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## 1984 Grain Sorghum Performance Trials

J.J. Bonnemann  
*South Dakota State University*

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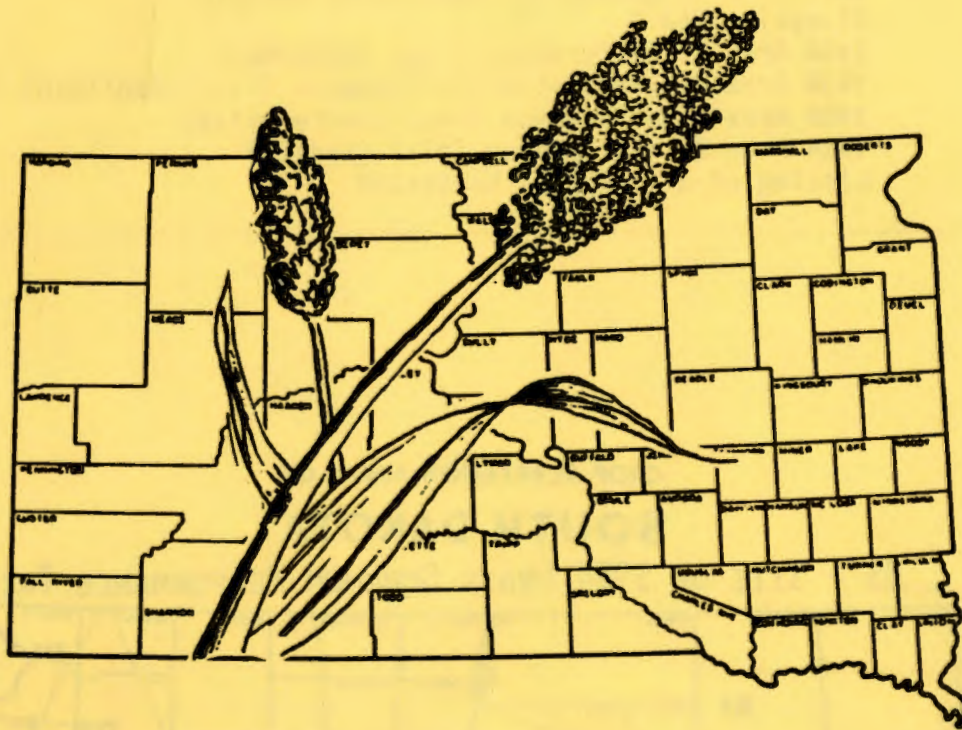
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1984

