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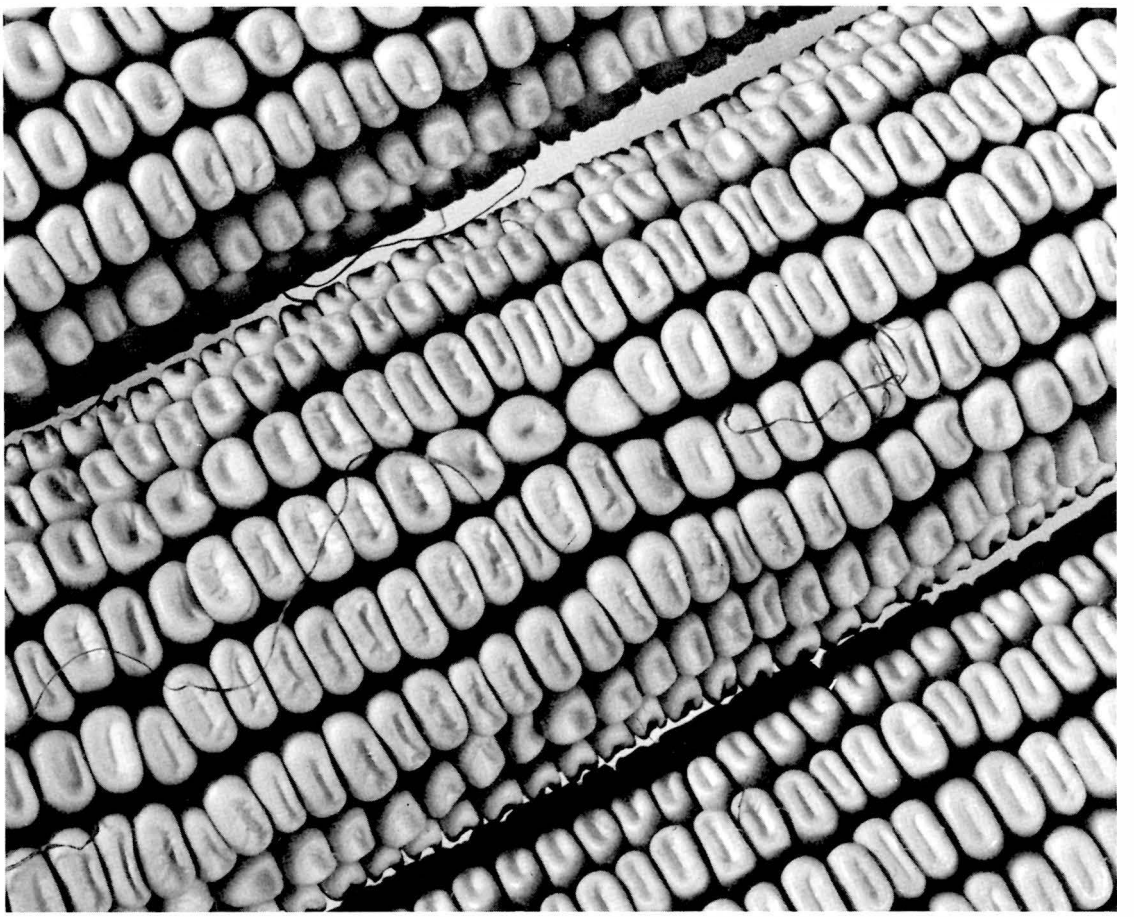

1967 CORN PERFORMANCE TRIALS

AGRONOMY DEPARTMENT
AGRICULTURAL EXPERIMENT STATION
SOUTH DAKOTA STATE UNIVERSITY, BROOKINGS

1967 Corn Performance Trials

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The primary purpose is to supply interested individuals with information on the relative performance of the hybrids entered, when grown under similar environmental conditions. Information in the accompanying tables includes acre grain yields in bushels, moisture percentages of either ear or shelled corn when harvested, performance scores and other related information. Records of performance of the corn hybrids harvested in 1967 as well as two-, three-, four-, and five-year averages of yield and moisture percentages are presented where available. The trials reported in this circular have been conducted under the Agronomy program in Crop Performance Testing, Agricultural Experiment Station.

Location of the 1967 Trials

The trials were planted in the crop adaptation areas marked on the South Dakota map, page 7. The exact location of each trial and the date of seeding and harvesting are given in Table 1. The soil classification, laboratory analyses of soil samples taken before or at time of seeding, and fertilizer applied, are presented in Table 2.

Weather and Climatic Conditions

The climatic data for the 1967 corn growing season are presented in Table 3. The information for each location is based upon data from each station or from the U. S. Weather Bureau Station nearest the trials. No precipitation data is presented for the Geddes site as the closest stations are Platte or Pickstown and from local reports precipitaiton varied widely. A very heavy rain, estimated at 7 to 8 inches, fell at the site the last of May and other heavy amounts fell in early September. Little rain fell in the Geddes area during July and August. The temperatures presented are from Pickstown reports.

Precipitation was limited at most locations during the month of May. Temperatures also were far below normal in May and the absence of moisture coupled with cool soils slowed germination over much of the state. Temperatures were most favorable for germination the week of May 22 and the seedlings grew rapidly for several days. Cooler temperatures began the following week and growth slowed. This, together with excessive precipitation for June at most locations, plus continued cool soil temperatures, resulted in severe stand losses. The loss of stand, buildup of weeds, and continued below normal temperatures and moisture through the rest of the season produced very erratic results.

The generous assistance of the following is appreciated: D. W. Beatty and D. B. Shank of the Agronomy Department; Sub-station supervisiors Albert Dittman, Lloyd Dye, Jake Fredrickson, Quentin Kingsley, Burt Lawrensen, and Herb Lund; and farmer-cooperators Maynard Bridges and Willard Konrad.

TABLE 1. LOCATION OF THE 1967 CORN PERFORMANCE TRIALS

Area	County	Location	Post Office	Seeded	Harvested
B2	McPherson	North Central Substation	Eureka	May 25	Oct. 18
C1-dry	Spink	Redfield Devel. Farm, 6E	Redfield	May 22	Oct. 20
C1-irr.	Spink	Redfield Devel. Farm 6E	Redfield	May 22	Oct. 19
C2	Charles Mix	Maynard Bridges Farm	Geddes	May 16	Oct. 24
D2	Codington	NE Research Farm, 15 N	Watertown	May 19	Oct. 16
D3	Brookings	Agronomy Farm	Brookings	May 12	Oct. 13
D4	Hutchinson	Willard Konrad Farm	Parkston	May 16	Oct. 23
E	Clay	SE Research Farm	Beresford	May 18	Oct. 26

Corn that did germinate and progress under more normal conditions produced good yields In 1967. The last freezing temperature of the spring was no later than May 20. Some areas in northeastern South Dakota had scattered areas of frost damage on August 18 but the trial sites escaped injury. The first frost injury occurred at most sites on September 27 but the stalks were not damaged until early October.

