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South Dakota Corn Performance Tests, 1955

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SOUTH DAKOTA

corn performance tests

AGRONOMY DEPARTMENT
Agricultural Experiment Station
SOUTH DAKOTA STATE COLLEGE
BROOKINGS

What Is Its Maturity Rating?

The number of days it takes a corn variety to mature is often listed by those who handle hybrid seed corn. Maturity can vary a great deal, depending on where the hybrid is grown. One that matures in 85 to 90 days in Minnehaha County may require 95 days further north. For this reason a hybrid's maturity should be determined in the area or areas where it is recommended.

Days required to reach maturity, when determined in areas where the seed is produced, are often not valid in large areas where the seed is sold. This publication lists the moisture percent at harvest rather than trying to rate a variety on length of maturity. When trials over several years show a hybrid has a low enough moisture percent to keep safely in the crib, it is believed this better indicates its suitability to the area than to say it has a maturity of a certain number of days.

South Dakota Corn Performance Tests, 1955

D. E. KRATOCHVIL and D. B. SHANK[1]

AS IN PREVIOUS YEARS corn yield trials were conducted by the Agronomy Department of the South Dakota Agricultural Experiment Station. Results of these trials supply farmers and ranchers with current information on popular hybrids being grown extensively in the various agricultural areas of the state. The trials were replicated plots planted and harvested in an accepted procedure with an unbiased analysis made of the data. Methods used in selection of entries, planting, harvesting, and analyzing will be presented under separate headings.

Yields of hybrids within the trials of 1955 reflect the relative performing ability of the entries during a season which had below normal rainfall for all areas except Highmore and Watertown. Cottonwood had a total growing season precipitation slightly above normal, however all months except September were below normal. The heavy rains in September were too late to affect the already drought damaged corn. Temperatures were all above normal, with a range of 1.2 degrees above normal for the growing season at Newell to a maximum of 3.8 degrees above normal at Tyndall. The extreme above normal temperatures occurred during July and August in most areas—a time when there was a deficiency in rainfall.

Yields from all trials except those at the Highmore substation and on the Korth farm north of Watertown were below average. Frost occurred on September 11 at all areas except Newell, Cottonwood, Watertown, Sioux Falls, and Vermillion. This early frost date may have contributed, along with the drought and high temperatures, to the low yields and poor quality of most varieties in the tests. Harvesting of the plots in all areas was completed during October. Results of these trials are presented in the tables that follow.

[1]Assistant Agronomist and Agronomist, respectively, South Dakota Agricultural Experiment Station.

Location of the 1955 Trials

Tests were conducted in the eight agricultural areas into which the state has been divided (see figure 1). These eight areas have been established on the basis of soil types, rainfall, temperature, and elevation as they affect crop production. At least one trial was located in each area. Where it was possible, more trials have been conducted, such as two trials each in areas 3, 5, and 8, and three trials in area 1. The exact location of these trials, the cooperator, soil type, and dates of planting and harvesting are presented in table 1. Anyone evaluating and selecting hybrid varieties should refer to the trials conducted nearest the area in which the hybrid is to be planted.

Selection of Entries

To select entries for the tests, a survey was conducted to determine the hybrids most farmers buy in the agricultural area represented by each test. Information was obtained on the hybrids of companies that registered their corn with the South Dakota State Department of Agriculture. The survey included recommendations by representatives of the corn companies producing and registering the hybrids, lists submitted by county agents located in the areas where the tests were conducted, information from the Livestock and Crop Reporting Service, and variety preference as expressed by farmers in general. 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 2 rows of 10 hills each, or the equivalent if the corn was drilled rather than checked. Planting was done at the rate of 3 kernels per hill for the checked plots, 1 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 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° C. in the laboratory, reweighed, and the moisture percentages determined. Harvesting dates are given in table 1.

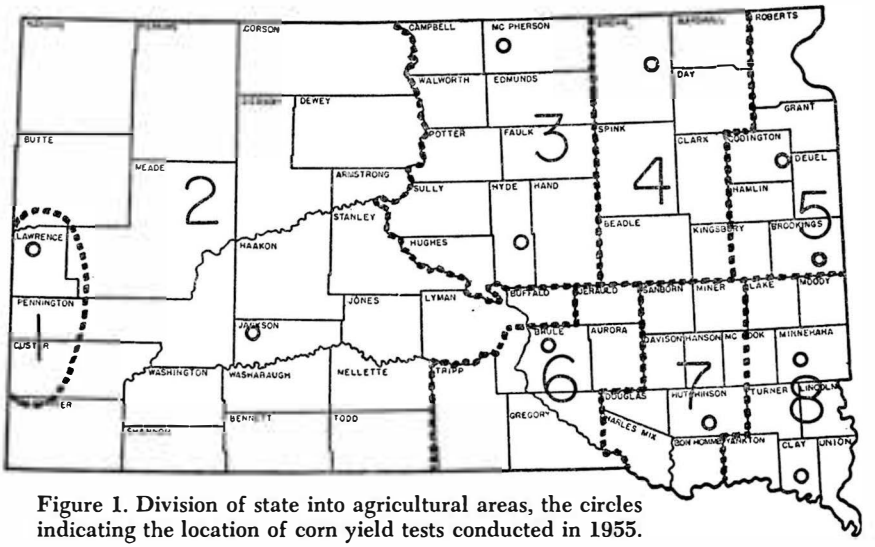

Figure 1. Division of state into agricultural areas, the circles indicating the location of corn yield tests conducted in 1955.

