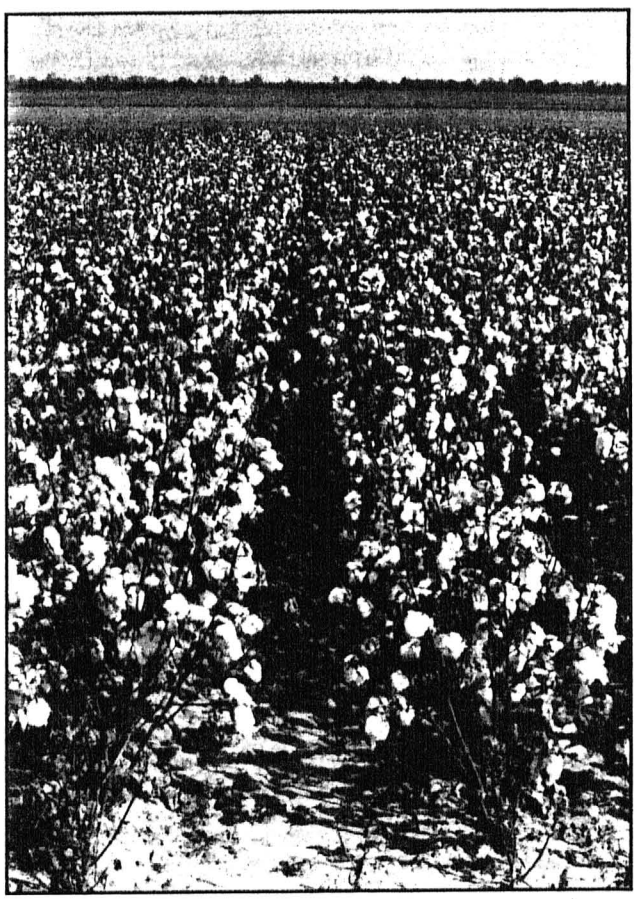
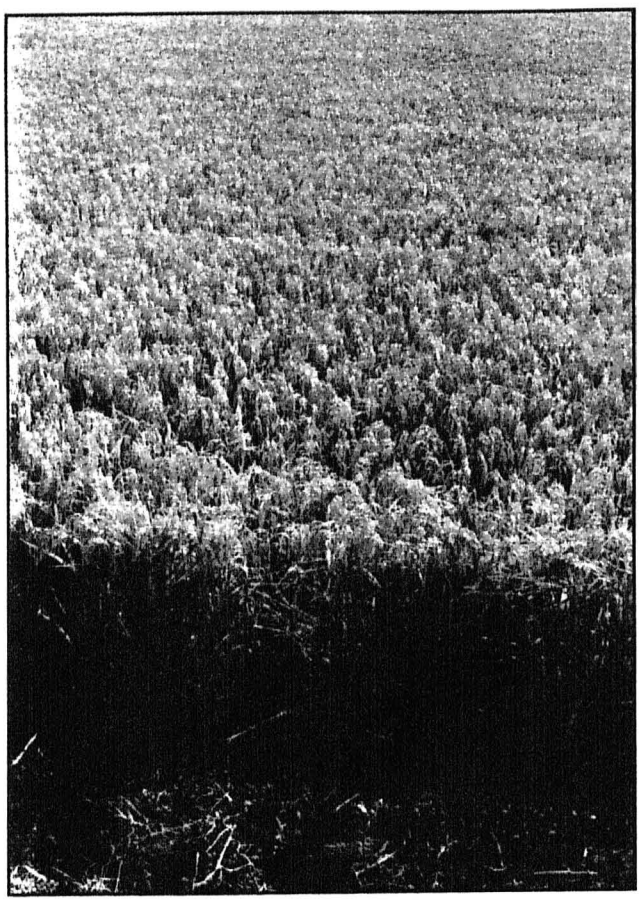
Cotton & Rice

1991 MISSOURI CROP PERFORMANCE

Minor, Albers, Morris, Mason, Knerr, Bixler and Lankheit

Missouri Agricultural Experiment Station
College of Agriculture, Food and Natural Resources
University of Missouri-Columbia





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Cotton trials: Herb Schuerenberg, Sikeston; David and Scott Andrews, Senath; Jake Fisher, Superintendent, Delta Research Center, Portageville; and Jimmie Nell Ward, Senior Research Technician, Delta Research Center, Portageville.

Rice trials: David and Steve Jackson, Dudley; Drs. Karen Moldenhauer and Kenneth Gravois, University of Arkansas; Bruce Beck, Agronomy Specialist, Poplar Bluff.

MISSOURI CROP PERFORMANCE

1991

COTTON AND RICE

INTRODUCTION

This report on Research Project 363 is a contribution of the Department of Agronomy, University of Missouri Agricultural Experiment Station. The work was supported by fees from organizations submitting varieties for evaluation.

