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1968 Grain Sorghum Performance Trials

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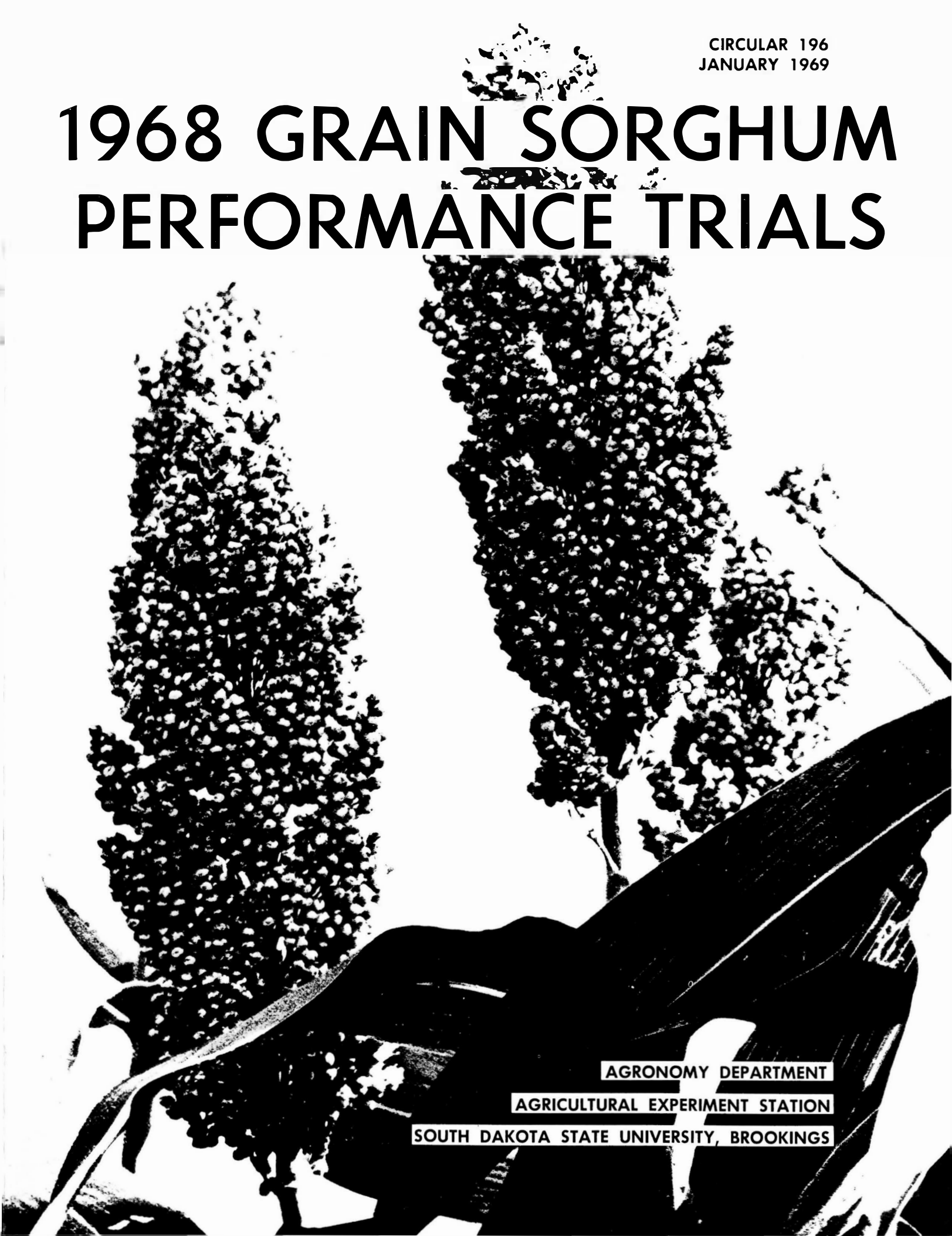
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CIRCULAR 196
JANUARY 1969

1968 GRAIN SORGHUM PERFORMANCE TRIALS



AGRONOMY DEPARTMENT

AGRICULTURAL EXPERIMENT STATION

SOUTH DAKOTA STATE UNIVERSITY, BROOKINGS

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1968 Grain Sorghum Performance Trials

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The primary purpose is to supply interested individuals with information on the relative performance of the hybrids entered when grown under similar environmental conditions. Records of performance of the hybrids harvested in 1968 and available two-, three-, four-, and five-year averages are presented. The trials reported in the circular have been under the supervision of the Crop Performance Testing Activity, Agricultural Experiment Station.

Location of the 1968 Trials

To adequately evaluate the performance ability of the various entries they must be grown under similar conditions of environment. The crop adaptation areas in which the trials were located are based upon differences in soil type, elevation, temperature, rainfall and other physical differences. The exact location of these trials and dates of seeding and harvesting are reported in Table 1. Data from soil samples taken at the various sites at time of seeding and the fertilizer applied are presented in Table 2.

