VARIABILITY WITHIN FIVE OPEN-POLLINATED VARIETIES OF CORN

By

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INTRODUCTION

One of the most interesting features about plants is their individual variability. No two plants in a row of corn are exactly alike. There is a difference in each individual plant that distinguishes it from another in the same class. These differences may be hereditary or environmental. By changing the environmental conditions, such as soil, moisture or temperature, a corresponding change may occur in the plants.

Variability may be reduced by selecting for a given type in a population. This decrease in variability is brought about by reducing the number of heterozygous individuals. After the population becomes homozygous for a selected character, no further reduction in variability will result through selection. The variability that remains is environmental.

This study was undertaken primarily to determine the variation and relationship of height of plant, height of ear, yield of plant, number of rows per ear, number of nodes above the ear, and number of nodes below the ear, within five open-pollinated varieties of corn. It is hoped that these data may be useful in evaluating selection.

REVIEW OF LITERATURE

Height of Plant

Kemp and Rothgeb (15)[1] working with Reid Yellow Dent and Stowell Evergreen, found a slight antagonism between plant height and length of husk blades and a pronounced antagonism between plant height and presence of tillers.

Plant height for different varieties is greatly affected by environmental conditions according to Emerson and East (6).

Height of Ear

Montgomery (23) found that low ears matured earlier and gave as good yield as high ears.

Using selfed lines and F_1 crosses from the plant breeding cultures of the Minnesota Experiment Station, Hall (9) found that little or no relationship existed between the amount of lodging and ear height, or the weight of the ears. A type of partial dominance was evident for high versus low ears and tall versus short plants.

In working with 4 inbred lines, Eckhardt and Bryan (5) found that significantly lower variances for ear height and ear length resulted from combining 2 inbreds from the same variety in each single cross parent.

The relative height of ear and the time of maturity may be changed materially by selecting for low and high ears, however, height of plant and height of ear varies with the season. Low ears are associated with

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[1] Figures in parentheses refer to "Literature Cited", page 33.

earliness. Selecting for low ears did not reduce the comparative yield according to Stringfield (30).

Length of Ear

Like other size characters, according to Emerson and East (6), length of ear is intimately connected in development and heredity with other complexes, yet it is not so markedly affected by external conditions as the height of plant. The greatest changes occur through physiological correlation. Length of ear is directly correlated with height of plant and inversely correlated with number of rows per ear. Size of plant is directly correlated with ear length. This correlation is imposed by genetic constitution. In other words, a plant which is genetically large and a plant that is genetically small have different possibilities of ear development even when the same genes immediately affectig ear development are present.

In several methods of selection with Rustler White Dent, Hayes and Alexander (11) found the variability for ear length and row number not significantly different. Cunningham (3) found that the length of ear has little relation to yield, but that varieties differ in these characteristics. The indications are that slender seed ears are more productive than those with a large circumference. Also, the relation of number of rows to yield varied with different varieties.

In extensive experiments conducted in Ohio, Williams and Welton (31) found no relationship between several seed ear characters and yield. In selecting long, average 9.2 inches, and short ears, average 6.8 inches, they obtained a difference of only 1.39 bushels per acre in a 10-year average in favor of the long ears.

Row Number

In testing several United States open-pollinated varieties, Mexican varieties, and Guatemalan varieties, Anderson and Brown (1) observed a close connection between condensation of the tassel and high row numbers of the ear. All the maize varieties with row numbers of 16 or above were, without exception, found to exhibit condensation in the tassel. Eight-rowed varieties, without exception, were found to have no condensation. They concluded that condensation of the tassel and number of spikelet pairs per whorl are the 2 main variables which determine row number in the maize of the United States.

Lindstrom (18) found a very significant correlation between cob (and pericarp) color and row-number. There was a distinct tendency for red-cobbed segregates to possess higher row numbers and, conversely, the white-cobbed segregates the lower row numbers. The experimental evidence for genetic linkage between some of the multiple genes for row number and the genes for cob (and pericarp) color and endosperm color is particularly convincing (19).

Kemp and Rothgeb (15) found that plants bearing only 1 ear average a higher row number (16.49) than plants bearing more than 1 ear (15.94). Increasing the row number per ear was accompanied by decreased weight per kernel regardless of the number of ears on the plant.

In a study consisting principally of crosses of Tom Thumb Pop with Black Mexican Sweet and of Watson Flint with Leaming Dent, Emerson and East (6) found a correlation between the dent condition and a high number of rows, and that the number of rows is inversely correlated with ear length.

When Longfield, an 8-rowed flint, had been grown for many years in an isolated field, a range of variation from 4 to 12 rows was found. Leaming Dent, with a modal class of 16 rows, gave a range of variation from 12 to 20 rows after being selected for many years and then inbred by hand for 6 generations. They concluded that part of this difficulty in behavior shown by ears with a low number of rows and ears with a high number of rows is undoubtedly due to correlation with other characters, both physiological and genetic, but at the same time it is more reasonable to suppose that an ear which can vary in 1 of 8 spikes will show a greater degree of fluctuation than one which can vary only in any 1 of 4 spikes. For this reason, it is likely that strains with a high number of rows will never show the low variability seen in strains with a low number of rows.

Plant Yield

Hutcheson and Wolfe (13) worked with the Boone County White variety and found a significant relationship between yield and length of ear, but such characters as number of rows and percentage of grain showed little relation to yield.

In studying the relation between various seed ear characters to yield in the Reid Yellow Dent and Johnson County White varieties for a 5-year period, Sconce (28) found that ears containing 18 or 20 rows gave the highest yields. Montgomery (23) found that the long, smooth type of seed ears outyielded the standard type ears. Also, extra large ears are no more valuable than medium-size ears for seed purposes. He concluded that size of ear depends too much upon environment to be of any importance.

Studying several characters with inbreds and inbred-variety crosses for a 3-year period, Hayes and Johnson (12) found a significant positive

correlation between yield and ear length; between date of silking and plant height; between yield and moisture content at husking, and between yield and good ears per plant. There was a negative correlation between yield and percentage of smut infection. There was no significant association between yield and plant height or number of rows per ear. Biggar (2) found that length and weight of ears showed a positive correlation with yield. There was no special relation between number of rows and yield. The results would, on the whole, indicate that there is no well marked basis for using ear characters to indicate yield possibilities. Love (21) obtained a small yield increase from planting long ears and from planting heavy ears, however, number of rows did not have any marked effect on yield. Love and Wentz (22) found a slight relation between the size of the seed ear and yield, so that the larger ear may tend to give the slightly larger yield.

In studying the possible relationship between productiveness and some physical characters of the seed ears with data from 4 varieties of corn extending over 47 crop years, Richey and Willier (27) found that accidental variation in soil and experimental conditions was responsible for a large part, possibly 90%, of the total variation in yield. From 2.5 to 6.7% of the total variation in yield in the different varieties was a function of variation in ear characters such as, weight of ear, length of ear, and number of rows of kernels.

By using different methods of corn breeding, Richey (26) found that selection on the basis of production and weight of ear is of value. Experiments indicate that it is preferable to obtain production by adding to the length rather than to the circumference of the ears, and that smoother fewer-rowed ears with a lower shelling percentage than the standard show type are

inclined to be the better yielders.

In an extensive comparative 1-year test of disease-free ears versus ears infected with root-rot diseases, Kiesselbach (16) found from 10 to 20% greater freedom from root-rot diseases in case of slender, smoother ears with horny kernels than in case of large, rough, starchy, deep-grained ears.

Jenkins (14) working with several inbred lines and their cross-bred progenies, found a significant positive correlation of yield with ear length, with plant height, with nodes per plant, with nodes below the ear, number of nodes per plant, and 2 or more ears per plant. A significant negative correlation was found with yield and chlorophyll grade. This negative correlation indicates that the dark-green plants were higher yielding. Date of tasseling and date of silking were significantly and positively correlated with plant height and nodes below the ear. Ear shape index was significantly and positively correlated with kernel rows per ear, and was significantly and negatively correlated with ears per plant and ear length.

Yields were inversely proportional to the number of kernel rows according to Kyle and Stoneberg (17).

Olson, Bull and Hayes (25) found a close relation between weight of ear and yield. No relation was found between maturity and yield.

By calculating multiple correlations for yields of F_1 crosses in relation to the length of the ear, number of kernel rows, and height of plant. Nilsson-Leissner (24) found that these correlations account for about 25% of the variability in yield of dent corn crosses and about 43% of flint corn crosses. These results demonstrate that selection among selfed lines for the characters desired is of value and that crosses between the more vigorous selfed lines yield better than crosses between less vigorous lines.

In studying the variability of several ear characters as influenced by food supply, Davenport and Rietz (4) found that increased fertility resulted in an increase in both length and circumference. Fertility had no effect upon row number. Love (20) studied the effect of nutrition upon number of ears per row and weight of ears per stalk. He found that in most cases when the standard deviation was used as an index of variability, the variation was increased as the fertility of the soil was increased. When the coefficient of variation was used, the results were not conclusive, for in some cases there was a decrease in the coefficient of variability and in others an increase.

In a 3-year corn experiment at Missouri, Etheridge (7) found no significant correlation between yield and height of stalk, number of nodes in the stalk, height of ear, and relative position of the ear node. He concluded that within the conventional limits of a variety of corn, no variation in the visible structure of characters of a normal, healthy plant is a reliable index to the relative ability of its progeny to yield. The relative yield of the mother plant is the only indication of the relative yield of the progeny. Hartley (10) obtained results indicating that no visible characters of apparently good seed ears are indicative of high yielding power.

Number of Nodes

Stringfield (30) presented data to show that in total effect neither time of silking nor ear-node height is inherited as a dominant character, that vigor was measured by grain yield, time of silking, and height of the ear-bearing node. Emerson and East (6) found in F_1 families that number of nodes was intermediate between the parent varieties. The mean number of

nodes in the F_2 was practically the same as in the F_1. Both facts indicate that number of nodes is not appreciable affected by heterozygosity. There was little or no physiological correlation between duration of growth and number of nodes, but apparently a distinct genetic correlation exists between these two characters.

The number of internodes and average length of each internode determine the height of the ear according to Smith (29).

Ewing (8) found a slight correlation between weight of grain and number of internodes and between yield and number of nodes below the ear.

MATERIALS AND METHODS

Five open-pollinated varieties of corn, Franklin Yellow Dent, Strawberry, Mickels Yellow Dent, Golden June, and 110 Day Dent, were selected from the breeding material at the Oklahoma A. & M. Agricultural Experiment Station for this study. Four of the varieties had not been subjected to selection in recent years. The fifth variety, 110 Day Dent, had been maintained in the Missouri seed certification program before it was obtained by the Oklahoma Station. All 5 varieties are being maintained by the Oklahoma Station as a source of breeding material and have been multiplied once by hand sib pollinations since the original seed stocks were obtained. Each variety was planted in a block near the Paradise Community, 19 miles Southwest of Stillwater, Oklahoma in the Spring of 1950.

The blocks were 40 hills long and 34 hills wide. Three seeds were planted per hill, and subsequently thinned to 1 plant per hill. The hills were spaced 40 inches in the row and the rows were 42 inches apart. The wide plant spacings were used to allow maximum individual plant expression. A block 20 hills wide and 20 hills long was used for each variety. The 10 hills left on the east and west ends of each block served as borders between the different varieties. The south side of the blocks was adjacent to a field of inbred lines of corn and the north side was adjacent to cotton. Nine rows were left on the south side and 5 rows on the north side for border on all varieties, except the Franklin Yellow Dent variety, where 2 rows were left on the north side and 12 rows on the south side.

The following data were recorded on the individual plants: height of plant, height of ear, length of ear, number of nodes below the ear, number

of nodes above the ear, number of rows per ear, and plant yield. Plant height, ear height, and number of nodes were determined in the field during the soft dough stage. The corn was harvested and allowed to air dry for about 6 weeks before yield, ear length, and row number were determined.

Plant height was determined for Franklin Yellow Dent by measuring from the surface of the ground to the top of the tassel. Because of breakage and loss of a lot of the tassels, plant height for the other 4 varieties was measured from the surface of the ground to the base of the tassel. Height of ear was measured from the surface of the ground to the ear bearing node. Where 2 or more ears appeared on 1 plant, height to the upper ear was measured. The number of nodes was determined by counting the nodes below and above the upper ear. Row number was counted about one-fourth of the way above the base of the ear. Height of plant, height of ear, and length of ear were measured in inches and yield was determined in grams of ear corn per plant. The data are presented in the appendix, Tables 5 to 39. Standard deviations, coefficients of variation, and means were computed for each variety. A correlation study was made with yield and several other characters.

Favorable growing conditions existed throughout the season and rainfall was exceptionally high during the months of June and July. Cultural practices used were those common to central Oklahoma.

RESULTS AND DISCUSSION

Plant Yield

Plant yield exhibited greater variation than any other character studied in the 5 varieties (Fig. 1 and Table 1). The range varied from 18 to 548 grams. The distributions for 110 Day Dent and Mickels Yellow Dent approached normality. The mode for both varieties occurred in class 265, while the means were 254.25 and 257.84 grams respectively. The distribution for Golden June did not show a definite mode, being practically flat from class 220 to class 355 grams. The variation in Strawberry and Franklin Yellow Dent was quite similar. The distributions were skewed to the right side of the mean. The modal class for both varieties occurred at 310 grams.

The coefficients of variation for yield show all the varieties were highly variable. Franklin Yellow Dent was high with 37.24%, while 110 Day Dent was low with 27.20%. The results indicate that the varieties with the smallest range also had the smallest coefficient of variation. In going to a higher range this does not hold true, however, because the varieties with the highest range did not have the highest coefficient of variation.

The extreme variates on the low side of the mean for all the varieties studied, may be attributed to corn smut, Ustilago zeae (Beckm.) Unger, that destroyed the good ears on some of the plants leaving only a nubbin that was harvested to represent the yield for that particular plant.

Height of Plant

Franklin Yellow Dent was measured from the surface of the ground to the top of the tassel for plant height, the other varieties being measured from

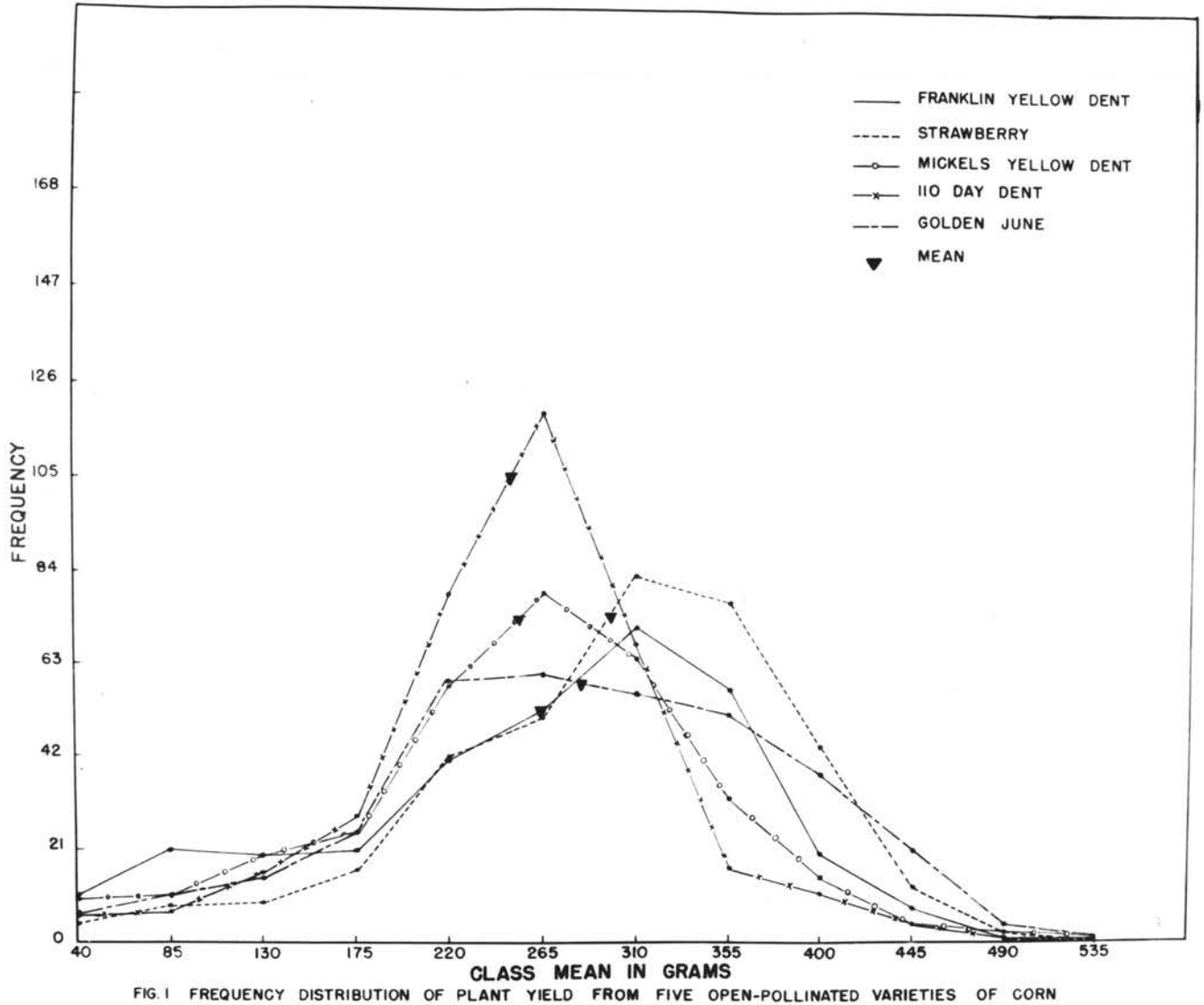

FIG. 1 FREQUENCY DISTRIBUTION OF PLANT YIELD FROM FIVE OPEN-POLLINATED VARIETIES OF CORN

Table 1--Mean and range of variability for the seven characters studied within five open-pollinated varieties of corn together with their standard deviations and coefficients of variation.