Cotton performance trials were planted near Sikeston on the Herb Schuerenberg farm, near Portageville on the Delta Research Center, and near Senath on the David Andrews farm. The Sikeston test emerged poorly and was abandoned. Twenty-eight cotton varieties were evaluated at each location. A rice performance trial was evaluated near Dudley on the David and Steve Jackson farm. In spite of cool spring temperatures and late planting, yields in this test were representative for the cultural practices used. All producers of cotton and rice seed were eligible to enter varieties or hybrids in the 1991 evaluation trials. Participation was voluntary, and no control was exercised by the program over which, or how many entries were submitted. However, to help finance the evaluation program, a fee was charged for each entry.

The large number of varieties available makes the process of selecting a superior one difficult. To select intelligently, producers need a reliable, unbiased, and up-to-date source of information that will permit valid comparisons among available varieties. The objective of the University of Missouri's performance testing program is to provide this information. The tests are conducted under as uniform conditions as possible. Small plots are used to reduce the chance of soil and climatic variations occurring between individual plots. Results obtained should aid the individual grower to judge the relative merits of the varieties available in Missouri today.

COMPARING VARIETIES

The performance of a variety cannot be measured with absolute precision. Uncontrollable variability is involved in the determination of each yield average. This variability occurs at times because the soil isn't uniform, but many other conditions may contribute to it. Because variability exists in all field experimentation, statistics are used as a tool to assist with making decisions. The statistical tool used in the analysis of these trials is the test of least significant difference (L.S.D.). The L.S.D. is quite simple to apply. When two entries are compared and the difference between them is greater than the L.S.D., the entries are judged to be significantly different. Differences smaller than the L.S.D. may have occurred by chance and are judged to be not significant.

Performance may seem inconsistent from location to location and from year to year because of differences in rainfall, temperature, soil fertility, diseases, insects, and other factors. To obtain an improved estimate of relative performance, results from more than one location or year should be considered. In this publication, an effort has been made to facilitate comparisons across years and locations.

In each trial, the "top yielding" varieties have been identified. These varieties are those that did not yield significantly less than the highest yielding variety or hybrid in the test. They are denoted in the tables by an asterisk (*) next to their yield. Thus, by going down a column, readers can readily identify the highest yielding varieties. By going across, readers can evaluate the relative performance of a variety during several years or at several locations. From the standpoint of yield, the most desirable varieties will be those that fall within the "top yielding" group (that is, have an asterisk) the greatest number of times.

COTTON VARIETY PERFORMANCE TRIALS

Cotton variety trials are carried out as part of the Cotton Improvement Project of the University of Missouri Agriculture Experiment Station located at the UMC Delta Center. These tests are conducted to provide a reliable, unbiased, up-to-date source of information for comparing varieties.

EXPERIMENTAL PROCEDURES

Two locations were selected to represent the range of conditions found in the cotton growing area of southeastern Missouri. These locations were the Herb Schuerenberg farm near Sikeston in the northern bootheel, and the Scott and David Andrews farm near Senath (Dubbs silt loam soil) in the southern bootheel. The Sikeston location was abandoned due to herbicide injury. A second location of the test was replanted at the UMC Delta Center in Portageville on a Tiptonville sandy loam.

Field Plot Design. The trials were arranged in a randomized complete block design with four replications. The plots were four rows wide with the center two rows being used for yield and other notes. Both locations used 38 inches row spacing and 37 feet plot length.

Entries. All producers of cotton seed were eligible to enter varieties in the 1991 evaluation trials. Participation was voluntary and no control was exercised by the program over which or how many varieties were entered. However, to help finance the evaluation program, a fee of $150 per location was charged for each variety entered by the seed producer. A total of 28 cotton varieties were compared in 1991, as outlined in the following table.

Table 1. Source of Cotton Entries Evaluated in 1991.

Brand	Variety	Firm and Address
Chembred	1135, 333, X-1233, X-1234	Chembred Inc., Rt. 3, Box 750 Maricopa, AZ 85239
Delcot	344	UMC Delta Center, Box 160 Portageville, MO 63873
Deltapine	20, 50, 51, 5415 5690, DES119	Delta and Pine Land Co., 100 Main Street Scott, MS 38772
GSC	1093, Stroman 254	Gro-Agri Seed Co., 6201 SE Loop 289, Box 1656 Lubbock, TX 79408
Hyperformer	HB91-171B, S55, HS23, HS46	Hyperformer Seed Co., 5100 Poplar, Suite 3200 Memphis, TN 38137
Stoneville	324, 453, 506, 786, 907,69152, LA887, Coker 130	Stoneville Pedigreed Seed Co., Box 167 Stoneville, MS 38776
Sure-Grow	1001	Ellis Brothers Seed Inc., Rt. 1, Box 510 Centre, AL 35960
Terra	C-40, 207	Terra International, Inc., 6555 Quince Rd., Suite 202 Memphis, TN 38119

Plot Management. The trials were planted with commercial equipment modified for small plot work. The fields were managed during the growing season by the producer/cooperator. A summary of the cultural inputs for each location is found in Table 2. At maturity (60% open bolls) the plots were treated with PREP to enhance boll opening. Once-over harvest was completed using a Case IH 1822 picker. The seed cotton was ginned on a 20-saw Continental micro-gin equipped with one saw lint cleaner.

