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1963 GRAIN SORGHUM PERFORMANCE TRIALS



AGRONOMY DEPARTMENT
AGRICULTURAL EXPERIMENT STATION
SOUTH DAKOTA STATE COLLEGE, BROOKINGS

1963 South Dakota Grain Sorghum Performance Trials

J. J. Bonnemann 1/

Crop Performance Testing Activity
Agricultural Experiment Station
South Dakota State College
Brookings, South Dakota

Varieties of grain sorghum being grown by farmers, new varieties not yet widely used, and new strains being considered for release were eligible for entry in the 1963 Grain Sorghum Performance Trials conducted at nine locations in South Dakota during 1963. The trials were under supervision of the Crop Performance Testing Activity of the Agricultural Experiment Station. Grain yields, test weights and other useful agronomic data are reported.

Location of the 1963 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 planting and harvesting are shown in Table 1.

Weather and Climatic Conditions

Climatic data for the 1963 growing season are presented in Table 2. These data are based upon reports of the Monthly Climatological Data, U. S. Department of Commerce, and upon reports from the sub-station superintendents at the Northeast and South Central Research Farms. Rainfall data from the gauge furnished the cooperator is provided for the Area C2 trial.

Temperatures of 32 degrees are reported for several stations the latter part of September but a killing frost occurred only at one station prior to a hard freeze which occurred statewide on October 28. The above average daily temperatures during late September and October permitted many varieties of later relative maturity to produce very satisfactory yields.

All trials were planted within the last two weeks of May. Germination was retarded by lack of rainfall at some sites.

1/ Assistant Agronomist

The assistance of C. J. Franzke, Station Supervisors Albert Dittman, Jake Frederikson, Harry Geise, Frank Holmes, Quentin Kingsley, Herb Lund, W. E. McMurphy and John Nesvold and cooperator Norman Lein is hereby gratefully acknowledged.

TABLE 1. THE LOCATION OF TRIALS AND DATES OF PLANTING AND HARVESTING OF GRAIN SORGHUM PERFORMANCE TRIALS, 1963

County	Location and Post Office	Date planted	Date harvested
Brookings	Agronomy Farm, Brookings	May 27	October 4
Butte	U. S. Newell Field Station, Newell	May 24	October 1
Charles Mix	Norman Lein, Platte	May 16	October 3
Clay	Southeast Research Farm, Beresford	May 22	October 9
Codington	Northeast Research Farm, Watertown	May 20	September 27
Hyde	Central Substation, Highmore	May 25	September 30
Jackson	Range Field Station, Cottonwood	May 24	October 1
Lyman	South Central Research Farm, Presho	May 23	October 2
McPherson	North Central Substation, Eureka	May 13	October 7

The sorghum was harvested the last week in September and the first week of October. The dates were after the normal date of first fall frost in all cases.

Lodging was not a problem at any location in 1963. Killing frost occurred at Eureka on October 4. Temperatures of 31 or 32 degrees were recorded at some stations prior to October 28 but growth was not stopped until that date.

Hybrid Entry Procedure

Grain sorghum hybrids offered for sale in South Dakota during 1963 or being produced for distribution in 1964 were eligible for entry. A closed-pedigree hybrid was entered by permanent name and number under which the hybrid was sold by the parent company only. Varieties entered maintained minimum laboratory germination's 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 rows 36 to 42 inches apart, depending upon the location. Row lengths varied with range dimensions at each location.

Two rows, ten feet long, were harvested from three replications for yield determinations. Yields are calculated on the basis of hundred-weight (cwt.) per acre. The fourth replication 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.

In some trials in the drier areas, the earliest maturing entries had the highest moisture content at harvest. These early maturing sorghums were near maturity when the drier period of August and September occurred. Continued warm temperatures plus rainfall in mid-September permitted development of axillary heads. Later maturing varieties had not completed their initial development when the dry period occurred, and went on to complete their development when moisture conditions again became favorable.

Development was complete in most varieties at harvest time and the moisture and test weight would have been lower had a killing frost occurred before harvest. A severe freeze may have seriously reduced the test weight of some of the very late varieties. Grain threshed from the harvested sample was used for test weight determinations. The harvested samples had been air-dried without freezing before they were threshed.

The trials at Brookings and Watertown were excellent. Moisture occurred in excessive quantities at these locations and temperatures were favorable for maximum development of the entries.