Table 1. Location of the 1955 Tests

District	County	Cooperator	Post Office	Soil Type	Date Planted	Date Harvested
1	Butte	Newell Irrigation and Dry Land Field Station	Newell	Pierre clay	May 18	Oct. 13 & 14
1	Butte	Newell Irrigation and Dry Land Field Station	Newell	Pierre clay	May 16	Oct. 3
1	Butte	Al Sheeler	Vale	Vale fine sandy loam	May 24	Oct. 12 & 13
2	Jackson	Range Field Station*	Cottonwood	Pierre clay loam	May 25	——†
3	McPherson	North Central Station*	Eureka	Williams loam	May 20	Oct. 17
3	Hyde	Central Station*	Highmore	Williams loam	May 19	Oct. 11
4	Brown	Robert Schuller	Claremont	Very fine sandy loam	May 13	Oct. 18
5	Brookings	Agri. Expt. Station	Brookings	Barnes loam	May 16	Oct. 8
5	Codington	Orin Korth	Watertown	Kranzburg silt loam	May 13 & 14	Oct. 20
6	Brule	Dale Cook	Chamberlain	Reliance silty clay loam	May 25	Oct. 12
7	Hutchinson	Roy Konrad	Tripp	Loam	May 12	Oct. 7
8	Minnehaha	Neil Jensen	Dell Rapids	Moody silt loam	May 18	Oct. 13
8	Clay	Clarence Dose	Wakonda	Waubay silty clay loam	May 11 & 12	Oct. 5

*Substations of the South Dakota Agricultural Experiment Station.
†Tests not harvested—dried out.

Temperature and Rainfall

The information presented in table 2 on the climatic conditions at the various stations nearest the corn trials is based on reports of the *Monthly Climatological Data*, U. S. Department of Commerce, Weather Bureau, Huron, South Dakota. Anyone wishing to know the weather conditions under which the corn test for the area in question was grown should check the information listed closest to his area.

Table 2. Temperature and Precipitation for the 1955 Corn Growing Season*

Station and District	Month	Temperatures in Degrees F. Average	Departure From Normal	Average Departure	Precipitation in Inches Month Total	Season Total	Departure From Normal	Total Departure	Frost-Free Days†
Spearfish	May	58.4	+4.0		3.50		+0.21		
	June	60.6	—2.8		2.85		—0.94		
(1)	July	74.6	+3.5		1.58		—0.60		
	Aug.	74.5	+5.3		1.89		+0.27		
	Sept.	61.6	+1.3	+2.3	1.65	11.47	+0.03	—1.03	160
Newell	May	58.0	+2.6		2.11		—0.54		
	June	62.0	—2.5		1.16		—2.08		
(1)	July	74.9	+1.8		3.85		+1.63		
	Aug.	74.5	+3.9		0.87		—0.57		
	Sept.	60.2	+0.2	+1.2	2.63	10.62	+1.41	—0.15	136
Cottonwood	May	61.7	+5.1		2.51		—0.14		
	June	64.2	—3.0		1.84		—0.82		
(2)	July	78.1	+3.1		1.54		—0.46		
	Aug.	78.1	+5.6		0.39		—1.21		
	Sept.	64.0	+1.8	+2.5	3.89	10.17	+2.88	+0.25	150
Eureka	May	60.7	+5.4		2.24		—0.06		
	June	63.4	—1.5		2.72		—0.64		
(3)	July	75.0	+3.0		2.08		—0.20		
	Aug.	73.3	+3.9		3.25		+1.08		
	Sept.	60.1‡	+0.5	+2.3	1.15	11.44	—0.32	—0.14	123
Highmore	May	63.2	+6.7		2.78		+0.18		
	June	63.8	—1.8		4.41		+1.10		
(3)	July	76.5	+2.8		3.91		+1.56		
	Aug.	76.7	+5.0		0.41		—1.65		
	Sept.	62.6‡	+0.2	+2.6	1.25	12.76	—0.14	+1.05	143
Aberdeen	May	61.6	+4.3		2.81		—0.26		
	June	64.1	—2.4		2.98		—1.12		
(4)	July	75.9	+3.1		3.69		+0.73		
	Aug.	72.8	+2.5		2.32		—0.49		
	Sept.	59.7	—0.8	+1.3	1.00	12.80	—0.91	—2.05	124
Watertown	May	60.9	+5.5		1.23		—1.75		
	June	64.2	—0.6		4.65		+0.95		
(5)	July	74.7	+4.2		4.74		+2.06		
	Aug.	72.9	+4.4		4.35		+1.48		
	Sept.	59.4	+0.1	+2.7	0.94	15.91	—1.20	+1.54	139
Brookings	May	60.9	+4.1		0.95		—1.96		
	June	63.2	—2.9		3.02		—0.83		
(5)	July	76.7‡	+4.8		1.33		—1.10		
	Aug.	73.5	+3.6		4.47		+1.79		
	Sept.	60.9‡	0.0	+1.9	0.79	10.56	—1.23	—3.33	124
Pukwana	May	63.8	+6.2		1.64		—0.72		
	June	65.9	—3.6		2.87		—0.44		
(6)	July	78.9	+1.4		1.56		—0.20		
	Aug.	78.4‡	+3.4		1.73		—0.29		
	Sept.	64.0	—0.9	+1.3	1.29	9.09	—0.11	—1.76	124
Tyndall	May	65.8	+6.0		2.35		—1.34		
	June	67.5	—1.8		4.11		+0.46		
(7)	July	80.9‡	+5.3		3.67		+0.68		
	Aug.	79.5	+6.3		1.75		—1.47		
	Sept.	67.2	+3.4	+3.8	2.13	14.01	+0.03	—1.64	157
Sioux Falls	May	63.4	+5.3		2.16		—1.22		
	June	66.1	—1.9		4.24		—0.01		
(8)	July	79.5	+4.7		3.25		+0.25		
	Aug.	77.9	+5.5		1.22		—2.06		
	Sept.	63.4	+1.0	+2.9	0.72	11.59	—2.21	—5.25	159
Vermillion	May	66.3	+5.1		1.10		—2.46		
	June	67.8	—2.5		5.67		+1.62		
(8)	July	80.2‡	+3.8		4.93		+1.77		
	Aug.	79.9	+6.0		0.46		—2.52		
	Sept.	67.3	+2.0	+2.9	0.68	12.84	—2.48	—4.07	190