Varieties	Mean	Range	Standard Deviation	Coefficient of Variation %
	Characters			
	Plant Yield in grams of ear corn			
Franklin Yellow Dent	265.31	18-518	98.80	37.24
Strawberry	301.82	25-478	83.01	27.50
Mickels Yellow Dent	257.84	20-548	87.38	33.89
110 Day Dent	254.25	32-480	69.16	27.20
Golden June	284.80	22-542	96.67	33.94
	Plant Height in inches [2]			
Franklin Yellow Dent	99.55	71-122	8.35	8.39
Strawberry	79.01	49-102	7.91	10.01
Mickels Yellow Dent	80.21	47-110	8.94	11.15
110 Day Dent	74.38	52-94	7.72	10.38
Golden June	74.95	50-98	7.96	10.62
	Ear Height in inches			
Franklin Yellow Dent	43.00	27-64	6.84	15.90
Strawberry	41.79	23-63	7.58	18.13
Mickels Yellow Dent	43.51	20-69	7.15	16.44
110 Day Dent	33.68	15-47	5.70	16.91
Golden June	38.09	16-62	6.71	17.62
	Ear Length in inches			
Franklin Yellow Dent	8.33	3.0-12.0	1.48	17.82
Strawberry	7.72	3.0-11.0	1.10	14.20
Mickels Yellow Dent	6.84	3.0- 9.0	1.13	16.47
110 Day Dent	8.81	5.0-11.5	1.03	11.73
Golden June	6.99	3.0-10.0	1.14	16.37
	Row Number			
Franklin Yellow Dent	13.93	6-20	2.07	14.86
Strawberry	16.28	6-24	2.66	16.35
Mickels Yellow Dent	15.54	8-22	2.35	15.12
110 Day Dent	14.19	6-20	1.94	13.66
Golden June	15.10	8-22	2.23	14.78
	Nodes Below Upper Ear			
Franklin Yellow Dent	10.07	7-14	1.22	12.11
Strawberry	9.88	6-13	1.25	12.64
Mickels Yellow Dent	10.45	6-15	1.16	11.10
110 Day Dent	7.96	5-11	0.99	12.44
Golden June	9.69	7-13	1.19	12.28
	Nodes Above Upper Ear			
Franklin Yellow Dent	6.09	4-8	0.74	12.15
Strawberry	6.01	3-9	0.91	15.14
Mickels Yellow Dent	6.16	4-8	0.77	12.50
110 Day Dent	6.26	5-9	0.87	13.90
Golden June	6.23	4-9	0.86	13.80

[2] Franklin Yellow Dent was measured from the surface of the ground to the top of the tassel. The other varieties were measured from the surface of the ground to the base of the tassel for plant height.

the surface of the ground to the base of the tassel because of frequent breakage and loss of the tassels. The low coefficient of variation exhibited by Franklin Yellow Dent indicates that possibly more variation existed in the stalk than in the tassel (Table 1).

The frequency distributions of all the varieties were symmetrical with reference to the mean (Fig. 2). The mode for Franklin Yellow Dent occurred in class 101, while the mode for the other varieties occurred in class 77. Mickels Yellow Dent had the highest range from 47 to 110 inches, with the highest coefficient of variation, 11.15%. Strawberry had a lower coefficient of variation than any of the varieties measured alike for plant height, being 10.01%.

Height of Ear

The range of ear height varied from 15 to 69 inches for the 5 varieties (Table 1). Mickels Yellow Dent was high with a range from 20 to 69 inches. 110-Day Dent was low with a range from 15 to 47 inches.

The distributions for all 5 varieties were symmetrical and the modes very pronounced (Fig. 3). The modes for Franklin Yellow Dent, Mickels Yellow Dent and Strawberry occurred in class 43, with means approximately the same. The modes for 110 Day Dent and Golden June occurred in class 35, with means somewhat lower than in the other 3 varieties. The coefficients of variation show Strawberry was the most variable with 18.13%. Franklin Yellow Dent was low with 15.90%.

Length of Ear

The range of ear length for the 5 varieties varied from 3 to 12 inches in Franklin Yellow Dent and from 3 to 9 inches in Mickels Yellow Dent (Table 1).

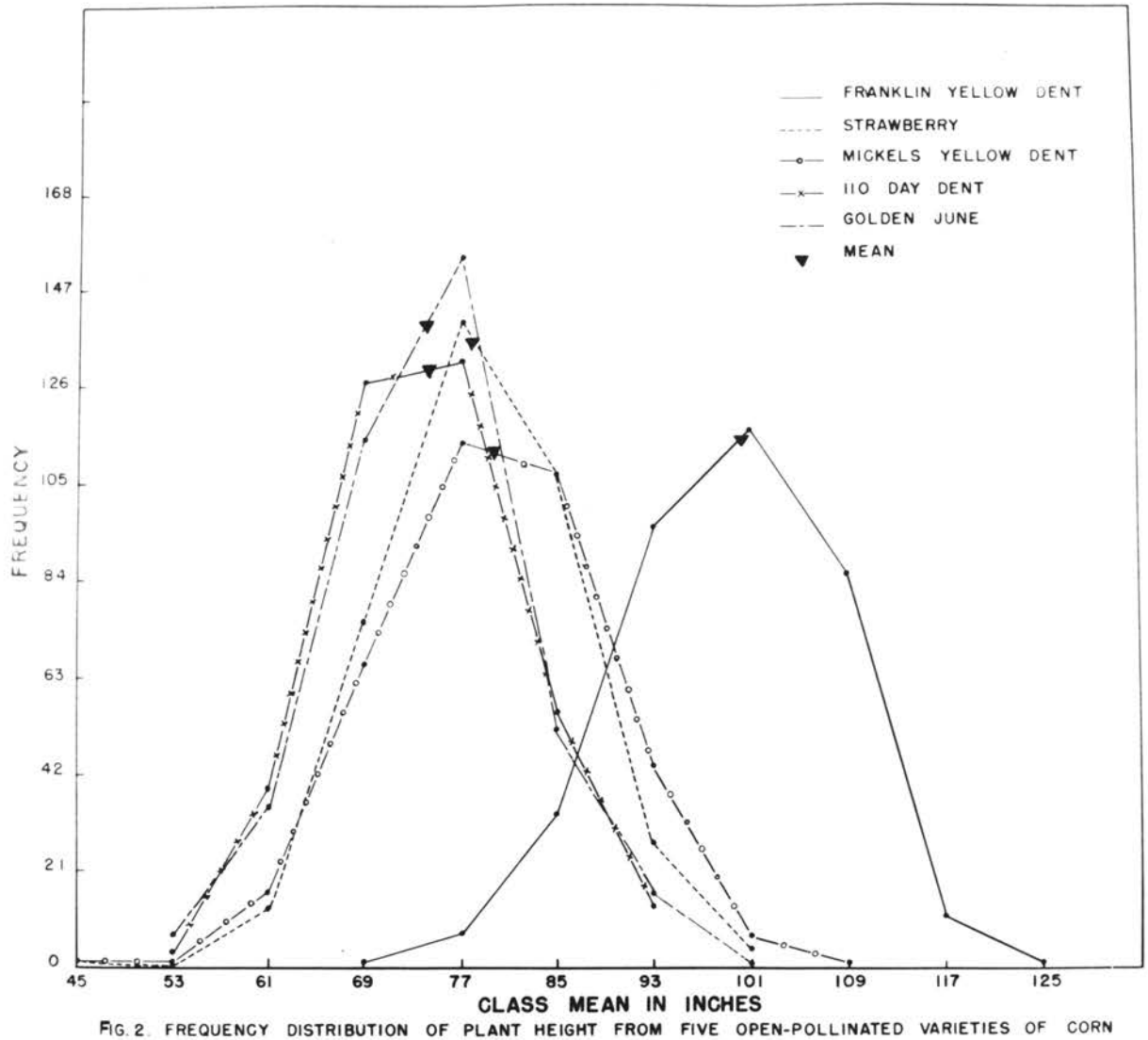

FIG. 2. FREQUENCY DISTRIBUTION OF PLANT HEIGHT FROM FIVE OPEN-POLLINATED VARIETIES OF CORN

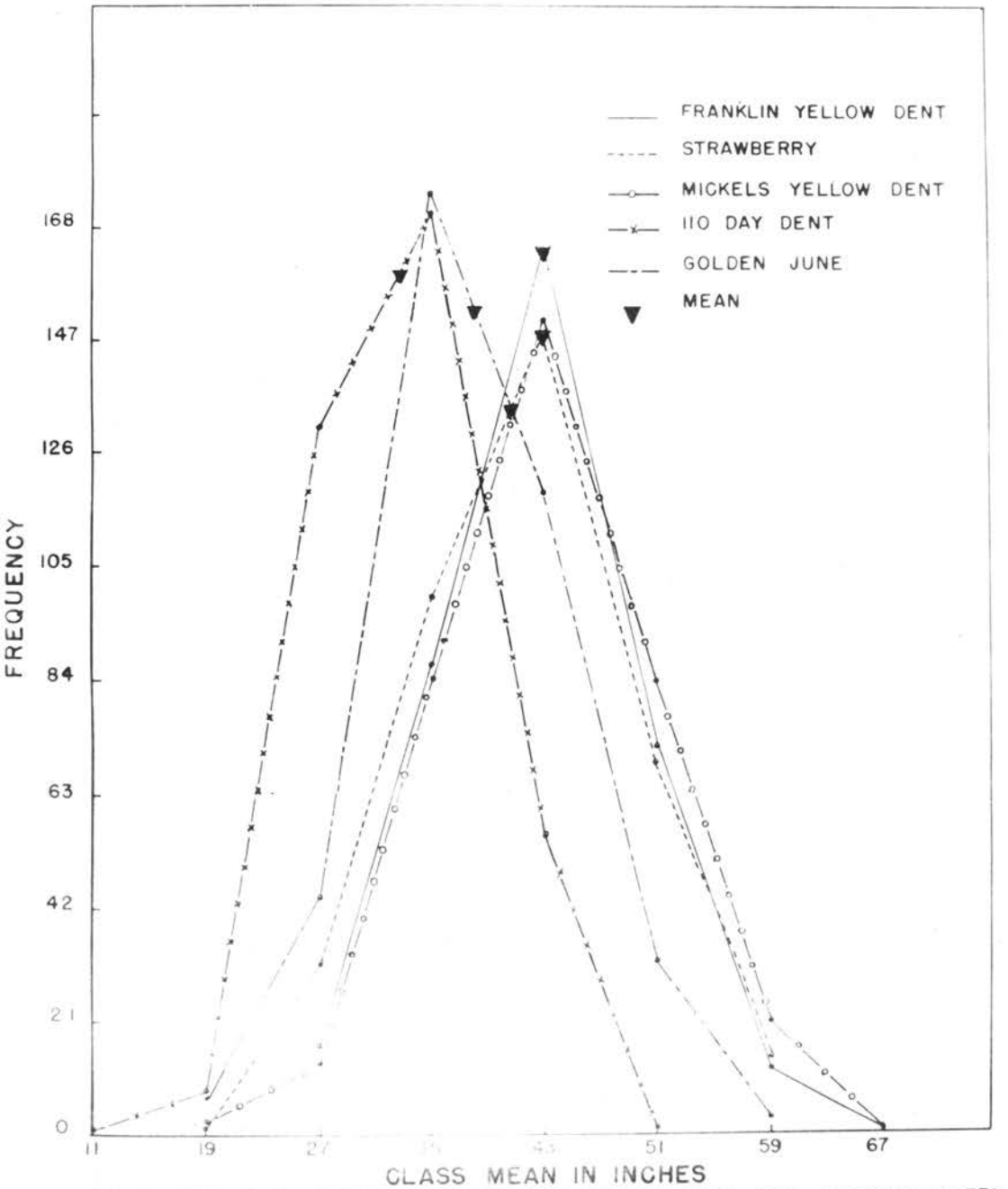

FIG. 3. FREQUENCY DISTRIBUTION OF EAR HEIGHT FROM FIVE OPEN-POLLINATED VARIETIES OF CORN

The distribution of Franklin Yellow Dent was skewed to the right side of the mean (Fig. 4). The mode occurred in class 9 and the mean ear length was 8.33 inches. The distribution for 110 Day Dent was symmetrical. The mean was highest, being 8.81 inches, and the mode occurred in class 9. The curves for Golden June and Mickels Yellow Dent were normal. The mode for both varieties occurred in class 7 and the means were practically the same. The mode for Strawberry occurred in class 8 with a mean of 7.72 inches.

The coefficients of variation show Franklin Yellow Dent was the most variable with a coefficient of 17.82%, and 110 Day Dent was the least variable with 11.73%.

The short ears probably occurred because of the plants being susceptible to corn smut as discussed under plant yield.

Frequency distributions indicate that Franklin Yellow Dent and 110 Day Dent had a tendency to produce ears 9 inches long, while Golden June and Mickels Yellow Dent had a tendency to produce 7 inch ears.

Row Number

Variability of number of rows per ear for the 5 varieties was greatest in Strawberry with a range from 6 to 24 rows (Fig. 5 and Table 1).

Franklin Yellow Dent and 110 Day Dent ranged from 6 to 20 rows, while Mickels Yellow Dent and Golden June varied from 8 to 22 rows per ear. These extremely wide ranges were expected considering the nature of the open-pollinated material.

Frequency distributions for Franklin Yellow Dent and 110 Day Dent were symmetrical and reached a peak in class 14. The distributions show that Strawberry had a tendency to produce 14 to 18-rowed ears with a high mean of 16.28 rows. Two modes were apparent for Mickels Yellow Dent and Golden June

