OATS.

THE EFFECT OF CHANGING THE TIME OF IRRIGATION ON THE BIOMETRICAL CONSTANTS.

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C O L O R A D O A G R I C U L T U R A L C O L L E G E

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GRADUATE WORK

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY KHAN H. MUSA ENTITLED "Oats: The Effect of Changing the time of Irrigation on the Biometrical Constants" BE ACCEPTED AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE DEGREE OF Master of Science

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Introduction

The following experiment was conducted at this station with a view of making a statistical study of the relative effect of differences in the time of irrigation upon oats. The year during which this crop was grown the annual rainfall was exceptionally high, which would possibly account for the small variations in the biometrical constants. It is highly desirable that the experiment herein reported be repeated for a number of years before drawing definite and specific conclusions.

Characters Dealt with and Experimental Methods.

Four biometrical constants; correlation coefficient, standard deviation, coefficient of variability and the average or the mean have been determined inthe course of study. The characters correlated are:

1. The ratio of total grain per plant to total straw per plant, subject; and the number of stems per plant, relative.
2. The ratio of total grain per plant to total straw per plant, subject; and the average stem height per plant, in centimeters, relative.
3. The ratio of total grain per plant to total straw per plant; subject; and the average panicle number of spikelets per plant, relative.

4 The ratio of total grain per plant to total straw per plant, subject; and the total plant weight per plant, in grams, relative.

5 The total plant weight per plant, in grams, subject; and the total grain weight per plant, in grams, relative.

6 The total plant weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative.

7 The total grain weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative.

8 The average panicle grain yield per plant, in grams, subject; and the stem straw weight per plant, in grams, relative.

These combinations of characters were correlated for each series and the results are reported in the correlation tables and also in a condensed table for comparative study.

The characters for which the standard deviations and the averages were found are as follows:

1 The ratio of total grain per plant to total straw per plant.

2 The number of stems per plant.

3 The average stem height per plant, in centimeters.

4 The average panicle number of spikelets per plant.

5 The total plant weight per plant, in grams.

6 The total grain weight per plant, in grams.

7 The total straw weight per plant, in grams.

8 The average panicle yield per plant, in grams.

9 The average stem straw weight per plant, in grams.

The results of these are reported in the summation sheets and also in two separate tables for comparative study.

Frequency polygons have been constructed in the course of study for each character receiving different irrigation treatments. It should be noted that these frequency polygons do not, in all cases, represent the same number of plants, which would account for the difference in area occupied by each polygon.

Varieties used - Three varieties of oats have been employed: Kherson, an early maturing oat; Colorado Number 37 and Great Dakota, both late in maturing. Eighteen centgeners of each variety were planted out and these in turn were grouped into series 1, 2, 3, each

series consisting of six centgeners planted in different parts of the Experimental Farms in order to secure a uniform or what may be called an average condition and thus ~~avoid~~ eliminate the effect any soil differences that might have arisen. Series 1 in each of the three varieties received no irrigation while series 2 in each case was irrigated July 7th and series 3 irrigated June 22nd.

Irrigation - All of the series 1 received no irrigation; series 2 were irrigated July 7th and series 3 June 22nd.

One irrigation, consisting of about six acre inches, was applied in each case. At the time of early irrigation, Kherson had headed out pretty well, while Colorado Number 37 and Great Dakota, both late oats, were just beginning to head out. At the time of late irrigation, the grains of Kherson variety were filled out while Colorado Number 37 and Great Dakota were flowering.

Harvesting- Each centgener, when ripe, was harvested by itself, tied in a bundle and allowed to dry out. To prevent any external injury, the heads were wrapped in a cloth ~~and~~ fastened with pins.

Kherson, series 1, matured about July 30th and was harvested the following day. Kherson, series 2, which was irrigated July 7th, matured about August 10th and was harvested the same day. Kherson, series 3, which was irrigated June 22nd, matured August 10th and was harvested the same day.

Colorado Number 37, series 1, 2 and 3, which received different irrigation treatments, matured about August 18th and were harvested the same day.

Great Dakota, series 1, which received no irrigation, matured about August 11th and was harvested the same day. Great Dakota, series 2 and 3, irrigated July 7th and June 22nd respectively, matured about August 18th and were harvested the same day.

Measurements - From each centgener, seventy healthy plants were taken at random (in some cases, seventy plants were not available because of smut or some other injury and hence fewer plants were considered). An identification tag was attached to each plant and the roots removed just above the crown.

The stems of each plant were measured from the base of the stem to the base of the apical spikelet and the result recorded to the nearest centimeter. The length of each panicle was secured by measuring from the base of each panicle to the base of the apical spikelet and recording the result to the nearest half-centimeter. The number of spikelets on each panicle were determined and recorded separately.

To secure the average length of the plant, the lengths of the individual stems per plant were added and the total divided by the number of stems per plant. The same method was followed out in finding the averages for panicle number of spikelets and the average panicle length.

After securing the above measurements, all the heads belonging to the same plant were thrashed together and the total grain weight per plant, to the nearest 0.05 grams (one-twentieth of a gram), was recorded. For average panicle grain yield, the total grain weight per plant was divided by the number of panicles per plant. The total straw weight per plant was secured by deducting the total grain weight per plant from the total weight per plant.

The ratio of grain to straw was found by dividing the total grain weight per plant by the total straw weight per plant. The division was carried to three decimal places but the data recorded only to two decimal places (if the third decimal was five or more, the second decimal place was increased by one, but if it was less than five, the third place was omitted without altering the second place).

All the data represented by the six centgeners of the same variety and receiving the same treatment but planted on different parts of the Experimental Farms was transferred to cards. On each card wereplaced all the measurements of the individual plant and these cards were made use of in finding the distribution frequencies for various characters and in making correlation tables.

In securing the means, the standard deviations and the correlation coefficients, calculations as a rule were carried to the fifth decimal place but recorded to the fourth, following the same method explained elsewhere.

A Brief Survey of Literature.

In reviewing the literature on oats, it will be noted that this crop has been subjected to considerable experimentation in this country and in foreign countries. However, the amount of statistical work done on it is more or less limited and in some instances, of an unsatisfactory nature, The writer has carefully gone over the experiment station records on oats but has not been able to find any data having a direct bearing on the question at hand, However, a brief review of literature is of interest in this connection and certain facts may be indirectly comparable with the results of the present experiment,

To determine the influence of the water content of the soil on the development of plants, C, von Seelhorst conducted a series of pot experiments with oats, He found that a high percentage of soil moisture at the time of heading increased the culm length and the number of blossoms was much greater when the water content of the soil was high at the time of heading than when it was low, A high percentage of soil moisture during the early growth of the plants greatly increased the number of spikelets, From the results of his experiments, he asserts that a high percentage of soil moisture at the time of heading is highly important in increasing the yield of straw and grain. Comparing these results with those obtained by the writer, it will be noted that, in the case of Kherson (an early oat), at the time of early irrigation, the plants had pretty well headed out and that at this period had the highest average stem height. At the time of late irrigation, when the grains were well filled out, there was a decrease in the average stem height compared to early irrigation. In Colorado No, 37, at the time of early irrigation, the heads were beginning to flower, This variety responded similar to Kherson and the results thus obtained with the two varieties are in accordance with those obtained by von Seelhorst, so far as the culm length is concerned. Great Dakota, which headed out and flowered at the same time as Colorado No. 37 and received the same irrigation treatment, behaved differently. Increase in the yield of straw and grain in all the three varieties are not quite in accordance with his results. This is not, however, a just comparison since the two investigations were conducted under different conditions.

P. I. Brounov, on the influence of the meteorological conditions on the growth and yield of oats, found that a precipitation of some 100 mm or more distributed uniformly from the time of sprouting to the time of heading with a resulting moisture content from 16 to 18 per cent in the soil to a depth of 25 cm. gave a high yield of straw and grain. When the moisture content

of the soil was brought lower than the limits mentioned during the first two-thirds of the period, it lowered the yield of straw but on the whole did not affect the yield of grain.

V. A. Vlasov, of the Poltava Experiment Field, reports that the yield of oats is directly dependent upon the precipitation from August of the preceding year to the time of heading, on the mean temperature of the air and the intensity and duration of the solar radiation in the period from flowering to ripening, and on the amount of evaporation during the latter period, and inversely proportional to the amount of precipitation and relative humidity of the air after the heading stage had been reached.

C. von Seelhorst and Krzymowski, working on the influence of soil moisture on the development of oats at different stages of growth, conducted two sets of pot experiments of twelve pots each. One set was kept dry at first but later they were watered at different periods as indicated in the following table and the application of water continued thereafter. In this case the check pots received no water and the following results are reported:

	Increase in total yield	Increase in grain yield.
July 1	27.7 per cent	21.4 per cent
June 15	48.8 "	40.1 "
June 1	103.2 "	107.0 "
May 15	136.3 "	126.3 "
May 1	178.9 "	158.7 "

In the second set of twelve pots, water was first added but later discontinued at the dates indicated below. The check pots in this case were watered during the entire period of experiment.

	Increase in total yield.	Increase in grain yield.
July 1	85.8 per cent	74.4 per cent
June 15	67.3 "	62.3 "
June 1	52.3 "	48.6 "
May 15	44.3 "	44.8 "
May 1	41.3 "	40.8 "

After a series of experiments with different crops, Backhaus reports that dur to irrigation, oats gave an increase of 35 per cent in the yield of grain and 56 per cent in the yield of straw.

On the stooling of oats, W. Rimpau reports that his results do not indicate, as Schribaux asserted, that the most productive varieties of grains have the lowest stooling capacity. By referring to the means of total weight per plant and also the number of stems per plant and taking the average of the three treatments for each variety, it will be found that the yield decreases with the increase in the number of stems.

On the relation of soil moisture to oats, A. Pulman reports that a constant soil moisture content of 35 per cent gave the optimum results during the period from the appearance of the head to the setting of the grain. A decrease in soil moisture during this period from 34 per cent to 24 per cent caused a decrease of 32 per cent in the yield. An increase of soil moisture from 24 per cent to 34 per cent during this period caused an increase of 11 per cent on the average yield.

Gerlach and Kruger, after an extensive irrigation experiment, state that the weight of the individual grains as well as the bushel weight was greater with the irrigated oats than in the case when no water was applied. The present experiment indicates that the bushel weight does not necessarily increase with the application of water, at least in different varieties. In Kherson, the bushel weight remained the same for irrigated and non-irrigated; in Colorado No. 37, no irrigation gave a much higher bushel weight and in Great Dakota, irrigation gave a higher bushel weight over no irrigation.

I. Vikhlyae observed that a high soil moisture content at the time of heading tended to greatly increase the yield while a low soil moisture content tended to reduce the yield.

On the relation of yield to straw and grain in oats, H. H. Love found a correlation of 0.357 ± 0.082 for 1911, 0.714 ± 0.030 for 1912 and 0.500 ± 0.043 for 1913. By referring to the table on coefficients of correlation herein reported, a muchey higher correlation will be seen to exist between the total straw weight and total grain weight per plant, and that these correlations remain fairly constant for the three varieties.

The most noteworthy statistical work on oats has been published in two separate covers, Memoirs No. 3 and 4 by Cornell University Agricultural Experiment Station. Memoir No. 3 , by H. H. Love and C. E. Leighty, is a study of the effect of seasonal changes on biometrical constants. The authors, in the course of study, have secured the biometrical constants for several characters. A comparison of their work with the writer's data will be made more fully later on. In general, it may be said that considerable variation occurs between the results secured by them and those obtained by the author.

In discussing their data of Memoir No. 3(page 17), they report that unfavorable weather conditions of the year 1910 resulted in smaller plants and a reduced total yield of grain but that

smaller plants produced a larger number of spikelets compared with 1909, which offered more favorable growing conditions. With respect to the production of larger number of spilelets per plant, the writer feels that, in drawing their conclusion, the authors have failed to take into account the number of culms per plant, a fact to which attention is called in the later discussion of the present work. For the year 1909, they secured an average number of spikelets per culm per plant of 32.40 ± 0.247 and the number of culms per plant 3.948 ±0.043, and for the year 1910, an average number of spikelets per culm per plant of 35.400 ±0.245 and the number of culms per plant, 3.568±0.031. Certainly, it does not necessarily follow that plants with a low culm number of spikelets per plant should also have a low total number of spikelets, since an increase in the number of culms per plant would tend to raise the total number of spikelets per plant but would not necessarily increase the average number of spikelets per plant.

In Memoir No. 4 of Cornell University Agricultural Experiment Station, Clyde E. Leighty reports the results of his statistical work with oats. He followed four lines of studies which are as follows:

1 Comparison of biometrical constants determined for oat plants and for the culms of the same plants.
2 Biometrical comparison of varieties of oats.
3 Comparison of biometrical constants determined for oat plants grown in hills and in drills.
4 Effect of different degrees of crowding on biometrical constants of oats.

On the first point, he concludes that practically the same means and correlation coefficients will be obtained whether plants are used as units of the culms of the same plants are used as units, but that these constants will be slightly greater for the latter method. The standard deviations and coefficients of variability will also be greater when culms are the units.

On the second point, he concludes that considerable difference is found in the amount of variability of different characters of the varieties and that the coefficients of correlation are usually farily close together for the different varieties, but some differences occur that may be due to varietal causes.

On the third point, he concludes that the means are greater for plants grown in hills than for plants grown in drills. Again, whenever large differences occur in the coefficients of correlation, those for the plants grown in hills are always smaller in amount.

On the fourth point, he concludes that oat plants grown in very crowded conditions produce but one culm to a plant, but, as more room is given, more than one culm is produced by

by many plants. Variability decreases with increase in crowding for yield, number of kernels,number of spikelets, and breaking strength of straw; but for height the least variability occurs when crowding is least. There is an increase in correlations produced by more crowded conditions, but there is sometimes a decrea beyond a certain degree of crowding.

~~It should be noted that the above review of literature is only a brief survey of the more important works conducted with oats. There is a vast amount of literature on the relation of oat crop to moisture supply which althou of considerable interest has no direct bearing on the subject. A fairly large amount of literature on the statistical work with other cereals is also available.~~

Waldron working with the question of heavy and light seed grains presents several correlation tables. He worked with 1000 oat culms grown under field conditions. He states "In nearly all cases, each head bearing culm measured represented an entire plant. The variety is well defined morphologically, but evidently contains various races or biotypes." From the foregoing statement then it is not clear whether Waldron worked with plants having one and only one culm to the plant or he took one culm from each plant at random. He reports the following correlations:-

Average weight of grains and number of grain per head -.595 $\pm$ .013

" " " " " length of head - 0.511 $\pm$ 0.015

" " " " " " " culm - 0.404 $\pm$ 0.017

In the way of summary he concludes, "plants with shorter culms, shorter heads, and with a smaller number of grains, bear on the whole grains of greater weight. The opposite of course is equally true." At the end of his article he states,"Since the above was written it has been found that the small oat heads bear a somewhat larger percentage of single grains than the large heads. If this factor be considered the negative correlations would be somewhat decreased but probably not materially." This at once brings a new phase of the question and this is a possible explanation of the negative correlations secured by Waldron. The writer's attention was called to this fact by Prof. Breeze Boyack and as a preliminary test a number of wheat spikes were examined. It was found that the larger heads contained the largest and heaviest seeds but at the same time they contained good many more third and fourth grains than the small heads.which accounted for the decrease in the average grain out of larger heads. Hence if the selection of seed grain is based on the size of grain, then the first grains from large plants should be the basis of selection.

It may be further state that had Waldron correlated average weight of first grain, average weight of second grain,etc. respectively with other characters he would have possibly found quite different results than the ones he had reported.

H.H.Love working on the question of large and small grain has secured some very interesting results. He worked with pure lines of wheat and used the whole plant as the unit instead of culm. He has secured the following correlations:-

Height of plant and yield .294 ± 0.032
Number of grains and yield 0.985 ± 0.001
Height of plant and average weight of grain 0.278 ± 0.033
Number of grains and average weight of grains .251 ± 0.033
Yield and average weight of grains 0.327 ± 0.031

The author compares his work with that of Waldron's and finds that where he got a positive correlation of 0.278±0.033 between height and average weight of grains, Waldron got a negative correlation of 0.404± 0.017 with oats and a positive correlation of 0.16 ± 0.034. Love secured other data which are quite different from thos of Waldron.

The writer wishes to present as a possible explanation to the foregoing facts the question of 1st,2nd, 3rd,etc.grains as presented elsewhere. It is possible to believe that Waldron had a good many more 2nd,3rd,etc. grains to the large heads than did Love. If such be the actual condition then we would expect in Waldron's case to find taller plants (since there is positive correlation between height and length) to produce grains having a low average grain weight. Love's case taller plants to produce grains having a high average grain weight. The fact that Waldron worked with a population of biotypes and Love with pure line may be another possible explanation.

Means.	Kherson			Colorado No. 37			Great Dakota.		
	No irrigation	Irrigated June 22	Irrigated July 7	No irrigation	Irrigated June 22	Irrigated July 7	No irrigation	Irrigated June 22	Irrigated July 7
The ratio of total grain per plant to total straw per plant.	0.9250 ± 0.0042	0.8475 ± 0.0050	0.8230 ± 0.0043	0.8790 ± 0.0040	0.7700 ± 0.0044	0.8133 ± 0.0034	0.9332 ± 0.0035	0.7820 ± 0.0043	0.8022 ± 0.0040
The number of stems per plant.	3.1775 ± 0.0376	3.8670 ± 0.0660	6.3652 ± 0.0770	3.2446 ± 0.0340	3.7529 ± 0.0428	4.0000 ± 0.0428	3.6773 ± 0.0399	4.1791 ± 0.0499	4.2835 ± 0.0436
The average stem height per plant in centimeters.	92.0359 ± 0.2365	105.2990 ± 0.3333	100.6835 ± 0.2980	107.3953 ± 0.2616	128.3360 ± 0.3533	125.3670 ± 0.2696	108.0760 ± 0.2238	128.9040 ± 0.2636	132.6830 ± 0.2433
The average panicle number of spikelets per plant.	44.8295 ± 0.3479	41.8465 ± 0.3512	39.6570 ± 0.3370	49.4100 ± 0.3512	49.1410 ± 0.3653	37.0760 ± 0.3201	49.1270 ± 0.2880	43.7080 ± 0.2931	49.4100 ± 0.2847
The total plant weight per plant, in grams.	16.0273 ± 0.2022	17.4495 ± 0.2396	18.0065 ± 0.2382	20.6830 ± 0.2549	22.6760 ± 0.3173	22.6900 ± 0.2765	19.4800 ± 0.2300	21.5795 ± 0.2890	23.1500 ± 0.2669
The total grain weight per plant, in grams.	7.6237 ± 0.0946	7.9162 ± 0.1229	8.0282 ± 0.1051	9.3239 ± 0.1181	9.8946 ± 0.1386	10.6371 ± 0.1229	9.3368 ± 0.1103	9.4762 ± 0.1271	10.3616 ± 0.1255
The total straw weight per plant, in grams.	8.3815 ± 0.1099	9.5224 ± 0.1380	9.9122 ± 0.1335	11.1421 ± 0.1388	12.9118 ± 0.1839	13.0621 ± 0.1570	10.0410 ± 0.1170	12.1540 ± 0.1709	12.8926 ± 0.1481
The average panicle grain yield per plant, in grams.	1.4784 ± 0.0119	1.3530 ± 0.0123	1.5756 ± 0.0131	2.8448 ± 0.0220	2.3986 ± 0.0227	2.5302 ± 0.0187	2.5488 ± 0.0160	2.2590 ± 0.0180	2.4034 ± 0.0170
The average stem straw weight per plant, in grams.	1.6138 ± 0.0127	1.6153 ± 0.0152	1.2393 ± 0.0115	3.2442 ± 0.0231	3.4003 ± 0.0262	3.1152 ± 0.0199	2.7201 ± 0.0171	2.8813 ± 0.0191	3.0001 ± 0.0172

Discussion of Means.

1. Plants not receiving any irrigation have a greater mean rati o of grain to straw as compared to to those receiving June or July irrigations. The effect of early and late irrigations is not uniformly in the three varieties, in fact the variation is so small as to be due to errors in the experimental methods.

2. Plants not receiving any irrigation have a smaller mean number of stems per plant, while those receiving irrigation have a greater tendency to stool. July irrigation gives the largest mean number of stems per plant.

3. The mean of average stem height per plant is much less in the non-irrigated plants as compared to those irrigated. In Kherson and Colo.#37 June irrigation gave an increase in the mean of average stem height per plant over no irrigation and July irrigation, while in Great Dakota July gave the greatest increase.

4.In Kherson no irrigation gave an increase in the mean of average panicle number of spikelets per plant, being 44.8295-0.3495, while June and July irrigation gave a decrease, being 41,8455-0.3512 39.6570-0.3370 respectively. In Colorado #37 no marked change is noticeable. In Great Dakota there was a marked decrease in the mean of average panicle number of spikelets per plant by June irrigation, but the mean remained practically the same for no irrigation and also for July irrigation.

5. No irrigation causes a decrease in the mean of total plant weight per plant in all of the three varieties. June irrigation gives a uniform increase over no irrigation while July irrigation shows the highest increase.

6. No irrigation causes a decrease in the mean of total grain weight per plant, which is very slight. The July irrigation gives a slight increase over June irrigation. Had these results not occurred with uniformity in the three varieties the slight variations might have been assigned to experimental errors.

7. The mean total straw weight per plant is least in the non-irrigated plants. There is a slight increase in the mean of July irrigation over June irrigation.

8. On the whole no irrigation increases the average panicle grain yield per plant over June or July irrigation, while little effect is produced by changing the time of irrigation, except in the case of Kherson where a peculiar condition exists. Comparing the mean average panicle grain yield per plant with the total grain yield per plant it will be seen that plants with high total grain yield have a low average panicle grain yield, while those with low total grain yield per plant have a high average panicle grain yield per plant(Kherson excepted), However, this is contrary to our expectation i.e. one would expect high total grain yield per plant to be associated with high average panicle grain yield. Such a condition would have been a puzzling one and possibly misleading had we not considered the number of stems per plant. Referring to the character under

question,namely, number of stems per plant it will be noted that high grain yields per plant are associated with increased numbers of stems per plant, which accounts for the decrease in the panicle grain yield. ~~It~~ It may now briefly be stated that the increase in the mean of total grain weight per plant accompanied by a decrease in the mean of average panicle grain yield per plant is account for by the increase in the mean of the number of stems per plant.

In the case of Kherson it will be observed that the mean total grain weight per plant is practically the same for June and July irrigation and since the mean of the number of stems per plant is smaller in the case of June irrigation than July an increase in the mean of average panicle grain yield per plant by June irrigation would be expected. However, this does not hold true and as a matter of fact the opposite is true i. e. having the mean total grain yield constant for June and July irrigation in Kherson, an increase in the mean of the number of stems per plant is accompanied by an increase in the mean of average panicle grain yield. Such a statement is all together contrary to the one made in the foregoing paragraph. The writer is inclined to believe that this is purely mathematicalin nature and the problem is under investigation. Now considering the mean of the average stem straw weight per plant in Kherson, it will be seen that no irrigation and June irrigation give similar results while the mean is considerably lowered by July irrigation. On the other hand the mean of the total straw weight per plant are alike in June and July irrigation but much lower in the case of no irrigation. It may be said that since June and July irrigations make no marked change on the mean of total straw weight per plant, an increase in the mean of the number of stems per plant by July irrigation would mean a decrease in the mean of the average stem straw weight per plant. Again since June irrigation gives a marked increase in the mean of total straw weight per plant over no irrigation an increase in the mean of average stem straw by June irrigation over no irrigation will be expected. This,however, is not the case and may be easily accounted for by the increase in the mean of the number of stems per plant thru June irrigation. Whether the increase in one case accompanied by a decrease in another is proportional or not and is all together due to causes stated is questionable.

In the case of Colorado #37 it will be noted that June irrigation gives a higher mean of average stem straw weight per plant than July irrigation, while the mean of the total straw weight per plant remains practically the same. This again may be explained by the variation in the mean of the number of stems per plant. The fact that the mean of average stem straw and per plant is higher in the case of no irrigation than July irrigation is probably due to a decrease in the mean of the number of stems perplant.

Standard Deviations.	Kherson			Colorado No. 37			Great Dakota.		
	No irrigation	Itriga ted June 22	Irriga ted July 7	No irriga tion	Irriga ted June 22	Irriga ted July 7	No irriga tion	Irriga ted June 22	Irriga ted July 7
The ratio of total grain per plant to total straw per plant.	0.1270 ± 0.0030	0.1460 ± 0.0035	0.1288 ± 0.0030	0.1201 ± 0.0028	0.1219 ± 0.0031	0.1008 ± 0.0024	0.1057 ± 0.0025	0.1276 ± 0.0030	0.1182 ± 0.0029
The number of stems per plant.	1.7429 ± 0.0407	1.9357 ± 0.0467	2.3208 ± 0.0544	1.0308 ± 0.0241	1.1850 ± 0.0303	1.2609 ± 0.0303	1.1962 ± 0.0282	1.4095 ± 0.0353	1.2731 ± 0.0308
The average stem height per plant, in centimeters.	7.1604 ± 0.1672	9.7720 ± 0.2357	8.9885 ± 0.2107	7.9210 ± 0.1850	9.7695 ± 0.2498	7.9433 ± 0.1906	6.7110 ± 0.1582	7.4475 ± 0.1864	7.1060 ± 0.1720
The average panicle number of spikelets per plant.	10.5335 ± 0.2460	10.2930 ± 0.2483	10.1650 ± 0.2383	10.6340 ± 0.2484	10.1030 ± 0.2583	9.4315 ± 0.2263	8.6360 ± 0.2036	8.2805 ± 0.2072	8.3135 ± 0.2013
The total plant weight per plant, in grams.	6.1205 ± 0.1430	7.0230 ± 0.1694	7.0666 ± 0.1684	7.7180 ± 0.1803	8.7740 ± 0.2244	8.1460 ± 0.1953	6.8965 ± 0.1626	8.1625 ± 0.2043	7.7950 ± 0.1887
The total grain weight per plant, in grams.	2.8646 ± 0.0669	3.6042 ± 0.0869	3.1708 ± 0.0743	3.5757 ± 0.0837	3.8332 ± 0.0980	3.6226 ± 0.0869	3.3078 ± 0.0780	3.5914 ± 0.0899	3.6644 ± 0.0887
The total straw weight per plant, in grams.	3.3280 ± 0.0777	4.0460 ± 0.0976	4.0272 ± 0.0944	4.2032 ± 0.0982	5.0862 ± 0.1301	4.6252 ± 0.1110	3.5072 ± 0.0827	4.8288 ± 0.1209	4.3210 ± 0.1046
The average panicle grain yield per plant, in grams.	0.3617 ± 0.0084	0.3610 ± 0.0087	0.3966 ± 0.0093	0.6661 ± 0.0156	0.6270 ± 0.0160	0.5513 ± 0.0132	0.4797 ± 0.0113	0.5074 ± 0.0127	0.4950 ± 0.0120
The average stem straw weight per plant, in grams.	0.3852 ± 0.0090	0.4434 ± 0.0107	0.3439 ± .0081	0.6991 ± 0.0163	0.7237 ± 0.0185	0.3860 ± 0.0141	0.5127 ± 0.0121	0.5402 ± 0.0135	0.3515 ± 0.0121

Discussion of Standard Deviations.

1. By referring to the tables of standard deviations it will be observed that the ratio of total grain per plant to total straw per plant has a greater s d in the case of June irrigation than in the case of July irrigation or no irrigation for Kherson. The s d is practically the same for the latter two treatments. In Colorado #37 the s d, after taking into account the probable, is the same for no irrigation and June irrigation, while July irrigation tends to slightly decrease the s d. In Great Dakota no irrigation causes a slight decrease in the s d while June and July irrigations raise the s d by a small amount. It should be noted that June irrigation gives the greatest s d in the three varieties considered, and by referring to the table on the coefficients of variability it will be seen the same conditionto exist.

2. The standard deviation for the number of stems per plant in the Kherson is the smallest where no irrigation has been practiced, while there is slight increase by June irrigation and considerably more by July irrigation. In Colorado #37 the same conditions hold true even though the variation is not so marked. In Great Dakota June irrigation gives the largest s d and no irrigation the least.

3. In Kherson the s d for the average stem height per plant is the least in the case of no irrigation and largest where June irrigation has been practiced. The same condition exists in Colorado #37 except that the difference between the standard deviations of no irrigation and July irrigation would be smaller than its probable error. The same relation exists in the case of Great Dakota as in the other two varieties. Considering the three varieties, then, it may be said that no irrigation has the least s d and June irrigation the highest.

4. The standard deviations of the average panicle number of spikelets per plant for the Kherson different irrigation treatments is the same and in no case is the difference greater than three times its probable error. The same is true of the Great Dakota. However in the case of Colorado #37 considerable difference occurs, no irrigation giving the highest s d July, irrigation lowest.

5. Considering the total plant weight per plant it will be seen that no irrigation gives the least s d in all the three varieties, while slight differences occur in June and July irrigations but these differences are so small as to be of no significance.

6. In Kherson the s d for the total grain weight per plant is the least where no irrigation has been practiced. In the case of Colorado #37 and Graat Dakota no apparent change has taken place in the s d and the slight variations may be attributed to the probable errors.

7. In Kherson no irrigation has caused a marked decrease in the s d of the total straw weight per plant as compared to June and July irrigations which have practically the same standard deviations. In Colorado #37 and Great Dakota no irrigation gives the least s d and June irrigation the highest.

8. The s d for the average panicle grain yield per plant in Kherson is the same for no irrigation and June irrigation. There is a slight increase by July irrigation. More marked deviations occur in Colorado #37, specially in the case of no irrigation and July irrigation. In Great Dakota the different irrigation treatments have caused but very slight differences in the standard deviations.

9. In Kherson the s d deviations for the average stem straw weight per plant are practically constant for no irrigation and July irrigation. In the same variety June irrigation has produced some rise in the s d. In Colorado #37 the July irrigation gives low s d while little change is noticeable between noirrigation and June irrigation. In Great Dakota slightly higher s d occurs where June irrigation is practiced. No irrigation and July irrigation give practically the same results.

Coefficients of Variability.	Kherson			Colorado No. 37			Great Dakota.		
	No irrigation	Irrigated June 22	Irrigated July 7	No irrigation.	Irrigated June 22	Irrigated July 7	No irrigation	Irrigated June 22	Irrigated July 7
The ratio of total grain per plant to total straw per plant.	14 ± 0.3334	17 ± 0.4217	16 ± 0.3845	14 ± 0.3334	16 ± 0.4195	12 ± 0.2921	11 ± 0.2625	16 ± 0.4106	15 ± 0.3717
The number of stems per plant.	34 ± 0.8813	33 ± 0.8784	35 0.9154	32 ± 0.8205	32 ± 0.8981	32 ± 0.8430	33 ± 0.8787	34 ± 0.9443	30 ± 0.7890
The average stem height per plant, in centimeters.	8 ± 0.1881	6 ± 0.1452	9 ± 0.2127	7 ± 0.1643	8 ± 0.2059	6 ± 0.1445	6 ± 0.1420	6 ± 0.1507	5 ± 0.1214
The average panicle number of spikelets per plant.	23 ± 0.5650	25 ± 0.6396	26 ± 0.6493	22 ± 0.5382	21 ± 0.5601	18 ± 0.4458	18 ± 0.4379	19 ± 0.4924	17 ± 0.4233
The total plant weight per plant, in grams.	38 ± 1.0077	40 ± 1.1085	41 ± 1.1109	37 ± 0.9755	39 ± 1.1389	36 ± 0.9695	35 ± 0.9209	38 ± 1.0798	34 ± 0.9134
The total grain weight per plant, in grams.	38 ± 1.0077	46 ± 1.3236	39 ± 1.0440	38 ± 1.0077	39 ± 1.1389	34 ± 0.9034	35 ± 0.9209	38 ± 1.0798	35 ± 0.9455
The total straw weight per plant, in grams.	40 ± 1.0735	42 ± 1.1783	41 ± 1.1109	38 ± 1.0077	39 ± 1.1389	35 ± 0.9373	35 ± 0.9209	40 ± 1.1503	34 ± 0.9134
The average panicle grain yield per plant, in grams.	24 ± 0.5921	27 ± 0.6971	26 ± 0.6493	23 ± 0.5650	24 ± 0.6481	22 ± 0.5530	19 ± 0.4639	22 ± 0.5767	21 ± 0.5304
The average stem straw weight per plant, in grams.	24 ± 0.5921	28 ± 0.7264	28 ± 0.7059	22 ± 0.5382	21 ± 0.5601	19 ± 0.4722	19 ± 0.4689	19 ± 0.4924	17 ± 0.4233

Coefficient of Variability

Although considerable attention has been given to the coefficient of variability by a number of investigators in comparing the performance of one population with that of another, the writer, however, is inclined to believe that there is an element of weakness in its application. By referring to the table on the coefficients of variability it will be noted that the number of stems per plant has the same coefficients of variability in Colorado #37 for the three treatments. Again by referring to the standard deviations and the means of the same characters in their respective tables, considerable variation will be seen to exist, however, a fall in the s d is accompanied by a fall in the mean of the character in question, and the same holds true of the rise in the s d followed by a rise in the mean. Stated differently a mere study of the coefficient of variability of the number of stems per plant in Colorado #37 might have led the reader or the investigator to conclude that the different irrigation treatments had not apparently affected the s d deviations and the means of that character. In a comparative study of this nature if the mean remained constant for the different treatments then a better index of variability may be obtained.