# GRAIN SORGHUM PERFORMANCE TRIALS

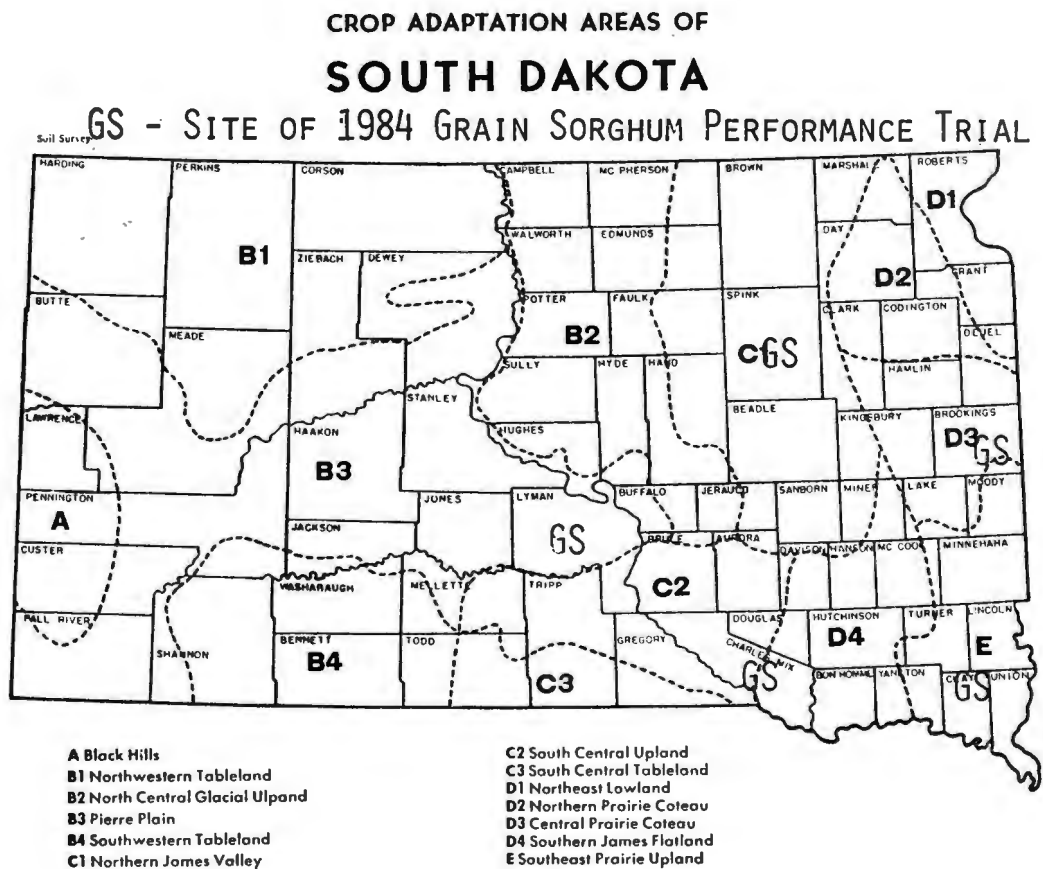


Plant Science Department  
Agricultural Experiment Station  
South Dakota State University

Brookings, South Dakota  
57007-1096

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## 1984 Grain Sorghum Performance Trials

J. J. Bonnemann, Assistant Professor

Plant Science Department  
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South Dakota State University  
Brookings, SD 57007-1096

The relative performance of grain sorghum cultivars grown under similar environmental conditions is evaluated in this report for the 1984 crop season. Performance records of all entries harvested in 1984 and available two- through four-year averages are presented. The trials were conducted under the Plant Science Department program in Crop Performance Testing, Agricultural Experiment Station, South Dakota State University.

### Location of the 1984 Trials

For adequate performance evaluation, all entries must be grown under similar environmental conditions. Crop adaptation areas in which the trials are conducted are based upon soil type, elevation, temperature, rainfall and other physical differences. The exact location of each trial, row spacing and dates of seeding and harvesting are included in Table 1. Soil classification and data from soil samples taken, cultural practices and fertilizer applications are shown in Table 2.

### Weather and Climatic Conditions

Climatic data for the 1984 grain sorghum year (Table 3) are based upon U.S. Monthly Climatological Data. Data is not available from the Geddes site so the Pickstown data is presented. Precipitation quantities would vary from the actual trial site to the recording station but temperatures are similar over a much wider area and considered applicable to the trial area.

Field conditions were wet in the eastern third of South Dakota during most of the growing period. Field work began late and ended late. Good moisture was available for germination but stands were reduced at Redfield and Beresford where the cool, saturated soil in early June seriously retarded growth. Growth was generally behind and uneven until mid-summer at most sites, especially parts of the state where standing water became a problem. Growing degree days were below normal, moreso in the eastern portion of the state. The mean September temperature was one of the lowest of record across the state, delaying maturity of all standing crops. Maturation was further hindered by a killing frost in the lower 20's on September 25-26 causing growth to halt in many fields. Early October fog, overcast skies and recurring rains or drizzle hindered drydown so some harvest was very spotty and delayed until the end of the month.

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The assistance of the following individuals is acknowledged: Station personnel, D. L. Beck, M. S. Esser, B. E. Lawrensen, Herb Lund, Lucian Edler, and Kevin Kirby; and farmer-cooperators Jack Biddle, Harlan Halverson and Oscar Thompson.

