

1964 SORGHUM PERFORMANCE TRIALS IN MISSOURI



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O. V. Singleton and M. S. Zuber

INTRODUCTION

Grain sorghum performance trials were conducted at four testing sites in 1964. These were located near Spickard (northwest), Palmyra (northeast), Columbia (central), and Mt. Vernon (southwest). The average yield per acre at all locations was 104 bushels ranging in yield from a low of 80 bushels at Mt. Vernon to a high of 144 bushels at Palmyra.

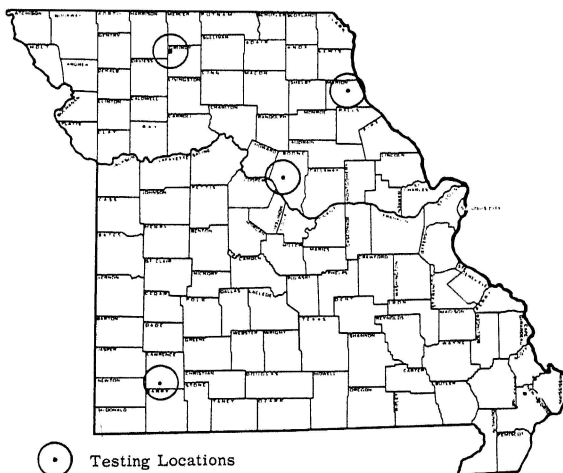


Figure 1. Outline map of Missouri showing the testing locations for 1964 grain sorghum tests.

The 1964 estimate of harvested acres of grain sorghum was 98 percent of the 1963 acreage and 67 percent of the 7-year average. The estimated average yield of 46 bushels per acre was 5 bushels less than the estimated corn yield. The 1964 estimate of 46 bushels is 2 bushels less than the 48 bushel average yield during the past 6 years. These data were obtained from the Missouri Farm Census Reports.

Comparisons between the yields of corn and grain sorghum at 3 of the testing sites can be made since these tests were located either in the same field or in close proximity (Table 2). These comparisons are only suggestive since planting dates and cultural factors were not the same for corn and sorghum at the 3 testing sites.

ENVIRONMENTAL CONDITIONS

The rainfall and temperature records for May 1 to September 15 at each location are reported in Tables 4 and 5. Temperatures for 1964 were slightly below normal at Spickard and above normal at all other locations. Total rainfall was sufficient to provide adequate moisture except that the rainfall was not well distributed at some locations and especially at Mt. Vernon where the crop was unable to receive full benefit of the rainfall. There were 2 dry periods of 26 and 21 days,

respectively, at Mt. Vernon between June 14 and August 13. The test at Palmyra was planted June 1; Mt. Vernon June 2; Columbia June 4; and Spickard June 8.

EXPERIMENTAL METHODS

Seed Source

All producers and distributors of grain sorghum seed were eligible to enter the tests in 1964. No limit was placed on the number of hybrids any one company could enter.

Field Design

Entries were planted in 4 plots at each location. Individual plots consisted of 2 rows. The length of the harvested rows was 10 feet at all locations. Distance between rows was 38 inches at Columbia and 40 inches at Mt. Vernon and Spickard and 30 inches at Palmyra. Plots were located at random over the testing area to minimize soil and cultural differences.

Yield

The heads from each plot were harvested by hand and weighed. Acre yields were computed on the basis of threshed grain.

Threshing Percent

Threshing percent data were determined for all plots at Columbia and Spickard. All threshing percentages were obtained after the sorghum heads had been air-dried to a uniform moisture content. The mean threshing percent from the Columbia and Spickard locations was also used for computing yields at Mt. Vernon and Palmyra.

Date of Blooming

The number of days from planting to 50 percent blooming was recorded for each replication at Columbia and Mt. Vernon.

Plant Height

The average height of the plants, in inches, was determined for each entry.

Head Compactness and Exsertion

Compactness was graded from 1 to 5. (1 for the most compact or tight head, and 5 for the most lax, or loose head.)

Exsertion is the relative distance that the head protrudes above the top leaf blade. Grade 1 indicates the least exsertion and grade 5 the greatest.

Off-Type Heads, Tall Plants, and Lodged Plants

Off-type heads, tall plants, and lodged plants were counted prior to harvest. Very little lodging occurred at any location in 1964.

Test Weight

Test weights were determined at Columbia and Spickard for all entries.

RESULTS

Results of the individual tests are reported in Tables 6 to 9. The summary, Table 10, summarizes results for all locations. Table 11 summarizes tests for 3 years at the Columbia location 1962, 1963, and 1964. Table 12 gives a summary of 2 years (1963 and 1964) at 2 locations, Columbia and Mt. Vernon. Data for 2 years (1962 and 1964) at Spickard and Palmyra are summarized in Table 13.

PERIOD-OF-YEARS RESULTS

The best basis for selecting a grain sorghum hybrid is on its performance record over several years. In the event it is necessary to make a selection on the performance record for a single year, it is better to use the averages from several locations, such as those presented in Table 10.

Table 1. The average number of acres, total production, average acre yield for grain sorghum and the average acre yield for corn during the 7-year period 1958-1964, and the average acre yield of the State yield tests for both sorghum and corn for the same period.

Year	Grain sorghum			Corn		
	Acreage	Total production bu.	Average acre yield bu.	Average State yield tests bu.	Average acre yield bu.	Average State yield tests bu.
1958	688,000	35,088,000	51	89	56	106
1959	507,000	25,350,000	50	66	55	97
1960	452,000	20,340,000	45	80	52	102
1961	208,000	9,776,000	47	110	62	109
1962	177,000	7,965,000	45	134	58	111
1963	209,000	10,450,000	50	71	61	117
1964	205,000*	9,430,000*	46*	104	51*	95
1958-64 Average	349,500	16,628,500	48	79	56	105

* Estimated as of December 1, 1964

Table 2. Comparative acre yields of grain sorghum and corn at testing locations in Missouri in 1964.