A discussion of the coefficients variability for the different characters will not be given here but instead the average coefficient of variability for all characters receiving the same treatment will be given below:-

	Kherson			Colorado No. 37					
	No irrigation	Irrigated June 22	Irrigated July 7	No irrigation	Irrigated June 22	Irrigated July 7	No irrigation	Irrigated June 22	Irrigated July 7
Average Coefficient of Variability for all characters considered.	27.00	29.33	29.00	25.89	26.56	23.78	33.44	25.78	23.11

From the foregoing table it will be seen that June irrigation gives the highest coefficient of variability and this is uniformly carried in all the three varieties. In Kherson no irrigation gives a lower per cent of variability than July irrigation. In Colorado #37 and Great Dakota no irrigation has a higher per cent of variability than July irrigation.

Correlations between:	Kherson			Colorado No. 37			Great Dakota		
	Not irrigated	Irrigated June 22	Irrigated July 7	Not irrigated	Irrigated June 22	Irrigated July 7	Not irrigated.	Irrigated June 22	Irrigated July 7
The ratio of total grain to total straw per plant, and the number of stems per plant.	-0.2170 ± 0.0315	-0.1353 ± 0.0333	-0.1899 ± 0.0320	-0.1522 ± 0.0323	-0.1790 ± 0.0350	-0.2053 ± 0.0325	-0.0398 ± 0.0333	-0.1845 ± 0.0342	-0.0667 ± 0.0341
The ratio of total grain to total straw per plent, and the average stem height per plant.	-0.0963 ± 0.0327	-0.2620 ± 0.0318	-0.0889 ± 0.0329	-0.0196 ± 0.0330	-0.1200 ± 0.0356	0.0171 ± 0.0339	0.0515 ± 0.0333	-0.0358 ± 0.0354	0.1173 ± 0.0338
The ratio of total grain to total straw per plant, and the average panicle number of spikelets per plan	-0.0102 ± 0.0330	0.0385 ± 0.0341	0.0695 ± 0.0330	0.2875 ± 0.0303	0.1510 ± 0.0281	0.2199 ± 0.0323	0.2638 ± 0.0310	0.2636 ± 0.0329	0.2646 ± 0.0318
The ratio of total grain to total straw per plant, and the total plant weight per plant.	-0.1303 ± 0.0322	-0.0959 ± 0.0338	-0.0819 ± 0.0323	0.0348 ± 0.0330	-0.0597 ± 0.0360	-0.0992 ± 0.0337	0.0215 ± 0.0333	-0.0337 ± 0.0354	0.0613 ± 0.0341
The total plant weight per plant, and the total grain weight per plant.	0.9780 ± 0.0014	0.8628 ± 0.0087	0.9700 ± 0.0020	0.9726 ± 0.0018	0.9446 ± 0.0039	0.9341 ± 0.0030	0.9435 ± 0.0036	0.9362 ± 0.0044	0.9406 ± 0.0039
The total plant weight per plant, and the total straw weight per plant.	0.9860 ± 0.0008	0.9753 ± 0.0017	0.9953 ± 0.0003	0.9733 ± 0.0018	0.9650 ± 0.0024	0.9640 ± 0.0063	0.9568 ± 0.0028	0.9990 ± 0.0001	0.9959 ± 0.0029
The total grain weight per plant, and the total straw weight per plant.	0.9246 ± 0.0048	0.7993 ± 0.0133	0.9124 ± 0.0056	0.9226 ± 0.0046	0.8997 ± 0.0069	0.9211 ± 0.0057	0.9198 ± 0.0051	0.8644 ± 0.0090	0.8849 ± 0.0074
The average panicle grain yield per plant, and the stem straw weight per plant.	0.8100 ± 0.0114	0.7408 ± 0.0139	0.7939 ± 0.0123	0.7871 ± 0.0126	0.7477 ± 0.0140	0.8163 ± 0.0113	0.7660 ± 0.0138	0.7192 ± 0.0171	0.7214 ± 0.0164

Correlation Coefficients

The object in securing correlation coefficients has been to see if any change is induced by the different irrigation treatments. To this end some 72 correlation tables were constructed and the coefficients of correlation are thus reported in the accompanying table. A brief discussion of these follows.

A negative correlation exists between the ratio of total grain to total straw per plant and the number of stems per plant i. e. as the ratio of total grainto total straw per plant increases, the number of stems per plant decreases inall the three varieties. These correlations are so small as to be of no consequence. In fact the correlations between the ratio of total grain to total straw per plant and all the characters considered are not large enough to have any significance and in a number of instances they are not even larger than three times their probable errors.

The correlation between the total plant weight per plant and the total grain weight per plant in Kherson is the same inthe case of no irrigation and July irrigation but is slightly lowered by June irrigation. The correlations inColorado #37 and Great Dakota remain practically unaffected.

The correlation between the total plant weight per plant and the total straw weight per plant in the three varieties receiving different irrigation treatments are nearly the same. These slight variations may readily be due to experimental errors.

The correlationbetween the total grain weight per plant and the total straw weight per plant the Kherson is the same for no irrigation and July irrigation, while somewhat lower where June irrigation has been practiced. Not much difference exists in the other two varieties.

The correlation between the average panicle graind yield per plant and the average stem straw weight is practically unchanged in the three varieties by the different treatments.

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VARIATION AND CORRELATION OF OATS. CLYDE E. LEIGHTY. MEMOIR 103. CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION.

Please note that in all the correlation tables the term "subject" has been used where the term "relative" should have been and vise versa.

	A.	S. D.	R.
1 Not irrigated	0.9250 ± 0.0042	0.1270 ± 0.0030	
2 Irrigated July 7	0.8230 ± 0.0043	0.1288 ± 0.0030	
3 Irrigated June 22	0.8475 ± 0.0050	0.1460 ± 0.0035	

Frequency distribution of the ratio of total grain to total straw per plant. Kherson oats.

	Classes	f	S_1'	S_2'	S_3'
1	0.50 – 0.54	3	417	3795	20528
2	0.55 – 0.59	1	414	3378	16733
3	0.60 – 0.64	7	413	2964	13355
4	0.65 – 0.69	8	406	2551	10391
5	0.70 – 0.74	16	398	2145	7840
6	0.75 – 0.79	31	382	1747	5695
7	0.80 – 0.84	38	351	1365	3948
8	0.85 – 0.89	55	313	1014	2583
9	0.90 – 0.94	59	258	701	1569
10	0.95 – 0.99	72	199	443	868
11	1.00 – 1.04	54	127	244	425
12	1.05 – 1.09	42	73	117	181
13	1.10 – 1.14	22	31	44	64
14	1.15 – 1.19	7	9	13	20
15	1.20 – 1.24	1	2	4	7
16	1.25 – 1.29	0	1	2	3
17	1.30 – 1.34	1	1	1	1

$\lambda = 0.05$

$A_0 = 0.47$

$\alpha = 2.5995$

$V_0 = 0.9200$

$S_2 = 9.1007$

$S_3 = 49.2278$

$V_1 = 9.1007$

$u_2 = .4489$

$A' = 18.5007$

$V_0' = 15.4000$

$V_0'' = 0.1007$

$A = 0.9250 \pm 0.0042$

$\theta = 0.1270 \pm 0.0030$

	Classes	f	S_1'	S_2'	S_3'
1	0.35⁻ – 0.39	1	391	4125	25506
2	0.40 – 0.44	1	390	3734	21381
3	0.45⁻ – 0.49	2	389	3344	17647
4	0.50 – 0.54	4	387	2955	14303
5	0.55⁻ – 0.59	15	383	2568	11348
6	0.60 – 0.64	15	368	2185	8780
7	0.65⁻ – 0.69	27	353	1817	6595
8	0.70 – 0.74	28	326	1464	4778
9	0.75⁻ – 0.79	38	298	1138	3314
10	0.80 – 0.84	34	260	840	2176
11	0.85⁻ – 0.89	48	206	580	1336
12	0.90 – 0.94	32	158	374	756
13	0.95⁻ – 0.99	39	106	216	382
14	1.00 – 1.04	35	67	110	166
15	1.05⁻ – 1.09	23	32	43	56
16	1.10 – 1.14	7	9	11	13
17	1.15⁻ – 1.19	2	2	2	2

$\lambda = 0.05^-$

$A_0 = 0.32$

$\theta' = 2.9209$

$V_0 = 0.87$

$S_2 = 10.34499$

$S_3 = 65.23327$

$V_1' = 10.54499$

$u_2 = 8.5318$

$A' = 16.94499$

$V_0' = 17.4$

$V_0 = -0.4501$

$A = 0.8475^- \pm 0.0050$

$\theta = 0.1460 \pm 0.0035^-$

	Classes	f	S_1'	S_2'	S_3'
1	0.40 – 0.44	1	414	3751	20259
2	0.45 – 0.49	6	413	3337	16508
3	0.50 – 0.54	4	407	2924	13171
4	0.55 – 0.59	13	403	2517	10247
5	0.60 – 0.64	14	390	2114	7730
6	0.65 – 0.69	23	376	1724	5616
7	0.70 – 0.74	45	353	1348	3892
8	0.75 – 0.79	57	308	995	2544
9	0.80 – 0.84	56	251	687	1549
10	0.85 – 0.89	67	195	436	862
11	0.90 – 0.94	64	128	241	426
12	0.95 – 0.99	30	64	113	185
13	1.00 – 1.04	25	34	49	72
14	1.05 – 1.09	5	9	15	23
15	1.10 – 1.14	2	4	6	8
16	1.15 – 1.19	2	2	2	2

$\lambda = 0.05$

$A_0 = 037$

$\sigma' = 2.5759$

$V_0 = 0.82$

$S_2 = 9.0604$

$S_3 = 48.9348$

$V_1' = 9.0604$

$V_2 = 6.6351$

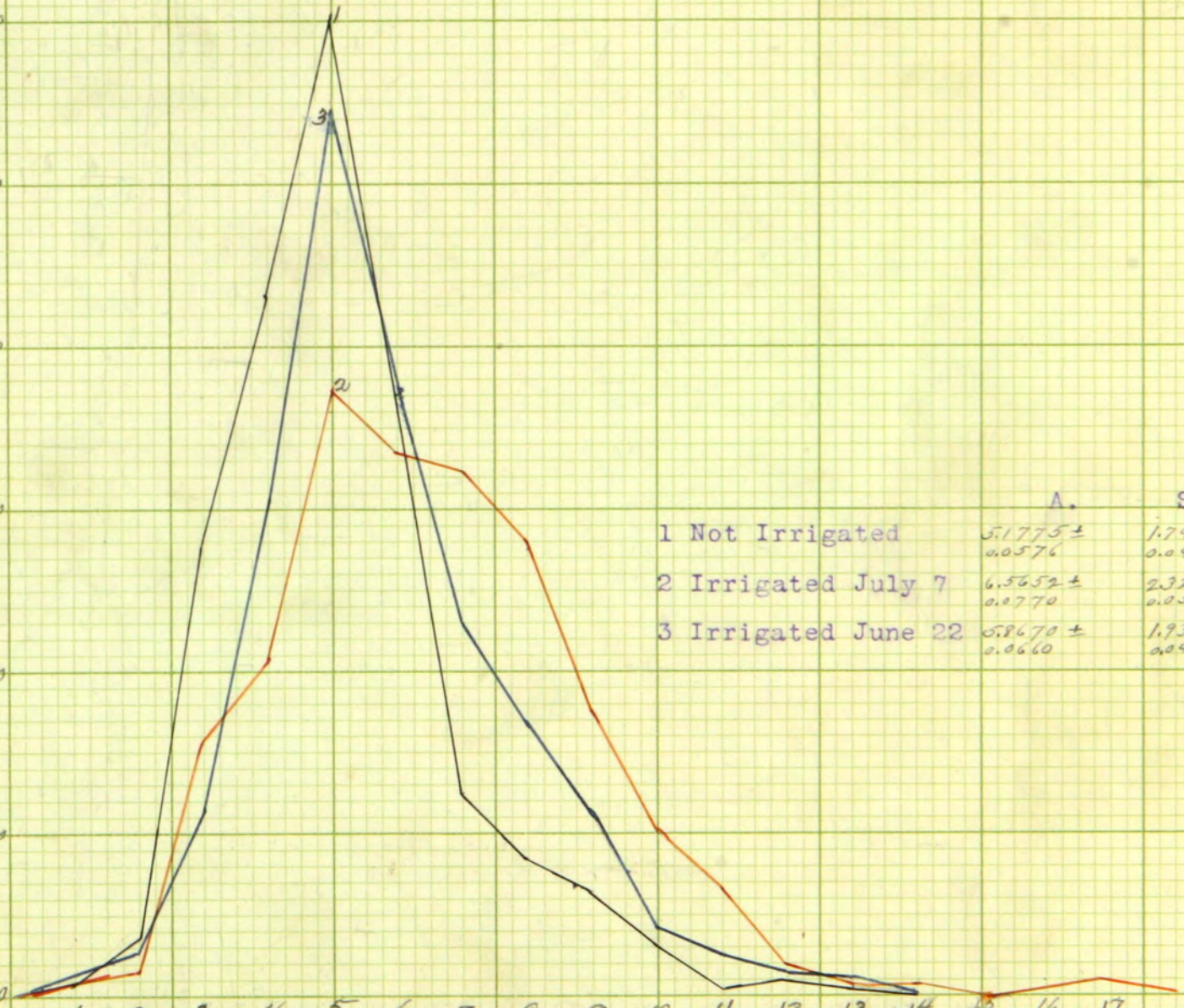
$A' = 16.4604$

$V_0' = 16.4000$

$V_2' = 0.0604$

$A = 0.8230 \pm 0.0043$

$\theta = 0.1288 \pm 0.0030$



	A.	S. D.	R.
1 Not Irrigated	5.1775 ± 0.0576	1.7429 ± 0.0407	
2 Irrigated July 7	6.5652 ± 0.0770	2.3208 ± 0.0544	
3 Irrigated June 22	5.8670 ± 0.0660	1.9357 ± 0.0467	

Frequency distribution of number of stems per plant. Kherson oats.

	Classes	f	S_1'	S_2'	S_3'
1	1	1	417	2159	7302
2	2	11	416	1742	5143
3	3	56	409	1326	3401
4	4	86	353	917	2075
5	5	120	267	564	1158
6	6	74	147	297	594
7	7	35	73	150	297
8	8	17	38	77	147
9	9	11	21	39	70
10	10	6	10	18	31
11	11	1	4	8	13
12	12	2	3	4	5
13	13	1	1	1	1

$\lambda = 1$

$A_0 = 0$

$\theta' = 1.7429$

$V_0 = 5$

$S_2 = 5.1775$

$S_3 = 17.5108$

$V_1' = 5.1775$

$V_2 = 3.0376$

$A' = 5.1775$

$V_0 = 5$

$V_{40}' = 0.1775$

$A = 5.1775 \pm 0.0576$

$\theta = 1.7429 \pm 0.0407$

M

	Classes	f	S_1'	S_2'	S_3'
1	2	5	391	1903	6315
2	3	23	386	1512	4412
3	4	60	363	1126	2900
4	5	110	303	763	1774
5	6	74	193	460	1011
6	7	46	119	267	551
7	8	33	73	148	284
8	9	22	40	75	136
9	10	8	18	33	61
10	11	5	10	17	26
11	12	3	5	7	9
12	13	2	2	2	2

$\lambda = 1$

$A_0 = 1$

$\theta' = 1.9357$

$V_0 = 5$

$S_n = 4.8670$

$S_3' = 16.1509$

$V_1 = 4.8670$

$V_2 = 3.7471$

$A' = 5.8670$

$V_0 = 5$

$V_{\bar{V}_0} = 0.8670$

$A = 5.8670 \pm 0.0660$

$\theta = 1.9357 \pm 0.0467$

	Classes	f	S_1'	S_2'	S_3'
1	2	3	414	2304	8678
2	3	31	411	1890	6374
3	4	41	380	1479	4484
4	5	74	339	1099	3005
5	6	67	265	760	1906
6	7	65	198	495	1146
7	8	56	133	297	651
8	9	35	77	164	354
9	10	20	42	87	190
10	11	13	22	45	103
11	12	4	9	23	58
12	13	2	5	14	35
13	14	1	3	9	21
14	15	0	2	6	12
15	16	0	2	4	6
16	17	2	2	2	2

$\lambda = 1$

$A_0 = 1$

$d' = 2.3208$

$V_0 = 7$

$S_2 = 5.5652$

$S_3 = 20.9614$

$V_1' = 5.5652$

$V_2 = 5.3861$

$A' = 6.5652$

$V_0' = 7$

$V_0 = -0.4348$

$A = 6.5652 \pm 0.0770$

$\delta = 2.3208 \pm 0.0524$

	A.	S. D.	R.
1 Not Irrigated	92.0359 ± 0.2365	7.1604 ± 0.1672	
2 Irrigated July 7	100.6835 ± 0.2980	8.9883 ± 0.2107	
3 Irrigated June 22	105.2790 ± 0.3333	9.7720 ± 0.2357	

Frequency distribution of average stem height per plant, in centimeters.
Kherson oats

	Classes	f	S_1'	S_2'	S_3'
1	75 – 79	2	391	2604	10736
2	80 – 84	1	389	2213	8132
3	85 – 89	12	388	1824	5919
4	90 – 94	43	376	1436	4095
5	95 – 99	57	333	1060	2659
6	100 – 104	70	276	727	1599
7	105 – 109	78	206	451	872
8	110 – 114	50	128	245	421
9	115 – 119	51	78	117	176
10	120 – 124	21	27	39	59
11	125 – 129	2	6	12	20
12	130 – 134	2	4	6	8
13	135 – 139	2	2	2	2

$\lambda = 5$

$A_0 = 72$

$\sigma' = 1.9544$

$V_0 = 102$

$S_2 = 6.6598$

$S_3 = 27.4578$

$v_1' = 6.6598$

$u_2 = 3.8196$

$\bar{x} =$

$A' = 21.0598$

$V_0' = 20.4$

$V_{\bar{x}} = 0.6598$

$A = 105.2990 \pm 0.3333$

$\sigma = 9.7720 \pm 0.2357$

	Classes	f	S_1'	S_2'	S_3'
1	75 - 79	5	414	2375	8686
2	80 - 84	10	409	1961	6311
3	85 - 89	33	399	1552	4350
4	90 - 94	48	366	1153	2798
5	95 - 99	96	318	787	1645
6	100 - 104	79	222	469	858
7	105 - 109	72	143	247	389
8	110 - 114	43	71	104	142
9	115 - 119	23	28	33	38
10	120 - 124	5	5	5	5

$\lambda = 5$

$A_0 = 72$

$\delta' = 1.7977$

$V_0 = 102$

$S_2 = 5.7367$

$S_3 = 20.9807$

$V_1' = 5.7367$

$V_2' = 3.2317$

$A' = 20.1367$

$V_0' = 20.4$

$V_0' = -0.2633$

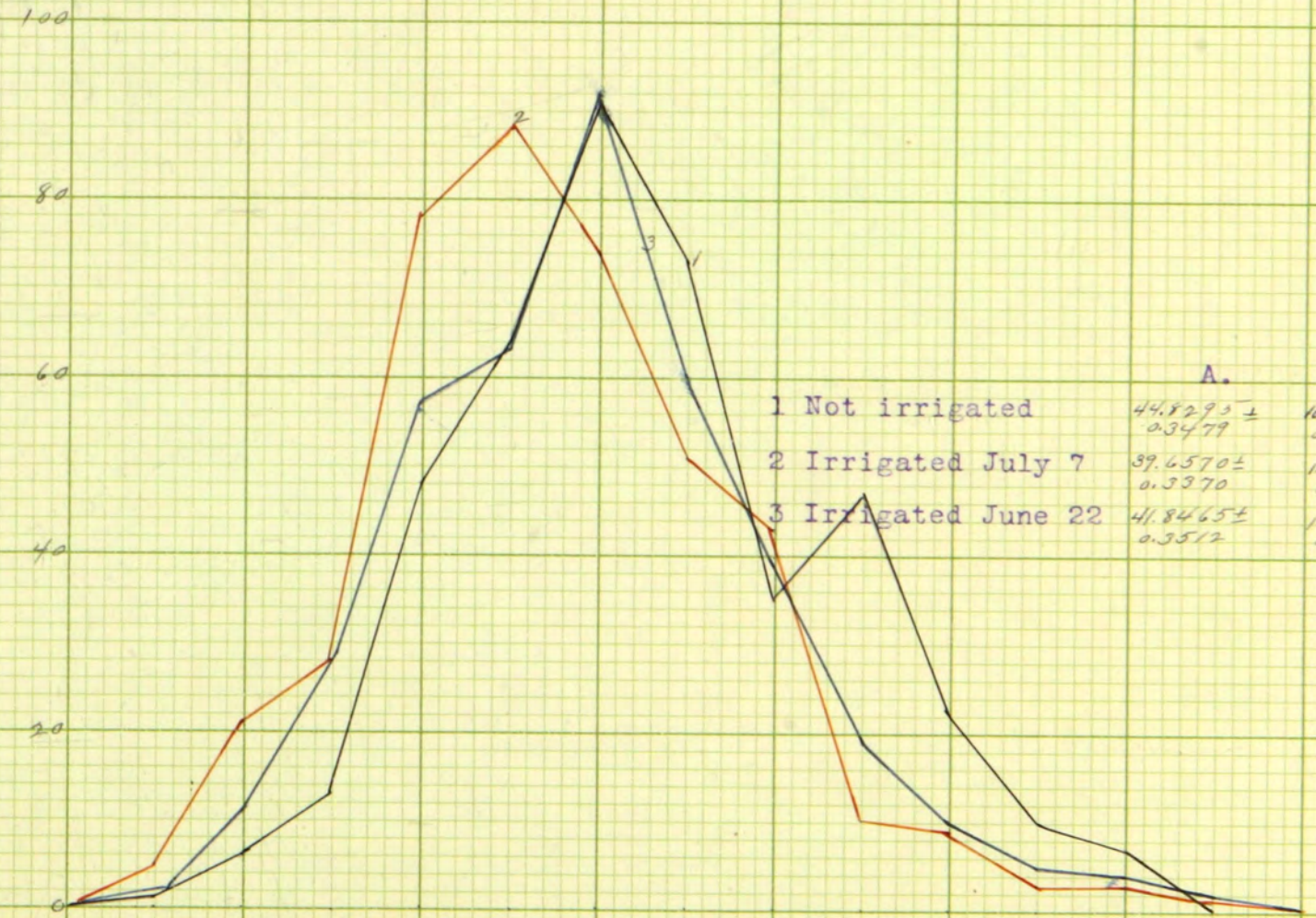
$A = 100.6835 \pm 0.2980$

$\delta = 8.9885 \pm 0.2107$

	Classes	f	S_1'	S_2'	S_3'	
1	66 – 68	1	417	3897	21363	$\lambda = 3$
2	69 – 71	3	416	3480	17466	$A_0 = 64$
3	72 – 74	1	413	3064	13986	$\delta' = 2.3868$
4	75 – 77	4	412	2651	10922	$V_0 = 94$
5	78 – 80	11	408	2239	8271	$S_2 = 9.34453$
6	81 – 83	23	397	1831	6032	$S_3 = 51.2302$
7	84 – 86	50	374	1434	4201	$V_1' = 9.34453$
8	87 – 89	65	324	1060	2767	$U_2 = 5.6972$
9	90 – 92	59	259	736	1707	$A' = 30.6786$
10	93 – 95	61	200	477	971	$V_0' = 31.3333$
11	96 – 98	56	139	277	494	$V_6' = -0.6547$
12	99 – 101	46	83	138	217	
13	102 – 104	24	37	53	79	
14	105 – 107	9	13	18	24	
15	108 – 110	3	4	5	6	
16	111 – 113	1	1	1	1	

$A = 92.0059 \pm 0.2365$

$\delta = 7.1604 \pm 0.1672$



	A.	S. D.	R.
1 Not irrigated	44.8293 ± 0.3479	10.5385 ± 0.2460	
2 Irrigated July 7	39.6570 ± 0.3370	10.1650 ± 0.2383	
3 Irrigated June 22	41.8465 ± 0.3512	10.2950 ± 0.2483	

Frequency distribution of average panicle number of spikelets per plant.
Kherson oats.

	Classes	f	S_1'	S_2'	S_3'
1	15 – 19	1	391	2334	8962
2	20 – 24	11	390	1943	6628
3	25 – 29	28	379	1553	4685
4	30 – 34	57	351	1174	3132
5	35 – 39	63	294	823	1958
6	40 – 44	92	231	529	1135
7	45 – 49	60	139	298	606
8	50 – 54	39	79	159	308
9	55 – 59	19	40	80	149
10	60 – 64	10	21	40	69
11	65 – 69	5	11	19	29
12	70 – 74	4	6	8	10
13	75 – 79	2	2	2	2

$\lambda = 5$

$A_0 = 12$

$\theta' = 2.0590$

$V_0 = 42$

$S_2 = 5.9693$

$S_3 = 22.9207$

$V_1 = 5.9693$

$V_2 = 4.2396$

$A' = 8.3693$

$V_0' = 8.4$

$V_6 = -0.0307$

$A = 41.8465 \pm 0.3512$

$\theta = 10.2950 \pm 0.2483$

	Classes	f	S_1'	S_2'	S_3'
1	15 - 19	5	414	2290	8334
2	20 - 24	21	409	1876	6044
3	25 - 29	28	388	1467	4168
4	30 - 34	78	360	1079	2701
5	35 - 39	88	282	719	1622
6	40 - 44	74	194	437	903
7	45 - 49	51	120	243	466
8	50 - 54	43	69	123	223
9	55 - 59	10	26	54	100
10	60 - 64	9	16	28	46
11	65 - 69	3	7	12	18
12	70 - 74	3	4	5	6
13	75 - 79	1	1	1	1

$\lambda = 5$

$A_0 = .2$

$d' = 2.0330$

$V_0 = 37$

$S_2 = 5.5314$

$S_3 = 20.1304$

$V_1' = 5.5314$

$V_2 = 4.1330$

$A' = 7.9314$

$V_0' = 7.4$

$V_{V_0} = 0.5314$

$A = 39.6570 + 0.3370$

$\theta = 10.1650 \pm 0.2383$

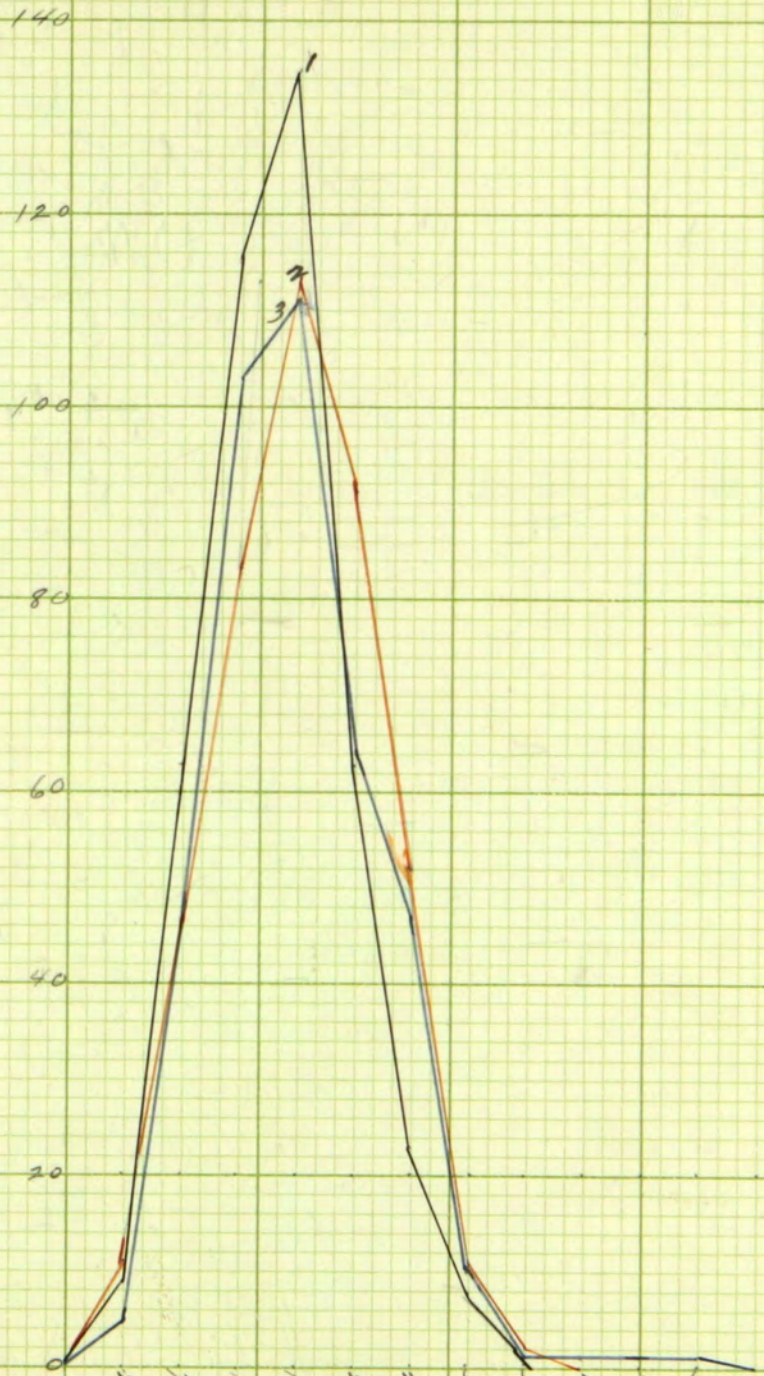
	Classes	f	S_1'	S_2'	S_3'	
1	15 – 19	1	417	2708	11283	$\lambda = 5$
2	20 – 24	6	416	2321	8545	$A_0 = 12$
3	25 – 29	13	410	1905	6224	$\alpha = 2.7067$
4	30 – 34	48	397	1495	4319	$V_0 = 47$
5	35 – 39	64	349	1098	2824	$S_2 = 6.5659$
6	40 – 44	91	285	749	1726	$S_3 = 27.0576$
7	45 – 49	73	194	464	977	$V_1' = 6.5659$
8	50 – 54	35	121	270	513	$V_2 = 4.4383$
9	55 – 59	47	86	149	243	$A' = 8.9659$
10	60 – 64	22	39	63	94	$V_0' = 9.4$
11	65 – 69	10	17	24	31	$V_0'' = -0.4341$
12	70 – 74	7	7	7	7	

$A = 44.8295 \pm 0.3479$

$\sigma = 10.5335 \pm 0.2460$

$M =$

$V_{V_0} =$



	A.	S. D.	R.
1 Not irrigated	16.0279 ± 0.2022	6.1205 ± 0.1430	
2 Irrigated July 7	18.0065 ± 0.2382	7.3666 ± 0.1684	
3 Irrigated June 22	17.4495 ± 0.2376	7.0230 ± 0.1674	

Frequency distribution of total plant weight per plant, in grams. Kherson oats.