Drought conditions were the rule at most sites from early July through August. The lack of moistute and below normal temperatures slowed growth until some precipitation fell in late August or September. Temperatures remained below normal through most of September. High moisture corn was not uncommon when harvest should normally have begun.

The results at Parkston were meaningless and not reported. The loss in stand was also so erratic in the Geddes trial and the irrigated trial at Redfield that the results are questionable.

Temperatures at tasseling time were not excessively high but at some locations the plants were under stress during the tasseling and pollination period because of drought conditions. A glance at the temperature and precipitation departures from normal give one a good idea as to why row crops suffered in 1967.

TABLE 2. LABORATORY ANALYSES, SOIL CLASSIFICATION AND FERTERILIZER APPLIED TO THE 1967 CORN PERFORMANCE TRIALS

Location	Soil Classification	Soil Test Levels				Fertilizer Applied		
		% O.M.	P	K	pH	Method	N	P
			lbs/S				Lb/A	
B2	Williams loam	4.1	112	533+	7.1	disced under	32	17
C1-dry	Boetia-Harmony si cl loam	3.3	43	662	7.0	disced under	80	15
C1-irr.	Boetia-Harmony si cl loam	3.4	70	682	6.6	disced under	150	15
C2	Reliance silty clay loam	2.9	16	533	6.9	disced under	90	10
D2	Kranzburg silt loam	3.7	57	208	6.5	plowed down	60	17
D3	Vienna loam	3.1	53	240	6.7	plowed down	32	17
D4	Houdek loam	2.5	6	266	6.5	fallow'66	20	9
E	Kranzburg silty clay loam	4.0	57	533	6.4	plowed down	100	17

TABLE 3. PRECIPITATION AND TEMPERATURE DATA FOR THE 1967 CORN GROWING SEASON OF SOUTH DAKOTA

Location and district	Month	Precipitation, inches: Month total	Departure from normal	Total departure	Temperature in degrees F.: Month mean temp.	Departure from normal	Average departure
Eureka	May	0.91	- 1.68		51.8	- 4.3	
	June	4.67	0.84		63.0	- 2.0	
Area	July	1.82	- 0.63		68.0	- 4.4	
B2	Aug.	0.86	- 1.55		68.7	- 2.0	
	Sept.	0.53	- 0.79		60.9	- 0.8	
	Oct.	1.50	0.53	- 3.28	45.8	- 1.8	- 2.3
		10.29					
	Last freeze 32° - May 13				First frost 21° - Sept. 27		
Redfield	May	0.75			52.9		
6E	June	5.77			65.1		
	July	0.80			70.3		
Area	Aug.	1.02			69.3		
C1	Sept.	1.65			62.2		
	Oct.	1.11			47.5		
		11.10					
	Last freeze 26° - May 20				First frost 26° - Sept. 27		
NE Farm	May	0.69			49.8		
15N	June	4.58			62.8		
Watertown	July	1.05			66.2		
Area	Aug.	1.13			66.4		
D2	Sept.	1.06			58.0		
		8.51					
	Last freeze 26° - May 20				First frost 22° - Sept. 27		
Brookings	May	0.82	- 1.97		50.5	- 7.1	
1E	June	8.90	4.95		64.0	- 3.1	
	July	2.06	- 0.09		67.5	- 5.7	
Area	Aug.	2.36	- 0.61		65.9	- 3.4	
D3	Sept.	0.66	- 1.37		57.9	- 3.4	
	Oct.	0.99	- 0.23	0.68	44.7	- 4.8	- 4.9
		15.79					
	Last freeze 23° - May 20				First frost 29° - Sept. 24		
Centerville	May	1.68			56.1		
6SE	June	7.56			67.8		
	July	2.47			72.1		
Area	Aug.	3.37			69.4		
E	Sept.	1.02			62.2		
	Oct.	0.62			50.2		
		16.72					
	Last freeze 31° - May 15				First frost 29° - Sept. 27		
Pickstown	May				55.5		
	June				67.2		
Area	July				73.9		
C2	Aug.				72.3		
	Sept.				64.6		
	Oct.				51.7		
	Last freeze 31° - May 20				First frost 31° - Sept. 28		

Hybrid Entry Procedure

Hybrids entered are submitted by the participating commercial concerns and they designate the locations where their entries are to be grown. Hybrids that were registered with the South Dakota Department of Agriculture prior to February 24, 1967 were eligible for entry. A nominal fee was charged for each entry in each area except for entries included by Experiment Station personnel. Either closed or open pedigree hybrids were eligible and each was allowed to be entered only once in each area.

A listing of the entries and the areas in which they were planted is included in Table 17.

Experimental Procedure

The entries included in each test were planted in five or six replications. One replication was planted for public observation and no data were taken from it. Plots of individual hybrid entries were located at random within each replication. Available space, soil type and other factors determine the plot size and number of replications. The plot size, desired populations and related data are in Table 4.

TABLE 4. FIELD METHODS FOR THE 1967 CORN TRIAL SITES

Area	Table No.	Number of replications harvested	Method of planting	Population desired	Row		
					Number of	Width, inches	Length, feet
B2	5	5	drilled	8,000	1	40	39.0
C1-dry	13	4	drilled	10,000	1	36	39.0
C1-irr.	16	4	drilled	18,000	1	36	39.0
C2	15	4	drilled	10,000	1	40	39.0
D2	7	4	hills	12,000	2	40	33.3
D3	9	4	hills	12,000	2	40	33.3
D4	-	-	drilled	12,000	1	40	39.0
E	11	4	hills	16,000	2	40	26.6

A recommended organic phosphate insecticide was used at the Area D4 and E sites for corn root-worm control. Atrazine was applied to the C2, D3 and E trials for grassy weed control.

The plots seeded in hills were hand planted. The drilled plots were seeded using cone seeders mounted over runner openers. The planting rate was greater than the desired final stand to allow for attrition from various causes. Adverse weather conditions caused greater stand reductions than anticipated. The desired stand was an exception rather than the rule and very little thinning was required.

The tests were hand-picked and the ear corn from each plot was weighed separately. Samples for moisture determinations were taken from each plot in three replications. Moisture percentages were determined from ear corn sections in the B2, C1, C2 and D3 locations. The ear corn moisture samples were weighed in the field, oven-dried for 72 hours at 102° C. in the laboratory, reweighed and moisture percentages determined.

Shelled corn percentages were determined at the D2 and E trials. Ten to twelve randomly selected ears were shelled in the field, returned to the Main Station in sealed polyethylene bags and the moisture percentages determined with an electronic moisture tester. The moisture percentages reported are the averages of three samples.

