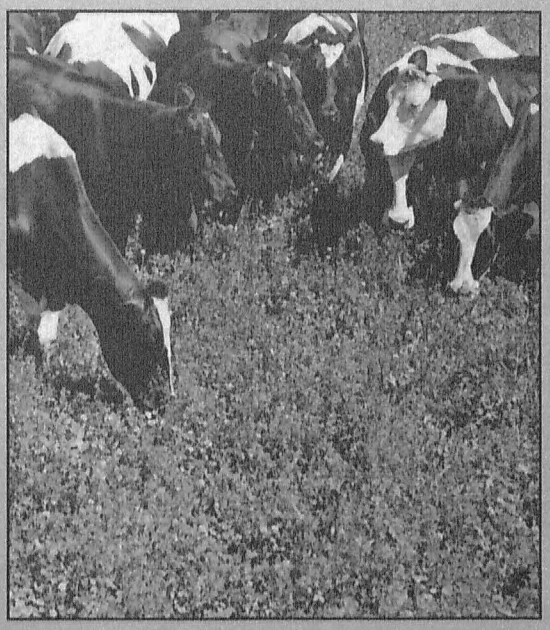
SB
193
.F63
1988

Forage, Cotton and Rice

1988 Missouri Crop Performance



Special Report 393 December, 1988

Minor, Morris, Mason, Mattis, Knerr, Lawman

University of Missouri-Columbia Agricultural Experiment Station

TABLE OF CONTENTS

INTRODUCTION 3
COMPARING VARIETIES AND HYBRIDS 3
TEST SITE LOCATIONS (Figure 1) 4

PART I: ALFALFA VARIETIES
EXPERIMENTAL PROCEDURES 5
RESULTS 5

COLUMBIA - 23 Alfalfa Varieties (Table 1) 6
Summary of Years (Table 2) 7
MT. VERNON - 27 Alfalfa Varieties (Table 3) 8
Summary of Years (Table 4) 9
WEST PLAINS - 27 Alfalfa Varieties (Table 5) 10
Summary of Years (Table 6) 11
MT. VERNON - 20 Alfalfa Varieties (Table 7) 12

ALFALFA CHARACTERISTICS (Table 8) 13
ALFALFA SEED COMPANY ADDRESSES (Table 9) 14

PART II: SORGHUM SUDAN AND FORAGE SORGHUM HYBRIDS
EXPERIMENTAL PROCEDURES 15
RESULTS 15

MT. VERNON:
Sorghum Sudan (Table 10) 16
Forage Sorghum (Table 11) 17

FORAGE SORGHUM AND SUDAN SEED COMPANY ADDRESSES (Table 12) 18

PART III: COTTON VARIETIES
EXPERIMENTAL PROCEDURES 19
RESULTS 19

SENATH (Table 13) 20

COTTON SEED COMPANY ADDRESSES (Table 14) 21

PART IV: RICE VARIETIES
EXPERIMENTAL PROCEDURES 22
RESULTS 22

BROSELEY:
Very Short Season (Table 15) 23
Short Season (Table 16) 24
Mid-Season (Table 17) 25

RICE VARIETY IDENTIFICATION (Table 18) 26

THE AUTHORS

Harry C. Minor is an Associate Professor of Agronomy and State Extension Specialist; Carl G. Morris and Howard L. Mason are Senior Research Specialists, Richard E. Mattas is an Instructor of Agronomy, Acting Interim, and Assistant Superintendent at the Southwest Center, Mt. Vernon; and Delbert R. Knerr and Eric E. Lawman are Research Specialists.

ACKNOWLEDGEMENTS

The authors wish to recognize and express their appreciation to the following individuals for their assistance in conducting the 1988 Variety Performance Trials.

Alfalfa trials: Norman Justus, Superintendent, Southwest Center, Mt. Vernon; John Poehlman, Superintendent, Agronomy Research Center, Columbia; and John Jennings, Area Agronomist, West Plains.

Cotton trials: Herb Schuerenberg, Sikeston; David and Scott Andrews, Senath; the Southland H.S. FFA chapter; the New Madrid Co. R1 FFA chapter; and Jimmie Nell Ward, Delta Research Center, Portageville.

Rice trials: Jim Bieller, Broseley; Dr. Karen Moldenhauer, Arkansas State University; and Bruce Beck, Agronomy specialist, Poplar Bluff.

MISSOURI CROP PERFORMANCE

1988

FORAGES, COTTON, 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 in part by funds from the Missouri Seed Improvement Association and fees from the companies submitting varieties or hybrids for evaluation.

Forage performance trials were conducted at the Agronomy Research Center near Columbia, the Southwest Center near Mt. Vernon, and on University Extension Field near West Plains. These locations are shown in Figure 1, Page 4. Forage evaluations at Mt. Vernon included alfalfa varieties, forage sorghum hybrids and sorghum sudan hybrids; at all other locations only alfalfa were studied.

Cotton performance trials were conducted near Sikeston on the Herb Schuerenberg farm and near Senath on the David Andrews farm. These locations are shown in Figure 1, page 4. In 1988, thirty cotton varietes were evaluated at each location.

In 1988, thirty-nine rice varieties were evaluated near Broseley on the Jim Bieller farm.

All producers of forage, cotton, and rice seed were eligible to enter varieties or hybrids in the 1988 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 and hybrids available makes 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/hybrids. 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 one plot and another. Results obtained should aid the individual grower to judge the relative merits of many of the commercial forage varieties or hybrids available in Missouri today.

COMPARING VARIETIES AND HYBRIDS

The performance of a variety or hybrid 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 or hybrids 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 or hybrids. By going across, readers can evaluate the relative performance of a variety or hybrid during several years or at several locations. From the standpoint of yield, the most desirable varieties or hybrids will be those that fall within the "top yielding" group (that is, have an asterisk) the greatest number of times.

FIGURE 1. TEST SITE LOCATIONS.

PART I

ALFALFA

EXPERIMENTAL PROCEDURES

Field Plot Design. Harvest data were collected from four trials in 1988. These trials were located at the Agronomy Research Center near Columbia, the Southwest Center near Mt. Vernon, and the University Extension field near West Plains (See Figure 1, page 4). Fifth-year trials at Mt. Vernon and West Plains consist of 27 alfalfa varieties. The Columbia trial consists of 23 alfalfa varieties and represents a third-year stand. A second trial at Mt. Vernon consists of 20 entries and represents a first-year stand. All trials were arranged in a randomized complete block design with four replications. Plots were 5.0 or 7.5 feet wide and 20 feet long. At harvest, all plots were trimmed to a uniform length and a single swath down the middle of each plot was taken for yield determination.

Cultural Practices. The tests were hand-planted and harvested with either a jari mower or modified flail chopper. Harvests were made when the majority of the varieties averaged 10 percent bloom. Insecticide was used when necessary to control alfalfa weevil and was applied before damage reached a significant level. Details of the management practices followed at each location are included with the data.

Data Recorded. Total weights were taken on each plot at harvest. A sub-sample was oven-dried to determine the percentage dry weight. In the following tables, yield is presented as tons of dry matter per acre.

RESULTS

Significant differences in alfalfa yields during 1988 were found between individual varieties. Dry matter yields for 23 varieties ranged from 4.78 to 7.12 tons per acre at Columbia (Table 1). Dry matter yield for 27 varieties ranged from 5.94 to 7.27 tons per acre at Mt. Vernon (Table 3) and from 3.71 to 4.92 tons per acre at West Plains (Table 5). Dry matter yields for 20 varieties ranged from 3.08 to 6.07 tons per acre at Mt. Vernon (Table 7).

In each trial, varieties that did not differ statistically from the highest yielder at that location are denoted by an asterisk (*) for easy identification. Increased confidence can be placed in data from more than one year because they represent results from a larger sample of climatic conditions.

TABLE 1. DRY MATTER PRODUCTION OF 23 ALFALFA VARIETIES GROWN ON THE AGRONOMY RESEARCH CENTER NEAR COLUMBIA, MO. (BOONE CO.) DURING 1988.