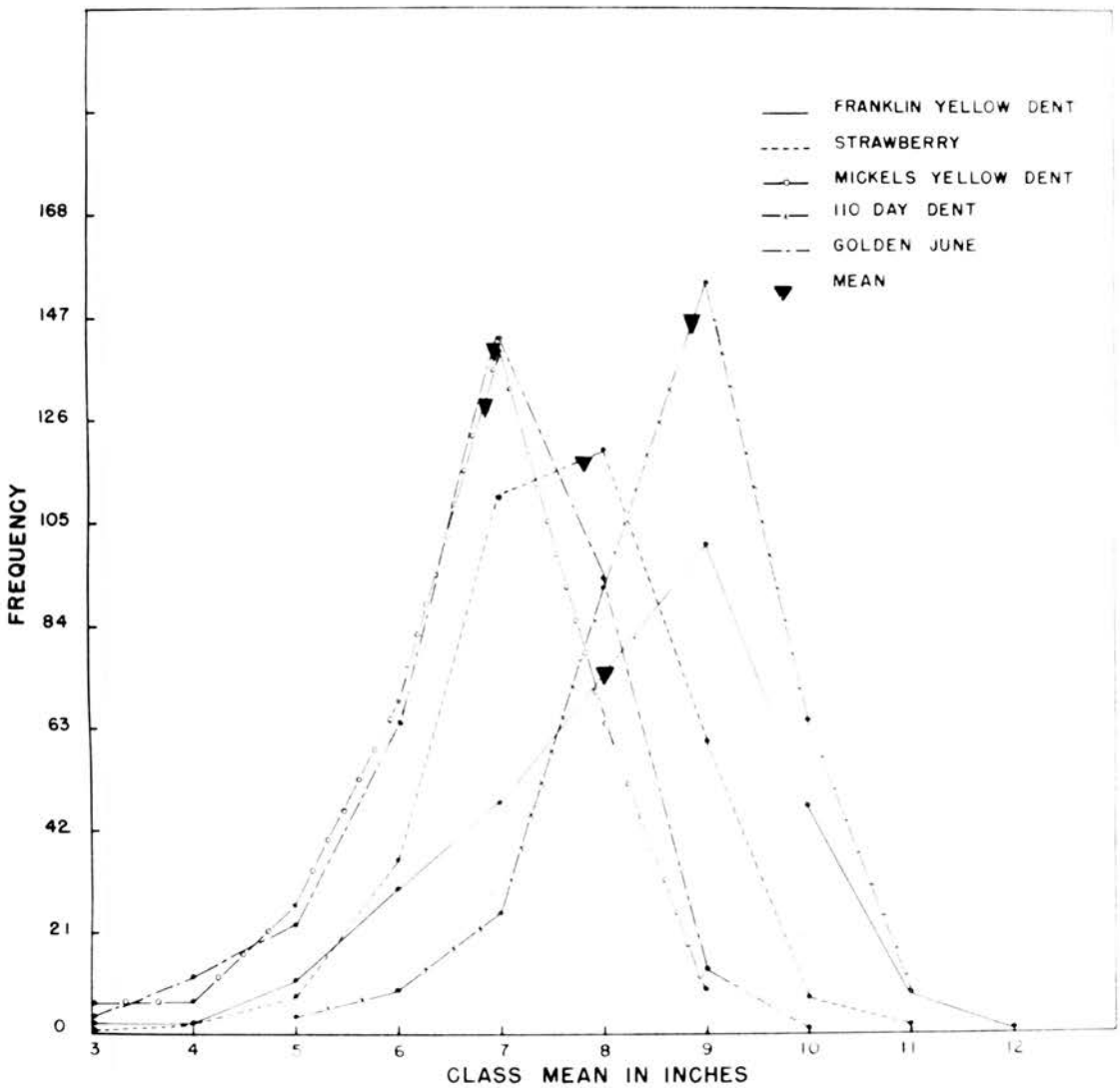

FIG. 4 FREQUENCY DISTRIBUTION OF EAR LENGTH FROM FIVE OPEN-POLLINATED VARIETIES OF CORN

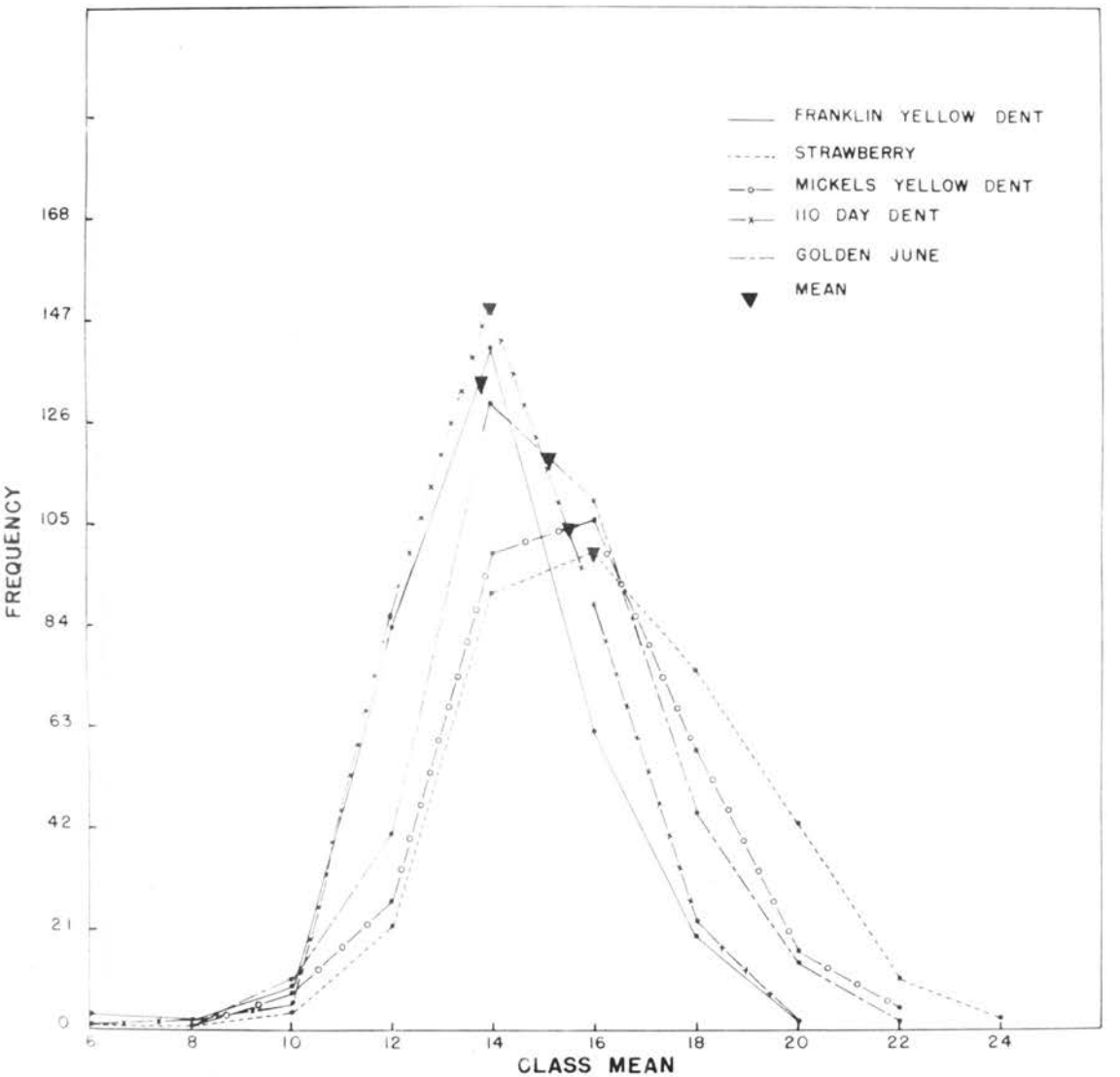

FIG. 5 FREQUENCY DISTRIBUTION OF NUMBER OF ROWS PER EAR FROM FIVE OPEN-POLLINATED VARIETIES OF CORN

in class 14 and 16, the means being 15.54 and 15.10 rows respectively.

The coefficients of variation show that Strawberry was the most variable with a coefficient of 16.35%, and 110 Day Dent was the least variable with 13.66%.

Nodes Below the Ear

The number of nodes below the ear for the 5 varieties varied from 5 to 15 (Fig. 6 and Table 1). The range was greatest in Mickels Yellow Dent and lowest in 110 Day Dent. The distribution for 110 Day Dent was normal with a very pronounced peak in class 8, the mean 7.96 was lowest.

The distributions for Franklin Yellow Dent and Mickels Yellow Dent were similar. The mode for both varieties occurred in class 10, the means being 10.07 and 10.45 respectively. The distributions showed that the behavior of Strawberry and Golden June were also similar. The modes occurred in class 10, with means of 9.88 and 9.69 respectively.

The coefficients of variation were practically the same for all 5 varieties. Strawberry was high with 12.64% and Mickels Yellow Dent was low with 11.10%.

Nodes Above the Ear

The frequency distributions show little variation in any of the varieties for nodes above the ear. The mode for each variety occurred in class 6. The distributions were different, however, resulting in different modal positions (Fig. 7 and Table 1). The number of nodes above the ear varied from 3 to 9 in Strawberry and from 4 to 8 in Franklin Yellow Dent and Mickels Yellow Dent. The coefficients of variation show Strawberry was the most variable with 15.14% and Franklin Yellow Dent was the least variable with 12.15%.

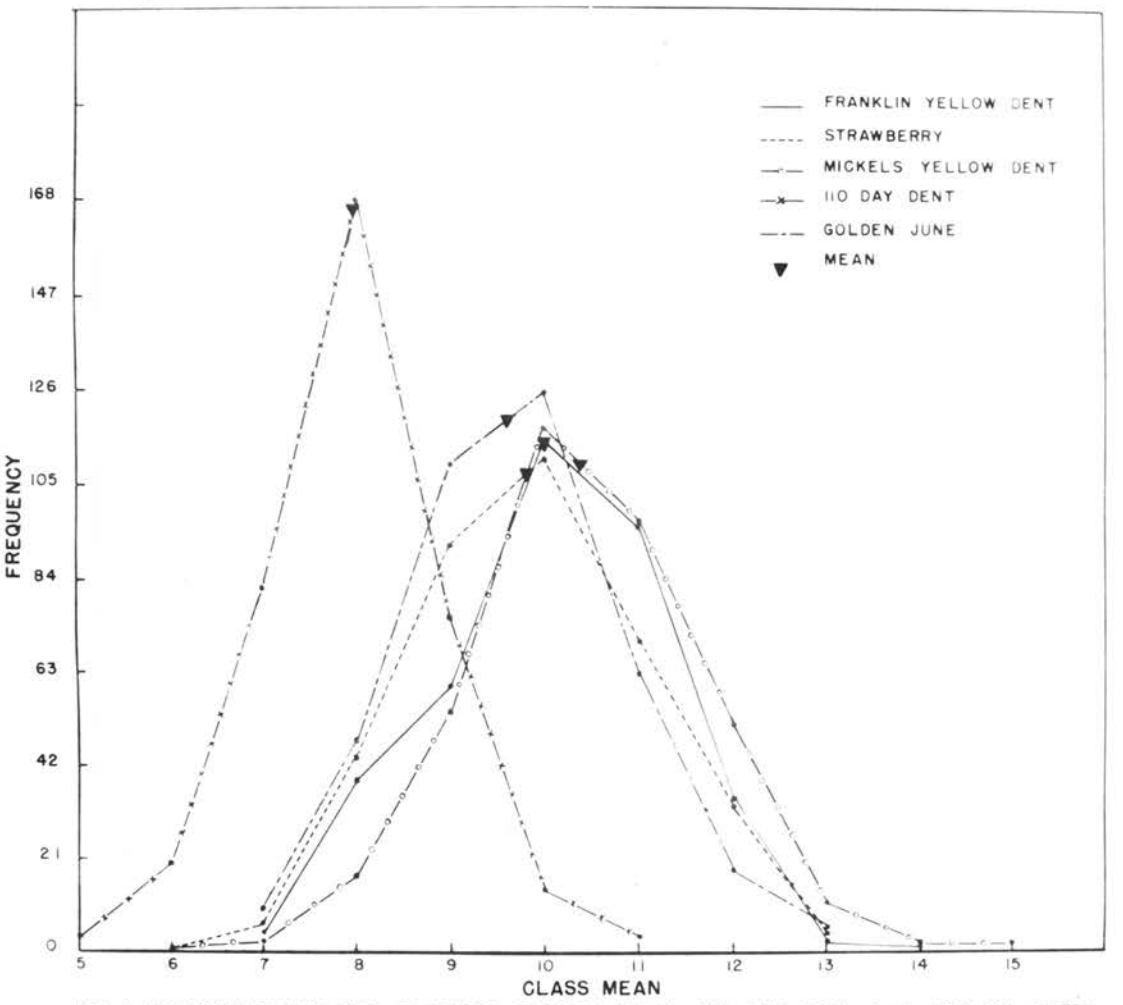

FIG. 6. FREQUENCY DISTRIBUTION OF NUMBER OF NODES BELOW THE EAR FROM FIVE OPEN-POLLINATED VARIETIES OF CORN

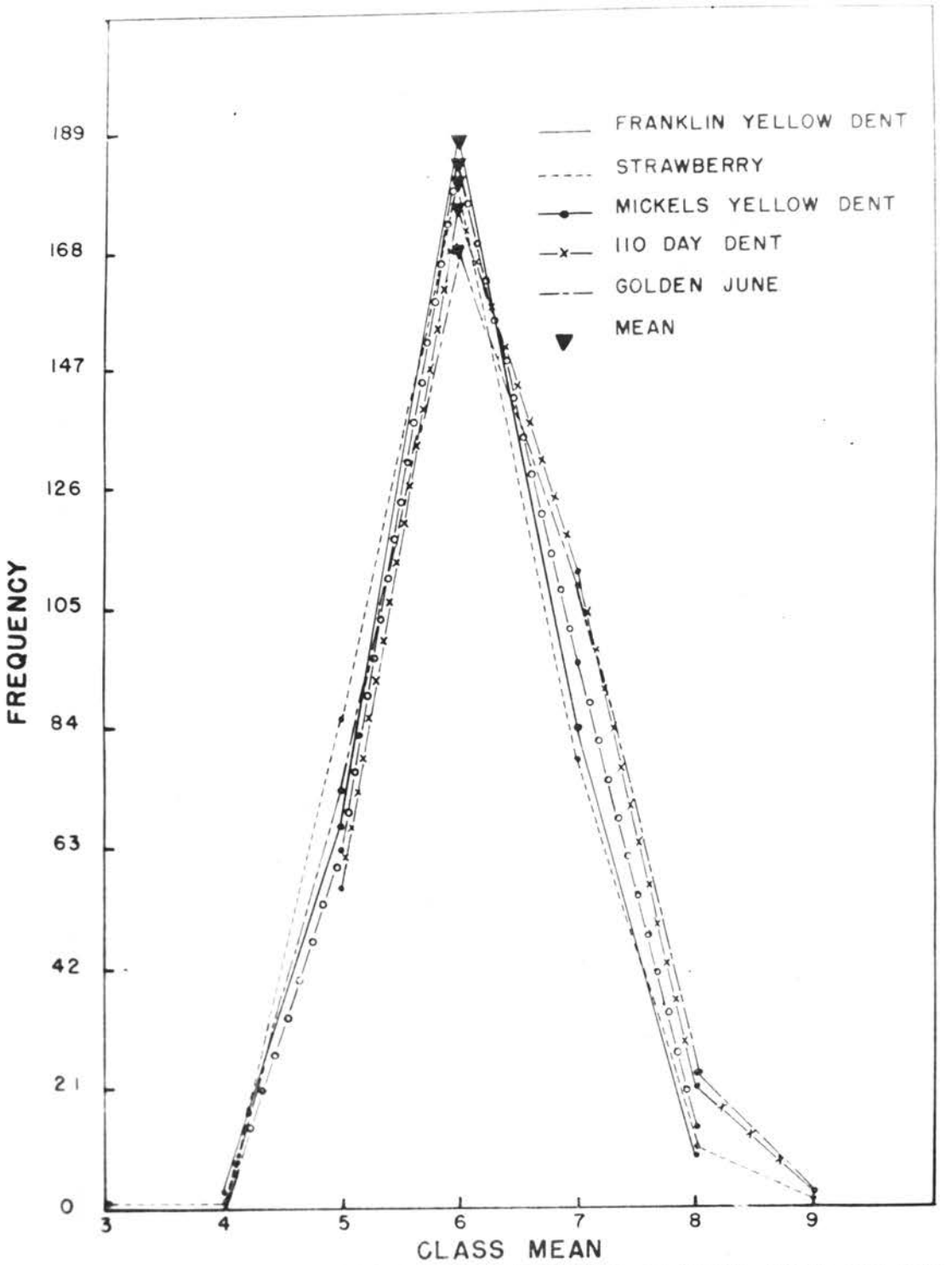

FIG. 7. FREQUENCY DISTRIBUTION OF NUMBER OF NODES ABOVE THE EAR FROM FIVE OPEN-POLLINATED VARIETIES OF CORN

The data indicate that all the varieties possessed about the same degree of homozygosity for this character with a tendency to produce plants with 6 nodes above the ear.

Simple Correlations

Simple correlation coefficients for yield and various combinations of 4 other characters: number of nodes below the ear, number of nodes above the ear, number of rows per ear, and length of ear, were computed to determine the correlation between these measurable characters. If such an association could be found, it would be possible to select the character correlated with yield as an indicator to higher productivity. No distinction is made as to the cause of any correlation that was found in this study. When characters are associated in their inheritance, it is necessary to investigate this kind of correlation by hybridization experiments in order to find whether there is a real genetic relationship between the 2 characters.

Data in Table 2 show a highly significant positive correlation between plant yield and number of nodes below the ear in all the varieties studied, except Franklin Yellow Dent. This association indicates that selecting for higher number of nodes below the ear for 4 of the varieties would increase yield. This is in contrast to Etheridge (7), who reported no significant correlation between yield of the corn plant and variations in its visible structures and characters. However, these results are in substantial agreement with Jenkins (14) and Ewing (8).

Plant yield was highly significant and positively correlated with nodes above the ear in only the 110 Day Dent variety. Franklin Yellow Dent and Golden June showed a slight negative correlation. The relation of these

Table 2--Simple correlation coefficients for yield and various combinations of four other characters within five open-pollinated varieties of corn.

Variables	Varieties	Variables 2 Number of Nodes Below Ear	3 Number of Nodes Above Ear	4 Row Number	5 Length of Ear
1 Yield	Franklin Yellow Dent	0.0086	-0.0154	0.5471**	0.6291**
	Strawberry	0.1612**	0.1023	0.2275**	0.5729**
	Mickels Yellow Dent	0.1814**	0.0034	0.2467**	0.6276**
	110 Day Dent	0.1474**	0.3218**	0.3173**	0.4764**
	Golden June	0.1705**	-0.0242	0.1755**	0.5023**
2 Nodes Below Ear	Franklin Yellow Dent		-0.1893**	0.1068	-0.0457
	Strawberry		-0.1096	-0.0375	0.0931
	Mickels Yellow Dent		-0.1037	0.0571	0.0747
	110 Day Dent		-0.1782**	0.0931	0.1267**
	Golden June		-0.1073	0.0969	0.0064
3 Nodes Above Ear	Franklin Yellow Dent			-0.0595	0.0635
	Strawberry			-0.0305	0.0848
	Mickels Yellow Dent			0.0298	0.0566
	110 Day Dent			0.1023	0.2222**
	Golden June			0.0242	-0.0263
4 Row Number	Franklin Yellow Dent				-0.0445
	Strawberry				-0.0339
	Mickels Yellow Dent				0.0925
	110 Day Dent				0.1165*
	Golden June				0.1146*

*Significant at 5% level.
**Significant at 1% level.

characters varied with the different varieties.

A highly significant and positive correlation was found between yield and number of rows per ear in all the varieties. This is in contrast to Biggar (2) and Hayes and Johnson (12), who reported no significant association between yield and number of rows per ear. Richey and Willier (27) reported a negative correlation, but concluded that the unfavorable effect of a larger number of rows to yield was offset to some extent by a favorable effect of a larger circumference which usually accompanies an increase in the number of rows.

Plant yield was highly correlated with length of ear in all varieties. This is in agreement with Hayes and Johnson (12), Biggar (2) and Jenkins (14).

Nodes below the ear were negatively correlated with nodes above the ear. These correlations were highly significant for 2 varieties, and approached significance for the other 3 varieties. This relationship indicates that the relative position of the ear did not effect the number of nodes per plant. Selecting for low ears would increase the number of nodes above the ear and selecting for high ears would increase the number of nodes below the ear.

Little relation was found between nodes below the ear and row number. 110-Day Dent was the only variety that showed a significant correlation between nodes below the ear and ear length.

Nodes above the ear were not significantly associated with row number for any of the varieties, although 110 Day Dent approached significance. Nodes above the ear were not closely associated with ear length in 4 of the varieties, 110 Day Dent being the only one that reached significance. Both 110 Day Dent and Golden June showed a significant positive correlation between row number and ear length. While Franklin Yellow Dent and Strawberry

showed a negative association, although not significant.

Partial Correlations

Partial correlation coefficients were computed to determine the contributory causes of the interrelations of yield with nodes above the ear and nodes below the ear when the variation due to row number and ear length had been removed (Table 3). The results are similar to those of the simple correlations (Table 2). Plant yield showed a highly significant and positive correlation with nodes below the ear in 4 of the varieties when the variation due to nodes above the ear, row number, and ear length had been eliminated. When the variation due to row number and ear length was removed, and the nodes above the ear varied, only 3 of the varieties showed this significant relationship. This indicates that nodes above the ear had some effect on the correlation between yield and nodes below the ear in all the varieties.

Only the 110 Day Dent variety showed a positive and highly significant correlation between yield and nodes above the ear when the variation due to nodes below the ear, row number, and ear length was removed. When nodes below the ear was allowed to vary the coefficients were smaller for all 5 varieties. This also indicates that the correlation between yield and nodes above the ear was effected by nodes below the ear.

