42.5	36	76	117	1	23.7	20.0
Cheniere	182	3988	66.5	48.5	42.8	37	75	120	0	21.7	7.5
Francis	180	3297	63.8	40.5	42.9	39	75	130	43	21.6	30.0
MS03Y09	179	3767	63.8	46.5	41.5	43	74	125	23	22.4	10.0
XL-8	178	3469	65.7	43.5	39.1	44	74	115	16	23.6	20.0
Cocodrie	178	3994	65.4	50.0	43.5	37	74	119	0	23.5	17.5
MS03Y13	165	3651	62.7	49.2	40.8	35	71	121	0	21.7	17.5
MS03Y19	163	3631	65.9	49.3	42.5	37	74	119	0	24.5	7.5
CL161	163	3711	65.1	50.7	42.4	39	78	121	6	22.8	17.5
MS03Y08	162	3195	65.8	43.3	43.6	38	73	112	0	26.7	0.0
Wells	160	2658	65.8	36.9	44.0	39	76	119	3	24.5	12.5
Priscilla	157	2890	65.6	40.5	43.3	37	74	114	0	26.8	2.5
MS0Y14	156	3404	66.9	48.4	42.6	39	77	113	0	26.7	0.0
MS0Y05	154	2944	66.8	42.3	42.2	34	70	120	69	22.5	67.5
MS03Y15	150	3091	66.1	45.8	43.0	36	74	121	1	23.8	10.0

[1]**Planting date**: April 3. **Emerged**: April 27. **Herbicides**: Roundup® plus Command® at 1 gallon to 8 acres each on March 26; Facet® at 0.5 lb/A on May 23. **Fertilizer**: DAP at 100 lb/A on April 29; 41-0-0-4 at 125 lb/A on May 13 and May 24; urea at 100 lb/A on June 9 and June 16. **Permanent flood**: May 13. **Insecticide**: Methyl paration at 1 gallon to 16 acres on July 16. **Drained field**: July 21.
[2]Rough rice at 12% moisture. A difference of 20 bu/A is required for one variety to differ from another at the 5% probability level. C.V. = 8.5%.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight percent is an estimation of the percent plot area with upper leaves visually infected.

Table 5. Performance of long-grain rice varieties and lines grown on Tunica clay soil near Stoneville, Washington County, Mississippi, 2003.[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*	*%*
XP-710	210	4858	69.8	51.6	40.7	42	93	141	0	30.0	0.0
Francis	202	4736	71.3	52.3	44.4	40	91	141	0	24.8	0.0
Wells	194	4450	72.3	50.8	45.3	41	92	139	0	27.1	0.0
Clearfield XL-8	193	4418	70.8	50.9	40.7	42	89	138	0	25.8	0.0
Cocodrie	191	5161	70.3	60.1	43.9	41	90	137	0	25.7	0.0
MS03Y14	190	4810	70.3	56.3	43.6	38	92	136	0	29.9	0.0
XL-8	189	4433	70.9	52.1	40.0	42	87	137	0	27.0	0.0
MS03Y09	189	4892	71.2	57.6	42.2	42	89	138	0	26.9	0.0
Cheniere	187	5177	72.0	61.6	44.0	37	91	136	0	23.7	0.0
Priscilla	185	4708	68.2	56.4	43.9	39	94	136	0	28.1	0.0
MS03Y07	183	4976	67.7	60.5	43.9	36	92	133	0	27.6	0.0
MS03Y05	182	4256	74.3	51.9	44.8	34	90	137	0	25.8	0.0
MS03Y15	182	4845	71.4	59.2	43.9	35	89	137	0	25.8	0.0
MS0Y08	181	4770	69.8	58.6	44.1	38	90	134	0	28.2	0.0
MS03Y19	176	4640	70.7	58.6	43.5	38	93	137	0	25.9	0.0
MS03Y13	172	4336	67.6	56.1	42.0	37	88	137	0	23.7	0.0
CL161	165	4505	71.1	60.6	43.5	41	94	138	0	22.7	0.0

