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Corn Performance Tests, 1946

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CORN PERFORMANCE TESTS

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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 substract 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[1]

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.

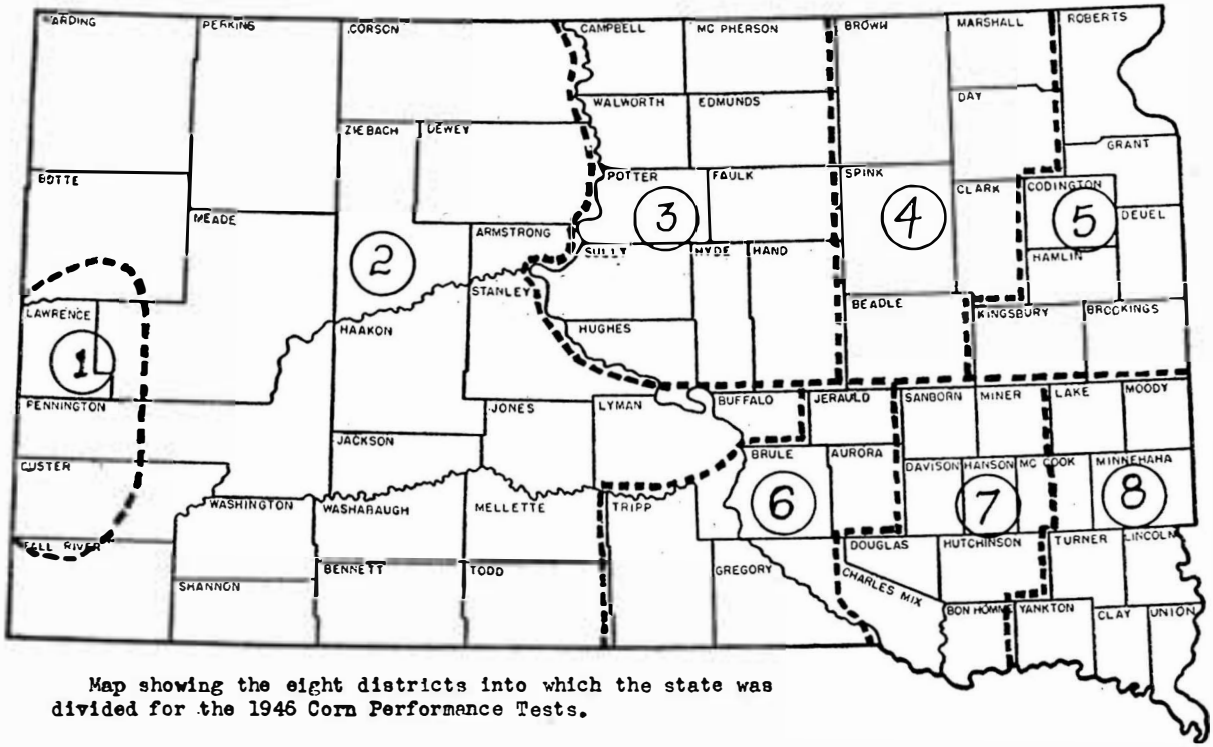
Location of the 1946 Test Plots

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 23). 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

[1]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	Total departure	
Spearfish	May	48.4	—6.2		13.07		+9.82		147
	June	61.0	—2.8		7.36		+3.80		
(1)	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	+15.67	
Timber Lake	May	51.9	—4.1		3.47		+0.79		91
	June	66.3	+0.1		3.76		+0.15		
(2)	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	+1.61	
Eureka	May	52.6	—2.7		1.33		—0.88		148
	June	66.2	+1.0		3.35		+0.28		
(3)	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	+7.39	
Highmore	May	53.1	—3.5		2.63		+0.07		128
	June	67.4	+1.6		6.30		+3.14		
(3)	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	+4.86	

Continued on next page

Table 2.—Continued from preceding page

Station and district	Month	Temperature in Degrees F. Average	Departure from normal	Average departure	Precipitation in inches Monthly total	Season total	Departure from normal	Total departure	Frost-free days
Aberdeen	May	54.0	—3.4		1.32		—1.84		132
	June	67.4	+0.6		3.97		0.00		
(4)	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	—1.42	
Huron	May	53.7	—2.7		1.71		—1.27		153
	June	68.0	+1.8		3.75		—0.04		
(4)	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	—2.84	
Milbank	May	55.2	—1.4		2.84		—0.11		150
	June	68.5	+2.8		5.88		+2.00		
(5)	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	+2.67	
Castlewood	May	**	**		**		**		109
	June	67.0	+2.0		5.78		+1.70		
(5)	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	+1.30	
Brookings	May	53.8	—3.0		2.22		—0.57		150
	June	67.4	+1.3		7.09		+3.34		
(5)	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	+5.67	
Winner	May	54.8	—4.8		2.39		—0.22		127
	June	69.8	+0.7		4.66		+1.42		
(6)	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	+3.39	
Mitchell	May	56.0	—2.9		2.00		—1.14		132
	June	69.5	+1.1		4.76		+0.79		
(7)	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	+2.00	
Sioux Falls	May	54.4	—4.9		2.29		—1.49		140
	June	67.3	—0.9		4.39		+0.09		
(8)	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	+0.25	

*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 cooperator 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 occured.

