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SOUTH DAKOTA Corn Performance Tests 1952

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AGRONOMY DEPARTMENT
AGRICULTURAL EXPERIMENT STATION
SOUTH DAKOTA STATE COLLEGE
BROOKINGS

South Dakota

Corn Performance Tests, 1952

By D. B. SHANK, D. E. KRATOCHVIL, and G. E. NACHTIGAL¹

Corn yield trials were conducted in 1952 by the Agronomy Department of the South Dakota Experiment Station to supply farmers with up to date information on popular hybrids which are planted extensively in the various agricultural areas of the state. The information obtained from the 1952 yield trials reflects the relative performing ability of the hybrids in a season having a deficiency of moisture during the later part. Temperatures for the season averaged close to normal, or slightly above, throughout the state. However, in most areas there was a deficiency of moisture the later part of the growing season. This deficiency of moisture, plus a warm late fall, resulted in well matured corn of low moisture content for most areas. The results are presented in the tables which follow.

Location of the 1952 Trials

Eight agricultural areas have been set up in the state and corn tests were conducted in each of these areas (Fig. 1). In establishing these areas,

Table 1. Location of the 1952 Tests

District	County	Cooperator	Post Office	Soil Type	Date Planted	Date Harvested
1	Lawrence	Walter Tetrault	Spearfish	Vale silt loam	May 16	Oct. 23
1	Butte	Newell Irrigation and Dry Land Field Station	Newell	Orman clay	May 26	Oct. 20 & 21
1	Butte	Al Schecler	Vale	Vale fine sandy loam	May 20 & 21	Oct. 6, 7 & 8
2	Jackson	Range Field Station†	Cottonwood	Pierre clay loam	May 17*
3	McPherson	North Central Station†	Eureka	Williams loam	May 21	Oct. 24
3	Hyde	Central Station†	Highmore	Williams loam	May 20	Oct. 22
4	Brown	Ellis Barnes	Claremont	Bearden very fine sandy loam	May 21	Oct. 25
4	Spink	U. S. Bureau of Reclamation	Redfield	Bearden silt loam (irrigated)	May 22	Oct. 17
4	Spink	U. S. Bureau of Reclamation	Redfield	Bearden silt loam (dry land)	May 22*
5	Brookings	Agr. Expt. Station	Brookings	Barnes loam	May 15	Oct. 8
6	Brule	Dale Cook	Chamberlain	Reliance silty clay loam	May 20	Oct. 21
7	Hanson	Alvin Tilberg	Ethan	Barnes silt loam	May 19	Oct. 20
8	Minnehaha	Neil Jensen	Dell Rapids	Moody silt loam	May 19	Oct. 15 & 16
8	Clay	Clarence Dose	Wakonda	Waubay silty clay loam	May 13	Oct. 13 & 14

*Test not harvested.

†Substations of the South Dakota Agricultural Experiment Station.

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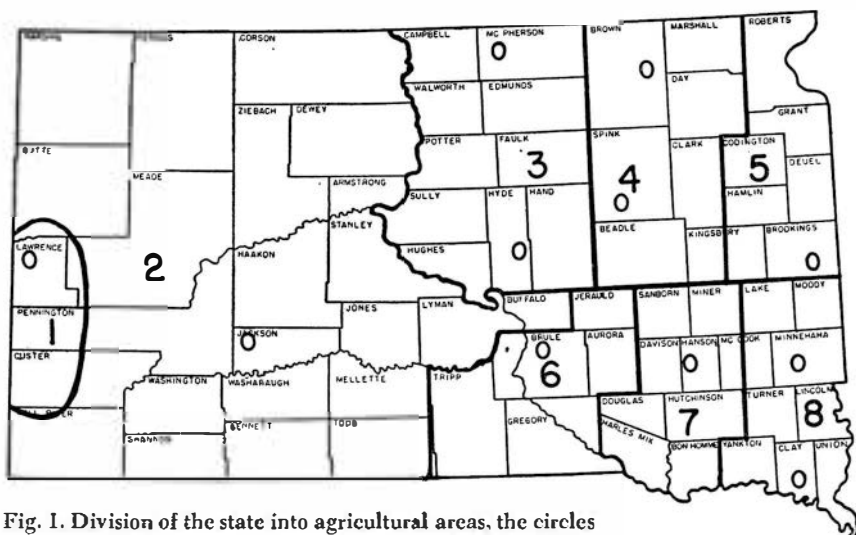


Fig. 1. Division of the state into agricultural areas, the circles indicating the location of corn yield tests conducted in 1952.

consideration was given to the effects which various soil types, rainfall, temperature and elevation have on crop production. At least one corn performance trial was located in each area while two trials were planted in areas 3 and 8, and three trials in areas 1 and 4. The exact location of each trial, the cooperators, soil type, and dates of planting and harvesting are presented in Table 1. Anyone evaluating and selecting hybrid varieties should consult the results of trials conducted nearest his farm.

Temperature and Rainfall

Data on temperature and rainfall are presented in Table 2. This information is based on reports from the station nearest the trial in each area. While dry to drought conditions prevailed over much of the corn growing area throughout the 1952 season, an abundance of reserve sub-soil moisture prevented severe losses in most areas. A brief report, month by month, is given below.

May: Temperatures over the state were near normal with slightly below normal precipitation. However, the eastern and middle divisions of the state were dry. Adequate subsoil moisture and seasonal temperatures brought about good corn planting conditions and early development of the crop.