Weather and Climatic Conditions

Climatic data for the 1968 grain sorghum growing season are based upon Monthly Climatological Data, U. S. Department of Commerce, and from reports of the sub-station superintendents and the Northeast and Southcentral Research Farms. These data are presented in Table 3. Rainfall at the Geddes site was unofficially 10.10 inches, most of it occurring in late May and the month of June.

The trials were seeded from May 21 through May 28. Soil moisture was adequate at most locations. The week prior to seeding was clear and calm but temperatures were cool. Though soil temperatures were cooler than desired for sorghum, seeding had to begin if all sites were to be seeded at appropriate times. Had seeding been delayed the general, sometimes excessive, rainfall that occurred the last of May and early June would have delayed seeding until the second week in June.

The cool, wet seedbeds did not favor rapid germination and growth. Growth was slow throughout the season at most locations. Entries at some locations were

The assistance of the following individuals is acknowledged: A. O. Lunden of the Agronomy Department; Substation supervisors Albert Dittman, Lloyd Dye, Jake Fredrickson, Harry Geise, Frank Holmes, Quentin Kingsley, Burton Lawrensen, and Herb Lund; and farmer cooperators William Fijala.

TABLE 1. THE LOCATION OF TRIALS AND DATES OF SEEDING AND HARVESTING OF GRAIN SORGHUM PERFORMANCE TRIALS, SOUTH DAKOTA, 1968

County	Location and post office	Date seeded	Date harvested
Brookings	Agronomy Farm, Brookings	May 28	October 9
Charles Mix	William Fijala Farm, Geddes	May 21	October 2
Clark	Northeast Research Farm, Garden City	May 24	October 11
Clay	Southeast Research Farm, Beresford	May 21	October 7
Hyde	Central Substation, Highmore	May 22	October 3
Lyman	South Central Substation, Presho	May 27	October 2
McPherson	North Central Substation, Eureka	May 23	October 10
Spink	Redfield Development Farm, Redfield	May 23	October 4

still pollinating when samples were taken for grain moisture in late September. The lateness of the killing frost was of benefit to many varieties. As indicated by the test weights, some varieties were quite wet when sampled but had reached physiological maturity and the cool, wet periods in September delayed the natural drying down of the grain. The cool season also delayed some varieties and the results indicate that some entries yielded quite poorly and quality was very poor.

Temperatures were below normal nearly every month at all locations and sorghums prefer temperatures normal or above. A warming trend in late September was of some benefit and the first killing frost did not occur at most sites until October 3. At nearly all locations heading and pollination were two to three weeks later than in most years.

TABLE 2. SOIL CLASSIFICATION, LABORATORY ANALYSIS OF SOIL SAMPLES TAKEN PRIOR TO SEEDING GRAIN SORGHUM AND FERTILIZER APPLIED FOR THE 1968 CROP YEAR

Location and area	Soil classification	Laboratory analysis				Fertilizer applied		
		org. mat. %	P lb/A	K lb/A	pH	method	N lb/A	P lb/A
Brookings, D3	Vienna loam	3.1	72	164	6.7	plowed down	80	0
Charles Mix, C2	Reliance si cl loam	3.6	16	682	7.6	anhydrous	50	0
Clark, D2	Poinsett si cl loam	3.5	31	366	6.7	plowed down	60	17
Clay, E	Kranzburg si cl loam	3.2	54	547	6.6	disced under	70	22
Hyde, B2	Williams loam	2.8	140	675	6.5	disced under	54	12
Lyman, B3	Pierre clay	3.4	6	682	7.5	plowed down	40	40
McPhearson, B2	Williams Loam	3.0	70	682	7.0	disced under	10	12
Spink, C1	Boetia-Harmony si cl lm	3.2	78	682	7.1	plowed down	120	20

