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1964 Grain Sorghum Performance Trials



AGRONOMY DEPARTMENT
AGRICULTURAL EXPERIMENT STATION
SOUTH DAKOTA STATE UNIVERSITY, BROOKINGS

1964 South Dakota Grain Sorghum Performance Trials

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The 1964 Grain Sorghum Performance Trials were conducted at ten locations in South Dakota. Varieties presently grown by farmers, new varieties not yet widely used and new strains being considered for release were eligible for entry in the 1964 trials. The trials were under the supervision of the Crop Performance Testing Activity of the Agricultural Experiment Station. Grain yields, test weights and other agronomic data are reported.

LOCATION OF THE 1964 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. A new trial location, an irrigated trial with narrow row spacings, was begun on the Redfield Development Farm. The exact location of these trials and dates of seeding and harvesting are shown in Table 1.

WEATHER AND CLIMATIC CONDITIONS

Climatic data for the 1964 growing season are presented in Table 2. These data are based upon reports of the Monthly Climatological Data, U.S. Department of Commerce, and from reports from the sub-station supervisors at the Northeast and South Central Research Farms.

All trials were seeded during the period May 19 to May 28. Germination was retarded by lack of adequate rainfall or soil moisture at some locations. Excessive rainfall after planting resulted in poor stands at the Southeast Research Farm.

Lodging was severe in some entries at the Highmore location. At other locations the amount was minimal.

Temperatures of 32 degrees were recorded at all locations by September 27. In several instances only the leaf tips showed evidence of damage. Rainfall was very limited in late September and into October until the trials were harvested.

The assistance of C. J. Franzke and A. O. Lunden, breeders and Station Supervisors Albert Dittman, Lloyd Dye, Jake Frederikson, Harry Geise, Frank Holmes, Quentin Kingsley, Herb Lund, John Nesvold and Carl Erickson and cooperator Norman Lein is hereby gratefully acknowledged.

TABLE 1. THE LOCATION OF TRIALS AND DATES OF SEEDING AND HARVESTING OF GRAIN SORGHUM TRIALS, SOUTH DAKOTA, 1964

County	Location and Post Office	Date planted	Date harvested
Brookings	Agronomy Farm, Brookings	May 28	October 8
Butte	U.S. Newell Field Station, Newell	May 27	September 29
Charles Mix	Norman Lein, Platte	May 19	October 1
Clay	Southeast Research Farm, Beresford	May 25	October 7
Codington	Northeast Research Farm, Watertown	May 20	October 2
Hyde	Central Substation, Highmore	May 28	September 28
Jackson	Range Field Station, Cottonwood	May 26	September 29
Lyman	South Central Research Farm, Presho	May 26	September 30
McPherson	North Central Substation, Eureka	May 21	September 24
Spink	Redfield Development Farm, Redfield	May 28	October 5

HYBRID ENTRY PROCEDURE

Grain sorghum hybrids offered for sale in South Dakota during 1964 or being produced for distribution in 1965 were eligible for entry. A closed-pedigree hybrid was entered by permanent name and number under which it was sold by the parent company only. Varieties entered maintained minimum laboratory germinations of 80 percent as required by South Dakota Certification Standards. A nominal fee was charged for each entry in each area except grain sorghums developed by State Experiment Stations and entered by the South Dakota Experiment Station.

EXPERIMENTAL PROCEDURE

Each trial consisted of four replications hand planted with a small garden planter. Plots of individual entries were located at random within each replication. The plots were two rows wide. The dryland trial row widths varied from 36 to 42 inches apart. The irrigated trial was planted in 21-inch rows. Row lengths varied with range dimensions at each location.

The heads from two rows, ten feet long, were harvested for yield determinations. Yields are calculated on the basis of 100 pounds per acre. One of the four replications was planted for observational purposes.

Samples for moisture percentages in the grain at time of harvest were taken from three replications. Seed spikelets were taken midway up the panicles of 20 sorghum heads for moisture determinations. The samples were weighed in the field, oven-dried in the laboratory for at least 72 hours at 102° C., reweighed and the moisture percentages calculated. The percentage reported is the average of three replications.

Excessive moisture at harvest was very evident for several entries at most locations. This was the result of unseasonal weather conditions causing delayed flowering, seed development and maturity. The hot dry planting conditions followed by a cold wet spring, a hot midsummer period, and a cold fall prevented normal maturation. This was less serious in areas in which early killing frost did not occur.

The lateness of development due to excessive rains in June, the heat and drouth of July and early August or the maturity of the hybrid is to be noted when checking test weight of the respective entries. Some test weights of trials in the drouth area or caught by early frosts are very low.

