1987

1987 Grain Sorghum Performance Trials

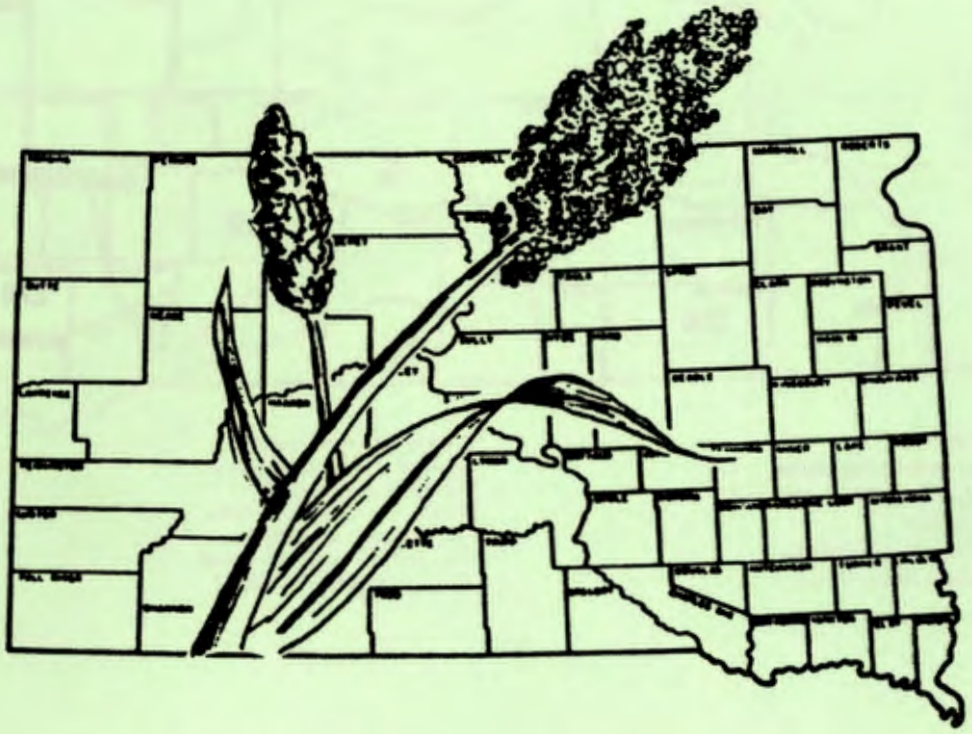
J.J. Bonnemann
South Dakota State University

Plant Science Pamphlet #4 December 1987

1 9 8 7

S O U T H D A K O T A

GRAIN SORGHUM PERFORMANCE TRIALS

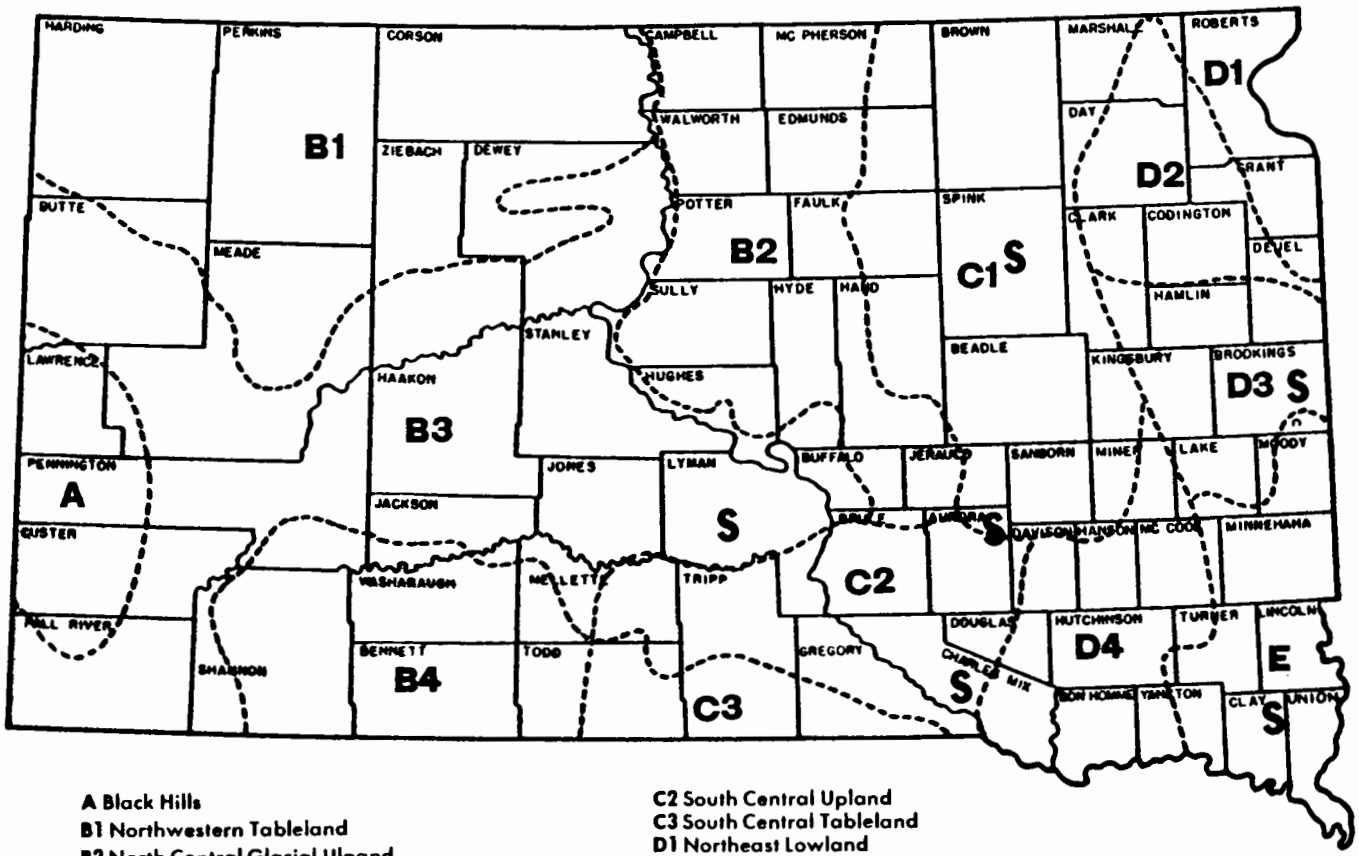


Plant Science Department
Agricultural Experiment Station
South Dakota State University