June: Although moisture distribution was not ideal for optimum crop development, the amount received during June was only .08 inch below normal. Temperatures were the highest for the state since 1936. The combi-

Table 2. Temperature and Precipitation Data for the 1952 Corn Growing Season*

Station and District	Month	Temperature in Degrees F.			Precipitation in Inches				
		Average	Departure From Normal	Average Departure	Month Total	Season Total	Departure From Normal	Total Departure	Frost-Free Days†
Spearfish (1)	May	55.2	+0.8		‡		‡		
	June	‡	‡		‡		‡		
	July	68.2	-2.9		2.80		+0.62		
	August Sept.	70.7 64.8	+1.5 +4.5		‡ ‡		‡ ‡		127
Newell (1)	May	56.5	+1.1		2.64		-0.01		
	June	69.0	+4.5		1.15		-2.09		
	July	70.8	-2.3		2.40		+0.18		
	August Sept.	71.8 64.5	+1.2 +4.5	+1.8	0.79 0.21	7.19	-0.65 -1.01	-3.58	127
Cottonwood (2)	May	58.0	+1.4		3.46		+0.81		
	June	69.8	+2.6		5.77		+3.11		
	July	73.4	-1.6		1.16		-0.84		
	August Sept.	72.7 65.9	+0.2 +3.7	+1.3	0.27 0.56	11.22	-1.33 -0.45	+1.30	127
Eureka (3)	May	56.0	+0.7		0.95		-1.35		
	June	68.4	+3.5		3.66		+0.30		
	July	71.8	-0.2		1.11		-1.17		
	August Sept.	69.6 64.0	+0.2 +4.4	+1.7	2.03 0.48	8.23	-0.14 -0.99	-3.35	138
Highmore (3)	May	57.7	+1.2		1.07		-1.53		
	June	71.1	+5.5		3.33		+0.02		
	July	74.2	+0.5		1.07		-1.28		
	August Sept.	70.7 67.0	-1.0 +4.6	+2.2	3.08 0.00	8.55	+1.02 -1.39	-3.16	127
Aberdeen (4)	May	56.1	-1.2		1.49		-1.58		
	June	68.4	+1.9		3.10		-1.00		
	July	71.0	-1.8		2.02		-0.94		
	August Sept.	69.2 63.2	-1.1 +2.7	+0.01	0.69 0.10	7.40	-2.12 -1.81	-7.45	130
Redfield (4)	May	58.0	+0.5		0.78		-1.84		
	June	71.2	+4.0		4.99		+1.72		
	July	73.3	-0.2		1.18		-1.18		
	August Sept.	71.4 66.1	0.0 +4.7	+1.8	2.05 0.04	9.04	-0.48 -1.64	-3.42	130
Brookings (5)	May	55.6	-0.2		1.91		-1.00		
	June	69.5	+3.4		4.46		+0.61		
	July	71.3	-0.6		2.21		-0.22		
	August Sept.	68.2 61.6	-1.7 +0.7	+0.3	3.25 0.94	12.77	+0.57 -1.08	-1.12	113
Pukwana (6)	May	58.9	+1.3		2.16		-0.20		
	June	72.0	+2.5		2.83		-0.48		
	July	75.4	-2.1		1.15		-0.61		
	August Sept.	73.0 66.5	-2.0 +1.6	+0.3	1.65 0.00	7.79	-0.37 -1.40	-3.06	143
Mitchell (7)	May	59.8	+0.8		1.16		-2.05		
	June	73.2	+4.9		3.05		-0.98		
	July	76.4	+1.9		1.10		-1.96		
	August Sept.	72.5 ‡	+0.5 ‡		4.58 ‡		+1.98 ‡		171
Sioux Falls (8)	May	57.5	-1.2		1.93		-1.80		
	June	71.2	+3.2		4.39		+0.02		
	July	73.1	-0.3		1.59		-1.56		
	August Sept.	70.0 64.5	-1.1 +2.2	+0.6	3.39 0.47	11.77	+0.26 -2.19	-1.05	134
Vermillion (8)	May	61.8	+0.6		3.65		+0.09		
	June	78.2	+7.9		2.76		-1.29		
	July	76.5	+0.1		5.90		+2.74		
	August Sept.	‡ ‡	‡ ‡		‡ ‡		‡ ‡		172

*Information presented was taken from Monthly Climatological Data, U. S. Department of Commerce, Weather Bureau, Huron, S. Dakota.

†Number of days between 32°, or below, in the spring and 32°, or below, in the fall.

‡No figures available.

nation of high temperatures, reserve sub-soil moisture, plus the showers received, resulted in corn developing more rapidly than usual. The north-eastern and north-central counties received inadequate moisture and continued to rely on subsoil moisture during the first part of the month.

July: Temperatures during July were near normal except for a period in the fourth week when they rose to fairly high levels. The state average precipitation was again below normal. By mid-July, the corn was further along than usual, but showed the effects of the moisture deficiency.

August: Cool alternating with warm periods during August helped to prevent severe damage to the corn crop from continued below normal rainfall in many areas. In only small areas local showers and heavy rains produced necessary moisture for optimum corn development. Warm days, the later part of August, helped to dent the corn and in general the crop was further developed than usual. In the northern counties due to insufficient moisture some corn was cut for fodder or put into silage.

September: September temperatures were high on the average. There was virtually no precipitation (.03 inch) which equalled the record for September 1893. The combination of warm days, strong winds, and below normal moisture supply hastened corn maturity. By mid-September only small isolated areas of the state had frost and the corn had matured far enough to insure good quality when harvested. Prospective yields did not materialize in many areas because of lack of moisture during the growing season.

October: Drought conditions continued through October with a state average precipitation of .03 inch. Many areas received no measurable moisture with .30 inch being the highest total reported, which was in the western division at Deadwood. Temperatures were 2 degrees below normal with the first general killing frost occurring on October 2. The remainder of the month was characterized by alternating mild and cool temperatures. This presented excellent drying weather for corn. By the end of October a high percentage of the corn acreage in the state was harvested, and most corn was found to be sufficiently low in moisture content for safe cribbing and of excellent quality.

Selection of Entries

In order to select entries for the tests, a survey was conducted to ascertain those hybrids which were purchased most by farmers in the agricultural area represented by each test. Information was obtained on the hybrids of those companies which registered their corns with the South Dakota State Department of Agriculture. The survey included recommendations by representatives of the corn companies producing and registering the hybrids, and lists submitted by county agents located in the areas where the tests were conducted. Facilities permitted testing only the most widely used hybrids.

Method of Planting and Harvesting

Planting. Each group of entries was planted in four or five replications. Within these replications, plots of individual hybrids were located at random. Each plot consisted of two rows, 10 hills long, or the equivalent if the corn was drilled rather than checked. Planting was done at the rate of three kernels per hill for the checked plots, one per hill for the drilled plots (except under irrigation where planting rate was increased). Tests located with farmer-cooperators received the same fertilizer applications and cultural treatments as did the farmer's own corn. Planting dates are given in Table 1.