Varieties of equal potential may yield differently due to variations in soil fertility, slope and stands. Mathematical determinations were made to ascertain whether yield differences were caused by variation in environment or were true varietal differences. Small yield differences have no significance. At the bottom of each yield table is given the minimum yield by which two entries must differ for the yields to be considered significantly different at the five-percent level. If the trials were found to have statistically significant differences between mean yields an additional test, Duncan's Multiple Range Test, was run on the means.

In the interpretation of Duncan's Test, those entries opposite the same vertical lines on the right side of the table do not differ significantly in yield. Using 1964 results in Table 3 as an example, RS 501, NK 125, NK 133 and NK 115 were not statistically different from each other. RS 501 is significantly higher in yield than all others below NK 115. Examining the second line to the right of the figures, entries from NK 125 through Pawnee are not significantly different but NK 125 is better than entries falling below Pawnee. These statements hold true for only the conditions prevalent in the 1964 trial. Results from one year are not as conclusive as average results of three or more years at the same location.

Discussion of Results

Grain sorghums are grown extensively in areas of the state too hot and too dry for corn. In 1964, conditions varied widely across the state. Precipitation occurred in adequate amounts for uniform growth at only one location throughout the growing season. In all other trials moisture was limited either just after planting or from mid-July until harvest. Many fields were nearly lost until rain showers occurred the latter part of August. This moisture helped sustain the crop until harvest.

At Brookings, the trial field was very moist at time of seeding and adequate moisture was recorded throughout the cropping period allowing growth to continue without moisture stress. Below average temperatures in August and September were the major deterrents to growth during the entire period. The mean yield of all entries was 34.5(100 lb/A). Moisture in the grain was quite high because of the retarding effect of the cooler temperatures and a killing frost in mid-September.

Seedbed conditions were ideal at the Watertown trial site with rapid even germination. Growth was good until July. Near drouth conditions existed at this location during July and only a heavy rain in mid-August permitted the crop to progress on toward maturity. Yields averaged 21.4(100 lb/A).

A new trial was inaugurated at Redfield in 1964. This was to be an irrigated trial using narrow row spacing, 21 inches, and high plant population. Yields reported are acceptable but the stand was not as high as planned because uneven germination

contributed to reductions in stand. The moisture percentages of most entries was quite low at harvest and yields averaged 41.1 (100 lb/A).

Germination was uneven and poor in the trial on the Southeast Research Farm. The poor stand plus periods of moisture stress reduced yields. The mean yield of the trial was 24.3 (100 lb/A).

Lack of adequate moisture until early June caused uneven germination and stands in the trial field at Platte. Despite limited moisture at seeding and at times throughout the season creditable yields were obtained at harvest. The mean average of all entries was 41.9(100 lb/A) and moisture in the grain was not excessive.

Drouth was a problem at the Highmore station most of the cropping season. Stands were somewhat uneven because driving rains caused crusting of the soil several times in June. Precipitation was limited during August and September.

At Eureka germination was quite uniform. A rain of over 6.7 inches in a 4-hour period in June caused some flooding in the plots and slowed growth. Precipitation was well below normal in July, August and September. The below normal temperatures in August and September aided somewhat in conserving available soil moisture that sustained the crop until harvest. Yields obtained were quite variable and very low. The yield and test weight did not benefit from an early freeze on September 11.

The Presho trial produced quite satisfactory results. Initial germination was somewhat slow but rainfall in June and especially July carried the crop until harvest. Yields averaged 34.2(100 lb/A). Moisture in the grain was quite low in all entries at harvest.

The results obtained at Cottonwood were quite variable and low. Drouth and excessive heat at time of heading and pollination greatly reduced the seed set.

The trial at Newell was lost to blackbirds again in 1964. From field observations it appeared that a reasonably good yield might have been expected from several entries. However, heading was somewhat later than in other years and the test weights obtained indicate the seed was quite immature.

The Crop Performance Testing Activity has supervised the Grain Sorghum Performance Trials for three years. Averages of some entries are available for the same period and many do not vary in yield rank from year to year. Agronomic factors other than yield should also be considered in making selections of hybrids to plant. Several of these factors are standability, maturity, head type, quality, disease resistance, insect resistance and adaptability to combine harvesting. A summary of the lines tested and the companies submitting each line is given in Table 13.