Testing location	Grain sorghum			Corn		
	Average yield bu.	High yield bu.	Low yield bu.	Average yield bu.	High yield bu.	Low yield bu.
Columbia	99.5	122.3	84.5	102.6	115.1	77.3
Mt. Vernon	79.8	94.6	60.2	75.0	95.1	52.0
Palmyra	144.0	163.3	121.3	No corn yield trials at this location		
Spickard	94.4	109.5	79.9	89.2	113.0	73.9

Table 3. Seed source and name of entries tested in 1964.

Entries	Seed source	Address
Advance 14, Amak R12	Advance Seed Co.	Phoenix, Arizona
Asgrow Ranger A, Raider B, Triple T, Rico	Asgrow Seed Co.	San Antonio, Texas
DeKalb F-63, E-57, F-61, F-64, F-65	DeKalb Agri. Assoc., Inc.	Lubbock, Texas
Frontier 401, 23X, 413	Frontier Hybrids Inc.	Scott City, Kansas
Northrup King 212, 255, 275, 310	Northrup King & Co.	Minneapolis, Minnesota
Paymaster Apache, Kiowa, Ute	Paymaster Seed Farms	Plainview, Texas
Pioneer 820, 846, 844, 861, 848	Garst & Thomas Hybrid Corn Co.	Coon Rapids, Iowa
Rudy Patrick 220, 288	Rudy Patrick Seed Co.	Ames, Iowa
Taylor Evans 66, 77, 88, Grainmaster	Taylor-Evans Seed Co.	Tulia, Texas
MFA GS8	Missouri Farmers Assoc.	Marshall, Missouri
RS608, Martin, RS619, RS624, RS640	Nebraska Expt. Station	Lincoln, Nebraska
RS610, RS625, RS626	Texas A & M Expt. Station	College Station, Texas
RS650, Kan 701	Kansas State Expt. Station	Manhattan, Kansas
OK613, OK632	Oklahoma State Expt. Station	Stillwater, Oklahoma
Col 604, 606	Colorado Expt. Station	Ft. Collins, Colorado
AKS 614	Arkansas Expt. Station	Fayetteville, Arkansas

Table 4. Total rainfall, number of days with rain, and dry periods from May 1 to September 15, 1964, at each of the testing locations.

Testing location	Total rainfall inches	Days with rain					Sept. 15	Total	Dry periods**
		May	June	July	Aug.	Sept. 15			
Columbia	14.31	10	14	3	4	2	33	(6/15-7/7)(7/12-7/27)(7/29-8/19)	
Mt. Vernon	16.23	7	7	9	11	1	35	(6/14-7/11)(7/24-8/13)	
Spickard	19.89	11	13	9	9	5	47	(7/12-7/26)	
Palmyra	12.97	10	8	8	4	3	33	(7/28-8/20)(8/26-9/15)	

** A dry period must have at least 15 consecutive days with less than 0.25 inch of precipitation in any one day

Table 5. Average temperature, departure from normal, and the number of days with temperatures of 90° F or more, and 100° F or more, at each of the testing locations from May 1, to September 15, 1964.

Location	Cooperator	Average Fahrenheit temperature	Departure from normal	No. days with temp. 90° F or more		No. days with temp. 100° F or more
				1964	Avg.	
Columbia	Missouri Agri. Exp. Station	74.6	+2.3	45	39	1
Mt. Vernon	Univ. of Mo. Southwest Center	73.8	+1.4	45	25	8
Palmyra	Earl Page	72.8	+0.4	38	42	1
Spickard	Univ. of Mo. North Mo. Center	72.4	-0.9	31	42	3

Table 6. 1964 performance record for the sorghum test conducted in Boone County, near Columbia, Missouri. Planted June 4, 1964. Harvested October 7, 1964. (Exp. S70)

Entry	Acre yield bu.	Thresh- ing %	Plants per 32 ft. row no.	Lodged plant %	Head		Per 32 ft. row		Plant height ins.	Test weight lbs.	Planting to 50% blooming days
					Compact- ness 1-5	Exser- tion 1-5	Off- type heads no.	Tall plants no.			
Taylor-Evans TE 77	122.3	73.5	146	0.0	1.8	2.0	0.0	0.0	47	58.9	69
Taylor-Evans TE 88	118.2	72.4	157	0.0	1.8	2.5	0.5	0.8	51	57.9	68
Northrup King NK 310	116.1	68.0	144	0.2	2.0	1.0	2.5	1.0	46	58.3	79
Asgrow-Raider B	115.3	70.7	143	1.7	2.3	3.0	0.0	0.5	47	58.8	62
Asgrow-Rico	114.4	76.2	139	0.5	2.3	2.8	0.0	0.5	52	58.5	61
Frontier 413	114.3	78.4	156	0.3	2.0	1.3	0.0	0.3	47	59.8	70
RS 610	113.5	74.4	184	1.6	2.0	3.3	0.5	0.0	52	58.5	62
Taylor-Evans TE 66	112.0	73.4	133	0.2	2.8	2.0	0.0	0.3	45	57.8	64
Pioneer 846	110.3	73.3	162	3.1	3.3	2.5	0.5	0.3	50	57.9	63
Northrup King NK 275	107.3	71.2	138	0.5	2.3	2.0	0.0	0.0	48	56.6	63
Frontier 401	107.0	74.3	147	1.0	4.5	2.3	0.0	0.3	43	58.4	60
Asgrow-Ranger A	105.0	71.4	152	10.2	2.5	2.3	0.0	0.0	50	58.4	63
DeKalb F-63	104.3	75.5	103	0.2	2.8	1.8	0.0	0.0	49	58.6	70
Rudy Patrick RP 220	103.6	73.5	127	5.9	2.5	3.0	1.0	0.3	50	58.1	61
RS 608	103.3	73.8	163	1.5	4.0	3.3	0.3	0.5	49	58.1	61
Northrup King NK 212	103.0	68.6	148	1.7	3.0	2.8	0.5	0.8	47	56.3	61
Pioneer 820	102.8	73.3	142	0.2	2.5	2.0	0.3	0.3	45	58.8	69
MFA GS 8	102.6	74.1	161	0.0	1.5	2.3	0.5	1.0	45	57.3	70
Northrup King NK 255	102.1	69.0	129	1.4	4.3	2.0	0.0	0.0	45	57.3	62
AMAK R12	101.9	71.7	138	0.2	2.0	2.3	0.0	0.0	49	57.6	68
Asgrow-Triple T	101.5	74.8	148	0.8	1.3	2.0	0.3	0.3	50	59.6	68
Paymaster-Apache	99.8	73.4	158	0.0	1.5	2.0	5.0	0.3	45	57.6	68
Taylor-Evans Grainmaster	99.2	68.0	144	0.3	2.3	2.0	4.0	0.8	47	55.1	64
DeKalb F-61	99.1	72.4	170	0.1	4.3	3.0	0.0	0.3	53	59.1	63
RS 624	97.5	74.0	176	1.3	1.5	2.5	4.8	0.5	47	58.9	62
Martin	97.0	76.7	189	1.1	3.3	3.0	0.0	0.5	48	60.0	65
Kan 701	97.0	74.7	175	0.0	1.3	2.3	0.0	0.0	49	58.1	71
Ark.-AKS 614	95.9	68.2	159	9.2	4.5	2.0	5.3	1.0	51	55.8	60
DeKalb-E-57	95.6	69.8	144	0.0	4.8	2.5	0.0	0.3	51	58.8	62
Advance 14	94.1	71.1	131	0.6	4.0	2.5	0.0	1.0	50	57.1	64
Pioneer 861	93.9	68.1	188	3.6	4.0	3.0	0.3	0.3	47	56.1	61
Paymaster-Kiowa	93.6	73.5	163	7.9	3.0	2.8	12.5	0.8	51	58.6	64
DeKalb-F-65	92.5	69.4	129	0.6	2.3	1.8	0.3	0.5	43	57.1	68
RS 650	92.5	71.4	172	3.9	2.0	2.5	0.3	0.0	48	57.3	64