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

†Number of days between the last spring temperature of 32° or lower and the first fall temperature of 32° or lower.

‡One or more days of record missing.

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 mosture. 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 tables 3 through 15 is given the minimum amount for the 1955 test by which two entries must differ in yield 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 6 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 the 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 performance rating. This rating was computed for each entry from its 1955 performance record, in which yield was weighed 60 percent and dry matter 40 percent (100 minus percent moisture).

Stand. A reduction in the number of hills below 100 percent may indicate several things—either that 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 1955 and 2-, 3-, or 4-year averages are presented. They are expressed as the percentage of stalks that lodged 30 degrees or more from the perpendicular at the time of harvest. Stalk lodging for 1955 at Brookings is presented as the percentage of plants broken below the ear at harvest time.

Average yields over a period of years. Many of the entries included in the 1955 trials were also tested in previous years. This makes possible the calculation of 2-, 3-, 4-, and 5-year averages in some cases. Averages involving the greater number of years are shown first in the tables, as this data gives more information than only 1 year's results. 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 years will iron out these environmental variations.

In the table for any one area test, a hybrid is shown with only two yields no matter how many years it has been included in the trials. The average yield for the total number of years the hybrid has been tested and the results from the current year are shown. These yields are shown in comparison to the average yield of all entries for the current year and total years in which the hybrid was included. A hybrid or variety was included in the averages only when it was the same variety each year and secured from the same source.

Black Hills Area

Butte County.[2] Two trials were carried on at the Newell Irrigation and Dry Land Field Station in 1955 and one on the Al Sheeler farm near Vale.

The irrigated plot at the field station was on fall plowed alfalfa land with a spring application prior to discing of 128 pounds of 0-43-0 fertilizer and 106 pounds of 33-0-0 fertilizer. Planting was completed on May 19 with a stand of approximately 18,000 plants per acre and harvested on October 13 and 14. The plot was irrigated three times during the growing season—June 30, July 18 and 19, and August 10.

The trial on Pierre clay under dryland conditions was planted May 16 for a stand of 8,000 plants per acre. This trial was harvested on October 3.

Al Sheeler Farm. The Vale fine sandy loam trial was on spring plowed alfalfa with a band application of 145 pounds of 33-0-0 fertilizer on July 14. This stand was approximately 18,000 plants per acre in 38-inch rows. Irrigation was applied in the last of June following 6 weeks without rain. Three or four irrigations were made during the season and the plot was harvested October 12 and 13.

[2]The work in Butte County was conducted by Joseph J. Bonnemann, Agricultural Research Service, USDA, U.S. Dry Land and Irrigation Field Station, Newell, South Dakota in cooperation with the South Dakota Agricultural Experiment Station.

Black Hills Area

Table 3. Area 1 (Butte County) 1955 Corn Performance Tests on Irrigated Land—Clay Soil

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	1955 Yield Bu.*	1955 Moisture Percent	1955 Performance Rating
5-Year Average					
Dekalb 56	72	20	81	21	6
Sokota S. D. 220	72	19	76	19	11
Wisconsin 355	65	22	81	26	12
S.D. 262	65	25	83	25	8
Kingscrost KE3	59	16	65	17	18
Average of 5 entries	**67**	**21**	—	—	—
4-Year Average					
Funk G-18	72	21	75	29	17
Funk G-11	64	19	74	26	16
Average of 7 entries tested 4 years	68	18	—	—	—
3-Year Average					
Sokota S. D. 250	84	17	83	23	4
S. D. 270	77	17	79	26	13
Disco 95W	73	17	83	23	7
Average of 10 entries tested 3 years	**73**	**17**	—	—	—
2-Year Average					
Kingscrost KE1	68	16	77	19	9
Gurney 90	67	19	78	25	14
Average of 12 entries tested 2 years	**69**	**18**	—	—	—
Dekalb 65	—	—	87	22	1
Pfister 33	—	—	83	21	2
Trojan F99	—	—	85	25	3
Jacques W. P. 2	—	—	83	23	5
Pfister 44	—	—	82	27	10
Haapala H357	—	—	71	15	15
Average	—	—	**79**	**23**	—

*Differences in yield of less than 9 bushels per acre are not statistically significant.