Multiple Correlations

The multiple correlation coefficients between yield and various combinations of 4 other characters are shown in Table 4. The squares of these coefficients measure the degree to which variation in yield is a function of variation in the other 4 characters. Thus 72.8% of the total variation in

Table 3--Partial correlation coefficients of yield with nodes below the ear and nodes above the ear for five open-pollinated varieties of corn.

Varieties	Designation of Coefficient[3]			
	$r_{12.345}$	$r_{12.45}$	$r_{13.245}$	$r_{13.45}$
Franklin Yellow Dent	-0.0533	-0.0444	-0.0530	-0.0437
Strawberry	0.1603**	0.1496**	0.0971	0.0778
Mickels Yellow Dent	0.1713**	0.1662**	0.0558	0.0364
110 Day Dent	0.1392**	0.0790	0.2637**	0.2389**
Golden June	0.1821**	0.1828**	0.0037	-0.0166

*Significant at 5% level.
**Significant at 1% level.

Table 4--Multiple correlation coefficients between yield and nodes below the ear, nodes above the ear, row number, and ear length for five open-pollinated varieties of corn.

Designation of Coefficient[3]	Franklin Yellow Dent	Mickels Yellow Dent	Strawberry	110 Day Dent	Golden June
	R	R	R	R	R
$R_{1.2345}$	0.8535	0.6679	0.6392	0.5948	0.5394
$R_{1.345}$	0.8536	0.6509	0.6231	0.5802	0.5139
$R_{1.45}$	0.8534	0.6510	0.6168	0.5121	0.5140

[3]Key to Characters:
1. Plant yield.
2. Nodes below the ear.
3. Nodes above the ear.
4. Row number.
5. Ear length.

yield of Franklin Yellow Dent was a function of variation in the other characters considered and could be predicted from the multiple regression equation involving these characters. Similarly 39.1% of the total variation in yield for Golden June could be predicted from the equation for the same characters. The multiple correlation coefficients do not show whether the relation between yield and the independent variables were positive or negative. However, this may be determined from the regression equations.

In the regression equations involving 4 different characters within the 5 varieties, yield was related to these characters as shown below. The symbols used for the characters in the regression equations are as follows: X_1= yield; X_2= nodes below the ear; X_3= nodes above the ear; X_4= row number; and X_5= ear length.

Franklin Yellow Dent-----$X_1 = -0.0285X_2 - 0.0280X_3 + 0.5776X_4 + 0.6553X_5$

Strawberry----------$X_1 = 0.1266X_2 + 0.0761X_3 + 0.2537X_4 + 0.5633X_5$

Mickels Yellow Dent------$X_1 = 0.1234X_2 - 0.0234X_3 + 0.1846X_4 + 0.6027X_5$

110 Day Dent----------$X_1 = 0.1168X_2 + 0.2311X_3 + 0.2370X_4 + 0.3926X_5$

Golden June----------$X_1 = 0.1576X_2 + 0.0031X_3 + 0.1041X_4 + 0.4895X_5$

In the above equations the variation of ear length had the greatest influence on yield. For instance, the influence was greatest in Franklin Yellow Dent, which show for each standard measure ear length increased, yield would increase by 0.6553 standard measures.

The effectiveness of row number on yield was not so great as the effectiveness of ear length. Franklin Yellow Dent again was highest with 0.5776. These results were not surprising in view of the significant association between yield with ear length and row number as indicated by the simple correlations in Table 2.

Nodes above the ear had little influence on yield for any of the varieties, except 110 Day Dent. The influence of nodes below the ear on yield was about one-fourth as great as the influence on ear length in all but 1 of the varieties. Even though the effect was small this indicates that yield would be increased by increasing the number of nodes below the ear.

SUMMARY AND CONCLUSIONS

Five open-pollinated varieties of corn: Franklin Yellow Dent, Strawberry, Mickels Yellow Dent, 110 Day Dent, and Golden June were planted near the Paradise Community, 19 miles Southwest of Stillwater, Oklahoma, to study the variation and relationship of yield and 6 other characters within the 5 varieties, and to determine if any of these characters could be used safely as a guide in selection to increase yield.

Each variety was planted in a block 40 hills long and 34 hills wide. Three seeds were planted per hill, and subsequently thinned to 1 plant per hill. The hills were spaced 40 inches in the row and the rows were 42 inches apart. The wide plant spacings were used to allow maximum individual plant expression. A block 20 hills wide and 20 hills long for each variety was used in this study. The remaining outside hills served for border.

Frequency distributions were presented graphically for the 7 characters within the 5 varieties. The mean and range of variability together with the standard deviation and coefficient of variation were determined for each character within the varieties. Simple, partial, and multiple correlation coefficients with the multiple regression equations were computed for yield with nodes below the ear, nodes above the ear, row number and ear length.

A wide range of variation was found in all the characters discussed as indicated by the coefficients of variation. The greatest variation was found for plant yield and the lowest for plant height.

Plant yield was highly significant and positively correlated with number of nodes below the ear in 4 of the varieties; with number of nodes above the ear in 1 variety; and with row number and ear length in all 5 varieties.

A highly significant negative correlation was found between number of nodes below the ear and number of nodes above the ear for 2 of the varieties. The correlations for the other 3 varieties approached significance. This negative correlation indicates that selecting for low ears would increase the number of nodes above the ear and selecting for high ears would increase the number of nodes below the ear without altering the number of nodes per plant.

The partial correlation coefficients showed that the relation between plant yield and number of nodes below the ear was affected by the number of nodes above the ear. Likewise the relation between plant yield and number of nodes above the ear was affected by the number of nodes below the ear.

From 39.1% to 72.8% of the total variation in yield in the 5 varieties was a function of variation in number of nodes below the ear, number of nodes above the ear, row number, and ear length.

As shown by the multiple regression equations, ear length had the greatest influence on yield followed by row number and number of nodes below the ear. Number of nodes above the ear had little influence on yield for any of the varieties, except 110 Day Dent.

The data indicated that selection on the basis of ear length, row number, and number of nodes below the ear could be used as a method of breeding to increase yield.

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APPENDIX

Table 5--Yield per plant in grams for the Franklin Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS[4]																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	165	48	282	255	152	273	---	183	313	103	84	---	298	150	272	354	379	362	---	---
2	243	161	150	295	210	269	297	---	---	314	364	256	334	430	203	359	304	312	---	---
3	48	116	246	315	206	278	329	73	325	---	47	284	---	66	247	---	372	362	180	---
4	360	100	375	215	300	---	202	85	---	362	57	258	302	---	344	137	202	320	---	---
5	310	350	451	---	350	275	248	282	134	---	348	---	225	64	234	314	216	319	---	---
6	29	401	330	275	370	---	376	375	---	250	238	146	219	244	355	108	59	308	190	---
7	335	152	251	313	320	358	---	---	114	315	356	378	280	---	---	242	356	292	376	358
8	338	---	68	392	230	258	352	388	89	378	358	338	270	54	337	246	244	296	329	241
9	364	307	323	328	379	306	289	---	359	365	384	370	92	340	284	136	298	230	228	204
10	340	150	245	350	324	326	---	326	260	185	422	336	208	138	---	209	258	119	---	192
11	245	312	---	143	361	---	368	290	190	296	248	350	121	290	304	230	---	361	235	176
12	---	390	230	158	---	360	430	304	305	46	---	---	---	276	---	363	399	70	---	---
13	---	391	220	243	98	257	70	248	185	338	---	---	---	---	---	---	278	---	---	332
14	317	239	330	376	190	179	260	359	299	---	332	282	304	236	260	298	62	287	282	294
15	---	267	---	298	325	---	---	254	229	---	346	318	90	155	346	308	---	420	308	296
16	30	307	308	326	375	334	322	210	122	430	276	336	120	255	224	---	333	---	---	103
17	318	312	317	264	358	171	378	186	96	272	222	98	244	225	---	72	240	82	189	---
18	---	18	178	292	298	---	452	299	270	---	410	---	333	236	346	243	68	386	226	120
19	306	460	307	212	---	462	246	268	249	508	86	518	382	382	358	324	332	---	---	170
20	388	208	335	314	---	316	---	372	---	238	222	384	92	277	330	177	200	202	185	206

[4]The figures across the top indicate the number assigned to each row as they appeared in the field, and the figures down the left margin indicate the number assigned to each plant in the row. Succeeding tables show similar data for the other varieties and characters.

---No data.

Table 6--Yield per plant in grams for the Strawberry variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	197	246	---	395	303	---	---	238	387	374	389	269	414	146	204	296	267	359	235	300
2	316	425	---	352	339	220	370	---	298	172	---	282	326	251	200	266	288	128	240	268
3	202	252	---	412	267	329	298	314	332	228	356	290	187	321	308	345	180	126	---	377
4	292	88	223	---	321	392	390	290	306	---	320	---	287	336	366	112	300	195	314	314
5	78	332	333	396	268	384	390	292	334	317	298	330	250	---	186	180	---	377	416	---
6	438	248	306	368	345	370	244	218	296	466	430	382	218	332	256	330	300	---	287	266
7	360	---	388	399	298	330	---	346	---	181	286	265	193	238	294	368	225	374	381	350
8	290	306	314	375	380	412	302	458	---	271	274	389	298	108	320	---	271	---	189	311
9	458	71	398	---	418	340	360	382	---	---	274	394	298	159	228	90	418	256	---	334
10	303	---	345	300	352	354	364	284	345	339	---	104	331	242	237	478	229	219	---	349
11	271	341	242	198	314	320	261	342	358	---	238	350	434	---	468	---	422	278	348	322
12	446	310	---	---	260	234	439	218	414	352	371	392	280	318	348	358	282	244	---	282
13	275	366	381	---	314	221	448	---	286	388	341	283	208	237	335	368	348	347	368	124
14	306	---	---	348	395	288	308	374	374	25	371	280	301	368	---	---	---	---	---	316
15	284	345	392	356	335	348	410	144	374	405	331	352	350	320	370	316	252	343	336	38
16	212	348	312	282	82	---	88	350	52	318	306	338	390	---	367	270	216	---	223	312
17	308	226	378	---	---	389	268	394	330	322	313	408	---	412	438	328	255	318	335	324
18	382	254	270	398	---	320	214	198	310	297	228	183	236	318	354	364	354	296	262	296
19	237	301	309	81	---	201	334	172	361	409	330	390	176	215	108	407	269	330	318	276
20	408	362	383	364	244	220	346	306	184	445	301	182	346	285	134	239	228	266	223	164

---No data.

Table 7--Yield per plant in grams for the Mickels Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	193	---	---	310	243	311	184	274	266	310	155	304	---	90	243	279	197	---	194	136
2	265	346	300	228	304	300	35	300	158	136	192	360	205	247	436	202	206	346	475	171
3	390	---	240	---	422	316	345	209	241	317	288	278	280	---	212	---	---	259	119	---
4	284	245	406	464	245	121	298	324	242	296	158	276	253	---	151	395	229	160	318	70
5	223	---	292	352	337	---	20	276	232	---	382	303	374	251	52	---	245	146	400	262
6	---	95	---	282	24	165	245	370	220	270	386	---	260	406	---	355	---	307	298	---
7	206	303	111	284	---	163	353	328	116	225	54	263	294	430	268	---	433	---	342	241
8	363	323	298	264	291	240	267	180	170	166	234	240	306	268	297	328	---	359	244	240
9	132	218	263	338	311	240	217	---	231	---	304	300	274	313	265	388	---	298	281	---
10	244	---	331	318	210	274	354	238	251	310	218	377	---	364	277	284	214	229	296	---
11	292	476	---	---	275	335	254	---	350	---	340	416	---	---	212	280	260	---	253	220
12	319	---	---	---	340	277	---	247	280	215	---	190	223	---	292	142	120	165	258	242
13	214	235	23	---	360	189	---	228	378	80	112	309	290	295	315	228	133	89	252	---
14	143	---	186	353	344	---	---	---	364	74	298	272	298	50	48	276	---	179	---	314
15	---	---	280	251	239	289	242	303	278	310	---	261	247	237	289	274	116	269	548	298
16	192	272	252	229	264	---	284	150	266	284	---	378	415	354	351	190	242	30	216	---
17	324	365	328	283	221	322	321	292	147	---	---	---	339	317	283	219	250	---	158	290
18	---	252	233	218	72	302	264	224	342	176	---	277	---	---	---	300	359	---	97	288
19	281	64	138	348	231	281	228	260	280	---	324	324	222	50	---	218	---	274	256	172
20	265	390	231	274	400	294	---	250	302	278	---	199	192	---	141	80	334	230	---	72

---No data.

Table 8--Yield per plant in grams for the 110 Day Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	450	149	251	278	228	260	248	304	259	64	256	---	228	300	---	306	230	236	281	---
2	268	88	250	198	276	238	220	265	320	184	150	---	324	76	---	232	---	302	205	210
3	208	341	218	348	230	---	314	252	335	198	304	---	296	---	293	274	480	260	200	300
4	259	218	274	267	287	268	207	265	32	252	312	219	162	307	108	244	302	222	254	112
5	291	252	190	138	252	277	290	357	56	287	366	137	205	---	---	290	239	272	262	249
6	312	---	292	---	237	405	---	321	---	250	244	---	228	---	340	269	216	335	236	295
7	278	258	220	243	302	---	255	382	176	244	255	62	---	154	264	258	284	334	228	226
8	394	274	224	252	249	264	294	142	---	218	121	165	283	---	170	312	233	290	288	189
9	---	232	---	313	160	222	250	248	---	266	282	255	281	---	255	294	306	178	232	---
10	319	195	298	302	215	295	306	351	---	191	228	---	---	380	356	283	248	219	223	89
11	236	---	204	193	232	243	294	275	222	312	275	---	143	303	241	397	228	309	306	60
12	268	302	272	283	235	220	333	264	278	253	448	197	---	342	---	246	284	327	291	208
13	283	270	115	291	181	---	280	293	80	---	176	272	167	286	324	276	159	272	283	244
14	312	241	196	274	319	309	254	310	255	349	330	276	217	308	---	194	302	42	278	---
15	200	262	332	187	268	275	290	266	290	279	218	286	102	249	280	268	---	218	242	284
16	420	330	---	317	218	230	128	408	264	---	---	300	251	230	230	284	192	280	223	124
17	334	266	349	278	302	190	272	119	---	326	436	276	215	198	240	91	204	290	192	263
18	154	240	234	292	157	201	262	256	278	256	---	332	246	230	238	263	269	336	236	185
19	397	214	126	312	252	223	249	267	400	380	270	238	276	289	134	192	116	202	212	289
20	272	254	301	279	424	225	292	246	404	280	254	288	253	218	172	261	370	222	239	200

---No data.

Table 9--Yield per plant in grams for the Golden June variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	220	295	247	321	294	220	317	209	244	278	398	290	412	395	---	334	26	362	146	282
2	280	302	---	---	211	290	364	399	---	356	296	248	296	265	---	380	---	214	---	41
3	315	322	437	324	115	350	200	206	182	380	234	104	424	204	142	168	197	226	237	288
4	362	330	372	235	349	---	---	439	310	30	325	366	289	273	267	---	391	322	355	337
5	183	195	480	214	199	355	203	290	464	---	304	253	282	249	---	210	198	---	310	298
6	195	348	---	263	446	334	427	---	356	209	---	402	231	266	231	178	428	---	406	294
7	335	310	262	---	258	228	235	342	286	90	158	363	247	---	220	251	135	296	292	---
8	300	352	281	352	212	209	---	448	---	365	376	320	84	542	201	51	223	303	366	---
9	227	244	246	256	388	80	268	134	342	176	298	450	---	325	276	306	257	315	68	110
10	418	340	306	240	300	164	298	342	416	416	---	208	---	172	188	262	248	194	384	180
11	270	336	306	324	---	348	---	372	452	---	300	500	432	294	351	---	252	80	---	312
12	226	228	239	236	217	443	412	141	340	339	476	277	377	236	347	242	351	282	394	152
13	262	308	---	455	280	346	228	265	240	420	358	161	374	264	159	237	334	411	---	378
14	276	274	---	224	236	278	387	262	372	351	186	363	210	428	234	304	320	382	162	250
15	380	---	22	262	369	298	---	203	398	244	342	230	67	488	274	284	451	128	256	144
16	398	364	382	428	280	415	332	442	246	293	402	234	---	---	454	121	---	100	372	400
17	253	76	392	345	338	425	348	258	112	190	420	408	289	161	389	---	257	206	186	212
18	106	262	311	244	188	348	224	236	158	366	---	402	349	418	295	222	213	---	---	206
19	350	---	304	143	100	212	235	329	---	400	108	424	259	297	325	112	390	396	260	163
20	---	372	403	248	359	247	264	424	54	240	300	318	278	193	375	216	---	228	286	270

---No data.

Table 10--Height of plant in inches for the Franklin Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	86	101	100	86	84	94	--	89	94	96	108	--	90	89	104	100	92	95	92	--
2	91	100	92	92	75	96	98	--	101	93	102	112	103	115	95	101	104	110	--	--
3	92	110	96	93	96	92	106	--	88	93	--	88	100	94	112	--	103	100	89	--
4	102	94	101	92	106	--	92	80	--	100	102	91	100	--	106	96	71	98	--	--
5	96	98	99	81	99	107	97	88	106	--	97	--	80	94	105	114	113	110	--	--
6	86	96	101	92	86	101	100	116	--	101	98	103	98	85	106	94	87	108	91	--
7	86	84	96	102	96	102	--	106	98	112	97	104	108	102	91	93	95	112	102	99
8	100	--	87	106	101	102	93	104	90	104	112	97	101	95	109	106	101	106	106	99
9	92	105	101	102	88	96	106	96	94	95	104	117	98	76	101	114	95	102	102	100
10	97	110	90	98	89	105	--	95	106	106	115	108	91	113	104	93	94	98	--	106
11	95	100	103	92	93	106	111	100	89	90	86	111	112	122	116	96	94	102	98	104
12	--	93	106	102	100	98	115	87	106	100	98	--	--	102	--	94	102	88	106	--
13	80	106	95	107	107	116	113	92	106	106	109	107	102	102	86	--	105	99	--	94
14	91	90	114	93	95	100	112	112	95	--	97	108	89	98	106	87	107	87	100	92
15	--	98	--	103	107	--	--	93	91	--	87	99	101	99	107	113	94	112	106	90
16	101	98	103	97	99	100	99	99	103	111	97	106	107	96	97	108	106	--	98	102
17	101	92	98	96	100	106	113	92	93	95	104	104	106	100	--	104	109	112	112	105
18	--	104	--	--	100	--	112	111	103	--	112	--	93	111	108	96	106	100	86	88
19	107	100	105	83	--	106	77	112	104	106	104	108	106	105	107	88	94	109	86	97
20	102	98	101	97	--	96	--	108	--	120	112	110	88	90	105	96	97	90	106	98

--No data.

