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1-1947

## Corn Performance Tests, 1946

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### Recommended Citation

Shank, D. B. and Manke, K. F., "Corn Performance Tests, 1946" (1947). *Agricultural Experiment Station Circulars*. Paper 63.  
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CORN

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PERFORMANCE

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TESTS

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1946

*South Dakota* AGRICULTURAL EXPERIMENT STATION

SOUTH DAKOTA STATE COLLEGE . . . . . BROOKINGS

## How to Use This Circular in Choosing Corn Hybrids or Varieties

First consult the map on page 4 and Table 1 on page 3 to determine which test was located in an area with conditions most nearly resembling those where the corn is to be grown. Then turn to the tables beginning on page 5 and find the table that gives the results of that particular test. There the hybrids and varieties are listed in at least three groups on the basis of moisture content at harvest. Those having the lowest moisture content, that is, the earliest maturing entries, were entered at the top of the table in Group 1. Except for the bottom group no significant difference existed between entries within groups in moisture content. Entries in Group I have the best chance for maturing. From the highest yielding entry in Group I subtract the number of bushels required for a significant difference as given at the bottom of the table. Any entries with yields falling between the figure obtained by subtraction and the top yield do not differ significantly and may be considered satisfactory when grown under conditions similar to those of 1946.

As an example, suppose the test in Davison County (Table 13) is selected as representative of the area where the corn is to be grown. Four hybrids appear in Group I. By subtracting 10.2, the difference required for significance in yield, from 71.8, the highest yield in Group I, a value of 61.6 bushels is obtained. Two hybrids fall within the yield range of 61.6—71.8 bushels per acre, namely Sokota 400 and Disco 102. These two performed the best in this test in 1946 on the basis of both yield and moisture. Other entries yielded more bushels per acre (see Groups II and III), but they were much later in maturity and, therefore, growing them is more hazardous.

# South Dakota Corn Performance Tests, 1946

By D. B. SHANK and KARL F. MANKE<sup>1</sup>

Corn performance tests are conducted each year by the Agronomy Department of the South Dakota Agricultural Experiment Station to supply to those interested in corn impartial information on the yielding ability, maturity requirements and other characteristics of hybrids and open-pollinated varieties. It would be impractical to attempt to test all of the several hundred commercial hybrids sold in the state or try to locate tests in each of the various districts into which the state might be divided on the basis of soil type, elevation, rainfall and length of growing season. Therefore, hybrids which enjoyed the greatest popularity on the basis of sales volume in 1945 in each of the eight general areas in the state, were included in the 1946 tests along with several open-pollinated varieties which are still grown in each area. This makes available performance results on the most important of the hybrids being planted in South Dakota.

To best determine the value of any one hybrid or variety, its average performance in any one area over a number of years is the criterion which should be used, because in any one year the hybrid may fluctuate in its relative value due to the specific environmental conditions under which the test was conducted. However, many hybrids sold in South Dakota are not too well adapted for the short growing season and the other environmental conditions which exist. This has caused a shifting in the particular hybrids offered for sale each year and not many of those included in the 1946 tests were also tested in 1945. For this reason only one year's results are given below. As better adapted hybrids are developed, and are sold year after year, average performance scores will accumulate and these tests will become more valuable. If used with discretion, the 1946 data will provide readers with information valuable as an aid in selecting hybrids for various areas of the state.