Black Hills Area

Table 4. Area 1 (Butte County) 1955 Corn Performance Tests on Dryland—Pierre Clay Soil

Hybrid or Variety	2-Year Average*		1955		
	Yield Bu.	Moisture Percent	Yield Bu.†	Moisture Percent	Performance Rating
Sokota S. D. 220	36	18	18	26	3
Sokota S. D. 250	35	25	17	37	6
Jacques 853J	33	20	15	27	5
Kingscrost KE3	32	15	17	23	4
Black Hills Special‡	33	30	14	36	14
White Dent‡	28	27	12	34	16
Falconer‡	26	21	7	32	17
Kingscrost KE1	—	—	19	28	1
Pfister 33	—	—	19	30	2
Dekalb 56	—	—	16	34	7
Funk G-11	—	—	16	35	8
Gurney 90	—	—	15	29	9
Haapala H359	—	—	13	22	10
Dekalb 58	—	—	15	33	11
Trojan F99	—	—	15	39	12
S. D. 262	—	—	15	37	13
Disco 95W	—	—	14	37	15
Average of all entries	32	22	15	32	—

*Average of 1953 and 1955 data.
†Differences in yield of less than 3 bushels per acre are not statistically significant.
‡Open pollinated varieties.

Table 5. Area 1 (Butte County) 1955 Corn Performance Tests on Irrigated Land—Sandy Soil

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	1955 Yield Bu.*	1955 Moisture Percent	1955 Performance Rating
	3-Year Average†				
Funk G-18	118	31	126	40	1
DeKalb 56	106	28	120	37	2
S. D. 270	108	33	119	40	4
Sokota S. D. 220	104	23	109	32	3
S. D. 262	103	32	108	41	12
Funk G-11	98	25	106	34	7
Wisconsin 355	99	29	111	41	11
Kingscrost KE3	83	19	87	28	15
Average of 8 entries	102	27	—	—	—
	2-Year Average				
DeKalb 55	110	29	112	38	6
Sokota S. D. 250	110	31	111	41	9
Gurney 90	96	30	111	40	8
Kingscrost KE1	92	25	97	34	13
Disco 95W	95	30	100	37	14
Average of 13 entries tested 2 years	103	29	—	—	—
Pfister 44	—	—	116	39	5
Pfister 33	—	—	107	38	10
Haapala H359	—	—	85	29	16
Jacques W. P. 2	—	—	98	42	17
Trojan F99	—	—	99	44	18
Average	—	—	107	38	—

*Differences in yield of less than 20 bushels per acre are not statistically significant.
†Trial was destroyed by hail in 1953. In figuring the averages, 1953 was ignored.

West River Area

Jackson County. There were no yields obtained in the 1954 and 1955 trials in this county because of drought. The following table is a summary of available information obtained from tests of previous years.

Table 6. Area 2 (Jackson County) 1953 Corn Performance Tests

Hybrid or Variety	2-Year Average*		1953		
	Acre Yield Bu.	Moisture Percent	Yield Bu.†	Moisture Percent	Performance Rating
S. D. 250	17	22	22	13	4
S. D. 224	13	26	21	11	5
S. D. 400	13	31	18	12	13
Sokota S. D. 262	13	28	19	11	10
Funk G-9	12	34	19	13	11
S. D. 212	12	27	21	12	6
S. D. 270	12	27	19	12	9
Disco 85W	11	22	18	11	15
Rainbow Flint	11	24	16	12	21
Funk G-1A	11	32	18	13	16
Kingscrost KE3	10	19	18	11	14
Average of 11 entries tested for 2 years	12	27	—	—	—
Sokota S. D. 220	—	—	26	11	1
Master F32	—	—	25	12	2
Kingscrost KE1	—	—	22	11	3
Gurney 90	—	—	21	11	7
Dekalb 58	—	—	20	12	8
F. U. 4417	—	—	19	12	12
Wisconsin 355	—	—	17	12	17
Disco 90W	—	—	17	11	18
Dekalb 62	—	—	17	11	19
Jacques 803	—	—	16	11	20
Gurney 85	—	—	14	12	22
Gehu	—	—	4	14	23
Average	—	—	19	12	—

*Two-year averages are of the 1951 and 1953 crops. Drought eliminated the 1952 trials.
†Differences in yield of less than 7 bushels per acre are not statistically significant.

North Central Area

McPherson County. The trial at the North Central Station at Eureka was on soil which had been in small grain in 1954 and 10 tons of manure applied per acre prior to plowing for corn in 1955. Nearly normal moisture conditions prevailed at the station, however the average temperature was 2.3 degrees above normal for the season. At planting time, May 20, the soil was extremely dry. This plot was harvested October 17.