SEEDED: SPRING 1986. FERTILIZER: N = 0; P2O5 = 200; K2O = 200.
PLANTING RATE: 20 LBS/A. INSECTICIDE: AMBUSH.
ROW SPACING: 6 INCHES. GROWING SEASON RAINFALL: 14.11 INCHES.

BRAND/VARIETY	HARVESTS - 1988 5-19	6-22	7-25	8-25	TOTAL	% CHECK
	TONS/ACRE					
LARRY PETERSON EPIC	3.57**	1.52	1.22.	0.81	7.12**	138
AGRIPRO ARMOR	2.99	2.22**	0.96	0.73	6.90*	133
ASGROW/O'S GOLD EAGLE	3.01	1.97	1.16	0.76	6.90*	133
WATERMAN-LOOMIS WL 320	3.22	1.27	1.32**	0.86	6.67	129
UNITED AGRISEEDS SALUTE	3.09	1.50	1.23	0.84	6.66	129
STAUFFER SEEDS SUMMIT	3.23	1.42	1.15	0.78	6.58	127
GREAT PLAINS CIMARRON	2.91	1.55	1.21	0.82	6.49	126
GREAT PLAINS SHENANDOAH	3.09	1.38	1.12	0.82	6.41	124
RESEARCH SEED RS 239	2.44	1.92	1.19	0.82	6.37	123
RESEARCH SEED RS 242	2.42	1.84	1.12	0.72	6.10	118
GARST 624	2.99	1.20	1.11	0.79	6.09	118
WATERMAN-LOOMIS WL 316	2.40	1.60	1.16	0.80	5.96	115
GARST 655	2.64	1.59	0.91	0.76	5.90	114
GREEN SEED CORONA	2.50	1.31	1.17	0.91**	5.89	114
RESEARCH SEED PEAK	2.70	1.25	1.11	0.79	5.85	113
RILEY ##	2.83	1.17	1.07	0.73	5.80	112
DAIRYLAND MAGNUM	2.40	1.32	1.10	0.84	5.66	109
DEKALB 135	2.28	1.66	0.95	0.74	5.63	109
AGRIPRO ARROW	2.33	1.46	0.93	0.76	5.48	106
GARST 629	2.08	1.28	0.93	0.76	5.05	98
VERNAL ##	2.24	0.92	0.94	0.82	4.92	95
PAG ENDURE	2.20	1.05	0.89	0.75	4.89	95
BAKER ##	2.39	0.86	0.79	0.74	4.78	92
MEAN	2.69	1.44	1.08	0.79	6.00	116
LSD .05	NS	NS	NS	NS	0.34	
C.V. %	23.5	47.9	25.6	14.7	33.1	

** HIGHEST YIELDING VARIETY.
* VARIETY THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
NS NOT SIGNIFICANT.
CHECK VARIETY, MEAN = 5.17 TONS/ACRE.

TABLE 2. DRY MATTER PRODUCTION OF 23 ALFALFA VARIETIES GROWN ON THE AGRONOMY RESEARCH CENTER NEAR COLUMBIA, MO. (BOONE CO.) DURING 1986-88.

SEEDED: SPRING 1986.

BRAND/VARIETY	YEAR 1986	1987	1988	MEAN	% CHECK
	TONS/ACRE				
LARRY PETERSON EPIC	3.71**	4.83**	7.12**	5.22**	132
ASGROW/O'S GOLD EAGLE	3.36	4.63	6.90*	4.96*	126
STAUFFER SEEDS SUMMIT	3.53*	4.53	6.58	4.88	124
WATERMAN-LOOMIS WL 320	3.01	4.57	6.67*	4.75	120
AGRIPRO ARMOR	2.64	4.55	6.90*	4.70	119
GARST 624	3.21	4.43	6.09	4.58	116
GREAT PLAINS CIMARRON	2.66	4.46	6.49	4.54	115
DAIRYLAND MAGNUM	3.49*	4.44	5.66	4.53	115
WATERMAN-LOOMIS WL 316	3.03	4.50	5.96	4.50	114
UNITED AGRISEEDS SALUTE	2.65	4.10	6.66	4.47	113
GREAT PLAINS SHENANDOAH	2.69	4.25	6.41	4.45	113
RESEARCH SEED RS 239	2.65	4.30	6.37	4.44	112
RESEARCH SEED PEAK	3.05	4.26	5.85	4.39	111
RILEY ##	2.89	4.31	5.80	4.33	110
RESEARCH SEED RS 242	2.80	3.95	6.10	4.28	108
GARST 655	2.81	4.12	5.90	4.28	108
GREEN SEED CORONA	2.47	4.45	5.89	4.27	108
AGRIPRO ARROW	2.84	4.30	5.48	4.21	106
GARST 629	3.25	4.28	5.05	4.19	106
DEKALB 135	2.46	4.27	5.63	4.12	104
VERNAL ##	2.53	3.83	4.92	3.76	95
BAKER ##	2.97	3.51	4.78	3.75	95
PAG ENDURE	2.76	3.52	4.89	3.72	94
MEAN	2.93	4.28	6.00	4.41	111
LSD .05	0.26	0.15	0.34	0.27	
C.V. %	25.0	19.9	33.1	7.8	

** HIGHEST YIELDING VARIETY.
* VARIETY THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
CHECK VARIETY, MEAN = 3.95 TONS/ACRE.

TABLE 3. DRY MATTER PRODUCTION OF 27 ALFALFA VARIETIES GROWN ON THE SOUTHWEST CENTER NEAR MT. VERNON, MO. (LAWRENCE CO.) DURING 1988.

SEEDED: FALL 1983. FERTILIZER: N = 0; P2O5 = 80; K2O =400.
PLANTING RATE: 20 LBS/A. INSECTICIDE: FURADAN.
ROW SPACING: 6 INCHES. GROWING SEASON RAINFALL: 25.31 INCHES.

BRAND/VARIETY	HARVESTS - 1988 5- 9	6-13	7-14	8-15	9-20	TOTAL	% CHECK
	TONS/ACRE						
WATERMAN-LOOMIS WL 315	1.77*	1.79**	1.55*	1.22**	0.94**	7.27**	119
SHENANDOAH	1.78*	1.73*	1.53*	1.10*	0.94**	7.08	116
PIONEER XAF12	1.81*	1.61*	1.55*	1.09*	0.88*	6.94	114
WATERMAN-LOOMIS WL 313	1.68*	1.68*	1.51*	1.12*	0.92*	6.91	113
PIONEER 526	1.83**	1.65*	1.49*	1.10*	0.84*	6.91	113
CIMARRON	1.75*	1.65*	1.49*	1.13*	0.88*	6.90	113
WATERMAN-LOOMIS WL 316	1.74*	1.70*	1.45*	1.08*	0.87*	6.84	112
EMBRO H-134	1.60	1.65*	1.53*	1.21*	0.84*	6.83	112
PIONEER 555	1.75*	1.66*	1.56**	1.02	0.84*	6.83	112
CODY	1.65*	1.63*	1.56**	1.16*	0.81*	6.81	111
DAIRYLAND FUTURA	1.74*	1.64*	1.45*	0.99	0.86*	6.68	109
PIONEER 531	1.69*	1.64*	1.44*	1.05*	0.86*	6.68	109
O'S GOLD EAGLE	1.68*	1.62*	1.51*	1.00	0.83*	6.64	109
PIONEER 532	1.75*	1.64*	1.47*	0.96	0.81*	6.63	109
LOVELOCK ICO-10	1.68*	1.58*	1.40*	1.09*	0.86*	6.61	108
FFR CLASSIC	1.68*	1.58*	1.45*	1.05*	0.83*	6.59	108
CARGILL EXPO	1.68*	1.56	1.49*	1.03*	0.81*	6.57	108
EPIC	1.70*	1.54	1.34	1.07*	0.89*	6.54	107
FFR HI-PHY	1.65*	1.54	1.41*	1.00	0.80*	6.40	105
PEAK	1.54	1.65*	1.44*	0.97	0.78	6.38	104
LOVELOCK LS-C25	1.70*	1.55	1.35	0.96	0.82*	6.38	104
RILEY ##	1.59	1.44	1.46*	1.02	0.78	6.29	103
DEKALB ADVANTAGE	1.61	1.49	1.36	1.03*	0.79*	6.28	103
DAIRYLAND MAGNUM	1.53	1.54	1.36	0.97	0.80*	6.20	101
DEKALB 120	1.61	1.50	1.36	0.93	0.78	6.18	101
BAKER ##	1.58	1.40	1.33	0.99	0.80*	6.10	100
SARANAC AR ##	1.46	1.43	1.34	0.93	0.78	5.94	97
MEAN	1.68	1.60	1.45	1.05	0.84	6.61	108
LSD .05	0.21	0.22	0.18	0.19	0.15	0.09	
C.V. %	9.7	10.9	9.6	13.7	14.0	11.3	

** HIGHEST YIELDING VARIETY.
* VARIETY THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
CHECK VARIETY, MEAN = 6.11 TONS/ACRE.