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 are 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 (5%) level. If the trials were found to have statistically significant differences between mean yields and 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. For instance, in Table 8, S.D. 503, NK 227, RS 610, RS 608 and Asgrow H617 were not statistically different from each other. SD 503 is significantly higher than all other varieties below H617. Examining the second line to the right of the figures, entries from NK 227 through RS 501 are not significantly different but NK 227 is better than entries falling below RS 501. These statements hold true for only the conditions prevalent in the 1963 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 extensively grown in areas too hot and too dry for corn. Conditions were favorable for most crops across the state until August. Dry weather early in June and from early in August until Mid-September created moisture deficiencies at some locations, especially for corn. Moisture conditions in eastern South Dakota produced near-record yields of most crops.

At Brookings, rainfall was excessive in nearly every month, August being the exception. Adequate soil moisture and warm days in August and the early part of September were nearly ideal for sorghum growth. Although a temperature of 32° was recorded at Brookings on September 29 it did not affect growth of crops and the plants maintained full growth until the date of harvest. Water was standing in portions of the field at harvest time. The mean yield was 58.4 cwt. per acre.

The trial at Newell was delayed in starting and then stood in water until late June due to excessive rainfall. Adequate soil moisture and warm temperatures permitted the sorghum to reach maturity and an excellent yield appeared to be forming by mid-September. However, about one week before harvest, the last week of September, birds congregated and nearly picked the heads clean of grain.

The trial at Platte was slow and rather uneven in starting. Ample moisture for germination did not occur until early June. Precipitation during August was also limited. Yields averaged 40.6 cwt. per acre and moisture in the grain ranged from 18.2 up to 30.2 percent at harvest time.

Yields at the Southeast Research Farm averaged 42.7 cwt. per acre. The moisture content was quite low at harvest time. The test weights were high, the lowest being 54 pounds per bushel.

Stands and yields were above average for the trial at the Northeast Research Farm. The warm weather and absence of frost permitted later maturing varieties to develop satisfactorily. Heavy rains shortly before harvesting resulted in grain with excessively high moisture at harvest time.

The Highmore trial was one of two trials which suffered from lack of moisture during the latter part of the growing season. Some reduction in yield may be attributable to two hailstorms just at the time the material was heading out. Despite the reduced yields the test weights of most varieties were in the mid-fifty pound range.

The Range Field Station trial at Cottonwood produced rather low yields. Test weights of the grain produced and moisture content at harvest were acceptable. Some of the earliest varieties had higher moisture due to axillary head formation.

The trial at Presho was perhaps most ideal from the standpoint of yield and moisture in the grain at harvest time. Yields averaged 39.5 cwt. per acre and moisture percentages ranged from 13.6 to 16.5 percent at harvest. Test weights were 55 pounds or higher.

Only the trial at Eureka had received a killing frost before it was harvested. Most material had matured satisfactorily and the effect of freezing was not serious. Test weights ranged from 54 to 59 pounds per bushel. The mean yield of all entries was 25.6 cwt. per acre. The entries performed quite well considering that only three-quarters inch of precipitation was recorded from June 9 through July 17.

The Grain Sorghum Performance Trials have been under supervision of the Crop Performance Testing Activity for two years. Averages of some entries are available for two years and show essentially the same yield. Other agronomic factors than yield should also be considered in making selections of hybrids to plant. Some of these factors should be standability, maturity, head type, quality, disease resistance, insect resistance and adaptability to combine harvesting.