RS 619	92.4	73.4	167	2.5	3.8	2.3	0.0	1.3	46	58.9	63
DeKalb-F-64	92.3	71.6	154	1.6	4.3	3.5	0.5	0.8	55	59.6	62
Pioneer 844	92.0	72.4	164	0.6	3.0	2.3	2.3	0.3	44	58.9	67
Pioneer 848	91.2	70.6	172	3.1	3.5	2.5	0.0	0.5	46	58.1	64
Okla.-OK632	90.3	70.0	135	0.2	4.0	2.5	0.3	0.3	49	57.5	69
Rudy-Patrick RP288	89.2	69.7	153	1.1	3.0	2.0	25.3	0.3	44	55.3	63
Colo. 606	89.1	73.3	122	17.7	2.8	3.5	0.3	0.5	58	58.9	61
RS 640	88.8	70.0	141	0.2	3.3	1.8	0.0	0.3	41	57.6	66
Colo. 604	88.4	76.0	127	1.2	3.3	4.0	0.0	0.3	58	60.1	59
Frontier 23X	87.9	68.2	131	0.0	3.3	1.8	0.3	0.0	43	57.5	68
Paymaster-Ute	87.7	74.4	155	3.7	3.0	2.0	0.0	0.3	44	59.3	66
Okla. OK613	86.6	67.3	170	0.0	4.8	2.0	0.0	0.3	48	56.3	66
RS 625	85.1	71.1	153	3.7	3.8	2.8	0.0	0.0	44	55.6	62
RS 626	<u>84.5</u>	<u>66.2</u>	<u>176</u>	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>	<u>0.0</u>	<u>0.5</u>	<u>47</u>	<u>55.4</u>	<u>62</u>
Mean	99.5	72.0	152	2.1	2.9	2.4	1.4	0.4	48	57.9	65

Differences in yield between any two entries of less than 20.8 bushels per acre are not considered significant.

Table 7. 1964 performance record for sorghum test conducted in Lawrence County, near Mt. Vernon, Missouri. Planted June 2, 1964. Harvested October 14, 1964. (Exp. S71)