Table 7. Area 3 (McPherson County) 1955 Corn Performance Tests

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	1955 Yield Bu.*	1955 Moisture Percent	1955 Performance Rating
5-Year Average					
Sokota S. D. 220	34	28	21	17	5
Pioneer 388	35	32	22	23	7
Wisconsin 240	32	23	18	13	9
Hansmann	33	29	18	17	11
DeKalb 46	32	30	18	18	13
Wisconsin 355	29	33	10	23	23
Silver King	25	36	14	20	19
Average of 7 entries	31	30	—	—	—
3-Year Average					
Nodak 301	36	21	21	20	6
Average of 8 entries tested 3 years	34	23	—	—	—
2-Year Average					
Disco 80W	29	24	18	17	10
Funk G-11	30	27	17	23	14
Kingscrost KE7	26	23	14	21	18
Sokota S. D. 250	30	30	16	28	15
Jacques 855-J	28	31	19	27	12
Trojan C-59	24	30	13	22	21
Average of 14 entries tested 2 years	28	26	—	—	—
S. D. Exptl. #17	—	—	23	14	1
S. D. Exptl. #18	—	—	24	19	2
Nodak 305	—	—	21	15	3
S. D. Exptl. #16	—	—	21	18	4
Pioneer 395	—	—	19	21	8
Gurney 85	—	—	14	18	16
Pfister 28	—	—	15	26	17
Peavey PV355	—	—	14	29	20
DeKalb 55	—	—	11	22	22
Funk G-1A	—	—	9	34	24
Average	—	—	**17**	**21**	—

*Differences in yield of less than 5 bushels per acre are not statistically significant.

North Central Area

Hyde County. Soil moisture at the Central Station at Highmore was good through July. Little moisture was received after that and extremely high temperatures prevailed. The yields obtained under these conditions were about equal to 5-year averages for the station. The trial was on soil that had small grain on it in 1954. Ten tons of manure and 100 pounds of 16-20-0 fertilizer per acre were applied early in the spring of 1955 just prior to plowing. Planting was completed May 19 and the trial was harvested October 11.

Table 8. Area 3 (Hyde County) 1955 Corn Performance Tests

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	1955 Yield Bu.*	1955 Moisture Percent	1955 Performance Rating
	5-Year Average†				
S. D. 220	40	15	40	8	7
Pioneer 377-A	39	24	48	16	4
Sokota S. D. 270	38	21	30	17	18
S. D. 400	37	24	46	13	5
S. D. 224	34	20	21	13	22
S. D. 262	35	24	36	15	12
Average of 6 entries	**37**	**21**	—	—	—
	4-Year Average†				
Pioneer 388	38	18	47	10	3
Kingscrost KS4	39	20	28	17	19
Average of 8 entries tested 4 years	**40**	**20**	—	—	—
	3-Year Average†				
Dekalb 58	40	11	38	9	8
Funk G-18	37	13	29	15	17
Peavey PV355	35	15	36	13	11
Average of 11 entries tested 3 years	**40**	**14**	—	—	—
	2-Year Average†				
Sokota S. D. 250	51	12	37	11	9
Van Tassel V44	47	13	37	13	10
Jacques 907	37	16	17	16	23
Average of 14 entries tested 2 years	**48**	**13**	—	—	—
Pfister 33	—	—	52	10	1
Agsco 301	—	—	48	10	2
Haapala H360	—	—	45	11	6
Dekalb 56	—	—	31	11	13
Funk G-26	—	—	33	20	14
Tomahawk 4A	—	—	31	13	15
Farmers 222	—	—	31	15	16
United Hagie UH26	—	—	26	12	20
Trojan C-59	—	—	26	11	21
Disco 95W	—	—	15	13	24
Average	—	—	**34**	**13**	—

*Differences in yield of less than 19 bushels per acre are not statistically significant.
†1954 test is not included in the average.

North James River Area

Brown County. Yields obtained from this trial were below 5-year averages and considerably below 1954 yields. The area was deficient in rainfall for all months except July and had above normal temperatures, which undoubtedly brought about the reduced yields. The plot area had wheat on it in 1954. At planting time 100 pounds of 45-0-0 and 50 pounds of 16-20-0 fertilizers were applied, with the 45-0-0 being placed below the seed and the 16-20-0 along the side. The soil was extremely dry on May 13 when the plot was planted. Harvesting was completed on October 18.

Table 9. Area 4 (Brown County) 1955 Corn Performance Tests

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	1955 Yield Bu.*	1955 Moisture Percent	1955 Performance Rating
	5-Year Average				
Pioneer 382	57	20	56	11	6
Pioneer 388	57	20	49	12	13
Sokota S. D. 270	57	23	58	14	2
S. D. 262	55	22	58	13	1
Kingscrost KS4	55	24	56	13	4
S. D. 220	49	18	46	11	17
S. D. 224	50	21	49	10	12
Average of 7 entries	**54**	**21**	—	—	—
	4-Year Average				
Dekalb 58	55	16	48	12	14
Agsco 501	46	16	39	12	22
Average of 9 entries tested 4 years	**56**	**15**	—	—	—
	3-Year Average				
Sokota S. D. 250	63	16	55	11	7
Pfister 33	57	18	43	13	19
Average of 11 entries tested 3 years	60	18	—	—	—
	2-Year Average				
Funk G-18	63	20	56	14	5
Disco 101-A	61	22	54	13	9
Jacques 957JA	55	20	47	13	15
Average of 14 entries tested 2 years	58	19	—	—	—
Kingscrost KB4	—	—	57	14	3
Pfister 44	—	—	54	12	8
Dekalb 236	—	—	52	13	10
United Hagie UH26	—	—	50	13	11
Tomahawk 4A	—	—	47	14	16
Funk G-35A	—	—	45	12	18
Haapala H360	—	—	41	13	20
Trojan C-59	—	—	40	12	21
Gurney 85	—	—	39	12	23
Peavey PV85	—	—	31	11	24
Average	—	—	**49**	**12**	—

*Differences in yield of less than 8 bushels per acre are not statistically significant.