TABLE 2. TEMPERATURE AND PRECIPITATION DATA FOR THE 1963
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 depart- ure
Brookings 1 E	May	56.5	- 1.1		2.50	- 0.29	
	June	69.7	2.6		4.40	0.45	
	July	70.9	- 2.3		12.10	9.95	
	August	68.8	- 2.4		1.25	- 1.72	
	Sept.	61.8	0.5		4.63	2.60	
	Oct.	<u>56.1</u>	6.6		<u>1.72</u>	0.50	
		64.0		0.7	26.60		11.49
Highmore 1 W	Last freeze May 23 - 29 ^o			First frost Sept. 29 - 32 ^o			
	May	57.4	0.2		1.85	- 0.48	
	June	71.1	4.3		2.54	- 1.00	
	July	74.3	- 0.2		5.12	3.14	
	August	73.0	0.2		2.09	0.05	
	Sept.	65.3	2.7		1.92	0.61	
	Oct.	<u>59.0</u>	9.0		<u>1.39</u>	0.24	
		66.7		2.7	14.91		2.56
Eureka	Last freeze May 22 - 22 ^o			First frost Sept. 29 - 31 ^o			
	May	54.6	- 1.5		2.69	0.10	
	June	68.3	3.3		2.98	- 0.85	
	July	72.2	- 0.2		2.55	0.10	
	August	70.4	- 0.3		3.54	1.13	
	Sept.	61.6	1.5		1.66	0.34	
	Oct.	<u>57.0</u>	9.4		<u>0.72</u>	- 0.25	
		64.0		2.0	14.14		0.57
Newell 2 NW	Last freeze May 22 - 22 ^o			First frost Oct. 27 - 23 ^o			
	May	55.3	- 0.1		1.24	- 1.25	
	June	65.8	1.4		5.06	1.87	
	July	72.3	- 0.9		2.58	0.82	
	August	72.7	1.5		1.24	- 0.04	
	Sept.	64.4	4.0		1.76	0.62	
	Oct.	<u>57.5</u>	10.5		<u>0.96</u>	- 0.04	
		64.7		2.7	12.84		2.06
Cottonwood 2 E	Last freeze May 22 - 26 ^o			First frost Oct. 27 - 19 ^o			
	May	55.5	- 1.9		5.57	2.86	
	June	70.8	3.7		4.31	1.33	
	July	76.4	0.8		2.28	0.74	
	August	75.5	1.7		0.29	- 1.07	
	Sept.	66.3	3.3		1.08	0.06	
	Oct.	<u>59.2</u>	8.9		<u>1.31</u>	0.50	
		67.3		2.8	14.84		4.42
Centerville	Last freeze May 23 - 26 ^o			First frost Sept. 29 - 32 ^o			
	May	60.8			3.09		
	June	73.6			3.53		
	July	76.8			3.79		
	August	72.5			1.91		
	Sept.	66.8			4.20		
	Oct.	<u>61.1</u>			<u>1.27</u>		
		68.6			17.79		
	Last freeze May 22 - 26 ^o			First frost Oct. 28 - 29 ^o			

NE Farm	May	52.4	- 3.6		3.54	0.67	
15 N	June	66.1	2.2		3.22	0.48	
of	July	72.7	0.4		5.74	3.07	
Watertown	August	67.3	- 1.7		2.51	- 0.27	
	Sept.	60.0	0.1		4.33	2.48	
	Oct.	<u>54.5</u>	6.8		<u>0.68</u>	- 0.48	
		62.2		0.7	20.02		5.95
	Last freeze	May 23	- 30°		First frost	Oct. 28	- 23°
Presho	May	58.1	- 0.9		1.41	- 0.45	
11 S	June	71.0	2.3		3.44	.16	
	July	77.2	- 0.1		3.17	1.63	
	August	75.2	0.0		1.49	- 0.54	
	Sept.	66.6	1.8		2.31	.93	
	Oct.	<u>59.4</u>	7.9		<u>1.09</u>	.05	
		67.9		1.8	13.41		1.78
	Last freeze	May 22	- 25°		First frost	Oct. 28	- 29°
Platte	May	60.5	0.0	May 16	- 0.15		
	June	73.9	3.4		3.75		
	July	77.0	- 0.6		4.60		
	August	72.7	- 2.9		1.30		
	Sept.	66.7	1.2		3.10		
	Oct.	60.5			<u>0.74</u>		
					13.64		
	Last freeze	May 22	- 27° (Armour)		First frost	Oct. 28	- 31° (Armour)

TABLE 3. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3, SOUTH CENTRAL RESEARCH FARM, PRESNO, 1963

