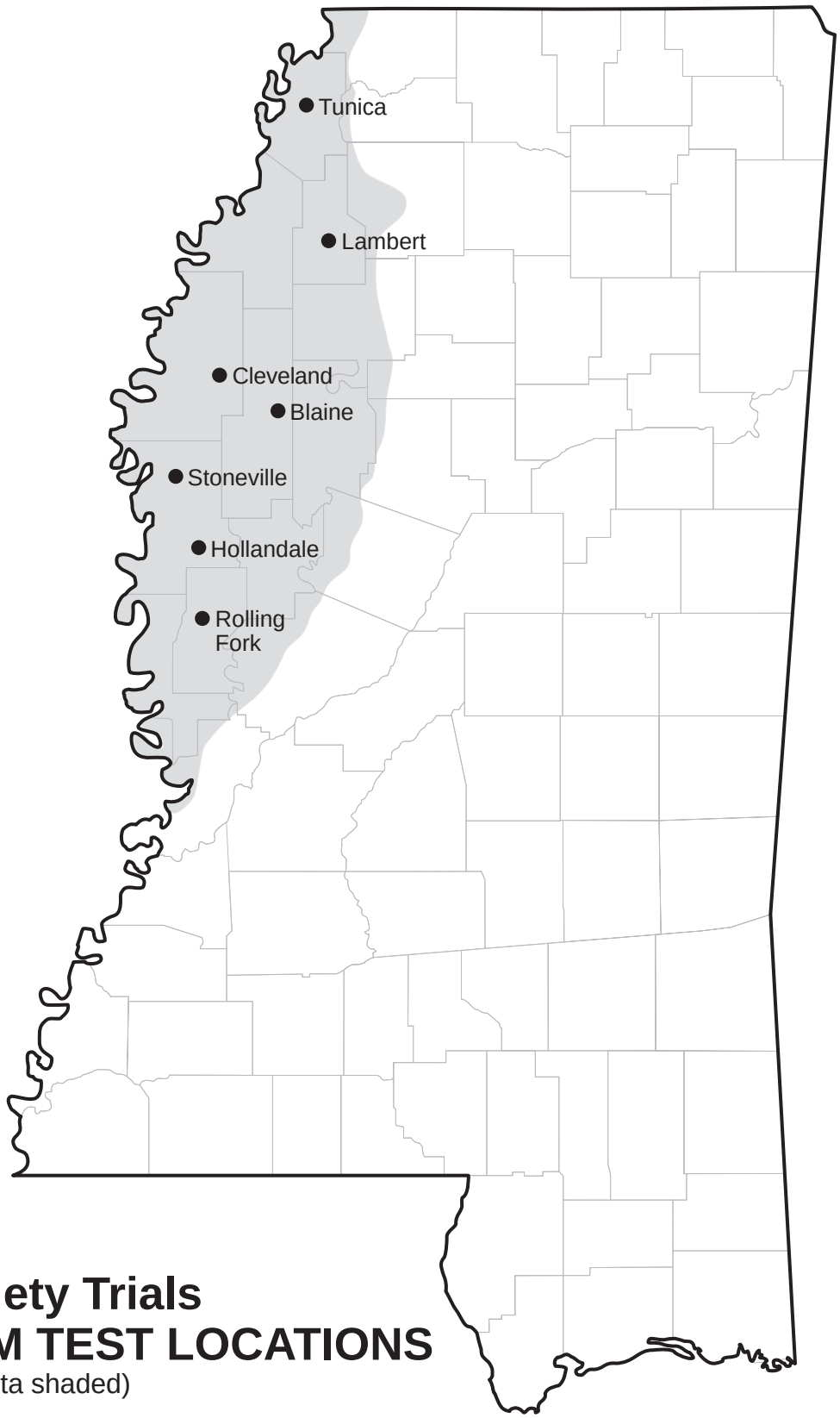
Mississippi Rice Variety Trials 1999

Dwight G. Kanter, Agronomist
MAFES, Delta Research and Extension Center
Stoneville, Mississippi

Theodore C. Miller, Agronomist
Tri-M Agronomics, LLC
Leland, Mississippi

Joe E. Street, Rice Specialist
MSU Extension Service/MAFES
Delta Research and Extension Center
Stoneville, Mississippi

For more information, contact Dwight Kanter at (662) 686-9311; email, dgkanter@drec.msstate.edu. Information Bulletin 361 was published by the Office of Agricultural Communications, a unit of the Mississippi State University Division of Agriculture, Forestry, and Veterinary Medicine. It was edited and designed by Robert Hearn, publications editor. The cover was designed by George Taylor, chief illustrator and graphic artist.