Table 1. Location of Trials, Date of Seeding and Harvesting of Grain Sorghum Performance Trials, South Dakota, 1984.

County	Location and Post Office	Row Spacing	Dates	
			Seeded	Harvested
Brookings	Plant Science Farm, Brookings	36"	May 25	abandoned
Charles Mix	John Biddle Farm, Geddes	30"	May 16	October 4
Clay	Southeast Experiment Farm, Beresford	36"	May 21	October 17
Lyman	Harlan Halverson Farm, Kennebec	36"	June 5	October 4
Spink	James Valley Research Farm, Redfield	30"	May 31	October 16

Yields were good in most trials though conditions were less than favorable. Weeds were a problem in many fields as excess precipitation in early June moved the herbicide through the soil more rapidly than desired to be effective.

The cool, saturated soil at Brookings delayed growth throughout the season so that heading did not begin until after mid-August. This coupled with the cool September and early frost nearly prevented seed development and then birds fed heavily on the few kernels that did set. The Brookings trial was abandoned.

Periods of excessively high temperatures occurred only at Kennebec but did not appear to affect pollination as seriously as in 1983. The opposite was true in the eastern portion of the state where cooler than normal temperatures delayed heading and pollination until mid to late August in some areas.

#### Hybrid Entry Procedure

Only grain sorghums offered for sale in South Dakota or being produced for 1985 distribution were eligible for entry. A closed-pedigree hybrid was entered by the name and number under which it was sold by the participating company. All entries maintained a minimum laboratory germination of 80% as required by South Dakota Certification Standards. A nominal fee was charged for each entry in each trial area. Proprietary entries included are the choice of the participating companies.

Table 2. Soil Sample Analysis and Cultural Practices of 1984 Grain Sorghum Sites.

County and crop adaptation areas	Classification	Lab analysis				Field preparations			
		Org. mat. %	P lbs/A	K	pH	Methods	lb/A N P K		
Lyman, B3	Pierre clay	2.6	15	990	7.7	sweeps in spring	grain stubble		
Spink, C1(irr)	Beotia SiCl	2.6	36	700	7.2	field cult, harrow	240	55	0
Chas. Mix, C2	Highmore SiCl	2.4	16	820	6.6	disced	soybeans		
Brookings, D3	Lamour SiL	3.0	36	340	6.8	chisled, sudan stub.	40	30	0
Clay, E	Egan SiL	3.0	51	840	6.5	plowed, small grain	160	60	40

Table 3. Temperature and Precipitation Data for the 1984 Grain Sorghum Performance Trials, South Dakota.

Location	Data	May	June	July	August	Sept.	Total
Brookings 2 NE	Precip. (inches)	3.06	8.48	2.17	1.64	1.33	16.68
	Temp. (mean)	53.0	65.0	69.8	70.6	54.4	
	Days 90° F +	--	--	2	5	2	
	First freeze		9/26 - 23°				
Centerville 6 SE	Precip. (inches)	4.06	7.94	2.06	1.15	1.34	16.55
	Temp. (mean)	56.2	69.9	73.1	73.0	57.2	
	Days 90° F +	--	1	4	10		
	First freeze		9/26 - 19°				
Pickstown	Precip. (inches)	3.42	8.70	3.59	0.56	0.92	17.19
	Temp. (mean)	57.3	69.8	73.7	75.7	59.2	
	Days 90° F +	1	1	5	14	3	
	First freeze		9/25 - 29°				
Redfield 6E	Precip. (inches)	2.33	6.00	2.65	4.71	0.82	16.51
	Temp. (mean)	53.7	66.4	72.0	72.8	54.9	
	Days 90° F +	--	--	6	9	2	
	First freeze		9/26 - 22°				
Kennebec	Precip. (inches)	2.10	4.01	3.19	2.12	0.88	12.30
	Temp. (mean)	56.9	69.1	75.9	77.2	60.4	
	Days 90° F +	2	--	19	23	6	
	First freeze		9/25 - 24°				