TABLE 2. TEMPERATURE AND PRECIPITATION DATA FOR THE 1964 GRAIN SORGHUM GROWING SEASON IN SOUTH DAKOTA

Location	Month	Temperature, Degrees F			Precipitation, inches		
		Mean average	Depart- ure from normal	Average depart- ure	Month total	Depart- ure from normal	Total departure
Eureka B2	May	57.2	1.1		2.95	0.36	
	June	65.3	0.3		9.59	5.76	
	July	72.6	0.2		2.37	-0.08	
	Aug.	66.3	-4.4		0.80	-1.61	
	Sept.	<u>56.8</u>	-3.3	-1.2	<u>0.74</u>	-0.58	3.85
				16.45			
	<u>First frost 29° - Sept. 11</u>						
Highmore 1 W B2	May	60.3	3.1		3.32	0.99	
	June	67.2	0.4		4.59		
	July	76.8	2.3		2.66	0.68	
	Aug.	70.0	-2.8		1.10	-0.94	
	Sept.	60.7	-1.9	0.2	<u>0.29</u>	-1.02	
				11.96			
	<u>First frost 32° - Sept. 24</u>						
Cottonwood 2 E B3	May	60.6	3.2		2.55	-0.16	
	June	65.1	-2.0		5.31	2.33	
	July	77.2	1.6		0.87	-0.67	
	Aug.	70.8	-3.0		1.36	0.00	
	Sept.	59.9	-3.1	0.6	<u>0.17</u>	-0.85	0.65
				10.26			
	<u>First Frost 29° - Sept. 12</u>						
Newell 2 NW B3	May	56.8	1.4		3.16	0.67	
	June	63.3	-1.1		5.43	2.24	
	July	74.4	1.2		1.98	0.22	
	Aug.	67.1	-4.1		1.79	0.51	
	Sept.	56.9	-3.5		<u>0.11</u>	-1.03	2.61
				12.47			
	<u>First Frost 29° - Sept. 12</u>						
Presho 11 S B3	May	62.6			1.27		
	June	69.0			3.99		
	July	82.1			4.84		
	Aug.	71.2			1.21		
	Sept.	62.1			<u>0.52</u>		
				11.83			
	<u>First frost 32° - Sept. 20</u>						
Redfield 6 E C1	May	60.6			2.40		
	June	69.0			1.72		
	July	77.3			2.67		
	Aug.	69.4			2.14		
	Sept.	60.3			<u>0.61</u>		
				9.54			
	<u>First frost 29° - Sept. 20</u>						

Platte C2 (data from Armour)	May	64.3	3.8		1.17	-1.63	
	June	70.2	-0.3		5.11	1.18	
	July	78.2	0.6		6.19	4.12	
	Aug.	69.5	-6.1		1.77	-1.38	
	Sept.	63.0	-1.5	-0.7	<u>2.85</u>	0.91	
					<u>17.09</u>		
<u>First frost 31° - Sept. 27</u>							
NE Farm 15 N of Watertown D2	May	58.2	2.2		1.07	-1.52	
	June	62.9	-1.0		3.62	-0.21	
	July	68.1	-4.2		2.01	-0.44	
	Aug.	55.4	-3.6		4.22	1.79	
	Sept.	55.7	-4.2	-2.1	<u>0.93</u>	-0.39	-0.77
					<u>11.85</u>		
<u>First frost 27° - Sept. 11</u>							
Brookings 1 E D3	May	59.4	1.8		2.55	-0.24	
	June	66.6	-0.3		2.86	-1.09	
	July	73.4	0.2		3.02	0.87	
	Aug.	66.2	-5.0		4.19	1.22	
	Sept.	56.9	-4.4	-1.5	<u>1.65</u>	-0.38	0.38
					<u>14.27</u>		
<u>First frost 32° - Sept. 11</u>							
Centerville 6 SE E	May	63.7			2.10		
	June	70.1			6.29		
	July	77.2			3.02		
	Aug.	68.9			2.32		
	Sept.	62.3			<u>3.07</u>		
					<u>16.80</u>		
<u>First frost 30° - Sept. 27</u>							

TABLE 3. GRAIN SORGHUM PERFORMANCE TRIAL, AREA D2, NORTHEAST RESEARCH FARM, WATERTOWN, 1964

Variety	Percent Moisture	Height Inches	Date Headed	T.Wt. lb/bu	Yield, 100#/A		Statistical Significance
					1964	1962-64	
RS 501	18.2	40	8/3	56	29.9	30.8	
NK 125	14.8	39	7/29	54	29.0	25.9	
NK 133	24.0	36	7/31	54	28.9		
NK 115	14.8	34	7/29	54	28.3		
NK 120	13.0	35	7/29	54	27.2	27.9	
SD 502	13.5	34	7/31	55	27.1		
Pawnee	19.5	39	8/3	56	26.7		
PAG 275	21.3	33	7/29	57	25.2		
SD 503	15.5	41	8/2	54	24.8	29.9	
SD 451	14.4	35	8/1	53	23.4	25.8	
SD 441	16.9	36	7/29	53	21.2	25.8	
TE 44	17.2	31	8/5	49	19.6		
DeKalb B32	15.3	34	8/3	53	19.3		
PAG 304	16.0	30	8/4	53	17.8		
SD 102	27.4	37	7/30	53	17.4		
PAG 410	17.2	35	8/8	45	15.7		
Rocket A	13.5	30	8/10	44	11.5		
Asgrow H623	16.0	34	8/11	44	6.6		
Comanche	18.3	34	8/12	41	6.2		
			Mean Yield		21.4		
CV - 6%			L.S.D. (.05)		2.2		