Rice Variety Trials
ON-FARM TEST LOCATIONS

(Mississippi Delta shaded)

Mississippi Rice Variety Trials 1999

Introduction

In 1999, approximately 306,740 acres of rice were planted in 17 Delta counties of Mississippi compared with 266,775 acres planted in 1998. Bolivar County had the highest planted acreage at 92,300 acres. Essentially all the production in Mississippi was from long grain rice. Lemont continued to be the predominant variety planted on about 68% of the acreage. About 19% of the state's rice acreage was planted with Priscilla, about 7% was planted with Cypress, and the remaining acreage was planted with other varieties.

The on-farm 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 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 in any of the test locations. The incidence of sheath blight and kernel smut at on-farm test locations was low in 1999. False smut was observed in some test locations at low infestation levels.

Planting dates for the different locations ranged from April 13 to May 4, which are within the typical period for planting rice in the Delta. All tests were planted into conventionally prepared seedbeds. Early-season showers relieved the need for flushing most fields to obtain a stand in 1999. Light sheath blight infection developed on susceptible entries at the Cleveland, Blaine, and Hollandale sites. High temperatures during the growing season resulted in lower milling quality at some locations. Soil samples were taken at each test location and analyzed. Nutrient levels at all locations were high except at Blaine, where sulfur was low and potassium content was at the medium level.

Variety selection is one of the most important decisions a rice producer makes in preparing production plans each season. The information in this information bulletin is intended to help the producer in this decision-making process. Other sources of information may include past production experience with a particular variety and consulting with local and state rice extension personnel. Data summarized over locations and years are generally a more reliable measure to show future variety performance than individual tests.

Fourteen long grain varieties and lines were included in the replicated test at each location. Two Texas varieties, Dixiebelle and Jacinto, were released in 1995 and 1998, respectively. They are both long grain, moderately high-yielding semidwarf varieties with good agronomic and processing characteristics.

Test Procedures

Each test consisted of four replications planted at each of the seven locations. All seven-row plots were drill-seeded at an equivalent seeding rate of 90 pounds per acre at a depth of approximately 1 inch. Cultural practices were performed by the cooperator and varied by location. Overall, the tests were grown under conditions of high productivity. The field management practices for each location are recorded in the footnotes of Tables 1-7.

Agronomic data were collected at appropriate times during the season. 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 from each location. 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, they may be considered significantly different.

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. Average test yields ranged from 148 bushels per acre at Blaine to 191 bushels per acre at Tunica. Grain yields of varieties in these tests averaged higher in 1999 than in 1998. However, average whole grain milling yields have been lower for the last 2 years. This reflects the somewhat adverse weather conditions that affected the rice crops in 1998 and 1999. There were some initial stand problems and irregular emergence within plots at the Lambert and Rolling Fork locations. However, the rice at all locations emerged and developed into satisfactory stands. Straighthead intensity was light at the Blaine location depending on variety or line susceptibility. The field at this location had silt loam soil and was precision leveled in 1998. The CV value was higher because there were scattered patches of johnsongrass within the test area.

Table 8 provides a seven-location summary of grain yields for all varieties and four experimental lines. The Mississippi line M9Y207 ranked first, and Wells ranked second in average yield (193 and 188 bushels per acre, respectively) across all seven on-farm locations (Table 9). Although Priscilla ranked fifth, averaging 177 bushels per acre, it yielded 13 bushels more in 1999 than in 1998. Table 10 shows Priscilla's whole grain milling yield to be about 2% less than that of Lemont and that it also has a very heavy grain weight (27.4 grams per 1,000 seeds). It possesses sheath blight tolerance as indicated in the tables. Another variety that continues to have an excellent performance record is Lemont. Although Lemont is not perfect, it continues to be the variety of choice in Mississippi because of its consistent and dependable productivity.

Average values for milling and agronomic characteristics for all locations are summarized in Table 9. Head rice yields are reported to convey a variety's overall performance in terms of whole grain milled rice produced per acre. Both total and whole grain milling yields were lower the last 3 years. Cypress, Jacinto, and Dixiebelle averaged the highest whole grain milling yields (60.3, 57.5, and 56.3 pounds per acre, respectively).

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 moderate with more occurring at the Blaine location. The varieties that lodged the most in the 1999 on-farm variety tests were Jacinto (18%), Jefferson (4%), and M9Y218 (4%) (Table 9).