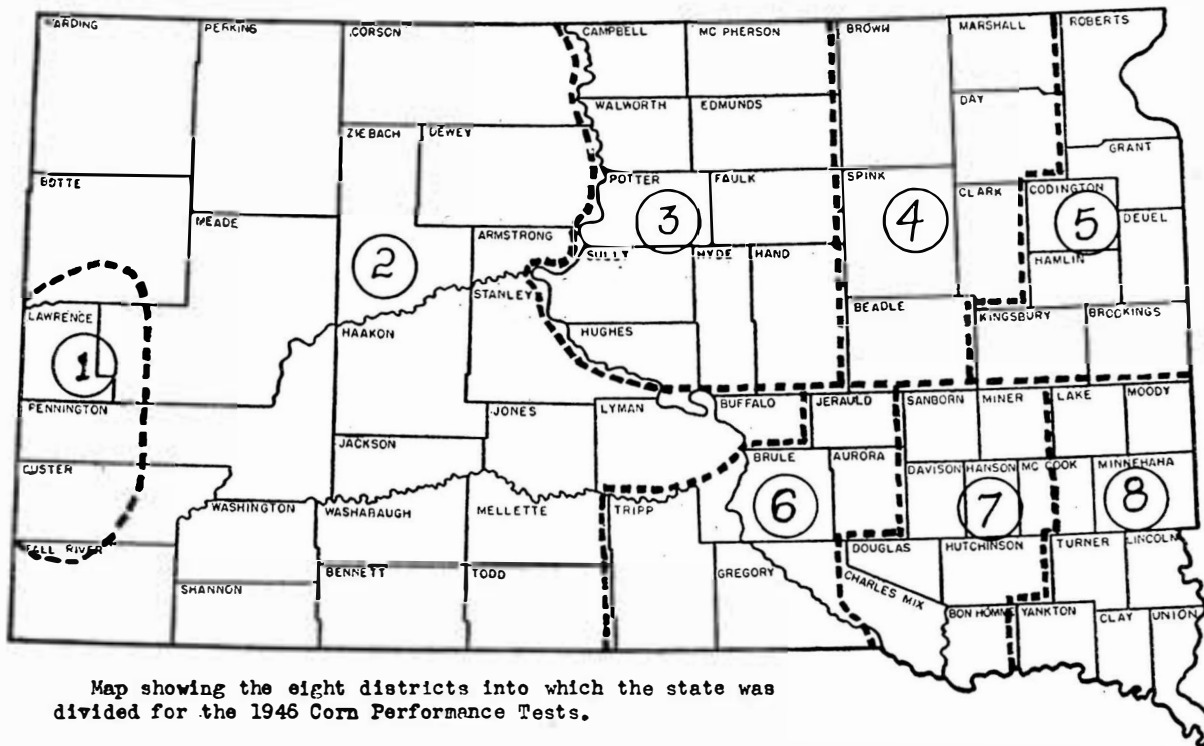
## Location of the 1946 Test Plots

For the 1946 tests the state was divided into eight districts corresponding to the agricultural areas which have been set up for the state. (See map on page 27). At least one test was conducted in each district. Two or more tests were carried

Table 1. Location of the 1946 Plots

District	County	Cooperator	Post office	Soil type	Date planted	Date harvested
1	Lawrence	John Ward	Spearfish	Vale silt loam	May 17	Oct. 9
2	Dewey	Reinhold Heck	Isabel	Jordan fine sandy loam	May 28	Oct. 8
3	McPherson	Eureka Substation	Eureka	Williams loam	May 29	Oct. 22
3	Hyde	Highmore Substation	Highmore	Williams loam	May 9	Oct. 10
4	Brown	Ellis Barnes	Claremont	Bearden silt loam	May 27	Oct. 23
4	Beadle	Albert Weier	Cavour	Barnes silt loam	May 16	Oct. 15
5	Grant	A. J. Pufahl	Milbank	Barnes silt loam	May 15	Oct. 18
5	Hamlin	John Corey	Bryant	Kranzburg silt loam	May 16	Oct. 12
5	Brookings	Agr. Exp. Sta.	Brookings	Barnes loam	May 21	Nov. 2
6	Tripp	Ed Heying	Winner	Boyd clay	May 18	Oct. 30
7	Davison	Conrad Maxwell	Mitchell	Barnes silt loam	May 10	Oct. 28
8	Minnehaha	Cecil Byg	Hartford	Moody silt loam	May 6	Oct. 24

<sup>1</sup>Associate Agronomist and Formerly Assistant Agronomist, respectively.



Map showing the eight districts into which the state was divided for the 1946 Corn Performance Tests.

on in those districts where it was considered that the prevailing environmental conditions for any one test would not be fairly representative of the whole district. (See Table 1.) For this reason two tests were conducted in Districts 3 and 4 and three in District 5. In District 8, besides the test in Minnehaha County, two other performance trials were set up, one in Lincoln County and one in Clay County. However, it was impossible to get the one in Lincoln County planted, while the one in Clay County was harvested before weights could be taken.

### Temperature and Rainfall Data

Temperature and rainfall data for the 1946 growing season are presented in Table 2. Where data were not available for the immediate vicinity of each test, information from the closest reporting station was used.

Temperatures were generally colder than normal for all months except June and July, the former being slightly above and the latter equal to the long-time average. For the state in general, corn looked good up to the first of August but deteriorated in some sections due to moisture deficiencies during August. Freezes the last of August and early in September also affected corn adversely in some areas. Isabel and Bryant received freezes September 1.

Rainfall varied from district to district up through August, some areas receiving amounts considerably above average in some months, others running enough below to suffer local drought. September was characterized at all locations by excessive rainfall, ranging from 1.12 inches above average at Castlewood (the closest reporting station to the Claremont test) to 5.29 inches above normal at Brookings. Above normal rainfall also occurred in October. The very wet fall plus the cool temperatures caused corn to mature and dry slowly and very little could be harvested and cribbed through October.

Table 2. Temperature and Precipitation Data for the 1946 Corn Growing Season\*

Station and district	Month	Temperature in Degrees F.			Precipitation in inches			Frost-free days
		Average	Departure from normal	Average departure	Monthly total	Season total	Departure from normal	
Spearfish (1)	May	48.4	-6.2		13.07		+9.82	147
	June	61.0	-2.8		7.36		+3.80	
	July	71.1	-0.2		0.47		-1.81	
	Aug.	65.4	-3.7		1.16		-0.48	
	Sept.	58.0	-2.7	-3.1	5.84	27.90	+4.34	
Timber Lake (2)	May	51.9	-4.1		3.47		+0.79	91
	June	66.3	+0.1		3.76		+0.15	
	July	74.2	-0.4		1.34		-0.99	
	Aug.	66.0	-4.9		1.42		-0.42	
	Sept.	58.8	-1.4	-2.1	3.25	13.24	+2.08	
Eureka (3)	May	52.6	-2.7		1.33		-0.88	148
	June	66.2	+1.0		3.35		+0.28	
	July	71.7	-0.5		5.97		+3.70	
	Aug.	67.0	-2.3		3.62		+1.46	
	Sept.	58.0	-1.8	-1.3	4.25	18.52	+2.83	
Highmore (3)	May	53.1	-3.5		2.63		+0.07	128
	June	67.4	+1.6		6.30		+3.14	
	July	73.5	-0.4		2.46		+0.17	
	Aug.	68.6	-3.0		0.97		-1.06	
	Sept.	61.1	-1.6	-1.4	3.88	16.24	+2.54	