#### Experimental Procedure

Each trial consisted of four replications of two-row plots. Each plot was randomly located within each replication. All trials were seeded with a 31-cell cone seeder mounted above flexi-planter units. A herbicide recommended for grassy weed control was banded over each row at seeding time. The row spacings used are indicated in Table 1 and plot lengths were dependent upon area available at each site. Seeding rates were adequate, under normal conditions, to achieve an average of 2 and 3 plants per foot of row in the central and eastern portions of the state, respectively. The trials at Redfield were irrigated by the gravity method.

Moisture determinations were made on September 18-20 just prior to normal first-frost dates. This information is more informative as to maturity than determinations made at harvest. Moisture and test weight of the grain realistically indicate relative maturity. Grain samples for moisture determinations were ten to twelve heads, 400-500 grams, cut from each entry, placed in a polyethylene bag, tagged and sealed. The samples were threshed, cleaned, and moisture percentages determined with an electronic moisture meter. The upper limits of the meter are 35% and the data in the tables showing 30.0% could be that or considerably higher. Data above 30.0 would generally indicate lines of late maturity for the area.

Harvesting is done soon after the first frost because the delay could contribute to higher levels of lodging or possibly be caught in bad weather of the later fall. This was done at Kennebec and Geddes. Delays caused by cool, foggy conditions until mid-October greatly increased the lodging percentages recorded at Beresford and Redfield sites. Harvested grain was cut from a 10-foot section of each row for 10-15 feet in each harvested plot. Heads were bagged at harvest, tagged and tied, and returned to Brookings for drying and threshing. Yields are reported in pounds per acre ( $\times 1.121$  for kg/ha) with three or four replications harvested for yield purposes and one left for observational purposes.

### Discussion of Results

Yields were quite variable from site to site and within trials. Hundred-weight yields topped the 70's at Beresford and Redfield and started at just over 40 at Kennebec. The poorest yields were in the Kennebec trial. The lateness of heading generally favored the shorter season entries. Moisture was above 35% when sampled in many entries in all trials; the meter was topped out at 35.0%.

Quality of many entries was not seriously affected by the killing frost as test weights are good for most entries in all trials. The very late maturity entries suffered 4-5 pound reductions in test weight.

The seed moisture recorded was obtained about a week before the first hard frost was recorded. Though quality was not apparently affected, the cool temperatures during September and wet, cool conditions in October did not favor drydown and the harvested grain required drying down in many instances.

Lodging was a serious problem at Beresford and Redfield where harvest was delayed by the unfavorable weather. A combination of killing temperatures and high velocity wind in late September caused serious lodging in unharvested fields.

Bird damage was a serious problem at Brookings and on some entries at Beresford. Trials located within larger fields of cooperators suffered little damage. Yield, quality and test weight were affected by the stage of growth when temperature or moisture effects occurred.

### Measurement of Performance

Variations in factors such as soil fertility, slope or stand may cause varieties of equal potential to yield differently. Mathematical determinations were made to determine if yield differences were caused by variations in environment or were true varietal differences. Small yield differences have no significance.

Yields of 1983 and other agronomic data are reported in Tables 4 through 7. A listing of all entries is presented in Table 8.

TABLE 4. 1984 GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3, HARLON HALVERSON FARM, KENNEBEC, LYMAN COUNTY, SOUTH DAKOTA