TABLE 4. GRAIN SORGHUM PERFORMANCE TRIAL, AREA C2, NORMAN LEIN FARM, PLATTE, 1964

Variety	Percent Moisture	Height Inches	T.Wt lb/bu	Yield, 100#/A		Statistical Significance
				1964	1963-64	
Lindsey 551	17.2	39	55	57.0	55.0	
NK 212	17.6	41	56	55.0		
Pioneer X0921	21.9	42	57	53.6		
DeKalb E57	18.3	45	55	52.8		
Pioneer 848	13.5	39	57	51.6	49.1	
Pioneer 885	23.0	41	56	51.0	47.1	
Lindsey 755	16.5	43	55	48.5		
Lindsey 744	11.1	42	56	48.3		
Lindsey 531	21.3	36	56	47.4	45.9	
DeKalb C44b	19.7	41	55	45.9		
Kiowa	22.3	42	55	44.7		
RS 610	18.7	43	56	44.5	47.1	
PAG 430	18.5	42	57	44.3		
Ute	17.6	40	56	43.3		
RS 608	21.6	37	57	43.2	45.0	
RS 501	21.8	49	57	43.1	39.8	
NK 227	14.7	41	55	42.9		
Comanche	23.4	41	55	42.5		
Rocket A	12.4	37	55	42.0	45.0	
Colo. 606	17.7	40	58	41.4		
NK 133	20.5	41	57	41.3		
PAG 410	14.4	37	55	41.1		
TE 44	19.9	37	54	37.8		
SD 503	19.0	45	56	37.7	36.7	
Pawnee	25.4	41	58	37.6		
Pioneer X3101	17.8	41	54	36.5		
Colo. 604	14.8	44	57	36.4		
SD 451	26.5	43	56	33.3	32.3	
PAG 304	19.1	36	55	31.9		
SD 502	25.1	43	55	31.9		
PAG 275	17.9	40	56	26.2		
SD 102	17.2	41	53	25.2	25.4	
SD 441	26.3	42	52	21.4	22.8	
		Mean Yield		41.9		
CV - 19%		L.S.D. (.05)		12.9		

TABLE 5. GRAIN SORGHUM PERFORMANCE TRIAL, AREA E, SOUTHEAST RESEARCH FARM, BERESFORD, 1964

Variety	Percent Moisture	Height Inches	Date Headed	T.Wt lb/bu	Yield, 100#/A		Statistical Significance
					1964	1962-64	
NK 222	24.9	45	7/28	57	32.2	42.4	
SD 503	18.3	48	7/15	57	30.1	43.2	
RS 501	24.4	58	7/26	58	30.0	44.1	
NK 133	23.7	45	7/27	58	28.9		
RS 610	32.1	47	7/20	57	28.1	44.4	
NK 212	23.7	45	7/31	56	27.8		
NK 144	19.1	41	7/29	57	26.8		
DeKalb C44B	17.6	45	7/31	52	26.8		
PAG 430	25.3	44	8/1	54	26.5		
Colo. 606	27.4	49	8/4	57	26.4		
NK 227	20.2	49	7/31	54	25.6	41.7	
RP 110	31.2	45	8/2	55	25.5		
SD 451	20.2	46	7/27	57	24.8	37.3	
Taylor-Evans 44	21.4	43	7/30	53	24.7		
Pawnee	19.6	46	7/30	58	24.6		
PAG 304	27.5	38	7/31	55	24.5		
SD 502	28.3	45	8/2	55	24.1		
Colo. 604	21.9	50	8/2	58	24.0		
DeKalb E57	17.5	46	8/5	49	24.0		
Frontier 400D	27.7	44	8/6	55	23.8		
Pioneer 846	27.1	45	8/7	55	23.7		
Comanche	25.6	44	8/4	52	23.5		
Pioneer X3101	24.6	45	8/3	55	23.0		
RS 608	24.0	42	8/5	54	22.8	39.6	
Frontier 388	17.7	44	7/31	57	22.6	37.5	
Ute	15.6	42	8/7	55	22.1		
Frontier 400C	19.3	45	8/4	54	21.9	40.8	
Frontier 401	25.7	42	8/4	55	21.8		
Pioneer X0921	29.7	44	8/4	51	21.7		
PAG 275	25.2	44	7/23	57	21.2		
Rocket A	14.9	41	8/5	53	21.1		
SD 441	25.1	49	7/24	56	21.0	34.0	
Kiowa	26.8	45	8/6	57	20.8		
Asgrow H623	16.6	41	8/6	51	17.0		
SD 102	28.9	40	7/31	54	16.2		
			Mean Yield		24.3		