TABLE 4. PERFORMANCE SUMMARY OF 27 ALFALFA VARIETIES GROWN ON THE SOUTHWEST CENTER NEAR MT. VERNON, MO. (LAWRENCE CO.) DURING 1984-88.

SEEDED: FALL 1983.

BRAND/VARIETY	YEAR 1984	1985	1986	1987	1988	MEAN	% CHECK
	TONS/ACRE						
SHENANDOAH	4.27*	6.86	6.89**	5.78	7.08	6.18**	114
WATERMAN-LOOMIS WL 313	4.30*	6.75	6.60	5.99**	6.91	6.11*	113
WATERMAN-LOOMIS WL 315	3.67	6.62	6.72	5.91	7.27**	6.04*	111
CIMARRON	4.05*	6.77	6.76*	5.68	6.90	6.03*	111
PIONEER XAF12	4.01	6.91	6.49	5.73	6.94	6.02*	111
WATERMAN-LOOMIS WL 316	3.78	6.82	6.73	5.79	6.84	5.99	111
FFR HI-PHY	4.34**	7.10*	6.37	5.60	6.40	5.96	110
PIONEER 526	4.01	6.77	6.47	5.59	6.91	5.95	110
PIONEER 532	4.12*	7.28**	6.41	5.26	6.63	5.94	110
EMBRO H-134	3.96	6.75	6.38	5.52	6.83	5.89	109
LOVELOCK ICO-10	3.87	6.70	6.54	5.63	6.61	5.87	108
PIONEER 531	3.82	6.61	6.57	5.54	6.68	5.84	108
FFR CLASSIC	4.08*	6.80	6.23	5.44	6.59	5.83	108
PIONEER 555	3.74	6.77	6.46	5.35	6.83	5.83	108
LOVELOCK LS-C25	3.96	6.88	6.44	5.40	6.38	5.81	107
EPIC	4.01	6.73	6.32	5.45	6.54	5.81	107
CODY	3.53	6.82	6.24	5.54	6.81	5.79	107
DAIRYLAND FUTURA	4.00	6.55	6.14	5.55	6.68	5.78	107
PEAK	4.06*	6.98	6.19	5.21	6.38	5.76	106
DEKALB 120	4.09*	6.75	6.21	5.11	6.18	5.67	105
CARGILL EXPO	3.66	6.51	6.30	5.29	6.57	5.67	105
O'S GOLD EAGLE	3.60	6.49	6.30	5.24	6.64	5.65	104
RILEY ##	3.24	6.36	6.04	5.27	6.29	5.44	100
BAKER ##	3.87	6.31	5.83	5.00	6.10	5.42	100
SARANAC AR ##	4.05*	6.37	5.78	4.82	5.94	5.39	99
DEKALB ADVANTAGE	3.23	6.09	5.93	5.25	6.28	5.36	99
DAIRYLAND MAGNUM	3.81	5.98	5.58	4.82	6.20	5.28	97
MEAN	3.89	6.68	6.33	5.44	6.61	5.79	107
LSD .05	0.29	0.18	0.14	0.06	0.09	0.09	
C.V. %	5.4	10.2	11.7	9.2	11.3	0.12	

** HIGHEST YIELDING VARIETY.
* VARIETY THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
CHECK VARIETY, MEAN = 5.42 TONS/ACRE.

TABLE 5. DRY MATTER PRODUCTION OF 27 ALFALFA VARIETIES GROWN ON A UNIVERSITY EXTENSION FIELD NEAR WEST PLAINS, MO. (HOWELL CO.) DURING 1988.

SEEDED: FALL 1983. FERTILIZER: N = 0; P2O5 = 80; K2O = 250.
PLANTING RATE: 20 LBS/A. INSECTICIDE: LORSBAN.
ROW SPACING: 6 INCHES. GROWING SEASON RAINFALL: 27.36 INCHES

BRAND/VARIETY	HARVESTS - 1988 5-13	6-22	7-25	8-30	11-2	TOTAL	% CHECK
	TONS/ACRE						
PEAK	1.08*	1.30**	1.19*	0.72*	0.63	4.92**	123
CODY	1.11*	0.84	1.13	0.84**	0.78**	4.70	117
PIONEER XAF12	1.28**	0.89	1.27*	0.73*	0.51	4.68	117
EMBRO H-134	1.25*	0.98	1.09	0.81*	0.53	4.66	116
WATERMAN-LOOMIS WL 316	1.11*	0.72	1.39**	0.69*	0.62	4.53	113
PIONEER 555	1.22*	0.87	1.12	0.78*	0.54	4.53	113
CARGILL EXPO	1.16*	0.76	1.28*	0.71*	0.61	4.52	113
DEKALB 120	1.12*	0.79	1.22*	0.79*	0.54	4.46	111
CIMARRON	1.21*	0.89	1.08	0.73*	0.55	4.46	111
WATERMAN-LOOMIS WL 313	1.11*	0.86	1.21*	0.71*	0.55	4.44	111
EPIC	1.19*	0.90	1.09	0.66	0.58	4.42	110
WATERMAN-LOOMIS WL 315	1.14*	0.88	1.11	0.69*	0.56	4.38	109
SHENANDOAH	1.03	0.92	1.07	0.78*	0.56	4.36	109
PIONEER 532	1.12*	0.74	1.19*	0.75*	0.55	4.35	108
LOVELOCK ICO-10	1.14*	0.88	1.00	0.76*	0.54	4.32	108
O'S GOLD EAGLE	1.18	0.86	0.96	0.69*	0.60	4.29	107
SARANAC AR ##	1.04	0.90	1.09	0.67	0.57	4.27	106
FFR HI-PHY	1.02	0.79	1.06	0.82*	0.55	4.24	106
PIONEER 526	1.18*	0.84	1.04	0.63	0.52	4.21	105
DAIRYLAND MAGNUM	1.11*	0.72	1.19*	0.73*	0.45	4.20	105
FFR CLASSIC	1.00	0.74	1.19*	0.72*	0.54	4.19	104
LOVELOCK LS-C25	1.05*	0.72	1.21*	0.72*	0.46	4.16	104
DAIRYLAND FUTURA	1.16*	0.76	1.01	0.72*	0.47	4.12	103
RILEY ##	1.12*	0.67	1.03	0.72*	0.51	4.05	101
DEKALB ADVANTAGE	1.02	0.72	1.03	0.66	0.57	4.00	100
PIONEER 531	0.93	0.77	1.06	0.76*	0.41	3.93	98
BAKER ##	0.89	0.63	1.02	0.75*	0.42	3.71	93
MEAN	1.11	0.83	1.12	0.73	0.55	4.34	108
LSD .05	0.23	0.28	0.20	0.15	0.11	0.09	
C.V. %	14.8	24.5	12.9	14.5	14.5	17.6	

** HIGHEST YIELDING VARIETY.
* VARIETY THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
CHECK VARIETY, MEAN = 4.01 TONS/ACRE.

TABLE 6. PERFORMANCE SUMMARY OF 27 ALFALFA VARIETIES GROWN ON A UNIVERSITY EXTENSION FIELD NEAR WEST PLAINS, MO. (HOWELL CO.) DURING 1984-88.

SEEDED: FALL 1983.