	Classes	f	S_1'	S_2'	S_3'
1	0 – 2.45	1	417	2886	12697
2	2.50 – 4.95	8	416	2469	9811
3	5.00 – 7.45	23	408	2053	7342
4	7.50 – 9.95	40	385	1645	5289
5	10.00 – 12.45	45	345	1260	3644
6	12.50 – 14.95	70	300	915	2384
7	15.00 – 17.45	64	230	615	1469
8	17.50 – 19.95	71	166	385	854
9	20.00 – 22.45	38	95	219	469
10	22.50 – 24.95	25	57	124	250
11	25.00 – 27.45	12	32	67	126
12	27.50 – 29.95	11	20	35	59
13	30.00 – 32.45	5	9	15	24
14	32.50 – 34.95	3	4	6	9
15	35.00 – 37.45	0	1	2	3
16	37.50 – 39.95	1	1	1	1

$\lambda = 2.50$

$A_0 = -1.275$

$\delta' = 2.4482$

$V_0 = 16.225$

$S_2 = 6.9209$

$S_3 = 30.4484$

$N_1' = 6.9209$

$u_2 = 5.9937$

$A' = 6.4109$

$V_0' = .6.49$

$N_0' = -0.0791$

$A = 16.0273 \pm 0.2022$

$\sigma = 6.1205 \pm 0.1430$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 4.95	12	414	1700	4785
2	5 – 9.95	46	402	1286	3085
3	10 – 14.95	83	356	884	1799
4	15 – 19.95	113	273	528	915
5	20 – 24.95	91	160	255	387
6	25 – 29.95	52	69	95	132
7	30 – 34.95	10	17	26	37
8	35 – 39.95	5	7	9	11
9	40 – 44.95	2	2	2	2

$\lambda = 5$

$A_0 = 2.525$

$\delta' = 1.4369$

$V_0 = 17.475$

$S_2 = 4.1063$

$S_3 = 11.5580$

$V_1' = 4.1063$

$U_2 = 2.06477$

$A' = 3.6013$

$V_0' = 3.4950$

$V_{16} = 0.1063$

$A = 18.0065 \pm 0.2382$

$\sigma = 7.3666 \pm 0.1684$

	Classes	f	S_1'	S_2'	S_3
1	0 – 4.95	5	391	1562	4303
2	5 – 9.95	47	386	1171	2741
3	10 – 14.95	103	339	785	1570
4	15 – 19.95	111	236	446	785
5	20 – 24.95	64	125	210	339
6	25 – 29.95	47	61	85	129
7	30 – 34.95	10	14	24	44
8	35 – 39.95	1	4	10	20
9	40 – 44.95	1	3	6	10
10	45 – 49.95	1	2	3	4
11	50 – 54.95	1	1	1	1

$\lambda = 5$

$A_0 = 2.525$

$\phi' = 1.4046$

$V_0 = 17.4475$

$S_2 = 3.9949$

$S_3 = 11.0051$

$V_1' = 3.9949$

$U_2 = 1.9728$

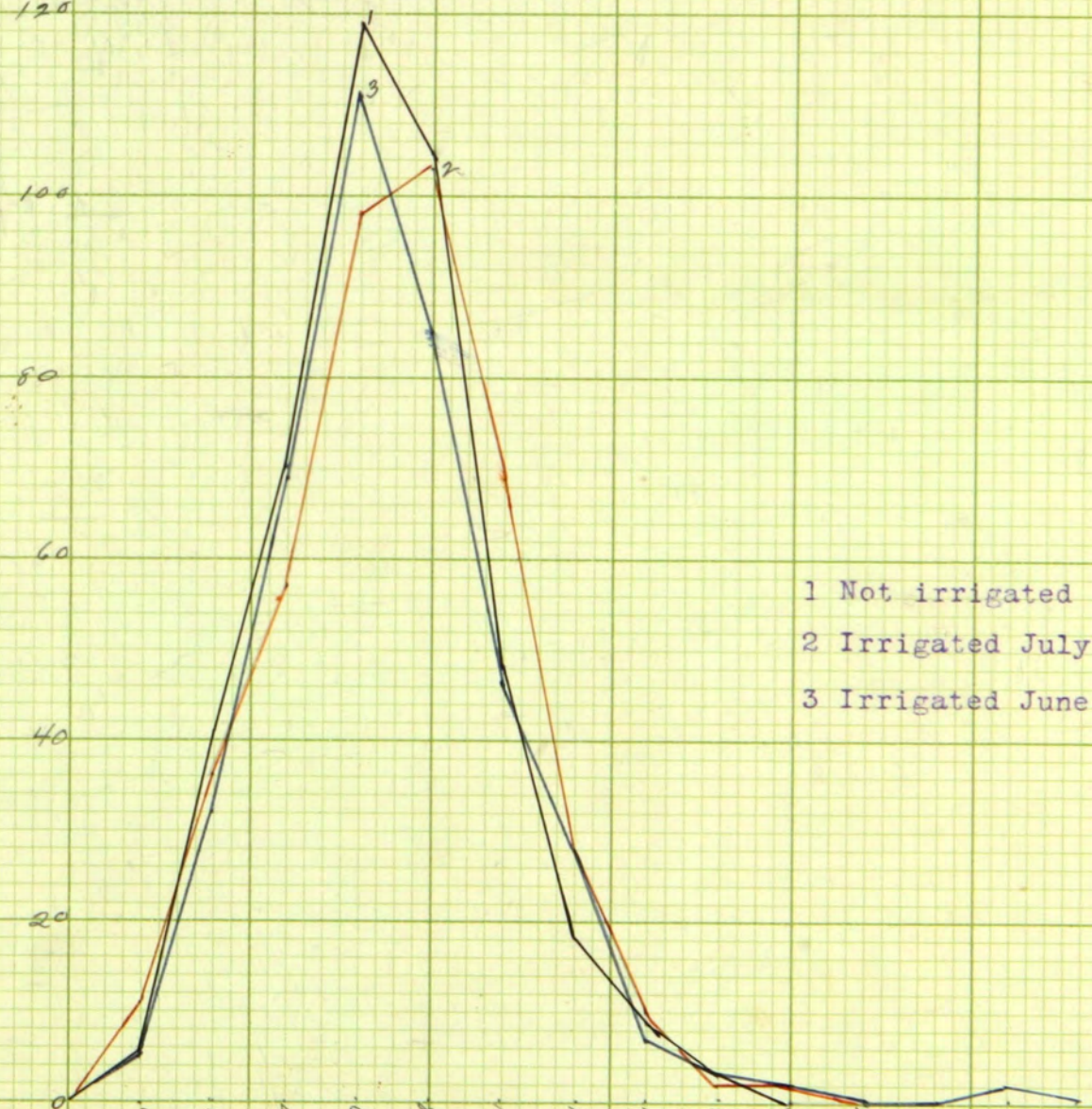
$A' = 3.4899$

$V_0' = 3.4950$

$V_{V_0} = 0.00051$

$A = 17.4495 \pm 0.2396$

$\phi = 7.0230 \pm 0.1694$



	A.	S. D.	R.
1 Not irrigated	7.6237 ± 0.0946	2.8646 ± 0.0669	
2 Irrigated July 7	8.0282 ± 0.1051	3.1708 ± 0.0743	
3 Irrigated June 22	7.9162 ± 0.1229	3.6042 ± 0.0869	

Frequency distribution of total grain weight per plant, in grams.
Khersón oasts

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.95	5	391	1748	5301
2	2 – 3.95	32	386	1357	3553
3	4 – 5.95	69	354	971	2196
4	6 – 7.95	111	285	617	1225
5	8 – 9.9	85	174	332	608
6	10 – 11.95	46	89	158	276
7	12 – 13.95	28	43	69	118
8	14 – 15.95	10	15	26	49
9	16 – 17.95	2	5	11	23
10	18 – 19.95	2	3	6	12
11	20 – 21.95	0	1	3	6
12	22 – 23.95	0	1	2	3
13	24 – 25.95	1	1	1	1

$\lambda = 2$

$A_0 = 1.025$

$\theta' = 1.8021$

$V_0 = 6.975$

$S_2 = 4.4706$

$S_3 = 13.5575$

$V_1' = 4.4706$

$U_2 = 3.2477$

$A' = 3.9581$

$V_0' = 3.4875$

$V_{0'} = 0.4706$

$A = 7.9162 \pm 0.1229$

$\sigma = 3.6042 \pm 0.0869$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.95	11	414	1874	5716
2	2 – 3.95	36	403	1460	3842
3	4 – 5.95	57	367	1057	2382
4	6 – 7.95	98	310	690	1325
5	8 – 9.95	103	212	380	635
6	10 – 11.95	69	109	168	255
7	12 – 13.95	28	40	59	87
8	14 – 15.95	7	12	19	28
9	16 – 17.95	3	5	7	9
10	18 – 19.95	2	2	2	2

$\lambda = 2$

$A_0 = 4.025$

$\delta' = 1.5854$

$V_0 = 8.975$

$S_2 = 4.5266$

$S_3 = 13.8068$

$V_1' = 4.5266$

$u_2 = 2.5136$

$A' = 4.01411$

$V_0' = 4.4875$

$\sqrt{V_0} = -0.4734$

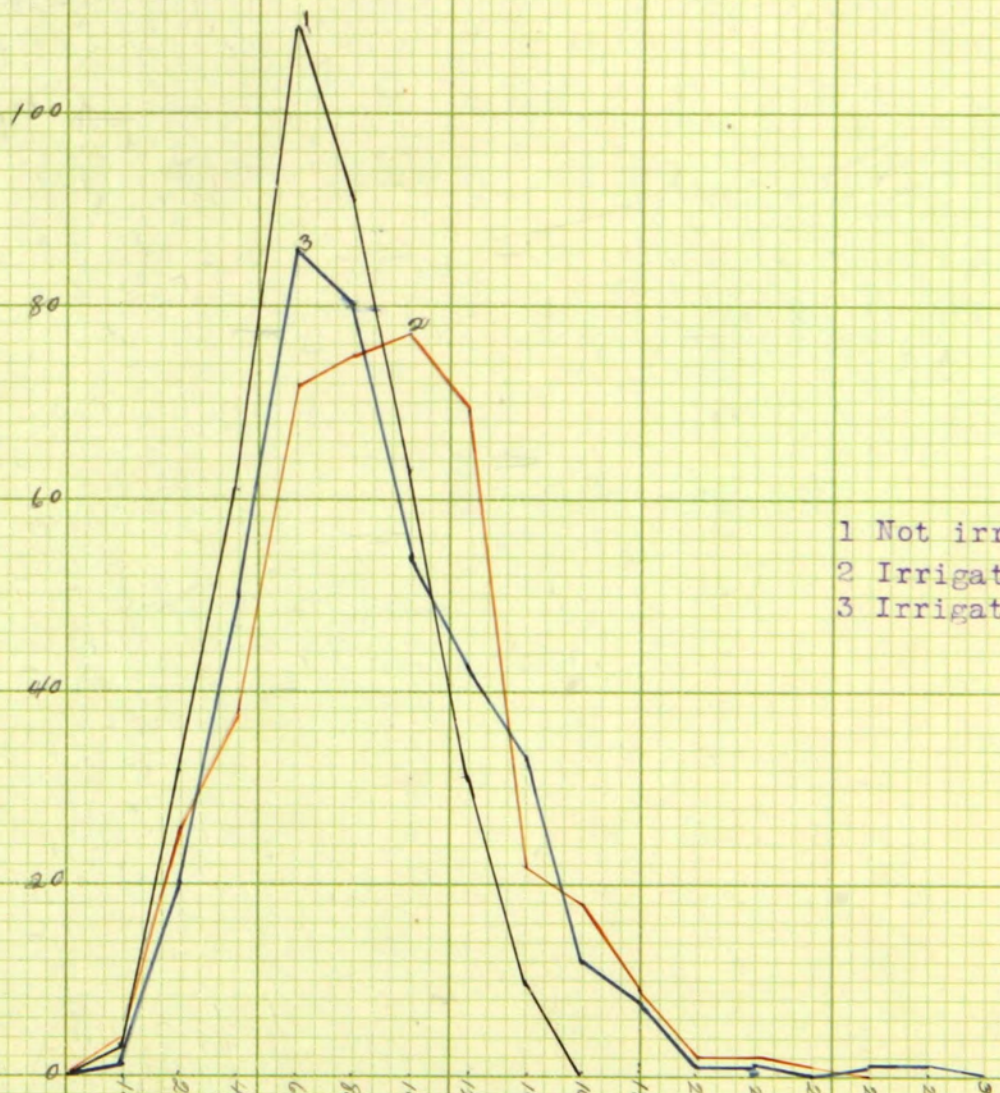
$A = 8.0282 \pm 0.1051$

$C = 3.1705 \pm 0.0743$

	Classes	f	S_1'	S_2'	S_3'	
1	0 - 0.95	1	417	3398	17272	$\lambda = 1$
2	1 - 1.95	4	416	2981	13874	$A_0 = -0.525$
3	2 - 2.95	12	412	2565	10893	$\theta' = 2.8646$
4	3 - 3.95	29	400	2153	8328	$V_0 = 7.475$
5	4 - 4.95	31	371	1753	6175	$S_2 = 8.1487$
6	5 - 5.95	39	340	1382	4422	$S_3 = 41.4197$
7	6 - 6.95	57	301	1042	3040	$V_1 = 8.1487$
8	7 - 7.95	62	244	741	1998	$u_2 = 8.2061$
9	8 - 8.95	59	182	497	1257	$A' = 7.6237$
10	9 - 9.95	43	123	315	760	$V_0' = 7.475$
11	10 - 10.95	32	78	192	445	$\sqrt{V_0} = 0.1487$
12	11 - 11.95	16	46	114	253	
13	12 - 12.95	13	30	68	139	
14	13 - 13.95	5	17	38	71	
15	14 - 14.95	6	12	21	33	
16	15 - 15.95	3	6	9	12	
17	16 - 16.95	3	3	3	3	

$A = 7.6237 \pm 0.0946$

$\theta = 2.8646 \pm 0.0669$



	A.	S. D.	R.
1 Not irrigated	8.3815 ± 0.1049	3.3280 ± 0.0777	
2 Irrigated July 7	9.9122 ± 0.1335	4.0272 ± 0.0944	
3 Irrigated June 22	9.5224 ± 0.1380	4.0460 ± 0.0976	

Frequency distribution of total straw weight per plant, in grams. Kherson oats.

	Classes	f_1	S_1'	S_2'	S_3'
1	0 – 1.95	1	391	2062	7283
2	2 – 3.95	20	390	1671	5221
3	4 – 5.95	50	370	1281	3550
4	6 – 7.95	86	320	911	2269
5	8 – 9.95	81	234	591	1358
6	10 – 11.95	54	153	357	767
7	12 – 13.95	42	99	204	410
8	14 – 15.95	33	57	105	206
9	16 – 17.95	12	24	48	101
10	18 – 19.95	8	12	24	53
11	20 – 21.95	1	4	12	29
12	22 – 23.95	1	3	8	17
13	24 – 25.95	0	2	5	9
14	26 – 27.95	1	2	3	4
15	28 – 29.95	1	1	1	1

$\lambda = 2$

$A_0 = 1025$

$\delta' = 2.0230$

$V_0 = 8.9735$

$S_2 = 5.2737$

$S_3 = 18.6266$

$V_1' = 5.2737$

$U_2 = 4.0927$

$A' = 4.7612$

$V_0' = 4.4875$

$V_0 = 0.2737$

$A = 9.5224 \pm 0.1380$

$\delta = 4.0460 \pm 0.0976$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.95	3	414	2264	8179
2	2 – 3.95	26	411	1850	5915
3	4 – 5.95	38	385	1439	4065
4	6 – 7.95	72	347	1054	2626
5	8 – 9.95	75	275	707	1572
6	10 – 11.95	77	200	432	865
7	12 – 13.95	69	123	232	433
8	14 – 15.95	22	54	109	201
9	16 – 17.95	18	32	55	92
10	18 – 19.95	9	14	23	37
11	20 – 21.95	2	5	9	14
12	22 – 23.95	2	3	4	5
13	24 – 25.95	1	1	1	1

$\lambda = 2$

$A_0 = 1.025$

$\delta' = .20136$

$V_0 = 10.975$

$S_2 = 5.4686$

$S_3 = 19.756$

$V_1' = 5.4686$

$u_0 = .04544$

$A' = 4.9561$

$V_0' = 5.4875$

$V_0' = -.5314$

$A = 9.9122 \pm 0.1335$

$\delta = .0272 \pm 0.0944$

	Classes	f	S_1'	S_2'	S_3'
1	1 – 1.95	3	417	3297	17009
2	2 – 2.95	9	414	2880	13712
3	3 – 3.95	23	405	2466	10832
4	4 – 4.95	33	082	2061	8366
5	5 – 5.95	28	049	1679	6305
6	6 – 6.95	54	321	1330	4626
7	7 – 7.95	55	267	1009	3296
8	8 – 8.95	43	212	742	2287
9	9 – 9.95	46	167	530	1545
10	10 – 10.95	42	121	363	1015
11	11 – 11.95	21	79	242	652
12	12 – 12.95	18	58	163	416
13	13 – 13.95	13	40	105	247
14	14 – 14.95	9	27	65	142
15	15 – 15.95	7	18	38	77
16	16 – 16.95	6	11	20	39
17	17 – 17.95	4	5	9	19
18	18 – 18.95	0	1	4	10
19	19 – 19.95	0	1	3	6
20	20 – 20.95	0	1	2	3
21	21 – 21.95	1	1	1	1

$\lambda = 1$

$A_0 = 0.475$

$\theta' = 3.3280$

$V_0 = 8.475$

$S_2 = 7.9065$

$S_3 = 40.7890$

$V_1' = 7.9065$

$V_2 = 11.0755$

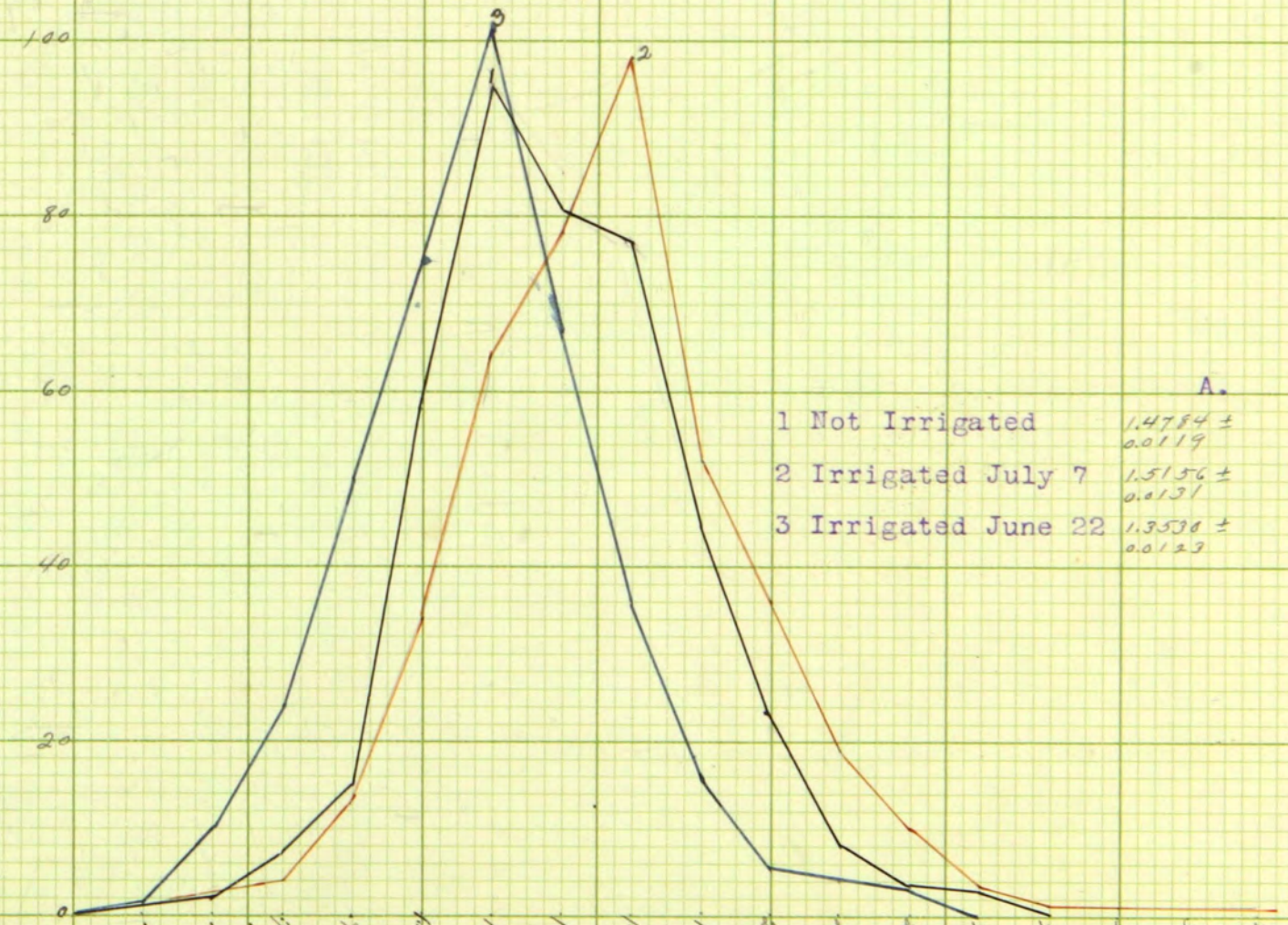
$A' = 8.3815$

$V_0' = 8.475$

$V_2' = -0.0936$

$A = 8.3815 \pm 0.1099$

$\theta = 3.3280 \pm 0.0777$



	A.	S. D.	R.
1 Not Irrigated	1.4784 ± 0.0119	0.3617 ± 0.0084	
2 Irrigated July 7	1.5156 ± 0.0131	0.3966 ± 0.0093	
3 Irrigated June 22	1.3536 ± 0.0123	0.3610 ± 0.0087	

Frequency distribution of average panicle grain yield per plant, in grams.
Kherson oats

	Classes	f	S_1'	S_2'	S_3'
1	0.30 – 0.45	1	391	2303	8587
2	0.50 – 0.65	10	390	1912	6284
3	0.70 – 0.85	24	380	1522	4372
4	0.90 – 1.05	48	356	1142	2850
5	1.10 – 1.25	75	308	786	1708
6	1.30 – 1.45	102	233	478	922
7	1.50 – 1.65	67	131	245	444
8	1.70 – 1.85	36	64	114	199
9	1.90 – 2.05	16	28	50	85
10	2.10 – 2.25	5	12	22	35
11	2.30 – 2.45	4	7	10	13
12	2.50 – 2.65	3	3	3	3

$\lambda = 0.20$

$A_0 = 0.175$

$\delta' = 1.8049$

$V_1 = 1.375$

$S_2 = 5.8900$

$S_3 = 21.9616$

$V_1 = 5.8900$

$U_2 = 3.2578$

$A' = 6.7650$

$V_0' = 6.8750$

$V_2 = -0.1100$

$A = 1.353 \pm 0.0123$

$\theta = 0.3610 \pm 0.0087$

	Classes	f	S_1'	S_2'	S_3'
1	0.50 - 0.65	4	414	2361	8744
2	0.70 - 0.85	13	410	1947	6383
3	0.90 - 1.05	34	397	1537	4436
4	1.10 - 1.25	64	363	1140	2899
5	1.30 - 1.45	78	299	777	1759
6	1.50 - 1.65	98	221	478	982
7	1.70 - 1.85	52	123	257	504
8	1.90 - 2.05	36	71	134	247
9	2.10 - 2.25	19	35	63	113
10	2.30 - 2.45	10	16	28	50
11	2.50 - 2.65	3	6	12	22
12	2.70 - 2.85	1	3	6	10
13	2.90 - 3.05	1	2	3	4
14	3.10 - 3.25	1	1	1	1

$\lambda = 0.20$

$A_0 = 0.3750$

$\delta' = 1.9830$

$V_0 = 1.5750$

$S_2 = 5.7029$

$S_3 = 21.1208$

$V_1' = 5.7029$

$U_2 = 3.9323$

$A' = 7.5779$

$V_0' = 7.8750$

$V_{V_0}' = -0.2971$

$A = 1.5156 \pm 0.0131$

$\delta = 0.3966 \pm 0.0093$

	Classes	f	S_1'	S_2'	S_3'
1	0.40 – 0.55	2	417	2509	9502
2	0.60 – 0.75	7	415	2092	6993
3	0.80 – 0.95	15	408	1677	4901
4	1.00 – 1.15	58	393	1269	3224
5	1.20 – 1.35	95	335	876	1955
6	1.40 – 1.55	81	240	541	1079
7	1.60 – 1.75	77	159	301	538
8	1.80 – 1.95	45	82	142	237
9	2.00 – 2.15	23	37	60	95
10	2.20 – 2.35	8	14	23	35
11	2.40 – 2.55	3	6	9	12
12	2.60 – 2.75	3	3	3	3

$\lambda = 0.20$

$A_0 = 0.2750$

$\delta' = 1.8086$

$V_0 = 1.475$

$S_2 = 6.0168$

$S_3 = 22.7866$

$V_1 = 6.0168$

$u_1 = 3.2712$

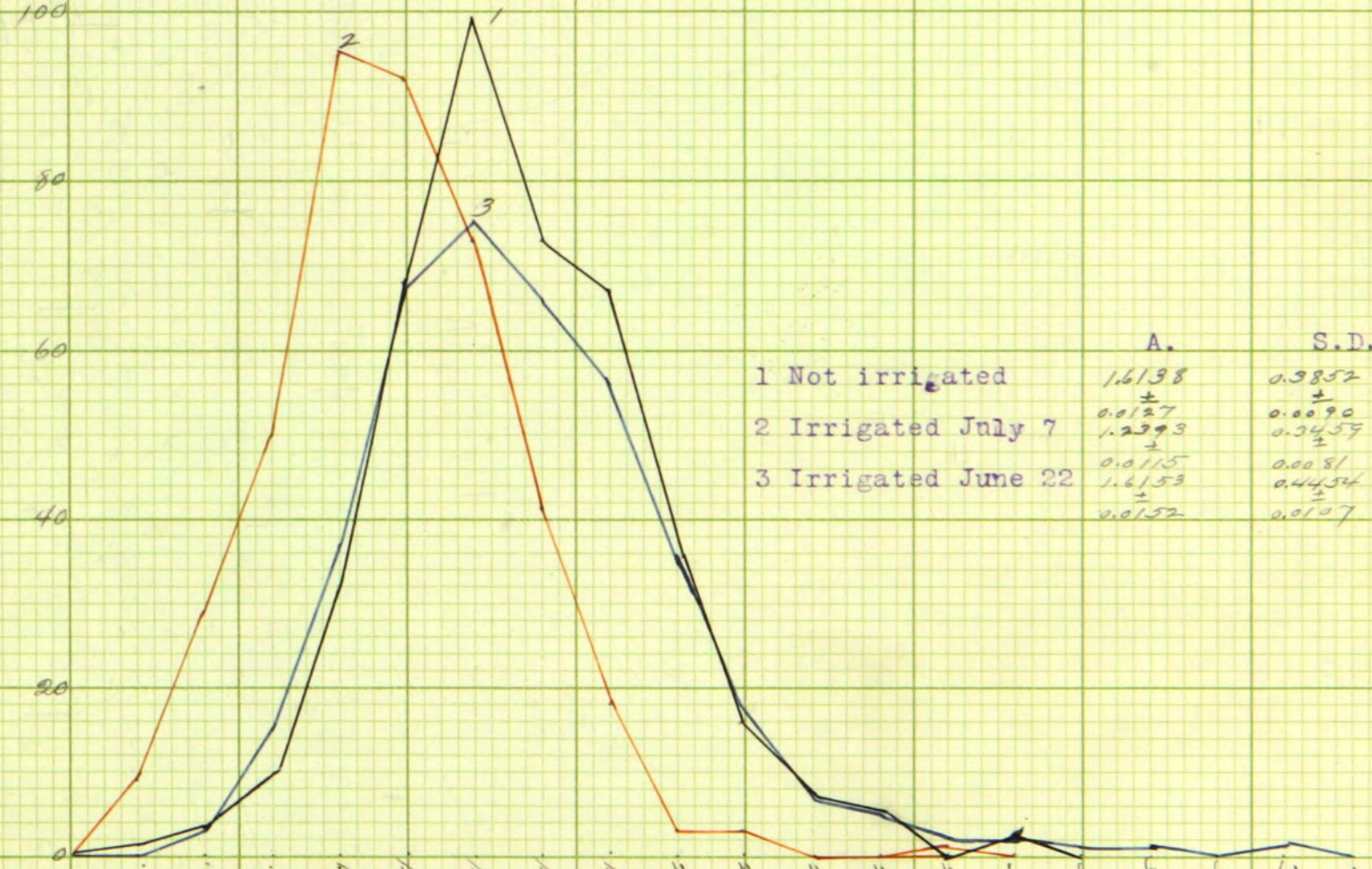
$A' = 7.3918$

$V_0' = 7.3750$

$V_1' = 0.0168$

$A = 1.4784 \pm 0.0119$

$\theta = 0.3617 \pm 0.0084$



	A.	S.D.	R.
1 Not irrigated	1.6138 ± 0.0127	0.3852 ± 0.0090	
2 Irrigated July 7	1.2393 ± 0.0115	0.3457 ± 0.0081	
3 Irrigated June 22	1.6153 ± 0.0152	0.4434 ± 0.0107	

Frequency distribution of average stem straw weight per plant.
Kherson oats

	Classes	f	S_1'	S_2'	S_3'
1	0.70 – 0.95	18	391	1421	3740
2	1.00 – 1.25	70	373	1030	2319
3	1.30 – 1.55	109	303	657	1289
4	1.60 – 1.85	99	194	354	632
5	1.90 – 2.15	58	95	160	278
6	2.20 – 2.45	23	37	65	118
7	2.50 – 2.75	7	14	28	53
8	2.80 – 3.05	3	7	14	25
9	3.10 – 3.35	2	4	7	11
10	3.40 – 3.65	1	2	3	4
11	3.70 – 3.95	1	1	1	1

$\lambda = 0.30$

$A_0 = 0.525$

$\theta' = 1.4848$

$V_0 = 1.7250$

$S_2 = 3.6343$

$S_3 = 9.5652$

$V_1' = 3.6343$

$U_2 = 2.2046$

$\chi =$

$A' = 5.3843$

$V_0' = 5.75$

$V_{V_0} = -0.3657$

$A = 1.6153 \pm 0.0152$

$\theta = 0.4454 \pm 0.0107$

	Classes	f	S_1'	S_2'	S_3'
1	0.40 - 0.55	9	414	1996	6446
2	0.60 - 0.75	29	405	1582	4450
3	0.80 - 0.95	50	376	1177	2868
4	1.00 - 1.15	95	326	801	1691
5	1.20 - 1.35	92	231	475	890
6	1.40 - 1.55	73	139	244	415
7	1.60 - 1.75	41	66	105	171
8	1.80 - 1.95	18	25	39	66
9	2.00 - 2.15	3	7	14	27
10	2.20 - 2.35	3	4	7	13
11	2.40 - 2.55	0	1	3	6
12	2.60 - 2.75	0	1	2	3
13	2.80 - 2.95	1	1	1	1

$\lambda = 0.20$

$A_0 = 0.273$

$\theta' = 1.7293$

$V_0 = 1.275$

$S_2 = 4.5213$

$S_3 = 15.5700$

$M_1' = 4.8213$

$M_2' = 29.05$

$A' = 6.1963$

$V_0' = 6.375$

$N_0' = -0.1787$

$A = 1.2373 \pm 0.0115$

$\theta = 0.3459 \pm 0.0081$

	Classes	f	S_1'	S_2'	S_3'
1	0.50 - 0.65	2	417	2583	10082
2	0.70 - 0.85	5	415	2166	7499
3	0.90 - 1.05	20	410	1751	5333
4	1.10 - 1.25	46	390	1341	3582
5	1.30 - 1.45	89	345	951	2241
6	1.50 - 1.65	85	255	607	1290
7	1.70 - 1.85	78	170	352	683
8	1.90 - 2.05	39	92	182	331
9	2.10 - 2.25	31	53	90	149
10	2.30 - 2.45	12	22	37	59
11	2.50 - 2.65	7	10	15	22
12	2.70 - 2.85	1	3	5	7
13	2.90 - 3.05	2	2	2	2

$\lambda = 0.20$

$A_0 = 0.375$

$\delta' = 1.9260$

$V_0 = 1.575$

$S_2 = 6.1942$

$S_3 = 24.1775$

$V_1' = 6.1942$

$W_2 = 3.7094$

$A_1' = 8.0692$

$V_0' = 7.8750$

$N_{V_0} = 0.1942$

$A = 1.6138 \pm 0.0127$

$\theta = 0.3852 \pm 0.0090$

$M =$

	Classes	1 0 — 2.45	2 2.50 — 4.95	3 5.00 — 7.45	4 7.50 — 9.95	5 10.00 — 12.45	6 12.50 — 14.95	7 15.00 — 17.45	8 17.50 — 19.95	9 20.00 — 22.45	10 22.50 — 24.95	11 25.00 — 27.45	12 27.50 — 29.95	13 30.00 — 32.45	14 32.50 — 34.95	15 35.00 — 37.45	16 37.50 — 39.95	
1	0.00 – 0.95	42 1																1
2	1.00 – 1.95		30 4															4
3	2.00 – 2.95		25 4	20 8														12
4	3.00 – 3.95			16 15	12 13	8 1												29
5	4.00 – 4.95				9 24	6 7												31
6	5.00 – 5.95				6 3	4 31	2 4	0 1										39
7	6.00 – 6.95					2 6	1 43	0 6	1 2									57
8	7.00 – 7.95						0 22	0 35	0 5									62
9	8.00 – 8.95						1 1	0 21	1 32	2 4	3 1							59
10	9.00 – 9.95							0 1	2 28	4 13	6 3							45
11	10.00 – 10.95								3 4	6 19	9 9							32
12	11.00 – 11.95									8 2	12 9	16 5						16
13	12.00 – 12.95										15 3	20 4	25 5	30 1				13
14	13.00 – 13.95											24 2	30 3					5
15	14.00 – 14.95											28 1	35 3	42 2				6
16	15.00 – 15.95														56 3			3
17	16.00 – 16.95													54 2			81 1	3
		1	8	23	40	45	70	64	71	38	25	12	11	5	3		1	417

$r = 0.9780 \pm 0.0014$

Correlation between the total plant weight per plant, in grams, subject; and the total grain weight per plant, in grams, relative. Kherson.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	Classes	0 — 2.45	2.50 — 4.95	5.00 — 7.45	7.50 — 9.95	10.00 — 12.45	12.50 — 14.90	15.00 — 17.45	17.50 — 19.95	20.00 — 22.45	22.50 — 24.95	25.00 — 27.45	27.50 — 29.95	30.00 — 32.45	32.50 — 34.95	35.00 — 37.45	37.50 — 39.95	
	~~0 — 0.95~~	42	35															
1	1.00 — 1.95	1	2															3
2	2.00 — 2.95		6	3														9
3	3.00 — 3.95			20	3	8												23
4	4.00 — 4.95				31	2												33
5	5.00 — 5.95				6	22	2											28
6	6.00 — 6.95					19	35											54
7	7.00 — 7.95					2	32	21										55
8	8.00 — 8.95						3	34	8									45
9	9.00 — 9.95							7	36	3								46
10	10.00 — 10.95							2	21	19								42
11	11.00 — 11.95								4	12	5							21
12	12.00 — 12.95								1	3	10	4						18
13	13.00 — 13.95								1	1	7	4						13
14	14.00 — 14.95										3	2	3	1				9
15	15.00 — 15.95											1	5	1				7
16	16.00 — 16.95											1	3	2				6
17	17.00 — 17.95													1	3			4
18	18.00 — 18.95																	
19	19.00 — 19.95																	
20	20.00 — 20.95																1	1
21	21.00 — 21.95																	
		1	8	23	40	45	70	64	71	38	25	12	11	5	3		1	417

$r = 0.9860 \pm 0.0008$

Correlation between the total plant weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Kherson. p. 37.

