

Grain Sorghum

1999 Missouri
Crop Performance



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Agricultural Experiment Station
College of Agriculture Food and Natural Resources
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MISSOURI CROP PERFORMANCE

1999

GRAIN SORGHUM

This report is a contribution of the Department of Agronomy, Plant Science Unit, University of Missouri College of Agriculture, Food and Natural Resources. The work received significant support through fees paid by the companies submitting hybrids for evaluation.

The University of Missouri began its performance testing program for grain sorghum hybrids in 1958. The number of commercial entries in the program increased from 40 in 1958 to 134 in 1982. The number has declined during recent years and was 59 hybrids in 1999.

The large number of commercial hybrids available makes selection of a superior hybrid difficult. To select intelligently, producers need a reliable, unbiased, up-to-date source of information that will permit valid comparisons among available 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 from one plot to another. Results obtained should aid the individual grower in judging the relative merits of many of the commercial grain sorghum hybrids available in Missouri today.

COMPARING HYBRIDS

The performance of a hybrid cannot be measured with absolute precision. Uncontrollable variability is involved in the determination of each yield average. This variability sometimes occurs because the soil is not uniform, but many other conditions may contribute to it. Because variability exists in all field experimentation, statistics are used as a tool to assist in making decisions. The statistical tool used in 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.

Hybrid 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 hybrid performance, results from more than one location or year should be considered. In this publication, the authors have tried to facilitate comparisons across years and locations.

In each trial, the "top yielding" hybrids have been identified. These hybrids are those that did not yield significantly less than the highest yielding hybrid in the test. They are denoted in the tables by an asterisk (*) next to their yields. Thus, by going down a column, readers can readily identify the highest yielding hybrids in a trial. By going across, readers can evaluate the relative performance of a hybrid during several years or at several locations. From the standpoint of yield, the most desirable hybrids will be those that are among the "top yielding" hybrids (that is, those that have an asterisk) the greatest number of times. To further facilitate, a visual summary of two-year yield data is provided for each region. In this summary, hybrid means are converted to percentages of the regional trial mean, ranked, and plotted from lowest to highest. A bar about each mean shows the range in which the entry's yield occurred 80% of the time. This range is an indication of yield stability. The smaller the range, the more stable the hybrid is in the tested environments.

Although yield usually receives first consideration, other agronomic characteristics may be equally important when selecting a grain sorghum hybrid. Moisture content at harvest, stalk strength and resistance to insects and diseases are among the hybrid characteristics that deserve careful consideration. High moisture content at harvest, whether due to later maturity or slow dry-down, may indicate an increased drying requirement. Poor stalk strength or susceptibility to pests may decrease harvestable yield because of lodging or stand loss. Therefore, when selecting a hybrid, producers should also consider the data presented on agronomic characteristics other than yield.

The Missouri Agricultural Experiment Station does not recommend specific hybrids. Farmers growing a new hybrid for the first time should consider the information contained in this report and then grow a small acreage to determine adaptability. This should be the practice for all new hybrids regardless of origin.

EXPERIMENTAL PROCEDURES

Entries. All producers of hybrid seed were eligible to enter hybrids in the 1999 evaluation trials. Participation was voluntary. The testing coordinator exercised no control over which hybrids or how many hybrids were entered. However, to help finance the evaluation program, a fee of \$100 per location was charged for each hybrid entered by the seed producer.

Locations. On the basis of geographical characteristics, the state is divided into regions. Grain sorghum hybrid evaluation trials are located in the north-central, southwestern and southeastern regions of the state. In 1999, the locations for these trials were:

- (1) Bud & Ron Beetsma farm near Mooresville in Livingston County
- (2) Emery Garrish farm near Shelbina in Shelby County
- (3) Richard Primus farm near Martinsburg in Audrain County
- (4) Kenny Tevis farm near Hughesville in Pettis County
- (5) Kurt Gretzinger farm near Urich in Henry County
- (6) Wally Norton farm near Lamar in Barton County
- (7) Tom Obermann farm near Chaffee in Cape Girardeau County
- (8) Jack Allen farm near Grayridge in Stoddard County
- (9) Delta Research Center near Portageville in Pemscot County



Field Plot Design. Each test was arranged in a lattice field plot design with three replications. All plots were four rows wide and 20 feet long. The between-row spacing was 30 inches at all locations. Only the center two rows were harvested to determine yield.

Plot Management. The tests were planted and harvested with equipment designed for small-plot work. Fertilizer was applied at each site at the discretion of the farmer. Herbicides and cultivation were used for weed control and plots were hand weeded as necessary. Management details varied from location to location and are specified on individual yield tables.

Data Recorded. Agronomic characteristics were evaluated at harvest. Head compactness was scored on a scale of 1 to 5. A score of 1 indicates the most compact or tight head, while 5 indicates the most lax or loose head. Lodging was determined by counting the number of culms inclined more than 30 degrees from vertical. This value was converted to a percentage of the total number of culms in each plot. The off-types heads are those heads in the plot rows which have a different head type. Yield was measured in number of bushels per acre at a moisture content of 14.0 percent. An electronic moisture tester was used for all moisture readings. To convert yield to pounds/acre, multiply bushels/acre by 56.

Electronic Accessibility of Data. Results of the Missouri Crop Performance Trials are now available in three forms: this printed Special Report, the Missouri Agricultural Electronic Bulletin Board (AgEBB) and the World Wide Web at <http://agebb.missouri.edu/cropperf/gs/>. On the AgEBB, variety test information is accessible from the MAIN MENU of the AgEBB under "CROP PERFORMANCE TESTING". The phone number for the AgEBB is 573/882-8289. If you need assistance in accessing the system call 573/882-4827 for the system staff's help.

SUMMARY OF RESULTS

Results for each location include data on grain moisture at harvest, plant height, percent off-type heads, head compactness, percent lodging, and yield adjusted to 14.0 percent moisture.

Significant yield variation was observed among hybrids at each location. Individual hybrid performance across the three north-central, three southwestern and three southeastern locations are summarized in Tables 5, 9, 13 and in Figures 1, 2, and 3. Average yields and yield ranges for each trial are summarized in Table 1. The spring weather of 1999 was cool and wet, delaying planting in some locations and causing some emergence problems. Summer rainfall was below normal for most of the state, while temperatures remained normal. Because environmental conditions influence the performance of hybrid sorghums, the reader is encouraged to give more weight to results from several locations or years than to those from a single test.

TABLE 1. 1999 YIELD SUMMARY

LOCATION	NUMBER OF ENTRIES	IRRIGATED	YIELD RANGE	(BU/ACRE) AVERAGE	DATA TABLE
Mooresville	27	No	124-160	144	2
Shelbina	27	No	45- 64	54	3
Martinsburg	27	No	49- 71	62	4
Hughesville	29	No	72-101	92	6
Urich	29	No	71-110	99	7
Lamar	29	No	65- 96	79	8
Chaffee	37	No	46- 77	61	10
Grayridge	37	No	49-100	76	11
Portageville	37	No	45-106	76	12

An indication of hybrid maturity is moisture content of the grain at harvest. Because high moisture at harvest is generally a disadvantage, growers should give preference to hybrids within a yield group with the lowest moisture content.

TABLE 2. Performance of Grain Sorghum Hybrids evaluated near Mooresville (Livingston County) on the Beetsma Farm during 1997-99.

Planted: 28 May 1999
 Harvested: 15 October 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Putnam Silt Loam

Fertilizer: N=120; P₂O₅=20; K₂O=0 lbs./A
 Herbicide: Ramrod + Atrazine, Buctril
 Insecticide: None
 Previous Crop: Soybean
 Soil Test: pH=6.5, OM=3.3 %, P=94, K=428

Growing Season Rainfall: May=6.5, June=4.9, July=2.2, Aug.=1.1, Sept.=4.9, TOTAL=19.6"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois-ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com-pactness Score	Lodg-ing (%)		1999	1998	1997	2 Yr.	3 Yr.
Pioneer brand 84G62	19.0	54	0.0	3.0	0.0	160.0**	--	--	--	--	--
NC + 7B47	17.8	52	0.0	3.2	0.0	157.8*	134.7*	--	--	146.3	--
Midland M4836	18.6	52	0.0	3.5	0.0	155.9*	121.1	--	--	138.5	--
Pioneer brand 8305	18.3	59	0.0	2.7	0.0	153.4*	--	141.4	--	--	--
Triumph TR 65-G	18.4	54	0.0	3.3	0.0	153.4*	129.9*	141.5	141.7	141.6	--
Pioneer brand 83G66	18.3	59	0.0	2.4	0.0	152.3*	137.6*	--	145.0	--	--
Midland XM9412	18.6	51	0.0	2.8	0.0	151.5*	--	--	--	--	--
Asgrow A459	18.1	56	0.0	4.2	0.0	150.0*	--	--	--	--	--
Asgrow A571	17.9	56	0.0	2.6	0.0	148.2	116.7	142.5	132.5	135.8	--
Triumph TR 461	18.3	53	0.0	4.4	0.0	146.2	--	--	--	--	--
Asgrow A355	17.1	55	0.0	2.7	0.0	145.8	--	--	--	--	--
Dekalb DK54	18.4	61	0.0	2.5	0.0	145.5	131.5*	156.8**	138.5	144.6	--
Dekalb DK44	18.0	49	0.0	3.2	0.0	144.9	125.0	138.0	135.0	136.0	--
Dekalb DK53	19.6	54	0.0	1.9	0.0	144.5	124.5	--	134.5	--	--
Dekalb DK45	18.2	56	0.0	4.2	0.0	144.0	136.5*	148.0*	140.3	142.8	--
Midland XM9408	18.9	60	0.0	1.9	0.0	142.9	--	--	--	--	--
Dekalb DK47	19.1	53	0.0	1.0	0.0	142.6	141.3**	151.9*	142.0	145.3	--
Asgrow A570	18.1	58	0.0	2.4	0.0	141.4	120.7	135.0	131.1	132.4	--
Cargill 737	16.8	51	0.0	1.6	0.0	141.1	130.8*	149.1*	136.0	140.3	--
Asgrow A504	17.3	54	0.0	3.0	0.0	140.7	139.0*	--	139.9	--	--
Cargill 770Y	16.6	57	0.0	1.5	0.0	140.1	118.2	131.7	129.2	130.0	--
Gold World GW5960	17.0	57	0.0	2.6	0.0	137.1	133.5*	137.4	135.3	136.0	--
Dekalb DK52	18.4	55	0.0	2.2	0.0	132.7	--	--	--	--	--
Triumph TR 464	17.4	59	0.0	2.7	0.0	130.2	--	--	--	--	--
Asgrow Seneca	17.9	44	0.0	3.8	0.0	125.9	126.4	--	126.2	--	--
Midland M4774	18.7	58	0.0	3.2	0.0	125.6	103.9	--	114.8	--	--
Cargill 730	17.7	52	0.0	3.1	0.0	123.8	109.5	125.3	116.7	119.5	--
TRIAL AVERAGE	18.1	55	0.0	2.8	0.0	143.6	126.2	139.3	134.9	136.4	
L.S.D. AT .10	0.7	2	NS	0.9	NS	10.0	13.2	8.8			
C.V. %	2.8	3.2		25.2		5.0	7.6	4.6			

-- Data not available.