Entry	Acre yield bu.	Thresh- ing %	Plants per per 32 ft. row no.	Lodged plants %	Head		Per 32 ft. row			Planting to 50% blooming days
					Compact- ness 1-5	Exser- tion 1-5	Off type heads no.	Tall plants no.	Plant height ins.	
Taylor-Evans TE 66	94.6	72.7	110	0.0	2.5	1.0	0.0	0.0	33	67
Pioneer 846	92.7	72.4	145	0.0	3.0	1.8	0.0	0.3	35	68
Asgrow-Rico	92.6	74.0	108	0.0	1.8	1.5	0.0	0.0	37	66
RS 610	90.8	72.2	156	0.0	2.3	2.3	0.0	0.0	40	68
Northrup-King NK 275	90.7	71.5	109	0.0	2.0	1.0	0.0	0.0	35	67
Advance 14	90.4	70.9	120	0.0	3.8	2.3	0.0	0.5	39	66
Asgrow-Ranger A	87.8	72.2	132	0.2	2.0	2.0	0.0	0.0	38	69
Ark. AKS 614	87.4	68.4	132	0.0	4.8	1.0	0.8	0.3	38	67
Frontier 401	87.3	72.1	124	0.0	3.8	1.8	1.0	0.0	34	67
Pioneer 844	86.9	72.0	132	0.0	3.0	1.5	1.5	0.3	36	69
AMAK R12	85.4	71.1	132	0.0	2.3	2.0	0.0	0.3	38	69
Asgrow-Raider B	85.2	70.2	110	0.0	2.3	2.0	0.5	0.3	36	67
Taylor-Evans TE 77	84.4	70.2	111	0.0	2.0	1.8	0.0	0.3	37	73
Taylor-Evans TE 88	84.4	70.4	106	0.0	2.0	1.3	0.3	0.0	37	72
Taylor-Evans Grainmaster	83.2	69.1	114	0.0	1.8	1.8	2.5	1.5	37	69
DeKalb-F 64	83.1	71.4	142	0.4	3.0	2.8	0.3	0.5	45	69
DeKalb-F 63	82.9	71.2	97	0.0	2.3	1.0	0.0	0.3	35	72
DeKalb-E 57	82.6	70.1	112	0.0	4.3	2.0	0.0	0.0	40	72
RS 640	82.5	69.8	116	0.0	2.8	1.5	0.5	0.0	34	66
Colo. 606	82.3	71.8	102	0.0	3.0	3.0	0.0	0.5	41	65
Pioneer 848	81.4	70.8	145	0.0	3.5	2.0	0.0	0.5	35	66
Northrup-King NK 212	81.1	69.3	122	0.0	2.5	2.0	0.0	0.0	39	66
Northrup-King NK 310	81.1	66.7	119	0.0	2.8	1.5	0.3	0.0	40	71
RS 626	80.9	67.3	170	0.0	2.5	2.0	0.0	0.0	40	67
DeKalb F-61	80.8	70.7	123	0.0	3.0	1.8	0.0	0.0	40	70
Okla. OK 613	80.4	69.1	134	0.0	3.8	2.0	0.0	0.0	38	72
Paymaster-Apache	80.1	71.5	119	0.0	1.3	2.0	2.8	0.3	36	74
Northrup-King NK 255	79.0	69.3	99	0.0	3.5	1.0	0.3	0.0	34	70
RS 625	78.7	69.7	124	0.0	3.5	1.8	0.0	0.3	36	66
Paymaster-Kiowa	78.0	72.3	120	0.0	2.5	2.0	3.8	0.5	37	67
RS 608	77.6	72.7	144	0.0	3.0	2.3	0.0	0.5	34	61
Pioneer 820	76.9	71.8	127	0.0	2.5	1.3	0.0	0.5	35	73

MFA GS 8	76.5	72.4	125	0.0	1.3	1.5	0.0	0.3	35	72
RS 650	76.3	71.7	114	0.0	1.8	2.0	0.3	0.0	36	75
RS 624	75.2	72.8	110	0.0	2.0	2.5	3.0	0.8	37	67
Frontier 23X	75.1	68.5	97	0.0	2.8	1.3	0.5	0.8	35	72
RS 619	75.0	71.2	137	0.0	3.3	2.8	0.0	0.3	36	66
DeKalb F-65	74.7	69.8	111	0.0	2.0	1.3	0.0	0.3	33	72
Asgrow-Triple T	74.1	72.6	125	0.0	1.0	1.8	0.3	0.8	37	75
Paymaster-Ute	73.6	73.3	126	0.0	3.0	2.0	0.3	0.5	34	68
Colo. 604	71.8	73.5	112	0.7	3.0	3.5	0.0	0.0	46	60
Rudy-Patrick RP 220	71.2	73.1	113	0.2	2.3	2.3	1.8	0.3	37	66
Martin	70.4	74.9	162	0.0	3.0	2.3	0.0	0.0	34	69
Pioneer 861	68.2	68.2	155	0.0	4.5	2.3	0.0	0.0	34	66
Rudy-Patrick RP 288	67.2	69.4	108	0.2	2.5	1.3	19.3	0.0	33	67
Okla. OK 632	64.2	69.6	121	0.0	3.0	2.3	0.0	0.3	39	74
Frontier 413	63.4	76.0	101	0.0	1.8	1.8	0.0	0.0	35	76
Kan 701	<u>60.2</u>	<u>70.9</u>	<u>104</u>	<u>0.0</u>	<u>2.0</u>	<u>1.5</u>	<u>0.0</u>	<u>0.5</u>	<u>36</u>	<u>74</u>
Mean	79.8	71.1	122	0.0	2.7	1.9	0.8	0.3	37	69

Differences in yield between any two entries of less than 17.7 bushels per acre are not considered significant.

Table 8. 1964 performance record for the sorghum test conducted in Grundy County, near Spickard, Missouri. Planted June 9, 1964. Harvested October 23, 1964. (Exp. S73)