Table 2. Cultural Inputs for 1991 Variety Performance Trial

Location: Senath, Missouri	Fertilizer:	N-90 lb/A; K-60 lb/A; S-13 lb/A; B-1.0 lb/A	
Planted: May 8, 1991	Herbicide:	PPI:	0.95 Pt/A Trifluralin
Harvested: October 8, 1991		PRE:	0.85 lb/A ai Cotoran
Planted Population: 75,000			0.5 lb/A Zorial
Row Spacing: 38 Inches		POST:	0.3 lb/A Probe X 2
Growing Season Rainfall: 7.91"			0.45 Pt/A Bladex
Irrigation: Furrow 4 Times X 2.0"	Other Products:		Foliar N 3 lb/A
Fungicides & Insecticide:			PIX .4 Pt/A @ EB +
Disyston + Terrachlor 15 lb/A			0.5 Pt/A @ EB + 3 Weeks
Ammo 3 Oz/A			Prep 1.2 Qt/A
			Dropp 0.1 lb/A
			Def 1.0 Pt/A
Location: Portageville, Missouri	Fertilizer:	N-75 lb/A; P-15 lb/A; K-50 lb/A; S-15 lb/A	
Planted: May 28, 1991			
Harvested: October 9, 1991	Herbicides:	PPI:	Treflan 0.75 lb ai/A
Planted Population: 75,000			Boron 1.25 lb ai/A
Row Spacing: 38 inches		PRE:	Cotoran 1.25 lb ai/A
Growing Season Rainfall: 14.75"		POST:	Probe 1 lb/A
Irrigation: Furrow 5 times X 1.0"			MSMA 1.5 lb ai/A
Fungicides & Insecticide: (In-Furrow)	Other Products:		PIX 8 ozs/A Early Bloom
Terrachlor + Disyston 15 lbs/A			Prep 2 pts/A
Orthene (4 ozs/A) X 5 times			Harvard 8 ozs/A

Data Recorded. The number of plants in the 10' at the two center rows of each plot were counted and converted to number of plants per acre. At maturity, height, lodging, and yield were measured. Height was taken as the average distance in inches from the soil surface to the plant terminal. Lodging, which indicates the degree of erectness, was scored on a scale of 1 to 5 with 1 indicating that all plants were erect (no lodging) and 5 indicating that 80 percent, or more, of pounds of lint per acre multiplying the ginning percentage (lint percentage) by the total seed cotton yield. HVI quality characteristics of the cotton fibers were analyzed at the USDA Cotton Laboratory in Hayti, Missouri and the results are presented with the yield and other agronomic data.

Fiber Quality. Fiber quality characteristics were determined for each variety utilizing lint samples from three replications at each test location. These characteristics and their importance are described below.

A. Micronaire: The micronaire test provides a combined measure of maturity and fineness of cotton fibers. Fiber maturity is a relative measure of cell-wall fiber thickening. Immature fibers result in decreased rates of processing, dying problems, and the production of yarns and fabrics with low grade. In the test, air is passed through a compressed sample of cotton fiber. The rate of flow through the sample follows a relationship between diameter or thickness of the textile fibers and the air resistance they provide. Finer fibers result in greater resistance and therefore, a lesser air flow. Value recorded can be interpreted as follows:

Below 3.6 = fine and often immature
3.7 - 4.29 = premium range
Above 4.3 = coarse fibers

B. Uniformity: Fiber uniformity is a measure of the degree of uniformity of fiber length in a sample. Uniformity is calculated as a ratio of the average length of all fibers to the average length of the longest 50 percent of the fibers in the sample. The ratio is then multiplied by 100. High uniformity values are desirable and indicate uniform fiber lengths.