[1]**Planting date**: April 30. **Emerged**: May 7. **Herbicides**: Facet® at 0.5 lb/A plus Stam® at 3.5 lb/A plus Prowl® at 0.85 lb/A on May 13; Arrosolo® at 3 lb/A plus Stam® at 1.75 lb/A plus Permit® at 0.5 oz/A on June 9. **Fertilizer**: Ammonium sulfate at 620 lb/A on June 10; urea at 110 lb/A on July 10. **Permanent flood**: June 10. **Drained field**: September 8.
[2]Rough rice at 12% moisture. A difference of 16 bu/A is required for one variety to differ from another at the 5% probability level. C.V. = 6.5%.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight percent is an estimation of the percent plot area with upper leaves visually infected.

Table 6. Performance of long-grain rice varieties and lines grown on Sharkey clay loam soil near Hollandale, Washington County, Mississippi, 2003.[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*	*%*
XP-710	231	5645	71.8	54.4	40.6	49	78	126	4	29.7	0.0
MX03Y14	228	5658	71.7	55.1	42.4	41	85	132	23	24.9	0.0
Francis	225	5267	71.4	51.9	43.2	45	85	135	51	20.9	2.5
Wells	216	5368	72.9	55.3	44.9	46	85	133	0	23.7	2.5
MS03Y15	214	5880	73.4	60.9	43.4	38	79	128	10	23.2	0.0
Cheniere	213	6025	72.8	63.0	43.4	40	85	129	0	22.0	0.0
MS03Y13	211	5674	70.8	59.8	42.3	41	80	129	0	21.0	0.0
Cocodrie	210	5722	71.5	60.5	43.5	43	82	132	1	23.2	5.0
MS03Y09	209	5244	70.9	55.8	42.5	49	84	131	18	21.8	2.5
Clearfield XL-8	208	5065	72.4	54.0	40.1	47	78	126	78	23.1	0.0
MS03Y08	207	5227	71.0	56.0	43.5	42	81	128	0	25.2	0.0
XL-8	207	5117	73.0	55.0	40.0	41	81	126	0	22.8	5.0
Priscilla	206	5466	71.8	59.1	42.8	42	82	129	24	25.5	0.0
MS03Y07	200	5333	71.7	59.2	42.7	40	84	127	3	24.1	0.0
MS03Y19	190	5128	71.6	60.0	42.6	43	88	133	0	23.0	0.0
CL161	171	4852	71.2	62.8	42.7	44	86	131	20	21.1	7.5
MS03Y05	163	3958	74.8	53.9	43.6	37	76	124	14	23.1	27.5

[1]**Planting date**: April 16. **Emerged**: May 3. **Herbicides**: Command® plus Roundup® at 1 gallon to 6 acres each on April 20; Grandstand® at 0.5 pt/A plus Permit® at 0.5 oz/A on June 4; Clincher® at 15 oz/A on June 15. **Fertilizer**: Ammonium sulfate at 100 lb/A on May 12; urea at 100 lb/A on June 4, June 18, June 26, and July 3. **Date flushed**: May 13. **Permanent flood**: June 4. **Insecticide**: Fury® at 1 gallon to 40 acres on June 4; Mustang Max® at 1 gallon to 35 acres on July 30. **Fungicide**: Stratego® at 14 oz/A on July 16. **Drained field**: August 18.
[2]Rough rice at 12% moisture. A difference of 27 bu/A is required for one variety to differ from another at the 5% probability level. C.V. = 9.7%.
[3]Days after emergence
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight percent is an estimation of the percent plot area with upper leaves visually infected.