Measurements of Performance

Yield. The yield reported for each hybrid in each test is the average obtained from field weights of all repications, expressed as bushels per acre of No. 2 corn at 15.5 percent moisture. Varieties of equal potential may yield differently because of variations in slope, soil fertility and stand. Mathematical determinations have been made to ascertain whether yield differences obtained were caused by variations in the environment or were true varietal differences.

If the trials were found to have statistically significant differences between mean yields at the five-percent level, Duncan's Multiple Range Test was run on the means. In the interpretation of Duncan's Test, those mean yields accompanied by the same lower case letter under the Statistical Significance column in the tables are not considered to be statistically different in yield.

Using Table 7 as an example of Duncan's Test, note that the varieties SD Exp 48 and SD Exp 59 are accompanied by the same lower case letter "a". Next note the varieties SD Exp 59 through Pioneer 3956 followed by the lower case "b". The two followed by the "a" do not differ significantly from each other nor the three followed by "b". In the first instance all varieties below SD Exp 59 are significantly lower than SD Exp 48. In the second case all varieties below Pioneer 3956 are significantly lower in yield than SD Exp 59. These statements are true only for this trial under conditions that prevailed during the 1967 crop year. Average results from three or more years at the same location present a better picture of true yield differences.

Moisture Content: The moisture content of each entry is expressed as the percentage moisture in either the ear or the shelled corn at the time of harvest. Moisture content is inversely related to maturity and, because maturity is of prime consideration in South Dakota, these figures are of considerable importance in evaluating entries.

Performance Rating. Undue delays should be held to a minimum if farm operations are to be efficient and provide high economic returns. Delaying the harvest and additional drying costs can be reduced if an operator can produce sound, dry corn. Grain yield and moisture percentages are of prime importance. Because of the importance of these two factors, the two primary results obtained in these trials are used to determine this rating.

Yields in each test were converted to percentages by comparing them with the mean yield of that test. Similar calculations were made for moisture at harvest time after first subtracting moisture content from 100 so that the varieties would be ranked according to their ability to produce sound, rather than soft, corn.

The performance ratings that appear in the tables were computed as follows:

$$\frac{(\text{Yield percentage} \times 6) = (\text{moisture percentage} \times 4)}{10}$$

Stand. At least two possibilities may be indicated when missing hills occur: seed of an entry was unable to produce a good stand under the environmental conditions pre-

vailing for the trial, or something destroyed the young plants. Because this work is designed primarily to test the yield potential of the varieties, corrections in yield were made for missing hills according to the formula:

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

where; CW - corrected weight, FW - field weight, H - number of hills planted per plot, and M - number of hills missing. No corrections were attempted for drilled plantings or for minor stand variations, i. e., one or two plants in a three or four plant hill.

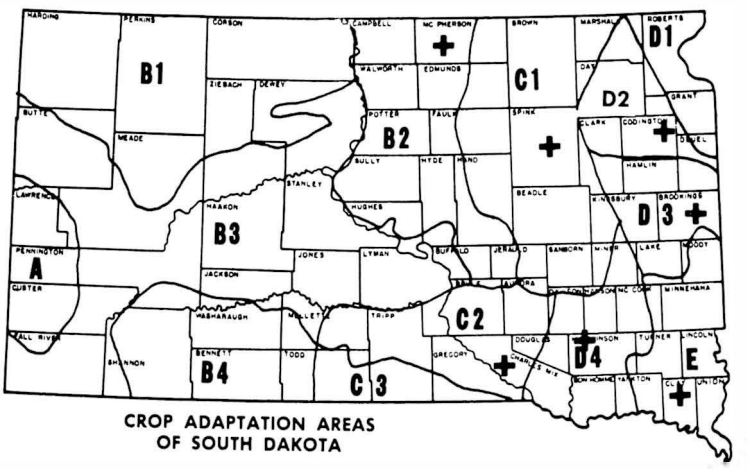
Lodging. Root lodging was not serious in the 1967 trials. Stalk breakage varied from location to location, partially dependent upon the time of harvest. Stalk breakage and dropped ear counts are made when the corn is harvested. Late maturing corn was quite susceptible to the frost and appeared to suffer most from stalk lodging at some locations, even before high winds caused breaking.

The corn trials picked prior to October 18 were not subject to as serious stalk breakage as those trials harvested later. Twenty to thirty-five mph winds occuring from October 18 through 24 brought about serious stalk breakage and ear droppage.

All percentages reported are calculated as the average of ears dropped or of plants lodged or broken per entry. "R.L." or "S.B." in the tables indicates that plants Root Lodged or Stalks Broken. "E.D." denotes the percentage of dropped ears recorded at harvest.

Use of the Tables. South Dakota conditions are generally quite different from those in the mid-western corn belt. Most of the crop adaptation areas have conditions common to the northern plains; limited frost-free growing periods, limited precipitation and high temperatures. Corn hybrids that yield satisfactorily and produce corn that can be stored without additional costly handling are desirable. The performance score provides information on both these factors in a weighted fashion.

In choosing a hybrid, first check for those yielding the most. Then look for entries with below average moisture. The results will generally be similar to that of the performance score. Finally, check the performance over a "several-year period", if available, as the average of several years is considerably more reliable than data for only one year. When planting a new hybrid the acreage should be limited until its adaptability to the environment on the particular farm is known.