	Classes	1 0.45 – 0.49	2 0.50 – 0.54	3 0.55 – 0.59	4 0.60 – 0.64	5 0.65 – 0.69	6 0.70 – 0.74	7 0.75 – 0.79	8 0.80 – 0.84	9 0.85 – 0.89	10 0.90 – 0.94	11 0.95 – 0.99	12 1.00 – 1.04	13 1.05 – 1.09	14 1.10 – 1.14	15 1.15 – 1.19	16 1.20 – 1.24	17 1.25 – 1.29	18 1.30 – 1.34	
1	0 – 2.45					30 1														1
2	2.50 – 4.95					25 1			10 1	5 1	0 1	5 1	10 1	10 2						8
3	5.00 – 7.45				24 1			12 1		4 5	0 2	4 3	8 3	12 2	16 3	20 2	24 1			23
4	7.50 – 9.95				18 2		12 2	9 2	6 1	3 7	0 7	3 9	6 6	9 2		15 2				40
5	10.00 – 12.45		16 1			10 1	8 1	6 4	4 5	2 6	0 7	2 7	4 5	6 4	8 4					45
6	12.50 – 14.95						4 2	3 2	2 3	1 9	0 11	1 15	2 13	3 9	4 4	5 1			8 1	70
7	15.00 – 17.45		0 1		0 1	0 1	0 1	0 1	0 8	0 6	0 14	0 10	0 9	0 6	0 6					64
8	17.50 – 19.95		8 1	7 1			4 3	3 13	2 9	1 7	0 3	1 12	2 9	3 9	4 3	5 1				71
9	20.00 – 22.45				12 2		8 3	6 3	4 2	2 4	0 9	2 6	4 5	6 3	8 1					38
10	22.50 – 24.95				18 1	15 3	12 2		6 4	3 6	0 3	3 2	6 1	9 3						25
11	25.00 – 27.45					20 1	16 1	12 1	8 2			4 3	8 1	12 2		20 1				12
12	27.50 – 29.95							15 3	10 3	5 1		5 3	10 1							11
13	30.00 – 32.45						24 1				0 2	6 1			24 1					5
14	32.50 – 34.95									7 3										3
15	35.00 – 37.40							27 1												
16	37.50 – 39.95																			1
			3	1	7	8	16	31	38	55	59	72	54	42	22	7	1		1	417

$r = -0.1503 \pm 0.0322$

Correlation between the ratio of total grain to total straw per plant, subject; and the total plant weight per plant, in grams, relative. Kherson. 37.

	Classes	1 0 — 0.95	2 1.00 — 1.95	3 2.00 — 2.95	4 3.00 — 3.95	5 4.00 — 4.95	6 5.00 — 5.95	7 6.00 — 6.95	8 7.00 — 7.95	9 8.00 — 8.95	10 9.00 — 9.95	11 10.00 — 10.95	12 11.00 — 11.95	13 12.00 — 12.95	14 13.00 — 13.95	15 14.00 — 14.95	16 15.00 — 15.95	17 16.00 — 16.95	
1		49	42	35															
2	1.00 - 1.95	1	1	1															3
3	2.00 - 2.95		36	30	24														9
4	3.00 - 3.95		3	5	1	25	20	15											23
5	4.00 - 4.95			6	16	1	16	12	8										39
6	5.00 - 5.95				8	20	5	17	9	6	3								28
7	6.00 - 6.95				3	6	16	3	6	4	2	0	2						54
8	7.00 - 7.95				4	3	14	27	9	2	1								55
9	8.00 - 8.95				1	1	2	1	27	0	1								45
10	9.00 - 9.95						1	0	17	0	15	0							45
11	10.00 - 10.95						4	1	2	0	14	2	3	4					46
12	11.00 - 11.95						2	1	1	0	6	4	6	8					42
13	12.00 - 12.95							4	1	3	13	6	9	12	15				21
14	13.00 - 13.95							5	1	4	1	8	12	16	20	24	28		18
15	14.00 - 14.95									5	1	10	15	20	25	30			13
16	15.00 - 15.95									6	1	12	18	24		36	42	54	9
17	16.00 - 16.95													28	35	42	49		7
18	17.00 - 17.95													32	40	48	56	72	6
19	18.00 - 18.95														45				4
20	19.00 - 19.95																		
21	20.00 - 20.95																		
22	21.00 - 21.95																	117	1
		1	4	12	29	31	09	37	62	59	45	32	16	13	5	6	3	3	417

$r = 0.9246 \pm 0.0048$

Correlation between the total grain weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Kherson.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Classes	0.45 — 0.49	0.50 — 0.54	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	1.20 — 1.24	1.25 — 1.29	1.30 — 1.34	
1	1					20 1													1
2	2								3 2		3 2	6 1	9 2						7
3	3		16 1		12 3		8 2	6 2	4 2	2 7	0 5	2 8	4 8	6 6	8 6	10 4	12 1		16 1	56
4	4			7 1		5 2		3 3	2 5	1 13	0 18	1 16	2 11	3 11	4 5	5 1				86
5	5				0 1	0 1	0 7	0 9	0 13	0 14	0 17	0 19	0 20	0 12	0 7					120
6	6				6 1	5 2	4 4	3 5	2 10	1 8	0 10	1 15	2 8	3 6	4 3	5 2				74
7	7		16 1			10 2	8 2	6 5	4 4	2 1	0 2	2 8	4 5	6 4	8 1					35
8	8				18 1			9 5	6 1	3 5	0 1	3 2	6 1	9 1						17
9	9		32 1		24 1			12 1	8 2	4 2	0 4									11
10	10						20 1	15 1	10 1	5 1	0 1	5 1								6
11	11											6 1								1
12	12								7 2											2
13	13									0 1										1
		3	1	7	8	16	31	38	55	59	72	54	42	22	7	1		1		417

$r = -0.2170 \pm 0.0315$

Correlation between the ratio of total grain to total per plant, subject; and the number of stems per plant, relative. Kherson, .37.

		1	2	3	4	5	6	7	8	9	10	11	12	
	Classes	0.40 — 0.55	0.60 — 0.75	0.80 — 0.95	1.00 — 1.15	1.20 — 1.35	1.40 — 1.55	1.60 — 1.75	1.80 — 1.95	2.00 — 2.15	2.20 — 2.35	2.40 — 2.55	2.60 — 2.75	
1	0.50 – 0.65	2												2
2	0.70 – 0.85		3	2										5
3	0.90 – 1.05		1	6	12	1								20
4	1.10 – 1.25		2	5	22	14	3							46
5	1.30 – 1.45		1	1	19	46	18	4						89
6	1.50 – 1.65			1	4	26	30	20	4					85
7	1.70 – 1.85				1	4	18	30	21	4				78
8	1.90 – 2.05					3	6	11	9	8	2			39
9	2.10 – 2.25						5	8	8	5	2	2	1	31
10	2.30 – 2.45						1	2	3	3	2	1		12
11	2.50 – 2.65					1		1		2	1		2	7
12	2.70 – 2.85									1				1
13	2.90 – 3.05							1			1			2
		2	7	15	58	95	81	77	45	23	8	3	3	417

$r = 0.8100 \pm 0.0114$

Correlation between the average panicle grain yield per plant, in grams, subject; and the stem straw weight per plant, in grams, relative. Kherson.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Classes	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	1.20 – 1.24	1.25 – 1.29	1.30 – 1.34	
1	15 – 19									0 1									1
2	20 – 24					25			10	0	5								6
3	25 – 29					20 1			8 1	0 3	4 3	8 1	12 2	16 1		24 1			13
4	30 – 34				18 2	15 1	12 1	9 3	6 3	3 11	0 5	3 7	6 9	9 2	12 3	15 1			48
5	35 – 39		16 2		12 1		8 1	6 9	4 3	2 7	0 7	2 12	4 13	6 5	8 3	10 1			64
6	40 – 44					4 3	3 6	2 9	1 17	0 14	1 18	2 9	3 10	4 3	5 2				91
7	45 – 49		0 1	0 1	0 1	0 1	0 4	0 4	0 7	0 11	0 9	0 12	0 7	0 10	0 3	0 2			73
8	50 – 54				6 1	5 1	4 3		2 3	1 2	0 5	1 7	2 4	3 6	4 3				35
9	55 – 59				12 1	10 2	8 3	6 3	4 4	2 2	0 6	2 10	4 7	6 5	8 4				47
10	60 – 64					15 1		9 4	6 5	3 2	0 4	3 9	6 2		15 1				22
11	65 – 69				24 1		16 1	12 1	8 2		0 2		8 1	12 1	16 1				10
12	70 – 74							15 1	3 2				10 1	15 1	20 1			40 1	7
		3	1	7	8	16	31	38	55	59	72	54	42	22	7	1		1	417

$r = -0.0102 \pm 0.0330$

Correlation between the ratioof total grain to total straw per plant, subject; and the average panicle numbef of spikelets, per plant, relative. Kherson.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Classes	0.45 — 0.49	0.50 — 0.54	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	1.20 — 1.24	1.25 — 1.29	1.30 — 1.34	
1	66 – 68					45 1					0									1
2	69 – 71								16 1		0 2									3
3	72 – 74										0 1									1
4	75 – 77									6 1	0 1	6 1		18 1						4
5	78 – 80							15 1		5 3	0 1	5 2	10 1	15 1	20 1		30 1			11
6	81 – 83				20 2			12 1	8 3	4 1	0 4	4 3	8 4	12 2	16 3					23
7	84 – 86		16 1			10 2	12 1	9 8	6 3	3 12	0 5	3 10	6 5	9 3	12 1	15 2				50
8	87 – 89				6 1		8 1	6 6	4 4	2 9	0 8	2 17	4 10	6 5	8 1	10 1				65
9	90 – 92							3 2	2 4	1 5	0 8	1 8	2 17	3 9	4 4	5 1				59
10	93 – 95				0 1	0 1	0 1	0 4	0 5	6 12	0 10	0 6	0 7	0 10	0 4					61
11	96 – 98				6 1	5 1	4 5	3 5	2 3	1 5	0 8	1 12	2 5	3 6	4 4	5 1				56
12	99 – 101		16 2		12 1	10 2	8 5		4 9	2 2	0 7	2 8	4 1	6 3	8 4	10 2				46
13	102 – 104				18 1	15 1	12 2	9 2	6 4	3 3	0 4	3 3	6 3	9 1						24
14	105 – 107			28 1				12 1	8 1	4 2		4 2	8 1	12 1						9
15	108 – 110							15 1	10 1										40 1	3
16	111 – 113						24 1													1
			3	1	7	8	16	31	38	55	59	72	54	42	22	7	1		1	417

$$r = -0.0963 \pm 0.0327$$

Correlation between the ratio of total grain to total straw per plant, subject; and the average stem height per plant, in centimeters, relative. Kherson.

	Classes		1	2	3	4	5	6	7	8	9	
			0	5	10	15	20	25	30	35	40	
			4.95	9.95	14.95	19.95	24.95	29.95	34.95	39.95	44.95	
1	0	– 1.95	12 11									11
2	2	3.95	9 1	6 33	3 2							36
3	4	5.95		4 13	2 40	0 4						57
4	6	7.95			1 41	0 56	1 1					98
5	8	9.95				0 53	0 47	0 3				109
6	10	11.95					1 42	2 24	3 3			69
7	12	13.95					2 1	4 23	6 4			28
8	14	15.95						6 2	9 2	12 3		7
9	16	17.95							12 1	16 2		3
10	18	19.95									25 2	2
			12	46	83	113	91	~~59~~	10	5	2	414

$r = 0.9700 \pm 0.0020$

Correlation between the total plant weight per plant, in grams, subject; and the total grain weight per plant, in grams, relative. Kherson.. 37.

	Classes		1	2	3	4	5	6	7	8	9	
			0	5	10	15	20	25	30	35	40	
			4.95	9.95	14.95	19.95	24.95	29.95	34.95	39.95	44.95	
1	0	1.95	12 3									3
2	2	3.95	9 9	6 17								26
3	4	5.95		4 26	2 12							38
4	6	7.95		2 3	1 63	0 6						72
5	8	9.95			0 8	0 66	0 1					75
6	10	11.95				0 37	1 40					77
7	12	13.95				6 4	2 46	4 19				69
8	14	15.95					3 3	6 19				22
9	16	17.95						8 15	12 3			18
10	18	19.95							15 7	20 2		9
11	20	21.95								24 2		2
12	22	23.95								28 1	35 1	2
13	24	25.95									40 1	1
			12	46	83	113	90	53	10	5	2	414

$r = 0.9959 \pm 0.0003$

Correlation between the total plant weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Kherson, 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	Classes	0.40 – 0.44	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1	0 – 4.95				3	1	1	2	1	1	3							12
2	5 – 9.95	1	1		3	2	3	2	9	2	11	4	3	4			1	46
3	10 – 14.95		1		3	1		9	8	11	16	13	7	10	2	1	1	83
4	15 – 19.95		3	3	1	2	6	7	13	24	13	23	8	8	1	1		113
5	20 – 24.95				1	2	7	11	18	7	15	19	9	1	1			91
6	25 – 29.95		1		2	4	4	9	5	11	7	3	3	2	1			52
7	30 – 34.95			1		2	2	1	2		1	1						10
8	35 – 39.95							3	1			1						5
9	40 – 44.95							1			1							2
		1	6	4	13	14	23	45	57	56	67	64	30	25	5	2	2	414

$r = -0.0819 \pm 0.0323$

Correlation between the ratio of total grain to total straw per plant, subject; and the total plant weight per plant, in grams, relative. Kherson. 37.

	Classes	1	2	3	4	5	6	7	8	9	10	
		0 — 1.95	2 — 3.95	4 — 5.95	6 — 7.95	8 — 9.95	10 — 11.95	12 — 13.95	14 — 15.95	16 — 17.95	18 — 19.95	
1	0 — 1.95	20 3										3
2	2 — 3.95	16 8	12 18									26
3	4 — 5.95		9 13	6 24	3 1							38
4	6 — 7.95		6 5	4 25	2 39	0 3						72
5	8 — 9.95			2 4	1 41	0 29	1 1					75
6	10 — 11.95			0 4	0 12	0 43	0 18					77
7	12 — 13.95				1 5	0 23	1 30	2 9	3 2			69
8	14 — 15.95					0 3	2 10	4 9				22
9	16 — 17.95					0 2	3 7	6 8	7 1			18
10	18 — 19.95						4 3	8 2	12 2	16 2		9
11	20 — 21.95								10 2			2
12	22 — 23.95									24 1	30 1	2
13	24 — 25.95										33 1	1
		11	36	57	98	103	69	28	7	3	2	414

$r = 0.9124 \pm 0.0056$

Correlation between the total grain weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Kherson. 37.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Classes	0.40 – 0.44	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1	2							5 2	0 1								3
2	3		28 1		20 4	16 1	12 1	8 3	4 3	4 9	8 2	12 2	16 3		24 1		31
3	4	24 1		18 1	15 1	12 1		6 1	3 4	0 6	3 7	6 6	9 4	12 5	15 2	18 1	21 1	41
4	5		14 2		10 4	8 1	6 1	4 6	2 10	0 13	2 14	4 10	6 6	8 5	10 2			74
5	6				5 1	4 2	3 4	2 5	1 6	0 10	1 8	2 17	3 5	4 9				67
6	7			0 1		0 2	0 7	0 6	0 13	0 9	0 7	0 13	0 5	0 2				65
7	8		7 1	6 1	5 2	4 1	3 2	2 8	1 10	0 5	1 10	1 10	3 3	4 1	5 1		7 1	56
8	9					8 4	6 3	4 4	2 3	0 6	2 7	4 4	6 4					35
9	10		21 1	18 1			9 5	6 4	3 3	0 3	3 2	6 1						20
10	11		28 1			16 2		8 3	4 2	0 2	4 1	8 1	12 1					13
11	12		1		25 1			10 1	5 1		5 1							4
12	13							12 1			6 1							2
13	14							14 1										1
14	15																	
15	16																	
16	17							20 2										2
		1	6	4	13	14	23	45	57	56	67	64	30	25	5	2	2	414

$r = -0.1899 \pm 0.0320$

Correlation between the ratio of total grain to total straw per plant, subject; and the number of stems per plant, relative. Kherson.

	Classes	1 0.30 – 0.45	2 0.50 – 0.65	3 0.70 – 0.85	4 0.90 – 1.05	5 1.10 – 1.25	6 1.30 – 1.45	7 1.50 – 1.65	8 1.70 – 1.85	9 1.90 – 2.05	10 2.10 – 2.25	11 2.30 – 2.45	12 2.50 – 2.65	13 2.70 – 2.85	14 2.90 – 3.05	15 3.10 – 3.25	
1	0.40 – 0.55		20 3	16 3	12 2	8 1											9
2	0.60 – 0.75		15 1	12 9	9 9	6 5	3 3	0 1	3 1								29
3	0.80 – 0.95			8 1	6 17	4 21	2 6	0 3	2 1		6 1						50
4	1.00 – 1.15				3 6	2 27	1 33	0 22	1 3	2 2	3 1	4 1					95
5	1.20 – 1.35					0 10	0 29	0 26	1 14	0 9	0 4						92
6	1.40 – 1.55						1 6	0 35	1 18	2 10	3 2	4 1	5 1				73
7	1.60 – 1.75						2 1	0 10	2 12	4 7	6 8	8 1	10 2				41
8	1.80 – 1.95							0 1	3 3	6 6	9 3	12 4			21 1		18
9	2.00 – 2.15									8 2		16 1					3
10	2.20 – 2.35											20 2		30 1			3
11	2.40 – 2.55																
12	2.60 – 2.75																
13	2.80 – 2.95															64 1	1
			4	13	34	64	78	98	52	36	19	10	3	1	1	1	414

$r = 0.7939 \pm 0.0123$

Correlation between the average panicle grain yield per plant, in grams, subject; and the stem straw weight per plant, in grams, relative. Kherson.

Calc. No. 27.

G. 2

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	Classes	0.40 – 0.44	.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1	15 – 19							8 1			4 3	8 1						5
2	20 – 24	24 1			15 4	12 2	9 3	6 3	3 4		3 3		9 1					21
3	25 – 29		14 1		10 1	8 2	6 1	4 3	2 6	0 3	2 5	4 4	6 1	8 1	10			28
4	30 – 34		7 3	6 1	5 2	4 1	3 3	2 9	1 11	0 7	1 20	2 15	3 1	4 4	5 1			78
5	35 – 39		0 1		0 3		0 4	0 7	0 9	11	0 15	0 14	0 13	0 9		0 1	0 1	88
6	40 – 44		7 1	6 2	5 2	4 1	3 4	2 6	1 8	0 15	1 9	2 10	3 6	4 5				74
7	45 – 49					8 5	6 3	4 5	2 6	0 8	2 7	4 5	6 6	8 2	10 3	12 1		51
8	50 – 54			18 1	15 1		9 3	6 8	3 8	0 7	3 5	6 6	9 1	12 2			21 1	43
9	55 – 59					16 2	12 1	8 1	4 1			8 3	12 1	16 1				10
10	60 – 64					20 1	15 1	10 1	5 2	0 2				20 1	25 1			9
11	65 – 69									0 3								3
12	70 – 74							14 1	7 1			14 1						3
13	75 – 79								8 1									1
		1	6	4	13	14	23	45	57	56	67	64	30	25	5	2	2	414

$r = 0.0695 \pm 0.0330$

Correlation between the ratio of total grain to total straw per plant, subject; and the average panicle number of spikelets per plant, relative. Kherson.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	Classes	0.40 – 0.44	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1	75 – 79								5 1		5 3		15 1					5
2	80 – 84		28 1		20 1	16 1	12 3	8 2	4 1	0 1								10
3	85 – 89				15 3	12 1	9 1	6 3	3 7	0 1	3 8	6 7		12 2				33
4	90 – 94			12 2	10 2		6 2	4 5	2 7	0 7	2 8	4 6	6 2	8 4	10 1	12 2		48
5	95 – 99				5 2	4 3	3 1	2 7	1 9	0 14	1 22	2 16	3 11	4 9	5 1		7 1	96
6	100 – 104		0 3	0 1		0 2	0 5	0 8	0 11	0 11	0 9	0 14	0 7	0 6	0 1		0 1	79
7	105 – 109	8 1	7 1	6 1	5 1	4 2	3 6	2 10	1 7	0 10	1 6	2 14	3 8	4 4	5 1			72
8	110 – 119		14 1		10 1	8 5	6 2	4 5	2 5	0 8	2 8	4 6	6 1		10 1			43
9	115 – 119				15 3		9 2	6 4	3 6	0 4	3 3	6 1						23
10	120 – 124						12 1	8 1	4 3									5
		1	6	4	13	14	23	45	57	56	67	64	30	25	5	2	2	414

$r = -0.0889 \pm 0.0329$

Correlation betweeen the ratio of total grain to total straw per plant, subject; and the average stem height per plant, in centimeters, relative. Kherson.

	Classes	1 0 – 4.95	2 5 – 9.95	3 10 – 14.95	4 15 – 19.95	5 20 – 24.95	6 25 – 29.95	7 30 – 34.95	8 35 – 39.95	9 40 – 44.95	10 45 – 49.95	11 50 – 54.95	
1	0 – 1.95	5											5
2	2 – 3.95		30	2									32
3	4 – 5.95		17	51	1								69
4	6 – 7.95			50	60		1						111
5	8 – 9.95				49	34	2						85
6	10 – 11.95				1	27	18						46
7	12 – 13.95					3	22	3					28
8	14 – 15.95						4	5	1				10
9	16 – 17.95							2					2
10	18 – 19.95									1	1		2
11	20 – 21.95												0
12	22 – 23.95												0
13	24 – 25.95											1	1
		5	47	103	111	64	47	10	1	1	1	1	391

$r = 0.8628 \pm 0.0087$

Correlation between the total plant weight per plant, in grams, subject; and the total grain weight per plant, in grams, relative. Kherson, c. 37.

	Classes	1 0 – 4.95	2 5 – 9.95	3 10 – 14.95	4 15 – 19.95	5 20 – 24.95	6 25 – 29.95	7 30 – 34.95	8 35 – 39.95	9 40 – 44.95	10 45 – 49.95	11 50 – 54.95	
1	0 – 1.95	12 1											1
2	2 – 3.95	9 4	6 16										20
3	4 – 5.95		4 31	2 19									50
4	6 – 7.95			1 72	0 14								86
5	8 – 9.95			0 11	0 70								81
6	10 – 11.95			1 1	0 23	1 30				1			54
7	12 – 13.95				0 4	2 27	4 11						42
8	14 – 15.95					3 6	6 26	9 1					33
9	16 – 17.95					4 1	8 8	12 3					12
10	18 – 19.95						10 2	13 6					8
11	20 – 21.95									30 1			1
12	22 – 23.95								28 1				1
13	24 – 25.95												0
14	26 – 27.95											63 1	1
15	28 – 29.95										60 1		1
		5	47	103	111	64	47	10	1	1	1	1	391

r 0.9753 ± 0.0017

Correlation between the total plant weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Kherson. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	Classes	0.35 — 0.39	0.40 — 0.44	0.45 — 0.49	0.50 — 0.54	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	
1	0 — 4.95					18 1	15 1		9 2	6 1									5
2	5 — 9.95				14 1	12 1	10 3	8 3	6 2	4 5	2 6	0 7	2 8	4 1	6 6	8 4			47
3	10 — 14.95		9 1	8 2		6 4	5 1	4 6	3 6	2 8	1 10	0 11	1 20	2 13	3 6	4 11	5 2	6 2	103
4	15 — 19.95				0 1	0 4	0 6	0 5	0 6	0 10	0 13	0 17	0 10	0 16	0 15	0 5	0 3		111
5	20 — 24.95				7 1	6 3	5 3	4 5	3 9	2 7	1 10	0 7	1 7	2 4	3 5	4 1	5 2		64
6	25 — 29.95	20 1			14 1	12 2		8 5	6 3	4 6	2 11	0 5	2 4	4 5	6 3	8 1			47
7	30 — 34.95							12 2		6 1	3 4		3 2			12 1			10
8	35 — 39.95							10 1											1
9	40 — 44.95											0 1							1
10	45 — 49.95						30 1												1
11	50 — 54.95												7 1						1
		1	1	2	4	15	15	27	28	38	54	48	52	39	35	23	7	2	391

$r = -0.0959 \pm 0.0338$

Correlation between the ratio of total grain to total straw per plant, subject; and the total plant weight per plant, in grams, relative. Kherson. 27.

		1	2	3	4	5	6	7	8	9	10	11	12		
	Classes	0 — 1.95	2 — 3.95	4 — 5.95	6 — 7.95	8 — 9.95	10 — 11.95	12 — 13.95	14 — 15.95	16 — 17.95	18 — 19.95	20 — 21.95	22 — 23.95	24 — 25.95	
1	0 — 1.95	1													1
2	2 — 3.95	4	15	1											20
3	4 — 5.95		15	34	1										50
4	6 — 7.95		2	24	57	3									86
5	8 — 9.95			9	36	35	1								81
6	10 — 11.95			1	12	27	11	3							54
7	12 — 13.95				4	12	18	8							42
8	14 — 15.95					5	13	10	4	1					33
9	16 — 17.95					2	3	5	2						12
10	18 — 19.95				1	1		2	3	1					8
11	20 — 21.95										1				1
12	22 — 23.95								1						1
13	24 — 25.95														0
14	26 — 27.95													1	1
15	28 — 29.95										1				1
		5	32	69	111	85	46	28	10	2	2	0	0	1	391

$r = 0.7995 \pm 0.0133$

Correlation between the total grain weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Kherson. 37.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Classes	0.35 – 0.39	0.40 – 0.44	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1	2					15 1		9 2				3 2						3
2	3			16 1		12 1		6 1	4 3	2 4	0 2	2 4	4 1	6 3	8 3			23
3	4		9 1	8 1	7 1	6 1	5 3	4 5	3 4	2 3	1 6	0 6	1 11	2 6	3 5	4 4	5 1	6 2	60
4	5					0 3	0 5	0 2	0 6	0 13	0 13	0 17	0 15	0 16	0 10	0 6	0 4		110
5	6				7 2	6 5	5 1	4 6	3 4	2 5	1 10	0 8	1 7	2 10	3 9	4 6	5 1		74
6	7				14 1	12 4	10 1	8 5	6 4	4 4	2 6	0 3	2 7	4 2	6 4	8 4	10 1		46
7	8						15 1	12 4	9 5	6 5	3 5	0 4	3 3	6 3	9 3				33
8	9						20 3	16 2	12 1	8 4	4 5	0 4	4 1	8 1	12 1				22
9	10					30 1			15 1	10 1	5 2	0 3							8
10	11	60 1						24 1			6 3								5
11	12							28 1				0 1	7 1						3
12	13							32 1					8 1						2
		1	1	2	4	15	13	27	28	38	54	48	52	39	35	23	7	2	391

$r = -0.1553 \pm 0.0333$

Correlation between the ratio of total grain to total straw per plant, subject; and the number of stems per plant, relative. Kherson.