Entry	Acre yield bu.	Thresh- ing %	Plants per 32 ft. row no.	Lodged plant %	Head		Per 32 ft. row			
					Compact- ness 1-5	Exser- tion 1-5	Off- type heads no.	Tall plants no.	Plant height ins.	Test weight lbs.
Asgrow-Triple T	109.5	75.1	128	2.3	1.5	1.5	0.0	0.3	46	57.8
Pioneer 846	107.7	76.1	136	0.2	3.3	2.3	0.5	0.0	48	57.9
DeKalb F-64	107.4	75.6	148	0.2	3.5	3.0	0.0	0.5	53	58.5
Taylor-Evans Grainmaster	106.2	74.6	122	0.0	2.0	2.0	3.5	1.3	46	55.1
Frontier 413	105.7	78.4	92	1.4	1.8	1.3	0.0	0.3	45	56.9
Pioneer 820	105.2	74.8	127	0.0	2.5	2.0	0.0	0.0	44	57.9
DeKalb E-57	103.2	74.8	126	1.8	4.8	2.8	0.0	0.5	50	57.5
Northrup-King NK 275	102.6	76.3	105	0.0	1.8	1.8	0.3	0.8	43	56.0
Pioneer 844	102.3	76.1	138	0.0	3.3	2.3	1.3	0.3	46	57.5
Okla. OK 632	101.5	73.6	129	0.0	4.0	2.8	1.5	0.0	49	57.0
Asgrow-Ranger A	100.8	77.5	140	2.0	1.8	2.5	0.0	0.0	49	58.5
Pioneer 848	100.4	75.5	153	0.0	3.5	2.3	0.0	0.5	41	58.3
MFA GS 8	98.8	75.4	146	1.0	1.8	1.8	0.3	0.8	40	56.1
Pioneer 861	98.1	72.6	183	0.1	3.0	2.5	0.3	0.5	43	58.5
Asgrow-Rico	97.7	76.5	118	0.0	1.0	2.3	0.0	0.0	47	56.8
RS 610	97.0	74.7	147	2.6	2.3	2.8	1.0	0.8	49	57.1
Advance 14	96.8	74.4	137	0.0	3.0	2.3	0.5	0.0	49	57.3
RS 626	95.9	72.7	179	1.5	1.8	2.5	0.0	0.3	46	56.4
Taylor-Evans TE 88	95.7	72.9	113	1.5	2.5	2.0	0.0	0.5	41	56.5
Paymaster Apache	95.3	74.1	131	3.6	2.0	2.0	4.0	0.3	43	56.5
Okla. OK 613	95.2	75.2	137	0.4	4.0	2.3	0.0	0.3	44	56.4
RS 650	95.1	76.5	117	3.6	1.5	2.0	0.3	0.3	43	57.9
DeKalb F-65	94.5	74.5	116	0.4	2.0	1.8	0.0	0.5	41	57.3
Kan 701	94.5	71.7	129	0.6	2.0	1.8	0.0	0.0	49	56.6
Taylor-Evans TE 66	93.8	76.6	112	0.0	2.3	2.3	0.0	0.0	39	56.9
DeKalb F-61	93.7	73.5	134	0.4	3.0	2.3	0.0	0.0	46	57.5
Taylor-Evans TE 77	93.7	71.4	128	0.6	1.3	2.3	0.0	1.0	44	56.5
Asgrow-Raider B	93.6	74.1	123	0.2	1.8	2.3	0.0	0.3	43	58.5
DeKalb F-63	93.6	71.5	96	4.1	2.8	1.8	0.0	0.0	46	56.4
Frontier 23X	93.1	73.2	113	0.0	2.3	2.0	0.8	0.8	42	57.9
Northrup-King NK 255	92.3	73.9	106	0.5	3.8	2.3	0.0	0.0	41	57.1
AMAK R12	91.7	75.0	147	0.3	2.0	2.0	0.0	0.0	48	56.8

RS 624	91.6	76.6	123	0.2	1.8	1.8	5.8	0.3	42	57.0
Colo. 606	91.1	74.9	112	20.2	2.0	3.5	0.0	0.0	56	57.9
Northrup-King NK 310	90.8	69.5	128	0.0	2.0	1.8	0.5	0.3	51	52.4
Northrup-King NK 212	90.0	73.3	123	1.2	2.0	2.0	0.8	0.5	45	54.9
Paymaster-Ute	89.8	76.8	150	0.0	1.5	2.3	0.3	0.3	41	59.3
RS 608	89.2	76.3	144	0.2	2.5	2.5	0.3	0.5	44	57.8
Rudy-Patrick RP 220	89.1	77.3	118	0.0	2.0	2.8	1.8	0.5	46	57.0
Ark. -AKS 614	88.7	72.9	124	3.8	4.3	1.8	5.3	0.5	46	57.8
Rudy-Patrick RP 288	86.5	73.4	131	0.0	2.0	2.0	21.0	6.8	42	56.1
RS 619	86.3	73.2	132	0.0	2.5	1.8	0.0	0.0	39	58.0
Paymaster-Kiowa	82.7	75.6	134	1.9	1.8	2.3	8.0	0.0	46	57.1
Colo. 604	81.4	75.6	107	0.9	2.3	3.3	0.0	0.8	55	58.3
Martin	81.2	77.8	193	0.0	1.0	2.3	0.0	0.3	37	59.8
Frontier 401	80.9	74.2	110	0.2	4.3	2.0	0.3	0.3	42	57.9
RS 640	79.9	74.0	96	0.3	2.0	1.8	0.0	0.3	39	56.8
RS 625	<u>79.9</u>	<u>72.7</u>	<u>153</u>	<u>0.2</u>	<u>2.5</u>	<u>2.3</u>	<u>0.0</u>	<u>0.3</u>	<u>39</u>	<u>56.3</u>
Mean	94.4	74.6	130	1.2	2.4	2.2	1.2	0.5	45	57.2

Differences in yield between any two entries of less than 16.0 bushels per acre are not considered significant.

Table 9. 1964 performance record for the sorghum test conducted in Marion County, near Palmyra, Missouri. Planted June 1, 1964. Harvested October 18, 1964. (Exp. S74)