CROP ADAPTATION AREAS
OF SOUTH DAKOTA

TABLE 5. CORN PERFORMANCE TRIAL, AREA B2, NORTHCENTRAL SUBSTATION, EUREKA, 1967

Variety	Performance rating	Percent SB	Percent ED	Percent moisture ear corn	Yield B/A	Statistical significance
SD Exp 59 (2x)	1	3	1	16.5	43.8	a
Pioneer 3935 (2x)	4	16	11	28.0	33.7	b
Sokota 225 (4x)	3	7	1	25.1	33.1	bc
SD Exp 43 (4x)	8	31	8	28.9	32.4	bc
SD 230 (4x)	10	27	8	29.2	32.3	bc
SD 240 (4x)	9	30	9	27.5	31.9	bcd
Pioneer 3956 (2x)	11	33	5	31.0	31.6	bcde
Minn. 805 (4x)	2	28	0	16.1	31.1	bcdef
Sokota 211 (4x)	5	15	5	20.0	31.0	bcdef
Minn. 806 (4x)	7	11	0	20.8	30.5	bcdefg
SD 220 (4x)	6	17	15	17.9	30.4	bcdefg
Northrup-King KE 445 (4x)	13	34	3	27.8	30.3	bcdefg
T-E Hastymaker (4x)	17	25	4	34.8	29.2	bcdefgh
SD 210 (4x)	12	14	5	21.9	29.0	bcdefgh
Pioneer 3862 (4x)	15	8	5	31.9	28.8	bcdefgh
Northrup-King PX 446 (3x)	14	20	1	23.8	28.6	bcdefgh
Pioneer 3872 (4x)	16	22	2	26.4	27.1	bcdefghi
Haapala SX 300A (2x)	19	13	0	39.7	27.0	bcdefghi
Pioneer 3854 (4x)	18	29	11	31.9	26.3	cdefghi
Pioneer 388 (4x)	21	10	7	33.5	24.5	defghij
SD 248 (3x)	23	28	2	41.8	23.9	efghij
Pioneer 3812 (4x)	22	21	12	33.5	23.5	fghijk
T-E Suremaker (3x)	24	10	0	44.0	23.0	ghijk
Northrup-King KE 435 (4x)	20	34	3	21.4	22.0	hijk
Haapala H326 (4x)	25	11	0	30.0	20.3	ijk
Pioneer 3926 (3x)	27	27	0	41.6	20.0	ijk
Sokota TS-50 (2x)	26	20	8	32.3	19.5	ijk
Pioneer 3676 (4x)	28	12	0	41.3	17.5	jk
T-E Profitmaker (2x)	29	37	5	44.5	15.5	k
T-E Cashmaker (2x)	30	70	0	58.9	4.8	l
			Mean	30.7	26.7	

TABLE 6. TWO-, THREE-, FOUR-, AND FIVE-YEAR YIELD AND MOISTURE PERCENTAGE AVERAGES OF HYBRIDS ENTERED IN THE AREA B2 TRIAL, 1963-1967

Variety	Yield, bushels per acre				Percent moisture			
	1963-67	1964-67	1965-67	1966-67	1963-67	1964-67	1965-67	1966-67
Haapala SX 300A				38.3				35.0
Minn. 805				41.8				17.6
Minn. 806				36.2				19.8
Northrup-King KE 435		28.1	27.3	28.3		25.1	25.9	22.3
Northrup-King KE 445				38.0				25.2
Pioneer 3676				39.2				35.3
Pioneer 3854		33.3	35.2	38.9		28.4	30.3	28.5
Pioneer 3862	32.3	33.7	35.2	38.1	26.9	30.3	32.0	28.7
Pioneer 3872				42.9				24.6
Pioneer 388	32.0	34.4	35.7	39.3	28.1	31.1	32.2	28.9
Sokota 211				40.5				21.5
Sokota 225	33.5	35.2	36.7	38.3	22.3	25.4	26.6	25.4
SD 220	31.4	33.6	34.9	35.4	21.1	22.9	23.3	20.5
SD 230			40.4	42.4			29.4	28.1
SD 240	34.1	34.8	35.0	38.8	28.2	31.4	32.5	28.2
SD 248			35.3	37.0			38.0	35.3
SD Exp 43				41.4				26.8
T-E Hastymaker				38.2				32.3
T-E Profitmaker				31.8				38.0
T-E Suremaker				30.4				39.9

TABLE 7. CORN PERFORMANCE TRIAL, AREA D2, NORTHEAST RESEARCH FARMS, WATERTOWN UNIT 1967

Variety	Performance rating	Percent stalks broken	Percent moisture	Yield, B/A	Statistical significance
SD Exp 48 (4x)	3	0	31.2	44.1	a
SD Exp 59 (2x)	2	0	25.2	43.2	ab
SD 240 (4x)	5	2	30.6	39.3	bc
Pioneer 3956 (2x)	4	0	28.0	38.8	bc
Pioneer 3935 (2x)	6	0	28.0	38.3	cd
T-E Suremaker (3x)	14	3	37.9	37.9	cde
Minn. 805 (4x)	1	1	22.5	37.8	cdef
SD 248 (3x)	11	1	34.3	37.7	cdef
SD 230 (4x)	12	1	33.1	37.0	cdefg
T-E Profitmaker (2x)	19	0	39.3	36.9	cdefg
SD 220 (4x)	8	3	25.9	36.7	cdefg
T-E Hastymaker (4x)	13	0	32.0	36.2	cdefg
Sokota 211 (4x)	7	0	23.7	36.0	cdefg
Northrup-King KE 497 (4x)	21	0	38.4	35.6	cdefg
SD Exp 58 (4x)	10	2	26.4	35.2	cdefg
Sokota TS-50 (2x)	16	1	32.4	35.2	cdefg
Northrup-King PX 525 (3x)	22	0	36.9	35.0	cdefg
Pioneer 388 (4x)	15	1	28.9	34.7	cdefg
Minn. 806 (4x)	9	0	21.5	34.6	cdefg
Pioneer 3854 (4x)	18	0	31.3	34.2	defgh
Sokota 225 (4x)	17	1	27.7	33.4	efghi
Pioneer 3812 (4x)	23	1	33.6	32.9	fghi
Pioneer 3862 (4x)	20	0	29.3	32.8	fghi
Northrup-King PX 527 (3x)	24	0	34.9	32.0	ghij
Pioneer 3658 (4x)	26	1	41.4	28.7	hij
Minn. M320 (3x)	25	0	33.8	28.5	ij
T-E Gromaster (4x)	27	0	44.1	27.0	j
T-E Cashmaker (2x)	28	14	55.5	18.6	k
		Mean	32.4	34.9	

TABLE 8. TWO-, THREE-, FOUR-, AND FIVE-YEAR YIELD AND MOISTURE PERCENTAGE AVERAGES OF HYBRIDS ENTERED IN THE AREA D2 TRIAL, 1962-1967*

Variety	Yield, bushels per acre				Percent moisture			
	1962-67	1963-67	1964-67	1965-67	1962-67	1963-67	1964-67	1965-57
Northrup-King KE497			34.4	38.2			38.9	43.7
Pioneer 3812		51.4	38.9	39.2		32.3	32.8	36.8
Pioneer 3854			40.7	39.2			28.4	33.5
Pioneer 3862	49.2	49.5	40.3	40.7	30.7	27.3	27.7	31.0
Pioneer 388	47.4	47.2	37.7	40.3	28.6	29.8	30.4	32.6
Sokota 225		49.6	41.8	39.9		25.9	25.3	28.1
Sokota TS-50			40.9	40.7			31.1	34.1
SD 220	48.3	48.5	41.1	40.4	28.5	26.4	26.0	28.6
SD 230	54.7	54.9	43.1	42.7	32.7	30.8	30.8	33.6
SD 240	51.2	52.4	41.1	39.9	34.9	32.7	32.4	35.2
SD 248			40.4	41.6			35.5	40.3
SD Exp 48				46.4				33.3