		1	2	3	4	5	6	7	8	9	10	11	12	
	Classes	0.30 – 0.45	0.50 – 0.65	0.70 – 0.85	0.90 – 1.05	1.10 – 1.25	1.30 – 1.45	1.50 – 1.65	1.70 – 1.85	1.90 – 2.05	2.10 – 2.25	2.30 – 2.45	2.50 – 2.65	
1	0.70 – 0.95	1	8	5	4									18
2	1.00 – 1.25		2	13	24	21	9	1						70
3	1.30 – 1.55			5	16	35	35	18						109
4	1.60 – 1.85			1	2	11	38	28	17	2				99
5	1.90 – 2.15				2	6	14	15	13	5	1	2		58
6	2.20 – 2.45					1	4	4	6	3	3	2		23
7	2.50 – 2.75					1	1			2	1		2	7
8	2.80 – 3.05							1		2				3
9	3.10 – 3.35						1			1				2
10	3.40 – 3.65									1				1
11	3.70 – 3.95												1	1
		1	10	24	48	75	102	67	36	16	5	4	3	391

$r = 0.7408 \pm 0.1539$

Correlation between the average panicle grain yield per plant in grams, subject; and the stem straw weight per plant, in grams, relative. Kherson. Corn. No. 37.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Classes	0.35 – 0.39	0.40 – 0.44	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1 15 – 19										5 1								1
2 20 – 24					24 3	20 1	16 1	12 1	8 2	4 1	0 1	4 1						11
3 25 – 29				21 1			12 3	9 4	6 1	3 3	0 6	3 4	6 2	9 2	12 2			28
4 30 – 34			16 1		12 4	10 3	8 4	6 3	4 6	2 4	0 9	2 7	4 6	6 3	8 7			57
5 35 – 39	10 1		8 1		6 2	5 1	4 5	3 3	2 4	1 8	0 11	1 7	2 5	3 8	4 4	5 1	6 2	63
6 40 – 44		0 1		0 2	0 2	0 3	0 4	0 6	0 12	0 14	0 7	0 15	0 11	0 9	0 4	0 2		92
7 45 – 49						5 1	4 5	3 8	2 6	1 12	0 6	1 6	2 7	3 7	4 2			60
8 50 – 54				14 1	12 1	10 2	8 1	6 2	4 4	2 8	0 5	2 8	4 2	6 1	8 1	10 3		39
9 55 – 59						15 2	12 1	9 1	6 3			3 4	6 2	9 4	12 2			19
10 60 – 64					24 2	20 1				4 2	0 1		8 2	12 1		20 1		10
11 65 – 69					30 1		20 2			5 1	0 1							5
12 70 – 74											0 1		12 2		24 1			4
13 75 – 79						35 1	28 1											2
	1	1	2	4	15	15	27	28	38	54	48	52	39	35	23	7	2	391

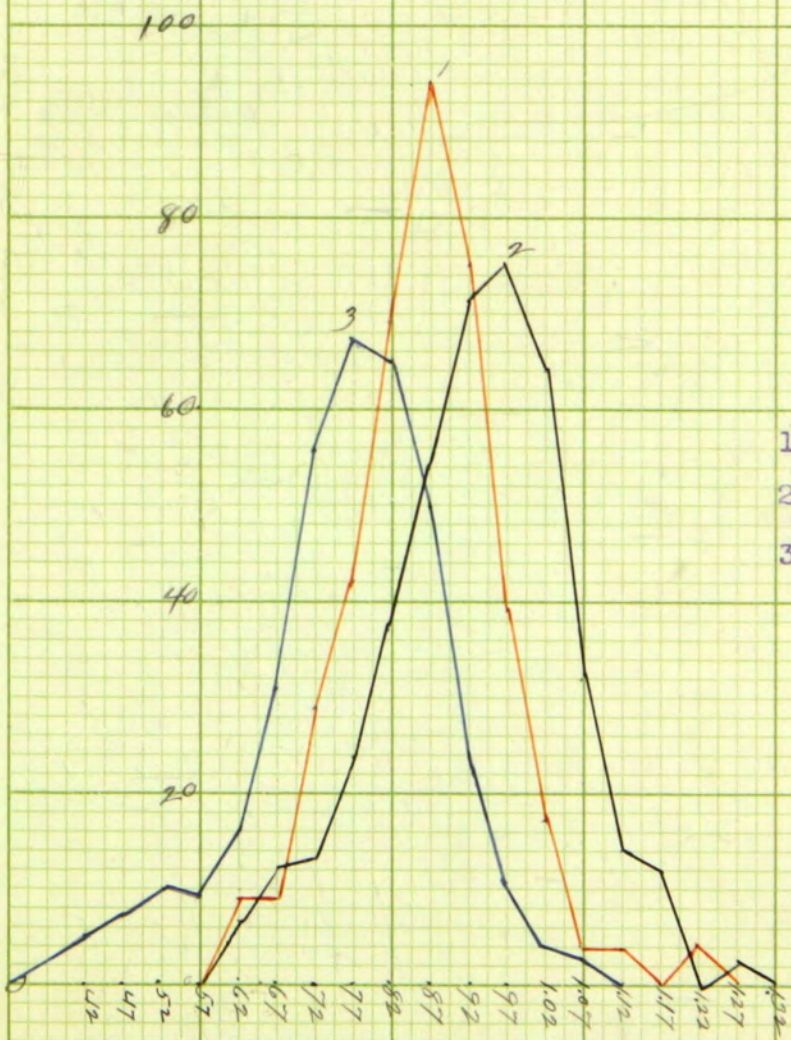
$r = 0.0385 \pm .0341$

Correlation between the ratio of total grain to total straw per plant, subject; and the average panicle number of spikelets per plant, relative. Kherson. Sel. No. 37.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Classes	0.35 – 0.39	0.40 – 0.44	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1 75 – 79								15 1		5 1								2
2 80 – 84							16 1											1
3 85 – 89					18 1		12 1	9 1	6 2	3 1	0 3	3 1		9 1	12 1			12
4 90 – 94					12 1	10 2	8 2	6 1	4 2	2 3	0 6	2 8	4 7	6 5	8 5		12 1	43
5 95 – 99		9 1		7 1		5 1	4 1	3 4	2 5	1 5	0 10	1 9	2 7	3 6	4 5	5 2		57
6 100 – 104					0 5	0 1	0 6	0 3	0 4	0 2	0 13	0 10	0 11	0 4	0 7	0 3	0 1	70
7 105 – 109					6 1	5 3	4 3	3 6	2 11	1 14	0 8	1 10	2 5	3 13	4 2	5 2		78
8 110 – 114	20 1		16 1	14 2	12 2		8 5	6 6	4 4	2 14	0 1	2 6	4 4	6 3	8 1			50
9 115 – 119					18 2	15 3	12 6	9 3	6 8	3 11	0 6	3 7	6 1	9 3	12 1			51
10 120 – 124			32 1	28 1		20 4	16 1	12 3	8 2	4 3	0 1	4 1	8 3		16 1			21
11 125 – 129					30 1								10 1					2
12 130 – 134					36 2													2
13 135 – 139						35 1	28 1											2
	1	1	2	4	15	15	27	28	38	54	48	52	39	35	23	7	2	391

$r = -0.2620 \pm 0.0318$

Correlation between the ratio of total grain to total straw per plant, subject; and the average stem height per plant, in centimeters, relative. Kherson. 37.



	A.	S. D.	R.
1 Not irrigated	1.3990 ± 0.0040	0.1201 ± 0.0028	
2 Irrigated July 7	.8139 ± 0.0034	.1008 ± 0.0024	
3 Irrigated June 22	.7700 ± 0.0044	.1219 ± 0.0031	

Frequency distribution of the ratio of total grain to total straw per plant, Colorado No. 37.

	Classes	f	S_1'	S_2'	S_3'
1	0.40 – .44	5	348	2784	13563
2	0.45 – 0.49	7	343	2436	10779
3	0.50 – 0.54	10	336	2093	8343
4	0.55 – 0.59	9	326	1757	6250
5	0.60 – 0.64	16	317	1431	4493
6	0.65 – 0.69	31	301	1114	3062
7	0.70 – 0.74	46	270	813	1948
8	0.75 – 0.79	67	224	543	1135
9	0.80 – 0.84	65	157	319	592
10	0.85 – 0.89	50	92	162	273
11	0.90 – 0.94	24	42	70	111
12	0.95 – 0.99	11	18	28	41
13	1.00 – 1.04	4	7	10	13
14	1.05 – 1.09	3	3	3	3

$\lambda = 0.05$

$A_0 = 0.37$

$\theta' = 2.4389$

$V_0 = 0.77$

$S_2 = 8.0000$

$S_3 = 38.97411$

$V_1' = 8.0000$

$V_2 = 5.94882$

$A' = 1.54$

$V_0' = 15.4$

$V_{V_0} = 00.0$

$A = 0.77 \pm 0.0044$

$\theta = 0.1219 \pm 0.0031$

	Classes	f	S_1'	S_2'	S_3'
1	0.55 – 0.59	9	395	2317	8756
2	0.60 – 0.64	9	386	1922	6439
3	0.65 – 0.69	29	377	1536	4517
4	0.70 – 0.74	42	348	1159	2981
5	0.75 – 0.79	69	306	811	1822
6	0.80 – 0.84	94	237	505	1011
7	0.85 – 0.89	73	143	268	506
8	0.90 – 0.94	39	68	125	238
9	0.95 – 0.99	17	29	57	113
10	1.00 – 1.04	4	12	28	56
11	1.05 – 1.09	4	8	16	28
12	1.10 – 1.14	0	4	8	12
13	1.15 – 1.19	4	4	4	4

$\lambda = 0.05$

$A_0 = 0.52$

$\theta' = 2.0151$

$V_0 = 0.82$

$S_2 = 5.8658$

$S_3 = 22.1671$

$\gamma_1' = 5.8658$

$\gamma_2 = 4.0608$

$A' = 16.2658$

$V_0' = 16.4000$

$\gamma_{V_0} = -0.1342$

$A = 0.8733 \pm 0.0034$

$\theta = 0.1008 \pm 0.0024$

	Classes	f	S_1'	S_2'	S_3'
1	0.55 – 0.59	7	417	2994	13448
2	0.60 – 0.64	12	410	2577	10454
3	0.65 – 0.69	13	398	2167	7877
4	0.70 – 0.74	24	385	1769	5710
5	0.75 – 0.79	37	361	1384	3941
6	0.80 – 0.84	54	324	1023	2557
7	0.85 – 0.89	71	270	699	1534
8	0.90 – 0.94	75	199	429	835
9	0.95 – 0.99	64	124	230	406
10	1.00 – 1.04	32	60	106	176
11	1.05 – 1.09	14	28	46	70
12	1.10 – 1.14	12	14	18	24
13	1.15 – 1.19	0	2	4	6
14	1.20 – 1.24	2	2	2	2

$\lambda = 0.05$

$A_0 = 0.52$

$\theta = 2.4016$

$V_0 = 0.87$

$S_2 = 7.1799$

$S_3 = 32.2494$

$V_1' = 7.1799$

$V_2 = 5.7679$

$A' = 17.5799$

$V_0' = 17.0000$

$V_{V_0} = 0.5799$

$A = 0.8790 \pm 0.0040$

$\theta = 0.1201 \pm 0.0028$

	A.	S. D.	R.
1 Not Irrigated	3.2446 ± 0.0340	1.0308 ± 0.0241	
2 Irrigated July 7	4.0000 ± 0.0428	1.2609 ± 0.0303	
3 Irrigated June 22	3.7329 ± 0.0428	1.1850 ± 0.0303	

Frequency distribution of number of stems per plant. Colorado No. 37.

	Classes	f	S_1'	S_2'	S_3'
1	1	15	417	1353	3093
2	2	79	402	936	1740
3	3	161	323	534	804
4	4	122	162	211	270
5	5	32	40	49	59
6	6	7	8	9	10
7	7	1	1	1	1

$\lambda = 1$

$A_0 = 0$

$\acute{\sigma} = 1.0308$

$V_0 = 3.0$

$S_2 = 3.2446$

$S_3 = 7.4173$

$V_1' = 3.2446$

$V_2 = 1.0626$

$A' = 3.2446$

$V_0' = 3.0000$

$V_{10} = 0.2446$

$A = 3.2446 \pm 0.0340$

$\sigma = 1.0308 \pm 0.0241$

	Classes	f	S_1'	S_2'	S_3'
1	1	6	395	1580	4264
2	2	41	389	1185	2684
3	3	92	348	796	1499
4	4	112	256	448	703
5	5	107	144	192	255
6	6	29	37	48	63
7	7	6	8	11	15
8	8	1	2	3	4
9	9	1	1	1	1

$\lambda = 1$

$A_0 = 0$

$\theta' = 1.2609$

$V_0 = 4$

$S_2 = 4.0000$

$S_3 = 10.7949$

$V_1' = 4.0000$

$V_2' = 1.5898$

$A' = 4.0000$

$Y_0' = 4.0000$

$V_{V_0} = 0.0000$

$A = 4.0000 \pm 0.0428$

$\theta = 1.2609 \pm 0.0303$

	Classes	f	S_1'	S_2'	S_3'
1	1	8	348	1306	3348
2	2	33	340	958	2042
3	3	110	305	618	1084
4	4	106	195	313	466
5	5	45	89	118	153
6	6	20	24	29	35
7	7	3	4	5	6
8	8	1	1	1	1

$\lambda = 1$

$A_0 = 0$

$\theta' = 1.1850$

$V_0 = 4$

$S_2 = 3.7529$

$S_3 = 9.6207$

$V_1' = 3.7529$

$V_2 = 1.4042$

$A' = 3.7529$

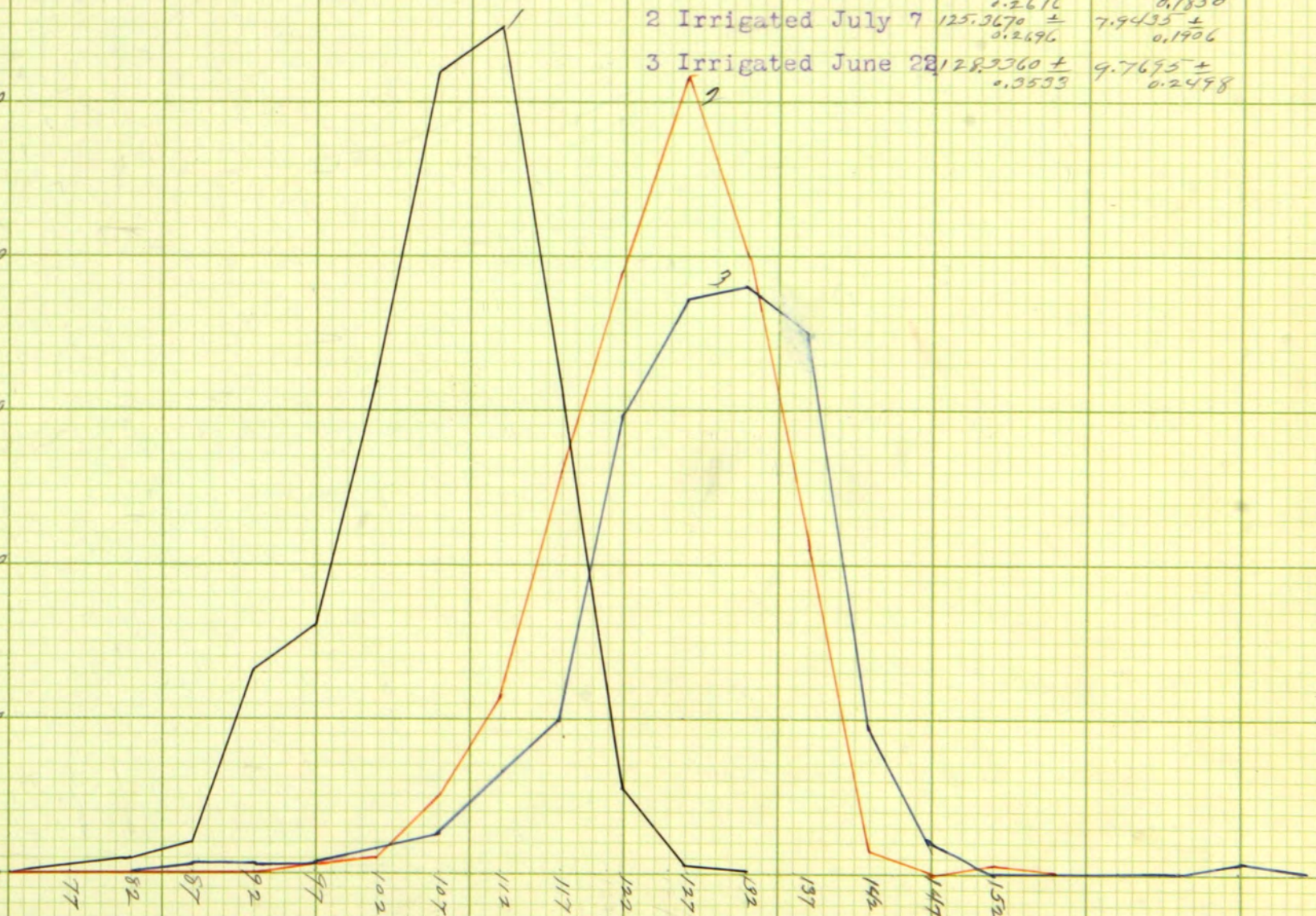
$V_0' = 4.0000$

$V_{10} = -0.2471$

$A = 3.7529 \pm 0.0428$

$\theta = 1.1850 \pm 0.03030$

	A.	S. D.	R.
1 Not Irrigated.	107.3955 ± 0.2616	7.9210 ± 0.1850	
2 Irrigated July 7	125.3670 ± 0.2696	7.9435 ± 0.1906	
3 Irrigated June 22	128.3360 ± 0.3533	9.7695 ± 0.2498	



Frequency distribution of average stem height per plant, in centimeters.
Colorado No. 37.

	Classes	f	S_1'	S_2'	S_3'
1	70–74	1	348	4269	28983
2	75–79	0	347	3921	24714
3	80–84	0	347	3574	20793
4	85–89	1	347	3227	17219
5	90–94	1	346	2880	13992
6	95–99	1	345	2534	11112
7	100–104	3	344	2189	8578
8	105–109	5	341	1845	6389
9	110–114	13	336	1504	4544
10	115–119	20	323	1168	3040
11	120–124	39	303	845	1872
12	125–129	74	244	542	1027
13	130–134	76	170	298	485
14	135–139	70	94	128	187
15	140–144	19	24	34	59
16	145–149	4	5	10	25
17	150–154	0	1	5	15
18	155–159	0	1	4	10
19	160–164	0	1	3	6
20	165–169	0	1	2	3
21	170–174	1	1	1	1

$\lambda = 5$

$A_0 = 67$

$\theta' = 1.9539$

$V_0 = 132$

$S_{i2} = 12.2672$

$S_3 = 89.2845$

$V_1' = 12.2672$

$V_2 = 3.8176$

$A' = 25.6672$

$V_0' = 26.4$

$V_{V_0} = -0.7328$

$A = 128.3360 \pm 0.3533$

$\theta = 9.7695 \pm .2498$

	Classes	f	S_1'	S_2'	S_3'
1	95 – 99	1	395	2636	10612
2	100 – 104	2	394	2241	7976
3	105 – 109	10	392	1847	5735
4	110 – 114	23	382	1455	3888
5	115 – 119	52	359	1073	2433
6	120 – 124	78	307	714	1360
7	125 – 129	103	229	407	646
8	130 – 134	80	126	178	239
9	135 – 139	42	46	52	61
10	140 – 144	3	4	6	9
11	145 – 149	0	1	2	3
12	150 – 154	1	1	1	1

$\lambda = 5$

$A_0 = 92$

$\theta' = 1.5887$

$V_0 = 127$

$S_2 = 6.6734$

$S_3 = 26.8658$

$V_1' = 6.6734$

$V_2 = 2.5239$

$A' = 25.0734$

$V_0' = 25.4000$

$V_{10} = -0.3266$

$A = 125.3670 \pm 0.2696$

$\theta = 7.9435 \pm 0.1906$

	Classes	f	S_1'	S_2'	S_3'
~~1~~	~~70 – 74~~				
2	75 – 79	1	417	2952	12448
3	80 – 84	2	416	2535	9496
4	85 – 89	4	414	2119	6961
5	90 – 94	26	410	1705	4842
6	95 – 99	32	384	1295	3137
7	100 – 104	64	352	911	1842
8	105 – 109	104	288	559	931
9	110 – 114	110	184	271	372
10	115 – 119	62	74	87	101
11	120 – 124	11	12	13	14
12	125 – 129	1	1	1	1

$\lambda = 5$

$A_0 = 72$

$\acute{\sigma} = 1.5842$

$V_0 = 107$

$S_2 = 7.0791$

$S_3 = 29.8573$

$V_1' = 7.0791$

$V_2 = 2.5098$

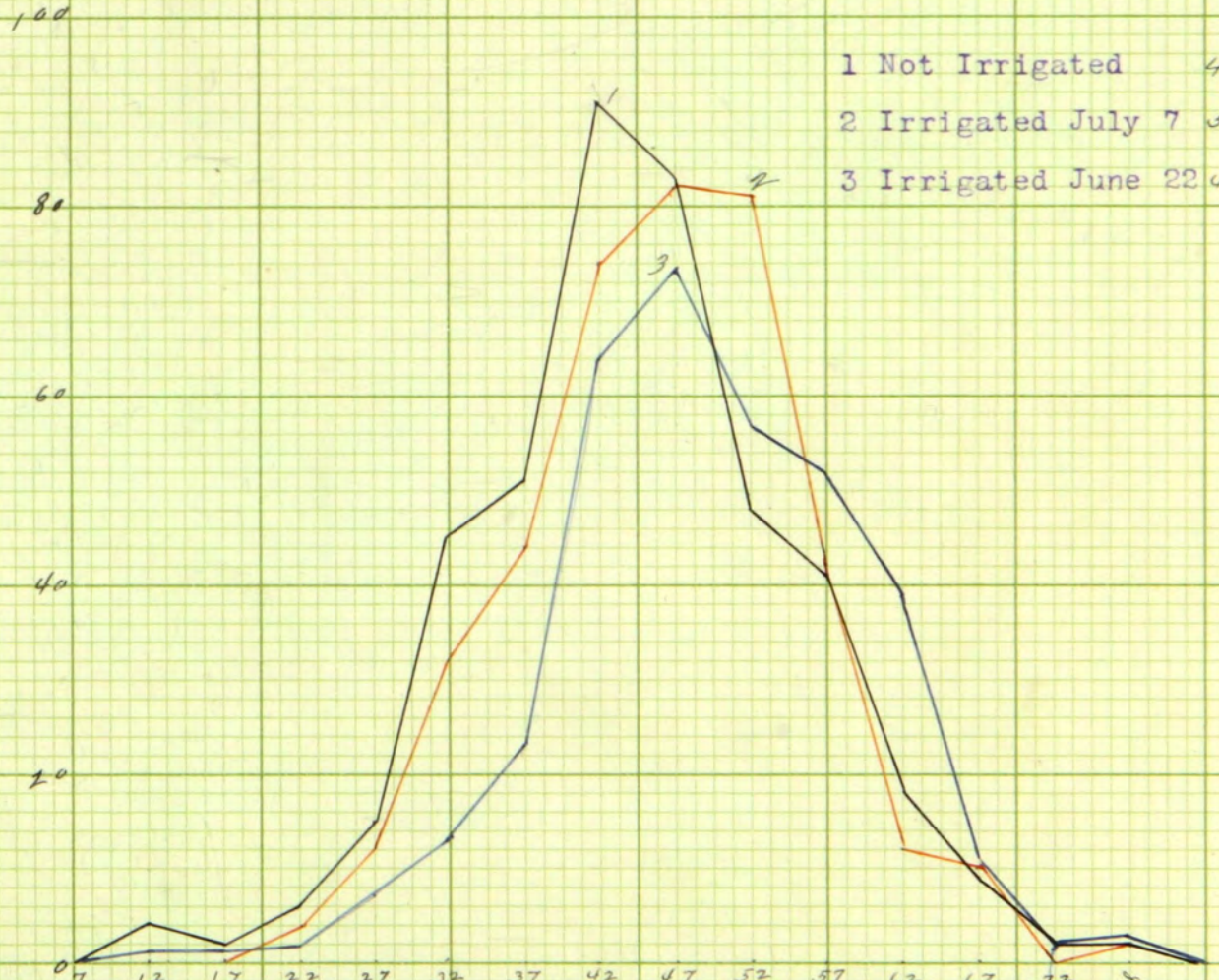
$A' = 21.4791$

$V_0' = 21.4000$

$V_0' = 0.0791$

$A = 107.3955 \pm 0.2616$

$\theta = 7.9210 \pm 0.1850$



	A.	S. D.	R.
1 Not Irrigated	49.4100 ± .3512	10.6340 ± 0.2484	
2 Irrigated July 7	51.0760 ± 0.3201	9.4315 ± 0.2263	
3 Irrigated June 22	49.1410 ± 0.3653	10.1030 ± 0.2583	

Frequency distribution of average panicle number of spikelets per plant.
Colorado No. 37.

	Classes	f	S_1'	S_2'	S_3'
1	5 – 9	1	348	3281	17818
2	10 – 14	0	347	2933	14537
3	15 – 19	1	347	2586	11604
4	20 – 24	2	346	2239	9018
5	25 – 29	7	344	1893	6779
6	30 – 34	13	337	1549	4886
7	35 – 39	23	324	1212	3337
8	40 – 44	64	301	888	2125
9	45 – 49	73	237	587	1237
10	50 – 54	57	164	350	650
11	55 – 59	52	107	186	300
12	60 – 64	39	55	79	114
13	65 – 69	11	16	24	35
14	70 – 74	2	5	8	11
15	75 – 79	3	3	3	3

$\lambda = 5$

$A_0 = 2$

$\theta' = 2.0206$

$V_0 = 47$

$S_2 = 9.4282$

$S_3 = 51.2011$

$V_1' = 9.4282$

$V_2 = 4.0830$

$A' = 9.8282$

$V_0' = 9.4000$

$V_{10} = 0.4282$

$A = 49.1410 \pm 0.3653$

$\theta = 10.1030 \pm 0.2583$

	Classes	f	S_1'	S_2'	S_3'
1	25 – 29	4	395	2297	8530
2	30 – 34	12	391	1902	6233
3	35 – 39	32	379	1511	4331
4	40 – 44	44	347	1132	2820
5	45 – 49	74	303	785	1688
6	50 – 54	82	229	482	903
7	55 – 59	81	147	253	421
8	60 – 64	42	66	106	168
9	65 – 69	12	24	40	62
10	70 – 74	10	12	16	22
11	75 – 79	0	2	4	6
12	80 – 84	2	2	2	2

$\lambda = 5$

$A_0 = 22$

$\theta' = 1.8863$

$V_0 = 52$

$S_2 = 5.8152$

$S_3 = 21.5949$

$\gamma_1' = 5.8152$

$\gamma_2 = 3.5580$

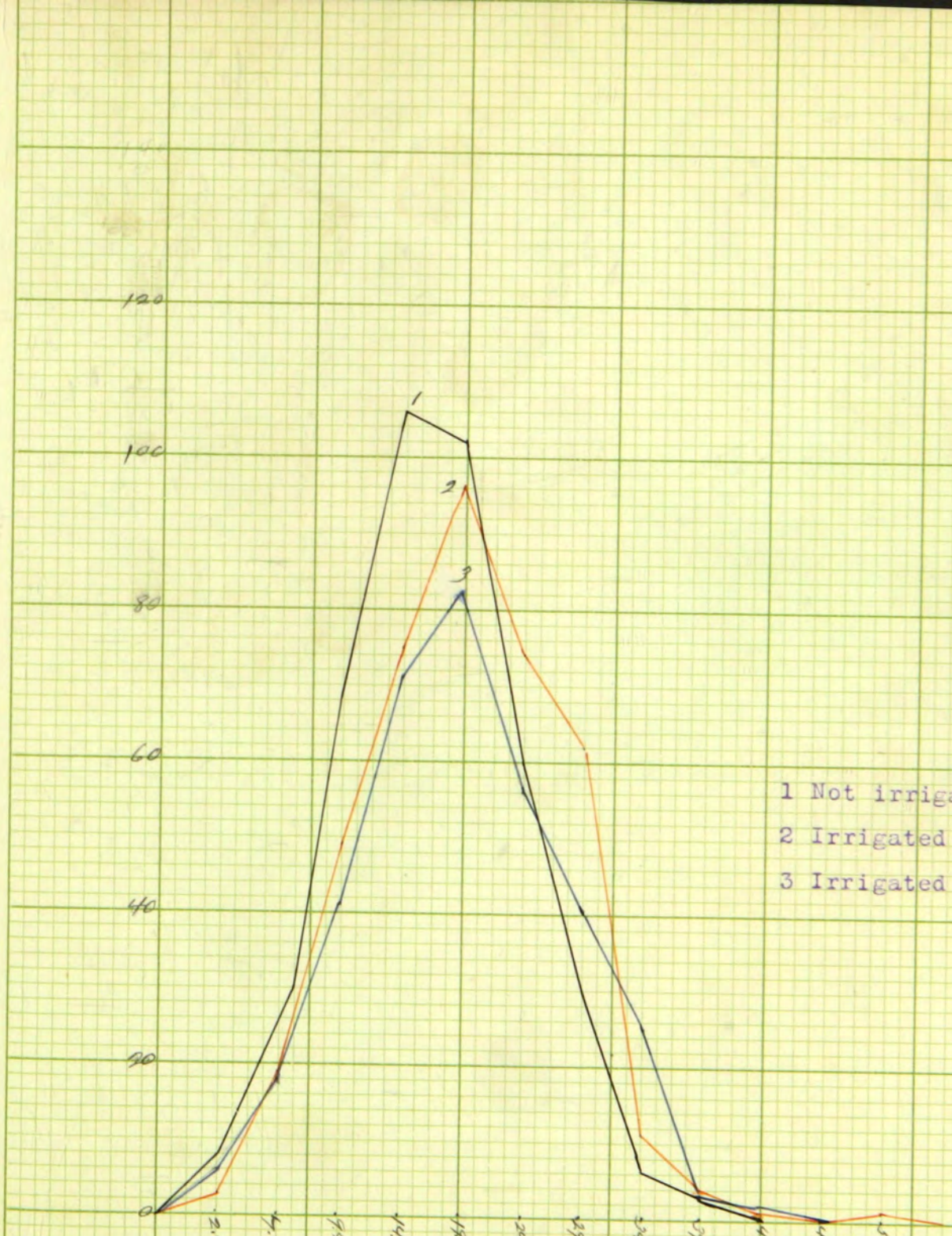
$A' = 10.2152$

$V_0' = 10.4000$

$\gamma_{10} = -0.1848$

$A = 51.0760 \pm 0.3201$

$\theta = 9.4315 \pm 0.2263$



	A.	S. D.	R.
1 Not irrigated	20.6836 ± 0.2549	7.7180 ± 0.1803	
2 Irrigated July 7	22.6900 ± 0.2765	8.1460 ± 0.1955	
3 Irrigated June 22	22.6760 ± 0.3173	8.7740 ± 0.2244	

Frequency distribution of total plant weight per plant, in grams.
Colorado No. 37

	Classes	f	S_1'	S_2'	S_3'
1	0. – 4.95	6	348	1754	5833
2	5. – 9.95	18	342	1406	4079
3	10 – 14.95	41	324	1064	2673
4	15 – 19.95	71	283	740	1609
5	20 – 24.95	82	212	457	869
6	25 – 29.95	36	130	245	412
7	30 – 34.95	42	74	115	167
8	35 – 39.95	25	32	41	52
9	40 – 44.95	5	7	9	11
10	45 – 49.95	2	2	2	2

$\lambda = 5$

$A_0 = -2.525$

$\theta' = 1.7548$

$V_0 = 22.470$

$S_2 = 5.0402$

$S_3 = 16.7615$

$\gamma_1 = 5.0402$

$\gamma_2 = 3.0792$

$A' = 4.5352$

$V_0' = 4.4950$

$\gamma_{V_0} = 0.0402$

$A = 22.6760 \pm 0.3173$

$\theta = 8.7740 \pm 0.2244$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 4.99	9	395	1992	6543
2	5 – 9.99	19	392	1597	4551
3	10 – 14.99	49	373	1205	2954
4	15 – 19.99	75	324	832	1749
5	20 – 24.99	96	249	508	917
6	25 – 29.99	74	153	259	409
7	30 – 34.99	62	79	106	150
8	35 – 39.99	11	17	27	44
9	40 – 44.99	4	6	10	17
10	45 – 49.99	1	2	4	7
11	50 – 54.99	0	1	2	3
12	55 – 59.99	1	1	1	1

$\lambda = 5$

$A_0 = -2.525$

$\theta' = 1.6292$

$V_0 = 22.475$

$S_2 = 5.0430$

$S_3 = 16.5646$

$V_1' = 5.0430$

$V_2 = 2.6544$

$A' = 4.5380$

$V_0' = 4.4950$

$V_{V_0}'' = 0.0430$

$A = 22.6900 \pm 0.2765$

$\theta = 8.1460 \pm 0.1955$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 2.45	2	417	3535	18738
2	2.50 – 4.95	6	415	3118	15203
3	5.00 – 7.45	13	409	2703	12085
4	7.50 – 9.95	17	396	2294	9382
5	10.00 – 12.45	35	379	1898	7088
6	12.50 – 14.95	34	344	1519	5190
7	15.00 – 17.45	58	310	1175	3671
8	17.50 – 19.95	48	252	865	2496
9	20.00 – 22.45	32	204	613	1631
10	22.50 – 24.95	50	152	409	1018
11	25.00 – 27.45	40	102	257	609
12	27.50 – 29.95	20	62	155	352
13	30.00 – 32.45	20	42	93	197
14	32.50 – 34.95	10	22	51	104
15	35.00 – 37.45	1	12	29	53
16	37.50 – 39.95	6	11	17	24
17	40.00 – 42.45	4	5	6	7
18	42.50 – 44.95	1	1	1	1

$\lambda = 2.50$

$A_0 = -1.275$

$\theta' = 3.0872$

$V_0 = 18.725$

$S_2 = 8.4772$

$S_3 = 44.9353$

$V_1'' = 8.4772$

$V_2'' = 9.5303$

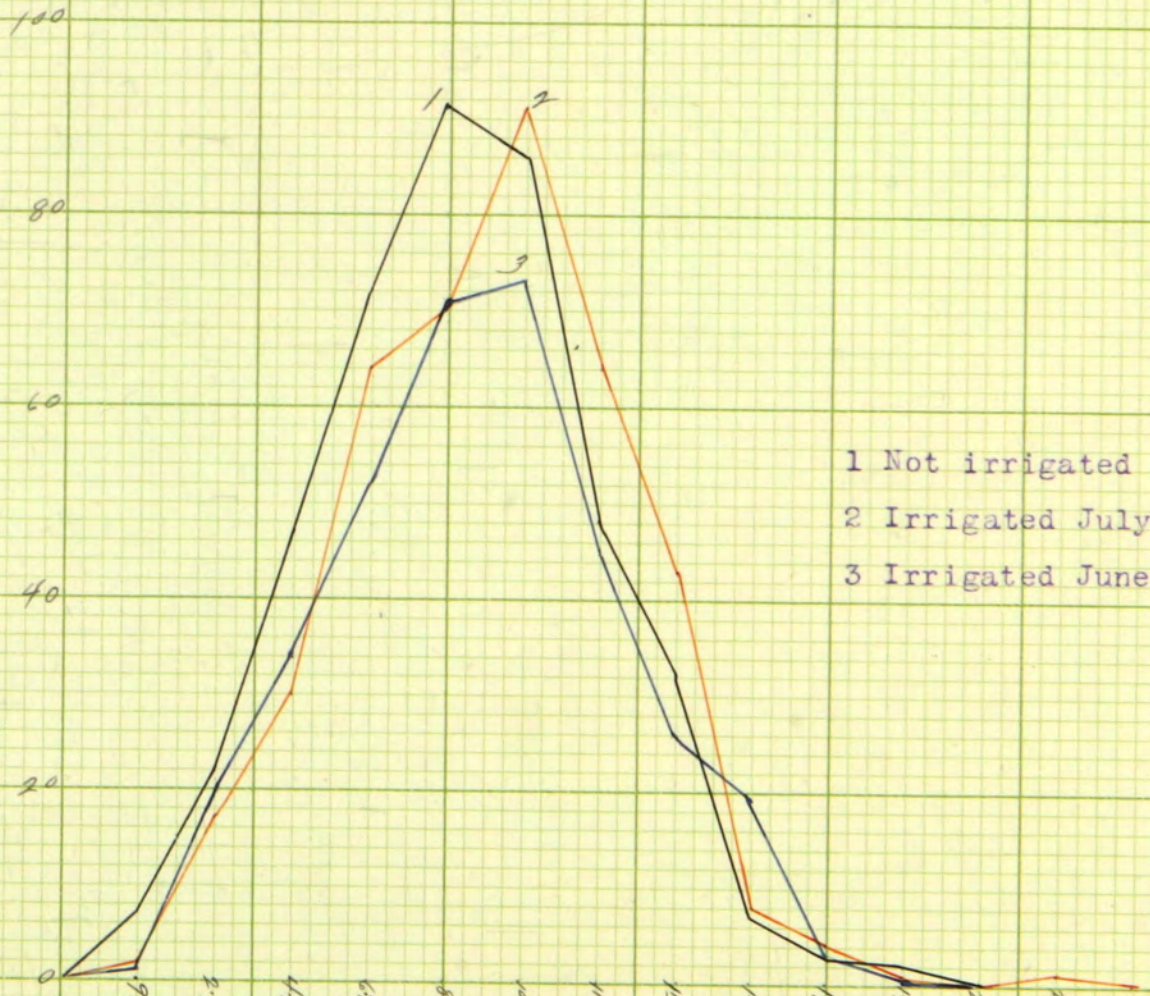
$A_1 = 7.9672$

$V_0' = 7.49$

$V_{V_0} = 0.4772$

$A = 20.6830 \pm 0.2549$

$\theta = 7.7180 \pm 0.1803$



	A.	S. D.	R.
1 Not irrigated	9.3239 ± 0.1151	3.5757 ± .0837	
2 Irrigated July 7	10.6571 ± 0.1229	3.6226 ± 0.0869	
3 Irrigated June 22	9.8946 ± .1356	3.8332 ± .0980	

Frequency distribution of total grain weight per plant, in grams. Colorado No. 37.