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not Significant.

TABLE 3. Performance of Grain Sorghum Hybrids evaluated near Shelbina (Shelby County) on the Emery Garrish Farm during 1997-99.

Planted: 25 May 1999
 Harvested: 11 October 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Putnam Silt Loam

Fertilizer: N=130; P₂O₅=40; K₂O=50 lbs./A
 Herbicide: Ramrod + Atrazine, Buctril
 Insecticide: None
 Previous Crop: Wheat
 Soil Test: pH=5.6, OM=2.2%, P=16, K=70

Growing Season Rainfall: May=4.8, June=6.5, July=0.4, Aug.=0.6, Sept.=3.1, TOTAL=15.4"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois- ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com- pactness Score	Lodg- ing (%)		1999	1998	1997	2 Yr.	3 Yr.
Pioneer brand 84G62	21.5	44	0.0	2.0	0.0	63.8**	--	--	--	--	--
Asgrow A355	15.2	42	0.0	1.7	0.0	63.2*	--	--	--	--	--
Asgrow A504	15.9	43	0.0	2.7	0.0	61.1*	99.7	--	80.4	--	--
Asgrow Seneca	15.4	39	0.0	1.3	0.0	59.0*	106.3*	--	82.7	--	--
Gold World GW5960	15.2	43	0.2	1.3	0.0	58.6*	105.3*	141.6	82.0	101.8	--
Dekalb DK54	21.0	47	0.0	1.3	0.0	58.6*	103.8*	157.8*	81.2	106.7	--
Asgrow A571	18.1	40	0.0	1.0	0.0	58.3*	106.2*	145.8	82.3	103.4	--
Cargill 730	18.6	42	0.0	1.7	0.0	58.0*	111.3*	144.0	84.7	104.4	--
Dekalb DK47	21.0	43	0.0	1.0	0.0	57.2*	91.5	137.7	74.4	95.5	--
Dekalb DK52	17.6	44	0.0	2.0	0.0	56.5*	--	--	--	--	--
Pioneer brand 83G66	18.9	44	0.0	1.3	0.0	55.3	109.9*	--	82.6	--	--
Dekalb DK44	15.1	41	0.0	2.0	0.0	55.2	103.9*	139.6	79.6	99.6	--
Dekalb DK45	17.3	42	0.0	2.0	0.0	54.7	109.0*	144.3	81.9	102.7	--
Midland XM9412	15.9	40	0.0	2.0	0.0	54.5	--	--	--	--	--
Asgrow A459	17.0	44	0.0	1.0	0.0	53.8	--	--	--	--	--
Cargill 737	16.8	39	0.0	1.3	0.0	53.0	103.4*	142.4	78.2	99.6	--
Dekalb DK53	24.1	43	0.0	1.0	0.0	52.0	107.4*	--	79.7	--	--
Triumph TR 65-G	18.0	45	0.0	1.0	0.0	51.9	109.1*	138.5	80.5	99.8	--
Pioneer brand 8305	20.5	44	0.0	1.7	0.0	51.5	--	141.2	--	--	--
Asgrow A570	18.5	44	0.0	1.0	0.0	50.9	101.9	148.1	76.4	100.3	--
Triumph TR 464	17.6	48	0.0	2.3	0.0	50.4	--	--	--	--	--
Midland M4836	15.4	41	0.4	1.3	0.0	49.7	90.2	--	70.0	--	--
Cargill 770Y	15.1	42	0.0	1.3	0.0	49.6	105.8*	141.2	77.7	98.9	--
NC+ 7B47	19.2	39	0.0	1.7	0.0	49.5	107.3*	--	78.4	--	--
Midland XM9408	21.0	45	0.0	1.0	0.0	46.5	--	--	--	--	--
Midland M4774	19.5	45	0.0	1.0	0.0	46.2	88.9	--	67.6	--	--
Triumph TR 461	15.2	46	0.0	1.3	0.0	45.4	--	--	--	--	--
TRIAL AVERAGE	17.9	43	0.0	1.5	0.0	54.2	101.9	141.8	78.0	99.3	
L.S.D. AT .10	2.1	3	NS	0.6	NS	7.4	14.1	14.1			
C.V. %	8.4	4.8		30.5		9.8	10.1	4.8			

-- Data not available.

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not Significant.

TABLE 4. Performance of Grain Sorghum Hybrids evaluated near Martinsburg (Audrain County) on the Richard Primus Farm during 1997-99.

Planted: 1 June 1999
 Harvested: 12 October 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Mexico Silt Loam

Fertilizer: N = 120; P₂O₅ = 100; K₂O = 100 lbs./A
 Herbicide: Ramrod + Atrazine, Buctril
 Insecticide: None
 Previous Crop: Soybean
 Soil Test: pH = 7.3, OM = 2.4%, P = 51, K = 303

Growing Season Rainfall: May = 6.3, June = 5.2, July = 0.0, Aug. = 0.7, Sept. = 2.0, TOTAL = 14.2"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois-ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com-pactness Score	Lodg-ing (%)		1999	1998	1997	2 Yr.	3 Yr.
Asgrow A571	18.0	43	0.0	2.1	0.0	71.4**	131.8**	131.7	101.6	111.6	
Pioneer brand 8305	20.3	44	0.0	2.3	0.0	71.2*	--	124.7	--	--	
NC + 7B47	18.0	38	0.0	3.8	0.0	69.0*	122.3*	--	95.7	--	
Pioneer brand 83G66	20.0	44	0.0	2.1	0.0	68.9*	124.8*	--	96.9	--	
Asgrow Seneca	17.2	36	0.0	3.7	0.0	68.9*	114.3	--	91.6	--	
Asgrow A504	16.9	44	0.0	5.0	0.0	68.1*	115.8	--	91.9	--	
Gold World GW5960	17.4	42	0.0	3.3	0.0	68.1*	124.2*	126.6	96.2	106.3	
Asgrow A355	17.4	40	0.0	3.4	0.0	65.9*	--	--	--	--	
Asgrow A570	16.9	47	0.0	1.3	0.0	65.9*	118.2	124.6	92.1	102.9	
Midland XM9412	18.4	34	0.0	3.7	0.0	65.2*	--	--	--	--	
Asgrow A459	17.0	42	0.0	2.8	0.0	64.9*	--	--	--	--	
Cargill 770Y	16.0	41	0.0	1.5	0.0	64.7*	123.4*	129.0	94.1	105.7	
Pioneer brand 84G62	21.7	41	0.0	2.6	0.0	63.0	--	--	--	--	
Dekalb DK54	21.1	46	0.0	1.4	0.0	62.2	118.0	147.3**	90.1	109.2	
Triumph TR 464	17.9	47	0.0	2.4	0.0	61.7	--	--	--	--	
Midland M4836	19.4	39	0.0	2.6	0.0	61.6	117.1	--	89.4	--	
Dekalb DK44	18.3	42	0.0	1.9	0.0	61.2	117.3	129.7	89.3	102.7	
Midland XM9408	20.0	42	0.0	1.6	0.0	59.9	--	--	--	--	
Triumph TR 65-G	18.9	42	0.0	2.5	0.0	59.4	120.7*	129.6	90.1	103.2	
Cargill 730	18.1	40	0.0	1.9	0.0	58.5	127.3*	129.2	92.9	105.0	
Dekalb DK45	16.9	43	0.0	1.7	0.0	57.2	122.7*	130.9	90.0	103.6	
Dekalb DK47	20.5	42	0.0	1.7	0.0	56.9	105.6	129.5	81.3	97.3	
Dekalb DK52	17.6	43	0.0	2.2	0.0	56.7	--	--	--	--	
Midland M4774	21.3	44	0.0	0.9	0.0	54.7	116.8	--	85.8	--	
Cargill 737	19.0	39	0.0	1.9	0.0	52.9	119.1*	128.9	86.0	100.3	
Dekalb DK53	25.6	46	0.0	1.2	0.0	50.4	124.4*	--	87.4	--	
Triumph TR 461	18.6	45	0.0	1.6	0.0	49.4	--	--	--	--	
TRIAL AVERAGE	18.8	42	0.0	2.3	0.0	62.1	118.2	129.8	90.2	103.4	
L.S.D. AT .10	1.4	3	NS	1.0	NS	8.1	12.9	8.5			
C.V. %	5.4	5.1		30.7		9.3	8.0	4.8			

-- Data not available.

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not Significant.

TABLE 5. Performance of Grain Sorghum Hybrids evaluated at Three North-Central Missouri Locations (Mooresville, Shelbina and Martinsburg) during 1999.