CV - 19%

L.S.D. (.05)

7.7

TABLE 6. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B2, CENTRAL SUBSTATION, HIGHMORE, 1964

Variety	Percent Moisture	Hgt. in.	Date Headed	Percent Lodging	T.Wt. lb/bu	Yield, 100#/A		Statistical Significance
						1964 ^a	1962-64	
NK 120	15.8	38	7/20	35	53	27.4	30.5	
RS 610	18.3	43	7/30	0	50	27.1	28.2	
SD 451	15.0	43	7/23	10	54	26.8	30.2	
NK 125	8.9	40	7/23	27	52	24.9	27.3	
NK 115	9.9	38	7/21	17	52	24.2		
PAG 430	8.4	39	7/30	0	54	23.9		
SD 102	11.1	38	7/18	7	54	20.2		
Shorty 33	18.3	37	7/25	12	54	19.5		
SD 441	10.2	46	7/25	2	51	19.2	26.4	
Taylor-Evans44	9.3	35	7/28	70	44	18.5		
RS 608	20.8	39	7/30	2	50	16.4		
NK 144	14.5	37	7/25	45	53	16.4		
PAG 275	9.0	41	7/22	15	53	15.8		
Comanche	13.5	40	7/31	5	50	15.8		
SD 502	14.3	44	7/24	10	50	14.0		
Ute	10.7	38	7/31	3	51	13.6		
Pioneer 885	15.2	38	7/28	38	48	13.0		
PAG 410	12.1	38	7/28	17	50	12.6		
Pawnee	10.8	40	7/23	15	52	12.5		
NK 133	12.5	40	7/24	22	49	12.4		
Rocket A	11.0	37	7/29	8	45	11.3		
DeKalb	14.7	41	7/29	8	50	10.3		
PAG 304	10.3	35	7/26	0	45	7.7		
Asgrow H623	19.0	32	7/27	13	43	7.3		
RS 501	9.9	45	7/24	5	45	6.2	14.5	
SD 503	12.7	45	7/25	7	43	6.2	18.1	
					Mean Yield	16.3		

CV - 20%

L.S.D. (.05) 9.3

a - bird damage occurred in varying degrees; some entries were damaged more severely than others.

TABLE 7. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B2, NORTH CENTRAL SUBSTATION
EUREKA, 1964

Variety	Percent Moisture	Height inches	Date Headed	T.Wt lb/bu	Yield, 100#/A		Statistical Significance
					1964	1962-64	
NK 120	15.4	40	8/8	46	14.2	21.2	
NK 125	11.1	46	8/10	42	11.5	20.8	
NK 115	10.5	42	8/2	47	11.2		
SD 441	12.1	50	8/4	47	6.5	19.3	
SD 451	22.9	47	8/12	44	6.2	17.4	
Taylor-Evans 44	13.5	40	8/12	22	3.6		
SD 102	20.0	40	8/2	45	3.5	15.8	
DeKalb Shorty 33	16.1	41	8/8	37	3.3		
DeKalb B32	13.2	45	8/8	40	2.6		
RS 501	17.8	52	8/12	33	2.3	18.6	
Pawnee	23.5	49	8/10	34	2.3		
NK 144	12.0	41	8/12	32	2.2		
Pioneer 885	21.7	43	8/12	25	2.2		
PAG 430	22.7	41	8/18	32	2.1		
SD 503	10.4	51	8/12	33	2.0	18.4	
Rocket A	16.0	41	8/14	30	2.0		
RS 610	20.0	44	8/12	29	1.7	14.0	
NK 133	11.1	43	8/12	26	1.7		
PAG 304	15.0	35	8/15	31	1.6		
PAG 410	19.2	43	8/18	28	1.5		
RS 608	31.3	40	8/16	27	1.4	12.1	
SD 502	25.0	49	8/16	33	1.3		
Comanche	14.6	42	8/16	27	1.1		
Asgrow H623	15.4	38	8/20	20	1.0		
PAG 275	22.9	43	8/2	27	0.7		
Ute	14.3	40	8/20	18	0.6		
				Mean Yield	3.5		
CV - 37%				L.S.D. (.05)	2.1		