The long-term performance of 14 varieties in on-

farm tests is presented in Table 10. Two-year and multi-year averages are indicated for individual varieties. Data averaged over several years are generally more reliable for predicting variety performance for yield and other characteristics. A summary of the yields and agronomic characteristics for 13 commercial rice varieties included in DREC tests since 1984 is provided in Table 11. The column labeled "Average grain yield" indicates the performance of individual varieties for all years they were included in these tests. Individual varieties have been tested for different numbers of years. The 3-year yield average is for comparing varieties for the last 3 years. The yield data includes both standing and lodged plants because 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.

Table 1. Performance of long grain rice varieties and lines grown on Alligator clay soil near Tunica, Tunica County, Mississippi, 1999.[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*	*%*	*gm*	*score*
Wells	219	6,176	70.9	62.8	44.2	45	82	125	0	24.8	0.1
M9Y207	217	5,768	69.3	59.3	43.1	42	86	129	0	25.2	0.1
M9Y215	216	5,366	72.6	55.3	45.3	37	81	123	0	24.1	0.1
Cocodrie	213	5,963	70.2	62.1	43.7	42	82	128	0	24.1	0.1
M9Y206	208	5,468	69.9	58.2	42.6	46	82	127	0	24.1	0.1
Lemont	204	5,472	69.7	59.7	43.1	39	88	124	0	26.2	0.0
M9Y218	190	4,681	68.4	54.9	42.3	45	82	125	0	25.1	0.1
Kaybonnet	190	5,357	68.4	62.8	43.5	48	86	125	0	21.0	0.1
Cypress	180	5,237	69.9	64.6	42.9	41	89	129	0	23.9	0.0
Jefferson	174	4,081	66.6	52.2	39.3	42	80	122	0	27.3	0.2
Priscilla	173	4,804	69.5	61.6	42.3	39	87	130	0	28.1	0.1
Madison	169	4,723	68.4	62.1	41.4	38	95	132	0	23.1	0.3
Dixiebelle	167	4,442	67.2	59.3	40.6	31	85	123	0	21.3	0.1
Jacinto	155	4,262	67.3	60.9	37.8	41	84	134	4	22.2	0.1

[1]Planting date: April 13. Emerged: May 4. Herbicides: Command® at 1 gallon to 5 acres on April 13; Stam® at 4 lb/acre plus Facet® at 0.25 lb/acre on May 20. Fertilizer: 41-0-0-4 at 300 lb/acre on May 20; urea at 125 lb/acre on June 21. Permanent flood: May 20. Fungicide: Tilt® at 4 oz/acre on July 25. Drained field: August 23.
[2]Rough rice at 12% moisture. A difference of 19 bu/acre is required for one variety to differ from another at the 5% probability level. CV = 7.4.
[3]Days after emergence.
[4]Weight of 1,000 kernels.
[5]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 2. Performance of long grain rice varieties and lines grown on Dowling clay soil near Lambert, Quitman County, Mississippi, 1999.[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*	*%*	*gm*	*score*
Wells	210	5,407	71.3	57.2	44.2	44	89	135	0	24.2	0.6
M9Y207	204	5,074	69.5	55.4	43.6	42	86	134	0	22.8	0.8
Priscilla	192	4,875	68.8	56.5	42.8	42	86	137	0	23.8	0.6
M9Y206	182	4,012	70.0	49.1	42.5	44	84	132	0	21.1	0.9
M9Y215	176	3,953	72.8	50.0	44.7	40	86	132	0	22.0	1.5
Cocodrie	175	4,834	70.6	61.4	43.4	43	85	134	0	21.9	0.5
M9Y218	175	4,346	70.2	57.4	42.7	43	86	133	0	22.1	0.6
Lemont	169	3,616	72.3	47.5	43.0	41	93	132	0	24.0	0.9
Cypress	164	4,674	69.9	63.4	42.3	42	93	134	0	23.0	0.6
Kaybonnet	162	4,558	69.0	62.4	43.3	48	88	128	0	18.9	1.1
Dixiebelle	161	4,148	69.1	57.4	41.3	38	86	126	0	20.1	0.6
Jefferson	155	4,047	67.5	57.9	40.3	40	83	128	25	26.2	0.8
Jacinto	135	3,615	67.4	59.4	36.3	42	86	136	13	21.1	0.9
Madison	133	3,824	69.0	63.8	42.0	37	95	130	0	24.3	0.8