TABLE 3. TEMPERATURE AND PRECIPITATION DATA FOR THE 1968 GRAIN SORGHUM GROWING SEASON IN SOUTH DAKOTA

Location	Month	Temperature, degrees F			Precipitation, inches		
		Mean average	Departure from normal	Average departure	Month total	Departure from normal	Total departure
Brookings* 1 E	May	51.2	-6.4		1.52	-1.27	
	June	66.2	-0.9		4.26	0.31	
	July	68.4	-4.8		3.27	1.12	
	August	67.4	-3.8		3.66	0.69	
	Sept.	57.2	-4.1	-4.0	3.69	1.68	2.51
					<u>16.40</u>		
	Last freeze 32° - May 24			First frost 32° - Sept. 27			
Centerville* 6 SE	May	55.7			0.92		
	June	73.3			4.62		
	July	73.3			6.43		
	August	73.5			2.16		
	Sept.	62.1			3.92		
					<u>18.05</u>		
	Last freeze 31° - May 20			First frost 32° - Oct. 3			
Garden City 4 NE	May	49.9			2.71		
	June	64.5			4.01		
	July	67.4			2.55		
	August	66.5			1.69		
	Sept.	55.9			2.23		
					<u>13.19</u>		
	Last freeze 29° - May 18			First frost 30° - Oct. 3			
Highmore* 1 W	May	52.4	-4.8		1.55	-0.78	
	June	66.1	-0.7		5.29	1.75	
	July	71.7	-2.8		4.39	2.41	
	August	68.8	-4.0		3.12	1.08	
	Sept.	60.4	-2.2	-2.9	3.37	2.06	6.52
					<u>17.72</u>		
	Last freeze 30° - May 24			First frost 30° - Oct. 3			
Eureka* Area B2	May	50.1	-5.6		1.86	-0.72	
	June	63.9	-1.1		5.88	2.05	
	July	68.2	-4.2		1.49	-0.96	
	August	66.7	-4.0		1.79	-0.62	
	Sept.	58.7	-1.4	-3.3	2.15	0.83	0.58
					<u>13.17</u>		
	Last freeze 32° May 24			First frost 31° - Oct. 3			
Redfield* 6 E	May	52.9			1.67		
	June	68.0			3.51		
	July	71.8			2.65		
	August	70.9			1.65		
	Sept.	61.1			1.91		
					<u>11.39</u>		
	Last freeze 29° - May 21			First frost 30° - Oct. 3			
Presho 11 S	May	54.5			2.41		
	June	68.0			5.46		
	July	74.6			1.13		
	August	73.0			2.96		
	Sept.	64.3			1.00		
					<u>13.16</u>		
	Last freeze 30° - May 9			First frost 32° - Oct. 3			

* Based upon reports of Monthly Climatological Data, U. S. Dept. of Commerce, Environmental Science Services Administration, Office of the State Climatologist, State University, Brookings, South Dakota, 57006

Hybrid Entry Procedure

Grain sorghums offered for sale in South Dakota or being produced for distribution in 1969 were eligible for entry. A closed-pedigree hybrid was entered by the permanent name and number under which it was sold by the parent company only. Varieties entered maintained minimum laboratory germination of 80% as required by South Dakota Certification Standards. A nominal fee was charged for each entry in each area except grain sorghum hybrids developed by State and Federal Experiment Stations and entered by the South Dakota Agricultural Experiment Station.

Experimental Procedure

Each trial consisted of four replications and within each replication plots of individual entries were randomly located. All trials were seeded two rows at a time, with cone planters mounted above runner-type planter units. Row spacing was 40 inches in all trials except the irrigated Redfield trial where the rows were but 21 inches apart. The plots were two rows wide and row lengths varied with range dimensions at each location.

The harvested grain was taken from two ten-foot sections of each row in each individual plot. The heads were bagged as harvested, tagged and tied, returned to the Main Station and allowed to air dry in a pole shed for several weeks. Prior to threshing the bags were placed in driers for several days. Yields were calculated on the basis of pounds per acre. Three replications were harvested for yield determination and the fourth was left for observational purposes.

Moisture determinations made at the time of normal first-frost dates are generally more reliable and informative than determinations made at harvest time. Generally, these figures and the test weight of the grain indicate the maturity of the grain more realistically.

A route was established and moisture samples were taken at all sites from September 24 through 26. Ten to twelve heads, adequate for a 400-500 gram sample, were cut from each entry, placed in a polyethylene bag, tagged and sealed tightly. Upon returning to the Main Station the samples were threshed, cleaned and moisture percentages determined with an electronic moisture meter. The upper limit of the meter is 35 percent. Material above this level is indicated as 35.1+ in the tables and normally would indicate hybrids of late maturity for this area. Some varieties were exceptions this year even though at time of sampling the percentages were at or near 35. These entries were mature physiologically but cool, damp weather delayed the loss of moisture from the grain.

A bird repellent was used at locations where birds have been a serious problem. The repellent is not harmful to the birds but is bitter to the taste and discourages continual picking. No significant losses occurred in 1968. Seed and forage treated with this repellent is unfit for food or feed so treatment is limited to fields planted for experimental use or seed production.

Measurements of Performance

Variations in soil fertility, slope or stand may cause varieties of equal potential to yield differently. Mathematical determinations were made to determine whether

yield differences were caused by variations in environment or were true varietal differences. Small yield differences have no significance. If the yields were found not to be statistically different, a notation, N. S., is shown under the table, as at Geddes. Where the entries were found to have statistically significant differences among mean yields an additional test, Duncan's Multiple Range Test, was run on the means at the 5% level.

As an example of Duncan's Test, note in Table 4 that varieties accompanied by the same lower case letter under the right hand column are not statistically different in 1968 yields. In this table, under prevailing environmental conditions, S.D. 503, Curry M-530, NK 127, NK 125 and NK 120 are not statistically different from each other in yield. This example holds true for all tables having significant differences in 1968 yields.