CROP ADAPTATION AREAS OF

SOUTH DAKOTA

1987 GRAIN SORGHUM PERFORMANCE TRIAL SITES



A Black Hills
B1 Northwestern Tableland
B2 North Central Glacial Ulpand
B3 Pierre Plain
B4 Southwestern Tableland
C1 Northern James Valley
C2 South Central Upland
C3 South Central Tableland
D1 Northeast Lowland
D2 Northern Prairie Coteau
D3 Central Prairie Coteau
D4 Southern James Flatland
E Southeast Prairie Upland

Listing of Tables

Table No.	Contents	Page No.
1	Location of the 1987 Trials	5
2	Soil Classification and Laboratory Analysis	5
3	Climatic Data	6
4	1987 Area E Performance Trial (Beresford)	8
5	1987 Area D3 Performance Trial (Brookings)	9
6	1987 Area C1 Performance Trial (Spink County-irrigated)	10
7	1987 Area C2 Performance Trial (Geddes)	12
8	1987 Area B3 Performance Trial (Kennebec)	14
9	1987 Area C1 Performance Trial (Wessington Springs-dryland)	16
10	1987 Listing of all entries harvested	18

1987 GRAIN SORGHUM PERFORMANCE TRIALS

J. J. Bonnemann, Assistant Professor

Plant Science Department
Agricultural Experiment Station
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 1987 crop season. Performance records of all entries harvested in 1987 and the available two and three-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 1987 Trials

For adequate performance evaluation, all entries must be grown under similar environmental conditions. Crop adaptation areas in which 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. The Area D3 trial was moved from Brookings to Aurora in 1987. 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 1987 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 vary from the actual trial sites to the recording stations but temperatures are similar over a much wider area and considered applicable to the trial area.

Field conditions varied in the eastern portion of South Dakota during much of the growing period. Field work began early and ended early. Good moisture was available for germination and stands were generally uniform, Wessington Springs the poorest. Growth was rapid in the early part of the season when above-normal temperatures and ample subsoil moisture was common. Precipitation was normal during May and June, above normal during July, limited in August and above again in September. Temperatures averaged 3-7 degrees above normal during May and June, were near normal in July, 3-4 degrees below normal in August and normal in September. October was warm and dry permitting rapid, early harvest of many fields. Killing temperatures were not recorded until early October, many hybrids having reached physiological maturity several weeks before a hard freeze. Winds were not a serious problem until mid-October so stalk lodging was not a serious harvest problem. Over 90 percent of the farmers' milo fields were harvested by mid-October.

The assistance of the following individuals is appreciated: Dwayne Beck, Burton Lawrensen, Dale Sorenson, Delbert Robbins, Lucian Edler, and Kevin Kirby; farmer-cooperators John Biddle, James Eagle, and Harlan Halverson.

Table 1. Location of Trials, and Dates of Seeding and Harvesting of Grain Sorghum Performance Trials, South Dakota, 1987.

County	Location and Post Office	Row Spacing	Dates when Seeded	Harvested
Brookings	Plant Science Farm, Aurora	30"	June 1	October 6
Charles Mix	John Biddle Farm, Geddes	30"	May 11	Sept. 24
Clay	Southeast Experiment Farm, Beresford	30"	May 13	Sept. 22
Jerauld	James Eagle Farm, Wessington Springs	30"	May 18	Sept. 21
Lyman	Harlan Halverson Farm, Kennebec	30"	May 29	Sept. 21
Spink	James Valley Research Farm, Redfield	30"	May 18	October 8

Yields were good in all but the Wessington Springs trial, though quite variable in some trials. Warm, friable field conditions favored early seeding of all trials except Aurora in 1987. Temperatures were above normal in May and June at all stations and at all but Aurora and Centerville in July. The warm weather benefitted timely heading and flowering as temperatures were below normal August and part of September. The cooler temperatures offset the below normal August precipitation but the season was advanced enough so that adapted hybrids were physiologically mature by mid-September. A killing temperature did not occur until October 3 and was general across the state.

Periods of excessively high temperatures occurred at several sites but did not appear to seriously affect pollination. Generally the heading was later in the northern portion of the state where cooler temperatures are more prevalent. Most hybrids had completed heading at all sites by August 10.

Hybrid Entry Procedure

Only grain sorghums offered for sale in South Dakota or being produced for 1988 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. Proprietary entries included are the choice of the participating companies.

Table 2. Soil Sample Analysis and Cultural Practices, 1987 Grain Sorghum Sites.

County and crop adaptation areas	Soil Classification	Lab analysis Org. mat. %	P lbs/A	K lbs/A	pH	Field preparations Methods	pounds/A N	P	K
Lyman, B3	Pierre Cl	3.5	9	775	7.9	Sweeps in spring	10	35	0
Chas. Mix, C2	Highmore SiCl	2.7	11	415	6.8	Sweeps(soybeans-'86)	7	21	7
Jerauld,Cl(dry)	Hou-Pros SiCl	3.2	56	925	7.1	Plowed, sm. grain	10	35	0
Spink,Cl(irr.)	Beotia SiCl	3.1	34	625	7.3	Field cult, suns	100	40	0
Brookings, D3	Lamour SiL	3.2	19	145	6.5	Chiseled, oat stubble	40	30	0
Clay, E	Egan SiL	3.1	17	380	6.1	Plowed, sunflowers	160	60	40

Table 3. Temperature and Precipitation Data for the 1987 Grain Sorghum Performance Trials, South Dakota.