TABLE 8. GRAIN SORGHUM PERFORMANCE TRIAL, AREA C1, IRRIGATED^a, REDFIELD DEVELOPMENT FARM, REDFIELD, 1964

Variety	Percent Moisture	Height inches	T.Wt lb/bu	1964 Yield 100#/A	Statistical Significance
NK 227	20.5	55	54	53.4	
SD 503	14.9	57	55	52.6	
TE 44	24.9	52	50	52.5	
RS 610	20.2	58	53	49.4	
Pawnee	24.0	55	57	48.9	
RS 501	17.2	60	57	47.9	
NK 144	11.1	47	56	46.7	
NK 133	20.8	50	54	45.4	
Frontier 388	11.5	54	56	45.0	
SD 502	19.9	55	54	44.3	
Frontier 400C	16.2	55	50	43.7	
Pioneer 385	18.2	51	52	43.2	
PAG 410	15.5	53	53	42.0	
DeKalb B32	14.3	52	56	41.6	
NK 125	16.0	52	54	41.1	
RS 608	16.2	54	52	40.8	
Rocket A	14.5	54	50	40.8	
PAG 275	15.7	51	55	40.3	
SD 451	15.1	55	54	40.2	
RP 110	12.3	55	49	39.4	
NK 120	19.4	49	55	38.5	
Comanche	23.1	54	54	38.0	
NK 115	12.8	47	53	37.2	
PAG 304	11.2	45	52	36.9	
SD 441	16.2	56	54	34.5	
Ute	24.5	49	51	31.3	
Frontier 400D	12.4	51	46	27.1	
SD 102	17.1	45	53	25.2	
Frontier 401	14.2	48	47	23.1	
			Mean Yield	41.1	
CV - 18%			L.S.D. (.05)	11.8	

a - The field was irrigated and seeding was in rows spaced 21 inches apart.

TABLE 9. GRAIN SORGHUM PERFORMANCE TRIAL, AREA D3, AGRONOMY FARM, BROOKINGS, 1964

Variety	Percent Moisture	Height Inches	Date Headed	T.Wt. lb/bu	Yield, 100#/A		Statistical Significance
					1964	1962-64	
NK 133	20.0	46	8/2	50	49.6		
SD 503	39.6	54	8/2	53	49.3	50.8	
RS 501	36.2	62	8/3	54	44.4	45.8	
SD 502	34.6	50	8/2	52	44.3		
SD 451	32.8	50	8/1	52	41.4	43.0	
RS 610	42.7	50	8/8	45	38.4	44.5	
NK 227	34.2	48	8/7	45	38.2		
TE 44	40.0	46	8/4	45	37.6		
SD 441	37.8	51	7/27	54	37.2	33.9	
NK 144	32.2	43	8/3	53	35.6		
SD 102	40.7	42	8/2	53	33.6	32.5	
PAG 275	40.7	47	7/29	55	33.4		
RP 110	45.3	47	8/7	46	32.2		
Pioneer 885	25.7	46	8/6	47	32.0		
Rocket A	41.9	45	8/7	47	31.2		
NK 222	38.5	47	8/7	46	31.1	39.8	
RS 608	23.3	47	8/8	43	31.1		
NK 212	38.3	48	8/7	44	30.7		
PAG 304	45.1	39	8/4	46	29.3		
DeKalb C-44b	21.3	46	8/9	42	26.8		
DeKalb E57	36.9	49	8/10	38	20.2		
Asgrow H623	37.1	41	8/11	41	11.5		
			Mean Yield		34.5		
CV - 14%			L.S.D. (.05)		8.3		

TABLE 10. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3, SOUTH CENTRAL RESEARCH FARM, PRESHO, 1964

Variety	Percent Moisture	Height Inches	Date Headed	T.Wt. lb/bu	Yield, 100#/A		Statistical Significance
					1964	1962-64	
Pioneer 848	12.0	41	8/4	56	41.4		
Pawnee	16.7	41	7/29	59	38.8		
DeKalb B32	11.2	41	7/27	58	38.1		
NK 133	9.2	42	7/29	55	38.1		
RS 608	18.8	39	8/3	55	37.6	36.4	
NK 125	9.8	41	7/24	55	37.5	34.0	
RS 501	11.1	46	7/28	57	37.2	33.6	
TE 44	14.7	38	8/1	51	37.2		
RS 610	11.7	40	8/2	57	35.9	37.4	
SD 503	14.2	44	7/27	56	34.9	33.3	
NK 120	18.7	38	7/20	55	34.7	37.3	
Shorty 33	16.2	37	7/22	57	34.2		
NK 212	13.3	40	8/3	54	33.4		
SD 502	14.0	42	7/27	56	33.1		
NK 144	13.5	36	7/30	57	32.5		
PAG 304	12.4	35	8/2	57	31.2		
SD 451	15.3	42	7/24	56	31.0	34.6	
PAG 275	13.0	38	7/25	57	30.9		
Ute	16.2	40	8/4	57	30.8		
Comanche	19.1	42	8/4	55	30.5	34.5	
SD 441	18.5	47	7/21	54	28.0		
SD 102	14.0	40	7/27	54	24.9	26.6	
			Mean Yield		34.2		
CV - 14%			L.S.D. (.05)		7.7		

TABLE 11. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3, RANGE FIELD STATION, COTTONWOOD, 1964