Discussion of Results

Grain sorghums are grown extensively in the south central part of the state and in varying amounts elsewhere around the state too hot or dry for corn production. During 1968, the temperatures were below normal through most of the growing season and precipitation was limited only in the areas where grain sorghum covers large acreages east of the Missouri River.

Seed bed moisture was adequate for germination. Soil temperatures were slowly rising during the time of planting but the extended period of cool weather with frequent precipitation caused stand losses and erratic results in at least one trial.

Excellent yields were attained at Beresford and Redfield and to a lesser degree at Highmore and Presho. Moisture was high in the grain as cool temperatures hindered ripening during September. The grain was of good quality at Geddes but stand losses were severe as excessive rainfall occurred just as the plants were emerging.

Growth was slow at Eureka, Garden City and Brookings. Temperatures were below normal throughout the year and some entries were just pollinating at Eureka when a killing frost occurred. The trial at Garden City started quite slowly but made good growth considering the season. Temperatures at Brookings were cool all season and were a delaying handicap for a heat loving crop.

The Grain Sorghum Performance Trials are conducted by the Crop Performance Testing Activity, Agricultural Experiment Station. These trials were initiated in 1962 and during this entire period several entries have been included every year and have not varied greatly in rank. Factors other than yield should also be considered when making selections of hybrids. Several of these factors are standability, maturity, head type, quality, disease resistance, insect resistance and adaptability to combine harvesting.

A summary of entries tested and companies submitting them is presented in Table 19.

TABLE 4. 1968 GRAIN SORGHUM PERFORMANCE TRIAL, AREA D3, AGRONOMY FARM, BROOKINGS

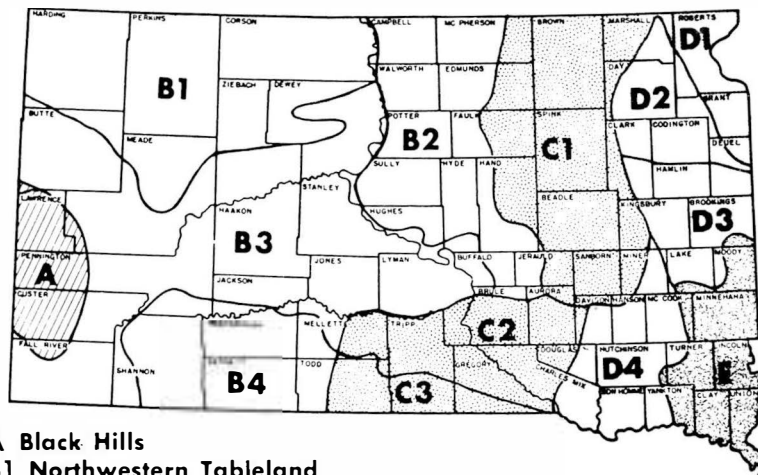
Variety	Height, inches	Percent		Test Wt. lb/bu	Yield lb/A	Statistical Significance
		Moisture 9/25/68	Percent Lodging			
SD 503	56	35.1+		55.0	5150	a
Curry M-530	46	35.1+		54.0	5140	ab
NK 127	40	35.1+		56.0	4860	abc
NK 125	47	35.1+	15	52.0	4780	abcd
NK 120	47	35.1+	20	54.5	4640	abcde
Frontier 338a	46	35.1+		53.0	4570	bcde
Frontier Grassy Grain I	49	32.3		57.0	4560	bcdef
ACCO Pawnee	52	34.6	5	57.0	4540	bcdef
Pioneer 883	43	35.1+		50.0	4530	cdefg
ACCO BL101	51	35.1+	10	54.0	4490	cdefg
RS 610	49	35.1+		47.0	4430	cdefgh
SD 451	51	35.1+	5	52.0	4350	cdefgh
Pioneer 889	39	35.1+		54.5	4330	cdefgh
Asgrow Rocket B	51	35.1+	5	53.0	4190	defghi
DeKalb B-37	39	35.1+		51.0	4160	defghij
Taylor Evans TE 44c	44	35.1+		53.0	4160	defghij
Pioneer 894	37	32.8		55.5	4130	efghij
Frontier GX 410	38	35.1+		49.0	4000	efghij
Sokota 445	48	35.1+		52.0	3910	fghijk
SD 441	55	34.2	5	54.0	3910	fghijk
ACCO R 94	47	35.1+		53.0	3870	ghijk
Pioneer 885	47	35.1+		50.0	3800	hijk
NK 133	45	35.1+		52.0	3620	ijk
SD 102	42	30.2	15	53.5	3490	jk
Asgrow Flare	54	35.1+		42.0	3230	k
Asgrow Rico	45	35.1+		37.0	2030	l
				Mean	4190	