Harvesting. The test plots were picked at the time general harvesting was going on in the surrounding area. The corn from each plot was picked separately and weighed. After weighing, samples for moisture determination were taken on three replications of the plots. This was accomplished by selecting 12 ears at random, taking a 1-inch cross section from the middle of each ear by means of a machine built for this purpose, and placing the 12 cross sections in a paper bag. The samples were weighed when taken in the field, then they were oven-dried at 102 degrees C. in the laboratory, reweighed and the moisture percentages determined. Harvesting dates are given in Table 1.

Measuring Performance

Yield. The yield reported for each hybrid or variety in each test is the average obtained for all replications, expressed in bushels per acre on the basis of 15.5 percent moisture. All yields were computed from the field weights which had been corrected according to the moisture content of the individual entries. At the bottom of each table of results (Tables 3-14 inclusive) is given the minimum amount for the 1952 tests by which two entries must differ in yield in order for that difference to be considered statistically significant.

A slight amount of variation can occur between entries of equal performance potential due to field conditions, such as variations in soil and slope, and stand differences. Therefore, mathematical determinations have been made to establish how great a difference between two entries is necessary before it can be said that it is a true difference rather than a chance variation. For example, in Brookings County (Table 10), a difference of 10.7 bushels per acre in the yield of two entries is required before it can be said that one has a superior yielding ability over the other. This difference, required for significance, varies from test to test, depending upon amount of chance variation within each.

The average yield of all entries appears at the bottom of the yield column in each table.

Moisture content. The moisture content at harvest is given for each entry in the tables. This is the amount of moisture in the ear corn expressed in percentage. At the bottom of the moisture percentage column appears

the average moisture percent of all entries. Moisture content is directly related to maturity, and because maturity is of primary consideration in South Dakota, these figures are very important when an evaluation of the various entries is made.

Performance score. Each entry in the various tables is ranked on the basis of a performance score. This score was computed for each entry from its 1952 performance record, expressed as a percentage of the average of all entries. In such calculations, yield was weighted 60 percent and dry matter (100 minus percent moisture) 40 percent.

Stand. A reduction in the number of hills below 100 percent is taken to mean that either the seed of an entry is unable to produce a good stand under the environmental conditions prevailing for the test, or that something destroyed either the kernels before germination or the young plants. Thin stands reduce yields and since this work is designed primarily to test yielding potential of the various entries, rather than germination, corrections in yield were made for missing hills according to the formula:

$$CW = FW \left(\frac{H - 0.3M}{H - M} \right)$$

where CW = corrected weight, FW = field weight, H = number of hills per plot and M = number of missing hills. No yield corrections were made for minor variations in stand, that is, less than three stalks per hill. Also, no corrections were attempted for poor stands in drilled plots.

Lodging. In the Brookings County test, root lodging figures for 1952 are presented. They are expressed as the percentage of stalks which lodged 30 degrees or more from the perpendicular at the time of harvest.

Results over a period of years. Many of the entries included in the 1952 trials were also tested in previous years. This makes possible the calculation of 2-, 3-, 4- and 5-year averages in some cases, and such data are included in many of the tables which follow. These averages are more useful for determining the value of any hybrid or variety, than the results obtained in a single year, for in any one year an entry may fluctuate in its relative value because of specific environmental conditions under which the test was conducted. Averages for a period of several years will iron out these environmental variations. A hybrid or variety was included in the averages only when it was the same variety each year and was secured from the same source.

Black Hills Area

Butte County.¹ Two tests were conducted under irrigation in Butte County. One was on clay soil on the Newell Irrigation and Dry Land Field Station, the other was located on sandier soil on the farm of Al Scheeler just northwest of Vale. The field on the station received about 50 pounds of available phosphate as 0-43-0, and 65 to 70 pounds of available nitrogen fertilizer from 33-0-0 prior to planting. It was planted May 26 and harvested October 20 and 21. Sweet clover was turned under just before planting on the Vale field. Then approximately 50 pounds of available nitrogen from 33-0-0 fertilizer was applied in a band when the plants were 8-10 inches high. Corn in this field was planted May 20 and 21 and harvested October 6, 7 and 8.

Table 3. Area 1 (Butte County) 1952 Corn Performance Tests on Irrigated Land--Clay Soil

Hybrid or Variety	Performance Score	Acre		2-Year Average	
		Yield Bu.*	Moisture Percent	Yield Bu.	Moisture Percent
Wisconsin 341A	112.74	67.7	22.5	—	—
Kingscrest KE3	112.03	62.6	13.0	58.9	19.0
United U20A	109.29	64.1	21.6	—	—
S. Dak. 220 (Exptl. 10)	106.69	60.9	19.9	69.6	24.5
Jacques 802J	106.41	59.9	18.3	—	—
DeKalb 56	104.82	59.6	20.8	65.6	27.0
Funk G-11	103.32	59.2	22.9	—	—
Disco 90W	102.88	60.1	25.7	61.6	30.9
Nodakhybrid 301	101.26	55.2	18.4	—	—
Wisconsin 240	101.08	54.7	17.7	56.3	21.4
Wisconsin 1614	100.90	59.5	28.3	—	—
DeKalb 46	100.51	54.6	18.6	59.0	25.3
Wisconsin 255	99.03	51.7	15.3	62.0	19.2
Disco 85W	98.76	52.8	18.2	62.5	25.1
Funk G-18	98.59	56.8	27.1	—	—
Wisconsin 355	98.28	55.3	24.5	58.2	29.3
Wisconsin 1602	97.95	50.0	13.8	59.3	15.9
Sokota 224	97.80	55.0	24.8	58.1	32.9
Wisconsin 1616	97.43	50.4	16.0	—	—
Sibred No. 1	96.65	57.3	32.0	—	—
Sokota 262	96.50	55.3	28.0	54.4	35.5
Jacques 853J	95.14	51.1	21.7	—	—
United U24A	91.04	47.6	22.3	—	—
Kingscrest KF	87.34	43.8	21.4	—	—
Wisconsin 1613	82.43	36.4	15.3	—	—
Average of all entries		55.3	22.1	60.5	25.5

*Differences in yield of less than 12.8 bushels per acre are not statistically significant.