Continued on next page

Table 2.—Continued from preceding page

Station and district	Month	Temperature in Degrees F.			Precipitation in inches			Frost-free days
		Average	Departure from normal	Average departure	Monthly total	Season total	Departure from normal	
Aberdeen (4)	May	54.0	-3.4		1.32		-1.84	132
	June	67.4	+0.6		3.97		0.00	
	July	73.2	+0.3		3.72		+0.73	
	Aug.	67.8	-2.4		1.00		-1.74	
	Sept.	59.5	-1.2	-1.2	3.28	13.29	+1.43	
Huron (4)	May	53.7	-2.7		1.71		-1.27	153
	June	68.0	+1.8		3.75		-0.04	
	July	74.4	+2.6		1.43		-1.73	
	Aug.	68.6	-0.8		0.68		-1.78	
	Sept.	60.0	-1.3	-0.1	3.55	11.12	+1.98	
Milbank (5)	May	55.2	-1.4		2.84		-0.11	150
	June	68.5	+2.8		5.88		+2.00	
	July	73.5	+1.6		3.60		+1.01	
	Aug.	69.6	0.0		0.86		-1.96	
	Sept.	60.8	0.0	+0.6	3.66	16.84	+1.73	
Castlewood (5)	May	**	**		**		**	109
	June	67.0	+2.0		5.78		+1.70	
	July	71.4	+0.6		3.50		+0.69	
	Aug.	66.9	-1.5		0.68		-2.21	
	Sept.	58.8	-1.4	-0.1	3.28	13.24	+1.12	
Brookings (5)	May	53.8	-3.0		2.22		-0.57	150
	June	67.4	+1.3		7.09		+3.34	
	July	71.9	0.0		2.13		-0.29	
	Aug.	67.2	-2.5		0.52		-2.10	
	Sept.	59.7	-1.3	-1.1	7.30	19.26	+5.29	
Winner (6)	May	54.8	-4.8		2.39		-0.22	127
	June	69.8	+0.7		4.66		+1.42	
	July	76.4	-0.8		0.60		-1.61	
	Aug.	71.0	-3.3		2.93		+0.91	
	Sept.	61.4	-3.0	-2.2	4.09	14.67	+2.89	
Mitchell (7)	May	56.0	-2.9		2.00		-1.14	132
	June	69.5	+1.1		4.76		+0.79	
	July	74.4	0.0		1.89		-1.19	
	Aug.	69.6	-2.3		3.34		+0.81	
	Sept.	60.6	-2.7	-1.4	4.89	16.88	+2.73	
Sioux Falls (8)	May	54.4	-4.9		2.29		-1.49	140
	June	67.3	-0.9		4.39		+0.09	
	July	73.8	+0.1		2.97		-0.16	
	Aug.	68.1	-3.0		2.45		-0.76	
	Sept.	59.8	-2.8	-2.3	5.21	17.31	+2.57	

\*Data taken from Monthly Climatological Data, U. S. Department of Commerce, Weather Bureau, Huron, South Dakota.

\*\*No data reported by this station for May.

### Selection of Entries

In order to select the hybrid entries for the tests, a survey was conducted among seed producers and distributors by the South Dakota Department of Agriculture. Data were obtained which listed the sales by counties of the corn hybrids registered in 1945. From these records the relative importance of individual hybrids was estimated. In general, if a hybrid was sold to the extent of one percent or more of the total hybrid seed corn sold in a given district, that hybrid was entered

in the test for that district. Hybrid corn is not as generally grown in western districts as open-pollinated varieties and a number of early hybrids were entered in the tests in these areas even though the sales records did not justify their being entered on the basis of use. In all, 90 hybrids and 19 open-pollinated varieties were included.

### **Method of Planting and Harvesting**

**Planting.** Each entry was planted in six plots, each plot being located at random within one complete grouping of all entries. This means that all varieties were planted in six groups or replications. Each plot consisted of two rows 10 hills long. Planting was done by hand at the rate of five kernels per hill. Later the stand was thinned to three plants per hill. Tests were located in the general field of the cooperater and received the same cultural treatments as his corn. Planting dates are given in Table 1.

**Harvesting.** The tests were picked at the time general harvesting was going on in the area where each was located. Each plot was picked separately and weighed. After weighing, samples for moisture determination were taken on the first, third and fifth replications of the plots. This was accomplished by selecting ten ears at random, removing two rows of kernels from each by means of a screw driver, and weighing out 100 grams of the shelled grain into a paper bag. The samples were later oven-dried at 105° C., reweighed and 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 the six plots, expressed in bushels per acre on a basis of 15 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 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 because of field conditions such as variations in soil type, stand, and slope. Therefore, determinations have been made to establish what difference it is necessary to have between two entries before it can be said that there is a true difference between them rather than a chance variation. For example, in Lawrence County (Table 3), a difference of 9.3 bushels per acre is required in the yield of two entries 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 the amount of chance variation within each.