* The 1966 trial was destroyed; no data available

TABLE 9. CORN PERFORMANCE TRIAL, AREA D3, AGRONOMY FARM, BROOKINGS, 1967

Variety	Performance rating	Percent SB	Percent ED	Percent moisture ear corn	Yield, B/A	Statistical significance
SD Exp 65 (3x)	1	5	0	29.6	70.3	a
SD Exp 66 (3x)	2	3	0	34.6	66.3	ab
SD Exp 61 (4x)	4	2	0	32.2	62.3	abc
United-Hagie SX 134 (2x)	8	2	0	35.0	60.8	abcd
Minn. 515 (4x)	3	2	0	25.1	60.5	abcd
United-Hagie 6S299 (2x)	5	6	0	26.5	58.2	abcde
SD Exp 53 (3x)	7	22	0	27.1	58.0	bcdef
Curry SC-142 (2x)	13	2	0	34.3	57.8	bcdef
Minn. 5301 (3x)	12	2	0	31.8	57.2	bcdef
Sokota SK-68 (3x)	11	1	0	29.8	56.7	bcdef
Minn. M320 (3x)	6	0	0	23.7	56.4	bcdef
Pioneer 3715 (3x)	18	2	1	33.7	56.2	bcdef
SD Exp 54 (3x)	9	15	0	28.0	56.1	bcdefg
Northrup-King PX525 (3x)	15	1	0	31.5	55.6	bcdefgh
Curry TC-342 (3x)	19	2	1	32.4	55.5	bcdefgh
Sokota TS-49 (2x)	10	1	0	26.6	55.3	bcdefgh
T-E Bonusmaker (2x)	23	2	0	34.0	54.7	bcdefghi
McCurdy 3 X 5 (2x)	28	0	0	36.5	54.5	bcdefghi
SD 248 (3x)	20	8	0	28.4	53.5	bcdefghi
McCurdy 3 X 9 (2x)	27	1	0	33.7	53.2	cdefghij
Disco SX 10 (2x)	21	2	0	27.9	52.5	cdefghij
SD Exp 63 (3x)	26	2	0	32.2	52.5	cdefghij
Pioneer 3911 (2x)	16	1	1	25.0	52.4	cdefghij
Pioneer 3935 (2x)	17	11	0	25.2	52.2	cdefghij
Disco SX 19 (2x)	32	1	0	36.5	52.1	cdefghij
SD 240 (4x)	14	25	0	24.0	52.0	cdefghij
Haapala SX 621 (2x)	31	3	0	35.9	51.9	cdefghij
SD Exp 64 (4x)	22	9	1	26.4	51.7	cdefghijk
T-E Hastymaker (4x)	24	22	1	27.7	51.6	cdefghijk
Pioneer 3675 (2x)	30	4	1	30.7	50.3	cdefghijkl
Minn. 6302 (4x)	33	1	0	31.8	49.7	cdefghijkl
SD Exp 52 (4x)	29	8	1	27.0	48.6	defghijkl
Sokota TS-50 (2x)	25	8	1	23.2	48.3	defghijkl
Haapala SX 410A (3x)	38	1	0	35.7	48.0	defghijkl
Pioneer 3658 (4x)	36	3	0	28.3	46.2	efghijkl
Pioneer 3775 (2x)	39	1	1	32.2	45.9	efghijkl
SD 250 (4x)	35	16	0	25.7	45.9	efghijkl
Pioneer 3927 (3x)	34	6	0	23.8	45.6	efghijkl
Sokota SK-65 (3x)	37	7	0	26.6	45.1	efghijkl
Northrup-King PX 527 (3x)	41	0	0	31.6	44.1	fghijklm
Northrup-King KE 497 (4x)	40	9	0	31.2	44.0	fghijklm
United-Hagie IXL 5 (2x)	44	0	0	39.9	41.4	ghijklm

continued on next page

McCurdy 2 X 5 (2x)	43	0	0	38.5	41.4	ghijklm
Pioneer 3681 (4x)	42	1	0	32.0	41.2	hijklm
McCurdy 112 M (4x)	45	0	0	39.2	41.0	hijklm
Northrup-King KM 567 (4x)	47	1	0	38.4	39.9	ijklm
Curry C-440 (4x)	46	0	0	34.5	38.2	jklm
McCurdy 3 X 4 (2x)	48	1	0	32.5	36.4	klmn
Pioneer 3773 (2x)	49	0	0	38.7	35.9	lmn
T-E Gromaster (4x)	50	1	1	37.3	29.3	mn
T-E Cashmaker (2x)	51	1	0	43.2	28.6	mn
T-E Harvestmaster (4x)	52	1	0	43.8	22.0	n
			Mean	31.5	49.7	

TABLE 10. TWO-, THREE-, FOUR-, AND FIVE-YEAR YIELD AND MOISTURE PERCENTAGE AVERAGES OF HYBRIDS ENTERED IN THE D3 TRIAL, 1963-1967

Variety	Yields, bushels per acre				Percent moisture			
	1963-67	1964-67	1965-67	1966-67	1963-67	1964-67	1965-67	1966-67
Haapala SX 621				64.6				31.4
McCurdy 2 X 5				49.0				35.6
McCurdy 3 X 4				45.9				29.2
McCurdy 3 X 9				63.1				30.0
Minn. 515		68.7	65.6	59.2		27.1	24.9	24.8
Minn. M320				61.8				22.3
Minn. 5301				61.7				29.4
Minn. 6302				57.6				29.9
Northrup-King KE497		67.1	62.4	53.8		30.2	29.0	28.7
Northrup-King KM567		62.3	58.6	49.8		35.8	35.5	35.1
Pioneer 3658	81.0	68.5	62.2	53.5	28.3	29.0	27.2	26.7
Pioneer 3681		67.8	62.6	49.3		27.3	26.6	27.6
Pioneer 3775	78.4	71.1	66.2	55.9	29.9	29.7	28.7	28.6
Sokota TS-50		71.5	67.2	56.6		23.5	21.6	22.0
Sokota SK-65			59.2	51.1			24.9	25.7
Sokota SK-68				61.6				23.0
SD 248	79.2	73.5	67.4	58.9	25.5	26.4	26.1	26.5
SD 250	74.2	65.1	59.4	52.3	25.1	24.9	24.1	24.8
SD Exp 53			72.7	63.8			25.9	25.3
SD Exp 54			60.3	62.6			26.6	25.8
T-E Bonusmaker				63.1				30.3
T-E Gromaster				45.7				32.3
T-E Harvestmaster				29.1				39.2