C.V. = 8.3%

TABLE 5. TWO-, THREE-, FOUR-, and FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED IN THE AREA D3 TRIALS AT BROOKINGS, 1964-1968

Variety	Average Yields, pounds per acre			
	1964-68	1965-68	1966-68	1967-68
ACCO Pawnee		4190	4420	4120
NK 125		4245	4625	4260
NK 133	4060	3840	3865	3420
Pioneer 894				3875
Taylor-Evans TE 44c				3505
RS 610	3660	3620	3710	3240
SD 441	3870	3910	4170	3985
SD 451	4165	4170	4530	4275
SD 503	4345	4195	4430	4440

CROP ADAPTATION AREAS



- A Black Hills
- B1 Northwestern Tableland
- B2 North Central Glacial Upland
- 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

TABLE 6. 1968 GRAIN SORGHUM PERFORMANCE TRIAL, AREA D2, NORTHEAST RESEARCH FARM, GARDEN CITY UNIT

Variety	Height, inches	Test Wt.* lb/bu	Yield lb/A	Statistical Significance
NK 120	44	52.5	3390	a
Pioneer 894	34	52.0	3270	ab
NK 115	40	53.0	3240	ab
ACCO BL 101	47	51.0	3220	abc
NK 127	37	53.0	3050	abc
SD 451	48	52.0	3040	abc
SD 503	52	51.0	2990	abc
Frontier Grassy Grain I	46	53.5	2920	abc
Pioneer 889	37	52.0	2840	abcd
ACCO R 94	43	52.0	2820	abcd
NK Mini-Milo 50	45	55.0	2810	abcd
Frontier 388a	43	50.0	2660	bcde
SD 441	50	52.0	2570	cde
Taylor-Evans TE 44c	43	53.0	2550	cde
SD 102	41	53.0	2180	de
Frontier GX 410	36	46.0	1960	e
		Mean	2840	

C.V. - 12.7%

* All varieties above 35% moisture in grain on 9/24/68.

TABLE 7. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED IN THE AREA D2 TRIAL, 1964-1968

Variety	Average Yields, pounds per acre			
	1964-68	1965-68	1966-68	1967-68
ACCO BL-101				2415
NK 115	2735	2710	2770	2675
NK 120	2660	2650	2770	2545
Pioneer 894				2140
Taylor-Evans TE 44c				1755
SD 441	2405	2475	2600	2415
SD 451	2330	2325	2510	2075
SD 503	2365	2335	2345	2055

TABLE 8. 1968 GRAIN SORGHUM PERFORMANCE TRIAL, AREA B2, CENTRAL SUBSTATION, HIGHMORE

Variety	Height, inches	Percent Moisture 9/25/68	Test Wt. lb/bu	Yield lb/A	Statistical Significance
ACCO BL 101	51	33.5	54.0	5720	a
Frontier GX 410	38	31.7	54.0	5540	ab
NK 120	46	35.1+	56.0	5430	abc
Pioneer 889	37	32.3	56.0	5160	abcd
SD 503	54	35.1+	56.0	5140	abcde
NK 125	46	35.1+	56.0	5070	abcdef
T-E 44c	46	35.1+	54.0	5050	abcdef
Pioneer 894	37	33.9	58.5	5000	abcdef
Frontier 388a	46	35.1+	57.0	4980	abcdef
NK 127	42	28.2	57.0	4880	bcdef
NK Mini-Milo 50	45	35.1+	56.0	4700	cdef
NK 115	42	29.0	55.0	4680	cdef
NK 133	43	35.1+	55.0	4670	cdef
Frontier Grassy Grain I	47	25.4	58.0	4330	def
SD 102	43	30.3	55.0	4330	def
SD 441	53	30.0	55.0	4280	ef
SD 451	48	33.4	56.0	4220	f
			Mean	4890	

C.V. - 9.5%

TABLE 9. 1968 GRAIN SORGHUM PERFORMANCE TRIAL, AREA B2, NORTHCENTRAL SUBSTATION, EUREKA

Variety	Height inches	Test Wt.* lb/bu	Yield lb/A	Statistical Significance
NK 120	41	45.0	2080	a
NK 115	39	48.0	2070	ab
NK Mini-Milo 50	40	51.0	1970	ab
NK 125	42	45.0	1640	bc
Frontier Grassy Grain I	42	43.0	1340	bcd
Pioneer 894	32	38.0	1300	cd
SD 451	44	44.0	1300	cd
NK 133	42	30.0	1200	cd
SD 441	44	49.0	1170	cde
SD 102	38	49.0	1140	de
Frontier 388a	38	45.0	1140	de
SD 503	46	40.0	1100	de
ACCO BL-101	43	45.0	1080	de
T-E 44c	41	40.0	940	de
NK 127	37	45.0	940	de
Pioneer 889	35	34.0	920	de
Frontier GX 410	35	23.0	660	e
			Mean	1290

C.V. - 20.1%

* All varieties above 35% moisture in grain on 9/24/68.