BRAND/VARIETY	YEAR 1984	1985	1986	1987	1988	MEAN	% CHECK
	TONS/ACRE						
PEAK	3.36**	3.04	4.16	3.56	4.92**	3.81**	113
WATERMAN-LOOMIS WL 316	2.92	3.99*	3.52	3.76	4.53	3.74*	111
CIMARRON	2.66	2.95	4.32**	4.31*	4.46	3.74*	111
CODY	3.13*	3.10	3.96	3.78	4.70	3.73*	111
PIONEER 555	3.12*	3.03	4.19*	3.78	4.53	3.73*	111
FFR CLASSIC	2.54	4.01**	3.90	3.73	4.19	3.67	109
FFR HI-PHY	2.89	3.24	3.99	3.90	4.24	3.65	108
LOVELOCK ICO-10	3.12*	3.31	4.03	3.47	4.32	3.65	108
DAIRYLAND MAGNUM	2.86	2.87	3.89	4.40**	4.20	3.64	108
DEKALB 120	3.30*	3.18	4.03	3.20	4.46	3.63	108
PIONEER 526	2.75	2.98	3.92	4.27	4.21	3.63	108
PIONEER 531	3.07	3.78	3.59	3.78	3.93	3.63	108
EMBRO H-134	2.79	2.96	4.06	3.64	4.66	3.62	107
CARGILL EXPO	2.90	2.74	4.11	3.62	4.52	3.58	106
O'S GOLD EAGLE	3.08	3.28	3.70	3.51	4.29	3.57	106
SARANAC AR ##	2.91	3.17	3.90	3.54	4.27	3.56	106
EPIC	3.33*	3.12	3.69	3.18	4.42	3.55	105
LOVELOCK LS-C25	2.91	3.09	3.93	3.68	4.16	3.55	105
WATERMAN-LOOMIS WL 313	2.95	3.08	3.76	3.38	4.44	3.52	104
SHENANDOAH	2.54	3.04	3.79	3.87	4.36	3.52	104
WATERMAN-LOOMIS WL 315	2.62	3.20	3.66	3.65	4.38	3.50	104
PIONEER 532	3.08	2.99	3.52	3.49	4.35	3.49	104
PIONEER XAF12	2.66	3.18	3.57	3.30	4.68	3.48	103
RILEY ##	2.65	3.05	3.65	3.82	4.05	3.44	102
DAIRYLAND FUTURA	2.82	2.93	3.39	3.53	4.12	3.36	100
DEKALB ADVANTAGE	2.49	3.08	3.63	3.56	4.00	3.35	99
BAKER ##	2.48	2.96	3.43	2.94	3.71	3.10	92
MEAN	2.89	3.16	3.82	3.65	4.34	3.57	106
LSD .05	0.26	0.16	0.14	0.11	0.09	0.13	
C.V. %	13.0	15.4	15.9	23.3	17.6	6.3	

** HIGHEST YIELDING VARIETY.
* VARIETY THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
CHECK VARIETY, MEAN = 3.37 TONS/ACRE.

TABLE 7. DRY MATTER PRODUCTION OF 20 ALFALFA VARIETIES GROWN ON THE SOUTHWEST CENTER NEAR MT. VERNON, MO. (LAWRENCE CO.) DURING 1988.

SEEDED: FALL 1987. FERTILIZER: N = 0; P2O5 = 200; K2O = 200.
PLANTING RATE: 20 LBS/A. INSECTICIDE: FURADAN.
ROW SPACING: 6 INCHES. GROWING SEASON RAINFALL: 25.31

BRAND/VARIETY	HARVESTS - 1988 5- 9	6-13	7-14	8-15	9-20	TOTAL	% CHECK
	TONS/ACRE						
DEKALB DK135	1.89*	1.33**	1.25*	0.76*	0.84*	6.07**	110
PIONEER 5432	1.74*	1.24*	1.31**	0.84**	0.83*	5.96	108
WATERMAN-LOOMIS WL 320	1.74*	1.29*	1.25*	0.83*	0.84*	5.95	108
FFR ANSTAR	1.79*	1.23*	1.21*	0.81*	0.90**	5.94	108
AGRIPRO DART	1.81*	1.25*	1.25*	0.80*	0.81*	5.92	107
VISTA SURE	1.90**	1.24*	1.27*	0.71*	0.79*	5.91	107
WATERMAN-LOOMIS EX 84-27	1.77*	1.30*	1.20*	0.73*	0.87*	5.87	107
GARST 629	1.84*	1.31*	1.19*	0.73*	0.79*	5.86	106
NK FORTRESS	1.80*	1.18	1.23*	0.78*	0.82*	5.81	105
NK COMMANDER	1.77*	1.28*	1.16*	0.68*	0.79*	5.68	103
WATERMAN-LOOMIS ACCLAIM	1.64	1.15	1.22*	0.79*	0.86*	5.66	103
NAPB ARROW	1.79*	1.17	1.13	0.71*	0.80*	5.60	102
MICHIGAN 80-16Pca6	1.80*	1.24*	1.18*	0.68*	0.70	5.60	102
WATERMAN-LOOMIS WL 316	1.79*	1.10	1.17*	0.69*	0.83*	5.58	101
UNITED AGRISEED SALUTE	1.76*	1.17	1.16*	0.71*	0.78*	5.58	101
GARST 630	1.63	1.26*	1.14	0.68*	0.83*	5.54	101
CODY##	1.58	1.14	1.17*	0.81*	0.81*	5.51	100
NAPB AP 8640	1.53	1.16	1.09	0.66*	0.72	5.16	94
NK SPREADER II	1.65	1.04	1.09	0.56	0.62	4.96	90
AGRIPRO IMPACT#	0.58	0.60	0.85	0.41	0.64	3.08	56
MEAN	1.69	1.18	1.17	0.72	0.79	5.56	101
LSD .05	0.17	0.14	0.15	0.19	0.12	0.07	
C.V. %	7.3	8.5	8.8	18.5	10.9	9.9	

** HIGHEST YIELDING VARIETY.
* VARIETY THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
CHECK VARIETY, MEAN = 5.51 TONS/ACRE.
LATE ENTRY PLANTED IN SPRING OF 1988.

TABLE 8. CHARACTERISTICS* OF ALFALFA VARIETIES IN THE 1988 MISSOURI VARIETY TRIALS.