¹The work in Butte County was conducted by Joseph J. Bonnemann and Bruce L. Baird, Division of Soil Management and Irrigation Agriculture, B.P.I.S.A.E., U.S.D.A., Newell Irrigation and Dry Land Field Station, Newell, South Dakota. The South Dakota Agricultural Experiment Station furnished seed for the tests.

Black Hills Area

Table 4. Area 1 (Butte County) 1952 Corn Performance Tests on Irrigated Land—Sandy Soil

Hybrid or Variety	Performance Score	Acre Yield Bu.*	Moisture Percent
Sokota 400	108.53	118.4	32.3
Wisconsin 341A	106.34	110.5	27.3
Funk G-18	105.67	110.7	28.8
Sokota 262	103.75	108.0	29.3
Disco 90W	103.44	106.1	27.7
Funk G-11	102.93	101.2	23.0
DeKalb 46	102.01	98.5	21.6
Jacques 853J	101.90	100.4	24.0
United U20A	101.80	101.7	25.7
S. Dak. 220 (Exptl. 10)	101.33	97.9	22.2
Sibred No. 1	101.33	104.4	29.7
Wisconsin 270	100.55	97.5	23.2
Wisconsin 355	100.11	99.9	26.8
United U24A	99.43	96.1	23.7
DeKalb 56	98.74	97.4	26.5
Disco 85W	98.09	94.7	24.6
Sokota 224	98.01	100.9	31.9
Kingscrot KE3	97.37	87.1	17.2
Wisconsin 1614	97.21	97.5	29.5
Wisconsin 1616	97.06	84.7	15.0
Jacques 802J	96.64	86.0	17.3
Kingscrot KF	94.45	85.9	21.3
Nodakhybrid 301	94.44	85.4	19.7
Sokota 270	94.12	95.5	33.0
Wisconsin 1613	93.77	80.8	16.7
Average of all entries		97.9	24.6

*Differences in yield of less than 14.4 bushels per acre are not statistically significant.

Black Hills Area

Lawrence County. One test under irrigation was planted on the farm of Walter Tetrault in Lawrence County just northwest of Spearfish. The test was planted May 16 and harvested October 23.

Table 5. Area I (Lawrence County) 1952 Corn Performance Tests—Results on Irrigated Land

Hybrid or Variety	Performance Score	Acre		2-Year Average†		3-Year Average†		4-Year Average†		5-Year Average†	
		Yield Bu.*	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent
Sokota 262	112.48	165.1	23.0	131.3	25.9	119.0	27.3	121.8	25.8	—	—
DeKalb 56	107.46	150.0	19.8	123.4	22.9	113.5	24.3	112.9	23.0	110.7	21.6
S. Dak. Experimental 9	106.61	149.0	20.6	—	—	—	—	—	—	—	—
DeKalb 240	106.60	154.8	25.6	120.9	31.5	115.1	31.5	117.8	31.2	117.4	28.6
Disco 90W	105.53	151.8	25.1	124.8	27.3	—	—	—	—	—	—
Sokota 270	103.48	147.4	25.3	109.0	29.1	105.4	28.0	—	—	—	—
Funk G-18	102.18	144.8	25.6	—	—	—	—	—	—	—	—
United U24A	100.69	128.6	14.6	—	—	—	—	—	—	—	—
Wisconsin 355	99.29	135.7	23.4	—	—	—	—	—	—	—	—
Master F84	98.03	138.2	28.0	—	—	—	—	—	—	—	—
Sokota 400	96.82	132.3	25.3	113.3	29.4	106.4	30.5	113.7	29.1	—	—
Disco 85 W	96.01	125.7	21.2	105.7	24.0	—	—	—	—	—	—
DeKalb 65	95.46	129.0	25.1	109.9	28.2	106.7	29.4	107.9	29.5	106.4	27.5
S. Dak. 220 (Expt. 10)	92.69	113.3	17.0	—	—	—	—	—	—	—	—
DeKalb 46	90.36	110.0	18.7	104.4	21.3	103.0	22.4	103.3	21.9	—	—
Kingscrot KE3	86.11	98.3	17.4	—	—	—	—	—	—	—	—
Average of all entries		135.9	22.2	115.9	26.6	109.9	27.6	112.9	26.8	111.5	25.9

*Differences in yield of less than 28.1 bushels per acre are not statistically significant.
 †No results were obtained from the 1951 test. In computing averages 1951 was ignored.

West River Area

Jackson County. The test in this county was planted May 17 at the Range Field Station at Cottonwood. Due to the drought conditions in this area the trial was not harvested in 1952.

North Central Area

McPherson County. As in previous years, tests in this county were at the North Central Station at Eureka. The trial was planted May 21 and harvested October 24. A high percentage of entries were low in moisture content at harvest time.