Below 77.0 = Very Low
77.1 - 79.0 = Low
79.1 - 82.0 = Average
82.1 - 85.0 = High
Above 85.1 = Very High

C. Strength: Fiber strength is reported in grams per tex. A tex unit is equal to the weight in grams of 1000 m of fiber. The strength values are reported in grams of force required to break one tex unit of fibers with the holding jaws separated by 1/8 in. The following chart categories strength readings and aids in the interpretation of strength values for an 1/8 in. gauge:

Below 20.0 = Very Low
20.9 - 23.9 = Low
24.0 - 26.9 = Average
27.0 - 29.9 = High
Above 30.0 = Very High

RESULTS

The 1991 Cotton Variety Performance Trials contained a range of planting dates similar to the overall Missouri crop. The Senath test was planted May 8 and the Portageville test was not planted until May 28. The three weeks difference in planting only resulted in a 140 lb/A difference in average lint yields. However, the late-planted Portageville (Table 3) test yielded very well (1238 lb/A) for planting in late May. In contrast, the Senath test averaged 1378 lb/A and ranged from 1014 lb/A to 1555 lb/A (Table 4). Fiber quality results for the tests were near the values for the area this season, with the exception of fiber strength. The average fiber strengths for the Senath and Portageville locations was 31.9 and 33.4 g/tex, respectively. Both of these test average strengths are above the top premium range for fiber strength on the USDA-CCC loan schedule and higher than the 27.1 g/tex average strength for cotton classed in the local USDA office. Two factors explain most of these differences: 1) some of the varieties entered in the test are new "high strength" varieties being introduced into the market. These varieties have strength greater than the "standard" varieties grown; 2) the plots were ginned using a micro-gin with 1 stage of lint cleaning, but without heat to dry (and damage) the lint and ginned slower than today's commercial gins.

Yield and fiber quality results are summarized in Tables 3, 4, and 5.

Table 3. Yield and Fiber Quality Performance of Cotton Varieties, Senath, MO 1991

Variety	Lint Yield 1991 (lbs/A)	Lint Yield 1990	Lint Yield 1989	Lint Percent %	Stand (Pl/A)	Height (in)	Lodging	Length (32's in.)	Strength (g/tex)	Micronaire	Uniformity	Trash (%)
Stoneville 453	1555**	1060*	1194**	39.5	63594	34	2.0	38.4	31.6	4.60	84.3	1.4
Hyperformer HS 46	1518*	945*	1067*	40.2	73219	33	2.0	39.0	34.2	4.17	83.3	1.2
Stoneville Coker 130	1517*	1111**	975*	39.4	53625	36	2.4	38.4	31.1	4.53	84.0	2.2
Stoneville 786	1507*			38.1	51219	36	2.1	38.4	34.1	4.30	84.7	1.7
Stoneville LA887	1499*			40.7	65313	35	2.4	39.0	34.6	4.37	83.7	1.1
Deltapine 5415	1488*	1082*		40.6	69094	35	1.8	38.4	32.3	4.67	84.3	0.8
Sure-Grow S-1001	1462*		910	39.1	69438	36	1.9	39.0	35.4	4.33	85.0	0.8
Deltapine 5690	1461*	1022*		39.8	61875	34	2.5	38.1	33.4	4.76	85.3	0.8
Chembred CB 333	1449*	1084*		38.3	59125	34	1.6	38.4	28.7	4.43	83.0	1.4
Hyperformer HB91 171B	1440*			38.8	64969	35	2.5	38.4	31.9	4.53	84.0	1.8
Chembred CBX 1233	1419*			39.8	61531	34	2.5	38.1	30.9	4.43	85.0	1.0
DES 119	1418*	1049*	868	38.8	64625	35	2.3	38.1	31.3	4.86	85.7	1.5
Deltapine 51	1409*	1024*	1130*	38.9	55688	36	2.0	38.4	29.1	5.00	85.3	1.0
Chembred CB 1135	1390*	1068*	1130*	37.8	66688	34	2.1	38.4	32.4	4.40	83.0	1.3
Stoneville 506	1382*		988*	36.1	64625	32	2.4	38.7	30.2	4.40	84.7	1.2
Deltapine 20	1367	972*	1038*	37.8	64281	36	1.9	37.4	28.4	4.67	82.7	0.7
Terra C-40	1365	1010*	989*	37.3	50875	36	2.1	37.4	29.2	4.33	83.3	0.8
Delcot 344	1364	1064*	1035*	38.8	42969	31	2.3	39.4	32.5	4.60	84.0	1.3
Deltapine 50	1361	1071*	1110*	35.5	63250	37	2.1	38.1	29.5	4.37	83.3	0.7
Terra 207	1354	1034*		39.5	54656	35	2.4	37.7	32.5	4.70	85.3	1.0
Stoneville 324	1347			37.7	57750	34	2.4	39.0	32.7	4.30	84.0	1.7
Hyperformer HS 23	1338	991*		37.4	66688	34	2.4	38.4	32.0	4.57	83.3	2.2
Stoneville 69132	1296			38.5	51219	37	2.0	36.1	29.6	4.53	85.3	0.7
Stoneville 907	1290	971*		38.0	54313	34	2.4	38.1	33.3	4.67	84.7	1.3
Hyperformer S55	1273			39.5	57406	36	2.3	38.5	33.5	4.10	84.3	0.8
Chembred CBX 1234	1208			36.6	60500	36	2.3	38.7	30.9	4.50	83.3	1.2
Stroman 254	1084			34.8	52250	34	2.1	38.1	34.5	4.06	83.3	1.2
GSC 1093	1014			33.6	55688	34	2.5	39.4	33.2	4.16	81.7	1.3
Mean	1378	1013	980	38.3	59874	34	2.2	38.4	31.9	4.48	84.0	1.2
LSD (.05)	174.40	166	221	1.52	12612	4.28	0.62	0.98	2.8	0.32	1.98	0.64
CV%	8.99	14.4	19.9	2.42	14.97	8.81	20.16	1.5	5.35	4.31	1.4	31.8

** Highest yielding variety in the test for that year.

* Variety that did not yield significantly less than the highest yielding variety.