TABLE II. CORN PERFORMANCE TRIAL, AREA E, SOUTHEAST RESEARCH FARM, BERESFORD, 1967

Variety	Performance rating	Percent SB	Percent ED	Percent moisture	Yield, B/A	Statistical significance
SD Exp 68 (3x)	1	35	1	27.4	148.1	a
SD Exp 67 (3x)	2	56	1	26.3	142.7	ab
SD Exp 69 (4x)	4	37	2	24.6	138.9	abc
Curry SC-165 (2x)	5	10	3	25.2	138.8	abc
T-E Cashmaker (2x)	7	45	0	25.1	136.2	bcd
Pioneer 3715 (3x)	3	2	0	19.0	134.0	bcde
Sokota SK-70 (2x)	6	7	0	21.8	133.0	bcde
Pioneer 3510 (2x)	20	0	0	28.8	132.4	bcdef
Pioneer 3414 (4x)	10	12	4	22.6	131.7	bcdefg
Northrup-King PX 50 (2x)	8	7	2	20.2	130.8	cdefg
Pioneer 3567 (2x)	9	3	1	21.2	130.5	cdefgh
Green Acres 401 (4x)	14	4	1	24.0	130.2	cdefgh
Northrup-King PX 610 (3x)	13	1	2	22.6	129.8	cdefghi
Pioneer 3291 (4x)	15	3	1	24.6	129.7	cdefghi
McCurdy 3 X 6 (2x)	16	1	1	24.5	129.4	cdefghi
T-E Bonusmaker (2x)	11	5	1	20.1	128.0	cdefghij
Pioneer 3558 (2x)	12	5	3	20.9	128.0	cdefghij
Nebr. 501G (4x)	18	13	1	23.7	127.4	cdefghij
Disco SX 29 (2x)	19	5	1	23.9	127.3	cdefghij
Haapala SX 866 (2x)	22	1	1	26.3	126.4	defghijk
Pioneer 3561 (2x)	17	3	0	20.3	124.7	defghijkl
Haapala SX 725 (2x)	21	4	1	22.7	123.8	defghijkl
United-Hagie 5S510 (2x)	26	0	0	24.9	122.6	efghijklm
Northrup-King KT 623A (4x)	27	11	1	25.0	122.4	efghijklm
McCurdy HP5 (3x)	29	4	0	23.1	119.8	fghijklmn
Curry C-680 (4x)	32	4	1	24.3	119.5	fghijklmno
Sokota 623 (4x)	28	8	2	22.7	119.4	ghijklmno
Green Acres 636 (4x)	31	4	1	23.6	119.4	ghijklmno
Minn. 4301 (3x)	24	8	2	21.0	119.3	ghijklmno
McCurdy 112M (4x)	30	10	1	23.1	119.2	ghijklmno
Minn. 6302 (3x)	23	8	0	18.1	117.6	hijklmno
Sokota 645A (4x)	37	9	4	24.5	117.4	hijklmno
Northrup-King PX 52 (2x)	25	3	0	19.9	117.3	hijklmno
Sokota 625 (4x)	33	6	0	22.1	116.7	ijklmno
T-E Gromaster (4x)	35	8	1	21.9	115.9	jklmno
Curry TC-342 (3x)	34	6	1	19.4	113.4	klmno
Disco SX 20 (2x)	36	2	3	20.1	113.0	klmno
Curry C-622 (4x)	41	11	0	25.8	112.9	klmno
McCurdy 3 X 5 (2x)	38	8	0	21.0	112.1	lmno
Iowa 5063 (4x)	39	3	2	20.9	111.2	lmno
Minn. 417 (4x)	40	10	0	20.1	109.4	mno
United-Hagie 6S560 (2x)	46	2	1	31.8	109.4	mno
United-Hagie IXL 6 (2x)	42	1	1	23.0	107.2	nop
SD 622 (4x)	43	14	3	23.7	106.1	nop
T-E Harvestmaker (4x)	44	9	1	24.6	106.0	op
T-E Hastymaker (4x)	45	9	2	17.4	95.2	p
			Mean	23.0	122.7	

TABLE 12. TWO-, THREE-, FOUR-, AND FIVE-YEAR YIELD AND MOISTURE PERCENTAGE AVERAGES OF HYBRIDS ENTERED IN THE AREA E TRIAL, 1963-1967

Variety	Yields, bushels per acre				Percent moisture			
	1963-67	1964-67	1965-67	1966-67	1963-67	1964-67	1965-67	1966-67
Curry SC-165				136.3				24.9
Iowa 5063	105.2	105.1	110.5	114.1	20.3	20.4	21.3	24.0
McCurdy 3 X 6				135.5				23.3
McCurdy 112M				125.5				23.1
Minn. 4301		109.8	116.9	122.9		18.8	20.8	20.3
Minn. 417		117.2	117.9	121.2		20.2	20.8	19.9
Northrup-King KT 623A			116.2	119.0			25.1	24.4
Pioneer 3291		119.5	123.4	124.6		25.3	26.3	25.5
Pioneer 3414		122.8	132.5	132.6		21.6	23.2	22.9
Pioneer 3510			139.5	143.8			26.7	26.5
Pioneer 3558	123.6	123.7	130.5	135.1	19.5	19.9	21.6	20.8
Pioneer 3567				133.2				22.4
Pioneer 3715				133.3				19.5
Sokota 623			120.0	122.9			23.2	22.4
Sokota 625			111.4	110.8			23.0	22.2
Sokota SK-70				125.9				22.3
SD 622	104.6	106.1	108.2	109.8	22.9	23.3	24.3	23.9
T-E Bonusmaker				125.9				20.9
T-E Gromaster				115.1				22.0
T-E Harvestmaster				115.4				23.8
United-Hagie 1XL 6				104.6				21.7

TABLE 13. CORN PERFORMANCE TRIAL, AREA C1 (DRYLAND), REDFIELD DEVELOPMENT FARM, REDFIELD, 1967

Variety	Performance rating	Percent SB	Percent ED	Percent moisture ear corn	Yield, B/A	Statistical significance
Pioneer 3935 (2x)	1	0	0	18.7	68.2	a
Sokota SK-68 (3x)	4	0	0	24.1	66.0	ab
SD 248 (3x)	2	0	0	19.9	65.6	abc
Pioneer 3812 (4x)	3	5	5	21.1	64.9	abcd
Haapala SX 410A (2x)	11	0	0	33.9	64.1	abcde
Pioneer 3775 (2x)	10	0	0	26.7	61.3	abcdef
SD Exp 47 (4x)	7	11	0	23.3	61.0	abcdef
Sokota TS-49 (2x)	8	0	0	24.2	61.0	abcdef
SD 250 (4x)	6	0	1	21.2	60.4	abcdefg
SD Exp 59 (2x)	5	1	0	16.7	60.3	abcdefg
T-E Suremaker (3x)	14	1	0	28.4	57.8	bcdefg
Northrup-King PX 446 (3x)	9	0	0	18.1	57.1	bcdefg
Pioneer 3911 (2x)	12	0	0	23.6	56.2	bcdefgh
SD 240 (4x)	13	1	0	24.0	56.2	bcdefgh
T-E Cashmaker (2x)	24	1	0	40.3	55.3	cdefgh
Pioneer 3681 (4x)	16	0	0	23.7	55.0	cdefgh
Pioneer 3943 (3x)	15	4	0	22.2	54.4	defgh
Pioneer 3956 (2x)	17	0	4	22.7	54.4	defgh
SD 230 (4x)	18	6	0	24.5	53.5	efgh
Sokota TS-50 (2x)	19	0	0	22.7	51.0	fgh
T-E Hastymaker (4x)	21	0	4	26.6	48.9	gh
T-E Profitmaker (2x)	22	0	0	27.8	48.5	gh
Northrup-King KE 449 (4x)	20	2	0	25.1	48.5	gh
Pioneer 3926 (3x)	23	0	0	22.9	44.7	h
			Mean	24.3	57.3	