Variety	Percent moisture	Height inches	Date headed	Yield, cwt./A			T.W. lb/bu	Statistical significance ^a
				1962	1963	1962-63		
Frontier 400C	16.5	44	7/23	28.0	49.2	b	57.0	
RS 501	15.6	51	7/22	17.0	46.6		60.0	
RS 610	13.6	43	7/24	32.0	44.5		56.5	
Paymaster SX05631	14.6	44	7/21		43.3		60.0	
RS 608	14.4	42	7/24	29.0	42.6		57.5	
Ute	15.1	41	7/29		41.8		57.5	
NK 120	15.7	42	7/19	36.0	41.3		56.5	
Comanche	15.1	41	7/25	32.0	41.0		56.5	
Shorty 33	15.6	41	7/23		40.5		57.0	
SD 503	15.5	44	7/21	25.0	40.1		57.0	
Frontier 388	15.4	41	7/24	26.0	40.1		58.0	
SD 451	14.6	43	7/20	33.0	39.9		57.0	
NK 144	13.8	36	7/21		39.0		57.5	
SD 441	15.9	48	7/18	24.0	38.8		55.0	
NK 125	15.6	43	7/20	28.0	36.7		55.0	
Rocket A	13.6	38	7/25		34.1		56.5	
Reliance	16.5	44	7/18	1.4	26.1		57.0	
SD 102	15.2	40	7/18	29.0	26.0		55.0	
			Mean yield		39.5			
			LSD	.05	5.5			

a - Using Duncan's Multiple Range Test at the 5% level.

b - Blackbird damage made accuracy of 1962 results questionable.

TABLE 4. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3,
RANGE FIELD STATION, COTTONWOOD, 1963

Variety	Percent moisture	Height inches	Date headed	Yield, cwt./A			T.W. lb/bu	Statistical significance ^a
				1962	1963	1962-63		
Nk 125	13.2	33	7/19	3.4	11.7	7.6	53.0	
NK 120	16.7	33	7/15	6.1	10.1	8.1	52.0	
NK 144	16.2	27	7/24		8.5		49.5	
SD 451	14.7	37	7/19	6.5	8.4	7.5	54.0	
Shorty 33	16.2	31	7/18		8.3		54.5	
SD 503	17.9	36	7/19	6.0	7.2	6.6	54.5	
Rocket A	14.9	27	7/27		7.0		55.0	
Paymaster SX0563	17.5	30	7/21		6.3		57.0	
RS 501	14.5	34	7/24	4.2	5.9	5.1	56.5	
Ute	19.7	27	8/5		3.6		54.0	
RS 608	13.0	28	7/31	4.5	3.4	4.0	58.0	
SD 102	19.4	32	7/15	6.3	3.4	4.9	53.0	
Frontier 400C	18.6	31	7/27	5.0	3.4	4.2	51.5	
RS 610	13.5	36	7/29	4.3	3.3	3.8	56.0	
SD 441	20.0	39	7/16	4.5	3.3	3.9	54.0	
Frontier 388	12.9	31	7/25	6.7	3.2	5.0	51.5	
Comanche	17.3	28	8/1	2.9	3.2	3.1	53.0	
Reliance	21.6	37	7/15	5.5	1.7	3.6	55.0	
Mean Yield					5.7			

LSD .05 2.7

a - Using Duncan's Multiple Range Test at the 5% level.

TABLE 5. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3,
U. S. NEWELL FIELD STATION, NEWELL, 1963

Variety	Yield, cwt./A	Date headed	Height, inches
Rocket A	2.5	8/19	36
Shorty 33	1.0	8/19	39
Frontier 400C	2.5	8/20	39
Frontier 388	2.0	8/15	39
NK 120	1.5	8/12	41
NK 125	1.3	8/10	43
NK 144	1.7	8/18	35
Paymaster Sx 0563	1.3	8/20	43
Comanche	3.4	8/24	37
Ute	2.9	8/20	37
Reliance	0.6	8/13	42
SD 102	0.6	8/12	36
SD 441	0.7	8/12	50
SD 451	1.0	8/16	42
SD 503	1.0	8/21	43
RS 501	1.5	8/21	48
RS 608	2.1	8/22	38
RS 610	3.7	8/19	41

Yields are recorded in alphabetical order by company. Bird damage was so severe yields reported are for record purposes only. No Statistical analysis was possible.