BRAND	VARIETY	PLANTS 50 PCT MO-DAY	PLANT HEIGHT IN (CM)	EARLY MOIST PCT	STALK LODGN PCT	TEST WT. LB/BU	GRAIN YFLD LB/A (KG/HA)
ONE-YEAR							
DEKALB/PFIZER	DK-38	47 (119)	29.0	10	57	4392 ( 4920)	
DEKALB/PFIZER	DK-28	39 ( 99)	27.0	.	58	3822 ( 4280)	
DEKALB/PFIZER	DK-39Y	41 (104)	30.0	.	53	3216 ( 3600)	
DEKALB/PFIZER	DK-18	40 (102)	27.0	10	58	4527 ( 5070)	
DISCO	182R	38 ( 97)	30.0	.	56	4558 ( 5100)	
DISCO	178	45 (114)	28.0	10	56	4482 ( 5020)	
SEEDTEC	652G	48 (122)	30.0	.	55	2537 ( 2840)	
NORTHRUP KING	NK BRAND 1580	43 (109)	30.0	10	58	4830 ( 5410)	
NORTHRUP KING	NK BRAND 1210	42 (107)	29.0	.	57	3984 ( 4460)	
PIONEER BRAND	894	38 ( 97)	23.0	.	59	4314 ( 4830)	
PIONEER BRAND	8790	41 (104)	28.0	.	58	3844 ( 4300)	
PIONEER BRAND	8855	43 (109)	27.0	.	59	4426 ( 4960)	
TRIUMPH	TWO-50YG	45 (114)	30.0	.	55	4202 ( 4710)	
TRIUMPH	TWO-48YG	40 (102)	30.0	.	56	4517 ( 5060)	
CARGILL	30	42 (107)	30.0	.	54	2822 ( 3160)	
CARGILL	22	41 (104)	27.0	.	58	3891 ( 4360)	
CARGILL	40	42 (107)	30.0	.	53	2092 ( 2340)	
CARGILL	X8380	42 (107)	30.0	.	55	3852 ( 4310)	
CARGILL	X11005	40 (102)	30.0	.	56	3364 ( 3770)	
CARGILL	X13003	46 (117)	30.0	.	56	3276 ( 3670)	
WESTERN	WS-210	42 (107)	30.0	.	53	3315 ( 3710)	
WESTERN	WS-205	46 (117)	30.0	.	57	3902 ( 4370)	
WARNER	W-545T	37 ( 94)	29.0	.	58	3746 ( 4190)	
WARNER	W-564T	45 (114)	30.0	20	57	4222 ( 4730)	
WARNER	WX 83108	42 (107)	30.0	.	52	2586 ( 2900)	
WARNER	WX 83111	47 (119)	30.0	.	55	4150 ( 4650)	
WARNER	WX 84003	38 ( 97)	29.0	.	58	4221 ( 4730)	
WARNER	WX 84041	42 (107)	30.0	.	56	3911 ( 4380)	
FUNK'S	G-251	36 ( 91)	25.0	.	59	3915 ( 4380)	
FUNK'S	G-499	40 (102)	30.0	.	52	2743 ( 3070)	
FUNK'S	G-1460	44 (112)	30.0	10	59	4266 ( 4780)	
FUNKS	HW5883	42 (107)	30.0	.	56	3631 ( 4070)	
CENEX	224T	38 ( 97)	30.0	.	58	4173 ( 4670)	
CENEX	228T	45 (114)	30.0	10	57	3876 ( 4340)	
CENEX	201T	43 (109)	25.0	.	57	3778 ( 4230)	
ENTRY AVERAGES		42	29	11	56	3811	
LSD (.05)						863	
CV - %						16.8	
TWO-YEAR							
DEKALB/PFIZER	DK-38	42 (107)	27.0	10	56	2825 ( 3160)	
DEKALB/PFIZER	DK-28	37 ( 94)	28.0	.	58	2896 ( 3240)	
DEKALB/PFIZER	DK-39Y	39 ( 99)	30.0	.	54	2261 ( 2530)	
DEKALB/PFIZER	DK-18	39 ( 99)	26.0	10	58	3213 ( 3600)	
SEEDTEC	652G	44 (112)	30.0	.	56	2384 ( 2670)	
NORTHRUP KING	NK BRAND 1210	40 (102)	29.0	.	58	3099 ( 3470)	
PIONEER BRAND	894	36 ( 91)	25.0	.	59	2901 ( 3250)	
PIONEER BRAND	8790	39 ( 99)	27.0	.	59	2792 ( 3130)	
PIONEER BRAND	8855	39 ( 99)	28.0	.	58	2968 ( 3320)	
TRIUMPH	TWO-50YG	42 (107)	30.0	.	56	3113 ( 3490)	
TRIUMPH	TWO-48YG	37 ( 94)	30.0	.	57	3339 ( 3740)	
WESTERN	WS-205	43 (109)	30.0	.	57	2722 ( 3050)	
WARNER	W-545T	36 ( 91)	29.0	.	58	2933 ( 3280)	
WARNER	W-564T	43 (109)	30.0	20	57	3179 ( 3560)	
WARNER	WX 83108	41 (104)	30.0	.	55	2339 ( 2620)	
FUNK'S	G-251	36 ( 91)	26.0	.	58	2814 ( 3150)	
CENEX	224T	37 ( 94)	30.0	.	58	3139 ( 3520)	
CENEX	228T	42 (107)	30.0	10	57	2894 ( 3240)	
ENTRY AVERAGES		39	29	13	57	2878	
LSD (.05)						370	
CV - %						17.7	