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.99	2	348	1900	6776
2	2 – 3.99	20	346	1552	4876
3	4 – 5.99	34	326	1206	3324
4	6 – 7.99	52	292	880	2118
5	8 – 9.99	71	240	588	1238
6	10 – 11.99	73	169	348	650
7	12 – 13.99	45	96	179	302
8	14 – 15.99	26	51	83	123
9	16 – 17.99	19	25	32	40
10	18 – 19.99	3	6	7	8
11	20 – 21.99	1	1	1	1

$\lambda = 2$

$A_0 = -1.023$

$\theta' = 1.9166$

$V_0 = 8.975$

$S_2 = 5.4598$

$S_3 = 19.4713$

$\gamma_1' = 5.4598$

$\gamma_2 = 3.6734$

$A' = 4.9473$

$V_0' = 4.4875$

$\gamma_{V_0} = 0.4598$

$A = 9.8946 \pm 0.1386$

$\theta = 3.8332 \pm 0.0980$

	Classes	f	S'_1	S'_2	S'_3
1	0 — 1.99	2	395	2206	7.911
2	2 — 3.99	17	393	1811	5.705
3	4 — 5.99	30	376	1418	3894
4	6 — 7.99	64	346	1042	2476
5	8 — 9.99	70	282	696	1434
6	10 — 11.99	91	212	414	738
7	12 — 13.99	64	121	202	324
8	14 — 15.99	43	57	81	122
9	16 — 17.99	8	14	24	41
10	18 — 19.99	4	6	10	17
11	20 — 21.99	1	2	4	7
12	22 — 23.99	0	1	2	3
13	24 — 25.99	1	1	1	1

$\lambda = 2$

$A_0 = 1.025$

$\theta' = 1.8113$

$V_0 = 10.975$

$S_2 = 5.5848$

$S_3 = 20.0278$

$V_1' = 5.5848$

$V_2 = 3.2808$

$A' = 5.0723$

$V_0' = 5.4875$

$V_{V0} = -0.4152$

$A = 10.657 \pm 0.1229$

$\theta = 3.6226 \pm 0.0869$

	Classes	f	S_1'	S_2'	S_3'
1	0 — 0.95	1	417	4107	24944
2	1 — 1.95	6	416	3690	20837
3	2 — 2.95	7	410	3274	17147
4	3 — 3.95	15	403	2864	13873
5	4 — 4.95	13	388	2461	11009
6	5 — 5.95	34	375	2073	8548
7	6 — 6.95	36	341	1698	6475
8	7 — 7.95	36	305	1357	4777
9	8 — 8.95	48	269	1052	3420
10	9 — 9.95	43	221	783	2368
11	10 — 10.95	46	178	562	1585
12	11 — 11.95	40	132	384	1023
13	12 — 12.95	33	92	252	639
14	13 — 13.95	15	59	160	387
15	14 — 14.95	18	44	101	227
16	15 — 15.95	14	26	57	126
17	16 — 16.95	4	12	31	69
18	17 — 17.95	3	8	19	38
19	18 — 18.95	1	5	11	19
20	19 — 19.95	2	4	6	8
21	20 — 20.95	2	2	2	2

$\lambda = 1$

$A_0 = 0.525$

$\theta' = 3.5757$

$V_0 = 9.475$

$S_2 = 9.8489$

$S_3 = 59.8177$

$V_1' = 9.8489$

$V_2' = 12.7857$

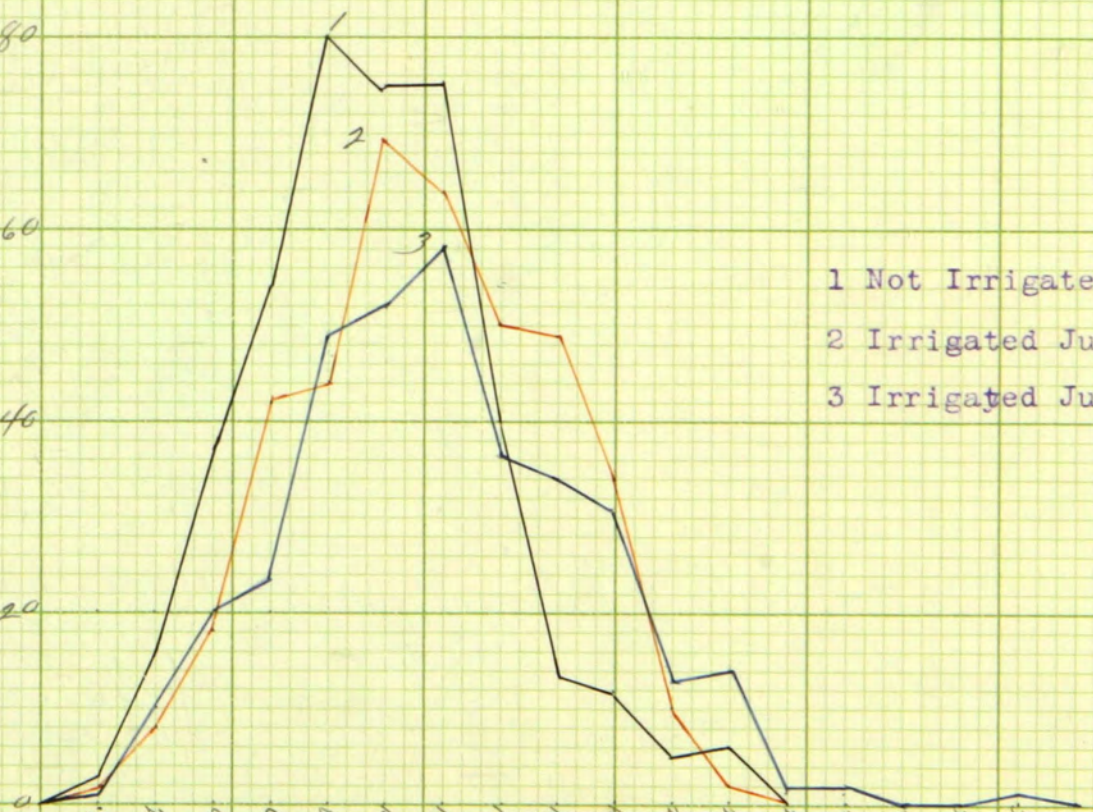
$A' = 9.9239$

$V_0' = 9.4750$

$V_{V_0} = 0.1511$

$A = 9.9239 \pm 0.1181$

$\theta = 3.5757 \pm 0.0837$



	A.	S. D.	R.
1 Not Irrigated.	11.1421 ± 0.1388	4.2032 ± 0.0982	
2 Irrigated July 7	12.0621 ± 0.1570	4.6252 ± 0.1110	
3 Irrigated June 22	12.9118 ± 0.1839	5.0862 ± 0.1301	

Frequency distribution of total straw weight per plant, in grams.

Colorado No. 37.

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.99	1	348	2425	10787
2	2 – 3.99	10	347	2077	8362
3	4 – 5.99	20	337	1730	6285
4	6 – 7.99	24	317	1393	4555
5	8 – 9.99	49	293	1076	3162
6	10 – 11.99	52	244	783	2086
7	12 – 13.99	38	192	539	1303
8	14 – 15.99	38	134	347	764
9	16 – 17.99	34	96	213	417
10	18 – 19.99	31	62	117	204
11	20 – 21.99	13	31	55	87
12	22 – 23.99	14	18	24	32
13	24 – 25.99	2	4	6	8
14	26 – 27.99	2	2	2	2

$\lambda = 2$

$A_0 = -1.025$

$\theta' = 2.54431$

$V_0 = 12.975$

$S_2 = 6.9684$

$S_3 = 30.9971$

$V_1' = 6.9684$

$V_2 = 6.4672$

$A' = 6.4559$

$V_0' = 6.4875$

$V_{V_0} = -.0316$

$A = 12.9118 \pm 0.1839$

$\theta = 5.0862 \pm 0.1301$

	Classes	f	S'_1	S'_2	S'_3
1	0 – 1.99	2	395	2681	11495
2	2 – 3.99	8	393	2286	8814
3	4 – 5.99	18	385	1893	6528
4	6 – 7.99	42	367	1508	4635
5	8 – 9.99	40	325	1141	3127
6	10 – 11.99	69	281	816	1986
7	12 – 13.99	64	212	535	1170
8	14 – 15.99	60	148	323	635
9	16 – 17.99	49	98	175	312
10	18 – 19.99	34	49	77	137
11	20 – 21.99	10	15	28	60
12	22 – 23.99	2	5	13	32
13	24 – 25.99	1	3	8	19
14	26 – 27.99	1	2	5	11
15	28 – 29.99	0	1	3	6
16	30 – 31.99	0	1	2	3
17	32 – 33.99	1	1	1	1

$\lambda = 2$

$A_0 = 1.025$

$\theta' = 2.3126$

$V_0 = 12.975$

$S_2 = 6.7873$

$S_3 = 29.1013$

$\gamma_1' = 6.7873$

$\gamma_2 = 5.3479$

$A' = 6.2748$

$V_0' = 6.4875$

$\gamma_{V_0} = -0.2127$

$A = 13.0621 \pm 0.1570$

$\theta = 4.6252 \pm 0.1110$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.95	3	417	2430	9216
2	2 – 3.95	16	414	2013	6786
3	4 – 5.95	37	398	1599	4773
4	6 – 7.95	54	361	1201	3174
5	8 – 9.95	80	307	840	1973
6	10 – 11.95	75	227	533	1133
7	12 – 13.95	75	152	306	600
8	14 – 15.95	40	77	154	294
9	16 – 17.95	14	37	77	140
10	18 – 19.95	12	23	40	63
11	20 – 21.95	5	11	17	23
12	22 – 23.95	6	6	6	6

$\lambda =$

$A_0 = 1.025$

$\theta' = 2.1016$

$V_0 = 10.975$

$S_2 = 5.8273$

$S_3 = 22.1007$

$V_1' = 5.8273$

$V_2' = 4.4167$

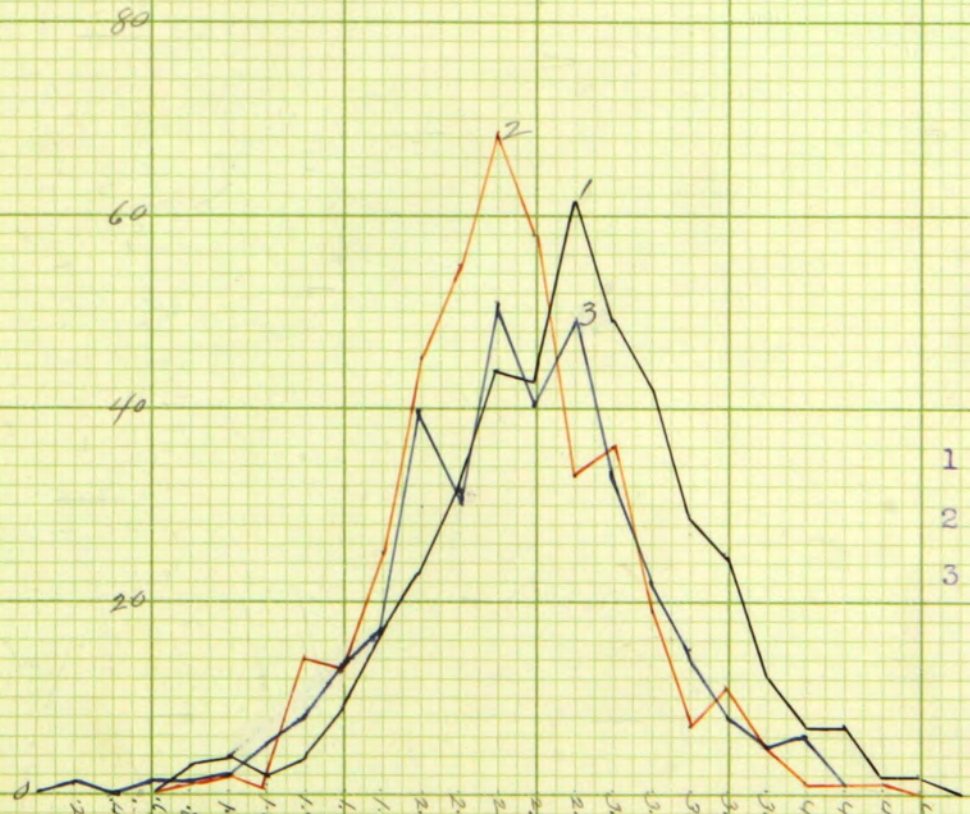
$A' = 5.3148$

$V_0' = 5.4875$

$V_0' = -0.1727$

$A = 11.1421 \pm .1388$

$\theta = 4.2032 \pm 0.0982$



	A.	S. D.	R.
1 Not Irrigated	2.8448 ± 0.0220	.6661 ± 0.0156	
2 Irrigated July 7	2.5302 ± 0.0187	0.5513 ± 0.0132	
3 Irrigated June 22	2.5956 ± 0.0227	0.6270 ± 0.0160	

Frequency distribution of average panicle grain yield per plant, in grams. Colorado No. 37

	Classes	f	S_1'	S_2'	S_3'
1	0.20 – 0.35	1	348	4391	31608
2	0.40 – 0.55	0	347	4043	27217
3	0.60 – 0.75	1	347	3696	23174
4	0.80 – 0.95	1	346	3349	19478
5	1.00 – 1.15	2	345	3003	16129
6	1.20 – 1.35	3	343	2658	13126
7	1.40 – 1.55	8	338	2315	10468
8	1.60 – 1.75	13	330	1977	8153
9	1.80 – 1.95	17	317	1647	6176
10	2.00 – 2.15	40	300	1330	4529
11	2.20 – 2.35	30	260	1030	3199
12	2.40 – 2.55	57	230	770	2169
13	2.60 – 2.75	40	179	540	1399
14	2.80 – 2.95	49	139	361	859
15	3.00 – 3.15	33	90	222	498
16	3.20 – 3.35	22	57	132	276
17	3.40 – 3.55	15	35	75	144
18	3.60 – 3.75	8	20	40	69
19	3.80 – 3.95	5	12	20	29
20	4.00 – 4.15	6	7	8	9
21	4.20 – 4.35	1	1	1	1

$\lambda = 0.20$

$A_0 = 0.075$

$\theta' = 3.1350$

$V_0 = 2.475$

$S_{x_2} = 12.6178$

$S_3 = 90.8276$

$\gamma_1' = 12.6178$

$V_{x_2} = 9.8285$

$A' = 12.9928$

$V_0' = 12.3750$

$\gamma_{V_0} = 0.6178$

$A = 2.5986 \pm 0.0227$

$\theta = 0.6270 \pm 0.0160$

	Classes	f	S_1'	S_2'	S_3'
1	1.00 – 1.15	2	395	3269	16662
2	1.20 – 1.35	1	393	2874	13393
3	1.40 – 1.55	14	392	2481	10519
4	1.60 – 1.75	13	378	2089	8038
5	1.80 – 1.95	25	365	1711	5949
6	2.00 – 2.15	43	340	1346	4238
7	2.20 – 2.35	33	295	1006	2892
8	2.40 – 2.55	68	240	711	1886
9	2.60 – 2.75	58	172	471	1175
10	2.80 – 2.95	33	114	299	704
11	3.00 – 3.15	36	81	185	405
12	3.20 – 3.35	17	45	104	220
13	3.40 – 3.55	7	26	59	116
14	3.60 – 3.75	11	19	33	57
15	3.80 – 3.95	5	8	14	24
16	4.00 – 4.15	1	3	6	10
17	4.20 – 4.35	1	2	3	4
18	4.40 – 4.55	1	1	1	1

λ = 0.20

A_0 = 0.5

θ' = 2.7565

V_0 = 2.4

S_2 = 8.2759

S_3 = 42.1823

V_1' = 8.2737

V_2 = 7.5982

A' = [illegible]

V_0' = 12.5735

V_{r0} = 0.2

$A = 2.5332 \pm 0.0187$

$\theta = 0.5513 \pm 0.0132$

	Classes	f	S_1'	S_2'	S_3'
1	0.80 – 0.95	3	417	4524	29115
2	1.00 – 1.15	4	414	4107	24591
3	1.20 – 1.35	2	410	3693	20484
4	1.40 – 1.55	4	408	3283	16791
5	1.60 – 1.75	9	404	2875	13508
6	1.80 – 1.95	17	395	2471	10633
7	2.00 – 2.15	23	378	2076	8162
8	2.20 – 2.35	32	355	1698	6086
9	2.40 – 2.55	44	323	1343	4388
10	2.60 – 2.75	43	279	1020	3045
11	2.80 – 2.95	61	236	741	2025
12	3.00 – 3.15	49	175	505	1284
13	3.20 – 3.35	42	126	330	779
14	3.40 – 3.55	29	84	204	449
15	3.60 – 3.75	25	55	120	245
16	3.80 – 3.95	12	30	65	125
17	4.00 – 4.15	7	18	35	60
18	4.20 – 4.35	7	11	17	25
19	4.40 – 4.55	2	4	6	8
20	4.60 – 4.75	2	2	2	2

$\lambda = 0.20$

$A_0 = 0.675$

$\vartheta' = 3.3306$

$V_0 = 2.875$

$S_2 = 1.08489$

$S_3 = 69.8201$

$V_1' = 10.8489$

$V_2 = 11.0927$

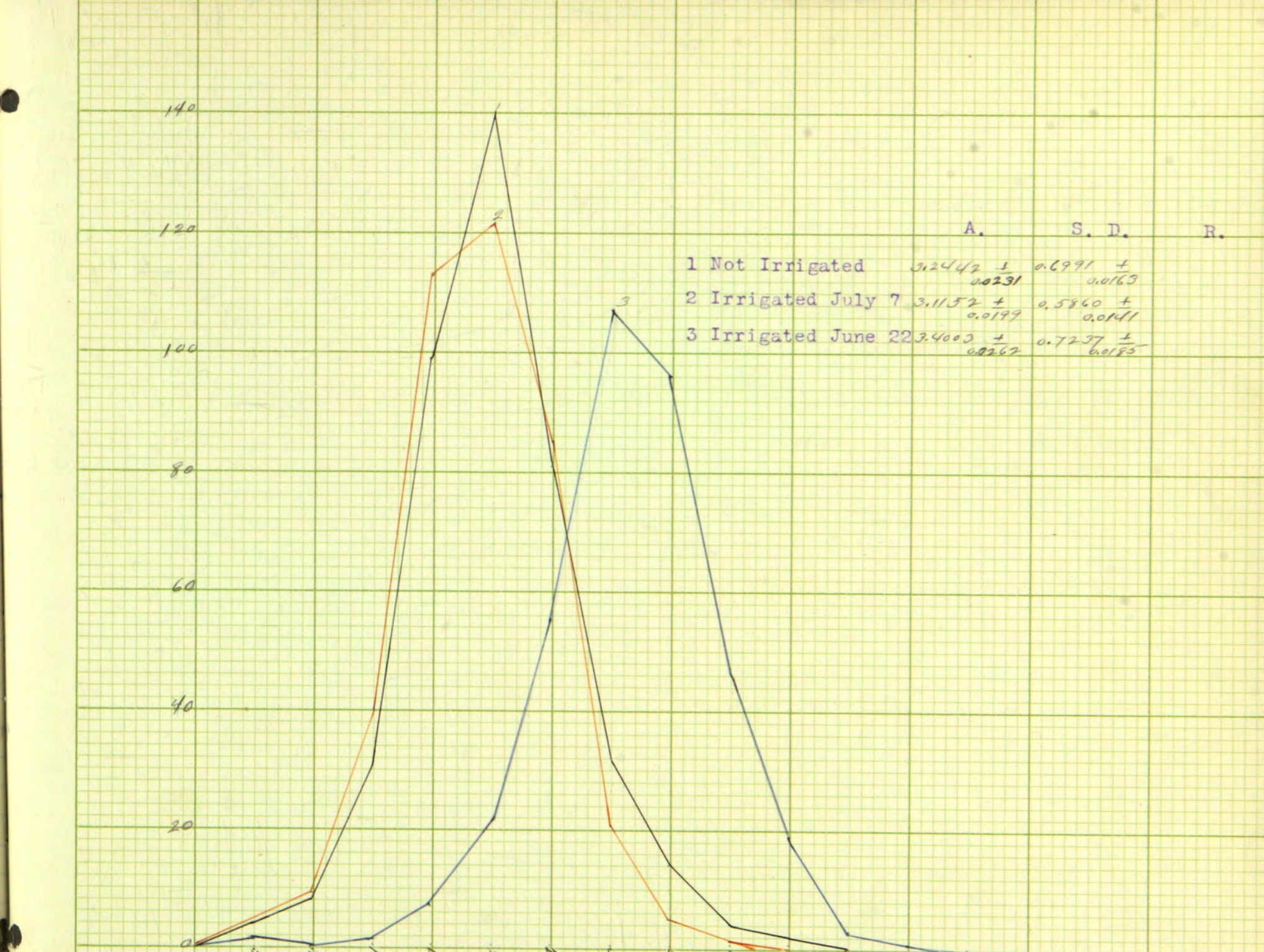
$A' = 14.2239$

$V_0' = 14.375$

$V_{V_0} = -0.1571$

$A = 2.8448 \pm 0.0220$

$\vartheta = 0.6661 \pm 0.0156$



	A.	S. D.	R.
1 Not Irrigated	3.1242 ± 0.0231	0.6991 ± 0.0163	
2 Irrigated July 7	3.1152 ± 0.0199	0.5860 ± 0.0141	
3 Irrigated June 22	3.4003 ± 0.0267	0.7237 ± 0.0185	

Frequency distribution of average stem straw weight per plant.

Colorado No. 37.

	Classes	f	S_1'	S_2'	S_3'
1	0 – 0.45	1	348	2558	11045
2	0.50 – 0.95	0	347	2210	8487
3	1.00 – 1.45	1	347	1863	6277
4	1.50 – 1.95	7	346	1576	4414
5	2.00 – 2.45	22	339	1170	2898
6	2.50 – 2.95	55	317	831	1728
7	3.00 – 3.45	107	262	514	897
8	3.50 – 3.95	86	155	252	383
9	4.00 – 4.45	46	69	97	131
10	4.50 – 4.95	19	23	28	34
11	5.00 – 5.45	3	4	5	6
12	5.50 – 5.95	1	1	1	1

$\lambda = 0.50$

$A_0 = -0.275$

$\theta' = 1.44474$

$V_0 = 3.223$

$S_2 = 7.3506$

$S_3 = 31.7385$

$V_1' = 7.3506$

$V_2 = 2.0951$

$A' = 6.8006$

$V_0' = 6.4500$

$V_{V0} = 0.3506$

$A = 3.4003 \pm 0.0262$

$\theta = 0.7237 \pm 0.0185$

	Classes	f	S_1'	S_2'	S_3'
1	1.50 – 1.70	4	395	2789	12326
2	1.75 – 1.95	5	391	2394	9537
3	2.00 – 2.20	18	386	2003	7143
4	2.25 – 2.45	22	368	1617	5140
5	2.50 – 2.70	55	346	1249	3523
6	2.75 – 2.95	58	291	903	2274
7	3.00 – 3.20	61	233	612	1371
8	3.25 – 3.45	60	172	379	759
9	3.50 – 3.70	64	112	207	380
10	3.75 – 3.95	21	48	95	173
11	4.00 – 4.20	13	27	47	78
12	4.25 – 4.45	6	12	20	31
13	4.50 – 4.70	5	6	8	11
14	4.75 – 4.95	0	1	2	3
15	5.00 – 4.20	1	1	1	1

$\lambda = 0.25$

$A_0 = 1.35$

$\theta' = 2.3440$

$V_0 = 3.10$

$S_2 = 7.0608$

$S_3 = 31.2051$

$\gamma_1' = 7.0608$

$\gamma_2' = 5.4945$

$A' = 12.4608$

$V_0' = 12.4000$

$\gamma_{V_0}' = 0.0608$

$A = 3.1152 \pm 0.0199$

$\theta = 0.5860 \pm 0.0141$

	Classes	f	S_1'	S_2'	S_3'
1	1.00–1.45	4	417	2101	6751
2	1.50–1.95	8	413	1684	4650
3	2.00–2.45	31	405	1271	2966
4	2.50–2.95	99	374	866	1695
5	3.00–3.45	140	275	492	829
6	3.50–3.95	81	135	217	337
7	4.00–4.45	34	54	82	120
8	4.50–4.95	14	20	28	38
9	5.00–5.45	4	6	8	10
10	5.50–5.95	2	2	2	2

$\lambda = 0.50$

$A_0 = 0.725$

$\theta' = 1.3982$

$V_0 = 3.225$

$S_2 = 5.0384$

$S_3 = 16.1894$

$V_1 = 3.0384$

$V_2 = 1.9549$

$A' = 6.4884$

$V_0' = 6.4500$

$V_{k_0}' = 0.0384$

$A = 3.2442 \pm 0.0231$

$\theta = 0.6991 \pm 0.0163$

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	Classes	0.55 — 0.69	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	1.20 — 1.24	
1	15 – 19	36 1	30 1				6 1	0 1								4
2	20 – 24	30 1		20 1												2
3	25 – 29		20 2		12 3					8 1						6
4	30 – 34	18 2		12 1	9 1		3 6	0 2	3 2	6 1						15
5	35 – 39		10 2	8 3	6 4	4 7	2 9	0 8	2 7	4 1	6 3		10 1			45
6	40 – 44	6 1	5 2	4 1	3 1	2 7	1 7	0 13	1 11	2 4	3 1	4 2	5 1			51
7	45 – 49		0 4	0 3	0 4	0 14	0 9	0 15	0 19	0 12	0 7	0 2	0 2			91
8	50 – 54	6 1	5 1	4 2	3 3	2 3	1 8	0 16	1 19	2 19	3 8	4 2	5 1			83
9	55 – 59			8 1	6 5		2 4	0 6	2 4	4 15	6 6	8 2	10 4		14 1	48
10	60 – 64				9 1	6 6	3 7	0 6	3 6	6 4	9 4	12 4	15 2		21 1	41
11	65 – 69			16 1	12 1		4 1	0 3	4 4	8 6		16 1	20 1			18
12	70 – 74	30 1			15 1		5 1	0 1	5 3		15 1	20 1				9
13	75 – 79									12 1	18 1					2
14	80 – 84						7 1				21 1					2
		7	12	13	24	37	54	71	75	64	32	14	12		2	417

$r = 0.2875 \pm 0.0303$

Correlation between the ratio of total grain ~~weight~~ to total straw per plant, subject; and the average panicle number of spikelets per plant, relative. Colo. No. 37.

9/10

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	Classes	0.80 — 0.95	1.00 — 1.15	1.20 — 1.35	1.40 — 1.55	1.60 — 1.75	1.80 — 1.95	2.00 — 2.15	2.20 — 2.35	2.40 — 2.55	2.60 — 2.75	2.80 — 2.95	3.00 — 3.15	3.20 — 3.35	3.40 — 3.55	3.60 — 3.75	3.80 — 3.95	4.00 — 4.15	4.20 — 4.35	4.40 — 4.55	4.60 — 4.75	
1	1.00 — 1.45	40 3	36 1																			4
2	1.50 — 1.95		27 2	24 1		18 5																8
3	2.00 — 2.45		18 1	16 1	14 4	12 3	10 6	8 9	6 5	4 2												31
4	2.50 — 2.95					6 1	5 8	4 10	3 19	2 20	1 19	0 14	1 3	2 4	3 1							99
5	3.00 — 3.45						0 3	0 3	0 7	0 17	1 19	0 32	0 33	0 15	0 6	0 4	0 1					140
6	3.50 — 3.95							4 1	3 1	2 5	1 3	0 13	1 10	2 13	3 15	4 14	5 3	6 2	7 1			81
7	4.00 — 4.45										2 2	0 1	2 2	4 7	6 7	8 4	10 2	12 4	14 3	16 2		34
8	4.50 — 4.95												3 1	6 2		12 2	15 5	18 1	21 2		27 1	14
9	5.00 — 5.45											0 1		8 1		16 1			28 1			4
10	5.50 — 5.85																25 1				45 1	2
		3	4	2	4	9	17	23	32	44	43	61	49	42	29	25	12	7	7	2	2	417

$r = 0.7871 \pm 0.0126$

Correlation between the average panicle grain yield per plant, in grams, subject; and the stem straw weight per plant, in grams, relative.

Colo. NO. 37.