Table 4. Yield and Fiber Quality Performance of Cotton Varieties, Portageville, MO 1991

Variety	Lint Yield 1991 (lbs/A)	Lint Percent %	Stand (Pl/A)	Height (in)	Lodging	Length (32's in.)	Strength (g/tex)	Micronaire	Uniformity	Trash (%)
Stoneville LA887	1424**	42.8	67031	31	2.3	38.1	36.0	4.63	84.7	1.1
Stoneville 453	1404*	41.9	67031	31	1.3	36.8	31.9	4.80	84.3	1.5
Hyperformer HB91 171B	1397*	42.2	59125	28	1.5	38.1	33.5	4.67	84.3	1.8
Deltapine 5415	1324*	41.6	72531	29	1.5	38.1	33.7	5.07	85.0	0.7
Chembred CB 1135	1321*	41.5	60844	32	2.0	36.8	33.8	4.80	85.0	1.2
Chembred CB 333	1318*	40.0	67031	33	1.6	36.2	29.6	4.57	84.0	1.0
Chembred CBX 1233	1318*	40.4	69094	32	2.1	36.5	33.5	4.87	84.7	0.8
Deltapine 50	1314*	38.1	61875	28	1.5	36.8	31.4	4.67	83.7	0.7
Stoneville 324	1306*	39.9	63594	30	1.9	38.1	36.4	4.73	85.3	1.5
Delcot 344	1290	39.1	58094	33	1.9	38.1	33.6	4.73	84.0	1.5
Stoneville 69132	1267	39.8	65656	32	2.0	35.5	31.5	4.63	85.7	0.6
Terra C-40	1244	39.5	66688	31	1.6	35.8	29.9	4.60	84.0	0.8
DES 119	1241	39.4	65313	32	1.8	37.4	32.0	5.10	85.0	0.9
Stoneville 786	1239	39.9	67031	30	1.4	37.1	33.2	4.47	83.7	1.1
Hyperformer S55	1221	41.3	61188	33	1.5	37.1	34.4	4.17	83.7	1.1
Deltapine 20	1215	38.3	66000	31	1.6	36.2	29.8	4.43	84.0	1.0
Deltapine 5690	1211	39.2	61531	30	1.9	37.4	36.2	5.00	85.3	0.8
Stoneville 506	1204	37.9	65656	28	1.6	37.8	33.8	4.53	84.0	1.1
Hyperformer HS23	1204	38.7	75969	29	2.0	37.1	33.4	4.67	84.7	1.7
Terra 207	1196	38.8	69094	33	2.0	37.4	31.2	4.63	85.3	0.8
Hyperformer HS46	1196	40.4	75625	31	1.6	37.1	35.0	4.83	83.3	1.0
Chembred CBX 1234	1188	38.6	62219	31	2.0	38.1	34.5	4.53	83.7	1.0
Deltapine 51	1188	37.7	67375	30	1.8	37.8	31.7	5.00	84.7	0.5
Stoneville Coker 130	1158	38.3	63594	31	1.9	36.5	32.2	4.80	84.7	1.4
Sure-Grow S-1001	1157	39.2	68063	32	1.6	38.1	36.6	5.03	85.0	0.8
Stoneville 907	1129	38.2	58438	33	1.5	37.8	36.3	4.67	84.0	0.9
Stroman 254	1050	37.4	60500	34	1.4	37.4	36.3	4.43	85.0	0.9
GSC 1093	943	35.8	59813	28	2.0	37.8	32.7	4.33	82.0	0.8
Mean	1238	39.5	65214	31	1.7	37.1	33.4	4.69	84.4	1.0
LSD (.05)	119.15	1.92	13881	2.43	0.59	3.18	2.74	2.70	2.04	5.97
CV%	6.84	2.96	15.13	5.61	24.25	1.67	5.01	3.52	1.48	35.17

** Highest yielding variety in the test for that year.

* Variety that did not yield significantly less than the highest yielding variety.

Table 5. Yield and Fiber Quality Performance of Cotton Varieties, 2 Locations, 1991.