Table 7. Performance of long-grain rice varieties and lines grown on Sharkey clay soil near Rolling Fork, Sharkey County, Mississippi, 2003.[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*	*%*
Wells	239	6117	72.2	57.0	44.3	46	86	132	86	23.8	0.0
Francis	230	6222	71.7	60.2	42.9	44	89	137	79	22.0	5.0
MS03Y14	228	6137	72.6	59.8	43.0	38	88	133	9	26.9	0.0
Priscilla	224	5928	70.7	58.7	43.2	39	90	135	16	27.1	0.0
MS03Y15	218	6123	71.4	62.5	43.2	36	85	132	13	22.9	0.0
MS03Y09	216	5304	68.9	54.7	41.3	43	84	133	89	21.8	0.0
XP-710	214	5011	69.7	51.9	38.3	45	89	132	96	27.7	0.0
Cocodrie	214	5754	69.7	59.8	42.4	42	84	132	34	22.9	0.0
MS03Y05	211	5632	74.8	59.3	43.7	38	84	131	4	23.2	0.0
Cheniere	209	5925	72.1	62.9	42.9	39	85	132	4	21.9	7.5
XL-8	207	5069	71.6	54.5	39.4	45	84	131	97	23.2	0.0
MS03Y08	205	5375	70.7	58.3	42.8	40	89	133	21	26.8	0.0
MS03Y13	202	5374	68.4	59.1	41.5	39	83	131	0	22.0	0.0
Clearfield XL-8	202	4887	72.1	53.9	39.5	44	83	132	99	23.2	0.0
MS03Y19	201	5236	69.0	58.0	41.3	40	89	132	25	23.0	0.0
MS03Y07	196	5516	70.7	62.4	41.8	38	85	130	31	24.0	0.0
CL161	179	4910	70.4	61.0	42.0	41	87	135	95	19.9	0.0

[1]**Planting date**: April 15. **Emerged**: April 27. **Herbicides**: Roundup® at 26 oz/A plus 2,4-D at 1 qt/A on March 15; Roundup® at 20 oz/A plus Permit® at 0.5 oz/A plus Command® at 1 gallon to 5 acres on April 12; Stam 80EDF® at 5 lb/A plus Aim® at 0.75 oz/A on April 28; Permit® at 0.5 oz/A plus Aim® at 0.75 oz/A on May 20; Clincher® at 15 oz/A on June 6. **Fertilizer**: Urea at 250 lb/A on May 22, 100 lb/A on June 18 and June 24. **Date flushed**: May 6 and 25. **Permanent flood**: May 28. **Insecticide**: Karate Z® at 1 gallon to 66 acres on June 6 and July 25. **Drained field**: August 15.
[2]Rough rice at 12% moisture. A difference of 19 bu/A is required for one variety to differ from another at the 5% probability level. C.V. = 6.8%.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight percent is an estimation of the percent plot area with upper leaves visually infected.

Table 8. Average rough rice yields of long-grain varieties and lines evaluated in on-farm tests at seven locations, 2003.

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*
XP-710	220	224	221	210	210	231	214	219
Francis	232	212	173	180	202	225	230	208
MS03Y14	221	219	168	156	190	228	228	201
Wells	230	207	151	160	194	216	239	200
Cheniere	207	211	185	182	187	213	209	199
XL-8	214	209	167	178	189	207	207	196
MS03Y09	190	210	172	179	189	209	216	195
Cocodrie	209	205	155	178	191	210	214	195
Clearfield XL-8	204	183	165	196	193	208	202	193
Priscilla	213	213	148	157	185	206	224	192
MS03Y07	206	198	174	184	183	200	196	192
MS03Y15	188	218	160	150	182	214	218	190
MS03Y08	211	211	142	162	181	207	205	189
MS03Y19	207	203	174	163	176	190	201	188
MS03Y13	183	197	155	165	172	211	202	184
MS03Y05	196	226	146	154	182	163	211	183
CL161	187	186	131	163	165	171	179	169
Mean	195	201	156	166	179	198	202	185
LSD 0.05	19	16	19	20	16	27	19	11
CV %	7	6	9	9	7	10	7	8
Date Planted	4/16	4/16	4/15	4/3	4/30	4/16	4/15	

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, 1984-2002.