TABLE 14. TWO-, THREE-, AND FOUR-YEAR YIELD AND MOISTURE PERCENTAGE AVERAGES OF HYBRIDS ENTERED IN THE DRYLAND AREA C1 TRIAL, 1964-1967

Variety	Yields, bushels per acre			Percent moisture		
	1964-67	1965-67	1966-67	1964-67	1965-67	1966-67
Haapala SX 410			70.8			31.6
Northrup-King KE 449	46.4	48.6	61.1	28.0	29.1	25.4
Pioneer 3681	50.3	52.9	66.8	30.4	31.8	26.6
Pioneer 3775	49.1	55.6	69.9	35.3	34.5	29.1
Pioneer 3812	55.3	56.4	69.5	25.4	26.2	23.0
Sokota TS-50	52.9	54.9	67.7	26.1	26.4	24.2
Sokota SK-68			80.5			26.6
SD 240	46.2	48.5	59.9	29.0	29.9	26.6
SD 248	54.9	54.7	68.1	27.0	25.1	23.8
SD 250	51.1	53.4	68.0	25.8	26.2	23.6
SD Exp 47	53.8	56.4	70.5	29.8	30.2	25.9
T-E Hastymaker			57.4			27.5
T-E Profitmaker			64.5			28.6
T-E Suremaker			66.1			30.1

TABLE 15. CORN PERFORMANCE TRIAL, AREA C_2, MAYNARD BRIDGES FARM, GEDDES, 1967

Variety	Performance rating	Percent SB	Percent ED	Percent moisture ear corn	Yield, B/A	Statistical significance
Northrup-King PX 50 (2x)	1	2	1	25.3	55.1	a
Pioneer 3510 (2x)	2	8	0	28.9	53.2	ab
Northrup-King KT 623A (4x)	5	9	1	29.2	48.5	abc
Northrup-King PX 610 (3x)	3	0	1	25.1	48.4	abcd
Northrup-King PX 527 (3x)	4	2	9	18.8	46.3	abcde
Pioneer 3414 (4x)	6	15	2	25.8	46.2	abcdef
Haapala SX 621 (2x)	8	3	2	24.6	44.5	abcdefg
Haapala SX 475 (2x)	7	3	1	22.3	44.3	abcdefg
SD Exp 68 (3x)	15	2	1	31.9	40.2	abcdefgh
Northrup-King PX 525 (3x)	9	9	0	16.2	39.5	bcdefgh
Pioneer 3465 (4x)	11	3	1	24.0	39.1	bcdefgh
Pioneer 3558 (2x)	13	0	1	24.6	38.5	bcdefgh
Pioneer 3567 (2x)	16	0	1	28.7	38.5	bcdefgh
Pioneer 3715 (3x)	12	8	2	21.8	37.9	bcdefgh
Sokota SK-68 (3x)	10	11	3	18.9	37.5	bcdefgh
T-E Suremaker (3x)	14	4	1	21.4	37.1	bcdefgh
SD Exp 69 (4x)	21	10	0	31.1	36.6	cdefgh
Sokota MS-69 (2x)	17	6	1	20.3	35.5	cdefgh
SD 420 (4x)	20	19	1	24.0	35.4	cdefgh
Sokota SK-70 (2x)	25	5	4	34.0	34.5	cdefgh
Sokota 463 (4x)	22	2	3	24.8	34.3	cdefgh
SD 270 (4x)	19	13	0	16.2	33.0	cdefgh
SD 250 (4x)	18	11	10	14.5	32.9	cdefgh
T-E Gromaster (4x)	24	2	6	25.1	32.5	cdefgh
Disco SP 150 (3x)	23	2	1	21.5	31.4	defgh
Disco SX 20 (2x)	26	2	4	25.8	31.1	defgh
Nebr. 501G (4x)	30	1	5	34.5	30.7	efgh
T-E Cashmaker (2x)	31	18	1	34.6	29.8	efgh
SD Exp 46 (4x)	27	2	1	22.9	28.4	fgh
T-E Profitmaker (2x)	28	10	1	23.6	27.4	gh
SD Exp 67 (3x)	33	4	3	32.6	27.0	gh
Disco SP 155 (3x)	32	5	1	22.7	25.8	h
T-E Hastymaker (4x)	29	8	2	18.2	25.5	h
			Mean	24.7	37.2	