Entry	Acre yield bu.	Thresh- ing %	Plants per 32 ft. row no.	Lodged plants %	Head		Per 32 ft. row		Plant height ins.
					Compact- ness 1-5	Exser- tion 1-5	Off- type heads no.	Tall plants no.	
Frontier 413	163.3	82.8	130	0.0	3.0	1.0	0.3	0.0	56
Pioneer 820	160.6	78.2	145	0.0	3.3	1.8	0.0	0.0	53
Asgrow-Ranger A	159.8	78.7	144	0.3	2.5	2.5	0.0	0.5	59
Asgrow-Triple T	158.6	79.2	116	3.2	1.3	1.8	0.0	0.3	60
Pioneer 846	157.7	78.9	149	0.0	3.0	3.0	1.0	1.0	54
Taylor-Evans TE 77	155.6	76.5	143	1.2	1.5	2.0	0.0	1.3	58
Northrup-King NK 310	155.5	72.7	139	0.0	2.0	1.8	0.5	0.3	54
Pioneer 844	154.9	78.4	141	0.0	2.3	2.0	0.8	0.5	50
Northrup-King NK 275	154.8	77.9	128	2.3	3.0	1.8	0.0	0.3	52
Rudy-Patrick RP 220	154.7	79.7	135	0.0	1.5	2.5	4.8	0.5	59
DeKalb F-63	154.4	77.7	114	1.1	2.3	2.0	0.0	0.0	58
Taylor-Evans TE 66	153.7	79.2	129	0.0	2.5	1.8	0.3	0.8	48
Paymaster-Apache	153.6	77.9	139	0.0	1.0	2.3	2.0	0.3	56
Taylor-Evans TE 88	153.2	76.8	133	0.4	1.3	2.3	1.3	1.3	57
RS 650	152.5	78.1	133	0.0	1.5	2.0	0.3	0.3	54
Kan 701	150.9	77.3	111	0.2	1.8	1.8	0.0	0.0	57
RS 610	149.7	78.7	150	0.2	2.3	3.0	0.0	0.0	58
MFA GS 8	148.8	78.9	137	0.2	1.5	2.0	0.3	0.5	53
Asgrow-Rico	148.6	80.6	125	0.0	1.0	2.0	0.0	0.5	54
AMAK R12	148.0	77.5	151	0.2	2.0	2.0	0.0	0.0	57
DeKalb F-65	147.8	76.0	114	0.4	2.0	1.5	0.0	0.0	51
Taylor-Evans Grainmaster	147.6	75.3	127	0.0	2.0	2.5	4.3	1.8	54
DeKalb E-57	147.4	76.4	116	0.0	5.0	3.0	0.0	0.0	56
DeKalb F-64	147.3	77.8	142	0.0	3.5	3.0	0.3	0.5	64
Ark. AKS 614	145.7	74.5	158	0.3	4.0	1.8	4.3	1.5	55
Paymaster-Kiowa	145.3	78.8	142	0.0	2.8	2.5	7.3	0.0	56
Advance 14	144.9	77.3	121	0.4	4.5	2.8	0.0	0.3	56
RS 626	144.5	73.3	152	1.0	2.8	2.5	0.5	0.5	52

RS 640	143.3	76.0	110	0.0	2.3	1.3	0.0	1.5	44
Colo. 606	141.9	78.3	114	6.6	3.0	4.0	0.0	0.3	67
Okla. OK 632	141.2	75.8	125	0.2	3.5	2.3	0.0	0.5	58
Okla. OK 613	140.9	75.3	152	0.0	4.8	2.0	0.0	0.5	53
Northrup-King NK 212	139.2	75.5	140	0.7	2.8	2.3	0.8	0.8	53
Northrup-King NK 255	138.9	75.5	113	0.0	3.0	1.8	1.0	0.8	46
Asgrow-Raider B	138.3	76.5	138	0.4	3.0	2.3	0.0	0.3	48
Pioneer 848	136.7	77.1	162	0.0	3.3	2.8	0.0	0.5	47
Frontier 401	134.2	78.6	129	0.0	3.3	1.5	0.0	1.3	47
Frontier 23X	133.1	74.7	110	0.0	3.0	1.0	0.5	0.8	45
RS 608	132.9	79.3	157	0.3	3.0	2.3	0.3	1.0	52
DeKalb F-61	132.2	77.1	123	0.0	3.5	2.3	0.3	0.0	54
Paymaster-Ute	129.4	79.8	159	0.0	3.5	2.8	0.0	0.8	50
Pioneer 861	126.0	74.3	177	0.0	4.5	2.3	0.0	0.3	48
RS 624	126.0	79.4	127	0.0	2.3	2.0	4.0	1.5	51
Martin	125.0	81.6	197	0.0	4.0	3.3	0.5	0.5	53
Colo. 604	124.0	80.1	129	0.0	3.0	3.5	0.0	0.5	68
RS 625	123.1	75.9	143	0.2	4.5	2.5	0.0	0.5	49
Rudy-Patrick RP 288	122.6	75.6	129	0.0	2.5	1.5	26.0	0.5	45
RS 619	<u>121.3</u>	<u>77.6</u>	<u>148</u>	<u>0.0</u>	<u>3.5</u>	<u>3.0</u>	<u>0.0</u>	<u>2.0</u>	<u>49</u>
Mean	144.0	77.5	136	0.4	2.8	2.2	1.3	0.6	54

Differences in yield between any two entries of less than 16.5 bushels per acre are not considered significant.

Table 10. 1964 summary of the grain sorghum tests conducted near Columbia, Mt. Vernon, Palmyra and Spickard, Missouri. (Exp. S70, S71, S73, and S74)