	Classes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20	
		0. 0.59	0.64	0.69	0.74	0.79	0.84	0.89	0.94	0.99	1.04	1.09	1.14	1.19	1.24	
	70 – 74							0								
1	75 – 79							1								1
2	80 – 84	30 1	25 1													2
3	85 – 89			16 1			4 1		4 1			16 1				4
4	90 – 94	18 1	15 1	12 1	9 2	6 2	3 4	0 6	3 3	6 1	9 3		15 2			26
5	95 – 99		10 3	8 1	6 2	4 1	2 3	0 5	2 4	4 5	6 4	8 3	10 1			32
6	100 – 104	6 2	5 2	4 2	3 5	2 5	1 7	0 13	1 8	2 9	3 5	4 3	5 2	7 1		64
7	105 – 109	0 1		0 2	0 1	0 12	0 13	0 13	0 26	0 22	0 9	0 3	0 2			104
8	110 – 114		5 4	4 1	3 6	2 11	1 16	0 18	1 22	2 17	3 8	4 2	5 4	7 1		110
9	115 – 119	12 2	10 1	8 4	6 5	4 3	2 7	0 14	2 10	4 10	6 3	8 2	10 1			62
10	120 – 124			12 1	9 3	6 2	3 3	0 1	3 1							11
11	125 – 129					8 1										1
		7	12	13	24	37	54	71	75	64	32	14	12	2	2	417

$$r = -0.0196 \pm 0.0330$$

Correlation between the ratio of total grain to total straw per plant, subject; and the average stem height per plant, in centimeters relative. Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	Classes	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	1.20 — 1.24	
1	1	12	10 2		6 1		2 3		2 4	4 3	6 1		10 1			15
2	2	6 1	3 2	4 5	3 5	2 5	1 10	0 11	1 7	2 13	3 9	4 6	5 5			79
3	3	0 4	0 4	0 1	0 6	0 14	0 20	0 30	0 36	0 23	0 14	0 4	0 3		0 2	161
4	4	6 1	5 3	4 4	3 6	2 14	1 14	0 25	1 23	2 22	3 5	4 3	5 2			122
5	5	12 1	10 1	8 3	6 2	4 3	2 7	0 4	2 5	4 2	6 2	8 1	10 1			32
6	6				9 4	6 1				6 1	9 1					7
7	7							0 1								1
		7	12	13	24	37	54	71	75	64	32	14	12		2	417

$$r = -0.1522 \pm 0.0323$$

Correlation between the ratio of total grain to total straw per plant, subject; and the number of stems per plant, relative. Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	Classes	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	1.20 — 1.24	
1	0 — 2.45		35 1				7 1									2
2	2.50 — 4.95		30 1		18 1		6 1	0 1	6 2							6
3	5.00 — 7.45	30 2		20 1	15 1			0 1	5 2	10 4	15 1		25 1			13
4	7.50 — 9.95	24 1	20 1	16 1	12 3	8 2	4 4	0 2			12 2		20 1			17
5	10.00 — 12.45			12 1		6 1	3 4	0 8	3 7	6 7	9 1	12 3	15 3			35
6	12.50 — 14.95	12 1	10 2	8 2		4 4	2 6	0 2	2 5	4 5	6 5	8 2				34
7	15.00 — 17.45		5 3	4 1	3 4	2 7	1 7	0 4	1 9	2 10	3 8	4 4	5 1			58
8	17.50 — 19.95		0 2	0 3		0 2	0 6	0 13	0 9	0 6	0 4		0 2		0 1	48
9	20.00 — 22.45		5 1	4 1	3 2	2 7	1 5	0 11	1 13	2 7	3 1	4 2	5 1		7 1	52
10	22.50 — 24.95	12 1			6 2	4 5	2 5	0 16	2 11	4 8			10 2			50
11	25.00 — 27.45	18 1			9 6	6 2	3 5	0 6	3 10	6 3	9 6		15 1			40
12	27.50 — 29.95					8 2	4 2	0 3	4 2	8 8	12 1	16 2				20
13	30.00 — 32.45		25 1	20 2		10 4	5 2	0 3	5 3	10 3	15 2					20
14	32.50 — 34.95	36 1		24 1			6 5		6 2	12 1						10
15	35.00 — 37.45				24 1											1
16	37.50 — 39.95				24 2	16 1				16 1	24 1	32 1				6
17	40.00 — 42.45				27 2		9 1			18 1						4
18	42.50 — 44.95							0 1								1
		7	12	13	24	37	54	71	75	64	32	14	12		2	417

$r = 0.0348 \pm 0.0330$

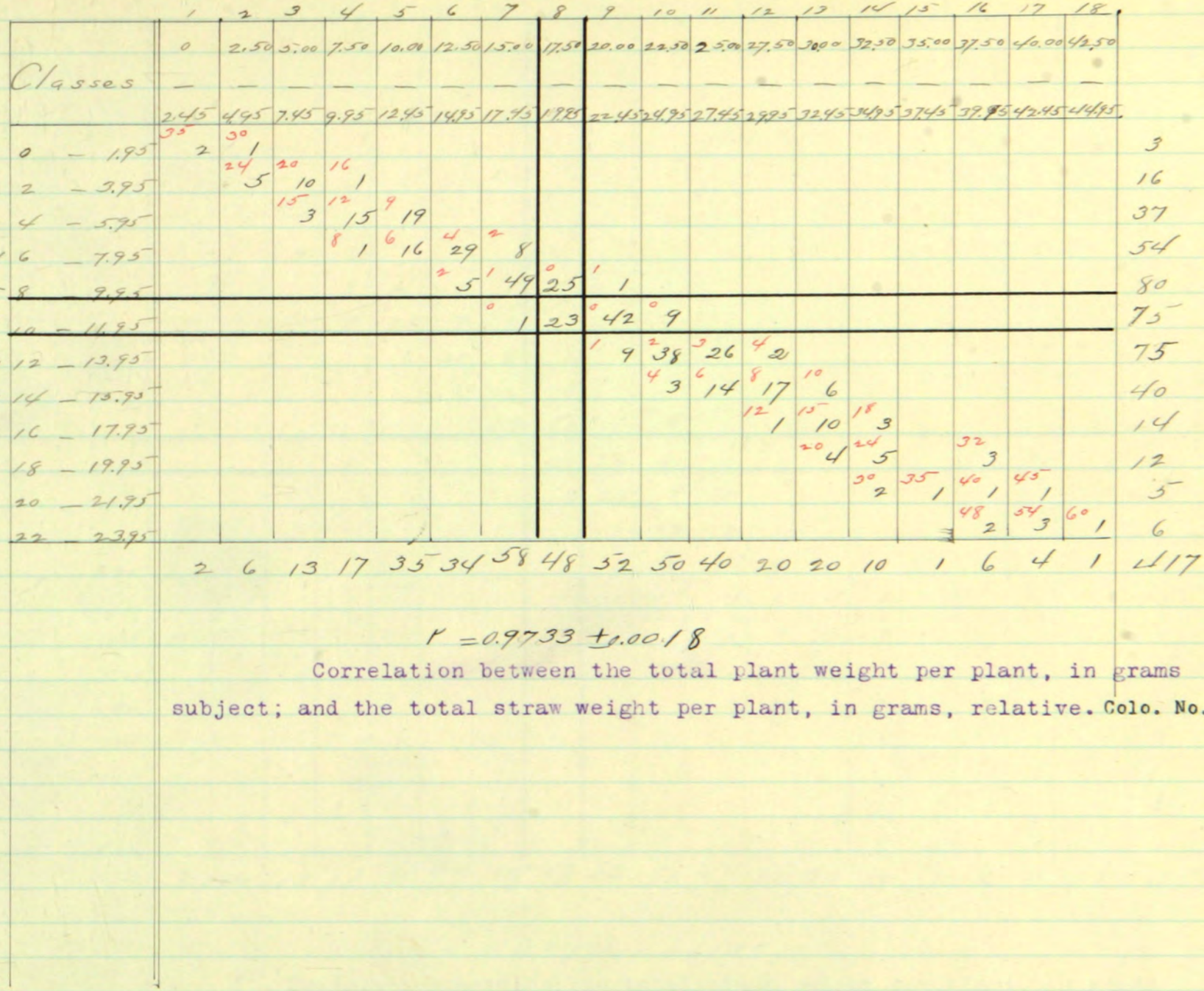
Correlation between the ratio of total grain to total straw per plant, subject; and the total plant weight per plant, in grams, relative.

Colo. No. 37.

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	Classes		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
			0.95	1.95	2.95	3.95	4.95	5.95	6.95	7.95	8.95	9.95	10.95	11.95	12.95	13.75	14.95	15.95	16.95	17.95	18.95	19.95	20.95	
1	0	– 1.95	45 1	40 2																				3
2	2	– 3.95		32 4	28 5	24 6	20 1																	16
3	4	5.95			21 2	18 8	15 10	12 14	9 3															37
4	6	7.95				12 1	10 2	8 16	6 21	4 10	2 4													54
5	8	9.95						4 4	3 10	2 22	1 29	0 12	1 2	2 1										80
6	10	11.95							0 2	0 4	0 12	0 21	0 26	0 9	0 1									75
7	12	13.95									1 2	0 8	1 15	2 23	3 20	4 4	5 3							75
8	14	15.95									2 1	0 2	2 3	4 7	6 7	8 6	10 10	12 4						40
9	16	17.95													9 1	12 4	15 1	18 6	21 2					14
10	18	19.95													12 3		20 4	24 2			36 1	40 2		12
11	20	21.95													15 1	20 1		30 1	35 1				55 1	5
12	22	23.95																36 1	42 1	48 3			66 1	6
			1	6	7	15	13	34	36	36	48	43	46	40	33	15	18	14	4	3	1	2	2	417

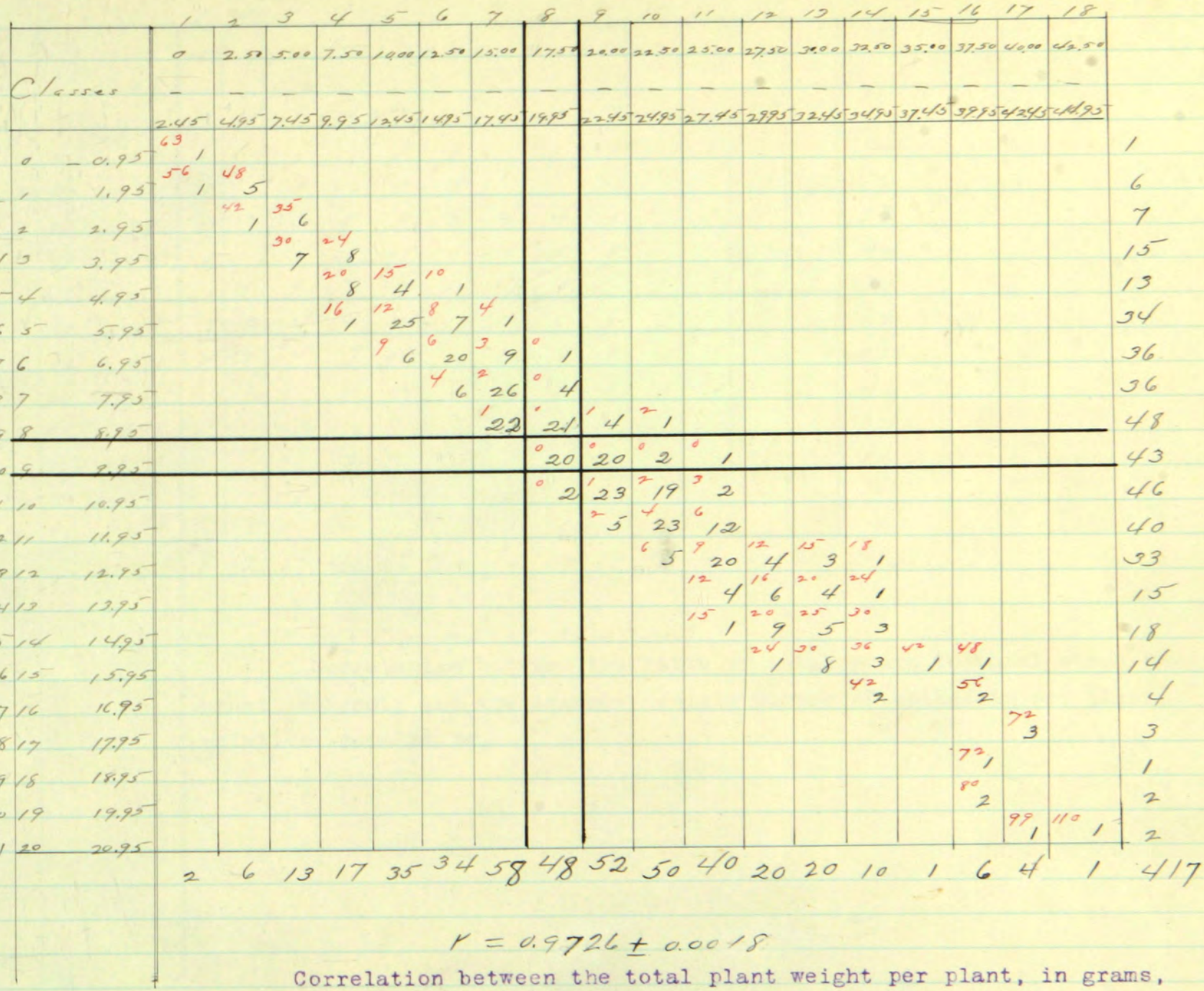
$r = 0.9226 \pm 0.0046$

Correlation between the total grain weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Colo. NO. 37.



$r = 0.9733 \pm 0.0018$

Correlation between the total plant weight per plant, in grams subject; and the total straw weight per plant, in grams, relative. Colo. No. 37.



$r = 0.9726 \pm 0.0018$

Correlation between the total plant weight per plant, in grams, subject; and the total grain weight per plant, in grams, relative. **Colo. No. 37.**

		1	2	3	4	5	6	7	8	9	10	11	12	13	
	Classes	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	
1	25 – 29	25 1				5 1	0 1			15 1					4
2	30 – 34	20 1		12 5		4 1	0 5								12
3	35 – 39		12 3	9 3	6 5	3 3	0 8	3 4	6 4	9 1		15 1			32
4	40 – 44	10 1		6 5	4 5	2 13	0 8	0 6	4 1	6 5	0				44
5	45 – 49	5 2	4 1	3 8	2 7	1 13	0 15	1 17	2 8		4 1	5 1		7 1	74
6	50 – 54	0 3	0 3	0 4	0 10	0 14	0 23	0 14	0 6	0 3				0 2	82
7	55 – 59	5 1	4 1	3 4	9	1 19	0 18	1 17	2 8	3 1	4 1	5 1		7 1	81
8	60 – 64		8 1		4	2 5	0 10	2 10	4 9	6 1	8 1	10 1			42
9	65 – 69						0 3	3 5	6 2	9 2					12
10	70 – 74				8 2		0 3	4 1		12 3	16 1				10
11	75 – 79														
12	80 – 84							6 1	12 1						2
		9	9	29	42	69	94	75	39	17	4	4		4	395

$r = 0.2199 \pm 0.0323$

Correlation between the ratio of total grain to total straw per plant, subject; and the average panicle number of spikelets per plant, relative. Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Classes	1.00 – 1.15	1.20 – 1.35	1.40 – 1.55	1.60 – 1.75	1.80 – 1.95	2.00 – 2.15	2.20 – 2.35	2.40 – 2.55	2.60 – 2.75	2.80 – 2.95	3.00 – 3.15	3.20 – 3.35	3.40 – 3.55	3.60 – 3.75	3.80 – 3.95	4.00 – 4.15	4.20 – 4.35	4.40 – 4.55	
1	1.50 – 1.70	42 1	36 1	30 2																4
2	1.75 – 1.95			25 3	20 1		10 1													5
3	2.00 – 2.20	28 1		20 4	16 3	12 7	8 2		0 1											18
4	2.25 – 2.45			15 4	12 2	9 6	6 4	3 3		3 1	6 2									22
5	2.50 – 2.70			10 1	8 4	6 8	4 18	2 14	0 10											55
6	2.75 – 2.95				4 3	3 1	2 10	1 15	0 24	1 4	2 1									58
7	3.00 – 3.20					0 2	0 7	0 11	0 17	0 18	0 4	0 1	0 1							61
8	3.25 – 3.45					3 1	2 1	1 7	0 8	1 18	2 12	3 10	4 2		6 1					60
9	3.50 – 3.70						4 1	2 5	0 6	2 12	4 13	6 14	8 9	10 1	12 3					64
10	3.75 – 3.95						6 1		0 1	3 3	6 1	9 5	12 4	15 3	18 2	21 1				21
11	4.00 – 4.20								0 1	4 1		12 4	16 1	20 2	24 3	28 2	32 1			15
12	4.25 – 4.45									5 1		15 2	20 1	25 1	30 1					6
13	4.50 – 4.70												24 1		36 1	42 2		54 1		5
14	4.75 – 4.95																			
15	5.00 – 5.20																		80 1	1
		2	1	14	13	25	45	55	68	58	33	36	19	7	11	5	1	1	1	395

$r = 0.8163 \pm 0.0113$

Correlation between the average panicle grain yield per plant in grams, subject; and the stem straw weight per plant, in grams, relative

Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	
	Classes	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	
1	95 – 99			15 1				5 1		18 1					1
2	100 – 104			12 2		4 3	0 3					20 1			10
3	105 – 109	20 1		9 2	6 2	3 5	0 5	3 4	6 4						23
4	110 – 114	15 1	8 3	6 2	4 8	2 5	0 13	2 10	6 3	6 4		10 1			52
5	115 – 119	5 1	4 2	3 9	2 3	1 13	0 21	1 13	2 10	3 4	4 1			7 1	78
6	120 – 124	0 2	0 2	0 7	0 14	0 21	0 19	1 21	0 10	0 2	0 1	0 1		0 3	103
7	125 – 129	5 2	4 1	3 3	2 7	1 15	0 21	1 16	2 9	3 3	4 2	5 1			80
8	130 – 134	10 1	8 1	6 3	4 5	2 7	0 9	2 10	4 3	6 3					42
9	135 – 139				6 2		0 1								3
10	140 – 144														
11	145 – 149				10 1										1
12	150 – 154														
		9	9	29	42	69	94	75	39	17	4	4		4	395

$$r = 0.0171 \pm 0.0339$$

Correlation between the ratio of total grain to total straw per plant, subject; and the average stem height per plant, in centimeters, relative. Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	
	Classes	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1	1					3 3	0 1		6 1			15 1			6
2	2			6 7	4 1	2 6	0 9	2 7	4 6	6 2	8 1	10 2			41
3	3	5 2	4 2	3 3	2 10	1 14	0 16	1 21	2 12	3 12					92
4	4	0 2	0 2	0 3	0 10	0 18	0 35	0 22	0 12	0 1	0 3	0 1		0 3	112
5	5	5 3	4 3	3 12	2 15	1 24	0 24	1 18	2 6	3 2					107
6	6	10 2	8 1	6 3	4 3	2 3	0 8	2 6	4 2					14 1	29
7	7		12 1	9 1	6 2		0 1	3 1							6
8	8				8 1										1
9	9					5 1									1
		9	9	29	42	69	94	75	39	17	4	4		4	395

$r = -0.2053 \pm 0.0325$

Correlation between the ratio of total grain weight to total straw weight per plant, subject; and the number of stems per plant relative Colo, No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	
	Classes	0.55 – 0.69	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	1.15 – 1.19	
1	0 – 4.99					4 1	0 1		8 1						3
2	5 – 9.99	15 1		9 5	6	3 7	0 2		6 1	9 1		15 2			19
3	10 – 14.99	10 1	8 1	6 3	4 3	2 2	0 15	2 10	4 8	6 4	8 1	10 1			49
4	15 – 19.99	5 1	4 2	3 2	2 9	1 16	0 16	1 17	2 9	3 3					75
5	20 – 24.99	0 2	0 1	0 6	0 11	0 18	0 20	0 17	0 7	0 8	0 2	0 1		0 3	96
6	25 – 29.99	5 2	4 3	3 9	2 5	1 12	0 18	1 15	2 7	3 1	4 1			7 1	74
7	30 – 34.99	10 2	8 1	6 3	4 12	2 9	0 18	2 13	4 4						62
8	35 – 39.99		12 1	9 1		3 3	0 4	3 1	6 1						11
9	40 – 44.99				8 1			4 2	8 1						4
10	45 – 49.99					5 1									1
11	50 – 54.99														
12	55 – 59.99				14 1										1
		9	9	29	42	69	94	75	39	17	4	4		4	395

$$r = -0.0992 \pm 0.0337$$

Correlation between the ratio of total grain to total straw per plant, subject; and the total plant weight per plant, in grams, relative Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	
	Classes	0 – 1.95	2 – 3.95	4 – 5.95	6 – 7.95	8 – 9.95	10 – 11.95	12 – 13.95	14 – 15.95	16 – 17.95	18 – 19.95	20 – 21.95	22 – 23.95	24 – 25.95	
1	0 – 1.95	2													2
2	2 – 3.95	20 13	7	1											8
3	4 – 5.95	16 12	9	9											18
4	6 – 7.95	12 9 6	1	19	22										42
5	8 – 9.95	6 4 2		1	31	9	0 3								44
6	10 – 11.95	2 1			10	43	0 16								69
7	12 – 13.95	0			1	0 14	0 39	0 9	0 1						64
8	14 – 15.95	1				3	0 19	1 25	2 3						50
9	16 – 17.95	2				1	0 9	2 18	4 21						49
10	18 – 19.95	0					5	3 11	6 15	9 3					34
11	20 – 21.95								8 3	12 5	16 2				10
12	22 – 23.95							5 1			20 1				2
13	24 – 25.95										24 1				1
14	26 – 27.95											33 1			1
15	28 – 29.95														
16	30 – 31.95														
17	32 – 33.95													70 1	1
		2	17	30	64	70	91	64	43	8	4	1		1	395

$r = 0.9211 \pm 0.0051$

Correlation between the total grain weight per plant, in grams subject; and the total straw weight per plant, in grams, relative. Colo. No. 37.

			1	2	3	4	5	6	7	8	9	10	11	12	
	Classes		0 — 4.95	5 — 9.95	10 — 14.95	15 — 19.95	20 — 24.95	25 — 29.95	30 — 34.95	35 — 39.95	40 — 44.95	45 — 49.95	50 — 54.95	55 — 59.95	
1	0	1.95	24 2												2
2	2	3.95	20 1	15 7											8
3	4	5.95		12 11	8 7										18
4	6	7.95		9 1	6 39	3 2									42
5	8	9.95			4 3	2 38	0 3								44
6	10	11.95				1 34	0 35								69
7	12	13.95				0 1	0 52	0 11							64
8	14	15.95					0 6	1 43	2 1						50
9	16	17.95						2 17	5 32						49
10	18	19.95						3 3	6 28	7 3					34
11	20	21.95							8 1	12 7	16 2				10
12	22	23.95								15 1	20 1				2
13	24	25.95									24 1				1
14	26	27.95										35 1			1
15	28	29.95													
16	30	31.95													
17	32	33.95												70 1	1
			3	19	49	75	96	74	62	11	4	1		1	395

$r = 0.9640 \pm 0.0063$

Correlation between the total plant weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Colo. No. 37.

	Classes	1 0 – 4.95	2 5 – 9.95	3 10 – 14.95	4 15 – 19.95	5 20 – 24.95	6 25 – 29.95	7 30 – 34.95	8 35 – 39.95	9 40 – 44.95	10 45 – 49.95	11 50 – 54.95	12 55 – 59.95	13	
1	0 – 1.95	20 2													2
2	2 – 3.95	16 1	12 16												17
3	4 – 5.95		9 3	6 27											30
4	6 – 7.95			4 22	2 42										64
5	8 – 9.95				1 33	• 36	1 1								70
6	10 – 11.95					• 57	• 32	• 2							91
7	12 – 13.95					• 3	1 38	2 22	3 1						64
8	14 – 15.95						2 3	4 37	6 3						43
9	16 – 17.95							6 1	9 7						8
10	18 – 19.95									16 4					4
11	20 – 21.95										25 1				1
12	22 – 23.95												49 1		
13	24 – 25.95														1
		3	19	49	75	96	74	62	11	4	1		1		395

$r = 0.9541 \pm 0.0030$

Correlation between the total plant weight per plant, in grams, subject; and the total grain weight per plant, in grams, relative. Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	Classes	.40 — .44	.45 — .49	.50 — .54	.55 — .59	.60 — .64	.65 — .69	.70 — .74	.75 — .79	.80 — .84	.85 — .89	.90 — .94	.95 — .99	1.00 — 1.04	1.05 — 1.09	
1	5 — 9							8 1								1
2	10 — 14													30		0
3	15 — 19													1		1
4	20 — 24		30 1				10 1									2
5	25 — 29			20 1		12 1	8 2	4 1		4 1			16 1			7
6	30 — 34				12 1	9 1	6 1	3 3	0 3	3 1	6 1	7 1	12 1			13
7	35 — 39	14 1	12 3	10 1	8 1	6 1	4 3	2 4	0 1	2 4	4 2	6 1			12 1	23
8	40 — 44		6 1	5 3	4 2	3 1	2 10	1 9	0 16	1 11	2 6	3 3	4 1		6 1	64
9	45 — 49	0 1	0 1	0 1	0 2	0 6	0 6	0 6	0 14	0 11	0 12	0 9	0 4			73
10	50 — 54	7 2			4 2	3 5	2 1	1 6	0 14	1 10	2 12	3 1	4 2	5 1	6 1	57
11	55 — 59	14 1	12 1	10 1	8 1		4 4	2 8	0 12	2 13	4 7	6 2	8 1	10 1		52
12	60 — 64			15 2		9 1	6 2	3 4	0 7	3 10	6 7	9 4	12 1	15 1		39
13	65 — 69						8 1	4 4		4 3	8 1	12 2				11
14	70 — 74										10 1	15 1				2
15	75 — 79			30 1						6 1	12 1					3
		5	7	10	9	16	31	46	67	65	50	24	11	4	3	348

$r = 0.1510 \pm 0.0281$

Correlation between the ratio of total grain to total straw per plant, subject; and the average panicle number of spikelets per plant, relative.

Colo. No. 37.

	Classes	1 .20 — .35	2 .40 — .55	3 .60 — .75	4 .80 — .95	5 1.00 — 1.15	6 1.20 — 1.35	7 1.40 — 1.55	8 1.60 — 1.75	9 1.80 — 1.95	10 2.00 — 2.15	11 2.20 — 2.35	12 2.40 — 2.55	13 2.60 — 2.75	14 2.80 — 2.95	15 3.00 — 3.15	16 3.20 — 3.35	17 3.40 — 3.55	18 3.60 — 3.75	19 3.80 — 3.95	20 4.00 — 4.15	21 4.20 — 4.35	
1	0. — 0.45	66 1																					1
2	0.50 — 0.95					28 1																	0
3	1.00 — 1.45			27 1	24 1	21 1	18 2	13 1	12 1														1
4	1.50 — 1.95						12 1	10 3	8 5	6 4	5 8		0 1										7
5	2.00 — 2.45						6 2	3 1	4 2	3 7	2 14	1 12	1 13	1 3		3 1							22
6	2.50 — 2.95							0 3	0 3	0 5	0 10	0 12	1 28	0 22	0 16	0 5	0 3						55
7	3.00 — 3.45																						107
8	3.50 — 3.95								4 2	3 1	2 3	1 3	0 8	1 10	2 28	3 17	4 6	5 5	6 1				86
9	4.00 — 4.45										4 2	2 1		2 2	4 5	6 8	8 10	10 9	12 4	14 3	16 2		46
10	4.50 — 4.95										6 1	3 1	0 1	3 2		9 2	12 3	15 1	18 3	21 1	24 3	27 1	19
11	5.00 — 5.45											4 1		4 1							32 1		3
12	5.50 — 5.95																			35 1			1
		1	0	1	1	2	5	8	13	17	46	30	51	40	49	33	22	15	8	5	6	1	348

$r = 0.7477 \pm 0.01404$

Correlation between the average panicle grain yield per plant in grams, subject; and the stem straw weight per plant, in grams, relative.

Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	Classes	.40 — .44	.45 — .49	.50 — .54	.55 — .59	.60 — .64	.65 — .69	.70 — .74	.75 — .79	.80 — .84	.85 — .89	.90 — .94	.95 — .99	1.00 — 1.04	1.05 — 1.09	
1	70 — 74							12 1								1
2	75 — 79															0
3	80 — 84		24 1													0
4	85 — 89													40 1		1
5	90 — 94												28 1			1
6	95 — 99						12 1			6 1					36 1	3
7	100 — 104		30 1	25 1			10 1		0 1			15 1				3
8	105 — 109					12 1	8 4	4 1	0 1	4 3	8 1		16 2			13
9	110 — 114				12 1	9 1		3 5	0 5	3 2	6 4	9 1	12 1			20
10	115 — 119	14 2			8 1	6 3	4 3	2 12	0 8	2 7	4 8	6 8	8 3	10 2	12 2	59
11	120 — 124	7 1	6 1	5 1		3 2	2 5	1 7	0 18	1 18	2 11	3 5	4 4	5 1		74
12	125 — 129		8 2	0 1	0 4	0 5	0 9	0 6	0 13	0 12	0 16	0 6				76
13	130 — 134	7 2	6 2	5 5	4 1	3 2	2 5	1 10	0 17	1 13	2 8	3 3				70
14	135 — 139			10 1	8 2	6 1	4 2	2 3	0 2	2 6	4 2					19
15	140 — 144			15 1		9 1	6 1	3 1								4
16	145 — 149															0
17	150 — 154															0
18	155 — 159															0
19	160 — 164															0
20	165 — 169									8 1						1
24	170 — 174	5	7	10	9	16	31	46	67	65	50	24	11	4	3	348

$r = -0.1200 \pm 0.0356$

Correlation between the ratio of total grain to total straw per plant, subject; and the average stem height per plant, in centimeters, relative.

Colo. No. 37.

	Classes	1 .40 — .44	2 .45 — .49	3 .50 — .54	4 .55 — .59	5 .60 — .64	6 .65 — .69	7 .70 — .74	8 .75 — .79	9 .80 — .84	10 .85 — .89	11 .90 — .94	12 .95 — .99	13 1.00 — 1.04	14 1.05 — 1.09	
1	1					9 1	6 1		0 2	3 2	6 1	9 1				8
2	2			10 1	8 2	6 2	4 3	2 4	0 2	2 4	4 9	6 4	8 2	10 1	12 1	35
3	3	7 2	6 3	5 2	4 4	3 4	2 4	1 12	0 21	1 22	2 13	3 12	4 7	5 3	6 1	110
4	4	0 2	0 2	0 2	0 3	0 4	0 11	0 13	0 18	0 23	0 14	0 6	0 2		0 1	106
5	5	7 1	6 1	3 5		3 4	2 9	1 12	0 15	1 11	2 7					65
6	6		12 1			6 1	4 2	2 4	0 8	2 2	4 1	6 1				20
7	7							3 1	0 1	3 1						3
8	8						8 1									1
		5	7	10	9	16	31	46	67	65	50	24	11	4	3	348

$r = -0.1790 \pm 0.0350$

Correlation between the ratio of total grain weight to total straw weight per plant, subject; and the number of stems per plant, relative.

Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	Classes	.40 — .44	.45 — .49	.50 — .54	.55 — .59	.60 — .64	.65 — .69	.70 — .74	.75 — .79	.80 — .84	.85 — .89	.90 — .94	.95 — .99	1.00 — 1.04	1.05 — 1.09	
1	0 — 4.95			15 1	12 1	7 2	6 3	4 1 3 3	0 2 0 1	4 1 3 3	6 2	12 1	12 1	20 1	18 1	6 18
2	5 — 9.95		12 4	10 2	8 1	6 1	4 4	2 4	0 5	2 5	4 8	6 5	8 2			41
3	10 — 14.95	7 1		5 1	4 4	3 3	2 4	1 10	0 12	1 11	2 11	3 7	4 4	5 2	6 1	71
4	15 — 19.95															
5	20 — 24.95	0 3	0 1	0 1	0 2	0 5	0 7	0 8	0 12	0 18	0 12	0 7	0 4	0 1	0 1	82
6	25 — 29.95	7 1	6 2	5 1	4 1	3 3	2 4	1 6	0 15	1 15	2 7	3 1				56
7	30 — 34.95			10 2		6 2	4 7	2 6	0 9	2 7	4 7	6 2				42
8	35 — 39.95			15 1			6 2	3 7	0 8	3 3	6 3	9 1				25
9	40 — 44.95			20 1					0 3	4 1						5
10	45 — 49.95							3 1		5 1						2
		5	7	10	9	16	31	46	67	65	50	24	11	4	3	348

$r = -0.0597 \pm 0.0360$

Correlation between the ratio of total grain to total straw per plant, subject; and the total plant weight per plant, in grams, relative.

Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	11	
	Classes	0 — 1.99	2 — 3.99	4 — 5.99	6 — 7.99	8 — 9.99	10 — 11.99	12 — 13.99	14 — 15.99	16 — 17.99	18 — 19.99	20 — 21.99	
1	0. — 1.99	24 1											1
2	2 — 3.99	20 1	15 9										10
3	4 — 5.99		12 7	8 13									20
4	6 — 7.99		9 3	6 13	3 8								24
5	8 — 9.99		6 1	4 7	2 24	0 17							49
6	10 — 11.99			2 1	1 10	0 27	1 13	2 1					52
7	12 — 13.99				0 7	0 18	0 33						58
8	14 — 15.99				1 2	0 5	1 18	2 13					38
9	16 — 17.99				2 1	0 2	2 6	4 17	6 7	8 1			34
10	18 — 19.99					0 2	3 1	6 10	9 12	12 6			31
11	20 — 21.99						4 1	8 2	12 4	16 5	20 1		13
12	22 — 23.99						5 1	10 1	15 3	20 7	23 2		14
13	24 — 25.99										30 1	36 1	2
14	26 — 27.99							14 1			33 1		2
		2	20	34	52	71	73	45	26	19	5	1	348

$r = 0.8997 \pm 0.0069$

Correlation between the total grain weight per plant, in grams subject; and the total straw weight per plant, in grams, relative. Colo. No. 37.