TABLE 5. (CONT.) REDFIELD, SD

		THREE-YEAR					
DEKALB/PFIZER	DK-18	8-6	46 (117)	26.0	80	57	5836 ( 6540)
DEKALB/PFIZER	DK-38	8-10	53 (135)	26.0	87	55	6276 ( 7030)
P-A-G	2250	8-10	43 (109)	26.0	8	56	4865 ( 5450)
WARNER	W-564T	8-11	50 (127)	27.0	38	57	6048 ( 6770)
CARGILL	22	8-12	42 (107)	26.0	35	56	5348 ( 5990)
TRIUMPH	TWO-50YG	8-13	49 (124)	26.0	45	56	5596 ( 6270)
SEEDTEC	652G	8-15	54 (137)	28.0	48	54	5502 ( 6160)
WARNER	W-655T	8-15	52 (132)	26.0	27	54	5472 ( 6130)
TRIUMPH	TWO-54YG	8-16	54 (137)	27.0	45	54	5470 ( 6130)
CARGILL	30	8-17	48 (122)	27.0	43	55	5139 ( 5750)
CARGILL	40	8-18	49 (124)	27.0	15	54	5279 ( 5910)
ENTRY AVERAGES		8-12	49	27	43	55	5529
LSD (.05)							423
CV - %							11.6
		FOUR-YEAR					
DEKALB/PFIZER	DK-38	8-10	53 (135)	27.0	87	56	5894 ( 6600)
TRIUMPH	TWO-50YG	8-10	49 (124)	27.0	45	57	5490 ( 6150)
WARNER	W-655T	8-14	51 (130)	27.0	27	55	5387 ( 6030)
SEEDTEC	652G	8-15	52 (132)	28.0	48	55	5402 ( 6050)
TRIUMPH	TWO-54YG	8-16	52 (132)	28.0	45	55	5390 ( 6040)
CARGILL	30	8-16	48 (122)	27.0	43	55	5000 ( 5600)
ENTRY AVERAGES		8-13	51	27	49	55	5427
LSD (.05)							416
CV - %							9.8