TABLE 10. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS IN THE B2 TRIALS AT HIGHMORE, 1964-1968

Variety	Average Yields, pounds per acre			
	1964-68	1965-68	1966-68	1967-68
ACCO BL-101				4670
NK 115	2980	3665	4000	3955
NK 120	3930	4225	4775	4670
NK 125	3685	3985	4520	4425
NK 133	3530	4100	4640	4380
Pioneer 894				3810
Taylor-Evans TE 44c			3770	3710
SD 102				3695
SD 441	3100	3395	3750	3340
SD 451	3450	3640	3940	3850
SD 503	2835	3390	4025	3765

TABLE 11. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED IN THE AREA B2 TRIALS AT EUREKA, 1964-1968

Variety	Average Yields, pounds per acre			
	1964-68	1965-68	1966-68	1967-68
ACCO BL-101				1305
NK 115	1700	1850	2070	1880
NK 120	1780	1865	2075	1930
NK 125	1590	1700	1480	1570
NK 133	1175	1435	1560	1125
Pioneer 894				1405
Taylor-Evans TE 44c			1570	1155
SD 102				1385
SD 441	1400	1585	1735	1290
SD 451	1275	1440	2345	1500
SD 503	1060	1535	1820	1630

TABLE 12. 1968 GRAIN SORGHUM PERFORMANCE TRIAL, AREA C2, WILLIAM FIJALA FARM, GEDDES

Variety	Height, inches	Percent	Percent	Test Wt.	Yield	Yield, lb/A	
		Moisture 9/26/68	Lodging 10/2/68			1966-68	1967-68
Taylor-Evans T-E 44c	38	19.6	5	59.0	3220	3625	3310
Frontier GX 410	31	16.4	2	58.0	3200		
RS 610	36	22.7	10	58.0	3190	4280	3870
Pioneer 875	35	23.8	5	56.0	3050		
NK 133	35	18.0	5	60.0	3020	3615	3230
NK 222	33	20.5	15	59.0	2990	3890	3380
Sokota 510	37	18.8	10	58.0	2940	4260	3650
DeKalb DD-50	34	18.9	10	58.0	2900	4050	3280
DeKalb E-55	31	23.9	5	57.0	2900		
Pioneer 866	38	24.6	15	57.0	2840		3635
ACCO R 1050	32	22.8	2	58.0	2770		
Asgrow Flare	34	22.9	5	55.0	2750		
Curry M-530	36	17.8	5	61.0	2720		
Asgrow Rico	35	20.6	3	54.0	2700		
Pioneer 883	34	16.3	10	56.0	2700		3290
Frontier 388a	34	20.6	5	60.0	2650		
ACCO R 102	34	19.6	30	55.0	2610		3335
ACCO Pawnee	38	16.8	3	60.0	2570	4140	3210
Pioneer 885	37	17.0	10	58.0	2550	3865	3170
Pioneer 889	33	17.2	2	58.0	2550		
NK 265	32	22.3	10	60.0	2500		
SD 503	42	17.3	5	59.0	2460	3925	3350
Asgrow Rocket B	38	18.3	10	59.0	2330		
ACCO R 94	37	18.1	15	59.0	2290		2930
NK 127	33	16.1	5	58.0	2290		
SD 451	39	17.3	20	55.0	2230	3305	2710
SD 441	41	17.3	15	54.0	2130		2505
Frontier Grassy Grain I	38	17.3	3	57.0	1980		
				Mean	2680		

C.V. - 17.5%

N.S.

TABLE 13. 1968 GRAIN SORGHUM PERFORMANCE TRIAL, AREA E, SOUTHEAST RESEARCH FARM, BERESFORD

Variety	Height, inches	Percent Moisture 9/26/68	Test Wt. lb/bu	Yield lb/A	Statistical Significance
Pioneer 866	53	30.6	58.5	7160	a
DeKalb E-55	51	34.0	55.0	6860	ab
Asgrow Rico	52	29.9	55.0	6710	abc
Asgrow Flare	58	33.0	54.0	6600	abc
RS 610	53	30.3	57.0	6510	abcd
Curry M-530	47	24.4	58.0	6340	abcde
ACCO R 102	50	28.9	57.0	6300	abcdef
NK 265	52	29.9	58.0	6230	bcdefg
Pioneer 875	49	31.8	56.0	6140	bcdefg
Pioneer 883	47	25.7	55.0	6120	bcdefg
DeKalb DD-50	46	33.5	57.0	6110	bcdefg
Advance AMAK R-10	49	23.0	56.0	6090	bcdefg
Advance 14	50	27.6	56.0	6050	bcdefg
Sokota 510	51	35.1+	57.0	6050	cdefg
Frontier GX 410	40	24.1	55.0	5850	cdefgh
Pioneer 889	42	28.6	57.0	5810	cdefgh
NK 222	43	31.7	58.0	5780	defgh
SD 503	58	24.4	56.0	5760	efgh
Asgrow Rocket B	50	23.0	58.0	5720	efgh
Frontier 388a	45	24.9	58.0	5680	efgh
ACCO R 1050	47	28.2	58.0	5630	efghi
Pioneer 885	45	22.8	57.0	5540	fghi
Frontier Grassy Grain I	49	19.6	57.0	5480	ghij
SD 451	52	19.8	56.0	5140	hij
ACCO R 94	50	26.3	58.0	4830	ijk
T-E 44c	47	24.2	57.5	4670	jk
SD 441	56	17.4	55.0	4200	k
			Mean	5900	