Variety	Lint Yield 1991	Lint Percent	Stand	Height	Lodging	Length	Strength	Micronaire	Uniformity	Trash
	(lbs/A)	%	(Pl/A)	(in)		(32's in.)	(g/tex)			(%)
Stoneville 453	1480**	40.7	65313	32	2.4	37.7	31.7	4.70	84.3	1.5
Stoneville LA 887	1462*	41.8	66172	33	2.7	38.5	35.3	4.50	84.2	1.1
Hyperformer HB91 171B	1418*	40.5	62047	31	2.2	38.1	32.8	4.60	84.2	1.9
Deltapine 5415	1405*	41.1	70813	32	3.0	38.2	33.0	4.87	84.7	0.8
Chembred CB 333	1384*	39.2	63078	33	2.3	37.3	29.2	4.50	83.5	1.2
Stoneville 786	1373	39.0	59125	33	2.3	37.7	33.7	4.38	84.2	1.4
Chembred CBX 1233	1368	40.1	65313	33	2.8	37.4	32.2	4.65	84.8	0.9
Hyperformer HS46	1356	40.3	74422	32	2.5	38.1	34.6	4.50	83.3	1.1
Chembred CB 1135	1356	39.7	63766	33	2.6	37.6	33.1	4.60	84.0	1.3
Deltapine 50	1337	36.8	62563	32	2.4	37.5	30.4	4.52	83.5	0.7
Stoneville Coker 130	1337	38.9	58609	33	2.4	37.5	31.6	4.67	84.3	1.8
Deltapine 5690	1336	39.5	61703	32	2.8	37.8	34.8	4.88	84.3	0.8
DES 119	1330	39.1	64969	33	2.7	37.9	31.6	4.98	85.3	1.2
Delcot 344	1327	39.0	50531	32	2.8	38.7	33.1	4.67	84.0	1.4
Stoneville 324	1326	38.8	60672	32	2.8	38.7	34.6	4.52	84.7	1.6
Sure-Grow S-1001	1309	39.1	68750	34	2.8	38.5	36.0	4.68	85.0	0.8
Terra C-40	1305	38.4	58781	34	2.5	36.7	29.6	4.47	83.7	0.8
Deltapine 51	1298	38.3	61531	33	2.4	38.0	30.4	5.00	85.0	0.7
Stoneville 506	1293	37.0	65141	30	2.2	38.3	32.0	4.47	84.3	1.2
Deltapine 20	1291	38.1	65141	33	2.4	36.8	29.1	4.55	83.3	0.9
Stoneville 69132	1282	39.2	58438	34	2.1	35.8	30.5	4.58	85.5	0.7
Terra 207	1275	39.1	61875	34	2.4	37.6	31.8	4.67	85.3	0.9
Hyperformer HS23	1271	38.0	71328	31	2.6	37.7	32.7	4.62	84.0	2.0
Hyperformer S55	1247	40.4	59297	34	2.1	37.9	34.0	4.13	84.0	0.9
Stoneville 907	1210	38.1	56375	33	2.4	37.9	34.8	4.67	84.3	1.1
Chembred CBX 1234	1198	37.6	61359	33	2.5	38.3	32.7	4.52	83.5	1.1
Stroman 254	1067	36.6	56375	34	2.2	37.8	35.4	4.25	84.2	1.1
GSC 1093	978	34.7	57750	31	2.3	38.6	33.0	4.25	81.8	1.1
Mean	1308	38.9	62544	33	2.5	37.8	32.6	4.59	84.2	1.1
LSD (.05)	104.73	1.21	9306.8	2.45	0.48	0.70	1.93	2.06	1.41	4.33
CV%	8.11	2.72	15.07	7.60	19.54	1.62	5.18	3.92	1.46	33.41

** Highest yielding variety in the test for that year.

* Variety that did not yield significantly less than the highest yielding variety.

RICE VARIETY PERFORMANCE TRIALS

Rice variety trials became part of the University of Missouri's crop performance testing program in 1983. These tests are conducted to provide a reliable, unbiased, up-to-date source of information for comparing varieties. This work was supported in part by fees from organizations submitting varieties for evaluation. In addition to fees, a research gift was provided by the Missouri Rice Research and Merchandising Council.

EXPERIMENTAL PROCEDURES

Location. Rice plots were established on May 28, 1991 on the David and Steve Jackson farm near Dudley, Missouri. Three maturity groups of rice varieties were represented in southeast Missouri.

Field Plot Design. The trials were arranged in a randomized complete block design with four replications. Each plot consisted of six rows, 15 feet long, with a between-row spacing of 7.5 inches. The four center rows of each plot were machine harvested at maturity.

Entries. All public seed was provided by Drs. Karen Moldenhauer and Kenneth Gravois of the Rice Research Experiment Station at Stuttgart, Arkansas. A fee of $100 per entry was charged for each non-public entry. A total of 36 rice varieties were compared in 1991.