BRAND-VARIETY	FALL DORM-ANCY (1-8)	WILT			ANTHRACNOSE	PHYTOPHTHORA ROOT ROT	APHID			NEMATODE	
		BACTERIAL	VERTICILLIUM	FUSARIUM			SPOTTED ALFALFA	PEA	BLUE ALFALFA	STEM	ROOT KNOT
PRIVATE											
AGRIPRO DART	3	HR	R	HR	R	R	MR	MR	--	--	--
AGRIPRO IMPACT	3	HR	R	HR	MR	R	--	--	--	--	--
ASGROW/O S GOLD EAGLE	4	HR	MR	R	R	MR	R	R	LR	R	--
CARGILL ENDURE	3	R	R	R	MR	R	LR	--	--	--	--
CARGILL EXPO	4	R	--	R	MR	R	HR	--	S	--	--
DAIRYLAND FUTURA	4	R	LR	--	MR	LR	MR	--	--	--	--
DAIRYLAND MAGNUM	4	R	--	R	MR	LR	R	R	--	MR	--
DEKALB-PFIZER ADVANTAGE	4	R	--	R	MR	R	LR	--	--	--	--
DEKALB-PFIZER DK-120	3	HR	--	R	LR	R	--	R	--	R	--
DEKALB-PFIZER DK-135	4	HR	MR	R	R	R	MR	MR	LR	R	--
EMBRO H-134	3	R	--	R	MR	R	MR	--	--	--	--
FFR ANSTAR	4	R	--	MR	R	S	--	--	--	--	--
FFR CLASSIC	4	R	--	R	LR	LR	--	--	--	--	--
FFR HI-PHY	4	HR	--	HR	--	MR	--	--	--	--	--
GARST 624	4	R	LR	R	MR	MR	MR	--	--	--	--
GARST 629	3	R	MR	R	R	R	R	R	--	R	--
GARST 630	4	HR	MR	R	MR	R	R	--	--	--	--
GARST 655	5	R	LR	R	MR	LR	R	--	--	--	--
GREAT PLAINS CIMARRON	4	HR	LR	HR	R	MR	HR	R	--	--	--
GREAT PLAINS SHENANDOAH	5	HR	--	HR	HR	HR	--	--	--	MR	--
GREEN SEED CORONA	2	R	--	--	R	R	R	--	--	--	--
LOVELOCK LS-C25	4	MR	--	MR	--	--	--	--	--	--	--
LOVELOCK ICO-10	4	R	--	--	--	MR	MR	R	LR	--	--
L.PETERSON LTD. EPIC	4	R	--	MR	--	R	--	HR	--	HR	--
NAPB ARMOR	4	R	--	R	MR	R	--	--	--	--	--
NAPB ARROW	3	HR	R	HR	R	R	MR	MR	--	MR	--
NAPB AP 8640	--	MR	--	--	R	R	R	R	--	--	--
NORTHRUP KING COMMANDER	4	R	MR	R	HR	R	LR	--	--	MR	--
NORTHRUP KING SPREDER II	1	HR	--	MR	--	--	--	--	--	--	--
NORTHRUP KING FORTRESS	--	--	--	--	--	--	--	--	--	--	--
PIONEER 526	2	HR	--	MR	--	LR	HR	R	--	--	--
PIONEER 531	4	R	LR	R	MR	LR	HR	HR	--	R	LR
PIONEER 532	3	HR	--	R	LR	LR	HR	R	--	--	--
PIONEER 555	4	HR	--	MR	--	--	HR	HR	--	--	--
PIONEER 5432	4	HR	R	HR	S	MR	HR	R	--	--	--
PIONEER XAF12	4	HR	--	--	--	S	R	R	--	--	--
RESEARCH SEEDS PEAK	4	R	LR	R	--	MR	--	HR	--	HR	--
RESEARCH SEEDS ACTION	4	R	MR	R	HR	R	MR	R	--	--	--
RESEARCH SEEDS EDGE	4	R	R	R	HR	R	R	R	R	--	--
STAUFFER SUMMIT	4	R	R	R	HR	R	MR	R	--	--	--
UNITED AGRISEED SALUTE	4	HR	MR	MR	R	MR	LR	--	--	--	--
VISTA SURE	3	HR	R	HR	HR	R	LR	R	--	--	--
W-L RESEARCH WL-313	4	HR	--	HR	MR	LR	MR	HR	--	--	--
W-L RESEARCH WL-315	4	HR	MR	HR	MR	MR	MR	R	LR	MR	--
W-L RESEARCH WL-316	4	R	R	R	HR	MR	R	R	LR	MR	--
W-L RESEARCH WL-320	5	R	MR	HR	MR	HR	R	MR	MR	MR	--
W-L RESEARCH ACCLAIM	--	R	--	--	MR	MR	R	R	--	--	--
W-L RESEARCH EX 84-27	--	R	--	--	R	R	MR	R	--	--	--
PUBLIC											
BAKER	2	HR	--	R	LR	--	HR	HR	--	--	--
CODY	-	--	--	--	--	--	--	--	--	--	--
RILEY	4	HR	LR	--	MR	--	HR	HR	--	--	--
SARANAC AR	4	R	--	R	HR	--	--	--	--	--	--
VERNAL	2	R	--	MR	--	--	--	--	--	--	MR
80-16PCA6	--	--	--	--	--	--	--	--	--	--	--

* INFORMATION WAS OBTAINED FROM THE CERTIFIED ALFALFA SEED COUNCIL, "1987 ALFALFA VARIETIES", OR THE COMPANY MAKING THE ENTRY.
-- DATA NOT AVAILABLE OR NOT PROVIDED BY THE COMPANY.

DESIGNATION	SURVIVAL %	RESISTANCE CLASS
S	0- 5	SUSCEPITIBLE
LR	6-14	LOW RESISTANCE
MR	15-30	MODERATE RESISTANCE
R	31-50	RESISTANCE
HR	>-50	HIGH RESISTANCE

DORMANCY RATING	CHECK VARIETY
1	NORSEMAN
2	VERNAL
3	RANGER
4	SARANAC
5	DUPUITS
6	MESILLA
7	MOAPA 69

TABLE 9. SOURCE OF ALFALFA ENTRIES EVALUATED IN 1988 MISSOURI YIELD TRIALS.

BRAND	VARIETY	FIRM AND ADDRESS
AGRIPRO	ARMOR, DART, IMPACT	AGRIPRO, RT. 3, AMES, IA 50010
ASGROW/O'S GOLD	EAGLE	ASGROW SEED COMPANY, 7000 PORTAGE ROAD, KALAMAZOO, MI 49001
CARGILL	EXPO	CARGILL SEEDS, BOX 5645, MINNEAPOLIS, MN 55440
DAIRYLAND	MAGNUM, FUTURA	DAIRYLAND RESEARCH INTERNATIONAL, RT. 1, BOX 51, CLINTON, WI 53525
DEKALB BRAND	120, ADVANTAGE, 135	DEKALB-PFIZER GENETICS, 3100 SYCAMORE RD., DEKALB, IL 60115
EMBRO	H-134	EMBRO SEED COMPANY, BOX 247, WRIGHT CITY, MO 63390
FFR	ANSTAR, CLASSIC, HI-PHY	FFR COOPERATIVE, 4112 EAST STATE RD. 225, WEST LAFAYETTE, IN 47906
GARST	629, 624, 630, 655	GARST SEED COMPANY, BOX 300, COON RAPIDS, IA 50058
GREAT PLAINS	CIMARRON, SHENANDOAH	GREAT PLAINS RESEARCH CO., INC., 1221 PIONEER CT., CARY, NC 27511
GREEN SEED	CORONA	GREEN SEED CO., BOX 1678, GALLATIN, TN 37066
LOVELOCK	LS-C25, ICO-10	LOVELOCK SEED COMPANY, BOX 700, LOVELOCK, NV 89419
NAPB	ARROW, AP 8640	NAPB, RT.3, AMES, IA 50010
NORTHRUP KING	COMMANDER, FORTESS, SPREADER II	NORTHRUP KING CO., 3403 HOOVER, AMES, IA 50010
PAG	ENDURE	PAG SEEDS, BOX 9480, MINNEAPOLIS, MN 55440
PETERSON'S	EPIC	LARRY PETERSON, LTD., BOX 339, CEDAR FALLS, IA 50613
PIONEER	531, 532, 555, 526, 5432, XAF12	PIONEER HI-BRED INT., INC., 7305 62ND, BOX 85, JOHNSTON, IA 50131
RESEARCH SEEDS	PEAK, RS 239, RS 242	RESEARCH SEEDS, INC., BOX 1393, ST. JOSEPH, MO 64502
STAUFFER SEEDS	SUMMIT	STAUFFER SEEDS, INC., 975 S. DURKIN, SPRINGFIELD, IL 62704
UNITED AGRISEEDS	SALUTE	UNITED AGRISEEDS, INC., BOX 4011, CHAMPAIGN, IL 61802
VISTA	SURE	VISTA, RT.1, BOX 70, WEST SALEM, WI 54669
W-L	ACCLAIM, 313, 316, 315, 320, EX 84-27	WATERMAN-LOOMIS RESEARCH, INC., 7625 BROWN BRIDGE RD., HIGHLAND, MD 20777
KANSAS AES	CODY, RILEY	KANSAS AG. EXP. STATION & USDA, MANHATTAN, KS 66506
NEBRASKA AES	BAKER	NEBRASKA AG. EXP. STATION & USDA, LINCOLN, NE 68503
MICHIGAN AES	80-16PCA6	MICHIGAN AG. EXP. STATION & USDA, EAST LANSING, MI 48824
NEW YORK AES	SARANAC AR	NEW YORK AG. EXP. STATION & USDA, ITHACA, NY 14850
WISCONSIN AES	VERNAL	WISCONSIN AG. EXP. STATION & USDA, MADISON, WI 53706

PART II

SORGHUM SUDANS AND FORAGE SORGHUMS

EXPERIMENTAL PROCEDURES

Field Plot Design. Eight sorghum sudans and six forage sorghum hybrids were evaluated at the Southwest Center near Mt. Vernon in 1988. The tests were both arranged in a randomized complete block design with four replications. Individual plots consisted of four rows, 30 inches wide and 20 feet long.