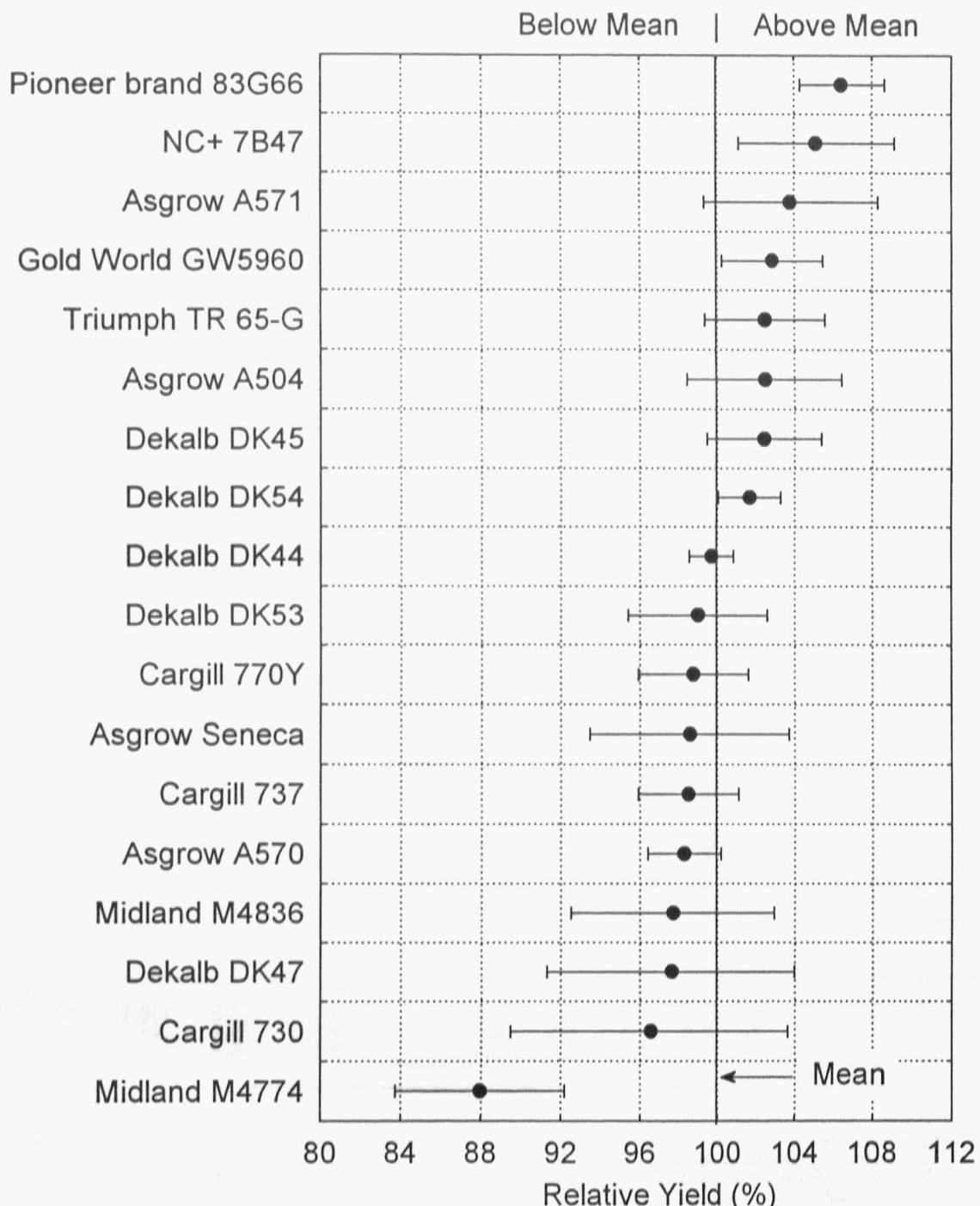
Mooresville	Shelbina	Martinsburg						
Planted: 28 May 1999 Harvested: 15 October 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Putnam Silt Loam	Planted: 25 May 1999 Harvested: 11 October 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Putnam Silt Loam	Planted: 1 June May 1999 Harvested: 12 October 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Mexico Silt Loam						
Growing Season Moisture: 19.6"	Growing Season Moisture: 15.4"	Growing Season Moisture: 14.2"						
Brand-Hybrid	Lodging (%)	Yield (Bu/Acre)						
	Moresvle Selbina Martinbrg Mean	Moresvile Selbina Martinbrg Mean						
Pioneer brand 84G62	0.0 0.0 0.0 0.0	160.0**	63.8**	63.0	95.6**			
Asgrow A571	0.0 0.0 0.0 0.0	148.2	58.3*	71.4**	92.6*			
Pioneer brand 83G66	0.0 0.0 0.0 0.0	152.3*	55.3	68.9*	92.2*			
NC+ 7B47	0.0 0.0 0.0 0.0	157.8*	49.5	69.0*	92.1*			
Pioneer brand 8305	0.0 0.0 0.0 0.0	153.4*	51.5	71.2*	92.0*			
Asgrow A355	0.0 0.0 0.0 0.0	145.8	63.2*	65.9*	91.6*			
Midland XM9412	0.0 0.0 0.0 0.0	151.5*	54.5	65.2*	90.4*			
Asgrow A504	0.0 0.0 0.0 0.0	140.7	61.1*	68.1*	90.0*			
Asgrow A459	0.0 0.0 0.0 0.0	150.0*	53.8	64.9*	89.6*			
Midland M4836	0.0 0.0 0.0 0.0	155.9*	49.7	61.6	89.1			
Dekalb DK54	0.0 0.0 0.0 0.0	145.5	58.6*	62.2	88.8			
Triumph TR 65-G	0.0 0.0 0.0 0.0	153.4*	51.9	59.4	88.2			
Gold World GW5960	0.0 0.0 0.0 0.0	137.1	58.6*	68.1*	87.9			
Dekalb DK44	0.0 0.0 0.0 0.0	144.9	55.2	61.2	87.1			
Asgrow A570	0.0 0.0 0.0 0.0	141.4	50.9	65.9*	86.1			
Dekalb DK47	0.0 0.0 0.0 0.0	142.6	57.2*	56.9	85.6			
Dekalb DK45	0.0 0.0 0.0 0.0	144.0	54.7	57.2	85.3			
Cargill 770Y	0.0 0.0 0.0 0.0	140.1	49.6	64.7*	84.8			
Asgrow Seneca	0.0 0.0 0.0 0.0	125.9	59.0*	68.9*	84.6			
Midland XM9408	0.0 0.0 0.0 0.0	142.9	46.5	59.9	83.1			
Dekalb DK53	0.0 0.0 0.0 0.0	144.5	52.0	50.4	82.3			
Cargill 737	0.0 0.0 0.0 0.0	141.1	53.0	52.9	82.3			
Dekalb DK52	0.0 0.0 0.0 0.0	132.7	56.5*	56.7	82.0			
Triumph TR 464	0.0 0.0 0.0 0.0	130.2	50.4	61.7	80.8			
Triumph TR 461	0.0 0.0 0.0 0.0	146.2	45.4	49.4	80.3			
Cargill 730	0.0 0.0 0.0 0.0	123.8	58.0*	58.5	80.1			
Midland M4774	0.0 0.0 0.0 0.0	125.6	46.2	54.7	75.5			
TRIAL AVERAGE	0.0	0.0	0.0	0.0	143.6	54.2	62.1	86.7
L.S.D. AT .10	NS	NS	NS	NS	10.0	7.4	8.1	6.0
C.V. %					5.0	9.8	9.3	8.9

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not Significant.

Figure 1. Graphic Summary of Two-year (1998/99) Results of Grain Sorghum Hybrids at North and Central Missouri Locations



The "dot" shows average relative yield percentage from the 1998/99 tests at Mooresville, Shelbina and Martinsburg. The bar about each "dot" gives the range in which relative yield percentage will be expected 80% of the time.

TABLE 6. Performance of Grain Sorghum Hybrids evaluated near Hughesville (Pettis County) on the Kenny Tevis Farm during 1997-99.

Planted: 27 May 1999
 Harvested: 15 October 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Summit Silt Loam

Fertilizer: N = 140; P₂O₅ = 45; K₂O = 50 lbs./A
 Herbicide: Ramrod + Atrazine, Buctril
 Insecticide: None
 Previous Crop: Wheat
 Soil Test: pH = 5.8, OM = 2.7%, P = 95, K = 260