Table 6. Area 3 (McPherson County) 1952 Corn Performance Tests

Hybrid or Variety	Performance Score	Acre		2 Year Average		3-Year Average		4-Year Average		5-Year Average	
		Yield Bu.*	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent
S. Dak. 220 (Exptl. 10)	116.46	29.1	15.6	29.0	39.6	30.7	39.9				
Nodakhybrid 304	116.37	29.6	18.4	30.9	36.8	34.0	36.0	33.7	33.8	33.2	31.5
Kingscrost KE2	109.11	25.9	13.8	28.0	34.7	30.0	36.3				
Hansmann	108.82	26.4	17.0	28.7	36.5	33.7	36.9	33.7	34.0	35.2	32.0
DeKalb 56	107.78	26.3	18.6	24.1	44.5	23.9	49.5				
Wisconsin 240	105.74	25.3	17.5	30.6	30.0	33.8	31.2	33.4	29.4	33.6	27.5
Sokota 212	103.97	24.9	19.0	27.2	42.7	29.0	45.8	27.8	43.2	29.4	42.8
Agsc 301	103.10	24.2	17.1	31.8	34.4	33.4	36.3				
Sokota 204	101.45	24.1	19.9	23.6	44.7	25.1	47.4	25.6	45.6	26.3	43.3
Master F-21	99.76	22.9	17.1								
Pioneer 388	98.04	22.5	18.5	25.9	43.2						
Silver King	97.76	23.5	24.3	22.6	47.3	23.5	49.4	24.6	45.6	26.1	42.5
Pride 17A	97.68	22.8	20.8	27.7	43.7						
Nodakhybrid 201	96.61	21.2	14.5	26.5	32.9	28.5	33.1	29.4	30.3	30.6	29.4
DeKalb 46	95.63	21.2	16.6	26.2	41.6	29.5	41.6				
Agsc 275	92.51	20.2	17.7	22.7	41.7	27.7	41.2				
Kingscrost KE7	88.96	18.4	15.5								
Disc 90W	88.40	20.0	25.0								
Wisconsin 355	87.42	19.6	24.9	25.7	43.8	30.3	44.6				
Pride PN16	87.10	18.0	21.4	23.1	45.9						
Haapala H400	84.01	17.7	21.9	25.1	43.2						
Funk G-188	80.59	16.2	21.0	21.1	45.6	23.7	45.6	23.6	41.8	24.4	39.0
Average of all entries		22.7	18.9	26.3	40.7	29.1	41.0	29.0	38.0	29.9	36.0

*Differences in yield of less than 5.7 bushels per acre are not statistically significant.

North Central Area

Hyde County. The Central Station at Highmore was again used as the location for this test, which was planted May 20 and harvested October 22. All entries were extremely low in moisture at harvest time. Yields were below 5-year averages which reflected the drought conditions that prevailed in this area in 1952.

Table 7. Area 3 (Hyde County) 1952 Corn Performance Tests

Hybrid or Variety	Performance Score	Acre		2-Year Average		3-Year Average		4 Year Average		5-Year Average	
		Yield Bu.*	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent
S. Dak. 220 (Exptl. 10)	136.29	28.4	10.3	33.4	18.9	32.5	18.6				
Sokota 270	125.15	25.1	10.6	31.8	23.4	30.0	24.9				
DeKalb 58	123.08	24.7	12.2								
Kingscrot KS4	123.03	24.7	12.3	31.5	25.5						
Sokota 224	120.63	23.8	11.0	29.9	24.8	28.2	24.9	27.3	23.5	25.9	22.6
Tomahawk 4	120.40	24.3	15.1	28.7	28.9						
Sokota 262	120.38	24.1	13.7	24.3	29.5	24.3	29.6				
Sokota 400	119.61	23.8	13.2	26.6	31.0	25.3	31.6	24.6	29.9	22.8	29.0
Pioneer 377A	114.52	22.8	17.0	29.1	30.9	28.3	29.3				
Rainbow Flint	111.04	21.2	13.0	32.2	23.8	29.2	23.9				
Funk G-18	106.75	19.9	12.9								
Sokota 212	101.38	18.4	13.7	25.9	23.4	25.2	23.4	26.7	22.2	24.6	23.7
Funk G-1A	96.36	17.2	15.9	25.1	31.7	24.7	30.8	24.3	28.7	21.8	28.9
Falconer	91.91	15.1	10.4	23.7	19.3	21.4	18.3				
DeKalb 56	89.12	15.0	15.7	26.2	25.4	25.1	25.4	25.3	23.4	23.2	22.7
Disco 95W	88.45	14.7	15.0	25.9	27.0	24.4	26.5	24.0	25.6	20.5	25.3
Pride D36	88.17	14.7	15.4								
Disco 90W	84.10	13.8	17.9	23.9	27.0						
Pioneer 388	83.92	13.3	14.7	23.7	26.0						
Kingscrot KH3	82.26	12.4	11.8								
Pride PN16	81.40	12.6	15.1								
Master F41	78.49	11.7	14.9								
Peavey 355	75.56	11.1	16.9								
Haapala H354	72.43	9.7	13.6	15.0	23.2						
Kingscrot KE1	64.09	7.2	13.6								
Average of all entries		18.0	13.8	26.9	25.9	26.6	25.6	25.4	25.6	23.1	25.4

*Differences in yield of less than 7.8 bushels per acre are not statistically significant.

North James River Area

Brown County. Ellis Barnes continued to be the cooperator in this area. His farm is located three to four miles west of Claremont. Planting was done May 21, and harvesting on October 25. The moisture content of all entries in this test were extremely low, reflecting the drought conditions that prevailed. This area showed the least total rainfall of any area in the state in which corn tests under dry-land conditions were made.

Table 8. Area 4 (Brown County) 1952 Corn Performance Tests

Hybrid or Variety	Performance Score	Acre		2-Year Average		3-Year Average		4-Year Average		5-Year Average	
		Yield Bu.*	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent
Pioneer 388	113.72	52.9	8.2	51.0	23.9						
Sokota 270	113.47	52.5	7.5	44.3	28.8						
Sokota 262	108.40	48.9	7.6	43.6	27.2						
Pioneer 382	107.98	48.5	7.3	44.8	26.2	42.9	28.1				
Kingscrot KS3	107.22	48.7	9.7	45.9	30.3						
DeKalb 58	105.80	47.0	7.5								
Funk G-1A	104.87	46.8	9.0								
DeKalb 56	104.57	46.4	8.4	44.8	25.1	44.5	28.1	49.0	26.9	48.6	26.2
Sokota 212	103.36	45.1	7.0	42.4	25.0	40.2	27.4	44.2	26.5	42.5	26.0
Kingscrot KS4	102.95	45.3	8.6	42.4	29.8						
Funk G-11	102.49	44.6	7.4								
Brookfield 54	102.34	44.8	8.4								
Cargill 95N	101.66	44.0	7.4								
Disco 95W	98.88	42.2	8.0	43.5	26.0	40.5	30.7	45.6	28.8	44.8	28.8
Disco 100W	97.09	41.6	10.2	37.5	31.9	38.9	35.4				
Haapala H400	94.73	39.1	7.6	38.8	25.2	39.2	27.0				
Peavey 355	93.75	38.3	7.3								
AgSCO 301	93.53	37.8	6.2	38.5	20.0	39.1	21.3				
Cargill 90N	92.70	38.3	9.7	37.4	26.0						
Kingscrot KE1	92.52	37.3	6.9	37.4	21.8						
Pride B25	92.50	37.5	7.6								
Pride PN16	92.24	37.5	8.2								
S. Dak. 220 (Exptl. 10)	92.07	37.0	7.0	38.7	22.5						
AgSCO 501	91.93	37.4	8.6								
Sokota 224	89.81	35.6	7.7	36.0	27.8	38.1	30.2	43.6	28.9	43.1	27.9
Average of all entries		43.0	8.0	41.7	26.1	40.4	28.5	45.6	27.8	44.8	27.2

*Differences in yield of less than 6.6 bushels per acre are not statistically significant.