**Moisture Content.** The moisture content at harvest is given for each entry in the tables. This is the amount of moisture in the shelled grain expressed in percentages. Because moisture content is directly related to maturity and because maturity is of primary consideration in evaluating corn in South Dakota, the entries have been divided into groups in Tables 3 to 14, inclusive, on the basis of their moisture content. The drier and more mature entries appear in the top, or Group 1, in each table. These groups differ from each other to the extent of the moisture content required to show a real or significant difference in maturity between hybrids. The necessary differences were determined by calculations as were those for yield. For example, in Brown County (Table 7), 4.6 percent difference in moisture content was required to show a significant difference between entries.



**Stand.** Stand percentage is presented in Tables 5, 9, 11, 13, and 14. These values were computed from counts taken on missing hills. An excess of kernels was always planted and any extra plants were later thinned to three stalks per hill. Therefore, a reduction in stand 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. No stand counts were taken on the other tests since only an occasional missing hill occurred.

Reduced stands reduce yields and since these tests are 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:  $CW = FW \frac{H - 0.3M}{H - M}$  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.

**Root Lodging.** Data on root lodging are presented for the test in Brookings County (Table 1). This is expressed as the percentage of hills in which the plants lodged at an angle of 30° or more from the perpendicular at harvest time, due to failure of the root system.

### Black Hills Area

District 1 (Lawrence County). This test was located on the farm of John Ward about two miles north of Spearfish. The soil is Vale silt loam. The test was in the irrigated area and, although the rainfall for the months of May, June and September totaled 17.96 inches above average, July and August were below normal and the corn was watered once about the first of August. Due to the high elevation many hybrids and varieties are not adapted for this area. The test was planted May 17 and harvested October 9.

Table 3. DISTRICT 1 (Lawrence County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain		Moisture at harvest
	<i>bushels</i>		<i>percent</i>
<b>Moisture Group I (19.2%—24.6%)</b>			
Big Ten B-3 .....	40.8		24.5
Nodakhybrid 201 .....	35.5		19.2
<b>Moisture Group II (24.7%—30.1%)</b>			
Kingscrot KE 1 .....	46.0		29.7
Jacques 803 .....	42.9		27.5
Master F-21 .....	42.0		29.4
Kingscrot KF1 .....	41.5		28.2
Minhybrid 702 .....	40.8		28.0
Jacques 852 .....	39.9		27.2
Jacques 802 .....	38.5		26.8
Wisconsin 240 .....	37.7		29.5
Wisconsin 255 .....	36.6		27.8
Kingscrot KE2 .....	34.7		27.5
<b>Moisture Group III (More than 30.1%)</b>			
Funk's G-1A .....	56.0		41.8
Reid National 90 .....	56.0		42.2
Northwestern Dent .....	53.8		39.6
Black Hills Special .....	51.8		33.1
Sokota 212 .....	49.6		38.0
Reid National 95 .....	48.1		49.0
Minnesota 13 (Haney) .....	47.7		39.1
Silver King .....	44.0		35.1
Payne's White Dent .....	37.1		42.4
Minhybrid 706 (White) .....	40.4		35.8
Wisconsin 275 A .....	40.1		40.3
Kingscrot KA4 .....	39.7		38.5
Minhybrid 800 .....	35.8		32.9

A difference in yield of less than 9.3 bushels per acre is not statistically significant.

## West River Area

District 2 (Dewey County). This test was planted on the Reinhold Heck farm about four and one-half miles southeast of Isabel. The soil is Jordan fine sandy loam and the topography is rolling. Yields were low, there being some grasshopper damage during the pollination season and a frost early in September. The test was planted May 28 and harvested October 8.

Table 4. DISTRICT 2 (Dewey County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain		Moisture at harvest
	<i>bushels</i>		<i>percent</i>
<b>Moisture Group I (18.6%—27.8%)</b>			
Jacques 803 .....	9.7		23.8
Gehu .....	9.1		18.6
Jacques 802 .....	8.5		21.7
Wisconsin 255 .....	8.5		23.7
Wisconsin 240 .....	8.3		27.8
Falconer .....	8.3		21.0
Nodakhybrid 201 .....	7.5		20.8
Kingscrost KF1 .....	4.7		25.2
Northwestern Dent .....	4.6		26.9
Kingscrost KE2 .....	4.1		23.8
Kingscrost KE1 .....	3.9		24.5
<b>Moisture Group II (27.9%—37.1%)</b>			
Jacques 852 .....	6.5		32.3
Wisconsin 275 A .....	6.4		35.9
Minhybrid 702 .....	6.3		35.1
Minhybrid 800 .....	5.8		31.0
Rainbow Flint .....	5.0		34.1
Master F-21 .....	4.5		31.1
Minnesota 13 (Haney) .....	3.8		31.0
<b>Moisture Group III (More than 37.1%)</b>			
Sokota 212 .....	6.3		38.2
Reid National 90 .....	5.7		41.0
Minhybrid 706 (White) .....	4.4		38.6
Reid National 95 .....	4.4		45.6
Silver King .....	4.1		37.7
Kingscrost KA4 .....	4.0		41.1
Funk's G-1A .....	2.8		43.9

A difference in yield of less than 2.9 bushels per acre is not statistically significant.