Northeast Area

Brookings County. Yields obtained from this trial were far below 5-year averages and those obtained in 1954. Below average rainfall for all months except August plus above normal temperatures resulted in the low yields. The moisture in August came after most of the corn was beyond where it could recover from drought. Some varieties were hurt by the early September 11 frost also. Planting was made on May 16 and the trial was harvested on October 8. Root lodging data is presented through the 4-year average and stalk lodging percent for the current season.

Table 10. Area 5 (Brookings County) 1955 Corn Performance Tests

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	Root* Lodging Percent	1955 Yield Bu.†	1955 Moisture Percent	1955 Lodging* Root Percent	1955 Lodging* Stalk Percent	1955 Performance Rating
5-Year Average								
S. D. 250	65	28	—	42	17	0	43	4
Kingserost KS4	63	31	—	22	24	0	29	27
Sokota S. D. 270	63	31	—	35	22	1	24	17
S. D. 262	62	30	—	42	20	4	46	5
Pioneer 377-A	62	33	—	36	22	1	36	16
Pioneer 388	60	25	—	42	17	0	35	3
Sokota S. D. 400	58	33	—	35	22	0	18	18
S. D. 220	57	23	—	46	13	7	37	1
Wisconsin 355	48	27	—	25	19	2	15	23
Average of 9 entries	**59**	**29**	—	—	—	—	—	—
4-Year Average								
Funk G-6	48	27	6	36	23	1	35	14
Dekalb 62	47	26	9	35	17	0	32	11
Average of 11 entries tested 4 years	**65**	**25**	**8**	—	—	—	—	—
3-Year Average								
Disco 101-A	67	25	8	40	19	0	44	6
Tomahawk 14	66	26	4	36	19	1	44	12
Pfister 44	64	25	8	25	21	0	27	25
Agsco 341A	56	24	3	33	19	1	16	19
Average of 15 entries tested 3 years	**65**	**25**	**6**	—	—	—	—	—
2-Year Average								
Pfister 33	61	22	6	43	18	1	51	2
United Hagie UH214	60	28	2	37	23	0	30	10
Trojan F99	58	26	5	37	20	0	48	9
Dekalb 58	58	21	8	39	15	0	51	7
Jacques 1057-J	55	27	3	33	22	1	31	20
Average of 20 entries tested 2 years	**56**	**25**	**5**	—	—	—	—	—
Haapala H-130	—	—	—	38	23	0	43	8
Farmers 223	—	—	—	36	22	0	36	13
Peavey PV355	—	—	—	35	18	1	43	15
Disco 107-A	—	—	—	31	30	0	27	21
Van Tassel V-81	—	—	—	30	32	0	19	22
Kingscrost KS5	—	—	—	25	22	0	33	24
Funk G-68A	—	—	—	26	28	0	39	26
Average	—	—	—	**35**	**21**	**1**	**35**	—

*Root lodging is given in percent of total plants lodging more than 30 degrees from the vertical and stalk lodging in percent of total plants broken off below ear at harvest time.
†Differences in yield of less than 6 bushels per acre are not statistically significant.

Northeast Area

Codington County. This plot was produced under the most favorable rainfall and temperature conditions of any trial in 1955. It was not until September that a slight deficiency in moisture was apparent. Yields exceeded those in 1954, with moisture percent of corn sufficiently low at harvest time for safe cribbing of the corn from most varieties. The trial was on plowed under sweet clover land that had been fallowed after a June 1954 plowing. No commercial fertilizer was applied on the plot area. Planting was made on May 13 and the trial was harvested on October 20.

Table 11. Area 5 (Codington County) 1955 Corn Performance Tests

Hybrid or Variety	2-Year Average		1955		
	Acre Yield Bu.	Moisture Percent	Yield Bu.*	Moisture Percent	Performance Rating
Sokota S. D. 220	41	24	48	15	4
Pioneer 388	39	27	48	13	3
S. D. 250	37	27	42	16	17
Dekalb 58	37	29	46	17	9
Agsco 301	35	21	40	14	20
Gurney 90	36	30	43	15	15
Sokota S. D. 224	34	28	42	17	18
Kingscrost KA4	35	29	40	18	21
Dekalb 62	35	30	46	16	6
Tomahawk 4	33	34	46	21	12
Haapala H375	32	26	37	16	23
Pfister 44	33	34	39	19	22
Funk G-18	31	35	36	24	26
S. D. Exptl. # 16	—	—	49	12	1
S. D. Exptl. # 18	—	—	48	12	2
Pfister 33	—	—	48	16	5
Trojan F99	—	—	45	15	7
S. D. Exptl. # 17	—	—	45	14	8
Pioneer 395	—	—	43	12	10
Farmers 205	—	—	44	16	11
Disco 101-A	—	—	44	18	13
Peavey PV355	—	—	42	12	14
Funk G-11	—	—	44	18	16
Van Tassel V54	—	—	44	22	19
Jacques 1057J	—	—	37	17	24
United Hagie UH201	—	—	36	18	25
Kingscrost KS4	—	—	32	21	27
Disco 80W	—	—	29	12	28
Average of all entries	**35**	**29**	**42**	**16**	—

*Differences in yield of less than 2 bushels per acre are not statistically significant.