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
	bushels	*percent*
Moisture Group I (19.2%—24.6%)		
Big Ten B-3	40.8	24.5
Nodakhybrid 201	35.5	19.2
Moisture Group II (24.7%—30.1%)		
Kingscrost KE 1	46.0	29.7
Jacques 803	42.9	27.5
Master F-21	42.0	29.4
Kingscrost 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
Kingscrost KE2	34.7	27.5
Moisture Group III (More than 30.1%)		
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
Kingscrost 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
	bushels	*percent*
Moisture Group I (18.6%—27.8%)		
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
Moisture Group II (27.9%—37.1%)		
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
Moisture Group III (More than 37.1%)		
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
	bushels	*percent*	*percent*
Moisture Group I (23.3%—30.4%)			
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
Kingscrost KF1	33.6	29.1	95.8
Jacques 802	32.1	25.3	63.0
Moisture Group II (30.5%—37.6%)			
Kingscrost KA4	33.6	34.6	95.8
Jacques 902	33.5	36.5	91.7
Kingscrost KE1	26.2	36.2	89.2
Eureka Yellow Dent	24.6	33.5	65.8
Kingscrost KE2	17.9	33.0	94.2
Moisture Group III (More than 37.6%)			
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
	bushels	*percent*
Moisture Group I (20.1%—24.5%)		
Kingscrost KE2	18.5	23.4
Master F-40	13.6	20.1
Moisture Group II (24.6%—29.0%)		
Kingscrost 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
Kingscrost 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
Kingscrost KE1	19.2	24.6
Minhybrid 706 (White)	14.8	27.6
Moisture Group III (More than 29.0%)		
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
Kingscrost 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
	bushels	*percent*
Moisture Group I (21.4%—25.9%)		
Minhybrid 706 (White)	52.7	25.3
Big Ten B-3	51.1	21.4
Kingscrost KE2	40.2	21.8
Moisture Group II (26.0%—30.5%)		
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
Kingscrost KE1	40.4	29.2
Brookfield 44	39.7	29.4
Moisture Group III (More than 30.5%)		
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*
Moisture Group I (19.8%—24.0%)		
Kingscrost KS2	44.4	21.8
Minhybrid 502	39.6	23.5
DeKalb 65	39.1	23.7
Minnesota 13 (Sexauer)	33.8	19.8
Moisture Group II (24.1%—28.3%)		
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
Kingscrost KE2	31.3	26.0
Moisture Group III (More than 28.3%)		
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
Kingscrost 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	Moisture at harvest	Stand
	bushels	*percent*	*percent*
Moisture Group I (22.1%—25.3%)			
Big Ten B-3	58.1	23.2	**99.2**
Kingscrost KE2	52.6	22.1	100.0
Moisture Group II (25.4%—28.6%)			
Minnesota 13 (Haney)	44.1	28.3	95.8
Moisture Group III (28.7%—31.9%)			
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
Moisture Group IV (More than 31.9%)			
DeKalb 240	78.0	34.9	98.3
Kingscrost KS6	73.0	35.6	93.3
Kingscrost 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
	bushels	*percent*
Moisture Group I (22.5%—26.6%)		
Corey Yellow Dent	52.6	25.2
Wisconsin 355	46.1	26.3
Minhybrid 702	42.1	22.5
Kingscrost KE2	39.5	24.3
Minhybrid 706 (White)	39.4	26.1
Master F-40	34.1	24.3
Moisture Group II (26.7%—30.8%)		
Corey White Dent	59.9	27.4
Kingscrost 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
Moisture Group III (More than 30.8%)		
Kingscrost 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	Acre yield of ear corn with 15% moisture in grain	Moisture at harvest	Stand	Root lodging
	bushels	*percent*	*percent*	*percent*
Moisture Group I (23.0%—27.6%)				
Sokota 204	55.6	23.0	95.0	7.2
Brookings 86	50.5	27.3	99.2	41.0
Moisture Group II (27.7%—32.3%)				
Funk's G-6	60.7	29.9	99.2	6.8
Kingscrost 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
Moisture Group III (More than 32.3%)				
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
Kingscrost 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
	bushels	*percent*
Moisture Group I (19.8%—23.4%)		
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
Wygal's Flint (White)	25.8	19.8
Jacques 1050 J	20.8	21.5
Moisture Group II (23.5%—27.1%)		
Reid National 112R	43.3	24.4
Gurney's 112	42.1	24.9
Kingscrost KR2	41.6	26.1
Kingscrost 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
Wygal's Yellow Dent	26.7	24.0
Moisture Group III (More than 27.1%)		
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
	bushels	*percent*	*percent*
Moisture Group I (20.8%—24.7%)			
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
Moisture Group II (24.8%—28.7%)			
Pioneer 353A	73.5	26.5	91.7
Reid National 110 A_1	73.4	26.4	98.3
Gurney's 112	73.3	27.7	94.2
Kingscrost 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
Kingscrost KS6	62.9	27.1	92.5
DeKalb 240	61.8	26.4	84.2
Pfister 274	56.2	26.6	68.3
Moisture Group III (More than 28.7%)			
Pioneer 341	82.1	31.1	96.7
Reid National 115_1	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
	bushels	*percent*	*percent*
Moisture Group I (25.4%—31.3%)			
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
Moisture Group II (31.4%—37.3%)			
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_1	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
Kingscrost 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
Moisture Group III (More than 37.3%)			
Kingscrost 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.