Location	Type of Data	Months of May	June	July	August	Sept.	Total
Brookings 2 NE	Precip. (inches)	1.65	2.54	5.29	1.88	4.55	15.91
	Temp. (mean)	61.0	68.9	72.0	65.0	58.5	
	Mean departure	+5.0	+3.3	+1.3	-3.6	+0.2	
	Days 90 F. +	04	04	07	02	--	
	First freeze - 24; October 3						
Centerville 6 SE	Precip. (inches)	3.15	3.58	4.75	1.42	2.67	15.57
	Temp. (mean)	65.2	72.1	74.5	68.0	62.0	
	Mean departure	+4.9	+1.9	-0.4	-4.8	-0.9	
	Days 90 F. +	06	11	09	04	02	
	First freeze - 27; October 3						
Kennebec	Precip. (inches)	2.21	1.84	1.54	2.19	1.08	8.86
	Temp. (mean)	65.9	72.6	78.5	71.0	63.5	
	Mean departure	+7.0	+3.5	+2.7	-3.4	-0.2	
	Days 90 F. +	08	17	21	09	03	
	First freeze - 29; October 2						
Pickstown	Precip. (inches)	1.25	1.26	4.26	2.16	4.13	13.06
	Temp. (mean)	65.6	74.0	77.0	69.5	64.0	
	Mean departure	+5.4	+3.8	+0.1	-4.0	-0.1	
	Days 90 F. +	05	14	18	08	02	
	First freeze - 28; October 9						
Redfield 6 E	Precip. (inches)	1.13	1.15	2.47	0.47	1.44	6.93
	Temp. (mean)	62.2	70.7	75.0	68.0	61.5	
	Mean departure	+5.0	+3.9	+1.9	-3.5	+0.8	
	Days 90 F. +	05	12	15	08	02	
	First freeze - 28; October 3						
Wess. Sprngs	Precip. (inches)	4.38	1.39	4.51	4.19	1.24	15.71
	Temp. (mean)	63.8	72.2	75.5	68.5	62.5	
	Days 90 F. +	05	12	15	07	01	
	First freeze - 30; October 5						

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 31-cell cone seeders mounted above maxi-merge units. A herbicide recommended for grassy weed control was banded over each row at seeding time. The row spacing used (30") is indicated in Table 1 and plot lengths were dependent upon the 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 trial at Redfield was irrigated by the gravity method with approximately 2 inches of water each time the tensiometer reached 40 cb at the 18-inch depth.

Moisture determinations were made from September 14-16, about a week prior to normal first-frost dates. This was 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 10-12 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 33.0% could be that or considerably higher. Data above 30.0 would generally indicate lines of later maturity for the area.

Delayed harvest can contribute to higher levels of lodging or be caught in the bad weather of the later fall so harvesting is done as soon as possible after the first frost. Harvest was completed by October 8. Harvested grain was cut from a 15-20 foot section of each 2-row plot. Heads were bagged at harvest, tagged and tied, and returned to Brookings for drying and threshing. Yields are reported in pounds per acre (x 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 90's at Centerville, the 70's at Geddes and Redfield, and were around the 60's at the remaining sites. Moistures averaged 15 percent at Centerville up to 27 percent at Kennebec and Redfield, others falling midway between. The quality and test weight of most entries were very good as most entries reached physiological maturity several weeks before a hard freeze. All trials except Aurora had test weight averages above the standard of 56 pounds per bushel.

The seed moisture recorded was obtained about a week before the anticipated first frost was expected. Few entries were above the 35% level, the maximum the electronic moisture meter reads with any accuracy. Very little farm-harvested grain required supplemental drying following harvest in 1987.

Lodging was not a serious problem at any of the locations. Bird damage had been a problem at Brookings so the trial was moved to the Aurora unit. No bird damage was apparent. 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 1987 and other agronomic data are reported in Table 4 through Table 9. A listing of all entries is presented in Table 10.

Table 4. Grain Sorghum Performance Trials, Area E, Southeast Experiment Farm, Beresford, Clay County, South Dakota.

Company/ Brand	Hybrid/ Variety	Headed 50 Pct Mo-Day	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct.	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
			1987						
Warner	WX86029	7-17	51	(130)	13.0	1	56	6823	(7640)
Cargill	22	7-18	51	(130)	15.0	1	59	6798	(7610)
Garst	5715	7-18	54	(137)	13.0	1	57	7337	(8220)
SeedTec	ST3103	7-18	49	(124)	14.0	1	56	6996	(7830)
Sigco	1070	7-18	53	(135)	13.0	1	57	7564	(8470)
Warner	W-523T	7-18	54	(137)	14.0	1	57	6925	(7750)
Warner	WX86028	7-18	47	(119)	12.0	1	55	6860	(7680)
Warner	WX87151	7-18	48	(122)	15.0	1	58	6847	(7670)
Interstate	665	7-19	53	(135)	13.0	1	55	7007	(7850)
Interstate	764	7-19	47	(119)	12.0	1	54	6832	(7650)
SeedTec	WS203	7-19	53	(135)	13.0	1	58	7487	(8380)
Asgrow	Dorado E	7-20	53	(135)	13.0	1	57	7693	(8610)
SeedTec	ST3101	7-20	55	(140)	14.0	1	56	7340	(8220)
Sigco	1080	7-20	53	(135)	14.0	1	58	7058	(7900)
Warner	W-545T	7-20	42	(107)	14.0	1	56	6581	(7370)
Triumph	Two 50YG	7-21	51	(130)	16.0	1	58	7592	(8500)
Warner	W-560T	7-22	50	(127)	14.0	1	58	6798	(7610)
Cargill	2285	7-23	48	(122)	19.0	1	58	7206	(8070)
SeedTec	651DR	7-23	63	(160)	14.0	1	57	7556	(8460)
Cargill	3385	7-24	51	(130)	25.0	1	57	8220	(9200)
Garst	5613	7-24	59	(150)	16.0	1	58	7459	(8350)
Garst	5517	7-25	57	(145)	16.0	1	58	7977	(8930)
Cargill	40	7-26	52	(132)	23.0	1	58	8451	(9460)
DeKalb	P-757	7-26	55	(140)	20.0	1	57	9255	(10360)
Cargill	1022	8- 4	53	(135)	17.0	1	59	8281	(9270)
Entry Averages		7-21	52		15.3	1	57	7397	
LSD (.05)								706	
CV - %								5.9	
			1986-1987						
SeedTec	ST3103	7-22	49	(124)	21.0	1	57	6327	(7080)
Warner	W-523T	7-22	51	(130)	22.0	1	58	6045	(6770)
Warner	WX86028	7-22	49	(124)	21.0	1	55	5941	(6650)
Asgrow	Dorado E	7-23	52	(132)	21.0	1	58	6343	(7100)
Interstate	665	7-23	53	(135)	22.0	1	55	6072	(6800)
SeedTec	ST3101	7-23	54	(137)	22.0	1	57	6590	(7380)
Warner	W-545T	7-23	42	(107)	23.0	1	57	5729	(6420)
Triumph	Two 50YG	7-25	50	(127)	24.0	1	59	6259	(7010)
Warner	W-560T	7-25	49	(124)	23.0	1	58	6109	(6840)
Cargill	1022	8- 3	52	(132)	25.0	1	60	6765	(7580)
Entry Averages		7-24	50		22.4	1	57	6218	
LSD (.05)								453	
CV - %								6.8	