[1]Planting date: April 22. Emerged: May 7. Herbicides: Command® at 1 gallon to 5 acres plus Stam® at 4 lb/acre plus Groundit® at 1 pt/acre on May 3; Stam® at 4 lb/acre + Permit at 0.75 oz/acre + 0.25% surfactant on June 6. Fertilizer: 41-0-0-4 at 250 lb/acre on June 7; urea at 75 lb/acre on June 28 and 75 lb/acre on July 5. Permanent flood: June 12. Insecticide: Icon® seed treatment for rice water weevil larvae control. Drained field: August 1.
[2]Rough rice at 12% moisture. A difference of 15 bu/acre is required for one variety to differ from another at the 5% probability level. CV = 6.5.
[3]Days after emergence.
[4]Weight of 1,000 kernels.
[5]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 3. Performance of long grain rice varieties and lines grown on Dundee silt loam soil near Blaine, Sunflower County, Mississippi, 1999.[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*	*%*	*gm*	*score*
Cocodrie	179	4,455	67.1	55.2	39.9	43	76	121	0	22.4	2.3
M9Y207	169	3,410	66.5	44.6	40.4	41	78	115	1	24.2	2.4
Cypress	164	4,260	67.5	57.6	40.3	39	85	125	0	22.3	1.1
Priscilla	159	3,291	67.5	46.0	39.3	39	83	120	0	26.2	1.0
M9Y215	156	3,336	69.7	46.1	41.9	35	75	116	5	22.6	0.4
Wells	152	3,159	69.7	46.1	40.1	46	77	116	3	22.2	0.6
M9Y206	148	3,013	67.8	45.4	38.8	46	74	117	2	21.4	1.4
Kaybonnet	141	3,245	67.0	49.7	39.9	47	77	110	3	19.9	0.6
Madison	141	3,324	67.0	52.5	37.5	37	85	117	0	22.8	1.5
Lemont	138	2,966	67.5	47.6	40.2	38	86	116	13	22.8	1.5
Jefferson	136	3,126	66.4	51.2	39.3	40	77	109	0	26.7	1.6
Dixiebelle	131	3,199	69.5	54.5	38.0	34	79	115	0	20.8	2.3
Jacinto	129	3,165	67.7	54.7	33.7	42	79	129	23	21.3	0.9
M9Y218	122	2,670	66.2	48.5	40.6	40	78	116	25	22.5	2.4

[1]Planting date: April 21. Emerged: April 28. Herbicides: Stam® at 3 lb/acre plus Prowl® at 0.83 lb/acre plus Surfoil® at 0.5 pt/acre on May 8. Fertilizer: 41-0-0-4 at 250 lb/acre on May 10; urea at 100 lb/acre on June 18 and 100 lb/acre on June 28. Permanent flood: May 11. Insecticide: Drained field on June 10 for rice water weevil larvae control; methyl parathion at 0.25 lb/acre on July 21 and on July 29. Drained field: August 14.
[2]Rough rice at 12% moisture. A difference of 36 bu/acre is required for one variety to differ from another at the 5% probability level. CV = 17.6.
[3]Days after emergence.
[4]Weight of 1,000 kernels.
[5]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 4. Performance of long grain rice varieties and lines grown on Sharkey clay soil near Cleveland, Bolivar County, Mississippi, 1999.[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*	*%*	*gm*	*score*
M9Y207	186	4,182	67.7	49.9	42.6	42	78	118	0	23.4	2.6
M9Y215	172	3,576	71.6	46.4	43.6	36	76	118	0	23.2	2.4
Wells	172	3,903	71.2	50.7	44.1	46	79	119	0	24.1	1.6
Kaybonnet	168	4,360	68.7	57.7	43.0	49	81	114	0	19.2	0.9
M9Y218	165	4,092	66.6	55.0	42.3	42	80	118	0	22.9	1.9
Priscilla	165	4,007	67.3	54.0	41.9	40	82	123	0	26.1	1.5
M9Y206	162	3,647	68.2	49.8	40.6	46	77	120	0	20.5	1.4
Cocodrie	158	4,096	68.7	57.6	42.8	42	77	121	0	22.0	1.1
Dixiebelle	158	3,927	68.0	55.3	40.5	37	81	116	0	19.3	2.3
Jefferson	143	2,945	65.6	45.5	38.6	41	76	114	0	25.4	2.6
Cypress	136	3,787	68.8	61.7	42.4	41	82	123	0	22.1	2.1
Lemont	135	3,075	68.8	50.8	42.5	39	85	119	0	24.0	2.5
Jacinto	130	3,543	68.0	60.3	36.2	43	80	127	64	22.3	2.7
Madison	121	2,994	67.8	55.1	41.4	36	86	122	0	21.8	2.3