Table 11--Height of plant in inches for the Strawberry variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	71	79	--	89	88	77	--	75	88	81	72	78	78	64	66	84	79	80	86	68
2	70	90	--	72	89	72	91	103	78	85	--	64	72	73	77	81	78	69	70	74
3	68	84	86	85	77	85	82	78	95	89	75	60	79	83	76	73	71	67	--	81
4	70	74	80	--	70	78	83	100	71	--	75	--	58	85	88	71	83	83	81	65
5	98	73	82	74	94	88	81	79	88	73	82	84	77	--	78	76	--	77	76	70
6	89	84	76	88	84	87	61	82	79	79	84	93	78	69	77	79	74	--	69	70
7	94	--	74	88	85	66	--	78	76	73	70	67	83	79	94	80	72	81	86	74
8	87	77	76	87	80	90	83	86	77	89	84	88	90	78	84	97	83	--	66	70
9	83	76	84	--	92	84	80	88	--	--	72	75	77	64	78	72	80	81	82	78
10	80	--	84	82	93	71	83	82	76	89	--	74	71	80	71	84	77	73	84	76
11	78	82	69	88	68	82	90	81	78	--	69	77	83	--	79	--	83	67	77	77
12	92	82	49	--	77	78	83	93	77	78	78	87	88	74	90	73	88	80	--	73
13	74	65	88	75	73	73	89	82	75	81	78	73	76	68	73	78	74	77	81	76
14	81	91	--	95	82	80	73	85	90	76	77	70	78	89	--	82	--	--	--	76
15	80	76	74	72	69	81	92	90	69	86	75	71	87	87	77	67	74	73	71	75
16	80	83	85	84	66	--	88	80	81	80	77	71	81	--	102	68	67	86	88	86
17	73	74	71	95	82	91	74	81	92	85	79	70	--	65	84	68	60	80	67	78
18	88	83	80	62	--	77	70	84	76	81	58	74	85	88	84	70	77	77	76	83
19	75	76	73	77	84	80	80	81	74	76	75	96	86	86	80	83	85	82	73	85
20	87	78	85	58	90	83	87	80	80	86	74	73	80	81	83	71	77	71	90	72

--No data.

Table 12--Height of plant in inches for the Mickels Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	79	85	--	91	64	77	82	87	81	80	75	75	--	75	80	86	86	--	82	72
2	84	88	91	75	83	72	72	88	88	79	82	77	77	69	83	77	74	79	95	64
3	91	--	87	--	80	83	70	79	55	82	88	97	83	--	72	--	80	47	69	--
4	87	75	80	96	88	84	90	92	87	69	85	76	79	--	60	82	79	76	80	60
5	72	--	67	97	82	--	78	88	84	--	70	85	75	88	82	70	78	80	71	73
6	--	61	--	84	84	76	95	81	77	91	78	69	85	83	--	91	80	76	91	--
7	74	89	77	68	75	81	81	74	81	82	79	64	83	98	71	--	81	--	85	81
8	87	69	91	79	77	77	86	89	89	92	82	74	93	71	73	79	87	89	80	73
9	86	92	86	75	81	96	84	80	73	--	73	84	80	81	79	78	60	93	96	70
10	93	--	80	95	81	81	77	88	75	88	80	82	99	70	85	88	74	81	80	70
11	81	90	--	--	65	78	78	70	85	68	88	76	69	71	90	74	74	85	92	69
12	83	64	--	72	82	75	101	68	74	88	84	73	77	--	74	97	68	73	65	69
13	82	78	80	80	77	68	80	76	89	86	76	91	76	79	77	69	85	88	99	--
14	66	--	62	82	78	95	--	73	92	80	67	92	89	91	74	84	67	84	--	68
15	--	--	79	85	94	90	90	92	82	87	81	74	74	110	85	82	80	83	93	72
16	67	69	88	78	65	--	87	79	86	77	--	98	103	92	87	84	64	74	68	78
17	91	73	70	69	82	74	88	87	86	--	--	82	69	65	75	76	87	70	80	84
18	--	86	86	73	89	86	88	79	87	80	--	91	--	--	86	83	87	--	95	83
19	88	70	83	104	73	79	83	77	91	--	75	85	92	78	71	71	--	70	67	73
20	80	82	63	91	89	73	72	69	82	85	--	73	76	--	81	78	72	94	65	86

--No data.

Table 13--Height of plant in inches for the 110 Day Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	89	87	76	84	73	82	81	59	82	85	70	69	78	82	—	75	74	69	69	53
2	74	77	61	71	74	77	67	75	66	92	71	—	91	72	—	72	--	75	66	73
3	74	90	77	73	62	--	69	75	81	83	76	82	64	--	94	69	85	70	67	68
4	79	85	67	72	84	72	74	60	80	59	82	81	76	70	66	78	67	77	76	75
5	69	74	85	66	83	76	73	70	84	71	77	61	73	--	—	75	74	71	86	88
6	74	91	75	--	73	94	74	78	—	66	78	--	77	--	76	81	80	73	79	68
7	83	72	68	71	77	—	80	68	81	75	66	62	62	75	79	71	70	82	80	73
8	71	79	85	88	78	64	68	69	--	77	63	74	74	—	68	90	81	73	85	78
9	—	77	—	78	76	64	74	70	--	76	69	61	82	—	75	68	67	74	63	—
10	73	52	87	76	69	70	69	60	—	76	71	--	--	69	85	72	74	55	71	69
11	72	70	66	68	78	70	61	78	74	80	73	--	76	83	77	79	82	78	82	65
12	85	74	75	74	75	84	92	72	78	66	80	66	77	82	77	58	77	71	62	79
13	72	82	64	92	68	—	77	80	69	--	81	70	85	71	77	79	65	65	63	85
14	69	77	89	82	78	82	77	67	75	80	77	63	89	75	--	67	76	83	67	—
15	84	60	92	87	81	64	78	64	82	67	77	72	65	71	73	65	—	89	74	73
16	77	72	—	71	70	60	78	78	72	--	--	67	76	70	83	78	82	69	78	72
17	81	72	73	62	81	67	81	58	83	73	93	59	72	71	84	90	84	72	72	71
18	71	71	67	68	75	73	74	77	72	79	74	85	87	78	78	78	76	69	60	78
19	78	78	68	71	86	58	75	82	80	76	86	72	75	67	91	68	80	69	76	65
20	71	78	81	68	75	64	72	70	84	70	66	60	65	70	75	69	71	66	80	67

--No data.

Table 14--Height of plant in inches for the Golden June variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	58	82	78	78	68	85	65	68	75	61	78	61	73	90	83	66	72	68	65	76
2	84	75	--	84	72	70	70	82	--	74	77	68	69	73	--	75	58	70	83	77
3	78	80	78	74	74	72	80	71	79	83	78	83	80	67	67	63	64	91	82	67
4	81	85	82	76	85	89	81	78	85	85	80	80	76	73	78	--	74	77	79	65
5	79	79	76	74	69	82	77	68	74	66	77	81	65	68	67	76	69	78	65	65
6	83	62	--	77	84	80	67	79	79	73	--	74	61	71	69	77	86	--	85	76
7	79	80	75	--	71	80	73	70	73	90	54	84	80	--	74	79	68	74	85	66
8	67	78	77	66	73	91	--	69	--	71	73	76	92	70	81	77	67	65	71	65
9	73	69	66	75	78	93	83	68	79	77	86	74	--	68	73	78	90	76	77	77
10	91	85	76	79	76	75	68	79	81	78	--	65	75	92	81	72	63	58	75	72
11	77	79	67	78	75	77	--	86	93	71	70	71	77	72	79	77	71	65	69	67
12	81	77	63	69	77	78	95	65	91	76	87	81	72	98	71	73	82	64	76	66
13	70	79	--	65	73	72	81	68	73	78	81	66	81	77	71	76	90	93	70	77
14	79	74	--	64	69	73	77	67	73	93	50	85	68	81	77	83	82	88	78	50
15	73	--	68	77	67	78	73	76	84	85	80	68	56	69	81	85	81	76	86	68
16	77	62	54	70	75	56	84	71	70	81	80	77	83	--	88	73	70	58	68	74
17	74	63	74	77	85	69	71	60	74	70	80	88	79	73	81	76	81	71	73	76
18	75	75	73	72	75	83	83	68	74	86	--	80	82	78	72	67	85	76	58	66
19	64	68	71	74	87	76	68	82	62	72	78	68	97	57	76	77	75	78	84	81
20	--	66	86	82	79	63	69	81	73	59	68	74	76	71	75	78	63	80	72	78

--No data.

Table 15--Height of ear in inches for plants of the Franklin Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	38	42	56	38	29	34	--	42	41	47	45	--	37	38	44	51	41	46	50	--
2	40	50	44	43	27	51	47	--	37	38	47	53	46	47	35	43	49	54	--	--
3	34	55	41	48	42	37	47	--	40	38	--	28	41	41	58	--	42	44	36	--
4	52	36	38	29	48	--	33	39	--	39	38	38	42	--	47	39	28	41	--	--
5	34	40	43	28	44	45	42	38	50	--	52	--	35	35	40	55	56	41	--	--
6	30	52	42	35	33	36	42	46	--	41	47	52	49	35	42	47	40	57	46	--
7	27	33	41	45	37	41	--	49	40	44	45	41	46	38	52	38	37	51	48	37
8	40	--	33	42	37	42	32	40	32	37	47	42	46	35	58	49	43	62	42	45
9	34	45	50	50	35	37	46	48	39	40	49	48	46	28	44	59	45	43	46	46
10	42	61	28	51	40	48	--	46	45	43	50	48	44	57	44	52	40	37	--	42
11	34	50	45	42	36	49	47	38	35	42	43	48	52	61	55	43	41	47	35	49
12	--	40	48	51	38	30	48	41	46	45	42	--	--	52	--	32	35	36	44	--
13	35	50	45	44	43	54	47	37	53	54	42	50	41	49	37	--	48	44	--	50
14	32	37	60	42	38	36	49	46	47	--	37	56	29	50	51	34	43	31	46	41
15	--	44	--	48	48	--	--	39	42	--	35	45	44	47	51	44	37	42	41	34
16	50	41	41	38	46	44	41	46	45	45	41	42	52	50	36	48	44	--	45	48
17	54	42	46	34	35	45	47	40	43	40	37	38	44	38	--	44	51	50	54	47
18	--	37	64	45	43	--	54	39	46	--	53	--	32	37	44	44	43	49	31	27
19	46	47	49	34	--	43	37	42	47	48	45	46	38	46	40	34	40	37	28	47
20	43	43	39	38	--	43	--	36	--	54	41	45	40	40	46	42	33	46	53	43

--No data.

Table 16--Height of ear in inches for plants of the Strawberry variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	38	50	--	57	48	44	--	34	57	46	34	43	36	26	32	44	38	37	42	30
2	28	49	--	36	50	45	53	54	38	59	--	35	30	44	48	47	44	36	33	50
3	30	43	50	42	42	50	44	42	49	53	34	34	35	57	46	27	38	35	--	42
4	25	36	44	--	32	37	45	46	31	--	29	--	32	45	37	39	40	47	40	35
5	63	28	46	34	49	52	35	44	53	49	52	43	40	--	40	26	--	38	42	24
6	40	47	36	52	46	58	32	52	43	36	47	52	34	37	42	45	44	--	38	43
7	47	--	28	38	51	34	--	38	42	30	32	32	41	48	54	35	30	39	43	36
8	51	41	41	42	44	44	46	50	34	45	52	39	59	38	49	45	40	--	26	39
9	51	36	39	--	50	42	48	45	--	--	40	40	31	24	41	38	43	38	28	39
10	47	--	41	52	48	41	33	43	40	42	--	36	39	54	45	49	46	47	--	44
11	46	49	36	54	31	42	45	51	38	--	34	37	42	--	46	--	36	42	40	32
12	44	50	23	--	41	46	51	52	40	42	42	47	51	47	53	46	44	42	--	36
13	43	30	51	38	36	35	55	44	46	38	41	36	42	35	38	40	40	41	48	34
14	45	30	--	52	40	38	29	56	51	36	37	32	32	50	--	44	--	--	--	40
15	42	47	34	40	38	41	48	54	30	42	42	29	42	51	47	32	46	41	36	37
16	54	46	55	56	36	--	48	43	43	42	48	37	45	--	57	33	27	--	52	50
17	39	26	46	50	41	49	40	57	48	45	44	37	--	40	50	27	34	44	37	38
18	47	33	38	28	--	39	32	42	43	41	29	29	52	36	43	37	35	50	43	48
19	42	34	36	40	45	41	42	46	40	36	41	52	47	52	57	44	43	40	40	61
20	45	41	44	25	57	55	48	44	46	46	41	32	39	44	43	41	36	41	52	38

--No data.

Table 17--Height of ear in inches for plants of the Mickels Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	43	46	--	52	23	41	39	48	41	42	39	39	--	35	42	43	56	--	35	36
2	47	47	50	42	45	39	31	44	40	39	36	45	41	37	44	41	40	43	56	28
3	56	--	51	--	48	39	37	48	42	40	48	52	39	--	46	--	35	37	40	--
4	52	40	48	50	60	48	48	50	52	36	50	42	43	--	34	50	45	45	46	30
5	39	--	35	50	49	--	37	40	48	--	40	45	42	46	47	38	32	42	37	38
6	--	28	--	54	48	43	57	52	51	44	47	36	56	46	--	58	41	41	51	--
7	41	48	44	33	38	42	50	39	46	50	47	35	42	56	38	--	41	--	48	39
8	50	32	57	44	39	42	48	48	34	54	49	44	55	38	37	46	48	45	50	37
9	46	52	51	44	37	53	48	44	35	--	40	37	52	46	39	36	31	53	50	41
10	56	--	51	58	46	46	34	49	44	50	42	45	51	34	44	50	48	40	45	38
11	40	58	--	--	28	46	33	46	43	39	42	40	33	34	54	49	39	41	60	37
12	46	35	--	40	44	43	60	36	46	46	50	48	35	--	41	53	32	34	41	42
13	42	40	41	44	41	34	41	38	51	48	37	58	42	44	40	30	44	54	50	--
14	33	--	33	41	45	48	--	38	53	35	39	52	46	50	37	47	37	49	--	34
15	--	--	51	45	53	46	52	40	48	47	42	42	39	69	41	42	49	50	35	41
16	37	35	50	40	29	--	46	28	41	37	--	46	57	46	56	42	34	39	31	40
17	57	38	40	41	46	43	47	56	43	--	--	40	20	40	49	46	44	30	38	49
18	--	48	47	46	52	48	43	41	47	42	--	44	--	--	44	47	40	--	45	42
19	46	39	40	62	35	45	44	40	54	--	42	51	52	44	29	39	--	33	36	47
20	43	54	32	47	51	34	36	35	48	53	--	40	41	--	41	46	41	56	29	50

--No data.

Table 18--Height of ear in inches for plants of the 110 Day Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	43	31	40	40	30	40	32	36	43	41	28	23	38	38	--	37	32	42	31	24
2	30	24	32	34	42	37	29	38	29	38	33	--	43	33	--	28	--	36	29	37
3	35	42	30	46	33	--	27	37	32	34	36	35	27	--	38	38	44	33	26	33
4	38	40	29	33	33	28	30	31	46	31	38	29	45	30	15	39	30	38	24	32
5	35	38	40	25	31	38	37	34	40	29	26	33	31	--	--	33	28	33	32	39
6	22	43	37	--	31	38	43	40	--	28	36	--	24	--	31	41	45	33	29	32
7	40	42	32	37	35	--	36	36	41	31	31	16	33	27	33	30	38	31	31	31
8	32	34	45	32	32	38	30	32	--	33	28	18	30	--	35	44	44	31	35	41
9	--	36	--	31	38	34	33	35	--	33	36	23	34	--	36	39	30	34	35	--
10	31	24	47	34	37	36	28	30	--	34	32	--	--	31	52	28	29	29	34	25
11	38	32	35	36	37	33	25	36	35	36	28	--	28	41	38	39	35	31	39	29
12	43	26	44	30	30	29	47	37	41	36	40	31	44	42	37	29	27	31	22	32
13	27	35	27	42	31	--	35	41	29	--	38	27	42	33	33	32	32	30	28	35
14	34	37	36	32	28	40	38	24	31	40	32	25	34	32	--	27	36	39	28	--
15	39	27	47	41	27	29	36	26	42	31	42	35	25	28	39	31	--	39	30	34
16	35	34	--	30	30	35	41	34	26	--	--	31	37	31	41	39	39	28	33	31
17	34	34	24	34	35	36	44	25	36	31	36	30	30	34	30	36	45	38	31	29
18	35	31	29	37	28	26	36	39	32	34	32	46	44	38	37	33	36	39	26	37
19	39	30	30	28	29	27	39	44	40	32	29	29	42	26	39	29	32	28	37	31
20	33	37	36	29	35	18	34	28	36	32	35	20	27	24	31	29	34	30	33	31

--No data.