Cultural Practices. Both tests were planted with a conventional planter modified for small plot work. At harvest, a representative portion of the center two rows was hand cut to determine yield. The sorghum sudans were harvested at approximate monthly intervals, or when appropriate regrowth was attained, while the forage sorghums were harvested near the "normal" first frost date. Details of the management practices followed for each trial accompany the data on each yield table.

Data Recorded. The sorghum sudan trial was harvested four times, while the forage sorghum trial was harvested only once. Total plot weights were taken from the two center rows at harvest. A sample was then oven-dried to determine the percentage dry weight. In addition to yield, plant height was measured at each harvest in all forage trials. The percentage of heads and percentage of stalks were measured in the forage sorghum trials. All yield data are presented on a dry matter basis.

RESULTS

Sorghum Sudans. Dry matter yields ranged from 3.80 to 5.15 tons per acre (Table 10). By comparing across years, one can obtain a good indication of the yield stability of a hybrid across a series of environments.

Forage Sorghums. Significant differences in the grain head percentage of total dry matter, and total silage yields were found between individual hybrids. Dry matter yields ranged from 7.71 to 9.74 tons per acre (Table 11). Since lodging percentage was low during 1988, reports from previous years should be consulted in order to correctly evaluate lodging characteristics of individual forage sorghum hybrids.

TABLE 10. DRY MATTER PERFORMANCE OF SORGHUM X SUDAN CROSSES GROWN ON THE SOUTHWEST CENTER NEAR MT. VERNON (LAWRENCE CO.) DURING 1986-88.

PLANTED: 11 MAY 1988. FERTILIZER: N = 225, P2O5 = 50, K2O = 100.
PLANTED POPULATION: 105,000 PL/A. HERBICIDES: PRE: RAMROD + ATRAZINE.
ROW SPACING: 30 INCHES. POST: NONE.
GROWING SEASON RAINFALL: 25.31". INSECTICIDE: NONE.

	HARVESTS-1988									YEAR		
	7- 6			7-28			8-31					
BRAND/HYBRID	MOISTURE (%)	HT. (IN)	YIELD (T/A)	MOISTURE (%)	HT. (IN)	YIELD (T/A)	MOISTURE (%)	HT. (IN)	YIELD (T/A)	1988 (T/A)	1987 (T/A)	1986 (T/A)
FFR EXP SS8801	86.9	66	2.44*	88.0	40	1.05	84.4	55	1.66*	5.15**	--	--
G. ACRES T-E HAYGRAZER II	85.4	63	2.32*	88.3	42	1.03	83.9	56	1.73*	5.08*	4.84*	5.26
GROWERS GSA 1757	87.4	61	2.47**	87.9	36	0.87	84.2	54	1.72*	5.06*	4.67	4.99
CARGILL SWEET SIOUX V	87.8	60	2.32*	87.5	35	0.83	85.3	55	1.81**	4.96	--	--
FFR 110	83.7	54	1.80	87.2	47	1.22**	82.3	52	1.73*	4.75	--	--
NORTHRUP KING TRUDAN 8	84.9	52	1.95	87.6	42	1.06*	81.8	52	1.66*	4.67	4.48	--
CROOKED ROW F. ELITE I#	86.1	36	1.47	85.5	42	1.18*	78.4	41	1.65*	4.30	--	--
CROOKED ROW F. ELITE II#	85.8	30	1.20	85.7	40	1.21*	80.6	38	1.39	3.80	--	--
TRIAL AVERAGE	86.0	53	2.00	87.2	41	1.06	82.6	50	1.67	4.73	4.60	5.02
TRIAL LSD .05	1.0	3	0.38	0.6	5	0.16	1.4	6	0.39	0.18	0.13	0.09
TRIAL C.V. %	0.8	4.0	12.8	0.4	7.8	10.4	1.1	7.8	16.0	14.3	16.3	8.5

-- DATA NOT AVAILABLE.
** HIGHEST YIELDING HYBRID IN THE TEST.
* HYBRID THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING HYBRID IN THE TEST.
# VARIETY OF PEARL MILLET.

TABLE 11. DRY MATTER PERFORMANCE OF FORAGE SORGHUM HYBRIDS EVALUATED ON THE SOUTHWEST CENTER NEAR MT. VERNON, MO. (LAWRENCE CO.) DURING 1986-88.

PLANTED: 11 MAY 1988. FERTILIZER: N = 125, P2O5 = 50, K2O = 100.
HARVESTED: 27 OCTOBER 1988. HERBICIDES: PRE: RAMROD + ATRAZINE.
PLANTED POPULATION: 105,000 PL/A. POST: NONE.
ROW SPACING: 30 INCHES. INSECTICIDE: NONE.
GROWING SEASON RAINFALL: 25.31". IRRIGATION: NONE.

BRAND/HYBRID	HEIGHT (IN)	% LODGING	MOISTURE (%)	HEAD (%)	HEAD (T/A)	STALK (%)	STALK (T/A)	TOTAL-YEAR 1988 (T/A)	TOTAL-YEAR 1987 (T/A)	TOTAL-YEAR 1986 (T/A)
NK SUCRO SORGO 405	148	1.0	65	17	1.69	83	8.05**	9.74**	12.27*	--
CARGILL FS 455	100	2.3	62	36	3.38**	64	5.91	9.29	--	--
GOLDEN ACRES T-E MILK-A-LOT	80	1.0	59	40	3.38**	60	4.96	8.34	7.31	--
GOLDEN ACRES T-E SILOMAKER	96	2.7	67	17	1.37	83	6.53	7.90	7.25	6.06
NORTHRUP KING 300	82	1.0	59	41	3.24*	59	4.58	7.82	--	--
CARGILL FS 466	110	7.7	66	29	2.25	71	5.46	7.71	--	--
TRIAL AVERAGE	103	2.6	63	30	2.55	70	5.92	8.47	9.25	6.84
TRIAL LSD .05	10	1.2	2	7	1.04	7	1.28	NS	1.79	1.61
TRIAL C.V. %	6.0	29.4	2.2	14.9	25.8	6.4	13.7	15.8	13.3	16.3

-- DATA NOT AVAILABLE.
** HIGHEST YIELDING HYBRID IN THE TEST.
* HYBRID THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING HYBRID IN THE TEST.
NS NOT SIGNIFICANT AT .05 LEVEL.

TABLE 12. SOURCE OF FORAGE SORGHUM AND SORGHUM SUDAN ENTRIES EVALUATED IN 1988.

BRAND	VARIETY	FIRM AND ADDRESS
CARGILL	FS 466, FS 455, SWEET SIOUX V	CARGILL HYBRID SEED, BOX 5645, MINNEAPOLIS, MN 55440
CROOKED ROW FARM	ELITE I, ELITE II	CROSBYTON SEED CO., 306 E MAIN, CROSBYTON, TX 79322
FFR	110, EXP. SS8801	FFR COOPERATIVE,4112 E. STATE RD 225, W. LAFAYETTE, IN 47906
GOLDEN ACRES T-E	SILOMAKER, MILK-A-LOT, HAYGRAZER II	TAYLOR-EVANS SEED COMPANY, BOX 68, TULIA, TX 79088
GROWERS	GSA 1757	GROAGRI SEED COMPANY, 6201 SE. LOOP 289, LUBBOCK, TX 79408
NORTHRUP KING	300, SUCROSORGO 405, TRUDAN 8	THE NEW NORTHRUP KING CO., RT.2, BOX 200, HIGHLAND, IL 62249

PART III

COTTON - 1988

Cotton variety trials became part of the University of Missouri's crop performance testing program in 1978. 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 (loam soil) in the northern bootheel, and the David Andrews farm near Senath (loam soil) in the southern bootheel. Sikeston results were too variable to be included in this publication.

Entries. All producers of cotton seed were eligible to enter varieties in the 1988 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 30 cotton varieties were compared in 1988.