TABLE 7. (CONT.) GEDDES, SD

BRAND	VARIETY	PLANTS 50 PCT MO-DAY	PLANT HEIGHT IN (CM)	EARLY MOIST PCT	STALK LODGN PCT	TEST WT. LB/BU	GRAIN YIELD LB/A (KG/HA)
TWO-YEAR							
ASGROW	CORRAL		53 (135)	29.0	.	57	4370 ( 4890)
DEKALB/PFIZER	DK-42		43 (109)	22.0	.	55	3901 ( 4370)
DEKALB/PFIZER	DK-38		51 (130)	28.0	.	57	4566 ( 5110)
DEKALB/PFIZER	DK-28		42 (107)	26.0	5	59	3705 ( 4150)
DEKALB/PFIZER	DK-39Y		44 (112)	22.0	.	58	3942 ( 4410)
DEKALB/PFIZER	DK-18		45 (114)	23.0	.	58	3781 ( 4230)
SEEDTEC	652G		49 (124)	27.0	.	57	4115 ( 4610)
NORTHRUP KING	NK BRAND 2244		47 (119)	29.0	.	57	4249 ( 4760)
P-A-G	3339		50 (127)	29.0	.	57	3846 ( 4310)
PIONEER BRAND	8790		45 (114)	27.0	.	58	3489 ( 3910)
PIONEER BRAND	8680		43 (109)	28.0	.	56	4263 ( 4770)
TRIUMPH	TWO-54YG		52 (132)	30.0	5	58	4550 ( 5100)
TRIUMPH	TWO-50YG		46 (117)	29.0	.	59	4576 ( 5120)
TRIUMPH	TWO-48YG		40 (102)	21.0	.	59	4067 ( 4550)
CARGILL	30		44 (112)	22.0	.	56	3936 ( 4410)
CARGILL	22		44 (112)	26.0	.	57	3633 ( 4070)
CARGILL	40		47 (119)	29.0	.	58	4221 ( 4730)
O'S GOLD	GS 709		52 (132)	23.0	.	58	4460 ( 4990)
WESTERN	WS-205		50 (127)	28.0	2	58	4719 ( 5280)
WARNER	W-564T		47 (119)	29.0	.	58	4738 ( 5310)
FUNK'S	G-499		42 (107)	29.0	.	55	3565 ( 3990)
FUNK'S	G-1460		48 (122)	28.0	.	59	3909 ( 4330)
CENEX	310T		52 (132)	29.0	.	59	4506 ( 5050)
CENEX	230T		46 (117)	21.0	.	58	4410 ( 4940)
ENTRY AVERAGES			46	27	4	57	4146
LSD (.05)							N.S.
CV - %							10.2
-----							
THREE-YEAR							
ASGROW	CORRAL		49 (124)	28.0	10	58	4438 ( 4970)
DEKALB/PFIZER	DK-42		41 (104)	24.0	2	56	3968 ( 4440)
DEKALB/PFIZER	DK-38		48 (122)	27.0	4	58	4657 ( 5210)
DEKALB/PFIZER	DK-28		40 (102)	24.0	3	59	3920 ( 4390)
DEKALB/PFIZER	DK-39Y		41 (104)	25.0	.	58	3912 ( 4380)
SEEDTEC	652G		47 (119)	27.0	43	57	4171 ( 4670)
TRIUMPH	TWO-50YG		44 (112)	29.0	12	58	4560 ( 5110)
TRIUMPH	TWO-48YG		39 ( 99)	21.0	2	58	4116 ( 4610)
CARGILL	30		42 (107)	24.0	3	57	4100 ( 4590)
CARGILL	22		42 (107)	24.0	2	58	3810 ( 4270)
CARGILL	40		44 (112)	28.0	4	58	4168 ( 4670)
O'S GOLD	GS 709		49 (124)	24.0	16	58	4572 ( 5120)
WARNER	W-564T		45 (114)	27.0	3	59	4581 ( 5130)
FUNK'S	G-499		39 ( 99)	29.0	.	55	3626 ( 4060)
FUNK'S	G-1460		45 (114)	26.0	2	59	4145 ( 4640)
CENEX	310T		49 (124)	27.0	13	59	4795 ( 5370)
ENTRY AVERAGES			44	26	8	58	4221
LSD (.05)							177
CV - %							8.0
-----							
FOUR-YEAR							
ASGROW	CORRAL		48 (122)	26.0	10	59	4585 ( 5130)
DEKALB/PFIZER	DK-42		40 (102)	23.0	2	57	4150 ( 4650)
DEKALB/PFIZER	DK-38		47 (119)	25.0	4	58	4725 ( 5290)
SEEDTEC	652G		46 (117)	26.0	43	58	4348 ( 4870)
TRIUMPH	TWO-50YG		44 (112)	26.0	12	59	4593 ( 5140)
CARGILL	30		42 (107)	23.0	3	57	4229 ( 4740)
WARNER	W-564T		44 (112)	24.0	3	59	4493 ( 5030)
FUNK'S	G-499		39 ( 99)	26.0	.	56	3786 ( 4240)
CENEX	310T		48 (122)	25.0	13	59	4846 ( 5430)
ENTRY AVERAGES			44	25	11	58	4417
LSD (.05)							220
CV - %							8.4