Plot Measurement. Plots were planted with a conventional drill modified for experimental research. Fertilizer was applied at the rate of 92- 18- 36 preplant, and the plots were flooded. This flood was maintained throughout the growing season. An additional 116 pounds/acre of nitrogen was topdressed over the entire trial with three different applications. Thus, the total amount of nitrogen applied was 208 pounds/acre.

For primary weed control, Bolero and Stam herbicide were applied. An additional application of Londax herbicide was applied after flood. Plots were then hand weeded as necessary. Weed control was excellent.

The plots were machine harvested to determine differences among varieties. To assure accuracy, the grain from all plots was oven-dried to a uniform moisture content, and then weighed to determine yield.

Data Recorded. At maturity, height, lodging, % head rice, % total rice,and yield were measured. Height was taken as the average distance in inches from the soil surface to the top of the plant. Lodging, which indicates the degree of erectness, was scored on a scale of 1 to 5 with 1 indicating that all plants were erect (no lodging) and 5 indicating that 80 percent, or more, of the plants were lodged. Yields calculated from the harvested area were adjusted to 12 percent moisture and reported on a pounds/acre basis.

Rice Milling Quality. The dollar value of rice is determined by the milling yield, quality, and price. The price of whole kernel (fancy or head) milled rice is worth more than twice as much as brokens; therefore it is important to have a high milling percentage of whole kernels. A sample was collected from each plot of harvested grain and used to determine both milling percentage and quality. The sample was weighed and the trash or foreign matter was removed by a Carter-Day Dockage Machine. The cleaned sample was then milled to remove hulls and bran. The amount of milled rice which remains is considered the total milling yield (contains both broken and whole kernels), and is expressed as a percentage (Total Rice %). The whole kernels are then separated from the broken kernels by a sieve and weighed for the calculation of whole kernel or head rice milling percentage (Head Rice %).

RESULTS

Yields for 1991 were near the average of those recorded since the University of Missouri began testing rice in 1983. Cool temperatures and delayed planting date adversely affected some varieties. The 'Short Season' rice maturity class achieved the highest average yield (5758 pounds/acre) of the three maturity classes.

TABLE 6. PERFORMANCE OF RICE VARIETIES EVALUATED ON THE DAVID AND STEVE JACKSON FARM NEAR DUDLEY (STODDARD COUNTY) DURING 1991.

PLANTED: 28 MAY 1991.
HARVESTED: 1 OCTOBER 1991.
ROW SPACING: 7.5 INCHES.
PLANTED POP.: 40 SD./SQ. FT.
IRRIGATION: CONTINUOUS FLOOD.
SOIL TYPE: CALHOUN SILT LOAM.
FERTILIZER: N = 208; P2O5 = 23; K2O = 30.
HERBICIDES: PRE: BOLERO AND STAM. POST: LONDAX.
FUNGICIDES: TILT.
INSECTICIDE: NONE.
PREVIOUS CROP: SOYBEANS.
GROWING SEASON RAINFALL: MAY=4.2, JUNE=2.5, JULY=1.4 AUG.=2.6, SEPT.=3.5, TOTAL= 14.2 ".