South Central Area

Brule County. Environmental and soil variations resulted in erratic yields between replications and entries for this trial so the 1955 yields are not included in the table. Yields did average considerably below either 5-year averages or 1954 results due to the severe drought throughout the growing season.

Table 12. Area 6 (Brule County) 1954 Corn Performance Tests

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	1954 Yield Bu.*	1954 Moisture Percent	1954 Performance Rating
4-Year Average					
Dekalb 410	48	27	73	22	3
S. D. 250	46	21	73	17	2
Farmers 223	42	23	50	21	29
Sokota S. D. 262	41	24	58	20	21
S. D. 270	40	23	61	19	16
Funk G-68	40	25	62	23	19
Sokota S. D. 400	40	24	58	19	20
Disco 107-A	36	30	47	28	31
Average of 8 entries	**42**	**25**	—	—	—
3-Year Average					
Pioneer 388	48	12	63	15	12
Master F84	44	16	57	23	24
Average of 10 entries tested 3 years	**47**	**15**	—	—	—
2-Year Average					
Tomahawk 42	57	19	72	26	5
Tekseed 45	54	19	70	25	8
Gurney 100	47	19	49	26	30
Average of 13 entries tested 2 years	**52**	**17**	—	—	—
Pioneer 383	—	—	74	17	1
Dekalb 248	—	—	71	21	4
Iowealth 4A	—	—	71	26	6
Vinton V-14	—	—	70	25	7
Trojan F-103	—	—	67	23	9
United Hagie UH30A	—	—	66	21	10
Jacques 1153J	—	—	69	26	11
Kingscrost KL1	—	—	67	25	13
Turners S51A	—	—	68	29	14
Pfister P.A.G. 71	—	—	63	21	15
S. D. 220	—	—	58	15	17
Cargill A95N	—	—	60	18	18
McCurdy 85L	—	—	58	21	22
Disco 111-A	—	—	61	29	23
Pride PN 55	—	—	55	21	25
Funk G-26	—	—	54	20	26
Moellers 317	—	—	53	22	27
Milford Beeghly IA4297	—	—	54	26	28
Pike 32	—	—	35	20	32
Average	—	—	**61**	**22**	—

*Differences in yield of less than 19 bushels per acre are not statistically significant.

South James River Area

Hutchinson County. This was the second year the trial was located on the Roy Konrad farm 1½ miles north of Kaylor. Two-year averages are shown for varieties that were repeated from the 1954 trial. Yields were lower than in 1954, probably due to a moisture deficiency in May and again in August with only near normal amounts the other months of the growing season. The plot area was on land that was in oats in 1954 and had no commercial fertilizer applied during the 1955 season. The trial was planted May 12 and harvested October 7.

Table 13. Area 7 (Hutchinson County) 1955 Corn Performance Tests

Hybrid or Variety	2-Year Average		1955		
	Acre Yield Bu.	Moisture Percent	Yield Bu.*	Moisture Percent	Performance Rating
Pioneer 349	71	16	56	15	3
DeKalb 410	70	17	50	15	22
Pfister 57	65	16	55	15	7
Turners T48	67	18	49	16	25
Iowa Cert. Seed Co. Ia. 306	67	19	51	16	17
Pioneer 352	64	17	51	15	18
Tomahawk 60	63	17	54	15	9
Jacques 1153J	64	19	53	16	13
Sakota S. D. 400	61	15	54	14	6
Kingscrost KR2	62	19	47	16	28
S. D. Exptl. #19	—	—	59	17	1
Funk G-75A	—	—	57	15	2
S. D. Exptl. #20	—	—	55	15	4
Tekseed 115	—	—	56	17	5
Cornhusker 84	—	—	55	15	8
Pfister 299	—	—	54	16	10
United Hagie UH32A	—	—	52	14	11
Haapala H-220	—	—	52	15	12
J. J. Curry & Sons C-47	—	—	52	16	14
Sokota S. D. 604	—	—	52	16	15
Farmers 427A	—	—	52	16	16
Disco 108-AA	—	—	50	15	19
Trojan G94	—	—	51	16	20
Gurney 118A	—	—	51	16	21
Carlson's C12	—	—	49	15	23
Vinton V-35	—	—	49	16	24
Disco 111-AA	—	—	48	15	26
DeKallb 455	—	—	48	15	27
Funk G-29	—	—	45	16	29
Average	65	17	52	16	—

*Differences in yield of less than 10 bushels per acre are not statistically significant.