Table 4. (continued), Beresford, SD

Company/ Brand	Hybrid/ Variety	Headed 50 Pct Mo-Day	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
			1985-1987						
SeedTec	ST3103	7-22	47	(119)	21.0	1	57	5906	(6610)
Warner	W-523T	7-22	49	(124)	23.0	1	58	6148	(6880)
Warner	W-545T	7-23	41	(104)	24.0	1	58	5506	(6170)
Asgrow	Dorado E	7-24	50	(127)	21.0	1	58	6042	(6770)
SeedTec	ST3101	7-24	52	(132)	22.0	1	57	6377	(7140)
Triumph	Two 50YG	7-26	49	(124)	27.0	1	58	6152	(6890)
Warner	W-560T	7-26	46	(117)	23.0	1	58	5936	(6650)
Cargill	1022	8- 2	50	(127)	28.0	1	59	6500	(7280)
Entry Averages		7-25	48		23.6	1	58	6070	
LSD (.05)								349	
CV - %								8.1	

Table 5. Grain Sorghum Performance Trials, Area D3, Plant Science Farm, Aurora, Brookings County, South Dakota.

Company/ Brand	Hybrid/ Variety	Headed 50 Pct Mo-Day	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct.	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
			1987						
DeKalb	DK-28	7-26	42	(107)	16.0	1	56	6089	(6820)
Interstate	764	7-27	45	(114)	14.0	1	51	5201	(5820)
Warner	WX86029	7-27	45	(114)	15.0	1	52	5001	(5600)
Warner	W-523T	7-28	45	(114)	15.0	1	55	6030	(6750)
Warner	WX86028	7-28	44	(112)	15.0	1	51	5298	(5930)
Warner	WX87151	7-28	46	(117)	16.0	1	53	5777	(6470)
Triumph	Two 48YG	7-29	38	(97)	15.0	1	54	4856	(5440)
Warner	W-501T	7-29	39	(99)	15.0	1	50	5325	(5960)
Asgrow	Dorado E	7-30	50	(127)	14.0	1	55	5514	(6170)
Cargill	22	7-30	43	(109)	16.0	1	53	4078	(4570)
Interstate	665	7-30	49	(124)	15.0	1	52	5857	(6560)
Triumph	TR 46	7-31	46	(117)	17.0	1	50	4853	(5430)
Warner	W-560T	7-31	46	(117)	18.0	1	55	5589	(6260)
Interstate	668	8- 1	50	(127)	20.0	1	55	5400	(6050)
Cargill	1022	8- 3	50	(127)	26.0	1	54	5124	(5740)
Cargill	2285	8- 3	44	(112)	27.0	1	53	3602	(4030)
Cargill	3385	8- 5	51	(130)	26.0	1	51	4801	(5380)
Cargill	40	8- 6	51	(130)	24.0	1	53	4457	(4990)
Entry Averages		7-30	46		18.0	1	53	5158	
LSD (.05)								538	
CV - %								6.4	

Table 5. (continued), Brookings, SD

				1986-1987					
DeKalb	DK-28	7-29	43	(109)	24.0	1	53	4295	(4810)
Warner	W-523T	8- 1	47	(119)	24.0	1	50	3743	(4190)
Warner	WX86028	8- 1	44	(112)	24.0	1	49	4434	(4970)
Warner	W-501T	8- 2	39	(99)	24.0	1	49	3722	(4170)
Interstate	665	8- 3	50	(127)	24.0	1	49	4431	(4960)
Triumph	TR 46	8- 3	48	(122)	25.0	1	50	4166	(4670)
Triumph	Two 48YG	8- 3	38	(97)	24.0	1	52	3610	(4040)
Warner	W-560T	8- 4	47	(119)	26.0	1	52	4027	(4510)
Cargill	1022	8- 6	50	(127)	30.0	1	50	3602	(4030)
Cagrill	2285	8- 6	43	(109)	30.0	1	52	2740	(3070)
Interstate	668	8- 6	48	(122)	27.0	1	48	3628	(4060)
Entry Averages		8- 3	45		25.6	1	50	3854	
LSD (.05)								671	
CV - %								17.4	
				1985-1987					
DeKalb	DK-28	7-31	41	(104)	27.0	1	53	4053	(4540)
Warner	W-523T	8- 3	45	(114)	27.0	1	50	3231	(3620)
Triumph	Twp 48YG	8- 4	37	(94)	27.0	1	51	3426	(3840)
Warner	W-501T	8- 4	37	(94)	27.0	1	48	3222	(3610)
Triumph	TR 46	8- 5	47	(119)	28.0	1	50	3905	(4370)
Warner	W-560T	8- 7	45	(114)	28.0	1	50	3473	(3890)
Entry Averages		8- 4	42		27.3	1	50	3551	
LSD (.05)								673	
CV - %								17.0	

Table 6. Grain Sorghum Performance Trials, Area C1(irrigated), James Valley Research Center, Redfield, Spink County, South Dakota.