	1991					YIELD (LBS/ACRE)				
VARIETY	DAYS TO 50% HEADING	HEIGHT (IN.)	LODGING SCORE (1-5)	HEAD RICE (%)	TOTAL RICE (%)	1991	1990	1989	1988	1987
				VERY SHORT SEASON RICE						
RU9001007	82	35	1.0	58	71	6560**	7481*	--	--	--
ROSEMONT	78	30	1.0	55	72	6460*	--	--	--	--
RU9101004	75	32	1.0	70	74	5956*	--	--	--	--
MAYBELLE	76	33	1.0	40	72	5653*	7388	2433	--	--
L202	85	31	1.0	64	72	5556*	8118**	5520**	4346*	7411*
TEXMONT	79	28	1.0	45	72	5442*	7914*	--	--	--
RU9001105	82	31	1.0	59	70	5300*	--	--	--	--
RU9001102	82	33	1.0	63	70	5211*	--	--	--	--
MILLIE	83	33	1.0	56	71	5104*	7109	3715	4078*	--
ALAN	83	33	1.0	60	71	4873	7619*	2265	4651*	--
RICE-TEC 7015	81	30	1.0	63	71	4864	8001*	--	--	--
RU9101001	65	26	1.0	53	69	3972	--	--	--	--
VSS RICE AVG	79	31	1.0	57	71	5413	7461	3155	4197	6598
VSS RICE LSD .05	7	2	NS	3	1	1514	712	1013	1135	661
VSS RICE C.V. %	6.4	4.4	2.1	0.8	19.4	6.6	32.2	19.5	15.9	
				SHORT SEASON RICE						
MARS	86	41	1.0	68	71	8013**	6745	2596	4331	8939*
STG88P2-89	83	34	1.0	61	70	6936*	--	--	--	--
ORION	85	37	1.0	65	71	6443*	6650	3394	--	--
RICO-I	91	37	1.0	64	71	6128*	7060	2442	--	--
RU9101030	84	34	1.0	59	70	5749	--	--	--	--
STG87P39-59	89	35	1.0	53	67	5601	--	--	--	--
TEBONNET	80	43	1.0	63	72	5570	7817*	990	4148*	6803
RU9101044	89	37	1.0	63	71	5528	--	--	--	--
RU9101096	83	36	1.0	67	73	5516	--	--	--	--
RU8901188	82	35	1.0	52	70	4872	--	--	--	--
RU9001096	85	37	1.0	61	72	4589	--	--	--	--
RU9101041	83	37	1.0	67	72	4157	--	--	--	--
SS RICE AVG	85	37	1.0	62	71	5758	6937	2890	4562	8150
SS RICE LSD .05	4	2	NS	6	2	2042	816	881	NS	917
SS RICE C.V. %	3.5	5.2	4.6	1.6	24.7	8.2	29.8	16.6	16.0	
				MEDIUM SEASON RICE						
RU9101050	95	33	1.0	49	69	5978**	--	--	--	--
KATY	86	35	1.0	60	70	5914*	6216	3308	4439*	7507
STG88P3-91	90	37	1.0	58	68	5787*	--	--	--	--
RU9101161	93	38	1.0	54	68	5606*	--	--	--	--
RU9001191	92	38	1.0	51	68	5502*	--	--	--	--
NEWBONNET	94	39	1.0	60	70	5284*	6274	3929	4385	8699*
LACASSINE	91	31	1.0	63	72	5000*	--	--	--	--
RU8801167	93	38	1.0	58	70	4938*	6237	4113	--	--
RU9001194	92	38	1.0	55	69	4792*	--	--	--	--
LEMONT	89	33	1.0	54	71	4473	7500*	4780*	5521*	7036
RU9101064	94	37	1.0	56	69	3955	--	--	--	--
JASMINE	102	36	1.0	24	61	3423	3094	865	--	--
MS RICE AVG	93	36	1.0	54	69	5054	6300	3275	4748	7774
MS RICE LSD .05	4	2	NS	11	2	1432	982	615	1493	789
MS RICE C.V. %	2.8	3.9	9.2	1.3	19.7	10.8	18.8	21.9	10.1	
TRIAL AVERAGE		35	1.0	58	70	5408	6899	3107	4502	7507

** HIGHEST YIELDING VARIETY IN THE TEST.
* VARIETY WHICH DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
NS NOT SIGNIFICANT AT THE .05 LEVEL.

TABLE 7. RICE VARIETY IDENTIFICATION.

VARIETY	CI, PI, OR RU NO.	GRAIN TYPE
VERY SHORT SEASON		
L202	PI483097	LONG
MAYBELLE	PI538248	LONG
ALAN	PI538253	LONG
RT7015	RICE-TEC	LONG
ROSEMONT	PI546365	LONG
TEXMONT	PI538249	LONG
L201/7402003	RU9001007	LONG
LABONNET/STARBONNET//NEWBONNET	RU9001102	LONG
LABONNET/9902//NEWBONNET	RU9001105	LONG
BRAZ/TBNT/3/164986-4/NV66//NTAI	RU9101004	MEDIUM
MILLIE	PI538254	LONG
BN73/9B37//PI265116/3/V6DW/STTD//L201	RU9101001	LONG
SHORT SEASON		
TEBONNET	PI487195	LONG
BRTB/3/164986-4/NV66//NTAI	RU9101096	MEDIUM
MARS	CI9945	MEDIUM
RICO-I	PI502969	MEDIUM
ORION	PI549114	MEDIUM
LABONNET/STARBONNET	RU9101030	LONG
BN73/NV76//BN73/3/NEWREX	RU9001096	LONG
TEBONNET/NORTAI	RU9101041	MEDIUM
TEBONNET/NORTAI	RU9101044	MEDIUM
V6DW/STARBONNET//L201	RU8901188	LONG
LABONNET/9902//NEWBONNET	STG87P39-59	LONG
KATY/NEWBONNET	STG88P2-89	LONG
MID SEASON		
KATY	PI527707	LONG
NEWBONNET	PI474580	LONG
LEMONT	PI475833	LONG
LACASSINE	PI548772	LONG
JASMINE	RU8803197	LONG
VISTA/RU7901017	RU8801167	LONG
L201//TEBONNET/BLUEBONNET	RU9101050	LONG
VISTA/NORTAI//LEMONT	RU9001194	LONG
L201//VISTA/7901017	RU9101161	LONG
DAWN//BP87/9902	RU9001191	LONG
VISTA/NORTIA/3/TTEP/IR-8//UNKNOWN	RU9101064	LONG
M201/KATY	STG88P3-91	LONG