Table 19--Height of ear in inches for plants of the Golden June variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	34	42	48	39	30	43	38	34	41	37	43	30	35	47	43	36	42	28	34	31
2	50	32	--	50	36	23	40	50	--	34	36	23	32	46	--	41	30	29	36	38
3	40	41	40	34	33	43	33	36	42	38	36	44	47	34	35	32	33	46	36	36
4	42	48	40	36	36	47	53	36	44	43	40	42	30	42	37	--	42	36	45	32
5	41	38	41	43	29	52	39	37	44	32	34	37	33	34	38	37	23	44	34	30
6	52	32	--	38	47	42	32	40	33	44	--	43	27	40	32	32	46	--	51	42
7	36	45	31	--	36	42	39	36	36	53	16	37	36	--	39	39	33	35	44	48
8	36	44	41	31	36	44	--	35	--	36	37	36	50	28	42	38	27	27	35	21
9	39	35	28	44	36	47	35	39	45	48	49	39	--	41	41	43	48	35	35	42
10	48	45	42	40	38	35	29	38	56	43	--	37	41	44	37	40	34	34	43	43
11	36	40	36	32	37	34	--	49	62	36	32	34	40	36	41	42	32	32	42	32
12	38	28	34	32	45	36	57	27	42	47	55	40	42	50	48	41	33	33	36	33
13	38	36	--	40	33	40	36	35	30	46	44	39	55	37	39	39	49	49	35	43
14	34	36	--	30	39	38	42	36	38	36	34	39	29	44	34	43	38	46	41	24
15	42	--	34	33	38	41	44	39	30	40	35	32	22	44	42	50	46	42	47	33
16	40	35	28	41	35	33	46	43	38	32	37	37	38	--	48	42	36	22	28	46
17	32	30	40	25	41	36	34	32	43	29	53	41	45	34	43	45	37	40	37	44
18	38	30	30	34	47	47	30	25	30	42	--	36	46	48	38	25	41	39	31	33
19	27	26	34	38	50	33	34	40	30	34	33	35	48	37	35	38	43	35	48	48
20	--	30	34	45	43	25	31	39	28	34	35	34	49	33	40	39	31	36	32	34

--No data.

Table 20--Length of ear in inches for plants of the Franklin Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS 1	2	3	4	5	6	7	8	9	10
1	9.0	5.0	8.5	8.0	9.0	9.0	---	6.5	8.0	7.0
2	9.0	9.0	6.5	7.5	8.5	8.0	10.0	---	---	9.0
3	6.5	7.5	6.5	8.5	7.0	8.5	9.5	3.0	9.0	---
4	8.5	7.0	9.5	10.0	10.0	---	7.5	7.0	---	10.5
5	9.0	9.0	9.0	---	11.0	9.0	7.0	9.0	8.0	---
6	3.5	8.0	9.0	7.0	9.0	---	9.0	9.0	---	10.5
7	8.0	6.0	9.0	10.0	10.5	11.0	---	---	9.0	10.5
8	9.5	---	6.0	9.0	8.5	7.5	10.0	11.0	6.0	10.0
9	9.0	10.0	9.0	8.0	10.5	8.5	8.0	---	10.0	9.5
10	7.5	6.5	7.5	8.0	8.0	10.0	---	8.5	9.0	6.0
11	8.0	9.0	---	8.5	9.0	---	9.5	9.5	9.0	9.0
12	---	9.5	7.0	8.0	---	9.0	9.5	9.0	9.5	7.0
13	---	8.5	6.5	9.0	6.5	7.5	7.0	8.5	6.0	10.0
14	9.0	7.5	11.0	10.0	9.5	9.0	8.5	10.5	8.5	---
15	---	9.0	---	7.0	9.0	---	---	8.5	7.5	---
16	6.0	9.0	9.5	9.0	10.0	7.5	10.0	7.0	9.0	11.0
17	9.0	8.5	10.0	10.0	7.0	8.5	10.5	6.5	8.0	8.0
18	---	7.0	7.0	8.0	10.0	---	12.0	7.0	8.0	---
19	9.5	9.5	9.5	9.0	---	8.0	7.0	9.0	8.0	8.5
20	9.5	9.5	9.5	9.0	---	9.0	---	9.0	---	9.5

PLANTS	ROWS 11	12	13	14	15	16	17	18	19	20
1	10.5	---	7.0	7.0	10.0	10.0	8.0	9.0	---	---
2	8.0	9.5	8.0	10.0	7.0	9.0	8.0	9.0	---	---
3	4.0	8.0	---	4.0	8.5	---	9.5	10.0	7.0	---
4	7.5	9.0	8.0	---	10.0	6.0	6.0	9.0	---	---
5	9.5	---	8.0	6.0	9.0	9.0	7.0	9.0	---	---
6	8.0	7.0	7.0	11.0	7.0	5.0	8.0	10.0	7.0	---
7	10.5	8.5	9.0	---	---	7.0	9.0	9.0	8.0	8.0
8	10.5	8.0	9.0	5.0	9.0	8.0	8.0	8.0	9.0	8.0
9	7.5	8.5	7.0	9.0	8.0	6.0	9.0	7.0	6.0	8.0
10	10.0	10.0	7.0	5.5	---	6.5	7.5	5.0	---	6.5
11	8.0	10.0	9.0	8.0	8.0	8.0	---	8.5	9.0	5.0
12	---	---	---	9.0	---	9.0	9.0	5.0	---	---
13	---	---	---	---	---	---	10.0	---	---	7.0
14	9.0	7.5	9.5	6.0	9.0	9.0	6.0	10.0	8.0	9.0
15	11.0	9.0	5.0	6.0	10.0	9.0	---	10.0	8.0	9.0
16	10.0	10.0	5.0	8.0	8.0	---	8.5	---	---	6.0
17	6.5	8.5	7.0	9.5	---	5.0	9.0	8.0	8.0	---
18	7.0	---	9.0	9.0	9.0	6.5	8.0	9.0	8.0	5.0
19	10.0	10.0	10.0	9.0	11.0	9.0	10.0	---	---	7.0
20	7.5	10.0	10.0	8.0	9.5	6.0	6.0	8.0	6.0	7.0

---No data.

Table 21--Length of ear in inches for plants of the Strawberry variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS 1	2	3	4	5	6	7	8	9	10
1	6.5	7.0	---	7.5	8.0	---	---	8.0	8.0	8.0
2	6.5	10.0	---	7.0	9.0	7.0	7.0	---	9.0	5.5
3	6.0	7.0	---	7.0	7.0	8.0	6.5	7.0	9.0	9.0
4	7.0	6.0	6.0	---	7.5	7.0	9.0	7.5	8.0	---
5	9.0	9.0	7.0	7.5	8.0	8.5	9.0	7.5	7.5	8.0
6	9.0	8.0	6.0	8.0	9.0	8.0	7.0	7.0	8.5	9.0
7	8.5	---	9.0	9.0	7.5	7.0	---	9.0	---	5.5
8	8.0	7.0	7.0	8.0	9.5	10.5	7.0	8.5	---	8.0
9	8.5	7.0	9.0	---	9.0	9.0	8.0	8.5	---	---
10	8.0	---	8.0	7.0	7.5	8.0	10.0	9.0	8.0	8.0
11	7.5	8.5	7.0	7.0	7.0	9.0	7.0	10.0	8.0	---
12	9.0	7.5	---	---	7.0	7.0	9.0	8.0	8.0	9.5
13	8.0	8.5	7.0	---	9.5	7.0	7.0	---	7.5	8.0
14	8.0	---	---	8.0	8.0	9.0	8.0	8.5	8.5	3.0
15	8.0	7.0	7.5	7.5	8.0	9.0	9.5	7.0	10.0	9.0
16	7.0	8.0	6.0	6.5	7.0	---	4.5	8.0	7.0	7.5
17	7.5	7.0	8.0	---	---	9.0	8.0	9.0	6.0	8.5
18	8.0	8.0	10.0	8.0	---	8.0	6.5	8.0	7.0	8.0
19	6.5	7.0	8.0	4.0	---	6.5	7.0	8.0	7.0	8.0
20	8.0	7.5	8.0	9.0	7.0	8.0	8.0	7.5	6.5	6.0

PLANTS	ROWS 11	12	13	14	15	16	17	18	19	20
1	10.0	8.0	9.0	6.5	7.0	7.0	6.5	8.0	7.0	7.0
2	---	7.0	8.0	7.0	7.0	7.0	8.0	5.0	6.5	8.0
3	8.0	8.0	5.5	8.0	8.0	7.0	6.0	5.0	---	9.0
4	7.5	---	8.0	7.5	7.0	5.0	6.5	7.5	7.0	7.0
5	8.0	7.5	8.0	---	7.0	6.0	---	9.0	7.0	---
6	8.0	9.0	8.0	7.5	8.0	8.5	7.0	---	7.0	8.0
7	8.0	7.0	7.5	7.0	8.0	8.0	7.0	8.0	9.5	8.0
8	9.0	8.0	7.5	7.0	8.0	---	8.0	---	6.0	8.0
9	9.0	8.0	7.0	6.0	6.0	5.0	10.0	5.0	---	6.5
10	---	6.0	9.5	7.0	7.0	8.0	7.0	7.0	---	7.5
11	6.0	9.0	9.0	---	9.0	---	9.0	7.5	7.5	8.0
12	8.5	8.0	8.0	8.0	9.0	8.0	8.0	6.5	---	7.0
13	8.0	7.5	6.0	8.0	9.0	8.5	9.5	8.0	8.0	6.5
14	9.0	8.5	8.0	8.0	---	---	---	---	---	8.0
15	7.0	8.0	8.5	8.0	8.5	8.0	6.0	7.0	7.0	6.0
16	9.0	9.5	9.0	---	8.0	9.0	8.0	---	7.5	8.5
17	9.0	9.0	---	9.0	7.0	9.0	7.5	9.0	8.0	8.0
18	7.5	6.0	6.0	7.5	9.0	8.0	8.5	8.5	7.0	7.5
19	9.0	9.0	6.0	7.5	11.0	10.5	8.0	8.0	9.0	6.0
20	8.0	7.0	9.0	7.0	7.0	7.0	8.0	7.0	7.0	7.0

---No data.

Table 22--Length of ear in inches for plants of the Mickels Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS 1	2	3	4	5	6	7	8	9	10
1	5.5	---	---	8.0	7.0	7.0	6.0	7.0	6.0	7.5
2	7.0	8.0	7.0	7.0	7.0	7.0	3.0	7.0	5.0	5.5
3	6.0	---	7.0	---	8.0	8.5	7.5	8.0	7.0	7.0
4	6.0	7.0	9.0	7.0	6.5	5.0	7.0	7.5	7.0	6.5
5	6.0	---	8.0	9.0	8.0	---	3.0	7.0	7.0	---
6	---	5.0	---	7.0	6.0	6.0	7.0	6.0	7.0	6.0
7	5.5	8.0	5.5	7.0	---	5.0	7.0	8.0	5.0	6.5
8	7.0	6.5	8.0	7.0	8.0	6.5	8.0	6.5	8.5	6.0
9	5.0	7.0	7.5	8.0	6.5	7.0	7.0	---	7.0	---
10	6.5	---	6.0	6.0	6.0	7.0	7.5	6.0	6.5	7.5
11	7.5	8.5	---	---	7.0	8.0	7.0	---	9.0	---
12	7.0	---	---	---	8.0	8.0	---	7.0	5.5	6.0
13	7.0	7.0	3.0	---	8.0	6.0	---	7.0	8.0	4.0
14	6.0	---	6.0	7.5	7.0	---	---	---	8.0	5.0
15	---	---	7.0	7.5	6.0	7.0	6.0	7.5	7.0	7.0
16	7.0	6.0	6.5	6.5	8.0	---	7.0	7.0	7.0	8.0
17	7.0	7.0	7.0	9.0	7.0	7.0	8.0	7.5	4.0	---
18	---	6.5	6.0	8.0	7.0	8.0	7.0	6.0	8.0	6.0
19	5.0	3.0	5.5	9.0	6.0	8.0	7.0	8.0	6.5	---
20	6.0	7.0	7.0	7.5	7.0	8.0	---	7.0	8.0	7.0

PLANTS	ROWS 11	12	13	14	15	16	17	18	19	20
1	5.0	7.0	---	5.0	8.0	8.0	8.0	---	8.0	6.0
2	6.0	7.0	6.0	6.0	7.5	8.0	7.0	9.0	8.5	7.0
3	8.5	7.0	7.5	---	6.0	---	---	6.5	6.0	---
4	9.0	7.0	8.0	---	5.0	7.5	6.5	7.0	7.5	4.0
5	6.0	8.0	7.5	7.0	5.0	---	7.0	7.5	8.0	7.0
6	6.0	---	7.0	8.0	---	6.5	---	7.0	8.0	---
7	3.0	7.5	7.0	9.0	8.0	---	7.5	---	8.0	7.0
8	7.0	6.0	6.0	7.0	7.5	8.0	---	8.5	7.0	7.0
9	7.0	7.0	7.0	7.0	7.0	7.0	---	8.0	7.0	---
10	6.5	5.5	---	8.0	8.0	7.5	6.5	7.0	7.0	---
11	7.5	8.0	---	---	7.0	7.0	7.0	---	7.0	6.5
12	---	7.0	6.5	---	7.0	6.0	4.0	7.0	6.5	7.0
13	4.5	7.5	9.0	6.5	8.0	6.0	5.5	7.0	7.0	---
14	7.0	6.0	8.0	6.0	5.0	7.0	---	7.0	---	8.0
15	---	7.0	7.0	7.5	7.0	7.5	6.0	7.0	8.0	5.0
16	---	8.0	8.0	7.5	8.0	7.0	7.0	3.0	8.0	---
17	---	---	8.0	6.0	6.0	7.0	8.5	---	5.0	7.0
18	---	7.0	---	---	---	8.0	7.0	---	7.0	8.0
19	6.5	8.0	6.5	4.0	---	5.0	---	7.0	8.0	5.0
20	---	5.0	5.0	---	6.0	4.0	7.0	7.0	---	7.5

---No data.

Table 23--Length of ear in inches for plants of the Golden June variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS 1	2	3	4	5	6	7	8	9	10
1	7.0	8.0	7.0	8.0	8.0	8.0	6.0	7.0	7.0	8.0
2	8.0	7.5	---	---	6.0	6.0	7.0	8.0	---	8.0
3	8.0	8.5	8.0	5.5	5.0	5.0	7.0	6.5	5.0	7.0
4	6.0	6.0	7.0	8.0	7.0	---	---	9.5	6.0	4.0
5	7.0	6.0	8.0	8.5	7.0	7.0	8.0	8.0	8.0	---
6	5.5	7.0	---	7.0	7.0	7.0	7.0	---	6.0	7.0
7	6.5	8.5	5.0	---	6.5	8.0	8.0	7.0	6.0	4.0
8	8.0	6.0	8.5	7.0	8.0	7.0	---	7.0	---	7.0
9	7.0	7.0	7.0	8.0	7.0	4.0	7.0	6.0	6.0	6.5
10	7.5	8.0	9.0	8.0	6.0	5.0	9.0	8.0	6.5	8.0
11	7.0	7.0	7.0	7.0	---	6.0	---	8.0	6.0	---
12	5.0	7.0	8.0	7.0	9.0	8.0	8.0	7.0	8.0	9.0
13	7.5	7.0	---	7.0	8.0	7.0	8.0	8.0	6.5	7.5
14	8.0	7.5	---	7.5	6.0	9.0	7.0	7.0	7.0	7.0
15	6.5	---	4.0	8.5	8.0	8.0	---	7.0	8.0	7.0
16	7.0	7.0	8.0	7.0	6.0	7.0	7.0	7.0	7.0	7.0
17	7.0	7.0	6.5	8.0	7.0	8.0	7.5	8.5	5.5	4.0
18	4.0	7.5	8.0	6.0	7.5	7.0	6.5	7.0	4.0	7.0
19	7.0	---	8.0	5.5	7.0	7.0	7.0	7.5	---	8.0
20	---	7.0	7.5	6.5	6.0	7.0	7.0	8.0	3.0	8.0

PLANTS	ROWS 11	12	13	14	15	16	17	18	19	20
1	8.0	8.0	8.0	7.0	---	6.0	3.0	7.0	5.0	6.0
2	7.0	7.0	8.0	7.0	---	9.0	---	7.0	---	3.5
3	7.0	6.0	9.0	7.0	6.5	7.0	7.0	10.0	5.5	7.0
4	6.0	7.0	8.0	7.0	8.0	---	9.0	5.5	7.5	7.0
5	7.0	8.0	9.0	7.0	---	8.0	8.0	---	8.0	8.0
6	---	8.0	5.0	8.0	8.0	7.0	9.0	---	8.0	6.0
7	5.5	7.0	7.0	---	8.5	8.0	7.0	7.0	8.5	---
8	6.0	8.0	5.0	8.0	7.5	3.0	7.0	7.0	8.0	---
9	6.0	8.0	---	8.0	7.0	7.5	7.0	7.0	7.0	4.0
10	---	6.5	---	5.0	5.0	7.0	6.5	7.0	6.0	7.0
11	8.0	8.5	8.0	7.5	7.5	---	8.0	4.0	---	6.0
12	7.0	8.0	7.0	7.0	7.0	7.5	8.0	7.0	9.0	6.5
13	6.0	7.0	7.5	7.0	7.0	6.5	7.0	7.0	---	6.5
14	7.0	6.0	8.0	8.0	8.0	7.0	8.0	8.0	6.0	8.0
15	8.0	7.0	5.0	8.0	6.0	8.0	7.5	5.0	7.0	6.0
16	7.0	7.0	---	---	7.0	4.0	---	6.0	7.0	7.5
17	7.0	6.5	6.0	6.0	7.0	---	6.0	6.0	6.0	6.5
18	---	7.0	8.0	7.0	6.0	7.0	6.0	---	---	6.5
19	5.0	7.5	8.5	8.0	7.5	5.0	9.0	8.0	7.5	8.0
20	6.0	7.0	8.0	4.5	6.0	5.0	---	6.0	7.0	6.5

---No data.