[1]Planting date: April 19. Emerged: May 6. Herbicides: Command® at 1 gallon to 6 acres plus 10 gallons of ammonium thiosuflate on April 20; 2-4-D amine at 3 pt/acre on June 22. Fertilizer: Urea at 200 lb/acre on May 21; 75 lb/acre on June 24; and 75 lb/acre on July 2. Permanent flood: May 21. Insecticide: Karate® at 1 gallon to 66 acres on May 29. Fungicide: Quadris® at 1 gallon to 15 acres on July 7. Drained field: August 16.
[2]Rough rice at 12% moisture. A difference of 20 bu/acre is required for one variety to differ from another at the 5% probability level. CV = 9.4.
[3]Days after emergence.
[4]Weight of 1,000 kernels.
[5]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 5. Performance of long grain rice varieties and lines grown on Tunica clay soil near Stoneville, Washington County, Mississippi, 1999.[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*	*%*	*gm*	*score*
Wells	183	2,205	65.7	24.2	44.2	41	75	109	0	25.9	0.1
M9Y218	180	3,978	65.8	48.8	43.3	39	75	110	0	24.5	0.9
M9Y207	179	3,261	67.7	40.6	44.7	39	74	110	0	25.0	0.3
Cocodrie	173	3,323	68.1	42.7	44.1	38	73	115	0	23.9	0.8
M9Y215	172	1,746	65.1	22.5	45.1	34	71	106	0	24.1	0.8
Kaybonnet	171	3,856	68.0	49.9	43.9	44	76	107	0	19.7	0.1
Priscilla	171	3,705	66.8	48.1	43.9	36	75	109	0	28.4	0.2
M9Y206	157	1,658	66.3	23.0	42.5	41	71	109	0	23.0	0.0
Cypress	148	3,903	68.2	58.5	42.8	37	79	118	0	23.5	0.5
Jefferson	145	3,099	65.2	47.3	41.0	34	69	101	0	26.7	0.6
Jacinto	144	3,403	65.9	52.6	38.0	38	73	114	5	22.8	0.9
Dixiebelle	141	3,617	67.7	57.2	43.2	33	73	125	0	21.6	0.4
Madison	137	3,404	66.7	55.2	42.5	33	78	133	0	23.7	0.7
Lemont	124	2,231	68.5	38.8	42.8	35	79	109	0	24.6	0.3

[1]Planting date: May 4. Emerged: May 12. Herbicides: Facet® at 0.5 lb/acre plus Stam® at 0.5 lb/acre plus Arrosolo® at 4 qt/acre plus Prowl® at 1 lb/acre on May 19. Fertilizer: Urea at 290 lb/acre on June 10 and 110 lb/acre on July 16. Permanent flood: June 11. Drained field: September 1.
[2]Rough rice at 12% moisture. A difference of 19 bu/acre is required for one variety to differ from another at the 5% probability level. CV = 8.5.
[3]Days after emergence.
[4]Weight of 1,000 kernels.
[5]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 6. Performance of long grain rice varieties and lines grown on Sharkey clay soil near Hollandale, Washington County, Mississippi, 1999.[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*	*%*	*gm*	*score*
M9Y207	198	4,181	66.0	46.9	43.8	41	83	120	0	26.7	2.2
Kaybonnet	196	4,706	67.0	53.4	44.0	46	82	112	0	22.7	0.7
Priscilla	191	3,851	65.4	45.0	42.9	39	84	122	0	28.4	1.1
Cocodrie	190	3,943	65.6	46.1	43.9	40	80	118	0	24.9	1.4
M9Y218	183	3,518	67.0	42.7	43.2	40	82	118	0	24.5	4.4
Wells	188	3,102	66.5	36.9	44.7	42	81	116	0	27.0	1.2
Lemont	185	3,943	68.2	47.2	42.9	38	89	121	0	27.7	2.4
Cypress	185	4,648	66.7	55.9	43.7	40	86	127	3	24.8	1.3
M9Y215	181	3,572	69.5	43.8	44.5	31	78	113	0	24.9	1.9
Dixiebelle	169	4,067	67.1	53.3	43.4	34	82	113	0	22.6	5.4
M9Y206	166	2,764	66.0	37.0	42.8	38	79	110	0	25.5	2.6
Madison	164	3,574	66.0	48.6	42.5	34	88	122	0	25.6	4.2
Jefferson	164	3,672	65.1	49.8	41.4	35	79	109	0	28.5	2.8
Jacinto	148	3,953	67.3	59.3	37.3	38	81	125	0	24.9	2.3