Variety	Percent Moisture	Height Inches	Date Headed	T.Wt. lb/bu	Yield, 100#/A		Statistical Significance
					1964	1962-64	
SD 451	6.8	33	7/25	54	7.9	7.6	
Pawnee	8.5	33	7/28	56	7.7		
NK 120	7.0	28	7/24	50	7.5	7.9	
NK 133	6.9	33	7/28	54	7.2		
RS 501	5.8	36	7/28	55	7.0	5.7	
NK 125	6.3	31	7/28	53	6.3	7.1	
TE 44	7.4	26	7/31	49	6.3		
PAG 304	7.3	24	7/29	55	6.1		
NK 144	8.6	28	7/30	55	6.0		
SD 441	7.5	35	7/23	52	5.7	4.5	
DeKalb Shorty 33	5.1	28	7/25	56	5.6		
DeKalb B32	8.2	31	7/29	58	5.5		
SD 503	7.0	32	7/30	53	5.5	6.2	
SD 102	6.1	32	7/22	52	5.1	4.9	
SD 502	7.2	30	7/29	53	5.0		
PAG 275	6.5	30	7/25	54	4.8		
RS 610	10.0	31	8/2	53	4.1	3.9	
RS 608	9.3	27	8/4	53	3.0	3.6	
Comanche	9.7	29	8/3	53	2.5	2.9	
NK 212	14.0	29	8/5	51	2.0		
Ute	9.9	27	8/5	52	1.7		
Pioneer 848	6.9	29	8/13	52	1.0		
Mean Yield					5.2		

CV - 46% L.S.D. (.05) 3.9

Drouth conditions and some bird damage caused a coefficient of variation so high that statistical differences found are unreliable.

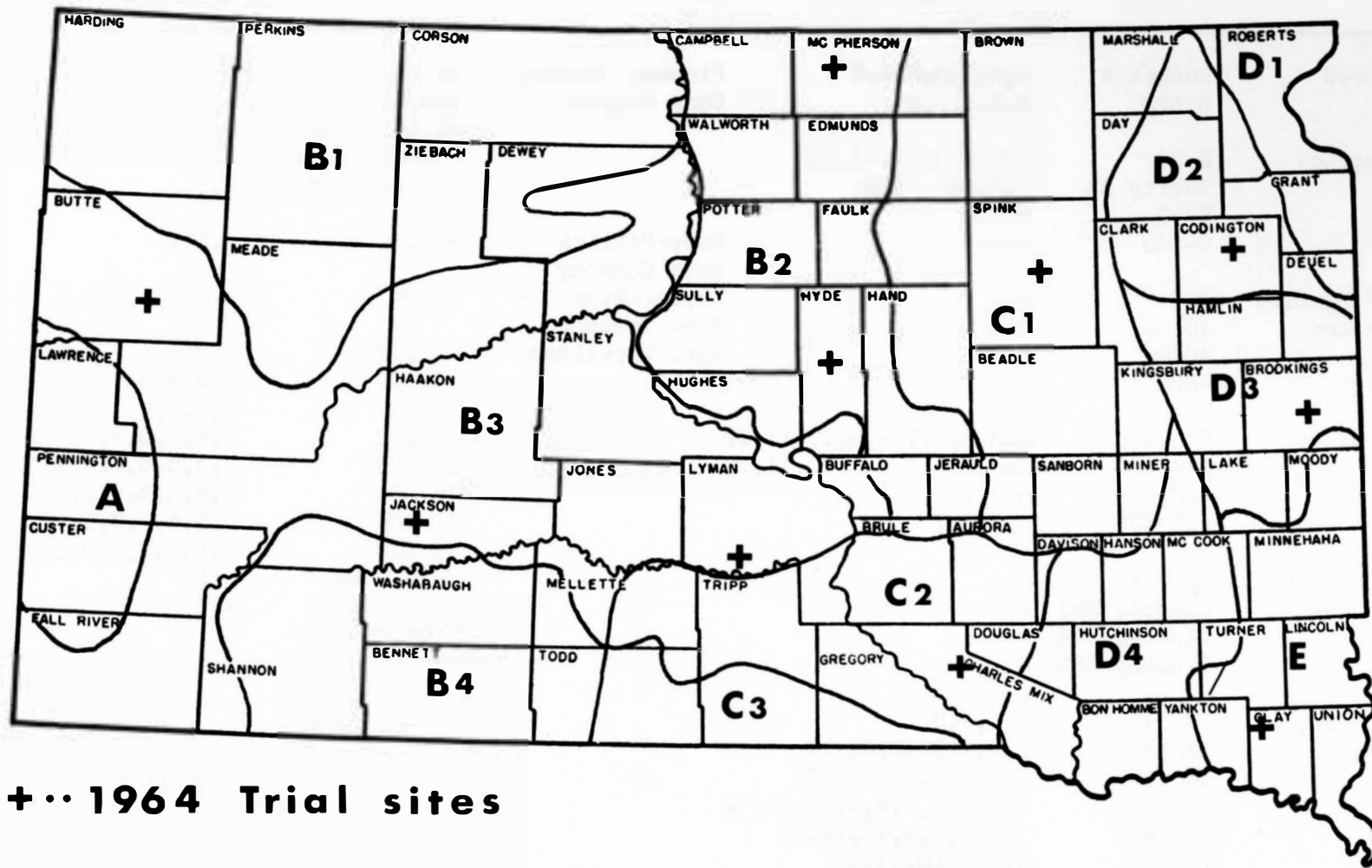
TABLE 12. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3, U. S. NEWELL FIELD STATION, NEWELL, 1964