TABLE 6. GRAIN SORGHUM PERFORMANCE TRIAL, AREA E,
SOUTHEAST RESEARCH FARM, BERESFORD, 1963

Variety	Percent moisture	Height inches	Date headed	Yield, cwt./A			T.W. lb/bu	Statistical significance ^a
				1962	1963	1962-63		
Pioneer 861	22.0	44	7/25		55.4		58.5	
DeKalb X1510	21.3	46	7/26		49.2		55.5	
N-80	19.5	42	7/27		47.3		59.0	
DeKalb C44b	19.5	44	7/24		47.2		55.0	
NK 227	16.9	43	7/22	53.0	46.4	49.7	56.5	
RS 610	18.7	43	7/22	59.0	46.2	52.6	55.5	
RS 501	17.6	46	7/18	56.0	46.2	51.1	59.5	
Nebr. 504	19.0	42	7/20		45.8		59.0	
Frontier 400C	20.1	43	7/22	55.0	45.5	50.3	56.5	
NK 210	18.6	43	7/22	56.0	45.4	50.7	57.5	
Frontier 401	19.5	45	7/25		45.3		58.5	
Frontier 388	18.1	44	7/22	45.0	44.8	44.9	58.5	
SD 503	18.6	46	7/20	55.0	44.6	49.8	56.5	
RS 608	15.7	45	7/25	52.0	43.9	48.0	57.5	
N-79	18.4	42	7/23		43.3		59.0	
Steckley R-103	17.0	45	7/22	50.0	42.2	46.1	58.5	
NK 222	17.2	43	7/22	53.0	42.0	47.5	58.5	
N-78	18.9	45	7/23		41.6		57.5	
Nebr. 505	16.9	43	7/20		41.6		58.5	
Steckley Ex. 3495	16.8	44	7/21		40.7		59.0	
RP 110	19.5	45	7/25		40.3		58.0	
SD 441	18.4	48	7/15	42.0	39.0	40.5	54.0	
SD 451	17.3	45	7/18	49.0	38.0	43.5	55.5	
Rocket A	16.8	44	7/23		37.6		57.0	
SD 102	18.8	45	7/16	29.0	28.5	28.8	54.5	
Reliance	19.6	46	7/18	33.0	21.9	27.5	55.0	
Mean Yield					42.7			

LSD .05 6.0

a - Using Duncan's Multiple Range Test at the 5% level.

TABLE 7. GRAIN SORGHUM PERFORMANCE TRIAL, AREA D2,
NORTHEAST RESEARCH FARM, WATERTOWN, 1963

Variety	Percent moisture	Height inches	Yield, cwt./A			T.W. lb/bu	Statistical significance ^a
			1962	1963	1962-63		
SD 503	44.1	55	14.1	50.9	32.5	56.5	
Rocket A	47.7	52		49.1		56.5	
RS 501	45.6	64	13.5	49.0	31.2	57.0	
Frontier 400C	51.7	52		45.1		55.0	
NK 120	46.2	45	12.2	44.2	28.2	57.5	
NK 144	42.2	43		42.1		57.0	
SD 451	43.8	53	13.2	40.8	27.0	56.0	
Frontier 388	49.8	51	7.0	40.6	23.8	57.5	
NK 125	43.1	47	8.8	39.8	24.3	53.5	
SD 441	38.3	54	17.4	38.9	28.2	54.5	
SD 102	44.4	44	9.5	33.3	21.4	55.0	
Reliance	37.7	46	11.4	22.7	17.0	53.0	
Mean Yield					41.4		