## North Central Area

District 3 (McPherson County). The Eureka Substation, where this test was located, is just east of Eureka. The soil is Williams loam and the topography is rolling. This area is usually not well adapted to corn production but above normal rainfall in June, July and August plus a somewhat longer than normal growing season resulted in good yields. The test was planted May 29 and harvested October 22.

Table 5. DISTRICT 3 (McPherson County). 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain	Moisture at harvest	Stand
	<i>bushels</i>	<i>percent</i>	<i>percent</i>
<b>Moisture Group I (23.3%—30.4%)</b>			
Jacques 852 .....	40.7	27.0	94.2
Nodakhybrid 201 .....	38.9	23.3	93.3
Minhybrid 702 .....	37.3	28.7	94.2
Wisconsin 255 .....	36.9	25.5	97.5
Master F-21 .....	36.4	26.1	70.8
Wisconsin 240 .....	36.3	30.2	95.0
Minhybrid 800 .....	34.9	27.9	85.8
Jacques 803 .....	34.9	30.2	82.0
Kingscrot KF1 .....	33.6	29.1	95.8
Jacques 802 .....	32.1	25.3	63.0
<b>Moisture Group II (30.5%—37.6%)</b>			
Kingscrot KA4 .....	33.6	34.6	95.8
Jacques 902 .....	33.5	36.5	91.7
Kingscrot KE1 .....	26.2	36.2	89.2
Eureka Yellow Dent .....	24.6	33.5	65.8
Kingscrot KE2 .....	17.9	33.0	94.2
<b>Moisture Group III (More than 37.6%)</b>			
Reid National 90 .....	43.3	39.5	95.8
Sokota 212 .....	38.9	39.2	95.0
Wisconsin 275A .....	37.3	37.7	93.3
Funk's G-1A .....	36.4	43.2	85.0
Minhybrid 706 (White) .....	33.2	38.7	86.7
Silver King .....	32.2	37.8	77.5
Reid National 95 .....	29.2	53.2	95.0
Northwestern Dent .....	29.1	38.2	81.7
Minnesota 13 (Haney) .....	28.9	41.3	94.2
Payne's white dent .....	28.8	40.5	55.8

A difference in yield of less than 5.3 bushels per acre is not statistically significant.

### North Central Area

District 3 (Hyde County). In Hyde County the test was located on the Highmore Substation just west of the town of Highmore. The soil is Williams loam but the topography is less rolling than at Eureka. The test was planted May 9 and harvested October 10.

Table 6. DISTRICT 3 (Hyde County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain	Moisture at harvest
	<i>bushels</i>	<i>percent</i>
<b>Moisture Group I (20.1%—24.5%)</b>		
Kingscrot KE2 .....	18.5	23.4
Master F-40 .....	13.6	20.1
<b>Moisture Group II (24.6%—29.0%)</b>		
Kingscrot KS2 .....	32.7	27.4
Sokota Experimental No. 4 .....	30.0	26.3
DeKalb 65 .....	27.4	26.1
DeKalb 56 .....	26.7	28.1
Sokota 224 .....	26.3	28.0
Sokota 212 .....	26.0	26.3
Wisconsin 416 .....	23.2	27.3
Kingscrot KA4 .....	22.7	27.1
Wisconsin 355 .....	20.7	26.8
Alta Yellow Dent .....	19.9	25.2
Big Ten B-17 .....	19.5	27.1
Kingscrot KE1 .....	19.2	24.6
Minhybrid 706 (White) .....	14.8	27.6
<b>Moisture Group III (More than 29.0%)</b>		
Reid National 95 .....	36.0	38.8
Funk's G-31 .....	35.6	36.4
Funk's G-1A .....	35.4	31.3
Funk's G-6 .....	34.5	29.1
Pioneer 359 .....	34.4	30.6
Sokota 400 .....	34.2	33.1
Kingscrot KS6 .....	33.5	31.9
Winter's White No. 10 .....	25.6	38.5
Jacques 957 .....	23.0	29.1
Jacques 902 .....	17.2	29.7

A difference in yield of less than 5.8 bushels per acre is not statistically significant.

## North James River Area

District 4 (Brown County). The test in Brown County was located on the farm of Ellis Barnes three or four miles west of Claremont. The soil is Bearden silt loam. The land is very level in the area. Planting was done May 27 and harvesting October 23.