Table 24--Length of ear in inches for plants of the 110 Day Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS 1	2	3	4	5	6	7	8	9	10
1	9.0	10.5	8.0	9.0	8.0	9.5	10.0	8.0	8.0	9.0
2	10.0	9.0	9.0	9.0	9.0	9.5	9.0	8.0	8.0	11.0
3	9.0	10.0	10.0	7.0	8.0	---	10.0	9.5	9.0	8.5
4	9.0	9.0	9.0	8.0	9.0	9.0	8.0	9.0	6.0	8.0
5	9.0	7.0	8.0	8.0	9.0	9.0	11.0	10.0	10.0	6.0
6	6.0	---	8.0	---	8.0	9.0	---	8.0	---	9.0
7	9.0	8.5	8.0	8.0	9.5	---	8.0	7.5	9.0	10.0
8	11.0	9.0	9.0	9.0	9.0	8.5	10.0	8.0	---	8.0
9	---	10.5	---	10.0	8.0	8.0	9.0	8.0	---	10.0
10	9.0	7.0	9.0	7.0	8.0	9.0	7.0	8.0	---	7.0
11	9.0	---	8.0	10.0	9.0	10.0	9.0	9.0	5.0	9.5
12	9.0	10.0	10.0	9.0	9.5	9.0	8.0	10.0	9.0	9.0
13	9.0	10.0	7.0	9.0	8.0	---	9.0	10.0	7.0	---
14	11.0	9.0	9.0	10.0	10.0	9.0	10.0	8.0	9.0	9.0
15	7.5	10.0	10.5	8.0	9.0	9.0	8.0	9.0	9.0	9.0
16	9.0	9.0	---	10.0	7.5	8.0	9.0	7.5	9.0	---
17	9.0	9.0	10.0	9.5	8.0	5.0	10.0	5.0	---	8.5
18	7.0	8.5	8.5	9.0	9.0	7.5	9.0	9.0	10.0	9.0
19	9.0	9.0	8.0	9.0	10.0	9.0	8.5	10.0	9.0	8.0
20	10.0	9.5	10.0	8.0	7.0	9.0	9.0	9.0	9.0	10.0

PLANTS	ROWS 11	12	13	14	15	16	17	18	19	20
1	8.0	---	8.0	9.5	---	10.0	8.5	8.0	9.0	---
2	8.0	---	9.0	10.0	---	9.0	---	7.0	9.5	9.5
3	10.0	---	10.0	---	10.0	9.5	10.0	10.0	7.5	9.0
4	10.0	9.0	8.5	11.0	7.0	9.5	9.0	9.0	8.0	9.0
5	8.0	6.0	8.0	---	---	9.0	9.0	8.0	8.0	9.5
6	9.0	---	9.0	---	9.0	8.5	9.0	9.0	9.0	8.0
7	10.0	7.0	---	7.0	9.0	8.5	9.5	9.0	9.0	9.0
8	8.0	8.0	10.0	---	8.5	9.0	10.0	9.0	10.0	9.0
9	8.0	8.0	9.0	---	8.0	9.0	8.5	10.0	8.0	---
10	8.0	---	---	9.5	11.5	9.5	8.0	9.0	8.5	7.0
11	8.0	---	8.5	10.0	7.5	10.0	8.5	10.0	10.0	6.0
12	8.0	9.0	---	8.0	---	7.5	9.0	10.0	8.0	9.0
13	6.5	10.0	10.0	9.0	10.5	9.0	6.0	10.0	7.5	11.0
14	9.0	8.0	9.0	9.0	---	8.0	9.0	8.0	8.5	---
15	9.0	9.0	6.5	9.5	10.5	9.0	---	6.5	9.0	10.0
16	---	9.0	9.0	9.5	9.0	8.5	8.0	9.0	9.5	9.0
17	9.0	8.0	10.0	9.0	8.5	9.0	8.0	9.0	9.0	11.0
18	---	10.5	9.0	9.0	9.0	9.0	10.0	10.5	8.5	8.0
19	9.0	9.0	8.5	8.0	10.0	9.0	8.0	8.5	9.0	9.0
20	10.0	9.0	9.0	8.0	7.0	9.0	10.0	8.0	9.0	8.0

---No data.

Table 25--Number of rows per ear for plants of the Franklin Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	14	12	12	12	12	12	--	18	14	12	14	--	16	12	16	14	18	14	--	--
2	14	14	12	18	12	12	12	--	--	12	12	14	16	16	14	14	16	14	--	--
3	14	14	14	16	14	20	14	16	12	--	6	14	--	6	14	--	12	18	12	--
4	16	12	14	10	14	--	14	16	--	14	10	14	16	--	14	18	14	14	--	--
5	14	14	16	--	12	14	14	14	12	--	14	--	12	14	14	12	14	12	--	--
6	12	18	16	16	14	--	14	14	--	12	14	10	12	10	10	12	14	16	16	--
7	12	16	14	14	12	12	--	--	14	14	12	16	12	--	--	12	14	16	12	14
8	14	--	14	14	14	14	14	14	14	12	12	14	12	6	14	14	14	18	14	14
9	16	12	16	12	18	12	18	--	14	16	16	14	8	16	16	14	12	14	18	14
10	14	16	16	16	18	14	--	14	12	14	18	12	14	18	--	14	16	14	--	12
11	14	14	--	16	14	--	16	10	16	14	14	14	14	16	14	12	--	18	12	14
12	--	16	14	12	--	16	14	14	14	14	--	--	--	12	--	16	16	14	--	--
13	--	18	18	12	12	14	12	14	14	12	--	--	--	--	--	--	14	--	--	14
14	12	12	10	16	14	10	14	12	16	--	12	12	16	16	14	16	14	14	14	14
15	--	14	--	18	14	--	--	14	18	--	12	14	14	16	14	16	--	16	14	14
16	8	12	14	14	14	12	12	16	12	14	14	14	14	12	16	--	16	--	--	12
17	12	16	14	16	16	14	10	16	12	14	12	14	14	14	--	16	12	14	14	--
18	--	12	12	16	14	--	14	14	14	--	14	--	14	12	12	16	14	16	14	12
19	16	12	14	12	--	18	16	14	16	14	12	18	14	14	16	12	16	--	--	14
20	14	12	14	12	--	14	--	16	--	12	12	14	12	14	14	20	12	12	16	12

--No data.

Table 26--Number of rows per ear for plants of the Strawberry variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	14	16	--	14	20	--	--	16	16	20	12	20	20	16	14	20	20	16	14	20
2	20	18	--	16	12	16	16	--	14	16	--	14	16	16	16	22	16	18	16	14
3	16	16	--	16	24	16	16	18	12	10	16	16	16	14	22	18	14	14	--	18
4	18	14	18	--	20	16	16	18	18	--	20	--	14	14	10	20	18	18	22	18
5	16	14	18	14	16	18	18	18	14	16	14	14	14	--	14	14	--	20	14	--
6	18	14	14	18	14	14	18	18	14	18	18	18	16	20	14	18	14	--	12	18
7	18	--	12	16	12	20	--	18	--	18	14	16	14	12	14	20	16	18	16	20
8	14	20	16	14	12	14	16	14	--	16	14	22	16	18	14	--	18	--	14	16
9	18	6	14	--	20	18	18	18	--	--	16	20	16	12	24	16	20	20	--	16
10	14	--	16	14	18	18	14	16	16	16	--	12	14	14	16	18	16	14	--	18
11	18	12	16	14	20	20	18	16	16	--	18	16	18	--	14	--	14	16	18	14
12	20	18	--	--	18	14	20	16	20	20	16	16	16	12	12	22	20	18	--	14
13	20	18	16	--	14	16	18	--	14	16	16	20	16	18	16	14	14	20	16	18
14	14	--	--	18	14	19	12	22	18	12	14	14	14	14	--	--	--	--	--	16
15	18	14	22	16	22	14	16	16	16	16	22	18	16	16	18	14	12	20	20	10
16	12	18	20	18	8	--	12	12	16	18	18	20	14	--	22	14	16	--	18	14
17	18	14	16	--	--	12	16	18	20	16	14	16	--	20	16	14	14	16	16	14
18	14	14	12	18	--	14	14	20	18	16	14	16	16	18	16	18	14	16	16	18
19	18	14	16	16	--	18	20	18	14	16	16	20	20	14	12	16	16	14	16	14
20	14	12	18	22	16	14	18	16	14	16	20	14	16	18	14	18	16	16	16	14

--No data.

Table 27--Number of rows per ear for plants of the Mickels Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	18	--	--	20	14	18	20	16	16	16	16	16	--	16	14	14	16	--	14	16
2	12	18	14	14	18	16	10	16	18	14	14	20	20	16	12	14	14	14	14	16
3	16	--	16	--	16	12	16	16	14	18	16	14	14	--	14	--	--	22	16	--
4	18	18	16	20	16	14	22	18	16	20	14	16	14	--	16	12	16	16	14	10
5	12	--	14	16	18	--	10	14	14	--	18	12	20	18	16	--	14	14	18	18
6	--	12	--	16	16	14	14	22	18	18	18	--	16	18	--	16	--	14	14	--
7	16	16	10	18	--	14	20	18	18	16	16	16	14	16	18	--	16	--	18	14
8	18	16	14	14	16	18	14	14	16	16	16	18	14	14	14	16	--	16	18	16
9	16	12	16	18	14	14	16	--	18	--	14	16	12	16	14	18	--	16	16	--
10	14	--	16	18	16	14	16	18	12	12	20	14	--	16	14	18	16	14	16	--
11	10	14	--	--	16	14	12	--	18	--	14	18	--	--	18	16	12	--	12	14
12	12	--	--	--	20	16	--	14	16	14	--	16	18	--	16	10	16	14	16	20
13	12	18	10	--	16	18	--	16	22	18	18	18	18	14	16	16	18	18	12	--
14	14	--	18	20	18	--	--	--	16	18	14	16	14	12	14	16	--	14	--	20
15	--	--	14	12	16	16	14	16	14	16	--	14	14	12	16	18	16	14	14	16
16	14	14	14	20	14	--	14	14	16	14	--	18	14	12	18	14	14	8	12	--
17	14	14	14	12	12	20	14	14	18	--	--	--	16	20	16	14	16	--	18	16
18	--	16	18	14	16	18	16	16	16	14	--	16	--	--	--	14	18	--	16	20
19	16	10	16	14	14	14	14	16	18	--	18	14	16	12	--	16	--	16	14	14
20	14	12	16	14	16	16	--	16	14	14	--	16	20	--	14	12	16	18	--	14

--No data.

Table 28--Number of rows per ear for plants of the 110 Day Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	16	12	14	14	14	14	14	16	14	14	14	--	14	14	--	16	16	16	12	--
2	14	12	18	18	14	12	14	14	12	14	14	--	16	18	--	16	--	14	18	18
3	14	10	14	16	12	--	18	12	14	12	16	--	14	--	14	14	16	12	14	16
4	14	12	14	14	14	14	16	16	6	14	12	12	14	14	12	14	14	12	16	14
5	16	16	14	14	14	14	14	14	16	18	12	14	16	--	--	16	12	14	14	12
6	14	--	12	--	12	14	--	14	--	12	14	--	16	--	16	14	14	18	14	12
7	14	16	16	12	14	--	14	14	12	12	14	12	--	14	12	12	16	12	12	12
8	20	14	14	12	16	16	16	12	--	14	14	12	14	--	14	18	14	14	14	16
9	--	16	--	12	14	14	16	12	--	14	12	12	16	--	14	14	12	12	14	--
10	14	14	16	12	18	14	14	12	--	18	14	--	--	12	16	14	16	16	12	12
11	14	--	16	14	16	12	14	16	16	12	14	--	14	14	12	12	14	14	14	12
12	14	14	12	14	16	12	16	14	12	14	14	12	--	14	--	12	16	14	12	12
13	10	16	8	16	14	--	16	12	8	--	16	14	12	14	14	14	14	14	12	16
14	16	12	12	14	14	16	14	16	18	18	14	16	12	16	--	10	16	16	16	--
15	18	18	14	12	14	18	16	16	14	16	18	14	12	12	14	14	--	12	12	14
16	16	20	--	14	16	18	16	18	14	--	--	16	16	14	12	18	14	14	12	14
17	10	14	14	16	16	14	14	16	--	16	16	14	16	10	14	14	14	16	12	14
18	14	14	14	16	12	14	16	12	16	16	--	16	14	16	14	12	16	16	12	12
19	12	14	12	16	16	14	16	16	14	12	14	12	16	16	14	14	14	14	12	16
20	18	14	12	16	12	14	14	14	14	12	16	14	12	12	12	16	14	14	18	18

--No data.

Table 29--Number of rows per ear for plants of the Golden June variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	14	18	16	16	18	12	14	14	16	14	14	14	16	14	--	20	16	16	12	12
2	20	20	--	--	18	14	14	18	--	16	16	16	18	16	--	14	--	14	--	10
3	16	16	12	12	16	16	14	18	20	12	14	16	16	16	18	12	14	12	16	18
4	14	14	14	14	18	--	--	16	16	8	16	14	14	14	16	--	12	18	14	16
5	16	14	12	16	18	14	12	16	14	--	20	14	18	18	--	12	18	--	14	14
6	20	16	--	16	12	16	14	--	16	18	--	14	14	16	14	14	16	--	16	12
7	14	16	20	--	16	14	14	12	18	14	14	16	16	--	16	12	16	10	16	--
8	16	16	12	18	10	14	--	16	--	16	18	16	18	14	14	14	14	14	16	--
9	16	14	16	20	16	16	16	14	18	12	16	16	--	14	20	18	16	16	20	16
10	18	12	16	14	16	12	18	14	16	14	--	14	--	16	14	12	12	16	16	16
11	14	16	16	20	--	14	--	20	18	--	14	14	16	16	16	--	14	10	--	16
12	12	14	14	14	14	16	14	12	14	12	14	16	14	14	14	16	12	16	14	16
13	12	14	--	14	18	14	14	14	16	14	16	14	14	14	20	14	14	14	--	14
14	16	18	--	14	14	16	14	16	14	16	14	14	14	22	16	14	14	18	10	14
15	18	--	10	14	16	16	--	18	14	14	14	16	16	12	14	14	22	16	14	14
16	16	18	14	16	12	14	18	14	16	16	14	14	--	--	16	14	--	12	14	18
17	16	10	16	14	18	20	18	14	10	14	16	16	12	14	14	--	16	18	14	16
18	14	16	16	14	14	12	14	16	10	12	--	14	18	18	14	12	12	--	--	12
19	14	--	16	18	18	14	18	16	--	18	12	20	12	18	16	14	16	14	14	16
20	--	14	14	18	14	14	16	18	16	12	16	14	16	12	18	14	--	14	14	16

--No data.

Table 30--Number of nodes below the ear for plants of the Franklin Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	10	10	12	11	9	10	--	10	11	11	12	--	12	11	11	10	10	10	11	--
2	9	11	11	9	8	12	11	--	9	11	11	11	12	10	7	10	12	10	--	--
3	8	10	9	12	11	8	10	--	11	10	--	9	11	12	11	--	9	11	9	--
4	11	8	11	8	10	--	10	9	--	8	10	11	10	--	10	9	7	9	--	--
5	8	8	10	8	10	10	10	8	9	--	10	--	11	8	10	11	11	8	--	--
6	7	11	10	11	8	9	10	11	--	10	11	10	10	10	9	12	11	12	11	--
7	8	8	10	10	10	10	--	11	9	9	8	12	11	11	11	11	10	10	12	9
8	9	--	11	10	9	10	8	11	8	10	11	10	12	8	11	10	10	11	10	11
9	9	10	10	11	11	9	10	12	10	9	10	10	12	9	12	12	10	9	12	14
10	11	12	9	12	10	10	--	11	9	10	10	10	10	11	12	11	11	9	--	9
11	9	11	11	10	8	11	9	9	10	11	11	10	11	12	11	11	9	11	8	10
12	--	10	10	12	8	9	11	10	10	9	11	--	--	11	--	9	9	8	9	--
13	8	11	11	10	10	11	11	9	12	11	10	10	10	12	8	--	10	11	--	11
14	9	9	12	10	10	8	12	10	11	--	10	12	9	11	13	10	9	8	11	11
15	--	10	--	11	10	--	--	10	11	--	8	10	11	10	11	10	8	10	10	9
16	11	10	9	10	10	10	10	12	11	9	10	10	13	12	10	11	10	--	12	12
17	10	9	11	9	9	10	10	9	10	10	8	8	10	10	--	11	11	10	11	10
18	--	10	11	11	9	--	11	8	11	--	12	--	8	8	11	11	8	9	8	7
19	9	10	11	10	--	10	9	11	10	11	11	8	9	10	9	9	11	8	10	12
20	10	11	9	10	--	10	--	9	--	11	10	10	9	10	9	11	8	11	12	10

--No data.

Table 31--Number of nodes below the ear for plants of the Strawberry variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	10	10	—	13	12	—	—	9	13	10	9	9	10	9	9	12	10	10	10	9
2	7	10	—	9	10	11	12	10	8	11	—	9	8	12	11	10	11	9	9	12
3	8	10	11	10	11	11	10	8	11	11	9	10	9	12	10	8	10	8	—	10
4	6	8	10	—	9	9	9	8	8	—	8	—	9	11	10	9	10	10	9	9
5	12	8	12	9	10	10	9	9	11	9	12	11	10	—	10	7	—	10	11	9
6	8	9	9	12	10	12	10	9	9	9	12	10	9	10	10	10	11	—	9	11
7	9	—	8	10	10	8	—	10	9	9	10	10	10	12	11	10	9	9	10	9
8	9	9	10	9	8	11	9	11	—	8	11	9	12	10	11	9	10	—	9	10
9	10	11	9	—	10	9	11	10	—	—	9	11	10	8	12	8	10	9	8	11
10	8	—	9	12	10	8	8	9	10	9	—	9	8	12	12	11	11	11	—	11
11	9	11	8	9	8	11	8	11	10	—	9	9	11	—	12	—	10	11	10	9
12	10	11	9	—	9	10	10	8	10	8	11	10	12	11	11	11	9	9	—	10
13	10	10	10	9	10	10	11	9	11	7	10	11	10	9	10	12	10	9	10	9
14	10	7	—	8	10	11	8	12	11	—	9	9	9	10	—	11	—	—	—	9
15	8	11	9	10	9	11	10	9	9	10	11	8	11	12	10	9	11	9	10	10
16	9	11	12	11	7	—	10	10	9	10	11	10	11	—	11	10	8	—	10	10
17	9	7	12	9	8	10	11	11	10	10	10	11	—	10	12	8	10	10	9	9
18	12	8	9	11	—	10	8	8	9	10	8	9	12	10	10	10	9	13	11	10
19	11	8	9	8	10	9	8	9	10	8	11	11	10	12	12	11	10	11	10	13
20	12	10	9	9	11	12	9	10	10	11	10	8	11	10	11	11	10	11	12	12

—No data.