[1]Planting date: April 21. Emerged: May 4. Herbicides: Command® at 1 gallon to 6 acres plus Touchdown® at 1 gallon to 6 acres on April 23; Stam® at 5 lb/acre plus Facet® at 0.35 lb/acre on May 18; Liquid Ordram® dripped into flood at 3.5 pt/acre on June 4. Fertilizer: Ammonium sulfate at 100 lb/acre on May 19; urea at 200 lb/acre on June 3; 100 lb/acre on July 4; and 100 lb/acre on July 13. Permanent flood: June 4. Insecticide: Furadan® at 17 lb/acre on June 28; methyl parathion at 0.25 lb/acre on August 5. Fungicide: Quadris® at 1 gallon to 10 acres on July 6. Drained field: August 15.
[2]Rough rice at 12% moisture. A difference of 17 bu/acre is required for one variety to differ from another at the 5% probability level. CV = 7.0.
[3]Days after emergence.
[4]Weight of 1,000 kernels.
[5]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 7. Performance of long grain rice varieties and lines grown on Sharkey clay soil near Rolling Fork, Issaquena County, Mississippi, 1999.[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*	*%*	*gm*	*score*
Kaybonnet	208	5,033	68.9	53.9	43.6	48	84	116	0	21.7	0.0
M9Y207	198	4,793	69.1	53.9	43.0	44	82	119	0	27.8	0.1
M9Y218	194	4,597	67.0	52.4	41.4	40	83	119	0	24.7	0.0
Wells	194	4,106	71.0	47.4	44.6	43	87	121	1	26.5	0.0
Priscilla	185	4,187	67.7	50.3	42.3	41	85	124	0	28.5	0.4
M9Y215	185	4,606	72.7	55.4	45.0	35	80	117	0	24.6	0.0
M9Y206	183	3,446	68.9	41.7	41.4	45	78	121	0	23.5	0.4
Cypress	178	4,831	69.8	60.2	42.6	40	88	126	0	25.7	0.3
Lemont	170	4,092	70.4	53.6	43.1	39	90	120	0	27.8	0.0
Jacinto	166	4,110	67.2	55.1	36.3	42	82	130	16	22.8	0.3
Jefferson	164	3,781	66.4	51.2	41.8	36	76	108	0	30.8	0.4
Cocodrie	163	4,155	69.1	56.7	42.7	41	85	123	0	24.8	0.1
Madison	155	3,668	68.1	52.7	40.3	37	89	119	0	25.9	0.1
Dixiebelle	140	3,594	69.2	56.9	39.6	36	83	113	0	23.9	0.7

[1]Planting date: April 13. Emerged: April 27. Herbicides: Command® at 1 gallon to 6 acres plus Gramoxone® at 1 qt/acre on April 15. Fertilizer: Urea at 200 lb/acre on May 17; 50 lb/acre on June 8; 200 lb/acre on June 17. Dates flushed: April 24 and May 5. Permanent flood: May 20. Insecticide: KarateZ® at 1 gallon to 66 acres on May 25 and methyl parathion at 0.5 pt/acre on July 27. Fungicide: Quadris® at 1 gallon to 10 acres on July 12. Drained field: August 10.
[2]Rough rice at 12% moisture. A difference of 31 bu/acre is required for one variety to differ from another at the 5% probability level. CV = 13.1.
[3]Days after emergence.
[4]Weight of 1,000 kernels.
[5]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 8. Average rough rice yields of long grain varieties and lines evaluated in on-farm tests at seven locations, 1999.

Variety or line	Location							Average
	Tunica	Lambert	Blaine	Cleveland	Stoneville	Hollandale	Rolling Fork	
	bu/A	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*	*bu/A*
M9Y207	217	204	169	186	179	198	198	193
Wells	219	210	152	172	183	188	194	188
M9Y215	216	176	156	172	172	181	185	180
Cocodrie	213	175	179	158	173	190	163	179
Priscilla	173	192	159	165	171	191	185	177
Kaybonnet	190	162	141	168	171	196	208	177
M9Y218	190	175	122	165	180	189	194	173
M9Y206	208	182	148	162	157	166	183	172
Cypress	180	164	164	136	148	185	178	165
Lemont	204	169	138	135	124	185	170	161
Jefferson	174	155	136	144	145	164	164	155
Dixiebelle	167	161	131	158	141	169	140	152
Madison	169	133	141	121	137	164	155	146
Jacinto	155	135	129	130	144	148	166	144
Mean	191	171	148	155	159	180	177	169
LSD (0.05)	19	15	36	20	19	17	31	18
CV (%)	7.4	6.5	17.6	9.4	8.5	7.0	13.1	10.2
Date planted	4/13	4/22	4/21	4/19	5/4	4/21	4/13	

Table 9. Average agronomic and milling performance of long grain varieties and lines grown at seven on-farm locations, 1999.