LSD .05 5.7

a - Using Duncan's Multiple Range Test at the 5% level

TABLE 8. GRAIN SORGHUM PERFORMANCE TRIAL, AREA D₃
 AGRONOMY FARM, BROOKINGS, 1963

Variety	Percent moisture	Height inches	Date headed	Yield, cwt./A			T.W. lb/bu	Statistical significance ^a
				1962	1963	1962-63		
SD 503	32.1	36	8/3	32.0	71.3	51.7	56.0	
NK 227	36.0	51	8/8		70.5		57.0	
RS 610	38.7	55	8/8	25.0	70.1	47.6	56.0	
RS 608	39.4	52	8/9	17.0	68.4	42.7	58.0	
Asgrow H617	42.1	51	8/10		68.0		56.0	
RS 501	33.9	70	8/1	28.0	65.0	46.5	57.0	
Frontier 400C	42.0	56	8/9	16.0	63.8	39.9	57.0	
NK 222	38.7	49	8/5	25.0	63.4	44.2	58.0	
Pioneer 885	36.5	51	8/8		62.3		58.0	
Nebr. 505	30.7	53	8/4		61.6		58.5	
Rocket A	34.5	51	8/7		61.6		58.0	
Steckley's R-103	36.4	54	8/7	18.0	61.5	39.8	56.0	
NK 210	37.3	49	8/7		60.5		55.0	
Asgrow H616	34.3	44	8/9		60.3		57.0	
SD 451	30.4	55	8/1	28.0	59.8	43.9	56.5	
NK 125	27.7	50	8/1	31.0	59.4	45.2	55.0	
Frontier 388	40.9	53	8/4	17.0	57.9	37.5	57.0	
Nebr. 504	35.7	51	8/3		56.2		58.0	
Asgrow H612	32.0	48	8/5		55.6		58.5	
N-78	38.8	47	8/9		55.0		56.5	
NK 144	31.3	45	8/4		53.7		55.5	
SD 441	31.6	57	7/28	29.0	53.5	41.3	56.0	
NK 120	26.2	49	7/29		53.3		55.5	
N-79	35.4	47	8/5		52.8		54.5	
N-80	38.7	45	8/11		52.7		56.5	
Steckley Ex.3495	31.6	45	8/5		52.1		56.5	
Frontier 401	38.5	47	8/7		51.9		56.0	
SD 102	33.3	46	7/27	22.0	42.1	32.1	53.5	
Reliance	26.2	49	7/27	23.0	30.6	26.8	53.5	
Mean Yield					58.4			
LSD				.05	5.8			

a - Using Duncan's Multiple Range Test at the 5% level

TABLE 9. GRAIN SORGHUM PERFORMANCE TRIAL, AREA C²
 NORMAN LEIN FARM, PLATTE, 1963

Variety	Percent moisture	Height, inches	Yield, cwt./A	Test weight lb/bu	Statistical significance ^a
Pioneer 861	24.7	42	54.1	59.0	
Lindsey 551	28.3	42	52.9	57.0	
Asgrow H617	24.5	40	52.2	56.0	
Rudy-Patrick 110	23.9	42	50.2	57.5	
RS 610	25.7	42	49.6	57.5	
Rocket A	21.8	41	48.9	55.0	
RS 608	26.5	42	46.7	56.0	
Pioneer 848	30.2	42	46.6	57.5	
N-79	21.2	41	45.6	58.0	
Lindsey 531	24.7	39	44.3	58.0	
Asgrow H612	22.4	43	43.5	58.0	
N-80	26.2	36	43.4	57.0	
Pioneer 885	23.9	45	43.2	57.5	
Asgrow H616	22.3	38	42.8	56.0	
Frontier 388	24.8	45	42.6	59.0	
Frontier 401	28.6	41	42.0	56.5	
Frontier 400C	26.4	41	41.7	56.5	
Nebr. 505	22.1	44	39.7	59.0	
NK 125	18.2	44	39.2	54.5	
N-78	28.8	42	37.6	57.5	
RS 501	29.4	52	36.4	59.5	
NK 144	23.2	38	36.0	58.5	
SD 503	27.0	45	35.6	57.5	
Nebr. 504	27.0	47	35.5	59.0	
NK 129	26.8	43	32.8	55.5	
SD 451	24.2	47	31.3	57.0	
SD 102	27.7	40	25.5	55.0	
SD 441	28.2	47	24.2	55.0	
Reliance	25.7	41	14.3	56.0	
		Mean Yield	40.6		

LSD .05 13.3

a - Using Duncan's Multiple Range Test at the 5% level.

TABLE 10. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B²,
NORTH CENTRAL SUBSTATION, EUREKA, 1963

Variety	Percent moisture	Height, inches	Date headed	Yield, cwt./A			T.W. lb/bu	Statistical significance ^a
				1962	1963	1962-63		
NK 120	14.1	38	7/28	11.7	37.6	24.7	55.5	
Frontier 400C	17.3	40	8/7		36.4		55.5	
SD 503	14.3	44	7/31	22.6	30.6	26.6	56.0	
RS 610	15.7	41	8/4	9.6	30.5	20.1	57.0	
RS 501	14.4	45	7/31	23.9	29.7	26.8	58.0	
SD 441	16.8	43	7/21	22.0	29.5	25.8	55.0	
RS 608	15.9	37	8/8	6.2	28.6	17.4	57.5	
Frontier 388	15.3	38	8/4	6.6	27.9	17.3	59.0	
Pioneer 885	17.5	37	8/5		26.0		53.0	
NK 125	15.4	38	7/25	26.2	24.8	25.5	54.0	
SD 102	14.4	37	7/21	20.3	23.6	22.0	54.5	
SD 451	16.1	41	7/30	23.0	23.1	23.1	56.0	
Rocket A	14.5	35	8/4		21.6		54.0	
Frontier 401	16.4	33	8/14		16.5		56.5	
NK 144	18.4	34	8/3		15.1		57.0	
Reliance	20.5	40	7/29	16.2	8.1	12.2	55.5	
Mean Yield					25.6			
LSD				.05	8.2			

a - Using Duncan's Multiple Range Test at the 5% level.