North James River Area

Spink County. Two tests were conducted on the Redfield Development Farm in cooperation with the Bureau of Reclamation. One experiment was on dry-land the other under irrigation. The nonirrigated test, planted May 22, was not harvested due to drought and extreme variability within the test. The irrigated test was planted May 22 and harvested October 17.

Table 9. Area 4 (Spink County) 1952 Corn Performance Tests—Results on Irrigated Land

Hybrid or Variety	Performance Score	Acre		2-Year Average		3-Year Average	
		Yield Bu.*	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent
S. Dak. 220 (Exptl. 10)	113.22	99.6	12.2	90.6	19.9	—	—
Sokota 224	109.54	98.1	17.7	86.5	26.1	85.4	29.0
DeKalb 56	108.84	94.5	13.7	84.8	21.7	78.6	27.1
S. Dak. Experimental 9	105.57	91.8	16.5	84.7	23.3	—	—
Funk G-1A	103.72	88.3	15.1	—	—	—	—
Pioneer 382	103.38	88.7	16.4	—	—	—	—
Kingscrot KS6	100.86	84.6	15.5	78.5	26.0	80.3	29.6
Brookfield 54	99.82	84.6	17.7	—	—	—	—
Pride 225	98.77	82.0	16.0	—	—	—	—
Sokota 270	98.30	81.7	16.5	76.8	25.9	80.8	29.5
Kingscrot KE3	97.38	79.7	15.4	68.4	21.4	66.0	24.3
Funk G-11	97.00	79.3	15.6	—	—	—	—
Pioneer 377A	96.67	79.1	16.0	82.3	25.5	86.6	30.2
Wisconsin 355	96.60	76.7	12.5	71.9	22.7	—	—
Sokota 400	95.48	78.7	17.9	81.9	27.5	83.6	32.0
Cargill 90N	94.67	74.8	13.7	—	—	—	—
DeKalb 58	94.23	76.5	17.2	—	—	—	—
Disco 95W	92.59	72.9	15.2	—	—	—	—
Sokota 262	91.34	71.3	15.4	—	—	—	—
Haapala 400	87.40	64.9	14.0	—	—	—	—
Average of all entries		83.4	15.5	80.6	24.0	80.2	28.8

*Differences in yield of less than 21.2 bushels per acre are not statistically significant.

Northeast Area

Brookings County. As in years past, the test for this area was conducted on the Agronomy experimental farm, which is located one mile east of the college campus at Brookings. Root lodging percent is shown for this test which was planted May 15 and harvested October 8.

Table 10. Area 5 (Brookings County) 1952 Corn Performance Tests

Hybrid or Variety	Performance Score	Acre		Root		2-Year Average		3-Year Average		4-Year Average		5-Year Average	
		Yield Bu.*	Moisture Percent	Lodging Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	
Sokota 270	113.00	76.1	23.6	8.3	54.7	35.7	56.7	38.3	49.6	36.7			
S. Dak. Experimental 9	112.48	76.0	24.4	6.3	57.2	36.5	61.1	35.4	54.6	33.4			
Kingscrest KS6	108.40	73.5	27.6	20.0	50.5	42.7	55.4	40.9	46.9	39.2	55.5	37.0	
Sokota 262	107.28	70.2	23.8	25.4	51.4	38.0	55.8	37.9					
Funk G-6	105.87	70.0	26.1	13.8									
Pioneer 377A	105.15	70.2	27.8	8.3	51.3	43.3	55.8	52.2					
Pioneer 388	104.69	65.4	20.1	14.6	51.8	31.5							
Wisconsin 1471	102.64	61.9	17.7	17.9									
Kingscrest KS4	101.40	67.9	26.8	19.2	51.5	37.6							
Funk G-1A	101.25	65.7	27.1	19.2	50.2	40.2	53.8	39.6	46.9	37.8	54.3	36.1	
S. Dak. 220 (Exptl. 10)	101.17	61.7	20.1	7.1	50.5	28.9							
Disco 100W	101.09	65.7	27.4	20.0	49.7	36.3	51.0	37.9					
Sokota 224	100.91	62.6	22.2	22.1	49.3	33.6	53.7	34.1	47.7	32.9	53.9	31.1	
DeKalb 62	100.69	64.5	26.0	16.7									
Pride B38A	100.34	64.3	26.3	23.8									
Funk G-68	100.14	64.7	27.4	6.3									
Cargill 105N	99.77	66.1	30.6	3.8									
United U24A	99.45	57.6	16.0	25.8									
Haapala 300	99.33	62.0	24.1	31.3									
Wisconsin 1447	98.50	60.8	23.5	14.2									
Sokota 212	97.49	59.9	23.8	40.0	47.5	32.4	50.2	33.7	44.5	32.9	49.8	31.7	
DeKalb 56	97.18	59.3	23.3	21.3									
Pioneer 379A	95.82	59.6	26.4	17.9	44.6	41.2	51.4	40.5	43.7	39.4			
Disco 95W	94.77	58.1	25.7	27.5	47.6	35.2							
Pfister 56	94.73	58.9	27.2	13.8	43.9	42.8	50.1	41.9	41.8	41.5			
Master F60A	94.69	56.9	23.7	42.1									
Cargill 95N	94.53	56.0	22.4	45.0	45.9	32.5							
DeKalb 65	94.11	55.9	23.0	20.8	46.1	34.0	51.0	34.0	44.7	33.0	51.6	31.6	
Sokota 400	91.94	56.8	28.7	12.5	44.8	41.4	50.4	41.1	43.8	40.2	53.0	38.1	
Wisconsin 355	86.28	46.1	20.2	36.3	40.0	30.2	45.6	32.6					
Average of all entries		63.1	24.8	20.0	48.9	36.6	53.1	38.6	46.4	36.8	53.0	34.3	

*Differences in yield of less than 10.7 bushels per acre are not statistically significant.