Growing Season Rainfall: May = 5.8, June = 4.6, July = 1.6, Aug. = 1.8, Sept. = 3.7, TOTAL = 17.5"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois-ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com-pactness Score	Lodg-ing (%)		1999	1998	1997	2 Yr.	3 Yr.
Dekalb DK44	17.6	47	0.0	2.2	0.0	101.2**	116.6	128.7	108.9	115.5	
Garst 5440	18.6	51	0.0	2.5	0.0	100.5*	146.0**	--	123.3	--	
Pioneer brand 84G62	18.2	50	0.0	2.3	0.0	99.5*	--	--	--	--	
NC + 7B47	16.5	46	0.0	2.7	0.0	99.5*	145.2*	--	122.4	--	
NC + 7R83	17.1	49	0.0	2.6	0.0	99.4*	125.9	126.2	112.7	117.2	
Dekalb DK47	18.5	49	0.0	1.1	0.0	99.2*	118.4	139.6*	108.8	119.1	
Asgrow A571	17.4	50	0.0	3.2	0.0	97.5*	130.7	131.4	114.1	119.9	
Pioneer brand 83G66	17.5	53	0.0	1.8	0.0	97.5*	118.8	--	108.2	--	
Garst 5515	17.0	50	1.1	3.0	0.0	96.1*	--	--	--	--	
Penngain DR	16.4	49	0.0	2.5	0.0	95.2*	--	--	--	--	
HyTest HTG747	18.1	55	0.0	2.0	1.0	93.8*	--	--	--	--	
Dekalb DK53	18.8	52	0.0	1.4	0.0	92.6*	135.1*	--	113.9	--	
Dekalb DK54	17.5	54	1.1	2.3	0.0	91.7*	126.1	149.4**	108.9	122.4	
Asgrow A355	16.5	48	0.0	2.0	0.0	91.6*	--	--	--	--	
Triumph TR 82-G	19.0	53	0.0	2.0	0.0	91.1*	126.3	142.3*	108.7	119.9	
Pioneer brand 8305	17.6	52	0.0	1.4	0.0	90.9*	123.6	125.8	107.3	113.4	
Dekalb DK52	17.4	49	0.0	1.9	0.0	90.0*	--	--	--	--	
HyTest HTG760	18.3	50	0.0	3.0	0.0	90.0*	--	--	--	--	
Cargill 888Y	17.1	49	0.0	2.0	0.0	89.9*	133.5*	--	111.7	--	
HyTest HTG660	16.3	46	0.0	2.7	0.0	89.7*	--	--	--	--	
Asgrow A504	17.3	47	0.0	2.7	0.0	89.0	120.2	--	104.6	--	
Mycogen 444E	16.5	50	0.0	3.0	0.0	88.8	137.8*	128.8	113.3	118.5	
Dekalb DK45	17.4	50	0.0	2.9	0.0	88.6	136.9*	132.1	112.8	119.2	
Triumph TR 447	16.2	47	0.0	1.4	0.0	87.8	109.1	--	98.4	--	
Cargill 833	18.0	46	0.0	1.3	0.0	86.9	127.6	132.8	107.3	115.8	
Triumph TR 481	17.8	53	0.0	1.5	0.0	86.1	--	--	--	--	
Asgrow A570	17.9	51	0.0	1.9	0.0	85.7	124.5	132.3	105.1	114.2	
Asgrow A459	17.4	53	0.0	2.7	2.3	76.1	--	--	--	--	
Asgrow Seneca	16.6	42	0.0	3.0	0.0	72.5	121.9	--	97.2	--	
TRIAL AVERAGE	17.5	50	0.1	2.2	0.1	91.7	123.8	130.1	107.8	115.2	
L.S.D. AT .10	0.9	4	NS	0.6	NS	11.9	15.2	13.0			
C.V. %	3.9	5.2		21.3		9.5	8.9	7.3			

-- Data not available.

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not significant.

TABLE 7. Performance of Grain Sorghum Hybrids evaluated near Urich (Henry County) on the Kurt Gretzinger Farm during 1997-99.

Planted: 8 June 1999
 Harvested: 19 October 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Hartwell Silt Loam

Fertilizer: N=100; P₂O₅=40; K₂O=120 lbs./A
 Herbicide: Roundup, Ramrod + Atrazine, Buctril
 Insecticide: None
 Previous Crop: Soybean
 Soil Test: pH=7.0, OM=3.1%, P=43, K=179

Growing Season Rainfall: May=5.7, June=13.2, July=0.4, Aug.=2.1, Sept.=4.2, TOTAL=25.6"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois-ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com-pactness Score	Lodg-ing (%)		1999	1998	1997	2 Yr.	3 Yr.
Asgrow A459	16.6	46	0.0	1.3	0.2	110.5**	--	--	--	--	--
HyTest HTG760	16.7	49	0.0	1.3	0.0	110.2*	--	--	--	--	--
Cargill 888Y	16.2	48	0.0	1.0	0.0	108.1*	118.4*	--	113.3	--	--
Dekalb DK53	19.9	48	0.0	1.3	0.0	108.1*	106.4	--	107.3	--	--
Dekalb DK54	15.9	51	0.0	1.8	0.0	107.8*	102.4	138.6*	105.1	116.3	--
Asgrow A570	14.5	47	0.0	1.0	0.0	106.9*	103.5	136.6*	105.2	115.7	--
Triumph TR 82-G	18.4	47	0.0	1.3	0.0	106.7*	111.9*	140.8*	109.3	119.8	--
Garst 5515	18.3	45	0.0	2.3	0.0	106.5*	--	--	--	--	--
Pioneer brand 8305	17.2	48	0.0	1.5	0.0	106.5*	108.2*	136.4*	107.4	117.0	--
Pioneer brand 83G66	17.8	46	0.0	1.0	0.0	106.4*	110.0*	--	108.2	--	--
Dekalb DK44	14.4	45	0.0	1.8	0.0	104.5*	98.6	127.1	101.6	110.1	--
Dekalb DK45	15.8	51	0.0	3.0	0.0	104.1*	103.4	132.5	103.8	113.3	--
Asgrow A571	15.3	49	0.0	1.0	0.0	103.3*	112.8*	144.1*	108.1	120.1	--
Dekalb DK47	19.1	44	0.0	1.0	0.0	101.4*	116.8*	131.3	109.1	116.5	--
Cargill 833	15.1	43	0.0	1.0	0.0	101.3*	105.1	135.5*	103.2	114.0	--
NC+ 7B47	15.9	44	0.0	1.7	0.0	101.2*	116.2*	--	108.7	--	--
NC+ 7R83	14.7	47	0.0	1.3	0.0	100.6	117.1*	146.7**	108.9	121.5	--
Asgrow A355	15.0	46	0.0	1.0	0.0	99.6	--	--	--	--	--
Pioneer brand 84G62	20.6	43	0.0	1.7	0.0	98.8	--	--	--	--	--
Garst 5440	17.4	48	0.0	2.0	0.0	97.7	127.2**	--	112.5	--	--
Mycogen 444E	15.4	46	0.0	1.7	0.0	97.7	96.7	136.0*	97.2	110.1	--
Asgrow A504	15.5	48	0.0	2.2	0.0	96.3	110.3*	--	103.3	--	--
HyTest HTG660	15.0	43	0.0	2.7	0.0	94.7	--	--	--	--	--
Triumph TR 447	15.8	43	0.0	1.0	0.0	94.4	107.8	--	101.1	--	--
HyTest HTG747	17.8	46	0.0	1.0	0.0	85.9	--	--	--	--	--
Penngrain DR	13.1	44	0.0	1.2	0.0	85.8	--	--	--	--	--
Dekalb DK52	15.9	46	0.0	1.7	0.0	82.7	--	--	--	--	--
Asgrow Seneca	14.5	39	0.0	1.0	0.0	76.5	118.1*	--	97.3	--	--
Triumph TR 481	24.2	47	0.0	2.3	0.0	70.6	--	--	--	--	--
TRIAL AVERAGE	16.6	46	0.0	1.5	0.0	99.1	109.3	134.4	104.2	114.3	
L.S.D. AT .10	1.9	3	NS	0.5	NS	9.4	19.1	12.3	6.6		
C.V. %	8.6	4.1		26.5		6.9	12.6		6.6		

-- Data not available.

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not significant.

TABLE 8. Performance of Grain Sorghum Hybrids evaluated near Lamar (Barton County) on the Wally Norton Farm during 1997-99.

Planted: 28 May 1999
 Harvested: 11 October 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Parsons Silt Loam

Fertilizer: N=80; P₂O₅=40; K₂O=40 lbs./A
 Herbicide: Ramrod + Atrazine, Buctril
 Insecticide: None
 Previous Crop: Soybean
 Soil Test: pH=5.9, OM=2.1%, P=41, K=179

Growing Season Rainfall: May=8.2, June=5.6, July=2.4, Aug.=3.0, Sept.=5.7, TOTAL=24.9"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois-ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com-pactness (%)	Lodg-ing (%)		1999	1998	1997	2 Yr.	3 Yr.
Dekalb DK53	19.8	46	0.3	1.0	0.0	95.9**	134.1*	--	115.0	--	
Garst 5440	15.5	46	0.3	2.7	0.0	93.5*	107.5	--	100.5	--	
NC+ 7R83	14.6	45	0.0	2.3	0.0	90.0*	111.9	137.4**	101.0	113.1	
Garst 5515	15.5	43	0.0	3.0	0.2	89.5*	--	--	--	--	
HyTest HTG760	15.9	47	0.2	2.3	0.0	89.0*	--	--	--	--	
Mycogen 444E	15.2	44	0.4	3.0	0.0	87.5*	127.4*	90.6	107.5	101.8	
Dekalb DK44	15.2	43	0.0	3.0	0.0	85.1*	118.7*	107.2	101.9	103.7	
Dekalb DK47	16.5	42	0.2	1.0	0.0	85.1*	102.6	93.8	93.9	93.8	
Pioneer brand 83G66	16.6	43	0.0	1.3	0.0	83.6*	111.4	--	97.5	--	
Dekalb DK45	16.9	49	0.0	2.7	0.0	82.0*	119.7*	107.2	100.9	103.0	
Triumph TR 82-G	16.5	43	0.0	1.0	0.0	82.0*	94.6	120.1*	88.3	98.9	
NC+ 7B47	14.5	42	0.0	3.0	0.0	80.4	134.2**	--	107.3	--	
Asgrow A504	15.1	46	0.6	2.3	0.0	80.0	124.4*	--	102.2	--	
Pioneer brand 84G62	15.0	41	0.2	2.3	0.0	79.9	--	--	--	--	
Pioneer brand 8305	18.2	46	0.5	2.0	0.0	79.6	104.6	94.3	92.1	92.8	
Cargill 833	16.7	41	0.0	1.7	0.0	78.8	96.3	109.3	87.6	94.8	
Dekalb DK54	19.0	49	0.0	1.0	0.0	78.3	125.5*	107.0	101.9	103.6	
Asgrow A459	14.7	44	0.0	2.3	0.0	76.3	--	--	--	--	
Penngrain DR	15.5	42	0.7	1.3	0.0	74.6	--	--	--	--	
Dekalb DK52	16.0	44	0.0	2.0	0.0	74.4	--	--	--	--	
Asgrow A570	15.9	45	0.0	1.7	0.0	74.0	118.1*	107.2	96.1	99.8	
HyTest HTG747	16.2	44	0.0	1.7	0.0	73.3	--	--	--	--	
HyTest HTG660	14.6	41	0.2	3.3	0.0	72.0	--	--	--	--	
Asgrow Seneca	14.4	37	0.4	2.3	0.0	69.9	101.5	--	85.7	--	
Asgrow A571	15.0	47	0.0	1.7	0.0	69.8	105.5	112.2	87.7	95.8	
Asgrow A355	15.1	44	0.6	1.3	0.0	68.8	--	--	--	--	
Triumph TR 447	14.1	41	0.0	2.0	0.7	67.2	118.2*	--	92.7	--	
Cargill 888Y	16.3	46	0.3	1.0	0.3	65.2	91.6	--	78.4	--	
Triumph TR 481	20.6	45	0.0	2.0	0.0	64.8	--	--	--	--	
TRIAL AVERAGE	16.0	44	0.2	2.0	0.0	79.0	110.0	107.2	94.5	98.7	
L.S.D. AT .10	1.7	3	NS	0.8	NS	14.4	17.6	21.9			
C.V. %	7.7	4.4		28.9		13.3	11.7	12.1			

-- Data not available.
 ** Highest yielding hybrid in the test.
 * Hybrid which did not yield significantly less than the highest yielding hybrid in the test.
 NS Not significant.