Table 7. DISTRICT 4 (Brown County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain		Moisture at harvest
	<i>bushels</i>		<i>percent</i>
<b>Moisture Group I (21.4%—25.9%)</b>			
Minihybrid 706 (White) .....	52.7		25.3
Big Ten B-3 .....	51.1		21.4
Kingscrot KE2 .....	40.2		21.8
<b>Moisture Group II (26.0%—30.5%)</b>			
Funk's G-1A .....	59.5		30.2
DeKalb 65 .....	59.2		28.9
DeKalb 56 .....	54.7		27.2
Big Ten B-23 .....	53.7		27.0
Sokota Experimental No. 4 .....	53.0		27.1
Sokota 224 .....	51.4		30.0
Wisconsin 416 .....	51.2		29.3
Big Ten D-32 .....	50.3		28.8
Big Ten B-17 .....	48.5		28.4
Master F-60 .....	44.3		26.4
Local Yellow Dent .....	44.0		28.7
Jacques 955 J .....	42.8		28.0
Minnesota 13 (Haney) .....	42.5		27.3
Kingscrot KE1 .....	40.4		29.2
Brookfield 44 .....	39.7		29.4
<b>Moisture Group III (More than 30.5%)</b>			
Reid National 95 .....	58.4		40.8
DeKalb 58 .....	55.3		31.3
Sokota 232 .....	50.2		33.7
Sokota 212 .....	49.3		30.6
Sokota 204 .....	44.2		30.8
Brown County Yellow Dent .....	41.4		31.8
Jacques 1001 J .....	36.4		32.6

A difference in yield of less than 5.8 bushels per acre is not statistically significant.

### North James River Area

District 4 (Beadle County). The Beadle County test was located on the farm of Albert Weier six miles south of Cavour. The soil is Barnes silt loam and the topography is slightly rolling. Rainfall was below average throughout the growing season. Planting was performed May 16 and harvesting October 15.

Table 8. DISTRICT 4 (Beadle County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain		Moisture at harvest
	bushels	percent	
<b>Moisture Group I (19.8%—24.0%)</b>			
Kingscrot KS2 .....	44.4		21.8
Minhybrid 502 .....	39.6		23.5
DeKalb 65 .....	39.1		23.7
Minnesota 13 (Sexauer) .....	33.8		19.8
<b>Moisture Group II (24.1%—28.3%)</b>			
Funk's G-1A .....	42.9		26.9
Sokota Experimental No. 4 .....	42.8		25.5
Pioneer 359 .....	42.6		26.2
Pioneer 379 .....	41.4		25.8
DeKalb 56 .....	40.5		24.4
Sokota 204 .....	40.4		24.9
Sokota 224 .....	39.0		24.7
Sokota 212 .....	37.8		27.6
Brookfield 44 .....	37.0		27.1
Jacques 955 J .....	32.3		26.8
Disco 95 .....	31.6		25.6
Kingscrot KE2 .....	31.3		26.0
<b>Moisture Group III (More than 28.3%)</b>			
Master F-82 .....	42.6		30.0
Sokota 400 .....	41.7		28.9
Minhybrid 503 .....	41.0		29.5
Winter's White No. 10 .....	39.4		28.5
Sokota 232 .....	39.2		29.1
Funk's G-31 .....	36.3		36.8
Kingscrot KS6 .....	35.4		28.7
Jacques 1001 J .....	32.0		31.5
Wisconsin 525 .....	30.2		34.0

A difference in yield of less than 8.3 bushels per acre is not statistically significant.

**North East Area**

District 5 (Grant County). Test work in Grant County was carried out on the farm of A. J. Pufahl, above five miles north of Milbank. This farm is fairly level and the soil is Barnes silt loam. The test was planted May 15 and harvested October 18.

**Table 9. DISTRICT 5 (Grant County) 1946 Corn Performance Tests**

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain		Stand
	bushels	Moisture at harvest percent	
<b>Moisture Group I (22.1%—25.3%)</b>			
Big Ten B-3 .....	58.1	23.2	99.2
Kingscrot KE2 .....	52.6	22.1	100.0
<b>Moisture Group II (25.4%—28.6%)</b>			
Minnesota 13 (Haney) .....	44.1	28.3	95.8
<b>Moisture Group III (28.7%—31.9%)</b>			
DeKalb 65 .....	64.6	29.4	91.7
KeKalb 58 .....	64.2	30.8	89.2
Sokota 212 .....	62.6	28.9	99.2
Sokota Experimental 4 .....	61.9	31.9	95.8
Sokota 224 .....	61.4	30.0	97.5
Big Ten B-17 .....	60.4	31.2	98.3
<b>Moisture Group IV (More than 31.9%)</b>			
DeKalb 240 .....	78.0	34.9	98.3
Kingscrot KS6 .....	73.0	35.6	93.3
Kingscrot KS2 .....	72.4	32.5	99.2
Funk's G-1A .....	71.1	32.4	97.5
Pioneer 379 .....	70.0	34.0	98.3
Minhybrid 503 .....	67.7	34.9	100.0
Sokota 400 .....	67.3	34.4	98.3
Reid National 95 .....	66.9	38.7	95.0
Pioneer 359 .....	65.9	33.8	95.0
Master F-82 .....	65.6	33.1	99.2
Jacques 1050 J .....	64.5	34.3	99.2
Wisconsin 531 .....	64.3	35.2	99.2
Pfister 274 .....	64.0	39.7	95.8
Wisconsin 525 .....	62.9	35.4	99.2
Jacques 1001 J .....	59.1	32.9	98.3
DeKalb 56 .....	57.6	32.2	87.5

A difference in yield of less than 7.0 bushels per acre is not statistically significant.



### North East Area

District 5 (Hamlin County). The Hamlin County test was located on the John Corey farm about two miles east of Bryant. The soil type is Kranzburg silt loam and the topography is slightly rolling. This test was planted May 16 and harvested October 12.