Table 8. Entries Submitted for the 1983 Grain Sorghum Performance Trials and Tables Where the Results Appear.

Company and Brand	Hybrid	Tables	Company and Brand	Hybrid	Tables
Asgrow Seed Company 7000 Portage Road Kalamazoo, MI 49001 "Asgrow"	Corral Dorado DR Dorado E	4,6, 6 6	Mohn Seed Company RR 1, Box 154 Cottonwood, MN 56229 "Mohn"	Durham Norseman	5 5
Cargill Seeds PO Box 5645 Minneapolis, MN 55440 "Cargill"	22 30 40	4,5,7 4,5,6,7 4,5,6,7	Northrup King Co. 1745 Park Blvd. Fargo, ND 58103 "Northrup King"	1210 1580 2030 2244	4,5 4,5 7 7
Cenex Seed Division PO Box 1630 Plainview, TX 79072 "Cargill"	X8380 X11005 X31003	4,7 4,7 4,7	O's Gold Seed Co. PO Box 460 Parkersburg, IA 50665 "O's Gold"	GS709	5,6,7
Cennex Seed Plant Box 964 Sioux Falls, SD 57101 "Cenex"	201T 224T 228T 230T 305T 310T	4,5 4,5 4,5 7	PAG Seeds PO Box 9480 Minneapolis, MN 55440 "PAG"	2250 3339 3385	5 5,6,7 5,6,7
DeKalb-Pfizer Genetics Rt. 1, Box 225 Glensvil, NB 68941 "DeKalb"	DK-18 DK-28 DK-38 DK-39Y DK-42 X-350	4,5,7 4,7 4,5,6,7 4,7 6,7 6,7	Paymaster Seeds PO Box 9493 Minneapolis, MN 55440 "Paymaster"	930 R980 1022	5,7 5,7 5,7
Pioneer Hi-Bred, Int. 7000 Pioneer Parkway Johnston, IA 50131 "Pioneer"				894 8680 8790 8855	4,5 4,5,6,7 4,5 5,6,7
Disco Seeds PO Box 640 Mitchell, SD 57301 "Discs"	178 182R 200R 204R	4 4,7 6,7 7	Quality Plus Seeds PO Box 64089 St. Paul, MN 55164 "Quality +"	ET 21 MT 30 M 35	6 6 6
Funk Seeds, Int. 719 26th Lubbock, TX 79404 "Funk's"	G-251 G-499 F-550 G-1460 HW5883	4,5 4,6,7 6,7 4,5,6,7 4,5,7	SeedTec. Intn'l, Inc. Box 5522 Fargo, ND 58105 "SeedTec"	652G	4,5,7
King's Western Seeds 702 3rd St. SW Huron, SD 57350 "Western"	WS-205 WS-210	4,5,7 4,5,6,7	Sigco Research Box 289 Breckenridge, MN 56520 "Triumph"	48YG 50YG 52YG	4,6,7 4,5,6,7 5,6,7
Geo. Warner Seed Co. PO Box 1448 Hereford, TX 79045 "Warner"	W-545T W-564T W-655T WX83108 WX83111 WX84003 WX84041	4,7 4,5,6,7 5,6 4,5,7 4,5,7 4,5,7 4,5,6,7			