Company/ Brand	Hybrid/ Variety	Headed 50 Pct Mo-Day	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct.	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
				1987					
SeedTec	ST3103	7-21	40	(102)	24.0	1	58	6476	(7250)
Interstate	764	7-22	40	(102)	23.0	1	55	6262	(7010)
Asgrow	Corral	7-23	52	(132)	29.0	1	60	6364	(7130)
Cargill	1022	7-24	45	(114)	29.0	1	62	6766	(7580)
Cargill	2285	7-24	38	(97)	29.0	1	60	6470	(7250)
Warner	W-545T	7-24	36	(91)	27.0	1	58	6647	(7440)
Warner	WX87151	7-24	40	(102)	27.0	1	58	6483	(7260)
SeedTec	ST3101	7-25	44	(112)	23.0	1	57	6004	(6720)
SeedTec	WS203	7-25	44	(112)	25.0	1	58	6030	(6750)
SeedTec	652G	7-25	49	(124)	30.0	1	60	6708	(7510)
Sigco	1060	7-25	43	(109)	22.0	1	59	6255	(7000)
Sigco	1070	7-25	45	(114)	27.0	1	60	7056	(7900)
Triumph	Two 48YG	7-25	35	(89)	30.0	1	59	6804	(7620)
Warner	W-551A	7-25	43	(109)	23.0	1	57	6335	(7090)
Warner	W-560T	7-25	42	(107)	28.0	1	60	6381	(7150)
Warner	WX86029	7-25	40	(102)	23.0	1	57	6690	(7490)
Cargill	22	7-26	40	(102)	26.0	1	58	5351	(5990)
Cargill	40	7-26	45	(114)	33.0	1	59	5641	(6320)
Interstate	668	7-26	43	(109)	29.0	1	62	6284	(7040)

Table 6. (continued), Redfield, SD

Company/ Brand	Hybrid/ Variety	Headed 50 Pct Mo-Day	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
Northrup King	NK 1210	7-26	38	(97)	24.0	1	55	5533	(6200)
Triumph	TR 46	7-26	41	(104)	26.0	1	58	6780	(7590)
DeKalb	DK-18	7-27	42	(107)	25.0	1	58	6139	(6870)
DeKalb	P-757	7-27	48	(122)	33.0	1	59	5436	(6090)
Interstate	665	7-27	44	(112)	25.0	1	58	6246	(6990)
Northrup King	NK X-8111	7-27	44	(112)	28.0	1	60	6280	(7030)
Triumph	Two 50YG	7-27	43	(109)	30.0	1	60	7292	(8170)
Cargill	3385	7-28	44	(112)	33.0	1	57	6792	(7610)
Warner	WX86028	7-29	41	(104)	23.0	1	56	6408	(7180)
Entry Averages		7-25	42		26.9	1	58	6354	
LSD (.05)								981	
CV - %								9.5	
1986-1987									
SeedTec	ST3103	7-22	43	(109)	29.0	1	58	6142	(6880)
DeKalb	DK-18	7-24	44	(112)	29.0	1	59	5709	(6390)
Northrup King	NK 1210	7-24	42	(107)	29.0	1	57	5433	(6080)
Warner	W-545T	7-24	39	(99)	30.0	1	58	6462	(7240)
SeedTec	ST3101	7-25	48	(122)	28.0	1	58	5962	(6680)
Triumph	Two 48YG	7-25	38	(97)	31.0	1	59	5835	(6530)
Warner	W-551A	7-25	47	(119)	28.0	1	57	6359	(7120)
Cargill	2285	7-26	42	(107)	31.0	1	60	5861	(6560)
Interstate	665	7-26	47	(119)	29.0	1	58	6401	(7170)
Triumph	TR 46	7-26	46	(117)	29.0	1	59	6633	(7430)
Warner	W-560T	7-26	44	(112)	30.0	1	61	6313	(7070)
Warner	WX86028	7-26	43	(109)	28.0	1	57	6295	(7050)
Asgrow	Corral	7-27	54	(137)	31.0	1	60	6347	(7110)
Iinterstate	668	7-27	44	(112)	31.0	1	61	6505	(7280)
Entry Averages		7-25	44		29.5	1	59	6161	
LSD (.05)								N.S.	
CV - %								7.2	
1985-1987									
Northrup King	NK 1210	7-27	43	(109)	30.0	1	57	5140	(5760)
DeKalb	DK-18	7-28	45	(114)	30.0	1	57	5179	(5800)
SeedTec	ST3103	7-28	43	(109)	30.0	1	56	5484	(6140)
Warner	W-545T	7-30	39	(99)	31.0	1	56	5566	(6230)
SeedTec	ST3101	7-31	48	(122)	30.0	1	56	5183	(5800)
Warner	W-551A	7-31	47	(119)	30.0	1	55	5574	(6240)
Warner	W-560T	8- 3	44	(112)	31.0	1	56	4993	(5590)
Asgrow	Corral	8- 4	53	(135)	32.0	1	55	4750	(5320)
Entry Averages		7-30	45		30.5	1	56	5233	
LSD (.05)								605	
CV - %								14.2	

Table 7. Grain Sorghum Performance Trials, Area C2, John Biddle Farm, Geddes, Charles Mix County, South Dakota.

Company/ Brand	Hybrid/ Variety	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct.	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
		1987						
Asgrow	Corral	49	(124)	20.0	1	57	6734	(7540)
Asgrow	Dorado E	43	(109)	16.0	1	55	6443	(7210)
Cargill	1022	45	(114)	24.0	1	58	6502	(7280)
Cargill	22	42	(107)	17.0	1	54	5064	(5670)
Cargill	2285	45	(114)	21.0	1	58	5423	(6070)
Cargill	3385	45	(114)	22.0	1	56	6188	(6930)
Cargill	40	44	(112)	24.0	1	58	6395	(7160)
DeKalb	DK-39Y	45	(114)	23.0	1	56	5789	(6480)
DeKalb	X-638	50	(127)	19.0	1	56	6905	(7730)
DeKalb	X-729	43	(109)	20.0	1	56	6487	(7260)
Garst	5517	42	(107)	25.0	1	56	6484	(7260)
Garst	5613	49	(124)	23.0	1	58	6517	(7300)
Garst	5715	44	(112)	18.0	1	55	6366	(7130)
Interstate	663	43	(109)	17.0	1	54	6137	(6870)
Interstate	665	48	(122)	16.0	1	55	6660	(7460)
Interstate	668	46	(117)	18.0	1	57	5994	(6710)
Interstate	764	46	(117)	16.0	1	53	5605	(6280)
McCurdy	M410	47	(119)	18.0	1	55	6401	(7170)
McCurdy	M450	47	(119)	21.0	1	56	6357	(7120)
McCurdy	M689	45	(114)	27.0	1	58	7166	(8020)
NC+	Y363	45	(114)	24.0	1	58	6273	(7020)
NC+	159	46	(117)	22.0	1	58	6444	(7220)
NC+	160	47	(119)	23.0	1	58	7026	(7870)
NC+	262	43	(109)	21.0	1	56	6041	(6760)
NC+	55X	47	(119)	17.0	1	56	6696	(7500)
Northrup King	NK X-8111	46	(117)	16.0	1	58	6014	(6730)
Northrup King	NK 2030	45	(114)	21.0	1	53	6118	(6850)
Pioneer Brand	8728	46	(117)	18.0	1	58	5064	(5670)
Pioneer Brand	8855	42	(107)	15.0	1	57	6166	(6900)
SeedTec	ST1002	42	(107)	21.0	1	54	5591	(6260)
SeedTec	ST3101	48	(122)	15.0	1	54	6272	(7020)
SeedTec	ST3103	43	(109)	17.0	1	53	5719	(6400)
SeedTec	ST3308	51	(130)	20.0	1	59	6591	(7380)
SeedTec	WS203	46	(117)	17.0	1	53	6549	(7330)
SeedTec	652G	46	(117)	22.0	1	57	6642	(7440)
Sigco	1070	44	(112)	16.0	1	55	6625	(7420)
Sicgo	1080	44	(112)	20.0	1	56	6490	(7270)
Triumph	TR 46	43	(109)	15.0	1	53	6377	(7140)
Triumph	Two 48YG	40	(102)	22.0	1	53	4830	(5410)
Triumph	Two 50YG	40	(102)	19.0	1	55	6209	(6950)
Warner	W-501T	41	(104)	17.0	1	51	5244	(5870)
Warner	W-545T	40	(102)	21.0	1	51	5726	(6410)
Warner	W-655T	47	(119)	20.0	1	58	6433	(7200)
Warner	WX86028	44	(112)	17.0	1	54	5554	(6220)
Warner	WX86029	41	(104)	17.0	1	52	5683	(6360)
Warner	WX87151	42	(107)	18.0	1	56	5374	(6020)
Entry Averages		45		19.5	1	55	6160	
LSD (.05)							764	
CV - %							7.6	