Entry	Acre yield bu.	Thresh- ing %	Plants per 32 ft. row no.	Lodged plants %	Head		Per 32 ft. row		Plant height ins.	Test weight lbs.	Planting to 50% blooming days
					Compact- ness 1-5	Exser- tion 1-5	Off- type heads no.	Tall plants no.			
Pioneer 846	115.8	75.1	148	0.9	3.1	2.4	0.5	0.4	47	57.9	65
Northrup-King NK 275	112.7	74.2	120	0.8	2.3	1.6	0.1	0.3	44	56.3	65
Asgrow-Rico	112.5	76.8	122	0.2	1.5	2.1	0.0	0.3	48	57.6	63
Taylor-Evans TE 66	112.5	75.5	121	0.1	2.5	1.8	0.1	0.3	41	57.3	66
Taylor-Evans TE 77	112.4	72.9	132	0.5	1.6	2.0	0.0	0.6	46	57.7	71
Asgrow-Ranger A	111.8	75.0	142	3.3	2.2	2.3	0.0	0.1	49	58.4	66
RS 610	111.8	75.0	159	1.1	2.2	2.8	0.4	0.2	50	57.8	65
Taylor-Evans TE 88	111.5	73.1	127	0.4	1.9	2.0	0.5	0.6	46	57.2	70
Pioneer 820	109.4	74.5	135	0.0	2.7	1.8	0.1	0.2	44	58.3	71
Frontier 413	109.3	78.9	120	0.4	2.1	1.3	0.1	0.1	46	58.3	73
Northrup-King NK 310	109.1	69.2	133	0.0	2.2	1.5	0.9	0.4	48	55.3	75
Asgrow-Triple T	109.0	75.4	129	1.5	1.3	1.8	0.1	0.4	48	58.7	71
Taylor-Evans Grainmaster	107.9	71.8	127	0.1	2.0	2.1	3.6	1.3	46	55.1	67
Asgrow-Raider B	107.5	72.9	128	0.6	2.3	2.4	0.1	0.3	43	58.6	64
Pioneer 844	107.3	74.7	144	0.2	2.9	2.0	1.4	0.3	44	58.2	68
DeKalb F-63	107.0	74.0	102	1.3	2.5	1.6	0.0	0.1	47	57.5	71
DeKalb F-64	106.2	74.1	146	0.6	3.6	3.1	0.3	0.6	54	59.1	65
DeKalb E-57	105.9	72.8	124	0.5	4.7	2.6	0.0	0.2	49	58.1	67
Advance 14	105.4	73.4	127	0.2	3.8	2.4	0.1	0.4	48	57.2	65
Paymaster-Apache	105.4	74.2	137	0.9	1.4	2.1	3.4	0.3	45	57.1	71
AMAK R12	105.3	73.8	142	0.2	2.1	2.1	0.0	0.1	48	57.2	68
MFA GS8	105.1	75.2	142	0.3	1.5	1.9	0.3	0.6	43	56.7	71
Ark. AKS 614	103.1	71.0	143	3.5	4.4	1.6	3.9	0.8	47	56.8	64
Rudy-Patrick RP 220	102.4	75.9	123	1.6	2.1	2.6	2.3	0.4	48	57.6	63
Northrup-King NK 212	102.3	71.7	133	0.9	2.6	2.3	0.5	0.5	46	55.6	63
Northrup-King NK 255	102.1	71.9	112	0.5	3.6	1.8	0.3	0.2	41	57.2	66
RS 650	102.1	74.4	134	2.0	1.7	2.1	0.3	0.1	45	57.6	69
Pioneer 848	101.5	73.5	158	0.8	3.4	2.4	0.0	0.5	42	58.2	65
Frontier 401	101.4	74.8	127	0.3	3.9	1.9	0.3	0.4	41	58.1	63
DeKalb F-61	100.7	73.4	137	0.1	3.4	2.3	0.1	0.1	48	58.3	66
DeKalb F-65	100.5	72.4	118	0.4	2.1	1.6	0.1	0.3	42	57.2	70
RS 608	100.0	75.5	152	0.5	3.1	2.6	0.2	0.6	45	57.9	61
RS 626	99.9	69.9	169	1.4	2.5	2.5	0.1	0.3	46	55.9	64
Colo. 606	99.7	74.6	113	11.5	2.7	3.5	0.1	0.3	55	58.4	63

Okla. OK 613	99.3	71.7	148	0.1	4.3	2.1	0.0	0.3	46	56.3	69
Kan 701	98.3	73.7	130	0.2	1.8	1.8	0.0	0.1	48	57.4	73
Paymaster-Kiowa	98.1	75.0	140	2.8	2.5	2.4	7.9	0.3	47	57.9	66
Okla. OK 632	97.4	72.2	128	0.1	3.6	2.4	0.4	0.3	48	57.3	71
RS 624	96.8	75.7	134	0.5	1.9	2.2	4.4	0.8	44	57.9	65
RS 640	96.8	72.4	116	0.1	2.6	1.6	0.1	0.5	39	57.2	66
Frontier 23X	96.2	71.1	113	0.0	2.8	1.5	0.5	0.6	41	57.7	70
Pioneer 861	95.8	70.8	176	1.0	4.0	2.5	0.1	0.3	43	57.3	64
Paymaster-Ute	94.1	76.0	147	1.0	2.8	2.3	0.1	0.4	42	59.3	67
RS 619	93.0	73.8	146	0.7	3.3	2.4	0.0	0.9	42	58.4	65
Martin	92.4	77.7	185	0.3	2.8	2.7	0.1	0.3	43	59.9	67
RS 625	91.0	72.4	143	1.1	3.6	2.3	0.0	0.3	42	55.9	64
Rudy-Patrick RP 288	90.5	72.0	130	0.4	2.5	1.7	22.9	1.9	41	55.7	65
Colo. 604	<u>90.3</u>	<u>76.3</u>	<u>119</u>	<u>0.7</u>	<u>2.9</u>	<u>3.6</u>	<u>0.0</u>	<u>0.4</u>	<u>57</u>	<u>59.2</u>	<u>60</u>
Mean	103.1	73.8	135	1.0	2.7	2.2	1.2	0.4	46	57.5	67

Table 11. Summary of performance records for sorghums tested at South Farm, near Columbia, Missouri for the 3-year period of 1962, 1963 and 1964.

Hybrid	Acre yield bu.	Thresh- ing %	Lodged plants %	Head		Per 32 ft. row		Plant height ins.	Test weight lbs.	Planting to 50% blooming days
				Compact- ness 1-5	Exser- tion 1-5	Off- type heads no.	Tall plants no.			
Taylor-Evans TE 88	123.8	76.9	0.1	2.1	2.6	0.4	0.9	50	56.4	72
Taylor-Evans TE 77	122.5	77.2	0.4	1.9	2.4	0.0	0.2	48	55.7	73
Northrup King NK 310	118.0	72.0	0.1	2.2	1.3	1.4	0.5	48	56.1	80
Pioneer 846	112.5	76.1	1.3	3.1	2.5	0.3	0.3	48	55.7	68
RS 610	112.2	76.6	0.5	2.3	3.4	0.3	0.3	52	56.6	65
Paymaster-Apache	111.2	76.7	0.7	1.8	2.4	1.7	0.2	48	55.3	73
RS 650	107.8	76.6	1.3	2.1	2.5	0.4	0.0	49	56.0	67
Taylor-Evans TE 66	106.4	74.3	0.3	2.7	2.3	0.1	0.3	43	55.6	67
Kan 701	106.3	77.5	0.1	1.8	2.4	0.3	0.6	51	56.4	75
Okla 632	100.8	75.4	0.7	3.3	2.7	0.1	0.1	52	56.6	73
Okla 613	99.0	73.2	0.5	3.9	2.6	0.2	0.3	49	55.4	69
RS 608	97.4	76.5	0.6	3.3	2.9	0.1	0.2	47	57.0	65
Pioneer 848	95.0	74.7	1.3	3.8	2.4	0.0	0.3	46	56.9	68
Paymaster-Ute	87.1	76.4	1.3	2.5	2.1	0.0	0.1	45	58.3	68
Martin	<u>87.1</u>	<u>77.3</u>	<u>0.8</u>	<u>3.0</u>	<u>2.8</u>	<u>0.0</u>	<u>0.3</u>	<u>47</u>	<u>57.3</u>	<u>69</u>
Mean	105.8	75.8	0.6	2.7	2.5	0.4	0.3	48	56.4	70