Table 32--Number of nodes below the ear for plants of the Mickels Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	11	9	--	10	7	10	9	11	10	11	10	10	—	9	10	9	11	--	8	8
2	11	10	10	10	10	9	10	10	8	9	9	11	9	9	10	11	10	10	12	8
3	12	--	11	--	11	10	9	12	12	10	11	9	9	--	10	--	9	10	11	--
4	11	11	12	10	15	11	11	12	12	10	11	9	11	—	10	10	10	11	10	9
5	12	--	8	10	12	--	9	9	10	--	11	11	10	10	11	9	8	11	10	10
6	—	9	--	12	11	13	11	12	12	10	12	9	12	11	—	13	12	11	10	—
7	12	12	11	10	11	10	11	10	11	9	10	10	11	11	10	--	11	--	11	10
8	11	10	14	10	9	10	10	11	8	12	11	13	12	9	10	8	12	11	13	10
9	12	12	12	10	11	11	11	9	9	—	9	8	10	10	10	10	9	11	11	12
10	12	--	12	13	12	10	9	12	10	11	11	10	11	11	10	13	11	9	10	10
11	12	14	—	—	9	11	9	10	12	11	10	10	10	9	13	11	9	9	12	12
12	11	11	--	11	10	11	15	9	11	10	11	12	9	--	10	12	10	10	11	10
13	10	10	10	11	9	8	12	9	11	11	9	12	9	10	10	8	11	12	10	--
14	9	—	10	9	11	9	--	10	11	10	10	11	10	10	9	10	10	11	--	11
15	--	—	10	10	12	11	11	11	10	10	11	11	10	9	10	9	11	12	13	10
16	10	10	12	10	8	—	11	7	9	10	--	11	11	11	12	10	10	10	8	10
17	11	10	11	10	11	10	11	12	9	--	--	11	6	9	12	10	11	9	10	12
18	--	10	12	12	10	12	11	11	12	11	—	10	--	--	10	7	10	--	11	10
19	11	11	10	13	10	12	11	12	11	--	10	11	11	9	9	8	--	11	12	11
20	10	11	8	9	12	8	10	9	10	13	--	10	10	--	10	10	11	13	8	10

—No data.

Table 33--Number of nodes below the ear for plants of the 110 Day Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	10	8	9	10	7	9	7	8	9	9	8	6	9	8	--	7	8	10	9	7
2	7	8	8	8	9	8	7	8	8	10	8	--	8	8	--	11	--	8	7	8
3	8	9	8	11	8	--	7	8	8	8	8	9	7	--	8	10	10	8	8	8
4	8	9	8	8	7	8	8	7	9	9	8	8	9	7	5	8	9	9	8	7
5	9	8	9	6	8	8	8	8	8	8	7	8	8	--	--	8	7	8	8	9
6	6	8	7	--	7	7	8	8	--	7	9	--	6	--	7	9	10	8	7	7
7	7	10	8	7	9	--	7	9	9	7	7	6	8	8	8	9	9	8	8	8
8	8	8	8	7	7	9	8	7	--	8	6	6	7	--	8	9	9	7	8	9
9	--	9	--	8	10	8	8	8	--	9	8	7	8	--	8	6	8	8	9	--
10	7	5	9	8	9	8	7	8	--	9	8	--	--	7	10	7	8	7	8	8
11	8	8	8	9	8	9	6	8	8	9	7	--	7	9	8	8	8	8	9	8
12	9	8	10	7	7	6	9	8	9	8	8	8	8	10	9	9	7	7	8	9
13	7	8	7	8	8	--	9	9	6	--	8	7	10	7	7	7	9	8	7	8
14	8	8	8	8	11	8	8	6	7	8	8	8	11	8	--	8	8	7	7	--
15	8	7	9	8	8	7	7	7	8	8	9	8	7	8	8	7	--	9	7	9
16	8	8	--	7	8	8	10	8	6	--	--	8	8	8	8	9	9	7	7	8
17	8	8	6	8	7	8	9	6	8	7	8	9	7	7	7	8	9	9	8	6
18	6	7	7	9	7	8	8	8	8	8	7	9	9	9	8	9	9	9	7	9
19	9	8	8	8	9	8	8	10	8	8	6	6	9	9	9	8	8	9	8	7
20	8	9	7	8	8	5	7	7	7	8	9	6	8	7	8	7	9	7	8	8

--No data.

Table 34--Number of nodes below the ear for plants of the Golden June variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	9	10	12	11	9	11	10	8	10	10	12	8	11	10	8	10	11	8	9	10
2	12	8	--	11	11	7	12	12	--	9	9	7	8	11	--	11	8	8	9	9
3	10	9	9	9	9	10	9	10	12	9	10	9	10	9	9	8	9	10	10	11
4	10	13	11	11	11	10	11	8	9	12	10	9	8	11	9	--	10	9	11	9
5	11	10	10	13	10	11	10	10	10	10	9	9	8	10	9	9	7	11	9	8
6	11	9	--	10	12	9	9	9	9	11	--	11	7	10	8	8	10	--	10	10
7	8	11	9	--	9	11	11	10	10	12	8	9	9	--	10	10	9	9	10	11
8	9	10	9	9	10	10	--	10	--	9	9	9	11	8	10	10	8	8	9	7
9	10	9	8	11	9	11	7	10	11	12	11	12	--	10	10	9	11	8	9	11
10	11	10	10	10	10	9	7	9	13	8	--	8	10	9	10	10	10	9	10	10
11	10	10	9	8	10	9	--	11	11	9	10	10	11	8	11	9	8	9	10	8
12	10	8	9	10	10	10	13	8	9	11	12	10	11	11	11	10	9	10	10	9
13	10	9	--	10	9	10	9	9	8	10	10	10	11	9	10	9	11	11	10	12
14	9	11	--	10	9	10	10	9	9	10	10	9	8	9	9	11	10	11	10	9
15	10	--	9	9	10	10	11	10	10	10	9	9	8	10	9	10	12	11	12	8
16	9	10	9	11	9	10	12	11	8	8	10	11	10	--	10	11	10	8	7	11
17	8	9	10	7	10	9	10	9	9	10	13	10	10	8	10	10	10	10	10	9
18	10	10	8	9	12	11	8	7	9	10	--	9	11	11	11	8	9	10	8	8
19	9	8	9	9	11	9	9	9	10	10	9	10	10	10	9	9	11	9	10	12
20	--	9	10	11	11	8	10	10	8	9	10	10	12	10	11	9	9	9	9	9

--No data.

Table 35--Number of nodes above the ear for plants of the Franklin Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	6	7	5	5	6	6	-	6	6	6	6	-	6	6	7	6	7	6	6	-
2	8	6	6	5	6	5	6	-	6	6	6	6	6	7	7	6	6	6	-	-
3	6	6	6	5	7	6	8	-	5	6	-	6	6	5	6	-	6	6	6	-
4	6	7	6	6	7	-	7	5	-	6	8	6	6	-	6	7	5	5	-	-
5	7	6	5	6	6	6	6	5	6	-	5	-	6	7	7	7	6	7	-	-
6	6	5	6	6	7	6	5	7	-	5	6	6	5	6	7	5	5	6	6	-
7	6	7	5	6	7	5	-	6	7	7	5	7	5	6	5	6	7	7	6	7
8	6	-	7	7	6	7	6	8	5	7	7	6	6	6	6	5	5	6	7	5
9	6	6	6	5	6	6	6	5	6	7	5	6	6	6	6	5	5	7	6	6
10	7	6	6	5	5	6	-	6	6	8	6	7	6	6	7	4	6	6	-	7
11	6	5	6	6	6	6	6	7	5	5	5	6	6	6	5	6	4	5	6	6
12	-	6	7	7	6	7	7	5	7	5	6	-	-	5	-	6	7	7	6	-
13	6	6	5	6	7	5	7	6	6	5	7	6	7	5	6	-	6	6	-	5
14	5	6	7	6	6	6	6	7	6	-	6	6	7	5	6	6	7	6	8	5
15	-	6	-	7	6	-	-	6	6	-	6	6	7	6	6	7	5	8	7	6
16	6	6	6	6	6	6	7	7	6	7	6	6	6	5	6	7	6	-	6	6
17	5	6	6	6	7	6	7	5	7	6	6	6	6	6	-	7	6	7	7	7
18	-	8	-	5	6	-	5	7	6	-	5	-	7	8	5	5	7	6	6	6
19	6	5	7	7	-	7	5	6	5	6	7	6	7	7	7	7	6	7	7	5
20	6	6	6	6	-	7	-	7	-	6	6	7	5	6	6	6	6	6	5	6

-No data.

Table 36--Number of nodes above the ear for plants of the Strawberry variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	6	6	-	6	7	-	-	6	6	6	6	6	7	7	6	6	6	6	6	6
2	7	6	-	6	6	5	5	7	6	5	-	5	7	5	6	5	6	5	6	6
3	6	7	6	7	6	6	6	5	6	6	7	6	6	5	5	7	6	5	-	6
4	6	5	5	-	7	7	5	7	7	-	7	-	6	6	8	6	6	6	6	5
5	7	7	6	6	7	6	7	5	6	5	6	6	6	-	5	7	-	5	6	7
6	6	6	6	6	6	6	5	5	6	6	7	5	8	5	5	5	6	-	5	5
7	6	-	7	7	5	6	-	7	6	6	6	6	6	6	6	8	7	6	6	6
8	5	6	6	7	5	7	5	5	-	7	6	7	6	6	7	7	7	-	6	6
9	6	6	7	-	6	7	5	6	-	-	5	6	7	5	7	6	7	7	9	7
10	5	-	7	6	6	5	7	6	6	7	-	6	6	5	6	6	6	5	-	6
11	5	5	5	5	6	6	6	5	6	-	6	8	6	-	6	-	7	5	7	6
12	7	6	6	-	5	7	5	6	7	6	6	6	6	5	6	5	7	7	-	7
13	3	6	6	-	6	6	6	-	6	7	7	6	6	5	6	6	5	6	6	6
14	6	7	-	5	5	6	6	4	6	-	7	7	8	7	-	7	-	-	-	6
15	7	5	6	6	5	5	6	5	6	7	6	6	7	6	5	6	7	6	6	8
16	5	5	5	6	5	-	7	6	6	7	5	6	5	-	7	6	7	-	5	7
17	5	6	5	5	6	6	5	5	6	8	7	6	-	5	7	6	5	6	5	6
18	6	7	7	7	-	6	6	6	5	7	7	6	6	8	8	6	7	5	5	5
19	6	6	6	6	6	6	6	6	5	7	6	6	6	5	5	8	6	7	6	5
20	7	6	5	5	6	5	6	6	6	5	6	5	6	6	6	7	7	6	6	6

-No data.

Table 37--Number of nodes above the ear for plants of the Mickels Yellow Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	7	7	-	6	7	6	7	7	6	6	6	6	-	6	6	6	-	-	7	5
2	6	7	6	6	6	6	7	6	7	6	7	5	5	5	6	5	6	6	6	8
3	6	-	7	-	6	7	7	6	6	6	6	7	7	-	4	-	7	8	6	-
4	6	6	6	7	5	8	7	7	6	6	6	6	7	-	5	5	6	6	5	6
5	6	-	6	7	5	-	6	7	5	-	6	5	6	7	7	6	6	6	6	5
6	-	6	-	6	6	6	6	5	6	7	6	5	5	5	-	6	6	6	7	-
7	6	7	5	6	7	6	6	5	6	6	6	7	8	6	6	-	6	-	6	6
8	7	8	6	6	7	5	7	6	6	6	6	6	5	6	7	6	7	6	6	7
9	-	6	6	6	8	8	6	6	6	-	6	6	7	5	6	6	7	7	7	6
10	5	-	6	7	5	5	7	7	5	6	7	5	8	5	6	5	5	6	5	6
11	7	6	-	-	7	5	7	6	7	5	7	6	6	7	6	6	7	6	6	7
12	6	6	-	6	6	6	8	5	5	7	6	5	7	-	6	6	6	7	6	6
13	6	6	7	6	6	5	8	7	7	7	6	5	6	6	6	6	6	5	7	-
14	5	-	6	6	6	8	-	6	6	7	6	6	5	5	6	6	6	6	-	6
15	-	-	5	8	7	7	6	7	6	7	6	5	5	6	6	6	7	7	6	5
16	5	5	6	7	7	-	8	7	7	6	-	7	6	6	6	6	5	6	6	6
17	6	7	6	6	6	6	6	5	6	-	-	8	7	6	5	5	7	7	7	6
18	-	8	6	5	5	7	6	7	7	7	-	6	-	-	7	7	7	-	7	5
19	7	7	6	6	6	7	7	7	5	-	6	6	6	5	6	6	-	6	6	5
20	6	5	6	6	7	6	7	6	6	5	-	5	6	-	7	6	5	6	6	5

-No data.

Table 38--Number of nodes above the ear for plants of the 110 Day Dent variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	8	9	6	7	7	6	7	5	6	7	7	7	7	6	-	7	6	5	6	6
2	7	8	6	5	5	6	6	5	5	8	5	-	8	6	-	7	-	6	5	6
3	6	6	6	5	6	-	7	5	7	7	7	6	6	-	7	6	7	6	6	6
4	6	5	6	6	6	6	6	6	5	6	7	7	5	6	7	5	6	6	7	7
5	6	6	5	6	8	6	6	6	7	6	7	5	6	-	-	6	6	6	7	6
6	8	6	5	-	7	7	7	5	-	6	6	-	7	-	6	6	5	8	6	6
7	6	5	6	7	7	-	6	5	5	6	6	6	5	6	7	7	7	7	6	6
8	8	6	6	8	6	5	7	5	-	6	5	6	6	-	5	7	5	6	7	6
9	-	6	-	8	6	5	6	7	-	7	6	7	7	-	5	7	6	7	6	-
10	7	6	6	7	6	7	7	5	-	6	5	-	-	7	6	7	7	6	6	5
11	6	6	6	5	6	6	6	5	6	6	6	-	6	6	5	6	8	7	7	5
12	6	8	5	8	7	7	6	6	6	5	6	5	6	6	7	5	7	6	6	6
13	7	6	5	8	7	-	6	5	6	-	7	7	6	7	6	7	5	6	6	7
14	6	7	7	7	7	6	6	7	7	6	6	6	7	6	-	6	6	6	7	-
15	6	7	6	6	8	7	7	6	6	5	5	7	7	7	5	6	-	6	7	6
16	7	7	-	7	6	5	7	7	7	-	-	6	6	8	6	6	6	8	6	6
17	7	6	8	7	7	6	6	7	7	6	8	5	7	5	8	7	6	8	5	7
18	6	6	6	5	6	5	7	6	7	7	6	7	8	6	6	6	6	6	6	6
19	7	7	6	7	7	5	6	6	7	6	7	6	6	6	7	6	6	7	6	7
20	6	5	7	7	6	7	6	7	7	7	5	6	6	6	6	6	7	6	9	6

-No data.

Table 39--Number of nodes above the ear for plants of the Golden June variety grown near Stillwater, Oklahoma in 1950.

PLANTS	ROWS																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	5	6	5	6	6	7	6	7	6	6	6	5	7	6	6	6	6	6	5	7
2	5	6	-	6	7	7	5	7	-	7	7	6	7	6	-	7	7	6	6	6
3	6	6	6	7	6	5	7	6	7	6	7	6	7	6	7	5	6	7	7	6
4	6	6	7	8	7	7	5	7	6	7	6	6	6	8	8	-	6	7	5	5
5	6	6	6	6	6	6	6	6	5	6	7	6	6	7	5	6	7	6	5	8
6	5	6	-	7	6	6	6	6	7	5	-	5	6	5	7	6	5	-	6	5
7	6	6	7	-	6	6	5	6	6	6	5	8	6	-	7	6	5	7	6	4
8	7	5	6	7	6	6	-	6	-	6	6	6	7	6	5	6	5	7	6	8
9	6	5	6	6	7	8	6	5	6	5	5	6	-	6	6	5	7	6	7	8
10	6	6	5	6	6	6	7	6	6	6	-	6	5	7	7	5	5	8	5	6
11	6	6	5	7	8	7	-	6	5	5	6	6	7	6	7	6	5	6	5	6
12	7	8	6	5	5	7	6	5	6	5	5	6	6	8	7	6	7	7	6	6
13	6	6	-	5	6	6	7	8	7	7	6	5	6	6	6	6	6	6	6	6
14	6	7	-	6	5	7	7	5	6	9	6	7	6	7	7	8	7	7	7	5
15	5	-	6	7	7	6	5	6	5	7	7	6	6	6	6	6	7	6	8	6
16	6	6	6	5	7	8	7	5	6	7	8	6	7	-	6	6	5	7	7	5
17	6	6	7	7	8	7	6	7	7	5	5	7	6	8	7	5	7	6	6	6
18	7	7	7	6	5	7	8	7	6	5	-	6	5	5	7	8	7	8	8	5
19	7	7	7	5	5	7	5	6	6	7	8	6	7	5	9	7	5	7	7	7
20	-	6	6	5	7	6	6	7	7	6	7	7	6	6	7	5	7	6	5	7

-No data.

THESIS TITLE: VARIABILITY WITHIN FIVE OPEN-POLLINATED VARIETIES OF CORN

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