South Central Area

Brule County. As in 1951 the test was conducted on the Dale Cook farm which is three to four miles east of Chamberlain. Two-year averages are presented along with 1952 data. The test was planted May 20 and harvested October 21. The corn from entries in this test was very low in moisture content reflecting the dry conditions of the area during the later part of the season.

Table II. Area 6 (Brule County) 1952 Corn Performance Tests

Hybrid or Variety	Performance Score	Acre Yield Bu.*	Moisture Percent	2-Year Average	
				Yield Bu.	Moisture Percent
Sokota 270	122.23	42.8	7.4	33.6	30.8
S. Dak. Experimental 9	121.67	42.5	7.4	33.2	27.8
DeKalb 410	119.86	41.9	8.9	33.4	36.3
United U33	108.89	36.3	9.8	—	—
Cargill 108N	108.41	36.4	11.3	—	—
Farmers 223	107.87	36.4	12.9	38.3	30.6
Sokota 262	107.42	34.9	7.2	29.5	32.7
Tekseed 115	105.49	35.4	13.6	30.1	43.2
Disco 107A	105.00	35.0	13.0	30.2	39.2
F. U. 4398	103.25	34.4	14.4	—	—
McCurdy 85L	100.94	32.2	10.3	—	—
Pioneer 379A	100.05	31.4	8.9	25.8	33.5
Sokota 400	99.15	30.9	8.8	28.7	32.9
Pfister 61	97.01	30.1	10.2	28.9	34.6
Pioneer 388	95.92	29.4	9.7	—	—
Sokota 224	94.67	28.1	7.0	25.3	29.7
Ioweth A	93.70	28.7	11.7	—	—
DeKalb 406	93.28	28.5	12.0	—	—
Master F 81	93.21	28.3	11.1	—	—
Kingscrot KS6	92.91	27.9	10.1	26.0	33.8
Funk G-29	91.85	28.0	12.9	24.9	40.6
Funk G-68	91.17	26.6	8.5	26.9	33.4
Pride D36	88.47	25.5	9.9	—	—
Tomahawk 45	87.31	26.9	18.4	25.9	41.7
Disco 100W	85.90	24.3	10.6	—	—
Kingscrot KO	84.41	23.8	11.8	—	—
Average of all entries		31.8	10.7	29.1	34.7

* Differences in yield of less than 9.5 bushels per acre are not statistically significant.

South James River Area

Hanson County. Alvin Tilberg continued as cooperator. The test was planted May 19 and harvested October 20. The 1952 yields were above the averages for those entries which had been in the test for two to five years. In addition, moisture content was extremely low.

Table 12. Area 7 (Hanson County) 1952 Corn Performance Tests

Hybrid or Variety	Performance Score	Acre		2-Year Average		3-Year Average		4-Year Average		5-Year Average	
		Yield Bu.*	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent
Kingscrest KR2	111.12	66.8	9.9	53.9	27.5	57.4	28.6	49.6	29.7	58.8	29.7
Sokota 400	110.12	66.5	11.4	54.0	24.6	54.9	25.9	49.0	26.1	57.2	26.5
United U32A	109.68	65.6	10.3								
Pioneer 379A	108.08	64.6	11.5	56.0	25.3	57.8	25.8				
Steckley 17	107.55	64.0	11.3								
Funk G-29	106.02	62.5	11.2	47.5	33.1	51.1	33.8	45.6	33.6	58.0	33.3
Pride D66	105.69	62.1	11.0								
Iowealth 4A	105.54	61.7	10.4								
Tomahawk 40	104.99	61.7	11.6	51.6	29.5	53.5	30.0				
Brookfield 740	103.21	61.0	13.9								
S. D. Experimental 9	101.94	58.4	10.7	50.4	21.8	54.9	22.3	51.1	22.7		
DeKalb 406	101.35	59.7	15.0	50.5	32.8	53.5	32.6				
Pioneer 349	101.08	58.1	11.9	51.4	29.6	55.8	30.5				
Sokota 270	100.72	57.8	12.0	49.4	23.5	53.4	23.7	49.6	31.9	56.4	23.4
Trojan F99	100.41	57.2	11.3								
Sokota 224	99.48	55.7	9.9	47.1	21.7	49.1	22.4	44.5	22.3	51.1	21.7
Sokota 262	98.52	55.4	11.3	45.0	25.0						
F. U. 4297	98.11	54.4	9.9	43.4	31.7	47.1	32.6				
McCurdy 96M	96.90	54.2	12.1								
Kingscrest KT1	96.81	54.9	13.9								
Cargill 108N	95.69	52.7	11.3								
Farmers 427A	94.92	53.1	13.9	48.3	32.7	51.8	34.8	45.4	34.0	55.8	34.0
Disco 107A	92.74	50.1	11.8	41.8	32.9	48.0	33.5				
DeKalb 410	92.16	50.2	13.3	46.8	30.7	53.8	31.2				
Iowealth AF11	89.11	47.0	12.6								
Tekseed 45A	88.65	47.1	13.5	43.0	33.8						
Funk G-68	84.07	42.4	13.1								
Average of all entries		57.2	11.9	49.1	28.5	53.0	29.1	47.8	28.6	56.2	28.1

*Differences in yield of less than 14.6 bushels per acre are not statistically significant.