Variety[1]	Origin[2]	Grain yield			Years	Milling yield		Plant	50%	Lodging	Bushel
		2002	Avg.	3-yr avg.	in test	Total	Whole	height	heading		weight
		bu/A	*bu/A*	*bu/A*	*no.*	*%*	*%*	*in*	*days*	*%*	*lb*
Ahrent	AR	160	171	160	4	63.8	45.9	41	78	11	40.4
Cheniere	LA	175	176	176	3	66.2	51.4	37	83	11	42.5
Cocodrie	LA	184	173	180	8	67.9	54.8	40	80	<1	43.2
Cypress	LA	152	151	154	14	69.2	60.9	40	85	12	43.5
Dellrose	TX	205	151	170	12	68.7	53.0	41	81	5	43.7
Dixiebelle	TX	143	149	162	13	68.8	57.2	34	81	0	42.8
Francis	AR	195	208	196	4	65.6	48.0	41	81	<1	44.0
Jefferson	TX	159	149	155	9	67.0	52.4	37	76	2	41.9
Lemont	TX	137	142	143	19	69.6	52.0	37	89	5	43.0
Priscilla	MS	161	173	173	9	67.2	51.2	40	83	3	43.5
Saber	TX	167	152	168	7	66.5	54.5	41	81	6	43.2
Wells	AR	165	180	180	7	68.8	45.6	42	79	0	44.8

[1]Dellrose = long-grain aromatic.
[2]Origin: AR = Arkansas, LA = Louisiana, MS = Mississippi, TX = Texas.

Table 10. Average agronomic and milling performance of long-grain varieties and lines grown at seven on-farm locations, 2003.

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*		*no.*
XP-710	RT	219	5129	68.9	52.1	39.6	44	86	131	21	28.4	1.3	15972
Francis	AR	208	4962	69.1	52.6	43.0	41	86	135	33	22.2	7.9	20432
MS03Y14	MS	201	4978	70.4	54.8	42.8	39	86	129	5	26.9	0.4	16862
Wells	AR	200	4744	70.7	52.1	44.5	42	86	131	14	24.2	4.2	18743
Cheniere	LA	199	5356	70.9	59.6	43.3	37	85	130	1	22.0	4.2	20618
XL-8	RT	196	4633	70.4	52.4	39.7	43	83	128	44	24.3	4.6	18666
MS03Y09	MS	195	4740	68.4	54.0	41.7	44	84	132	37	22.7	4.6	19982
Cocodrie	LA	195	5089	69.1	58.0	43.2	40	81	131	11	23.6	6.7	19220
Clearfield XL-8	RT	193	4519	70.3	52.0	39.9	43	82	128	39	23.7	5.0	19139
Priscilla	MS	192	4714	69.0	54.1	43.2	39	86	128	9	26.7	0.5	16988
MS03Y07	MS	192	5007	69.4	58.0	42.7	37	85	127	10	25.2	7.1	18000
MS03Y15	MS	190	5001	70.5	58.1	43.2	35	82	130	4	23.8	2.9	19058
MS03Y08	MS	189	4640	69.4	54.5	43.3	39	84	127	4	26.6	0.0	17052
MS03Y19	MS	188	4807	69.1	56.8	42.7	39	86	131	4	24.2	1.7	18743
MS03Y13	MS	184	4689	67.8	56.6	41.8	37	81	129	1	21.9	7.1	20712
MS03Y05	MS	183	4527	72.7	54.5	43.4	35	81	128	19	23.4	23.8	19384
CL161	HA	169	4529	69.2	59.4	42.5	41	88	132	33	21.7	7.9	20908
Mean		185	4672	69.6	55.9	42.5	39.5	84	129				
LSD 0.05		11	393	1.0	2.8	0.5	1.1	2	2				
CV %		7.6	9.3	1.6	4.6	1.5	3.7	2.6	2.3				