Table 7. (continued), Geddes, SD

Company/ Brand	Hybrid/ Variety	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
		1986-1987						
Asgrow	Corral	50	(127)	20.0	5	59	5409	(6060)
Asgrow	Dorado E	43	(109)	17.0	7	56	5088	(5700)
Cargill	1022	44	(112)	24.0	3	60	5313	(5950)
Cargill	2285	42	(107)	21.0	2	58	4561	(5110)
DeKalb	DK-39Y	45	(114)	24.0	1	58	5782	(6470)
Interstate	663	43	(109)	17.0	2	56	4913	(5500)
Interstate	665	46	(117)	18.0	11	56	5610	(6280)
Interstate	668	45	(114)	18.0	2	58	4835	(5410)
McCurdy	M410	47	(119)	18.0	20	56	4728	(5290)
McCurdy	M450	46	(117)	20.0	16	57	4947	(5540)
Northrup King	NK 2030	43	(109)	19.0	2	55	5293	(5930)
Pioneer Brand	8728	43	(109)	19.0	9	59	3928	(4400)
Pioneer Brand	8855	42	(107)	17.0	24	57	4396	(4920)
SeedTec	ST3101	48	(122)	17.0	27	54	5103	(5710)
SeedTec	ST3103	45	(114)	17.0	13	55	4343	(4860)
Triumph	TR 46	42	(107)	17.0	29	55	4445	(4980)
Triumph	Two 48YG	39	(99)	20.0	18	56	3944	(4420)
Triumph	Two 50YG	42	(107)	19.0	7	57	4792	(5370)
Warner	W-501T	40	(102)	18.0	3	55	4283	(4800)
Warner	W-545T	40	(102)	20.0	5	54	4406	(4930)
Warner	WX86028	42	(107)	18.0	12	55	4529	(5070)
Entry Averages		44		18.9	10	56	4792	
LSD (.05)							370	
CV - %							11.7	
		1985-1987						
Asgrow	Corral	47	(119)	22.0	5	58	5792	(6490)
Asgrow	Dorado E	41	(104)	18.0	7	57	5501	(6160)
Cargill	1022	43	(109)	24.0	3	59	5609	(6280)
Cargill	2285	43	(109)	25.0	2	58	4930	(5520)
DeKalb	DK-39Y	44	(112)	27.0	1	58	5660	(6340)
McCurdy	M410	46	(117)	22.0	20	56	5393	(6040)
McCurdy	M450	45	(114)	21.0	16	58	5340	(5980)
Northrup King	NK 2030	42	(107)	20.0	2	56	5229	(5860)
Pioneer Brand	8855	41	(104)	17.0	24	57	4337	(4860)
SeedTec	ST3101	47	(119)	19.0	27	55	5456	(6110)
SeedTec	ST3103	43	(109)	21.0	13	56	5250	(5880)
Triumph	TR 46	42	(107)	18.0	29	55	5154	(5770)
Triumph	Two 48YG	38	(97)	21.0	18	57	4574	(5120)
Triumph	Two 50YG	42	(107)	20.0	7	58	5263	(5890)
Warner	W-501T	39	(99)	20.0	3	56	4718	(5280)
Warner	W-545T	40	(102)	24.0	5	56	4806	(5380)
Entry Averages		43		21.1	11	57	5188	
LSD (.05)							351	
CV - %							12.8	

Table 8. Grain Sorghum Performance Trials, Area B3, Harlon Halverson Farm, Kennebec, Lyman County, South Dakota.