Field Plot Design. The trials were arranged in a randomized complete block design with six replications. At Sikeston, the plots consisted of three rows, with the center row being used for yield and other notes. At Senath, the plots were four rows wide with the center two rows being used for yield and other notes. Both locations used rows 38 inches apart and 25 feet long

Plot Management. The trials were planted with commercial equipment modified for small plot work. At harvest, the plots were hand-picked in order to reduce losses which might result from maturity differences among varieties.

Data Recorded. The total number of plants in the center row(s) 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 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. Yield was measured both in total pounds of seed cotton and lint per acre. Pounds of lint were calculated by multiplying the gin percentage (lint percentage) by the total seed cotton yield.

RESULTS

Thirty cotton varieties were planted at Sikeston and at Senath on a sandy loam soil in 1988. Senath lint yields averaged 809 pounds per acre, and ranged from 574 to 954 pounds per acre (Table 13). Both trials were irrigated and had no lodging.

TABLE 13. YIELD PERFORMANCE OF COTTON VARIETIES GROWN NEAR SENATH, MISSOURI ON THE DAVID ANDREWS FARM DURING 1984-88.

PLANTED: 3 MAY 1988.
HARVESTED: 7 AND 26 OCTOBER 1988.
PLANTED POPULATION: 82,500 PL/A.
ROW SPACING: 38 INCHES.
GROWING SEASON RAINFALL: 29.42".
IRRIGATION: 4.00".

FERTILIZER: N = 75, P2O5 = 0, K2O = 0.
HERBICIDES: PRE: PROWL + COTORAN.
POST: MSMA + COTORAN, BLADEX, FUSILADE, HARVADE AND PREP.
INSECTICIDE: PRE: TEMIK.
POST: BIDRIN AND DIMETHOATE.

	1988				TOTAL LINT (LBS/A)				
BRAND/VARIETY	STAND (PL/A)	HEIGHT (IN.)	(%) LINT	SEED COTTON (LBS/A)	1988	1987	1986	1985	1984
DELTAPINE 20	57163	38	32.7	2923**	954**	1196*	845	1236*	--
DELTAPINE 50	56551	36	32.6	2902*	948*	1052	871	1303*	1174**
STONEVILLE 506	51049	41	33.9	2787*	945*	1097	822	1141	--
DELTAPINE X50-469	63582	40	33.8	2753*	933*	--	--	--	--
COKER 84-828	53495	43	34.0	2709*	922*	1324**	--	--	--
COKER 315	53189	39	32.8	2791*	920*	1188*	911	1318**	1119
DELCOT 344	66945	42	32.2	2729*	879*	1008	953*	1275*	1105
DES 119	46464	39	32.6	2684*	875*	1138*	1039**	--	--
STONEVILLE 453	49826	40	33.8	2589*	873*	1154*	--	--	--
TERRA C-30	44935	41	31.0	2799*	868*	1147*	807	--	--
TERRA C-40	48604	38	32.8	2582*	849*	1159*	912	--	--
NORTHRUP KING McNAIR 235	56246	41	33.0	2561*	841*	--	--	--	--
COKER 130	60220	41	33.4	2507*	839*	1107	902	--	--
STONEVILLE 112	61442	39	33.0	2480	820*	1012	902	1215*	--
HARTZ 1009	64805	42	34.4	2382	816*	--	--	--	--
HYPERFORMER SISCO HY 87	47687	44	32.6	2496*	813*	--	--	--	--
STONEVILLE 825	70001	43	33.7	2400	808*	968	839	1051	--
COKER 304	62054	40	33.7	2338	790	1183*	887	1242*	964
COKER 139	47687	42	31.7	2468	784	1249*	884	1240*	--
COKER 118	59914	40	32.6	2385	778	--	--	--	--
HARTZ 1008	61137	42	35.4	2188	777	--	--	--	--
NORTHRUP KING KC 380	61137	43	33.1	2343	775	--	--	--	--
GROAGRI GSC 27	57468	38	29.1	2662*	773	--	--	--	--
HYPERFORMER SISCO 772	45547	44	31.4	2363	743	--	--	--	--
DELCOT 311	52883	41	33.1	2228	737	891	794	1173	996
NORTHRUP KING KC 311	60220	44	31.7	2173	695	--	--	--	--
SUN VALLEY HS-46	53800	47	31.3	2142	672	--	--	--	--
HARTZ 1234	49826	49	32.9	2033	668	--	--	--	--
STONEVILLE BR-110	65416	48	32.2	1879	603	1015	--	--	--
STONEVILLE BR-115	63888	43	33.7	1687	574	--	--	--	--
TRIAL MEAN	56439	42	32.8	2465	809	1091	870	1197	1064
TRIAL LSD .05	10214	5	1.5	427	148	189	104	127	NS
TRIAL C.V. %	16.0	9.9	4.2	15.3	16.2	15.3	11.4	10.7	

-- DATA NOT AVAILABLE.
** HIGHEST YIELDING VARIETY IN THE TEST.
* VARIETY THAT DID NOT YIELD SIGNIFICANTLY LESS THAN THE HIGHEST YIELDING VARIETY IN THE TEST.
NS NOT SIGNIFICANT AT THE .05 LEVEL.

TABLE 14. SOURCE OF COTTON ENTRIES EVALUATED IN 1988.

BRAND	VARIETY	FIRM AND ADDRESS
COKER	315, 139, 304, 118, 130, 84-828	COKER'S PEDIGREED SEED CO., BOX 340, HARTSVILLE, SC 29550
DELTAPINE	20, 50, X50-469	DELTA AND PINE LAND CO., BOX 157, SCOTT, MS 38772
DES	119	DELTA BRANCH, MISS. AG. EXP. STATION, BOX 197, STONEVILLE, MS 38776
GROAGRI	GSC 27	GROAGRI SEED COMPANY, 6201 SE. LOOP 289, LUBBOCK, TX 79408
HARTZ	1008, 1009, 1234	JACOB HARTZ SEED CO. INC., BOX 946, STUTTGART, AR 72160
HYPERFORMER SISCO	772, HY 87	HYPERFORMER SEED CO., 5100 POPLAR, SUITE 3200, MEMPHIS, TN 38137
NORTHRUP KING	KC 380, KC 311, McNAIR 235	THE NEW NORTHRUP KING CO., RT.2, BOX 200, HIGHLAND, IL 62249
STONEVILLE	825, 112, 506, 453, BR-110, BR-115	STONEVILLE PEDIGREED SEED CO., BOX 167, STONEVILLE, MS 38776
SUN VALLEY	HS-46	SUN VALLEY SEED CO., 610 W BROADWAY, SUITE 118, TEMPE, AZ 85282
TERRA	C-30, C-40	TERRA INTERNATIONAL, INC., BOX 171376 MEMPHIS, TN 38187
DELCOT	311, 344	UMC DELTA CENTER, BOX 160, PORTAGEVILLE, MO 63801

PART IV

RICE - 1988

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. Funding was provided by a gift from the Missouri Rice Research & Merchandising Council.

EXPERIMENTAL PROCEDURES

Entries. Rice plots were established on April 27, 1988 on the Jim Bieller farm near Broseley, Missouri. Three maturity groups of rice varieties were represented. All seed was provided by Dr. Karen Moldenhauer of the Rice Research Experiment Station at Stuttgart, Arkansas. A total of 35 rice varieties were compared in 1988.

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

Plot Management. Plots were planted with a conventional drill modified for experimental research. Due to early dry weather, the trial was planted and flushed to obtain emergence. Nitrogen was applied after emergence at 75 pounds/acre. A flood was applied during mid-May and maintained throughout the growing season. An additional 35 pounds/acre of nitrogen was topdressed over the entire trial on July 15 and July 29. Thus, the total amount of nitrogen applied was 155 pounds/acre.

For primary weed control, Stam and Bolero herbicides were applied on May 22. An application of Ordram was applied on July 2. Plots were then hand weeded as necessary.

At harvest, the plots were hand-cut in order to reduce losses which might result from maturity differences among varieties. Moistures were not taken at harvest time due to wet conditions brought about by recent rainfall. 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, 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.