Table 12. Summary of performance record for sorghums tested near Columbia and Mt. Vernon, Missouri for the 2-year period of 1963 and 1964.

Hybrid	Acre yield bu.	Lodged plants %	Head		Per 32 ft. row		
			Compact- ness 1-5	Exser- tion 1-5	Off- type heads no.	Tall plants no.	Plant height ins.
Taylor-Evans TE 88	92.5	1.2	2.1	2.2	0.5	0.7	44
Pioneer 846	89.6	2.1	3.1	2.3	0.2	0.2	43
Taylor-Evans TE 66	88.7	1.5	2.8	1.8	0.1	0.2	40
Asgrow-Ranger A	88.3	6.7	2.2	2.4	0.0	0.0	46
Asgrow-Raider B	88.3	2.9	2.5	2.5	0.1	0.2	43
RS 610	87.9	3.0	2.1	2.7	0.1	0.1	46
Taylor-Evans TE 77	87.5	1.3	2.0	2.2	0.0	0.2	42
Northrup King NK 310	85.5	0.1	2.0	1.5	1.0	0.3	44
Frontier 401	84.2	2.5	3.9	2.1	15.0	0.3	41
Pioneer 820	83.8	0.9	2.5	2.2	0.2	0.3	43
Advance 14	83.0	0.5	3.8	2.5	0.1	0.5	46
Paymaster-Apache	82.8	0.6	1.7	2.3	2.0	0.2	43
RS 650	82.4	5.1	1.9	2.3	0.4	0.0	44
Asgrow-Triple T	79.4	1.5	1.6	1.9	0.2	0.3	45
Pioneer 861	78.7	3.3	3.8	2.8	0.1	0.3	43
RS 624	78.5	2.6	1.9	2.3	2.0	0.3	42
DeKalb F-63	78.2	0.2	2.5	1.9	0.0	0.2	43
RS 640	78.1	2.1	2.9	1.8	0.1	0.1	38
RS 608	78.0	5.4	3.5	2.8	0.1	0.3	42
Okla OK 613	77.4	0.4	3.7	2.4	0.1	0.2	44
Kan 701	77.1	0.3	1.8	2.2	0.0	0.3	45
Rudy-Patrick RP 220	76.8	6.8	2.7	2.5	3.9	0.4	44
Pioneer 848	76.7	1.9	3.6	2.4	0.0	0.3	42
RS 626	75.8	4.6	2.8	2.4	0.0	0.4	46
RS 619	75.7	5.6	3.5	2.4	0.0	0.4	42
Paymaster-Kiowa	75.0	12.1	2.8	2.4	4.4	0.4	44
Okla OK 632	74.5	0.9	3.1	2.5	0.1	0.2	46
RS 625	74.1	4.2	3.7	2.4	0.0	0.2	42
Paymaster-Ute	70.6	3.9	2.8	2.0	0.1	0.2	40
Martin	70.0	3.6	3.2	2.6	0.0	0.3	42
Rudy-Patrick RP 288	<u>67.7</u>	<u>0.3</u>	<u>2.8</u>	<u>1.8</u>	<u>11.5</u>	<u>0.3</u>	<u>39</u>
Mean	80.2	2.8	2.8	2.3	1.4	0.3	43

Table 13. Summary of performance record for sorghums tested near Spickard and Palmyra, Missouri for the 2-year period of 1962 and 1964.

Hybrid	Acre yield bu.	Lodged plants %	Head		Per 32 ft. row		
			Compact- ness 1-5	Exser- tion 1-5	Off- type heads no.	Tall plants no.	Plant height ins
Northrup King NK 310	156.3	0.2	2.5	1.9	0.3	0.6	58
Pioneer 846	148.7	0.2	3.1	2.4	0.4	0.4	53
Taylor-Evans TE 77	146.8	1.3	1.8	2.4	0.1	0.7	56
Taylor-Evans TE 88	146.1	1.0	2.2	2.5	0.4	0.6	54
Paymaster-Apache	145.4	1.0	1.8	2.0	1.5	0.5	54
MFA GS 8	144.6	0.5	1.8	2.2	0.2	0.6	53
Okla OK 632	141.6	0.7	3.5	3.0	0.4	0.4	58
Pioneer 848	141.5	1.0	3.2	2.3	0.0	0.5	49
Kan 701	137.8	0.6	2.0	2.2	0.3	0.9	57
RS 610	136.9	1.1	2.2	2.8	0.4	0.8	56
Okla OK 613	134.3	0.3	3.8	2.5	0.0	0.4	53
RS 650	131.4	1.5	1.8	2.3	0.2	0.3	51
Taylor-Evans TE 66	130.5	0.3	2.5	1.9	0.1	0.5	46
Paymaster-Ute	123.3	0.4	2.3	2.3	0.1	0.6	50
RS 608	122.6	0.5	2.8	2.5	0.2	0.7	52
Martin	<u>108.8</u>	<u>0.6</u>	<u>2.4</u>	<u>2.8</u>	<u>0.1</u>	<u>0.3</u>	<u>51</u>
Mean	137.3	0.7	2.5	2.4	0.3	0.6	53