C.V. = 6.8%

TABLE 14. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED IN THE AREA E TRIALS AT BERESFORD, 1964-1968

Variety	Average Yields, pounds per acre			
	1964-68	1965-68	1966-68	1967-68
Advance 14				5635
Advance AMAK R 10				5695
Asgrow Rico		5600	6755	
DeKalb DD-50			6380	6110
NK 222	5055	5510	5220	5755
Pioneer 866				6350
Pioneer 883				5935
Pioneer 885			5830	5620
TE 44c			5190	5240
RS 610	5380	6020	6530	6295
SD 441				4865
SD 451	4900	5510	5870	5790
SD 503	4760	5195	5565	5880

TABLE 15. 1968 GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3, SOUTHCENTRAL RESEARCH FARM, PRESNO

Variety	Height, inches	Percent Moisture 9/25/68	Test Wt. lb/bu	Yield lb/A	Statistical Significance
NK 120	41	23.8	58.0	4820	a
Advance 22	44	27.1	59.0	4710	ab
Advance 19	41	28.0	57.0	4670	ab
ACCO Pawnee	43	23.9	58.0	4650	abc
Sokota 445	41	31.5	57.0	4570	abc
Pioneer 883	42	35.1+	55.0	4560	abc
SD 503	48	26.2	57.0	4540	abcd
Frontier 338a	38	31.1	57.0	4470	abcde
Pioneer 894	38	25.5	57.0	4460	abcde
NK 133	40	35.1+	57.0	4460	abcde
Pioneer 885	40	32.3	54.0	4450	abcde
ACCO R 94	42	31.7	58.0	4430	abcde
DeKalb B-37	39	35.1+	56.0	4400	abcde
Frontier GX 410	38	35.0	53.0	4370	abcde
ACCO EX 5356	35	29.9	57.0	4320	abcdef
Sokota 510	45	35.1+	51.0	4300	abcdef
DeKalb DD-50	40	35.1+	53.0	4270	abcdef
RS 610	42	34.5	53.0	4180	bcdefg
NK 127	37	29.7	57.0	4180	bcdefg
Pioneer 889	35	32.7	56.0	4170	bcdefg
T-E 44c	42	17.7	57.0	4170	bcdefg
ACCO R 102	47	35.1+	51.0	4130	bcdefg
ACCO EX 1036	40	30.9	56.0	4090	bcdefg
SD 451	45	22.4	56.0	4000	cdefg
ACCO EX 7250	40	34.6	57.0	3840	defg
Frontier Grassy Grain I	43	21.8	57.0	3770	efg
NK Mini-Milo 50	43	18.0	57.0	3620	fg
ACCO R 1050	43	35.1+	53.0	3530	g
SD 441	50	20.6	55.0	3500	g
ACCO EX 5355	35	34.9	56.0	3460	g
			Mean	4235	

C.V. - 8.7%

TABLE 16. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED IN THE AREA B3 TRIALS AT PRESNO, 1964-1968

Variety	Average Yields, pounds per acre			
	1964-68	1965-68	1966-68	1967-68
ACCO R 102				3415
ACCO EX 1036				4045
ACCO Pawnee	3370	3240	3880	3980
Advance 19				4165
Advance 22		3525	4210	4100
DeKalb DD-50				3970
NK 120			3835	4430
NK 133	3450	3360	3850	3900
Pioneer 885			4140	3885
Pioneer 894				3830
T-E 44c			3775	3920
RS 610	3330	3265	3995	3635
Sokota 510			4125	3835
SD 441	3055	3135		3765
SD 451	3375	3440	3945	4210
SD 503	3830	3910	4080	4245