Southeast Area

Minnehaha County. The trial on the Neil Jensen farm ½ mile north of Dell Rapids was planted May 18 in soil that had grown oats in 1954 and corn in 1953. There was a good cover of manure spread prior to plowing and 200 pounds of 8-32-0 fertilizer applied at planting time. The yields for 1955 were much below 5-year averages, however the area just north of Dell Rapids received more moisture than is indicated by the Sioux Falls data in table 2. The plot was harvested October 13.

Table 14. Area 8 (Minnehaha County) 1955 Corn Performance Tests

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	1955 Yield Bu.*	1955 Moisture Percent	1955 Performance Rating
5-Year Average					
S. D. 270	60	24	47	15	5
S. D. 250	59	22	48	14	2
Pfister 56	60	27	49	17	1
Sokota S. D. 400	57	26	47	17	7
Kingscrost KS6	57	26	45	15	11
S. D. 262	55	25	41	17	19
Average of 6 entries	**58**	**25**	—	—	—
4-Year Average					
United Hagie UH32A	67	26	39	22	27
Average of 7 entries tested 4 years	**64**	**21**	—	—	—
3-Year Average					
Iowa 4542	63	23	44	18	13
McCurdy 96M	62	26	35	20	32
Average of 9 entries tested 3 years	**64**	**23**	—	—	—
2-Year Average					
Pioneer 371	71	22	47	17	6
S. D. Exptl. #13	66	24	47	18	9
Funk G-26	66	24	49	19	3
Dekalb 248	66	24	47	19	8
Pfister 71	64	24	42	20	21
Haapala H-130	64	24	46	17	10
Sokota S. D. 604	64	27	45	22	15
Dekalb 252	62	24	42	18	18
Vinton V-14	61	26	38	21	29
Trojan F102	60	26	39	21	28
Average of 19 entries tested 2 years	**64**	**23**	—	—	—
Pioneer 383	—	—	47	16	4
Tomahawk 22	—	—	46	17	12
Iowa 4558	—	—	44	17	14
Moews 14	—	—	46	25	16
Gurney 105	—	—	44	23	17
Disco 111-AA	—	—	43	22	20
Cornhusker 84	—	—	43	23	22
Farmers 259	—	—	40	17	23
Carlson C-6	—	—	42	23	24
Funk G-30A	—	—	42	26	25
Jacques 1153J	—	—	41	25	26
Renk & Sons R225	—	—	37	19	30
Curry &Sons C-49	—	—	37	26	31
Tekseed 45	—	—	37	26	33
Average	—	—	**43**	**20**	

*Differences in yield of less than 8 bushels per acre are not statistically significant.

Southeast Area

Clay County. Lack of moisture during July and August plus above normal temperature lowered the yields from the trial on the Clarence Dose farm. The trial was on fall plowed soil that had oats-sweet clover on it in 1954. No commercial fertilizer was applied at planting time, as the soil was extremely dry. Planting was completed on May 11 and harvesting on October 5.

Table 15. Area 8 (Clay County) 1955 Corn Performance Tests

Hybrid or Variety	Acre Yield Bu.	Moisture Percent	1955 Yield Bu.*	1955 Moisture Percent	1955 Performance Rating
	5-Year Average				
Pioneer 349	77	21	60	16	6
Dekalb 627	78	23	63	16	1
Dekalb 410	74	20	59	15	8
Tekseed 115	72	23	62	17	4
Farmers 427A	72	23	56	15	15
Sokota S. D. 604	70	21	59	17	11
Sokota S. D. 400	65	18	55	15	19
Average of 7 entries	**73**	**21**	—	—	—
	4-Year Average				
Pioneer 352	75	20	59	17	12
Average of 8 entries tested 4 years	**74**	**19**	—	—	—
	3-Year Average				
Tomahawk 78	81	20	59	18	14
Pfister 303	79	20	59	18	13
Kingscrost K3A	78	20	55	19	24
Gurney 118A	77	20	52	18	30
Average of 12 entries tested 3 years	**75**	**18**	—	—	—
	2-Year Average				
Cornelius C-40	59	20	53	18	27
Jacobsen J20A	60	22	53	19	29
United Hagie UH41A	59	20	58	21	16
Turner T49	55	23	52	23	33
Average of 16 entries tested 2 years	**61**	**19**	—	—	—
Funk G-75A	—	—	64	20	2
S. D. Exptl. #19	—	—	63	18	3
Pfister 244	—	—	62	18	5
Curry & Sons C-49	—	—	61	17	7
Beegley, Iowa 4376	—	—	60	18	9
Moews 14	—	—	60	18	10
Cornhusker 88	—	—	57	19	17
Trojan G94	—	—	56	18	18
Jacques 1208J	—	—	58	22	20
Green Acres 395	—	—	57	22	21
S. D. Exptl. #20	—	—	56	21	22
McCurdy 100M	—	—	54	18	23
Haapala H-120	—	—	53	17	25
Indiana 252A	—	—	53	16	26
Vinton V-36	—	—	54	22	28
Kingscrost KT6	—	—	53	20	31
Funk G-77A	—	—	52	20	32
Average	—	—	**57**	**18**	—

*Differences in yield of less than 7 bushels per acre are not statistically significant.