RESULTS

Average yields for 1988 were the lowest since the University of Missouri began testing rice in 1983. Yields were lowered in part by grass pressure which was brought about by cool, dry spring weather causing decreased herbicide effectiveness. The 'Mid-Season' rice maturity class achieved the highest average yield (4748 pounds/acre) of the three maturity classes.

TABLE 15. PERFORMANCE OF VERY SHORT SEASON RICE VARIETIES EVALUATED ON THE JIM BIELLER FARM NEAR BROSELEY, MO. (BUTLER CO.) DURING 1988.

PLANTED: 27 APRIL 1988.
HARVESTED: 15 SEPT. 1988.
ROW SPACING: 7.5 INCHES.
INSECTICIDE: NONE.
PLANTED POP.: 40 SD./SQ. FT.
FERTILIZER: N = 155; P2O5 = 0; K2O = 60.
HERBICIDES: PRE: STAM + BOLERO.
POST: ORDRAM.
GROWING SEASON RAINFALL: 23.55 INCHES.

	1988			YIELD (LB/ACRE)				
VARIETY	FLOWERING DATE	HEIGHT (IN.)	LODGING SCORE (1-5)	1988	1987	1986	1985	1984
LEBONNET#	8-12	39	1.2	4828**	6686	4937	5567	6490
RU8403113	8- 1	31	1.5	4821*	--	--	--	--
RU8401145	8- 5	29	1.0	4694*	--	--	--	--
NEWREX	8- 3	38	1.8	4692*	6409	3903	6187*	5889
RU8701084	7-31	31	1.2	4651*	--	--	--	--
RU8501090	8- 3	33	1.0	4539*	--	--	--	--
L202	8- 2	29	1.0	4346*	7411*	6695**	7868**	8378**
TEBONNET#	8- 3	39	1.2	4148*	6803	4589	5137	6608
RU8701105	8- 5	32	1.5	4078*	--	--	--	--
RU8601105	8- 7	34	1.2	3674	6814	--	--	--
REXMONT	8- 7	35	2.5	3112	6339	5649	6215*	--
RU8601102	7-31	28	2.0	2777	5975	--	--	--
TRIAL AVERAGE	8- 3	33	1.4	4197	6598	5387	6374	6149
TRIAL LSD .05	3	3	NS	1135	661	911	1824	1194
TRIAL C.V. %	0.8	5.4	49.2	19.5	15.9			

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

TABLE 16. PERFORMANCE OF SHORT SEASON RICE VARIETIES EVALUATED ON THE JIM BIELLER FARM NEAR BROSELEY, MO. (BUTLER CO.) DURING 1988.

PLANTED: 27 APRIL 1988.
HARVESTED: 15 SEPT. 1988.
ROW SPACING: 7.5 INCHES.
INSECTICIDE: NONE.
PLANTED POP.: 40 SD./SQ. FT.

FERTILIZER: N = 155; P2O5 = 0; K2O = 60.
HERBICIDES: PRE: STAM + BOLERO.
POST: ORDRAM.
GROWING SEASON RAINFALL: 23.55 INCHES.

	1988			YIELD (LB/ACRE)				
VARIETY	FLOWERING DATE	HEIGHT (IN.)	LODGING SCORE (1-5)	1988	1987	1986	1985	1984
GULFMONT	8- 7	32	1.2	5130**	7570	5686*	7524*	--
RU8501087	8- 7	32	1.8	5059	--	--	--	--
RU8601148	8-14	39	1.8	5011	8330	--	--	--
RU8601136	8-10	30	1.0	4881	8801*	--	--	--
RU8501124	8-10	32	1.2	4678	8480	6050*	7656*	--
RU8601142	8-11	35	1.0	4504	--	--	--	--
NEWBONNET#	8-14	37	1.5	4385	8699*	5569*	6227	6681
MARS#	8-10	37	2.0	4331	8939*	5603*	6263	9582*
RU8601133	8-12	36	1.0	4298	--	--	--	--
RU8601130	8-14	38	1.8	4255	--	--	--	--
MERCURY	8- 6	32	1.2	4164	7028	--	--	--
RU8501197	8-10	32	1.0	4052	--	--	--	--
TRIAL AVERAGE	8-11	34	1.4	4562	8150	5514	6767	7499
TRIAL LSD .05	3	3	NS	NS	917	1146	1545	1936
TRIAL C.V. %	0.9	6.1	41.5	16.6	16.0			

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

TABLE 17. PERFORMANCE OF MID SEASON RICE VARIETIES EVALUATED ON THE JIM BIELLER FARM NEAR BROSELEY, MO. (BUTLER CO.) DURING 1988.

PLANTED: 27 APRIL 1988. FERTILIZER: N = 155; P2O5 = 0; K2O = 60.
HARVESTED: 15 SEPT.1988. HERBICIDES: PRE: STAM + BOLERO.
ROW SPACING: 7.5 INCHES. POST: ORDRAM.
INSECTICIDE: NONE. GROWING SEASON RAINFALL: 23.55 INCHES.
PLANTED POP.: 40 SD./SQ. FT.

	1988			YIELD (LB/ACRE)				
VARIETY	FLOWERING DATE	HEIGHT (IN.)	LODGING SCORE (1-5)	1988	1987	1986	1985	1984
NEWBONNET#	8-14	39	1.2	5632**	8211*	5598*	5811	7823*
LEMONT#	8-14	30	1.0	5521*	7036	5408*	7508**	7987*
RU8701191	8- 8	31	1.0	5207*	--	--	--	--
RU8701136	8- 9	30	1.2	5074*	--	--	--	--
RU8701194	8-14	36	1.8	4811*	--	--	--	--
RU8701173	8-16	35	1.2	4761*	--	--	--	--
RU8601170	8-11	30	1.0	4736*	8433*	--	--	--
RU8601161	8-15	39	1.0	4540*	8984**	5723*	6249*	--
RU8601167	8-12	36	1.0	4448*	7713	--	--	--
RU8601179	8-14	39	1.2	4439*	7507	--	--	--
RU8801188	8- 9	37	1.2	4024	--	--	--	--
NORTAI	8-20	40	1.0	3787	7657	5495*	4393	7738*
TRIAL AVERAGE	8-14	35	1.2	4748	7774	5385	5525	6815
TRIAL LSD .05	3	4	NS	1493	789	940	1313	1557
TRIAL C.V. %	0.8	8.7	30.8	21.9	10.1			

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

TABLE 18. RICE VARIETY IDENTIFICATION.

	VARIETY	CI, PI, OR RU NO.
VERY SHORT SEASON		
	LEBONNET/9902//LABELLE	RU8401145
	BP87/9902	RU8501090
	LEBONNET	CI9882
	L202	PI483097
	NEWREX	CI9969
	REXMONT	PI502968
	TEBONNET	PI487195
	SKYBONNET/L201	RU8403113
	LEBONNET/9902	RU8601102
	LEBONNET/L201	RU8701105
	7801067/SKYBONNET	RU8601105
	LABELLE/L201	RU8701084
SHORT SEASON		
	BP87/9902	RU8601136
	GULFMONT	PI502967
	LEBONNET/9902	RU8601133
	LEBONNET/9902	RU8501124
	BP87/9902	RU8601142
	BP87/9902	RU8501197
	MARS	CI9945
	MERCURY	PI506428
	NEWBONNET	PI474580
	BP87/9902	RU8501087
	RA73/LEBONNET	RU8601148
	STARBONNET/LEBONNET	RU8601130
MID SEASON		
	RA73/LEBONNET	RU8701194
	BONNET73/C9722/STARBONNET/TETEP//LEBONNET	RU8601179
	ZADT/STARBONNET/TADCUN	RU8801188
	LEBONNET/9902	RU8601170
	LEBONNET/9957	RU8601167
	LEMONT	PI475833
	NEWBONNET	PI474580
	NORTAI	CI9836
	STARBONNET/ZADT//BONNET73	RU8601161
	VGDW/STARBONNET/TADCUN/RA23	RU8701173
	LEBONNET/9902//LABELLE	RU8701136
	LEBONNET/9902//LABELLE	RU8701191

The University of Missouri is an Equal Employment and Educational Opportunity Insitution.