Table 10. DISTRICT 5 (Hamlin County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain		Moisture at harvest
	<i>bushels</i>		<i>percent</i>
<b>Moisture Group I (22.5%—26.6%)</b>			
Corey Yellow Dent .....	52.6		25.2
Wisconsin 355 .....	46.1		26.3
Minhybrid 702 .....	42.1		22.5
Kingscrot KE2 .....	39.5		24.3
Minhybrid 706 (White) .....	39.4		26.1
Master F-40 .....	34.1		24.3
<b>Moisture Group II (26.7%—30.8%)</b>			
Corey White Dent .....	59.9		27.4
Kingscrot KS2 .....	58.2		28.5
DeKalb 58 .....	55.9		29.7
Big Ten B-23 .....	52.8		27.8
Sokota 212 .....	51.9		30.1
DeKalb 65 .....	50.2		29.9
Big Ten B-17 .....	48.4		28.6
Haapala 362 .....	48.2		29.2
DeKalb 56 .....	47.6		28.6
Sokota Experimental No. 4 .....	46.3		29.3
Sokota 224 .....	46.2		29.5
Jacques 955 J .....	41.6		30.3
<b>Moisture Group III (More than 30.8%)</b>			
Kingscrot KS6 .....	59.4		32.1
DeKalb 240 .....	58.9		36.9
Funk's G-1A .....	57.3		32.6
Pioneer 379 .....	53.8		33.2
Pioneer 359 .....	51.0		31.4
Reid National 95 .....	50.1		39.5
Jacques 1001J .....	44.1		32.3

A difference in yield of less than 4.7 bushels per acre is not statistically significant.

North East Area

District 5 (Brookings County). This test, also in District 5, was located on the Agronomy experimental farm, one mile east of the college campus at Brookings. The farm is on Barnes loam soil. The test was planted May 21 and harvested November 2.

Table 11. DISTRICT 5 (Brookings County) 1946 Corn Performance Tests

Hybrid or variety	Acres yield of ear corn with 15% moisture in grain	Moisture at harvest	Stand	Root lodging
	bushels	percent	percent	percent
<b>Moisture Group I (23.0%—27.6%)</b>				
Sokota 204 .....	55.6	23.0	95.0	7.2
Brookings 86 .....	50.5	27.3	99.2	41.0
<b>Moisture Group II (27.7%—32.3%)</b>				
Funk's G-6 .....	60.7	29.9	99.2	6.8
Kingscrot KS2 .....	59.0	30.6	98.3	21.0
Funk's G-1A .....	57.9	32.0	98.3	10.3
Pioneer 379 .....	57.5	32.2	97.5	22.0
Sokota 224 .....	57.3	30.9	98.3	12.7
Sokota Experimental No. 4 ..	56.8	30.3	95.8	25.0
DeKalb 65 .....	56.5	29.0	94.2	33.8
Sokota 212 .....	55.4	30.7	99.2	21.8
DeKalb 58 .....	53.6	30.1	93.3	37.2
Sokota 232 .....	51.4	31.7	96.7	41.5
DeKalb 56 .....	49.6	29.4	93.3	7.0
Minhybrid 502 .....	49.2	32.0	94.2	8.0
<b>Moisture Group III (More than 32.3%)</b>				
Sokota 400 .....	58.7	32.4	97.5	15.7
DeKalb 240 .....	58.0	39.2	98.3	51.8
Pioneer 359 .....	57.6	32.4	99.2	5.8
Reid National 95 .....	56.9	40.9	98.3	22.7
Kingscrot KS6 .....	54.5	35.2	98.3	25.3
Pfister 274 .....	52.5	40.5	99.2	38.7
Master F-82 .....	51.6	34.4	98.3	13.5
Jacques 1001 J .....	49.9	34.0	93.3	43.7
Wisconsin 464 .....	45.0	33.2	98.3	35.7
Jacques 1050 J .....	44.4	37.3	94.2	37.2
Gurney's 100 .....	43.5	41.0	93.3	35.7

A difference in yield of less than 5.1 bushels per acre is not statistically significant.

### South Central Area

District 6 (Tripp County). A test was planted in Tripp County on the Ed Heying farm about four or five miles northeast of Winner. The soil is Boyd clay and the topography is somewhat rolling. This test was planted May 18 and harvested October 30.

Table 12. DISTRICT 6 (Tripp County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain	Moisture at harvest
	<i>bushels</i>	<i>percent</i>
<b>Moisture Group I (19.8%—23.4%)</b>		
Sokota 400 .....	44.1	23.0
DeKalb 240 .....	34.8	23.2
Disco 102 (White) .....	31.0	21.6
Sokota 224 .....	28.7	19.8
Wygals Flint (White) .....	25.8	19.8
Jacques 1050 J .....	20.8	21.5
<b>Moisture Group II (23.5%—27.1%)</b>		
Reid National 112R .....	43.3	24.4
Gurney's 112 .....	42.1	24.9
Kingscrot KR2 .....	41.6	26.1
Kingscrot KS6 .....	34.0	25.3
Minhybrid 404 .....	30.7	24.7
Lamb's Yellow Dent .....	28.8	26.3
Pioneer 353A .....	28.7	25.4
Wygals Yellow Dent .....	26.7	24.0
<b>Moisture Group III (More than 27.1%)</b>		
Disco 107A .....	43.4	28.4
Funk's G-29 .....	38.0	31.9
Pfister 266 .....	37.0	30.4
Royall 4297 .....	32.8	28.8
Disco 111A .....	32.2	30.0
Funk's G-114 .....	28.7	30.0
Wisconsin 606 .....	26.3	28.4
Jacques 1121 .....	24.1	31.3
DeKalb 65 .....	19.6	29.5

A difference in yield of less than 8.9 bushels per acre is not statistically significant.