Company/ Brand	Hybrid/ Variety	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct.	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
		1987						
Agripro/Sokota	AP910G	40	(102)	25.0	1	57	5223	(5850)
Agripro/Sokota	444	43	(109)	25.0	1	57	5472	(6130)
Agripro/Sokota	466	35	(89)	32.0	1	58	4428	(4960)
Asgrow	Dorado E	38	(97)	25.0	1	57	5054	(5660)
Cargill	1022	41	(104)	33.0	1	61	5564	(6230)
Cargill	22	37	(94)	30.0	1	59	5054	(5660)
Cargill	2285	36	(91)	29.0	1	61	4534	(5080)
Cargill	3385	40	(102)	33.0	1	59	5381	(6030)
Cargill	40	39	(99)	33.0	1	60	4445	(4980)
DeKalb	DK-28	36	(91)	22.0	1	60	5066	(5670)
DeKalb	P-728	38	(97)	20.0	1	58	5444	(6100)
Garst	5517	40	(102)	33.0	1	61	4950	(5540)
Garst	5613	40	(102)	31.0	1	60	5373	(6020)
Garst	5715	44	(112)	20.0	1	58	5883	(6590)
Interstate	665	43	(109)	26.0	1	56	4813	(5390)
Interstate	764	40	(102)	21.0	1	57	5443	(6100)
McCurdy	M410	40	(102)	23.0	1	56	5419	(6070)
McCurdy	M450	39	(99)	29.0	1	58	5020	(5620)
NC+	262	38	(97)	33.0	1	57	4196	(4700)
NC+	55X	40	(102)	27.0	1	57	5431	(6080)
Northrup King	NK X-8111	40	(102)	28.0	1	59	5086	(5700)
Northrup King	NK 1210	39	(99)	25.0	1	57	4559	(5110)
Pioneer Brand	8728	38	(97)	23.0	1	61	4682	(5240)
Pioneer Brand	8855	37	(94)	22.0	1	58	4696	(5260)
SeedTec	ST3101	40	(102)	25.0	1	58	4912	(5500)
SeedTec	ST3103	40	(102)	25.0	1	59	4979	(5580)
SeedTec	WS203	39	(99)	24.0	1	58	5356	(6000)
SeedTec	652G	40	(102)	29.0	1	59	4963	(5560)
Sigco	1060	40	(102)	30.0	1	59	5323	(5960)
Sigco	1070	41	(104)	28.0	1	56	5325	(5960)
Triumph	TR 46	38	(97)	31.0	1	57	4950	(5540)
Triumph	Two 48YG	34	(86)	28.0	1	58	3676	(4120)
Warner	W-545T	36	(91)	31.0	1	58	4841	(5420)
Warner	W-560T	39	(99)	27.0	1	58	5450	(6100)
Warner	WX85004	33	(84)	33.0	1	58	4068	(4560)
Warner	WX86028	38	(97)	32.0	1	57	4938	(5530)
Warner	WX86029	42	(107)	28.0	1	60	4859	(5440)
Warner	WX87151	37	(94)	24.0	1	61	4704	(5270)
Entry Averages		39		27.4	1	58	4988	
LSD (.05)							1035	
CV - %							12.9	

Table 8. (continued), Kennebec, SD

Company/ Brand	Hybrid/ Variety	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
		1986-1987						
Asgrow	Dorado E	40	(102)	28.0	1	50	3309	(3710)
Cargill	1022	40	(102)	33.0	1	58	3447	(3860)
Cargill	2285	36	(91)	31.0	1	59	2827	(3170)
DeKalb	DK-28	39	(99)	28.0	1	58	3285	(3680)
Northrup King	NK 1210	39	(99)	28.0	1	55	2852	(3190)
Pioneer Brand	8728	38	(97)	28.0	1	59	2949	(3300)
Pioneer Brand	8855	38	(97)	28.0	1	56	2981	(3340)
SeedTec	ST3101	41	(104)	29.0	1	56	3292	(3690)
SeedTec	ST3103	40	(102)	29.0	1	57	3295	(3690)
Triumph	TR 46	41	(104)	32.0	1	56	3294	(3690)
Triumph	Two 48YG	35	(89)	29.0	1	58	2623	(2940)
Warner	W-545T	38	(97)	32.0	1	57	3382	(3790)
Warner	W-560T	40	(102)	30.0	1	57	3393	(3800)
Warner	WX86028	41	(104)	33.0	1	56	3419	(3830)
Entry Averages		39		29.8	1	56	3167	
LSD (.05)							299	
CV - %							11.2	
		1985-1987						
Cargill	1022	41	(104)	33.0	1	52	2771	(3100)
Cargill	2285	38	(97)	32.0	1	52	2267	(2540)
DeKalb	DK-28	39	(99)	29.0	1	55	3035	(3400)
Northrup King	NK 1210	39	(99)	29.0	1	54	2731	(3060)
Pioneer Brand	8855	39	(99)	29.0	1	53	2721	(3050)
SeedTec	ST3101	42	(107)	30.0	1	52	3029	(3390)
SeedTec	ST3103	40	(102)	30.0	1	54	3083	(3450)
Triumph	TR 46	41	(104)	32.0	1	52	3023	(3390)
Triumph	Two 48YG	36	(91)	30.0	1	54	2433	(2720)
Entry Averages		39		30.4	1	53	2788	
LSD (.05)							313	
CV - %							14.9	

Table 9. Grain Sorghum Performance Trials, Area C1(dry), James Eagle Farm, Wessington Springs, Jerauld County, South Dakota.

Company/ Brand	Hybrid/ Variety	Plant Height In	(cm)	Early Moist Pct.	Stalk Lodgn Pct.	Test Wt. Lb/Bu	Grain Yield Lb/A	(Kg/Ha)
		1987						
Asgrow	Dorado E	39	(99)	15.0	1	60	4261	(4770)
Cargill	1022	40	(102)	21.0	1	62	5127	(5740)
Cargill	22	38	(97)	17.0	1	59	4117	(4610)
Cargill	2285	39	(99)	23.0	1	60	3899	(4370)
Cargill	3385	40	(102)	27.0	1	60	4842	(5420)
Cargill	40	40	(102)	27.0	1	60	5922	(6630)
DeKalb	DK-28	35	(89)	15.0	1	57	3486	(3900)
DeKalb	P-728	37	(94)	17.0	1	56	3546	(3970)
DeKalb	P-757	41	(104)	25.0	1	61	4875	(5460)
Interstate	665	42	(107)	15.0	1	57	4619	(5170)
Interstate	764	37	(94)	15.0	1	54	3822	(4280)
Pioneer Brand	8728	38	(97)	18.0	1	60	3809	(4270)
Pioneer Brand	8855	37	(94)	14.0	1	57	4610	(5160)
Sigco	1060	39	(99)	15.0	1	56	4585	(5130)
Sigco	1070	42	(107)	18.0	1	60	3944	(4420)
Triumph	TR 46	38	(97)	15.0	1	57	3973	(4450)
Triumph	Two 48YG	39	(99)	18.0	1	57	3693	(4140)
Triumph	Two 50YG	39	(99)	18.0	1	60	5187	(5810)
Warner	W-501T	36	(91)	17.0	1	59	3427	(3840)
Warner	W-551A	39	(99)	15.0	1	57	4787	(5360)
Warner	W-560T	43	(109)	17.0	1	60	4569	(5120)
Warner	WX86028	40	(102)	17.0	1	55	3347	(3750)
Warner	WX86029	37	(94)	15.0	1	57	3850	(4310)
Warner	WX87151	39	(99)	20.0	1	59	3174	(3550)
Entry Averages		39		18.0	1	58	4228	
LSD (.05)							915	
CV - %							13.4	
		1986-1987						
Asgrow	Dorado E	41	(104)	20.0	1	58	4531	(5070)
Cargill	1022	45	(114)	27.0	1	60	5038	(5640)
Cargill	2285	40	(102)	24.0	1	59	4234	(4740)
DeKalb	DK-28	39	(99)	24.0	1	58	4465	(5000)
Interstate	665	46	(117)	19.0	1	57	5112	(5720)
Pioneer Brand	8728	42	(107)	24.0	1	60	4312	(4830)
Pioneer Brand	8855	39	(99)	18.0	1	57	3867	(4330)
Triumph	TR 46	43	(109)	18.0	1	56	4114	(4610)
Triumph	Two 48YG	39	(99)	20.0	1	58	3883	(4350)
Triumph	Two 50YG	43	(109)	25.0	1	59	4967	(5560)
Warner	W-501T	38	(97)	24.0	1	58	4220	(4730)
Warner	W-551A	43	(109)	17.0	1	57	4966	(5560)
Warner	W-560T	42	(107)	25.0	1	59	4166	(4670)
Warner	WX86028	43	(109)	21.0	1	56	4568	(5120)
Entry Averages		42		21.8	1	58	4460	
LSD (.05)							N.S.	
CV - %							16.8	