Variety	Percent Moisture	Height Inches	Date Headed	T.Wt lb/bu	Yield, 100#/A
DeKalb B32	25.9	39	8/7	24	2.2
DeKalb Shorty 33	19.2	36	8/8	26	1.6
NK 120	38.0	38	8/1	17	2.6
NK 125	34.3	37	8/10	42	8.9
NK 133	26.0	37	8/8	16	3.5
NK 144	27.9	34	8/7	27	2.7
NK 212	9.1	35	8/17	24	5.2
Comanche	8.3	33	8/20	23	1.3
Pawnee	34.3	42	8/7	23	2.1
Ute	16.2	32	8/12	25	2.4
PAG 275	16.7	37	8/5	19	1.2
PAG 304	11.2	30	8/10	25	3.4
Pioneer 848	19.3	35	8/25	19	1.2
TE 44	31.2	30	8/14	25	7.8
SD 102	23.1	38	7/31	21	0.6
SD 441	13.7	47	8/2	20	1.5
SD 451	9.4	41	8/5	40	6.1
SD 502	33.4	41	8/8	19	1.7
SD 503	28.9	42	8/7	26	2.2
RS 501	13.1	46	8/8	20	1.4
RS 608	28.4	34	8/18	17	3.6
RS 610	13.0	38	8/12	30	4.5

Yields are recorded in alphabetical order by company. Very dry conditions and severe bird damage prior to harvest made statistical analysis impossible. Data are reported for purpose of record only.

TABLE 13. THE ENTRIES TESTED IN THE 1964 GRAIN SORGHUM PERFORMANCE TRIALS AND THE TABLES IN WHICH THEY APPEAR

Company	Variety	Tables	Company	Variety	Tables
Asgrow Seed Company	Rocket A H 623	3,4,5,6,7,8,9 3,5,6,7,9	Pioneer Hi-Bred Corn Company	Pioneer 846 Pioneer 885 Pioneer 848 Pioneer x-0921 Pioneer x-3101	5 4,6,7,8,9 4,10,11,12 4,5 4,5
DeKalb Agric. Assn.	B-32 Shorty 33 E-57 C-44b	3,6,7,8,10,11,12 6,7,10,11,12 4,5,9 4,5,9	Rudy-Patrick Seed Company	RP 110	4,5,9
Frontier Hybrids Incorporated	388 401 400D 400C	5,8 5,8 5,8 5,8	Taylor-Evans Seed Company Agr. Experiment Station	TE 44 SD 102 SD 441 SD 451 SD 502 SD 503 RS 501 RS 608 RS 610 Colo. 604 Colo. 606	3,4,5,6,7,8,9,10,11,12 3,4,5,6,7,8,9,10,11,12 3,4,5,6,7,8,9,10,11,12 3,4,5,6,7,8,9,10,11,12 3,4,5,6,7,8,9,10,11,12 3,4,5,6,7,8,9,10,11,12 4,5,6,7,8,9,10,11,12 4,5,6,7,8,9,10,11,12 4,5 4,5
-15- Pfister Assoc. Growers	PAG 275 PAG 304 PAG 410 PAG 430	3,4,5,6,7,8,9,10,11,12 3,4,5,6,7,8,9,10,11,12 3,4,6,7,8 4,5,6,7			
J. C. Robinson Seed Company	Lindsey 531 Lindsey 551 Lindsey 744 Lindsey 755	4 4 4 4			
Northrup King & Company	NK 115 NK 120 NK 125 NK 133 NK 144 NK 212 NK 222 NK 227	3,6,7,8 3,6,7,8,10,11,12 3,6,7,8,10,11,12 3,4,5,6,7,8,9,10,11,12 5,6,7,8,9,10,11,12 4,5,9,10,11,12 5,9 4,5,8,9			
Paymaster Seed Farms	Comanche Kiowa Pawnee Ute	3,4,5,6,7,8,10,11,12 4,5 3,4,5,6,7,8,10,11,12 4,5,6,7,8,10,11,12			



+ · · 1964 Trial sites