TABLE 11. GRAIN SORGHUM PERFORMANCE TRIAL, AREA B²,
CENTRAL SUBSTATION, HIGHMORE, 1963

Variety	Percent moisture	Height inches	Date headed	Yield, cwt./A			T.W. lb/bu	Statistical significance ^a
				1962	1963	1962-63		
NK 125	14.1	37	23	31.0	26.0	28.5	53.0	
SD 451	16.9	40	24	40.0	23.7	31.9	56.0	
SD 441	15.0	42	22	38.0	22.1	30.0	54.5	
NK 120	17.2	36	20	44.0	20.2	32.1	55.0	
SD 102	13.9	36	19	32.0	15.0	23.5	55.5	
Pioneer 885	14.7	38	28		12.7		51.5	
NK 144	12.5	31	25		12.5		54.5	
Rocket A	14.1	35	27		11.3		56.0	
RS 610	19.0	39	29	48.0	9.4	28.7	54.0	
Frontier 400C	24.5	38	29		9.3		54.0	
Frontier 401	20.8	36	29		8.8		50.0	
RS 608	29.6	38	29	42.0	8.0	25.0	50.0	
Frontier 388	22.9	38	26	40.0	3.3	21.6	48.5	
RS 501	34.8	44	25	35.0	2.3	18.6	50.0	
SD 503	31.8	42	26	47.0	1.2	24.1	50.0	
Reliance	22.0	38	24	20.0	1.0	10.5	49.0	
Mean Yield					11.7			
LSD				.05	6.3			

a - Using Duncan's Multiple Range Test at the 5% level.

TABLE 12. THE ENTRIES TESTED IN THE 1963 GRAIN SORGHUM PERFORMANCE TRIALS AND THE TABLES IN WHICH THEY APPEAR

Company	Entry	Tables
Asgrow Seed Company	Rocket A	3, 4, 5, 6, 7, 8, 9, 10, 11
	H 612	8, 9
	H 616	8, 9
	H 617	8, 9
DeKalb Agricultural Assn., Inc.	Shorty 33	3, 4, 5
	X 1510	6
	C-44b	6
Frontier Hybrids, Inc.	400C	3, 4, 5, 6, 7, 8, 9, 10, 11
	388	3, 4, 5, 6, 7, 8, 9, 10, 11
	401	6, 8, 9, 10, 11
Northrup King & Co.	NK 120	3, 4, 5, 7, 8, 9, 10, 11
	NK 125	3, 4, 5, 7, 8, 9, 10, 11
	NK 144	3, 4, 5, 7, 8, 9, 10, 11
	NK 222	6, 8
	NK 210	6, 8
	NK 227	6, 8
Paymaster Seed Farms	Exp. 0563	3, 4, 5
	Comanche	3, 4, 5
	Ute	3, 4, 5
Pioneer Hi-Bred Corn Co.	885	8, 9, 10, 11
	848	6
	846	8
	861	6
J. C. Robinson Seed Co.	Lindsey 531	9
	Lindsey 551	9
Rudy-Patrick Seed Co.	R. P. 110	6, 9
Steckley Hybrid Corn Co.	Genetic Giant R-103	6, 8
	Experimental 3495	6, 8
Agr. Experiment Station	Reliance	3, 4, 5, 6, 7, 8, 9, 10, 11
	SD 102	3, 4, 5, 6, 7, 8, 9, 10, 11
	SD 441	3, 4, 5, 6, 7, 8, 9, 10, 11
	SD 451	3, 4, 5, 6, 7, 8, 9, 10, 11
	SD 503	3, 4, 5, 6, 7, 8, 9, 10, 11
	RS 501	3, 4, 5, 6, 7, 8, 9, 10, 11
	RS 608	3, 4, 5, 6, 8, 9, 10, 11
	RS 610	3, 4, 5, 6, 8, 9, 10, 11
	Nebr. 504	6, 8, 9
	Nebr. 505	6, 8, 9
	N-78	6, 8, 9
	N-79	6, 8, 9
	N-80	6, 8, 9