TABLE 9. Performance of Grain Sorghum Hybrids evaluated at Three Southwest Missouri Locations (Hughesville, Urich and Lamar) during 1999.

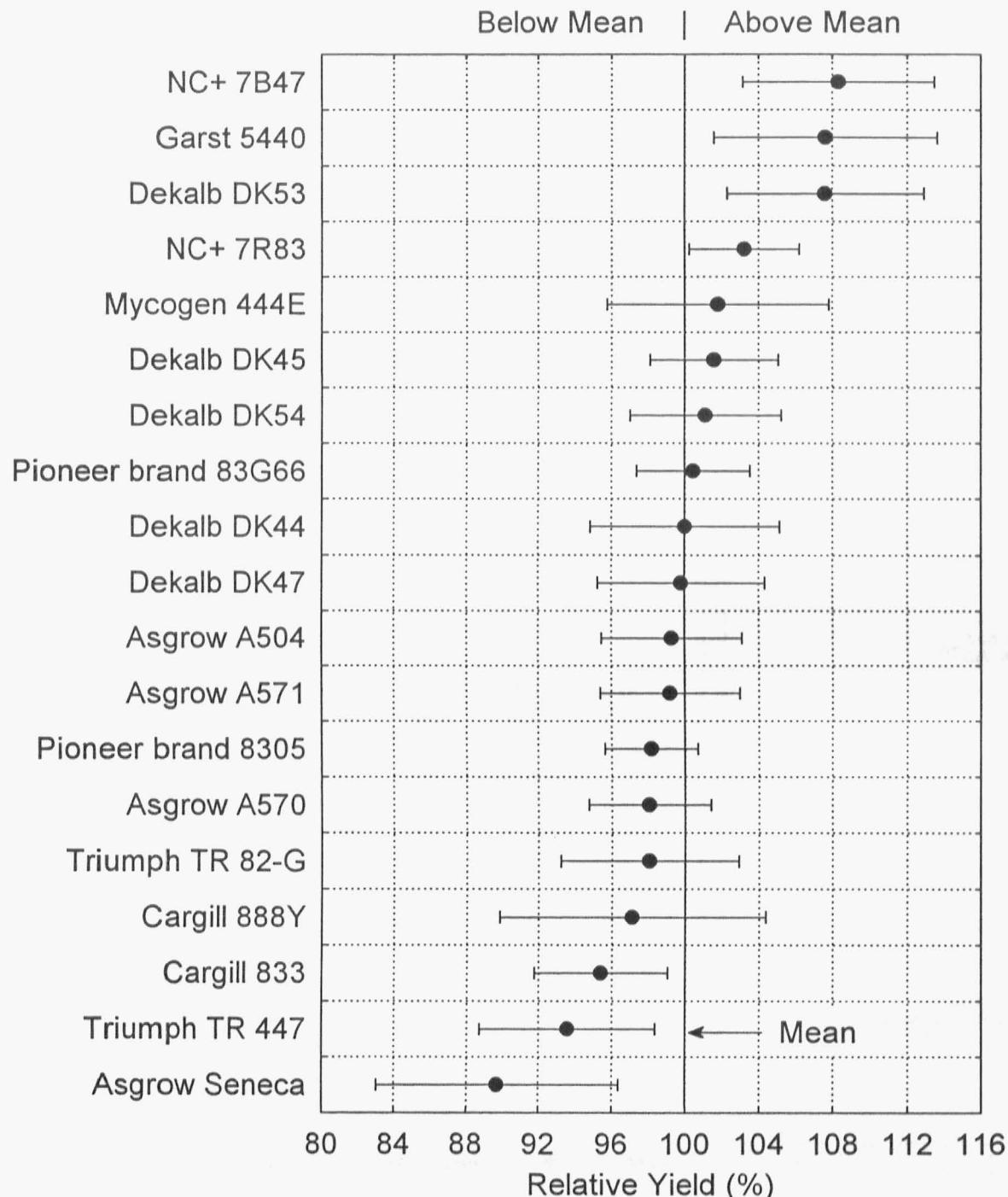
	<u>Hughesville</u>	<u>Urich</u>			<u>Lamar</u>			
	Planted: 27 May 1999 Harvested: 15 October 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Summit Silt Loam	Planted: 8 June 1999 Harvested: 19 October 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Hartwell Silt Loam	Planted: 28 May 1999 Harvested: 11 October 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Parsons Silt Loam	G. Season Moisture:17.5"	G. Season Moisture:25.6"	G. Season Moisture:24.9"		
Brand-Hybrid	Lodging (%)				Yield (Bu/Acre)			
	Hughesville	Urich	Lamar	Mean	Hughesville	Urich	Lamar	Mean
Dekalb DK53	0.0	0.0	0.0	0.0	92.6*	108.1*	95.9**	98.9**
Garst 5515	0.0	0.0	0.2	0.1	96.1*	106.5*	89.5*	97.4*
Garst 5440	0.0	0.0	0.0	0.0	100.5*	97.7	93.5*	97.2*
Dekalb DK44	0.0	0.0	0.0	0.0	101.2**	104.5*	85.1*	96.9*
NC+ 7R83	0.0	0.0	0.0	0.0	99.4*	100.6	90.0*	96.7*
HyTest HTG760	0.0	0.0	0.0	0.0	90.0*	110.2*	89.0*	96.4*
Pioneer brand 83G66	0.0	0.0	0.0	0.0	97.5*	106.4*	83.6*	95.8*
Dekalb DK47	0.0	0.0	0.0	0.0	99.2*	101.4*	85.1*	95.2*
NC+ 7B47	0.0	0.0	0.0	0.0	99.5*	101.2*	80.4	93.7*
Triumph TR 82-G	0.0	0.0	0.0	0.0	91.1*	106.7*	82.0*	93.3*
Pioneer brand 84G62	0.0	0.0	0.0	0.0	99.5*	98.8	79.9	92.7*
Dekalb DK54	0.0	0.0	0.0	0.0	91.7*	107.8*	78.3	92.6*
Pioneer brand 8305	0.0	0.0	0.0	0.0	90.9*	106.5*	79.6	92.3*
Dekalb DK45	0.0	0.0	0.0	0.0	88.6	104.1*	82.0*	91.6
Mycogen 444E	0.0	0.0	0.0	0.0	88.8	97.7	87.5*	91.3
Asgrow A571	0.0	0.0	0.0	0.0	97.5*	103.3*	69.8	90.2
Cargill 833	0.0	0.0	0.0	0.0	86.9	101.3*	78.8	89.0
Asgrow A570	0.0	0.0	0.0	0.0	85.7	106.9*	74.0	88.9
Asgrow A504	0.0	0.0	0.0	0.0	89.0	96.3	80.0	88.4
Cargill 888Y	0.0	0.0	0.3	0.1	89.9*	108.1*	65.2	87.7
Asgrow A459	2.3	0.2	0.0	0.8	76.1	110.5**	76.3	87.6
Asgrow A355	0.0	0.0	0.0	0.0	91.6*	99.6	68.8	86.7
HyTest HTG660	0.0	0.0	0.0	0.0	89.7*	94.7	72.0	85.5
Penngrain DR	0.0	0.0	0.0	0.0	95.2*	85.8	74.6	85.2
HyTest HTG747	1.0	0.0	0.0	0.3	93.8*	85.9	73.3	84.3
Triumph TR 447	0.0	0.0	0.7	0.2	87.8	94.4	67.2	83.1
Dekalb DK52	0.0	0.0	0.0	0.0	90.0*	82.7	74.4	82.4
Triumph TR 481	0.0	0.0	0.0	0.0	86.1	70.6	64.8	73.8
Asgrow Seneca	0.0	0.0	0.0	0.0	72.5	76.5	69.9	73.0
TRIAL AVERAGE	0.1	0.0	0.0	0.1	91.7	99.1	79.0	89.9
L.S.D. AT .10	NS	NS	NS	NS	11.9	9.4	14.4	7.2
C.V. %					9.5	6.9	13.3	10.3

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not significant.

Figure 2. Graphic Summary of Two-year (1998/99) Results of Grain Sorghum Hybrids at Southwest Missouri Locations.



The "dot" shows average relative yield percentage from the 1998/99 tests at Hughesville, Urich and Lamar. The bar about each "dot" gives the range in which relative yield percentage will be expected 80% of the time.

TABLE 10. Performance of Grain Sorghum Hybrids evaluated near Chaffee (Cape Girardeau County) on the Tom Obermann Farm during 1999 and near Randles on the Tom Shoemaker Farm during 1997-98.