TABLE 16. CORN PERFORMANCE TRIAL, AREA C1 (IRRIGATED), REDFIELD DEVELOPMENT FARM, REDFIELD, 1967

Variety	Performance rating	Percent SB	Percent ED	Percent moisture ear corn	Yield, B/A
Northrup-King PX 525 (3x)	2	5	0	33.4	151.9
SD Exp 63 (3x)	4	0	0	32.2	147.5
Haapala SX 333 (2x)	3	0	0	28.7	145.1
Pioneer 3911 (2x)	1	1	0	25.8	143.8
Sokota TS-50 (2x)	6	0	0	32.3	142.8
Northrup-King PX 446 (3x)	7	1	0	31.7	141.6
SD 248 (3x)	5	0	0	26.3	138.0
SD Exp 65	14	2	0	31.8	135.4
Northrup-King KE 497 (4x)	13	5	0	29.3	135.0
Northrup-King PX 527 (3x)	10	0	0	28.6	135.0
SD Exp 52 (3x)	8	2	1	26.5	135.0
T-E Cashmaker (2x)	11	1	0	28.5	134.8
SD Exp 66 (3x)	22	2	0	37.1	134.4
SD 270 (4x)	9	2	0	25.9	134.0
Pioneer 3935 (2x)	15	2	0	32.1	134.0
Sokota SK-68 (3x)	12	1	1	28.0	133.5
Pioneer 3775 (2x)	18	2	0	33.7	133.0
Pioneer 3812 (4x)	17	0	1	31.8	132.2
T-E Suremaker (3x)	16	1	1	28.5	129.1
Northrup-King KE 449 (4x)	19	5	1	30.7	129.0
T-E Gromaster (4x)	32	0	0	36.6	128.3
SD Exp 53 (3x)	25	0	1	30.9	126.0
Disco SX 19 (2x)	23	2	0	30.2	125.3
T-E Bonusmaker (2x)	20	0	0	28.7	125.2
T-E Hastymaker (4x)	31	1	0	33.9	125.2
McCurdy 3 X 5 (2x)	30	0	0	33.2	124.7
McCurdy 3 X 4 (2x)	21	0	1	28.5	123.9
McCurdy 2 X 6 (2x)	26	0	0	29.9	123.6
Pioneer 3956 (2x)	24	2	1	28.3	122.9
McCurdy 2 X 5 (2x)	27	1	0	29.5	122.8
SD 250 (4x)	28	4	1	29.5	122.6
T-E Profitmaker (2x)	36	2	0	35.5	120.9
Disco SX 10 (2x)	34	6	0	29.8	117.4
Pioneer 3943 (3x)	29	2	0	26.7	116.9
Pioneer 3926 (3x)	33	1	0	29.2	116.7
Sokota TS-49 (2x)	37	1	0	30.9	114.6
SD 240 (4x)	35	1	0	29.4	113.7
McCurdy 74 (4x)	38	1	0	31.0	113.5
Pioneer 3681 (4x)	39	1	1	30.9	108.6
			Mean	30.4	129.2

TABLE 17. THE CORN HYBRIDS ENTERED FOR TEST IN THE 1967 CORN PERFORMANCE TRIALS AND THE TABLES IN WHICH THE RESULTS APPEAR

Variety	Table	Variety	Table	Variety	Table	Variety	Table
Curry SC-142	9,11,*	McCurdy 3 X 9	9,10,*	Pioneer 3291	11,12,*	U-H 1XL5	9
Curry SC-165	11,12	McCurdy 7 X 3	*	Pioneer 3306	*	U-H 1XL6	11,12
Curry TC-342	9,11	McCurdy 74	16	Pioneer 3414	11,12,15,*	U-H SX134	9
Curry TC-358	*	McCurdy 112M	9,11,12	Pioneer 3465	15	U-H 5S510	11
Curry C-440	9	McCurdy HP5	11,*	Pioneer 3510	11,12,15,*	U-H 6S299	9
Curry C-459	*			Pioneer 3558	11,12,15,*	U-H 6S560	11
Curry C-622	11	Minn. 417	11	Pioneer 3561	11		
Curry C-624	*	Minn. 515	9,10	Pioneer 3567	11,12,15*	SD 210	5
Curry C-680	11	Minn. 805	5,6,7	Pioneer 3658	7,9,10	SD 220	5,6,7,8
		Minn. 806	5,6,7	Pioneer 3675	9	SD 230	5,6,7,8,13
Disco SX 10	9,16	Minn. 4301	11,12	Pioneer 3676	5,6	SD 240	5,6,7,8,9,13,14,16
Disco SX 19	9,16,*	Minn. 5301	9,10	Pioneer 3681	9,10,13,14,16	SD 248	5,6,7,8,9,10,13,14,16
Disco SX 20	11,15	Minn. 6302	9,10,11,12,*				
Disco SX 29	11	Minn. M320	7,9,10*	Pioneer 3718	9,11,12,15,*	SD 250	9,10,13,14,15,16
Disco SP 150	15,*			Pioneer 3773	9	SD 270	15,16
Disco SP 155	15,*	Nebr. 501G	11,15,*	Pioneer 3775	9,10,13,14,16	SD 420	15
				Pioneer 3812	5,7,8,13,14,16	SD 622	11,12,*
Green Acres 401	11,*	Northrup-King KE 435	5,6	Pioneer 3854	5,6,7,8		
Green Acres 462	*	Northrup-King KE 445	5,6	Pioneer 3862	5,6,7,8	SD Exp 43	5,6
Green Acres 467	*	Northrup-King KE 449	13,14,16	Pioneer 3872	5,6	SD Exp 46	15
Green Acres 636	11,*	Northrup-King KE 497	7,8,9,10,16	Pioneer 388	5,6,7,8	SD Exp 47	13,14
Green Acres X1005	*	Northrup-King KM 567	9,10	Pioneer 3911	9,13,16	SD Exp 48	7,8
		Northrup-King KT 623A	11,12,15,*	Pioneer 3926	5,9,13,16	SD Exp 52	9,16
Haapala SX 300A				Pioneer 3935	5,7,9,13,16	SD Exp 53	9,10,16
Haapala H326	5	Northrup-King PX 50	11,15,*	Pioneer 3943	13,16		
Haapala SX 333	16	Northrup-King PX 52	11,*	Pioneer 3956	5,7,13,16	SD Exp 54	9,10
Haapala SX 410A	9,13,14	Northrup-King PX 446	5,13,16			SD Exp 58	7
Haapala SX 475	15	Northrup-King PX 525	7,9,15,16	Sokota 211	5,6,7	SD Exp 59	7,13
Haapala SX 621	9,10,15,*	Northrup-King PX 527	7,9,15*	Sokota 225	5,6,7,8	SD Exp 61	9
Haapala SX 626	*	Northrup-King PX 610	11,15,*	Sokota 463	15,*	SD Exp 63	9,16
Haapala SX 725	11*			Sokota 623	11,12,*	SD Exp 64	9
Haapala SX 866	11	T-E Bonusmaker	9,10,11,12,16,*	Sokota 625	11,12,*		
		T-E Cashmaker	5,7,9,11,13,15,16,*	Sokota 645A	11	SD Exp 65	9,16
Iowa 5063		T-E Gromaster	7,9,10,11,12,15,16,*	Sokota TS-49	9,13,16	SD Exp 66	9,16
		T-E Harvestmaster	9,10,11,12,*	Sokota TS-50	5,7,8,9,10,13,14,16	SD Exp 67	11,15,*
McCurdy 2 X 5	9,10,16,*	T-E Hastymaker	5,6,7,9,11,12,13,14,15,16,*	Sokota TS-50	5,7,8,9,10,13,14,16	SD Exp 67	11,15,*
McCurdy 2 X 6	16	T-E Profitmaker	5,6,7,13,14,15,16	Sokota SK-68	9,10,13,14,15,16,*	SD Exp 69	11,15,*
McCurdy 3 X 4	9,10,16	T-E Suremaker	5,6,7,13,14,15,16	Sokota MS-69	15,*		
McCurdy 3 X 5	9,11,16			Sokota SK-70	9,11,12,15,*	*Planted In D4 trail; not reported	