Southeast Area

Minnehaha County. The 1952 test was moved from the previous year's location west of Sioux Falls to the Neil Jensen farm which is located one-half mile north of Dell Rapids on U. S. Highway 77. This test has been on different locations the past three years and therefore on different soil types. This fact undoubtedly had an effect on yields; however, the 2- to 5-year averages are presented for Minnehaha county along with this year's results. The test was planted May 19 and harvested October 15 and 16.

Table 13. Area 8 (Minnehaha County) 1952 Corn Performance Tests

Hybrid or Variety	Performance Score	Acre		2-Year Average		3-Year Average		4-Year Average		5-Year Average	
		Yield Bu. #	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent
Sokota 270	109.64	71.5	14.8	52.4	29.6	48.0	25.9	47.4	23.7		
Pfister 299	106.24	72.7	23.8	53.1	40.7	47.2	39.0	46.5	36.2	57.6	35.9
Haapala HI30	105.78	69.8	19.3	57.2	35.0						
Pioneer 349	105.57	70.7	21.4	55.6	37.0	50.7	32.5				
Pioneer 377A	104.99	66.9	15.5	54.0	29.2	49.8	26.4				
Pfister 56	104.98	67.7	17.0	49.4	33.9						
S. Dak. Experimental 9	104.42	67.1	17.0	53.4	26.8	47.8	23.7	50.5	22.4		
F. U. 4483	103.32	67.1	19.2								
Pride D66	102.69	65.9	18.2								
Brookfield 727	102.59	65.9	18.4								
McCurdy 95M	102.08	67.4	22.2								
Tomahawk 14	101.96	65.5	18.9	51.0	30.8	48.4	28.1				
DeKalb 240	101.31	65.2	19.5	51.7	34.4	47.2	30.6	46.7	32.9	57.4	28.9
Sokota 400	100.61	63.4	17.7	49.4	31.2	46.9	28.0	46.8	26.6	56.6	26.0
United U32A	99.43	67.2	27.1								
Iowearth 90	99.18	60.7	15.9								
Farmers 223	99.02	64.6	23.1	52.2	34.4						
Funk G-6	97.72	62.2	21.2	49.2	32.9	46.7	28.7				
Indiana 1405	97.39	62.7	22.8								
Pride B45	97.20	61.2	20.4								
F. U. 4417	97.10	61.2	20.6	46.7	35.8	43.5	31.1	48.5	29.5	55.5	29.4
Kingscrot KS6	97.05	59.6	17.7	47.6	32.7	44.4	27.6				
Sokota 262	96.40	58.9	17.7	45.6	31.1	43.5	26.3				
Sokota 224	95.99	57.0	15.0	44.8	27.4	45.3	23.6	45.9	23.3	52.0	22.8
Disco 108A	95.76	61.7	24.2								
Funk G-16A	95.41	63.7	28.6								
DeKalb 63	95.41	59.5	20.8								
Haapala HI20	94.49	62.5	28.2								
Kingscrot K05	87.50	52.5	23.5	43.1	38.9						
Average of all entries		64.2	20.4	50.1	33.0	47.0	28.1	47.1	27.7	55.8	28.6

*Differences in yield of less than 12.0 bushels per acre are not statistically significant.

Southeast Area

Clay County. In 1952 this test was moved from its previous location on the Leo Trudeau farm six miles north of Vermillion to the Clarence Dose farm east of Waukon. The soil types of the two locations are different. They are Kranzburg silt loam and Waubay silty clay loam, respectively. The Waubay silty clay loam would be the more productive in a dry season such as that of 1952. The 2- to 5-year averages for Clay County are presented; however, the difference in soil types should be taken into consideration when the 1952 yields are compared to previous averages for the area. Planting was done on May 13 and harvesting done on October 13 and 14.

Table 14. Area 8 (Clay County) 1952 Corn Performance Tests

Hybrid or Variety	Performance Score	Acre		2-Year Average		3-Year Average		4-Year Average		5-Year Average	
		Yield Bu.*	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent	Yield Bu.	Moisture Percent
Pioneer 352	106.37	79.6	24.4								
Indiana 1405	106.11	77.9	22.2								
Pfister 229	105.53	78.4	24.1	71.8	29.1	64.4	30.2	62.9	30.0		
DeKalb 410	103.61	75.4	23.0	74.6	25.9	69.9	25.9	66.4	26.0	63.6	24.7
Pioneer 349	103.52	74.6	21.9	75.0	25.5						
Iowcalth A	103.37	74.1	21.4	67.4	28.3						
A E S 702	102.62	77.7	28.5								
F. U. 4316	102.18	75.4	25.7								
F. U. 4417	102.13	69.0	15.7								
Farmers 427A	101.87	75.4	26.3	72.8	31.1	67.6	31.3	64.8	30.7		
DeKalb 627	101.82	75.6	26.7	72.1	29.6	68.1	29.8				
Tekseed 115	101.52	74.8	26.0	69.4	30.7	67.0	30.8				
F. U. 4483	101.40	69.9	18.5								
Tomahawk 60	100.92	71.8	22.4	66.9	27.0						
S. Dak. Experimental 8	100.23	72.3	24.5	69.2	29.4	69.4	29.4	65.2	28.5		
United U41	99.99	71.0	22.9	66.3	28.4						
Kingscrot KT1	99.37	70.0	22.5								
Funk G-77A	98.76	70.1	23.8								
Vinton V-35	98.50	71.3	26.2	67.2	31.0	61.6	30.9				
United U37A	98.17	68.7	22.7								
F. U. 4397	97.38	69.2	25.0	65.9	28.0						
Pride D66	96.30	69.5	27.5	63.1	31.7	61.2	31.6				
Disco 107A	96.01	66.3	23.0								
Sokota 400	95.79	62.1	16.8	60.2	21.5	58.4	22.7	58.5	22.5	57.0	21.8
Cornelius C48	95.51	68.3	27.1								
Funk G-16A	95.50	67.9	26.5	63.2	31.4						
Funk G-29A	94.02	67.9	29.3								
McCurdy 96M	93.88	64.0	23.4	64.4	24.7	62.3	27.7				
Average of all entries		71.7	23.9	68.1	28.3	65.0	29.0	63.6	27.5	60.3	23.3

*Differences in yield of less than 7.3 bushels per acre are not statistically significant.