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]	Approx. seed/ pound
		Rough rice	Head rice	Total	Whole								
		bu/A	*lb/A*	*%*	*%*	*lb*	*in*	*days*	*days*	*%*	*gm*	*score*	*no*
M9Y207	MS	193	4,381	68.0	50.1	43.0	42	80	121	0	25.0	1.2	18,144
Wells	AR	188	3,978	69.5	46.5	43.8	44	80	127	1	25.0	0.6	18,144
M9Y215	MS	180	3,736	70.6	45.8	44.3	35	78	123	1	23.6	1.0	19,220
Cocodrie	LA	179	4,396	68.5	54.5	42.9	41	79	127	0	23.0	0.9	19,721
Priscilla	MS	177	4,103	67.6	51.6	42.2	39	83	124	0	27.1	0.6	16,738
Kaybonnet	AR	177	4,445	68.1	55.7	43.0	47	81	118	0	20.4	0.5	22,235
M9Y218	MS	173	3,981	66.7	50.8	42.1	41	80	121	4	23.9	1.5	18,979
M9Y206	MS	172	3,430	68.2	43.5	41.6	44	77	124	0	22.7	1.0	19,982
Cypress	LA	165	4,477	68.7	60.3	42.4	40	86	130	0	23.6	0.8	19,220
Lemont	TX	161	3,628	69.3	49.3	42.5	38	87	123	2	25.3	1.1	17,928
Jefferson	TX	155	3,536	66.1	50.7	40.3	38	76	119	4	27.4	1.3	16,554
Dixiebelle	TX	152	3,856	68.3	56.3	40.9	36	81	120	0	21.4	1.7	21,196
Madison	TX	146	3,644	67.6	55.7	41.1	36	88	122	0	23.9	1.4	18,979
Jacinto	TX	144	3,721	67.3	57.5	36.5	41	80	128	18	22.5	1.2	20,160
Mean		169	3,880	67.7	52.7	41.7		82	124				
LSD (0.05)		18	556	1.1	4.6	0.8		2	4				
CV (%)		10.2	12.6	1.4	6.7	2.1		2.6	1.9				

[1]Origin: AR = Arkansas, LA = Louisiana, MS = Mississippi, TX = Texas.
[2]Rough rice at 12% moisture.
[3]Days after emergence
[4]Weight of 1,000 kernels.
[5]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 10. Annual and average grain yields along with agronmic and milling data averages of rice varieties and lines grown in the Delta on-farm tests from 1989 to 1999.[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]
	1993	1994	1995	1996	1997	1998	1999	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*	*%*	*gm*	*score*
Lemont	108	139	123	162	150	152	161	134	154	70	70.4	57.3	42.4	36	88	123	6	25.5	3.0
Jackson	122	140	133	146	141	139	—	144	142	70	69.3	55.5	41.7	42	80	116	10	22.8	2.9
Cypress	112	140	131	144	130	145	165	141	147	56	68.9	60.8	41.5	39	84	123	14	22.7	2.6
LaGrue	132	173	157	170	165	—	—	159	164	35	68.2	55.2	42.6	46	82	124	22	24.6	3.1
Kaybonnet	—	142	142	153	148	151	177	153	159	42	68.5	58.9	42.3	47	82	116	8	20.2	2.3
Priscilla	—	177	162	181	172	160	177	171	170	42	68.2	55.4	42.0	40	81	121	3	27.4	2.9
Jefferson	—	—	140	151	133	141	155	144	143	35	67.9	53.3	40.5	37	74	109	4	27.8	2.4
Drew	—	—	—	152	151	149	—	151	151	21	68.6	58.0	40.9	48	83	124	27	22.0	2.7
Cocodrie	—	—	—	—	145	165	179	163	163	21	68.2	56.4	40.5	41	79	126	9	23.4	2.3
Madison	—	—	—	—	135	145	146	142	142	21	68.1	57.0	39.8	37	87	122	1	23.8	2.6
Wells	—	—	—	—	—	174	188	181	—	14	69.8	49.1	42.2	45	80	126	6	25.0	1.8

[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 1993 were omitted but their numbers were included in the average yield and total test numbers.
[3]Average for 1997 to 1999.
[4]Values for milling and agronomic characteristics are accumulated means over all years of testing.
[5]Weight of 1,000 kernels.
[6]Sheath blight rating using 0 (least susceptible) to 9 (most susceptible) scale.