## South James River Area

District 7 (Davison County). In Davison County the test was located about seven miles north and one east of Mitchell on the farm of Conrad Maxwell. This was on Barnes silt loam. The ground was dry and cloddy at the time of planting and this may account for the slight stand reduction for all entries. Planting was done May 10 and harvesting October 28.

Table 13. DISTRICT 7 (Davison County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain	Moisture at harvest	Stand
	<i>bushels</i>	<i>percent</i>	<i>percent</i>
<b>Moisture Group I (20.8%—24.7%)</b>			
Sokota 400 .....	71.8	24.7	90.0
Disco 102 (White) .....	63.5	20.8	90.8
Sokota 232 .....	60.1	21.5	90.0
Sokota 224 .....	50.3	22.7	91.7
<b>Moisture Group II (24.8%—28.7%)</b>			
Pioneer 353A .....	73.5	26.5	91.7
Reid National 110 A <sub>1</sub> .....	73.4	26.4	98.3
Gurney's 112 .....	73.3	27.7	94.2
Kingscrot KR2 .....	71.7	27.8	95.8
DeKalb 404 A .....	69.3	28.3	92.5
Funk's G-12 .....	68.8	28.0	92.5
Master F101 .....	67.2	27.8	85.8
Kingscrot KS6 .....	62.9	27.1	92.5
DeKalb 240 .....	61.8	26.4	84.2
Pfister 274 .....	56.2	26.6	68.3
<b>Moisture Group III (More than 28.7%)</b>			
Pioneer 341 .....	82.1	31.1	96.7
Reid National 115 <sub>1</sub> .....	81.4	32.3	85.8
Funk's G-29 .....	76.9	29.4	90.0
Funk's G-114 .....	76.7	30.9	90.0
Iowa 4316 .....	74.9	28.9	97.5
Disco 111A .....	72.5	29.8	96.7
Reid Yellow Dent .....	67.3	29.4	90.8
Iowa 306 .....	66.9	29.3	94.2
Vinton V-32 .....	66.7	29.7	91.7
Jacques Weather-Pruf No. 6 .....	62.7	33.9	94.2

A difference in yield of less than 10.2 bushels per acre is not statistically significant.

### South East Area

District 8 (Minnehaha County). This test was planted on the farm of Cecil Byg, four miles east of Hartford. The soil is Moody silt loam and the topography is hilly to rolling. This is one of the good corn producing areas of the state but below average rainfall in July and August probably reduced yields somewhat in 1946. The test was planted May 6 and harvested October 24.

Table 14. DISTRICT 8 (Minnehaha County) 1946 Corn Performance Tests

Hybrid or variety	Acre yield of ear corn with 15% moisture in grain	Moisture at harvest	Stand
	<i>bushels</i>	<i>percent</i>	<i>percent</i>
<b>Moisture Group I (25.4%—31.3%)</b>			
DeKalb 240 .....	59.1	27.6	99.2
DeKalb 239 .....	55.8	29.3	99.2
Funk's G-1A .....	55.2	25.8	97.5
Master F105 .....	51.8	29.7	100.0
Sokota 224 .....	48.7	25.4	96.0
DeKalb 241 .....	46.4	29.0	95.8
Reid National 107 W (White) .....	46.4	29.2	96.7
<b>Moisture Group II (31.4%—37.3%)</b>			
Pioneer 373 .....	53.3	33.3	98.3
Pfister 374 .....	53.0	34.5	96.7
Sokota 400 .....	50.8	33.4	100.0
Reid National 110 A <sub>1</sub> .....	50.1	32.5	100.0
Funk's G-12 .....	49.0	35.5	97.5
Gurney's 112 .....	49.0	36.2	96.0
Minhybrid 503 .....	47.0	34.1	98.0
Reid National 95 .....	46.2	34.7	99.2
Pioneer 341 .....	45.3	37.3	100.0
Kingscrot KN1 .....	44.4	36.8	99.2
Pfister 274 .....	44.3	32.3	89.2
DeKalb 404A .....	43.8	34.8	100.0
Master F101 .....	42.2	36.4	100.0
Pioneer 353A .....	39.3	33.6	95.0
Minhybrid 404 .....	39.0	32.3	99.2
Wisconsin 606 .....	39.7	34.2	98.0
<b>Moisture Group III (More than 37.3%)</b>			
Kingscrot KR2 .....	52.5	37.8	98.3
Funk's G-114 .....	35.0	41.0	95.0

A difference in yield of less than 5.3 bushels per acre is not statistically significant.