Planted: 21 May 1999
 Harvested: 22 September 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Commerce Silt Loam

Fertilizer: N=160; P₂O₅=55; K₂O=20 lbs./A
 Herbicide: Ramrod + Atrazine
 Insecticide: None
 Previous Crop: Soybean
 Soil Test: pH=6.0, OM=4.0%, P=84, K=416

Growing Season Rainfall: May=3.3, June=6.4, July=2.1, Aug.=1.3, Sept.=0.4, TOTAL=13.5"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois-ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com-pactness Score	Lodg-ing (%)		1999	1998	1997	2 Yr.	3 Yr.
HyTest HTG760	14.8	51	0.0	1.6	0.0	77.0**	—	—	—	—	—
FFR Exp. 322	15.3	50	0.0	1.7	0.0	74.9*	114.1**	—	—	94.5	—
Terral TVX91790	14.6	51	0.0	1.3	0.0	73.5*	—	—	—	—	—
Pioneer brand 83G66	15.1	48	0.5	2.0	0.0	71.8*	—	—	—	—	—
FFR 319W	14.8	50	0.0	2.0	0.0	71.6*	—	—	—	—	—
Asgrow A603	14.8	51	0.0	1.8	0.0	67.8*	—	—	—	—	—
Pioneer brand 8313	14.8	45	0.0	2.2	0.0	67.1*	—	—	—	—	—
AgriPro AP 2838	15.1	46	0.0	2.0	0.0	66.9	104.6*	—	—	85.8	—
Mycogen 444E	15.1	46	0.1	2.3	0.0	65.2	94.8	110.6*	80.0	90.2	—
Gold World GW1489	15.1	51	0.0	1.5	0.0	65.2	114.1**	—	—	89.7	—
Dekalb DK44	15.0	44	0.0	2.0	0.0	64.2	93.1	74.9	78.7	77.4	—
Asgrow A570	15.0	51	0.3	1.7	0.0	63.8	105.3*	116.3*	84.6	95.1	—
Asgrow A581	14.7	50	0.0	2.0	0.0	63.4	55.4	—	59.4	—	—
Dekalb DK45	15.3	47	0.0	2.5	0.0	63.2	106.9*	118.5*	85.1	96.2	—
Triumph TR 82-G	15.1	48	0.0	1.2	0.0	62.9	106.0*	125.5**	84.5	98.1	—
Dekalb DK50A	15.2	49	0.0	1.9	0.0	62.8	—	—	—	—	—
Dekalb DK54	12.5	51	0.0	1.5	0.0	62.7	67.9	99.3	65.3	76.6	—
HyTest HTG747	15.0	47	0.0	1.2	0.0	61.8	—	—	—	—	—
AgriPro HSC Cherokee	16.0	46	0.0	1.5	0.0	61.6	101.5*	98.7	81.6	87.3	—
AgriPro AP 9850	13.9	49	0.0	1.2	0.0	60.8	100.6*	115.2*	80.7	92.2	—
Pioneer brand 8282	14.7	49	0.0	2.0	0.0	59.9	100.6*	113.9*	80.3	91.5	—
Asgrow A571	15.0	49	0.3	1.7	0.0	59.4	94.7	120.1*	77.1	91.4	—
Cargill 888Y	14.8	50	0.9	1.2	0.0	58.9	99.7*	—	79.3	—	—
AgriPro AP 2949	15.9	46	0.0	1.5	0.0	58.5	110.4*	—	84.5	—	—
Cargill 833	14.4	43	0.0	1.3	0.0	57.8	96.2*	105.1	77.0	86.4	—
AgriPro X71062	15.1	41	0.4	2.3	0.0	57.4	—	—	—	—	—
Triumph TR 65-G	15.0	47	0.0	1.6	0.0	56.3	—	—	—	—	—
Terral TVX91490	15.6	47	0.0	1.5	0.0	55.8	—	—	—	—	—
Penngrain DR	16.3	45	0.0	1.7	0.0	55.7	68.5	119.1*	62.1	81.1	—
Triumph TR 464	15.3	50	0.0	2.5	0.0	55.5	—	—	—	—	—
Cargill 837	15.4	46	0.1	2.0	0.0	54.7	102.9*	101.7	78.8	86.4	—
Asgrow A504	15.7	48	0.0	2.0	0.0	54.5	—	—	—	—	—
Dekalb DK53	16.0	49	0.3	1.5	0.0	54.0	94.8	—	74.4	—	—
Asgrow A459	15.4	49	0.0	2.0	0.0	52.3	—	—	—	—	—
Hornbeck HBK 2057	14.7	47	0.0	1.5	0.0	50.4	—	—	—	—	—
Dekalb DK36	15.2	46	0.0	1.3	0.0	49.0	—	—	—	—	—
Dekalb DK52	13.5	46	0.4	1.8	0.0	46.3	—	—	—	—	—
<hr/>											
TRIAL AVERAGE	15.0	48	0.1	1.7	0.0	61.2	90.0	107.1	75.6	86.1	
L.S.D. AT .10	NS	2	NS	0.3	NS	10.0	18.7	20.3			
C.V. %	7.1	3.0		11.8		11.9	15.2	13.9			

-- Data not available.

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not significant.

TABLE 11. Performance of Grain Sorghum Hybrids evaluated near Grayridge (Stoddard County) on the Jack Allen Farm during 1999, near Dexter (Stoddard County) on the Chuck Boyers Farm during 1998 and on the Mike Mills Farm during 1997.

Planted: 17 May 1999
 Harvested: 24 September 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Sharkey Silty Clay Loam

Fertilizer: N = 130; P₂O₅ = 30; K₂O = 60 lbs./A
 Herbicide: Ramrod + Atrazine
 Insecticide: None
 Previous Crop: Soybean
 Soil Test: pH = 6.8, OM = 1.2%, P = 124, K = 295

Growing Season Rainfall: May = 4.0, June = 4.3, July = 0.8, Aug. = 2.0, Sept. = 0.1, TOTAL = 11.2"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois-ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com-pactness Score	Lodg-ing (%)		1999	1998	1997	2 Yr.	3 Yr.
Dekalb DK53	14.3	51	0.0	1.5	0.6	100.5**	68.2*	--	84.4	--	
FFR 319W	14.3	53	0.0	1.5	0.0	97.5*	--	--	--	--	
Pioneer brand 8313	14.2	51	0.1	2.2	0.6	94.7*	--	--	--	--	
Cargill 888Y	14.0	53	0.0	1.7	0.0	94.4*	59.2*	--	76.8	--	
Pioneer brand 83G66	14.1	54	0.2	1.5	6.1	88.5*	--	--	--	--	
Dekalb DK54	14.0	54	0.2	1.8	3.5	87.2*	70.5*	61.7	78.9	73.1	
Asgrow A570	14.2	55	0.2	1.5	4.5	86.0*	51.2	73.5*	68.6	70.2	
Mycogen 444E	14.2	53	0.6	1.8	0.6	85.7*	43.9	71.1*	64.8	66.9	
Asgrow A571	14.1	54	0.0	1.5	1.0	85.1*	72.4*	61.1	78.8	72.9	
Hornbeck HBK 2057	14.1	52	0.2	2.0	0.0	84.8*	--	--	--	--	
Triumph TR 464	13.8	53	0.2	2.2	1.8	84.1*	--	--	--	--	
AgriPro AP 2949	14.0	52	0.0	2.2	1.6	84.0*	48.7	--	66.4	--	
Cargill 837	14.1	52	0.6	1.7	0.0	81.7	76.5**	81.6**	79.1	79.9	
Asgrow A603	14.1	54	0.2	1.7	0.5	80.6	--	--	--	--	
Cargill 833	14.1	48	0.2	1.5	0.0	80.5	65.8*	61.1	73.2	69.1	
Dekalb DK44	13.9	49	0.0	1.7	0.0	78.4	61.9*	53.9	70.2	64.7	
Penngrain DR	14.0	52	0.0	1.5	0.0	77.9	61.5*	63.2	69.7	67.5	
Dekalb DK52	13.9	51	0.0	2.0	0.0	77.5	--	--	--	--	
AgriPro X71062	13.9	48	0.1	2.0	1.0	76.4	--	--	--	--	
Pioneer brand 8282	14.1	55	0.0	1.8	16.9	75.7	55.0	71.4*	65.4	67.4	
Terral TVX91490	14.2	51	0.0	2.2	1.9	75.7	--	--	--	--	
HyTest HTG760	14.1	54	0.0	1.5	38.1	73.3	--	--	--	--	
FFR Exp. 322	14.2	55	0.1	1.7	16.5	72.5	54.8	--	63.7	--	
Dekalb DK36	14.0	48	0.0	1.7	0.0	71.6	--	--	--	--	
Triumph TR 65-G	14.1	53	0.1	1.7	39.0	71.4	--	--	--	--	
AgriPro HSC Cherokee	14.2	51	0.0	1.7	23.5	70.6	47.6	62.1	59.1	60.1	
Dekalb DK50A	14.2	55	0.0	1.7	31.4	69.8	--	--	--	--	
Asgrow A504	14.1	51	0.1	1.5	4.9	69.6	--	--	--	--	
HyTest HTG747	14.2	53	0.4	1.5	0.4	67.6	--	--	--	--	
Dekalb DK45	14.1	52	0.4	2.7	27.0	64.5	54.4	67.5*	59.5	62.1	
Triumph TR 82-G	14.3	53	0.0	1.5	36.6	63.2	58.0	71.4*	60.6	64.2	
Gold World GW1489	14.2	55	0.0	1.7	34.1	61.2	54.8	--	58.0	--	
Asgrow A459	14.2	54	0.0	2.0	52.4	58.4	--	--	--	--	
Asgrow A581	13.4	56	0.0	1.5	45.8	57.6	61.6*	--	59.6	--	
Terral TVX91790	14.3	55	0.0	1.5	65.6	56.8	--	--	--	--	
AgriPro AP 2838	13.3	52	0.0	1.5	38.1	52.8	58.1*	--	55.5	--	
AgriPro AP 9850	13.5	56	0.3	1.5	65.5	49.0	50.4	80.5*	49.7	60.0	
TRIAL AVERAGE	14.1	53	0.1	1.7	15.1	75.9	55.7	62.1	65.8	64.6	
L.S.D. AT .10	NS	2.5	3.1	0.4	17.1	32.6	18.6	24.1	15.6	18.0	
C.V. %											

-- Data not available.