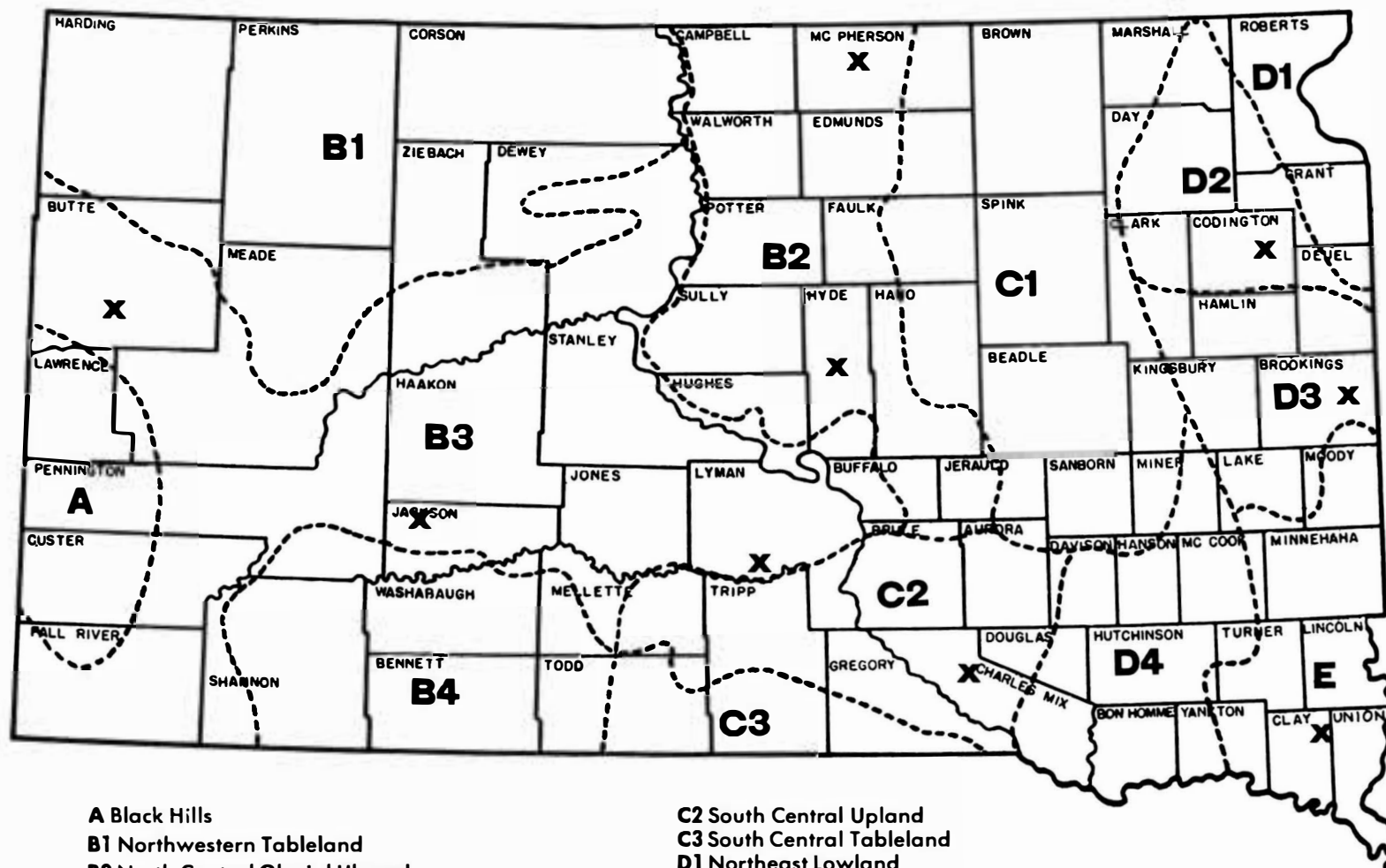
CROP ADAPTATION AREAS OF SOUTH DAKOTA

x - Trial sites

South Dakota State College

Soil Survey—Agronomy Department

MARCH 1958



- 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