Table 11. Annual and average grain yields and agronomic characteristics of long grain commercial varieties grown at the Delta Research and Extension Center, Stoneville, MS, 1984-1998.

Variety[1]	Origin[2]	Grain yield			Years	Milling yield		Plant	50%	Lodging	Bushel
		1998	Avg.	3-yr avg.	in test	Total	Whole	height	heading		weight
		bu/A	*bu/A*	*bu/A*	*no*	*%*	*%*	*in*	*days*	*%*	*lb*
Cypress	LA	125	149	156	11	70.4	63.0	40	86	2	43.8
Cocodrie	LA	148	168	173	4	69.1	58.6	41	79	1	43.2
Dellrose	LA	133	143	136	8	69.8	56.3	42	81	0	44.3
Dixiebelle	TX	132	145	143	9	69.6	59.6	35	82	0	43.1
Drew	AR	129	158	163	5	70.0	56.3	49	85	1	45.3
Jackson	TX	124	148	149	15	69.5	56.2	43	83	3	40.9
Jefferson	TX	138	148	146	5	66.1	56.5	37	77	0	42.8
Kaybonnet	AR	113	156	158	8	69.5	58.8	47	81	16	44.6
LaGrue	AR	151	171	177	9	69.4	56.4	46	83	13	44.6
Lemont	TX	127	139	150	15	70.1	54.0	37	90	0	43.4
Madison	TX	118	139	143	5	68.9	48.2	37	87	0	42.4
Maybelle	TX	132	129	128	9	69.7	56.1	41	73	4	42.9
Priscilla	MS	138	170	171	5	68.0	52.1	40	83	0	44.2

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

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	Lodging	False smut	Plant type
Cocodrie	MS-S	VS	VS	VS	MR	MR	R	S	MR	S	Sdf
Cypress	MR	VS	VS	MR	R-MS	VS	S	MS	MR	S	Sdf
Dixiebelle	MR-MS	MS	—	MR	R	MS	—	S	—	—	Sdf
Drew	R	MS	MS	MR	S	MS	MS	MS	MR-MS	S	Int
Jackson	MR-MS	MS	MS-S	MR	R-MS	MR	—	MS	MR	—	Int
Jefferson	S	S	—	R	—	—	—	S	R	MR	Sdf
Katy	R	MS	R	S	R-MS	MR	—	MS	MR-S	MR	Int
Kaybonnet	R	MS	MR-MS	MS-S	MS	MR	—	MS	MR-MS	S	Int
LaGrue	S	MS-S	VS	S	R	—	—	S	MR-S	MS	Int
Lemont	MR	VS	R	MR	R-MS	S	S	MS	R	MS	Sdf
Madison	R	S-VS	MR	R-MS	MR	MR	R	MS	R	MS	Sdf
Newbonnet	S	MS	VS	MR	MS	MR	MS	MS	MR	S	Int
Priscilla	MR-MS	MS	MS	—	R-MS	—	—	MS	R	S	Sdf
Rexmont	MS-S	VS	MR-MS	MR	R	MR-MS	—	MS	MR	—	Sdf
Wells	S	MS	MR	MS	R	—	—	MS	—	S	Sdf

[1]Abbreviations: R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible, Sdf = semidwarf, Int = intermediate, "—" information not available.

ACKNOWLEDGMENTS

This research was partially funded by Mississippi Rice Promotion Board funds. County agents Dwayne Wheeler, Don Respess, and Tommy Baird of the Mississippi State University Extension Service participated in site selection of some on-farm tests. Special thanks are given to the cooperating producers who voluntarily provided the land for conducting these tests and provided production inputs during the crop season. These tests are an inconvenience for field operations, and their patience is sincerely appreciated. The authors also express appreciation for assistance in conducting this research provided by MAFES research assistant George Baird, III, and MAFES agricultural technicians Leland Lanford, Shari Murphree, Tara Baugh, and Sanfrid Shaifer, who are all based at the Delta Research and Extension Center. Carolyn Johnson, Leander Holmes, and Joe Latham of the plant pathology project collected and analyzed the disease data.