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not significant.

TABLE 12. Performance of Grain Sorghum Hybrids evaluated near Portageville (Pemiscot County) on the Delta Research Center during 1999 and New Madrid (New Madrid County) on the Tony Jones Farm during 1997-98.

Planted: 12 May 1999
 Harvested: 21 September 1999
 Planted Population: 104,500 seeds/A.
 Row Spacing: 30 inches
 Soil Type: Tiptonville Silt Loam

Fertilizer: N=100; P₂O₅=0; K₂O=0 lbs./A
 Herbicide: Ramrod + Atrazine
 Insecticide: None
 Previous Crop: Soybean
 Soil Test: pH=5.5, OM=1.0%, P=116, K=203

Growing Season Rainfall: May=4.3, June=4.6, July=0.7, Aug.=0.8, Sept.=0.9, TOTAL=11.3"

Brand-Hybrid	1999						Yield (Bu/Acre)			Means	
	Mois-ture (%)	Plant Ht. (In.)	Off-type Heads (%)	Com-pactness Score	Lodg-ing (%)		1999	1998	1997	2 Yr.	3 Yr.
Dekalb DK44	13.3	55	0.3	1.7	0.8	105.9**	121.3	91.9	113.6	106.4	
Dekalb DK54	14.1	61	0.0	1.8	0.1	99.5*	144.2**	84.3	121.9	109.3	
Dekalb DK53	13.3	58	0.4	1.5	1.1	99.3*	118.6	--	109.0	--	
Dekalb DK50A	14.1	60	0.4	1.9	0.6	93.5*	--	--	--	--	
Asgrow A504	13.5	56	0.0	1.5	1.4	92.4*	--	--	--	--	
Dekalb DK36	12.8	56	0.1	1.6	0.0	89.7*	--	--	--	--	
Cargill 888Y	12.9	52	0.2	1.8	1.8	88.6*	106.8	--	97.7	--	
Mycogen 444E	12.6	54	0.3	2.2	2.9	87.4*	115.8	114.4*	101.6	105.9	
Asgrow A571	13.0	54	0.3	1.8	1.6	85.3	119.9	88.8	102.6	98.0	
AgriPro AP 2949	13.3	52	0.3	2.3	1.5	83.7	105.9	--	94.8	--	
Dekalb DK45	12.8	60	0.4	2.7	1.7	79.4	112.8	109.7*	96.1	100.6	
Triumph TR 65-G	12.2	54	0.0	2.0	13.5	79.3	--	--	--	--	
AgriPro X71062	14.9	50	0.4	2.0	1.3	78.4	--	--	--	--	
AgriPro AP 2838	13.6	54	0.0	2.0	1.8	78.3	133.1*	--	105.7	--	
Gold World GW1489	13.5	57	0.6	2.0	6.5	76.9	127.7	--	102.3	--	
AgriPro HSC Cherokee	13.3	57	0.4	2.0	1.1	76.1	102.9	116.2*	89.5	98.4	
Asgrow A570	12.0	58	0.0	1.5	3.2	76.1	118.6	101.2*	97.4	98.6	
FFR 319W	12.9	55	0.2	1.8	1.5	75.0	--	--	--	--	
Cargill 833	13.0	50	0.0	2.0	2.0	74.5	109.2	103.1*	91.9	95.6	
Asgrow A603	13.5	55	0.2	2.0	0.0	74.4	--	--	--	--	
Asgrow A459	13.1	56	0.0	2.3	5.7	74.3	--	--	--	--	
AgriPro AP 9850	13.8	58	0.0	2.0	0.8	72.6	110.0	102.8*	91.3	95.1	
FFR Exp. 322	11.8	57	0.2	2.0	8.1	72.1	127.7	--	99.9	--	
HyTest HTG747	13.7	57	0.0	1.6	1.8	71.6	--	--	--	--	
Cargill 837	13.0	57	0.0	2.0	1.1	71.0	127.5	102.5*	99.3	100.3	
Triumph TR 82-G	13.8	53	0.5	2.0	2.9	70.1	118.7	108.6*	94.4	99.1	
Dekalb DK52	12.9	53	0.1	2.2	0.0	70.0	--	--	--	--	
Terral TVX91790	12.0	55	0.0	1.8	2.1	69.9	--	--	--	--	
Triumph TR 464	12.9	55	0.3	2.2	5.4	69.9	--	--	--	--	
Hornbeck HBK 2057	13.4	54	0.2	2.3	3.1	68.9	--	--	--	--	
HyTest HTG760	13.4	55	0.2	2.0	3.6	66.7	--	--	--	--	
Terral TVX91490	12.8	54	0.0	2.2	0.5	66.2	--	--	--	--	
Pioneer brand 83G66	13.0	51	0.2	1.9	2.2	65.0	--	--	--	--	
Pioneer brand 8313	13.4	49	0.0	2.3	2.5	59.8	--	--	--	--	
Asgrow A581	12.4	56	0.0	1.6	0.0	58.8	127.0	--	92.9	--	
Pioneer brand 8282	13.2	53	0.2	2.0	9.7	58.1	121.2	113.4*	89.7	97.6	
Penngrain DR	11.9	49	0.0	2.1	0.0	45.4	107.7	98.6	76.6	83.9	
TRIAL AVERAGE	13.1	55	0.2	2.0	2.5	76.3	114.8	102.1	95.6	97.7	
L.S.D. AT .10	1.2	55	NS	0.3	NS	19.6	16.3	15.9			
C.V. %	6.7	6.2		10.4		19.0	10.4	9.2			

-- Data not available.

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not significant

TABLE 13. Performance of Grain Sorghum Hybrids evaluated at Three Southeast Missouri Locations (Chaffee, Grayridge, and Portageville) during 1999.