[1]Origin: AR = Arkansas, HA = Horizon Ag., LA = Louisiana, MS = Mississippi, RT = RiceTec, TX = Texas.
[2]Rough rice at 12% moisture.
[3]Days after emergence.
[4]Weight of 1000 kernels at 12% moisture.
[5]Sheath blight percent is an estimation of the percent plot area with upper leaves visually 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 1997 to 2003.[1]

Variety or line	Grain yield [2]								3-year avg.[3]	Total tests	Milling yield [4]		Bushel weight	Plant height	Days to		Lodging	1000 seed weight [5]	Sheath blight [6]
	1997	1998	1999	2000	2001	2002	2003	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*	
Lemont	150	152	161	165	151	154	—	146	157	91	70.1	55.3	42.4	37	87	124	10	25.8	4.5
Cypress	130	145	165	166	—	—	—	144	159	63	68.8	60.4	41.6	39	84	123	14	23.1	3.5
Priscilla	172	160	177	182	198	178	192	181	189	70	67.5	51.6	42.1	40	83	125	6	27.8	3.0
Jefferson	133	141	155	153	—	—	—	146	150	42	67.7	52.4	40.8	37	74	109	4	28.2	3.0
Cocodrie	145	165	179	190	182	178	195	176	185	49	68.1	56.5	41.7	40	81	127	10	24.5	3.5
Madison	135	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	189	193	35	70.0	49.4	43.5	43	82	127	12	25.4	3.2
Saber	—	—	—	164	162	170	—	165	165	21	64.9	53.3	43.2	40	82	119	<1	22.6	4.3
CL161	—	—	—	—	148	157	169	158	158	21	67.8	56.9	42.0	40	86	130	25	22.9	3.6
Francis	—	—	—	—	—	182	208	195	—	14	65.5	50.4	42.6	42	84	134	35	22.0	7.2
Cheniere	—	—	—	—	—	—	199	199	—	7	70.9	59.6	43.3	37	85	130	2	22.0	4.2
RiceTec XL-8	—	—	—	—	—	—	196	196	—	7	70.4	52.4	39.7	43	83	128	44	24.3	4.6
RT/CLFD XL-8	—	—	—	—	—	—	193	193	—	7	70.3	52.0	39.9	43	82	128	39	23.7	5.0

[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 1996 were omitted, but their numbers were included in the average yield and total test numbers.
[3]Average for 2000 to 2003.
[4]Values for milling and agronomic characteristics are accumulated means over all years of testing.
[5]Weight of 1000 kernels at 12% moisture.
[6]Average sheath blight scores using 0 (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
Cheniere	S	S	—	MR	—	—	—	—	—
CL161	MS	VS	VS	MS	—	—	—	—	S
Cocodrie	MR	VS	VS	S	MR	MR	MS	S	S
Cypress	MR	VS	VS	MS	MR	R	S	S	S
Dixiebelle	MS	VS	—	MS	MS	MS	—	S	—
Francis	S	MS	S	MS	—	—	—	—	—
Jefferson	S	MS	S	MR	R	MR	MR	MS	MR
LaGrue	S	S	VS	MS	R	MR	R	MS	S
Lemont	MR	VS	MR	MR	R	S	S	MS	MS
Madison	R	VS	R	MS	R	MS	R	MS	MS
Priscilla	MS	MS	S	MR	R	MR	MR	S	S
RiceTec XL-8	R	MS	—	—	—	—	—	—	—
RiceTec CLFD XL-8	R	MS	—	—	—	—	—	—	—
RiceTec XP-710	R	MR	—	—	—	—	—	—	—
Saber	R	S	—	MR	MR	MR	MR	—	—
Wells	S	MS	MR	MS	R	—	—	MS	S

[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	—
CL-161	180	120	60	—	160	105	45	—
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
XL7[2]	180	120	60	—	150	90	60	—
XL8[2]	180	120	60	—	150	90	60	—
CL-XL8[2]	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.