Table 9. (continued), Wessington Springs, SD

Company/ Brand	Hybrid/ Variety	Plant Height In	Plant Height (cm)	Early Moist Pct.	Stalk Lodgn Pct	Test Wt. Lb/Bu	Grain Yield Lb/A	Grain Yield (Kg/Ha)
		1985-1987						
Asgrow	Dorado E	43	(109)	24.0	1	56	4177	(4680)
Cargill	1022	45	(114)	29.0	1	56	4536	(5080)
Cargill	2285	42	(107)	27.0	1	54	3789	(4240)
DeKalb	DK-28	40	(102)	27.0	1	57	4423	(4950)
Pioneer Brand	8855	40	(102)	23.0	1	56	4025	(4510)
Truimph	TR 46	44	(112)	23.0	1	55	4118	(4610)
Triumph	Two 48YG	39	(99)	24.0	1	56	3968	(4440)
Triumph	Two 50YG	45	(114)	28.0	1	57	4816	(5390)
Warner	W-501T	38	(97)	27.0	1	56	4008	(4490)
Warner	W-551A	44	(112)	23.0	1	55	4917	(5510)
Warner	W-560T	43	(109)	28.0	1	55	4115	(4610)
Entry Averages		42		25.7	1	56	4263	
LSD (.05)							N.S.	
CV - %							14.5	

Table 10. Entries Included in 1987 Trial and Tables where the Results Appear.

Company and Brand	Entry	Tables	Company and Brand	Entry	Tables
Agripro/Sokota	444	8	NC+ Hybrids	55X	7,8
PO Box 2955	466	8	PO Box 4408	159	7
Mission, KS 66201	AP910G	8	Lincoln, NE 68504	160	7
"Agripro"			"NC+"	262	7,8
				Y363	7
Asgrow Seed Company	Corral	6,7			
PO Box 1945	Dorado E	4,5,7,8,9	Northrup King Co.	NK 1210	6,8
Plainview, TX 79072			1754 Park Blvd.NK X8111		6,7,8
"Asgrow"			Fargo, ND 58103	NK 2030	7
			"Northrup King"		
Cargill Hybrid Seeds	22	4,5,6,7,8,9			
PO Box 9493	40	4,5,6,7,8,9	Pioneer Hi-Bred,Int'l	8728	7,8,9
Minneapolis, MN 55440	1022	4,5,6,7,8,9	139 SE Willmar Ave.	8791	7,8
"Cargill"	2285	4,5,6,7,8,9	Willmar, MN 56201	8855	7,8,9
	3385	4,5,6,7,8,9	"Pioneer Brand"	8896	8,9
DeKalb-Pfizer Genetics	DK-18	6	SeedTec International	WS203	4,6,7,8
Rt. 1, Box 225	DK-28	5,8,9	PO Box 2212	651DR	4
Glenvil, NE 68941	DK-39y	7	Hereford, TX 79045	652G	6,7,8
"DeKalb"	P-728	8,9	"SeedTec"	ST1002	7
	P-757	4,6,9		ST3101	4,6,7,8
	X-638	7		ST3103	4,6,7,8
	X-729			ST3308	7
Garst Seed Co.	5517	4,7,8	Sigco Research, Inc.	1060	6,8,9
Eminence Roue	5613	4,7,8	PO Box 289	1070	4,6,7,8,9
Garden City, KS 67846	5715	4,7,8	Breckenridge, MN 56520	1080	4,7
"Garst"			"Sigco"		
Interstate Seed Co.	663	7,	Triumph Seed Co.	TR 46	5,6,7,8,9
PO Box 338	665	4,5,6,7,8,9	PO Box 1050	Two 48yG	5,6,7,8,9
W. Fargo, ND 58078	668	5,6,7	Ralls, TX 79357	Two 50yG	4,6,7,9
"Interstate"	764	4,5,6,7,8,9	"Triumph"		
McCurdy Seed Co.	M410	7,8	Geo. Warner Seed Co.	W-501T	5,7,9
PO Box 66	M450	7,8	PO Box 1448	W-523T	4
Fremont, IA 52561	M689	7	Hereford, TX 79045	W-545T	4,6,7,8
"McCurdy"			"Warner"	W-551A	6,9
				W-560T	4,5,6,8,9
				W-655T	7
				Wx85004	8
				Wx86028	4,5,6,7,8,9
				Wx86029	4,5,6,7,8,9
				Wx87151	4,5,6,7,8,9

Published in accordance with an act passed in 1881 by the 14th Legislative Assembly, Dakota Territory, establishing the Dakota Agricultural College and with the act of reorganization passed in 1887 by the 17th Legislative Assembly, which established the Agricultural Experiment Station at South Dakota State University.