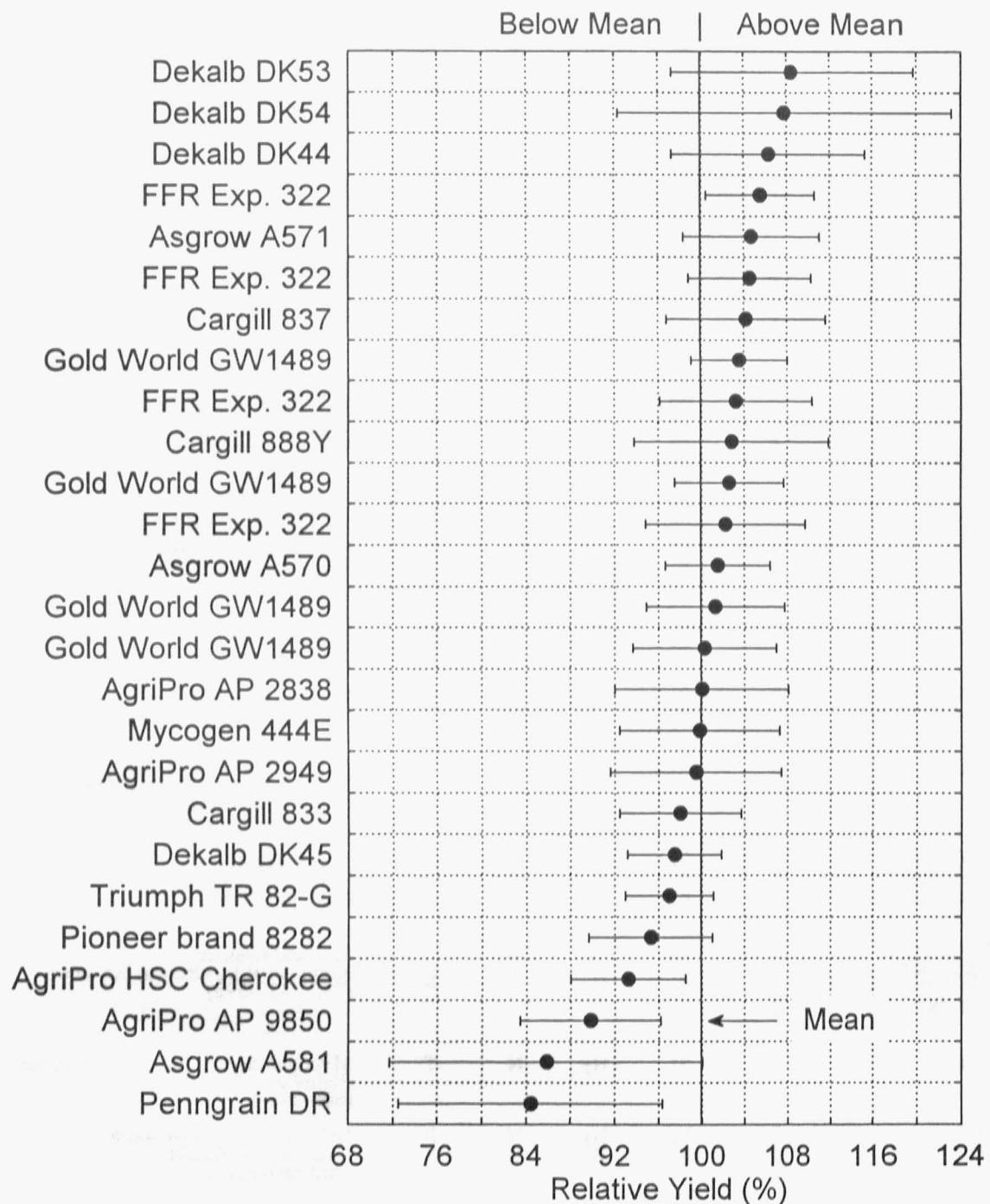
<u>Chaffee</u>	<u>Grayridge</u>				<u>Portageville</u>			
Planted: 21 May 1999 Harvested: 22 September 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Commerce Silt Loam	Planted: 17 May 1999 Harvested: 24 September 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Sharkey S.C. Loam				Planted: 12 May 1999 Harvested: 21 September 1999 Planted Pop.: 104,500 seeds/A. Row Spacing: 30 inches Soil Type: Tiptonville Silt Loam			
G. Season Moisture:13.5"	G. Season Moisture:11.2"				G. Season Moisture:11.3"			
Brand-Hybrid	Chaffee	Grayridg	Portage	Mean	Chaffee	Grayridge	Portageville	Mean
Dekalb DK53	0.0	0.6	1.1	0.6	54.0	100.5**	99.3*	84.6**
Dekalb DK54	0.0	3.5	0.1	1.2	62.7	87.2*	99.5*	83.1*
Dekalb DK44	0.0	0.0	0.8	0.3	64.2	78.4	105.9**	82.8*
FFR 319W	0.0	0.0	1.5	0.5	71.6*	97.5*	75.0	81.4*
Cargill 888Y	0.0	0.0	1.8	0.6	58.9	94.4*	88.6*	80.6*
Mycogen 444E	0.0	0.6	2.9	1.2	65.2	85.7*	87.4*	79.4*
Asgrow A571	0.0	1.0	1.6	0.9	59.4	85.1*	85.3	76.6*
AgriPro AP 2949	0.0	1.6	1.5	1.0	58.5	84.0*	83.7	75.4*
Dekalb DK50A	0.0	31.4	0.6	10.7	62.8	69.8	93.5*	75.4*
Asgrow A570	0.0	4.5	3.2	2.6	63.8	86.0*	76.1	75.3*
Pioneer brand 83G66	0.0	6.1	2.2	2.8	71.8*	88.5*	65.0	75.1*
Asgrow A603	0.0	0.5	0.0	0.2	67.8*	80.6	74.4	74.3
Pioneer brand 8313	0.0	0.6	2.5	1.0	67.1*	94.7*	59.8	73.9
FFR Exp. 322	0.0	16.5	8.1	8.2	74.9*	72.5	72.1	73.2
HyTest HTG760	0.0	38.1	3.6	13.9	77.0**	73.3	66.7	72.3
Asgrow A504	0.0	4.9	1.4	2.1	54.5	69.6	92.4*	72.2
Cargill 833	0.0	0.0	2.0	0.7	57.8	80.5	74.5	70.9
AgriPro X71062	0.0	1.0	1.3	0.8	57.4	76.4	78.4	70.7
Dekalb DK36	0.0	0.0	0.0	0.0	49.0	71.6	89.7*	70.1
Triumph TR 464	0.0	1.8	5.4	2.4	55.5	84.1*	69.9	69.8
AgriPro HSC Cherokee	0.0	23.5	1.1	8.2	61.6	70.6	76.1	69.4
Cargill 837	0.0	0.0	1.1	0.4	54.7	81.7	71.0	69.1
Dekalb DK45	0.0	27.0	1.7	9.6	63.2	64.5	79.4	69.0
Triumph TR 65-G	0.0	39.0	13.5	17.5	56.3	71.4	79.3	69.0
Hornbeck HBK 2057	0.0	0.0	3.1	1.0	50.4	84.8*	68.9	68.0
Gold World GW1489	0.0	34.1	6.5	13.5	65.2	61.2	76.9	67.8
HyTest HTG747	0.0	0.4	1.8	0.7	61.8	67.6	71.6	67.0
Terral TVX91790	0.0	65.6	2.1	22.6	73.5*	56.8	69.9	66.7
AgriPro AP 2838	0.0	38.1	1.8	13.3	66.9	52.8	78.3	66.0
Terral TVX91490	0.0	1.9	0.5	0.8	55.8	75.7	66.2	65.9
Triumph TR 82-G	0.0	36.6	2.9	13.2	62.9	63.2	70.1	65.4
Pioneer brand 8282	0.0	16.9	9.7	8.9	59.9	75.7	58.1	64.6
Dekalb DK52	0.0	0.0	0.0	0.0	46.3	77.5	70.0	64.6
Asgrow A459	0.0	52.4	5.7	19.4	52.3	58.4	74.3	61.7
AgriPro AP 9850	0.0	65.5	0.8	22.1	60.8	49.0	72.6	60.8
Asgrow A581	0.0	45.8	0.0	15.3	63.4	57.6	58.8	59.9
Penngrain DR	0.0	0.0	0.0	0.0	55.7	77.9	45.4	59.7
TRIAL AVERAGE	0.0	15.1	2.5	5.9	61.2	75.9	76.3	71.1
L.S.D. AT .10	NS	32.6	NS	11.2	10.0	18.6	19.6	9.5
C.V. %					11.9	17.9	19.0	.4

** Highest yielding hybrid in the test.

* Hybrid which did not yield significantly less than the highest yielding hybrid in the test.

NS Not significant.

Figure 3. Graphic Summary of Two-year (1998/99) Results of Grain Sorghum Hybrids at Southeast Missouri Locations.



The "dot" shows average relative yield percentage from the 1998 tests at Randles, Dexter and New Madrid and the 1999 tests at Chaffee, Grayridge and Portageville. The bar about each "dot" gives the range in which relative yield percentage will be expected 80% of the time.

TABLE 14. GRAIN SORGHUM SEED COMPANY ADDRESSES AND CHARACTERISTICS* OF HYBRIDS.

Brand-Hybrid	Maturity Group	Color			Endo-Sperm Type	Biotype E Gr. Bug Response	Company Addresses
		Seed Coat	Endo-Sperm	Type			
AgriPro Cherokee	2	R	Hy	N	R		
AgriPro AP2838	2	R	W	NN	R		
AgriPro AP2949	3	R	W	NN	R		
AgriPro AP9850	3	R	Hy	NN	R		
AgriPro X71062	2	Bz	Hy	N	R		
Asgrow Seneca	2	Bz	Hy	N	R		
Asgrow A355	2	-	-	NN	-		
Asgrow A459	2	Bz	-	NN	R		
Asgrow A504	2	Hy	Hy	N	S		
Asgrow A570	-	-	-	-	-		
Asgrow A571	3	R	W	-	-		
Asgrow A581	3	-	-	NN	-		
Asgrow XP 6126	3	W	W	N	-		
Cargill 730	2	Bz	Hy	N	R		
Cargill 737	2	Bz	Hy	NN	SS		
Cargill 770Y	2	Y	Hy	NN	R		
Cargill 833	3	Bz	Hy	NN	SS		
Cargill 837	3	Bz	Hy	N	S		
Cargill 888Y	3	Y	Hy	N	T		
Dekalb DK36	2	Bz	Y	N	R		
Dekalb DK44	2	Bz	Y	NN	R		
Dekalb DK45	2	Bz	Y	NN	R		
Dekalb DK47	2	Bz	Y	NN	R		
Dekalb DK50A	2	Bz	Y	NN	R		
Dekalb DK52	3	Bz	Y	NN	R		
Dekalb DK53	3	Bz	Y	NN	R		
Dekalb DK54	3	Bz	Y	N	R		
FFR 319W	2	W	W	N	R		
FFR EXP 322	2	R	W	N	R		
Garst 5440	3	R	W	N	R		
Garst 5515	2	Bz	Hy	N	S		
Gold World GW1489	3	R	W	N	R		
Gold World GW5960	2	Bz	Hy	N	R		
Hornbeck HBK 2057	3	R	W	N	T		
Hytest HTG 660	1	Bz	Y	Hw	R		
Hytest HTG 747	2	R	Y	Hw	-		
Hytest HTG 760	2	Bz	Y	Hw	R		
Midland XM 9408	4	Bz	W	W	R		
Midland XM 9412	4	R	W	N	R		
Midland M 4774	2	Bz	Hy	-	T		
Midland M 4836	2	R	R	-	-		
Mycogen 444E	3	Bz	Hy	N	T		
NC+ 7B47	2	Bz	Hy	N	R		
NC+ 7R83	3	R	W	W	S		
Penngrain DR	2	Y	Y	N	R		
Pioneer brand 8305	4	R	W	W	S		
Pioneer brand 83G66	3	R	W	Hw	R		
Pioneer brand 84G62	3	Bz	Y	Hw	R		

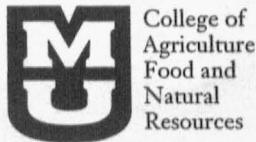
TABLE 14. Continued.

Brand-Hybrid	Mat- urity Group	Color			Endo- Sperm Type	Biotype E Gr. Bug Response	Company Addresses
		Seed Coat	Endo- Sperm				
Pioneer brand 8282	3	R	W	N	S	Pioneer Hi-Bred Int., Inc., 6767 Old Madison Pike, Suite 110	
Pioneer brand 8313	3	Bz	Y	N	R	Huntsville, AL 35806 (256-971-0760)	
Pioneer brand 83G66	3	R	W	N			
Terral TVX91490	2	R	W	N	T	Terral Seed, Inc., P.O. Box 826	
Terral TVX91790	3	R	W	N	T	Lake Providence, LA 71254 (318-559-2840)	
Triumph TR 65-G	3	R	W	N	R	Triumph Seed Co., Inc., P.O. Box 1050 (Hwy. 62 Bypass)	
Triumph TR 82-G	4	R	W	N	R	Ralls, TX 79357 (806-253-2584)	
Triumph TR 447	1	W	W	N	R		
Triumph TR 461	2	R	W	N	R		
Triumph TR 464	2	Bz	W	N	R		
Triumph TR 481	4	Bz	W	N	R		

* Descriptions for Commercial Hybrids were provided by the companies submitting them for evaluation.

- Data not provided by the companies.

Color Codes		Endosperm Type Codes		Insect Reaction Codes	
Bz	- Bronze	Hw	- Heterowaxy	S	- Susceptible
Hy	- Heteroyellow	N	- Nonwaxy	T	- Tolerant
W	- White	W	- Waxy	R	- Resistant
Y	- Yellow				
R	- Red				



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