TABLE 17. 1968 GRAIN SORGHUM PERFORMANCE TRIAL, AREA C1, IRRIGATED, REDFIELD DEVELOPMENT FARM, REDFIELD

Variety	Height, inches	Percent Moisture 9/24/68	Test Wt. lb/bu	Yield lb/A	Statistical Significance
ACCO Pawnee	53	31.6	60.0	7700	a
NK 120	47	34.8	56.0	7430	ab
SD 451	51	30.8	56.0	7260	abc
SD 503	55	32.4	57.0	7090	abcd
RS 610	49	35.1*	48.0	6920	abcde
DeKalb DD-50	44	35.1*	53.0	6850	abcde
NK 265	49	35.1*	52.0	6820	abcdef
Pioneer 885	46	35.1*	53.0	6790	abcdef
Pioneer 894	40	33.1	56.0	6650	bcdefg
ACCO BL 101	52	34.8	57.0	6620	bcdefg
Pioneer 883	46	35.1*	53.0	6590	bcdefg
Frontier 388a	44	34.7	56.0	6530	bcdefg
Pioneer 889	39	35.1*	56.0	6520	bcdefg
DeKalb B-37	40	35.1*	54.0	6490	bcdefg
NK 127	43	30.2	57.0	6480	bcdefg
NK 133	46	35.1*	54.0	6390	cdefg
DeKalb B-32	44	34.0	57.0	6340	cdefg
NK 125	49	30.9	54.0	6230	defg
SD 441	52	23.5	56.0	6160	defg
Frontier Grassy Grain I	48	30.4	57.0	5990	efg
Taylor-Evans TE 44c	45	35.1*	56.0	5930	efgh
Sokota 445	46	35.1*	54.0	5800	fgh
ACCO R 94	44	33.7	55.0	5790	fgh
Frontier GX 410	37	35.1*	50.0	5600	gh
SD 102	43	30.3	56.0	4850	h
			Mean	6470	

C.V. - 8.6%

TABLE 18. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED IN THE C1 TRIALS AT REDFIELD, 1964-1968

Variety	Average Yields, pounds per acre			
	1964-68	1965-68	1966-68	1967-68
ACCO BL 101				6940
ACCO Pawnee	5980	6260	6480	7600
DeKalb B-32	5510	5850	6220	7115
DeKalb DD-50				6080
NK 120				8365
NK 125	5315	5615	5800	6930
NK 127				6985
NK 133	5475	5705	5800	6715
Pioneer 885	5310	5555	5865	6425
Pioneer 894				6440
Sokota 445				6245
Taylor-Evans T-E 44c			5585	6540
RS 610	5650	5825	6010	6810
SD 441				6795
SD 451	5490	5860	6135	7260
SD 503	5860	6010	6165	7020

TABLE 19. ENTRIES SUBMITTED FOR THE 1968 GRAIN SORGHUM PERFORMANCE TRIALS AND TABLES WHERE THE RESULTS APPEAR

Company	Variety	Tables	Company	Variety	Tables	
ACCO Seeds	Pawnee	4,6,12,15,16,17,18	Frontier Hybrids Inc.	GX 410	4,5,8,9,12,13,15,17	
	R 102	12,13,15,16		388a	4,5,8,9,12,13,15,17	
	R 94	4,5,12,13,15,17		Grassy Grain I	4,5,8,9,12,13,15,17	
	Ex. 1036	15,16		Pioneer Hi-Bred	885	4,12,13,14,15,16,17,18
	R 1050	12,13		Corn Company	866	12,13,14
	Ex. 5355	15			883	4,12,13,14,15,17
	Ex. 5356	15			894	4,5,6,7,8,9,10,11,15,16,17,18
	Ex. 7250	15			875	12,13
BL 101	4,5,7,8,9,10,11,17,18		889	4,5,8,9,12,13,15,17		
Advance Seed Company	Advance 14	13,14	Sokota Hybrid Producers	510	12,13,15,16	
	Advance 22	15,16		445	4,15,17,18	
	AMAK R10	13,14				
	Advance 19	15,16		Taylor-Evans Seed Company	T-E 44c	4,5,6,7,8,9,10,11,12,13,14,15, 16,17,18
Asgrow Seed	Rico	4,12,13,14	South Dakota Agricultural Experiment Station	RS 610	4,6,12,13,14,15,16,17,18	
	Flare	4,12,1		SD 102	4,5,8,9,17	
	Rocket B	4,12,13		SD 441	4,5,6,7,8,9,10,11,12,13,14,15 16,17,18	
Curry Hybrids	M-530	4,12,13		SD 451	4,5,6,7,8,9,10,11,12,13,14,15, 16,17,18	
DeKalb Agric. Assn., Inc.	B-32	17,18		SD 503	4,5,6,7,8,9,10,11,12,13,14,15 16,17,18	
	B-37	4,15,17				
	DD-50	12,13,14,15,16,17,18				
	E-55	12,13				
Northrup, King & Company	NK 115	5,7,8,9,10,11				
	NK 120	4,5,7,8,9,10,11,15,16,17,18				
	NK 125	4,6,8,9,10,11,17,18				
	NK 127	4,5,8,9,12,15,17,18				
	NK 133	4,6,8,9,10,11,12,15,16,17,18				
	NK 222	12,13,14				
	NK 265	12,13,17				
	Mini Milo 50	5,8,9,15				