		1	2	3	4	5	6	7	8	9	10	
	Classes	0 — 4.95	5 — 9.95	10 — 14.95	15 — 19.95	20 — 24.95	25 — 29.95	30 — 34.95	35 — 39.95	40 — 44.95	45 — 49.95	
1	0 — 1.95	24 1										1
2	2 — 3.95	20 5	15 5									10
3	4 — 5.95		12 12	8 8								20
4	6 — 7.95		9 1	6 23								24
5	8 — 9.95			4 10	2 39							49
6	10 — 11.95				1 29	0 23						52
7	12 — 13.95				0 3	0 49	0 6					58
8	14 — 15.95					0 9	1 29					38
9	16 — 17.95					0 1	2 18	4 13				34
10	18 — 19.95						3 3	6 23	9 3			31
11	20 — 21.95							8 3	12 10			13
12	22 — 23.95							10 1	15 10	20 3		14
13	24 — 25.95									24 1	30 1	2
14	26 — 27.95									28 1	35 1	2
		6	18	41	71	82	56	42	25	5	2	348

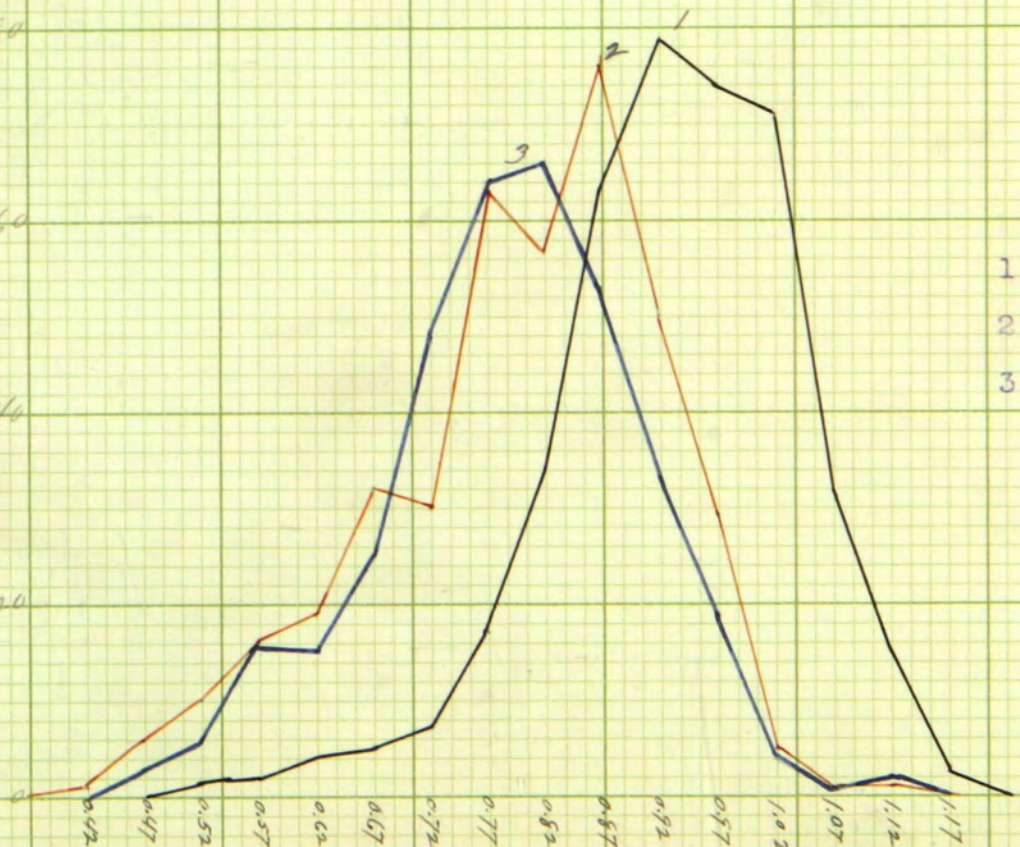
$r = 0.9655 \pm 0.0024$

Correlation between the total plant weight per plant, in grams, subject; and the total straw weight per plant, in grams, relative. Colo. No. 37.

	Classes	1	2	3	4	5	6	7	8	9	10	
		0 — 4.95	5 — 9.95	10 — 14.95	15 — 19.95	20 — 24.95	25 — 29.95	30 — 34.95	35 — 39.95	40 — 44.95	45 — 49.95	
1	0. — 1.95	16 2										2
2	2 — 3.95	12 4	9 13	6 9								20
3	4 — 5.95		6 5	4 27	2 2							34
4	6 — 7.95			2 11	1 34	0 7						52
5	8 — 9.95				0 35	0 32	0 4					71
6	10 — 11.95					0 42	1 29	2 2				73
7	12 — 13.95					0 1	2 23	4 19	6 1	8 1		45
8	14 — 15.95							6 18	9 8			26
9	16 — 17.95							8 3	12 15	16 1		19
10	18 — 19.95								15 1	20 3	25 1	5
11	20 — 21.95										30 1	1
		6	18	41	71	82	56	42	25	5	2	348

$r = 0.9446 \pm 0.0039$

Correlation between the total plant weight per plant, in grams, subject; and the total grain weight per plant, in grams, relative. **Colo. No. 37.**



	A.	S.D.
1 Not irrigated	0.9332 ± 0.0035	0.1057 ± 0.0025
2 Irrigated July 7	0.8022 ± 0.0040	0.1187 ± 0.0029
3 Irrigated June 22	0.7820 ± 0.0043	0.1216 ± 0.0030

Frequency distribution of the ratio of total grain per plant to total straw per plant. Great Dakota.

	Classes	f	S_1'	S_2'	S_3'
1	0.50 – 0.54	1	404	3789	20360
2	0.55 – 0.59	2	408	3380	16571
3	0.60 – 0.64	4	400	2972	13191
4	0.65 – 0.69	5	402	2566	10219
5	0.70 – 0.74	7	397	2164	7653
6	0.75 – 0.79	17	390	1767	5489
7	0.80 – 0.84	34	373	1377	3722
8	0.85 – 0.89	63	339	1004	2345
9	0.90 – 0.94	79	276	665	1341
10	0.95 – 0.99	76	197	389	676
11	1.00 – 1.04	71	121	192	287
12	1.05 – 1.09	32	50	71	95
13	1.10 – 1.14	15	18	21	24
14	1.15 – 1.19	3	3	3	3

$\lambda =$ [illegible]

$A_0 =$ 0.447

$\theta' = 2.11458$

$V_0 =$ 0.97

$S_2 = 9.26441$

$S_3 = 49.7800$

$V_1' = 9.26441$

$V_2 = 4.47724$

$A' = 18.66441$

$V_0' = 19.40000$

$V_{10} = -0.7359$

$A = 0.9332 \pm 0.0033$

$\theta = 0.1057 \pm 0.0025$

	Classes	f	S'_1	S'_2	S'_3
1	0.45 – 0.49	3	388	2966	13903
2	0.50 – 0.54	6	385	2578	10937
3	0.55 – 0.59	16	379	2193	8359
4	0.60 – 0.64	19	363	1814	6166
5	0.65 – 0.69	32	344	1451	4352
6	0.70 – 0.74	30	312	1107	2901
7	0.75 – 0.79	63	282	795	1794
8	0.80 – 0.84	57	219	513	999
9	0.85 – 0.89	76	162	294	486
10	0.90 – 0.94	50	86	132	192
11	0.95 – 0.99	29	36	46	60
12	1.00 – 1.04	5	7	10	14
13	1.05 – 1.09	1	2	3	4
14	1.10 – 1.14	1	1	1	1

$\lambda = 0.05$

$A_0 = 0.42$

$\theta' = 2.3634$

$V_0 = 0.82$

$S_2 = 7.6443$

$S_3 = 35.8325$

$V_1' = 7.6443$

$V_2 = 5.5854$

$A' = 16.0443$

$V_0' = 16.4000$

$V_{V_0} = -.3557$

$A = 0.8027 \pm 0.0040$

$\theta = 0.1182 \pm 0.0029$

	Classes	f	S_1'	S_2'	S_3'
1	0.40 – 0.44	1	363	2991	14891
2	0.45 – 0.49	6	362	2628	11700
3	0.50 – 0.54	10	356	2266	9272
4	0.55 – 0.59	16	346	1910	7006
5	0.60 – 0.64	15	330	1564	5096
6	0.65 – 0.69	25	315	1234	3532
7	0.70 – 0.74	48	290	919	2298
8	0.75 – 0.79	64	242	629	1379
9	0.80 – 0.84	66	178	387	750
10	0.85 – 0.89	53	112	209	363
11	0.90 – 0.94	33	59	97	154
12	0.95 – 0.99	19	26	38	57
13	1.00 – 1.04	4	7	12	19
14	1.05 – 1.09	1	3	5	7
15	1.10 – 1.14	2	2	2	2

$\lambda = 0.05$

$A_0 = 0.07$

$\theta' = 2.4314$

$V_0 = 0.82$

$S_2 = 8.2397$

$S_3 = 41.0220$

$V_1' = 8.2397$

$V_2 =$

$A' = 15.6397$

$V_0' = 16.4000$

$r_{V_0} = -0.7603$

$A = 0.7820 \pm 0.0043$

$\theta = 0.1216 \pm 0.0030$

	A.	S.D.
1 Not irrigated	3.6773 ± 0.0399	1.1963 ± 0.0282
2 Irrigated July 7	4.2833 ± 0.0436	1.2731 ± 0.0308
3 Irrigated June 22	4.1791 ± 0.0499	1.4093 ± 0.0353

Frequency distribution of number of stems per plant. Great Dakota.

	Classes	f	S_1'	S_2'	S_3'
1	1	10	409	1504	3810
2	2	52	399	1095	2306
3	3	125	345	696	1211
4 X	4	118	220	351	515
5	5	76	102	131	164
6	6	24	26	29	33
7	7	1	2	3	4
8	8	1	1	1	1

$\lambda = 1$

$A_0 = 0$

$\theta' = 1.1962$

$V_0 = 4$

$S_2 = 3.6773$

$S_3 = 9.3154$

$V_1' = 3.6773$

$V_2 = 1.4310$

$A' = 3.6773$

$V_0' = 4.0000$

$V_{V_0} = -.3227$

$A = 3.6773 \pm 0.0399$

$\theta = 1.1962 \pm 0.0282$

	Classes	f	S_1'	S_2'	S_3'
1	1	5	388	1662	4705
2	2	28	383	1274	3043
3	3	66	355	891	1769
4 X	4	122	289	536	878
5	5	101	167	247	342
6	6	53	66	80	95
7	7	12	13	14	15
8	8	1	1	1	1

$\lambda = 1$

$A_0 = 0$

$\theta' = 1.2731$

$V_0 = 4$

$S_2 = 4.2835$

$S_3 = 12.1263$

$V_1' = 4.2835$

$V_2 = 1.6207$

$A' = 4.2835$

$V_0' = 4.0000$

$V_{V_0}' = 0.2835$

$A = 4.2835 \pm 0.0436$

$\theta = 1.2731 \pm 0.0308$

	Classes	f	S'_1	S'_2	S'_3
1	1	4	363	1.517	4289
2	2	34	359	1154	2772
3	3	85	325	795	1618
4 X	4	93	240	470	823
5	5	92	147	230	353
6	6	35	55	83	123
7	7	16	20	28	40
8	8	2	4	8	12
9	9	2	4	4	4

$\lambda = 1$

$A_0 = 0$

$\theta' = 1.4095$

$V_0 = 4$

$S_2 = 4.1791$

$S_3 = 11.8154$

$V_1 = 4.1791$

$V_2 =$

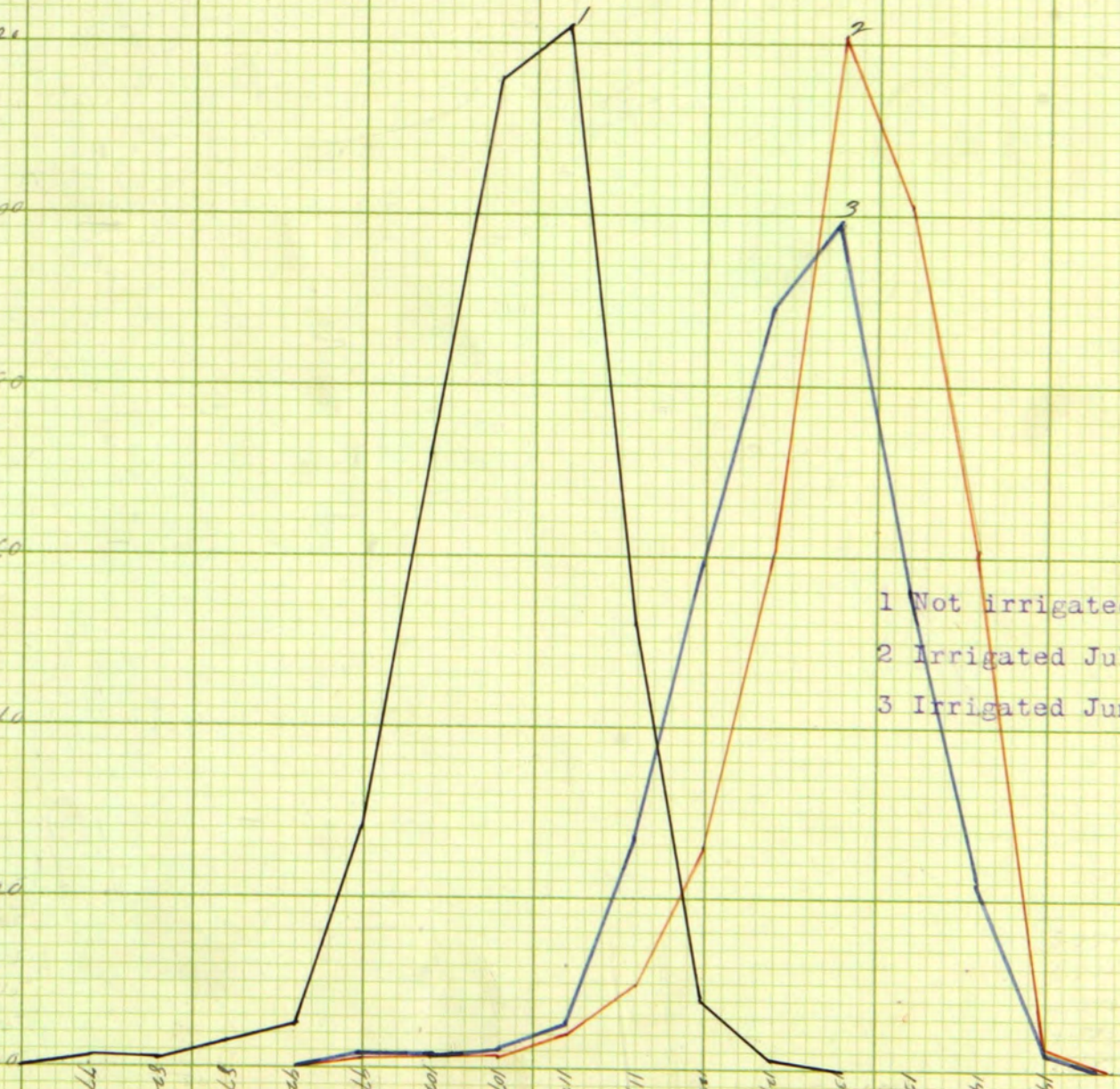
$A' = 4.1791$

$V_{0_1} = 4.0000$

$V_{V_0} = 0.1791$

$A = 4.1791 \pm 0.0499$

$\theta = 1.4095 \pm 0.0353$



	A.	S.D.
1 Not irrigated	108.0760 ± 0.2238	6.7110 ± 0.1582
2 Irrigated July 7	132.6830 ± 0.2493	7.1060 ± 0.17629
3 Irrigated June 22	128.9010 ± 0.2636	7.4873 ± 0.1864

Frequency distribution of average stem height per plant, in centimeters. Great Dakota.

	Classes	f	S_1'	S_2'	S_3'
1	75 – 79	1	409	2951	12490
2	80 – 84	1	408	2542	9539
3	85 – 89	3	407	2134	6997
4	90 – 94	5	404	1727	4863
5	95 – 99	28	399	1323	3136
6	100 – 104	72	371	924	1813
7	105 – 109	116	299	553	889
8	110 – 114	22	183	254	336
9	115 – 119	52	61	71	82
10	120 – 124	8	9	10	11
11	125 – 129	1	1	1	1

$\lambda = 5$

$A_0 = 72$

$\theta' = 1.3422$

$l_0 = 107$

$S_2 = 7.2152$

$S_3 = 30.5379$

$V_1' = 7.2152$

$V_{-2} = 1.8015$

$A' = 21.6152$

$V_0' = 21.4000$

$V_{V0} = 0.2152$

$A = 108.0760 \pm 0.7238$

$\theta = 6.7110 \pm 0.1582$

	Classes	f	S_1'	S_2'	S_3'
1	95 – 99	1	388	3157	14814
2	100 – 104	1	387	2769	11657
3	105 – 109	1	386	2382	8888
4	110 – 114	4	385	1996	6506
5	115 – 119	10	381	1611	4510
6	120 – 124	26	371	1230	2899
7	125 – 129	60	345	859	1669
8	130 – 134	121	285	514	810
9	135 – 139	101	164	229	296
10	140 – 144	61	63	65	67
11	145 – 149	2	2	2	2

$\lambda = 5$

$A_0 = 92$

$\theta' = 1.4212$

$V_0 = 132$

$S_2 = 8.1366$

$S_3 = 38.1804$

$\gamma_1' = 8.1366$

$V_x = 2.0199$

$A' = 26.5366$

$V_0' = 26.4000$

$\gamma_{V_0} = 0.1366$

$A = 132.6830 \pm 0.2433$

$\theta = 7.1060 \pm 0.1720$

	Classes	f	S_1'	S_2'	S_3'
1	95 – 99	1	363	2679	11628
2	100 – 104	1	362	2316	8949
3	105 – 109	2	361	1954	6633
4	110 – 114	5	359	1593	4679
5	115 – 119	27	354	1234	3086
6	120 – 124	59	327	880	1852
7	125 – 129	89	268	553	972
8	130 – 134	99	179	285	419
9	135 – 139	56	80	106	134
10	140 – 144	22	24	26	28
11	145 – 149	2	2	2	2

$\lambda = 5$

$A_0 = 92$

$\theta' = 1.4895$

$V_0 = 127$

$S_2 = 7.3802$

$S_3 = 32.0331$

$V_1' = 7.3802$

$V_2 =$

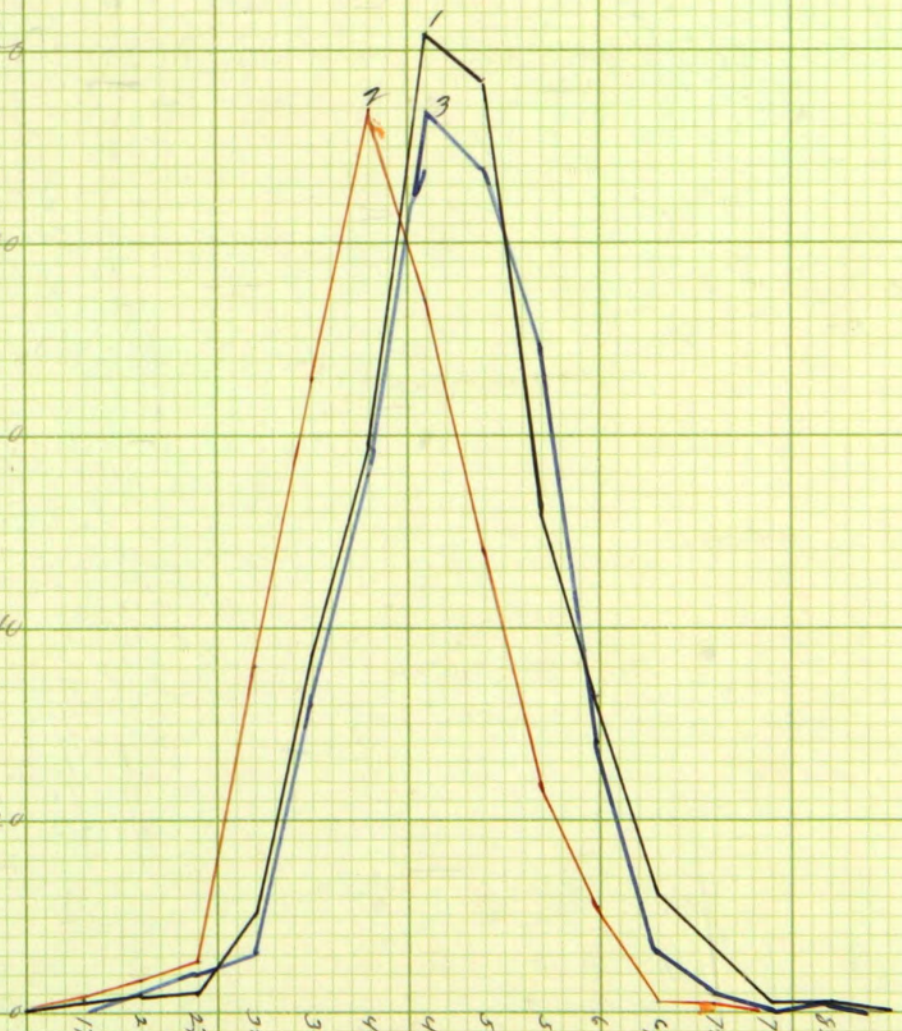
$A' = 25.7802$

$V_0' = 25.4000$

$V_{10}' = 0.3802$

$A = 128.9010 \pm 0.2636$

$\theta = 7.4475 \pm 0.1864$



	A.	S.D.
1 Not irrigated	49.1270 ± 0.2880	8.6360 ± 0.2036
2 Irrigated July 7	49.4100 ± 0.2847	8.3135 ± 0.2013
3 Irrigafed June 22	43.7080 ± 0.2931	8.2805 ± 0.2072

Frequency distribution of panicle number of spikelets per plant. Great Dakota.

	Classes	f	S_1'	S_2'	S_3'
1	15 – 19	1	07	3037	13404
2	20 – 24	2	408	2628	10367
3	25 – 29	2	206	2220	7739
4	30 – 34	10	404	1814	5519
5	35 – 39	37	394	1410	3705
6	40 – 44	59	357	1016	2295
7	45 – 49	102	298	659	1279
8	50 – 54	97	196	361	620
9	55 – 59	52	99	165	259
10	60 – 64	33	47	66	94
11	65 – 69	12	14	19	28
12	70 – 74	0	2	5	9
13	75 – 79	1	2	3	4
14	80 – 84	1	1	1	1

$\lambda = 5$

$A_0 = 12$

$\theta' = 1.7272$

$V_0 = 47$

$S_2 = 7.4254$

$S_3 = 32.7726$

$V_1' = 7.4254$

$V_2 = 2.9832$

$A' = 9.8254$

$V_{0_1}' = 9.4000$

$V_{V_0} = 0.4254$

$A = 49.270 \pm 0.2880$

$\theta = 8.6360 \pm 0.2036$

	Classes	f	S_1'	S_2'	S_3'
1	20 – 24	2	388	2515	9945
2	25 – 29	4	386	2127	7430
3	30 – 34	6	382	1741	5303
4	35 – 39	32	376	1359	3562
5	40 – 44	56	344	983	2203
6	45 – 49	94	288	639	1220
7	50 – 54	88	194	351	581
8	55 – 59	69	106	157	230
9	60 – 64	28	37	51	73
10	65 – 69	6	9	14	22
11	70 – 74	2	3	5	8
12	75 – 79	0	1	2	3
13	80 – 84	1	1	1	1

$\lambda = 5$

$A_0 = 17$

$\theta' = 1.0027$

$V_0 = 52$

$S_2 = 6.4820$

$S_3 = 25.6314$

$V_1' = 6.4821$

$V_2 = 2.7645$

$A' = 9.8820$

$V_0' = 10.4000$

$\gamma_{V_0} = -.5180$

$A = 49.4100 \pm 0.2847$

$\theta = 8.3135 \pm 0.2013$

	Classes	f	S_1'	S_2'	S_3'
1	15 – 19	1	363	2302	8948
2	20 – 24	3	362	1939	6646
3	25 – 29	5	359	1577	4707
4	30 – 34	36	354	1218	3130
5	35 – 39	66	318	864	1912
6	40 – 44	94	252	546	1048
7	45 – 49	74	158	294	502
8	50 – 54	48	84	136	208
9	55 – 59	23	36	52	72
10	60 – 64	11	13	16	20
11	65 – 69	1	2	3	4
12	70 – 74	1	1	1	1

$\lambda = 5$

$A_0 = 12$

$\theta' = 1.6561$

$V_0 = 42$

$S_2 = 6.3416$

$S_3 = 24.6501$

$V_1' = 6.3416$

$V_2 =$

$A' = 8.7416$

$V_0' = 8.4000$

$V_{V_0} = 0.3416$

$A = 43.7080 \pm 0.2931$

$\theta = 8.2805 \pm 0.2072$

	A.	S.D.
1 Not irrigated	19.4800 ± 0.2300	6.8965 ± 0.1626
2 Irrigated July 7	23.1500 ± 0.2669	7.7950 ± 0.1887
3 Irrigated June 22	21.5795 ± 0.2890	8.1625 ± 0.2043

Frequency distribution of total plant weight per plant, in grams. Great Dakota.

	Classes	f	S_1'	S_2'	S_3'
1	0. – 4.95	9	409	1800	5250
2	5 – 9.95	25	400	1391	3450
3	10 – 14.95	62	375	991	2059
4	15 – 19.95	124	313	616	1068
5	20 – 24.95	103	189	303	452
6	25 – 29.95	64	86	114	149
7	30 – 34.95	17	22	28	35
8	35 – 39.95	4	5	6	7
9	40 – 44.95	1	1	1	1

$\lambda = 5$

$A_0 = -2.525$

$\theta' = 1.3793$

$Y_0 = 17.475$

$S_2 = 4.4010$

$S_3 = 12.8362$

$Y_1' = 4.4010$

$V_2 = 1.9026$

$A' = 3.8960$

$V_0' = 3.4950$

$V_{V_0} = 0.4010$

$A = 19.4800 \pm 0.2300$

$C = 6.8965 \pm 0.1626$

	Classes	f	S_1'	S_2'	S_3'
1	0 - 4.99	2	388	1995	6598
2	5 - 9.99	19	386	1607	4603
3	10 - 14.99	34	367	1221	2996
4	15 - 19.99	70	333	854	1775
5	20 - 24.99	109	263	521	921
6	25 - 29.99	82	154	258	400
7	30 - 34.99	46	72	104	142
8	35 - 39.99	20	26	32	38
9	40 - 44.99	6	6	6	6

$\lambda = 5$

$A_0 = -2.525$

$\theta' = 1.5590$

$V_0 = 22.475$

$S_2 = 5.1418$

$S_3 = 17.0052$

$V_1' = 5.1418$

$V_2 = 2.4305$

$A' = 4.6368$

$V_0' = 4.4950$

$V_{V0} = 0.1418$

$A = 23.1500 \pm 0.2669$

$\theta = 7.7950 \pm 0.1887$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 4.99	4	363	1750	5577
2	5 – 9.99	18	359	1387	3827
3	10 – 14.99	66	341	1028	2440
4	15 – 19.99	69	275	687	1412
5	20 – 24.99	79	206	412	725
6	25 – 29.99	73	127	206	313
7	30 – 34.99	32	54	79	107
8	35 – 39.99	19	22	25	28
9	40 – 44.99	3	3	3	3

$\lambda = 5$

$A_0 = -2.525$

$\theta' = 1.6325$

$V_0 = 22.475$

$S_2 = 4.8209$

$S_3 = 15.3636$

$V_1' = 4.8209$

$V_2 =$

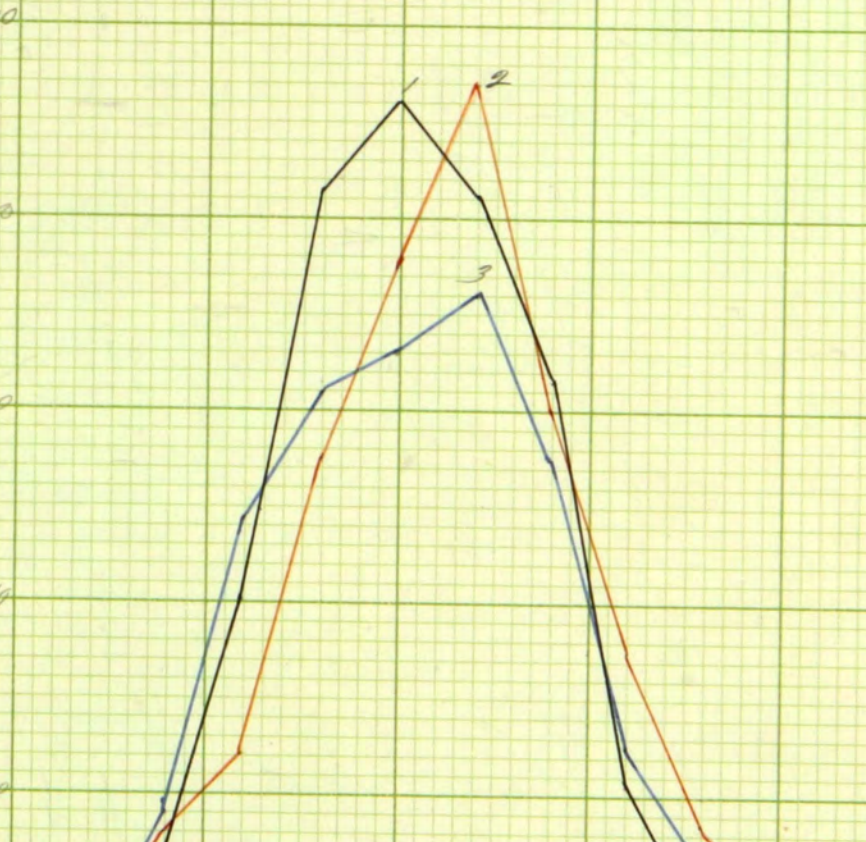
$A_1' = 4.3159$

$V_0' = 4.4950$

$V_{V_0} = -0.1791$

$A = 21.5785 \pm 0.2890$

$\theta = 8.1625 \pm 0.2043$



	A.	S. D.
1 Not Irrigated	9.3368 ± 0.1100	3.3078 ± 0.0780
2 Irrigated July 7	10.3616 ± 0.1255	3.6644 ± 0.0887
3 Irrigated June 22	9.4762 ± 0.1271	3.5944 ± 0.0899

Frequency distribution of total grain weight per plant, in grams. Great Dakota.

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.95	7	409	2119	7108
2	2 – 3.95	13	402	1710	4989
3	4 – 5.95	40	389	1308	3279
4	6 – 7.95	83	349	919	1971
5	8 – 9.95	92	266	570	1052
6	10 – 11.95	82	174	304	482
7	12 – 13.95	63	92	130	178
8	14 – 15.95	21	29	38	48
9	16 – 17.95	7	8	9	10
10	18 – 19.95	1	1	1	1

$\lambda = 2.$

$A_0 = -1.025$

$\theta' = 1.6539$

$V_0 = 8.975$

$S_2 = 5.1809$

$S_3 = 17.3790$

$V_1' = 5.1809$

$V_2 = 2.7354$

$A' = 4.6684$

$V_0' = 4.4875$

$V_{V0} = 0.1809$

$A = 9.2368 \pm 0.1103$

$\theta = 3.3078 \pm 0.0780$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.99	3	388	2209	8044
2	2 – 3.99	16	385	1821	5835
3	4 – 5.99	24	369	1436	4014
4	6 – 7.99	53	345	1067	2578
5	8 – 9.99	75	290	722	1511
6	10 – 11.99	94	215	432	789
7	12 – 13.99	60	121	217	357
8	14 – 15.99	35	61	96	140
9	16 – 16.99	17	26	35	44
10	18 – 19.99	9	9	9	9

$\lambda = 2$

$A_0 = -1.023$

$\theta' = 1.8322$

$V_0 = 10.973$

$S_2 = 5.6933$

$S_3 = 20.7320$

$V_1' = 5.6933$

$V_2 = 3.3570$

$A' = 5.1808$

$V_0' = 5.4875$

$V_{V_0} = -.3067$

$A = 10.3616 \pm 0.1253$

$\theta = 3.6644 \pm 0.0887$

	Classes	f	S'_1	S'_2	S'_3
1	0 – 1.99	2	363	1906	6542
2	2 – 3.99	18	361	1543	4636
3	4 – 5.99	49	343	1182	3093
4	6 – 7.99	62	294	839	1911
5	8 – 9.99	66	232	540	1072
6	10 – 11.99	72	166	313	527
7	12 – 13.99	55	94	147	214
8	14 – 15.99	23	39	53	67
9	16 – 17.99	14	14	14	14

$\lambda = 2$

$A_0 = -1.025$

$\sigma' = 1.7957$

$V_0 = 8.975$

$S_2 = 5.2506$

$S_3 = 18.0220$

$\gamma_1' = 5.2506$

$V_2 =$

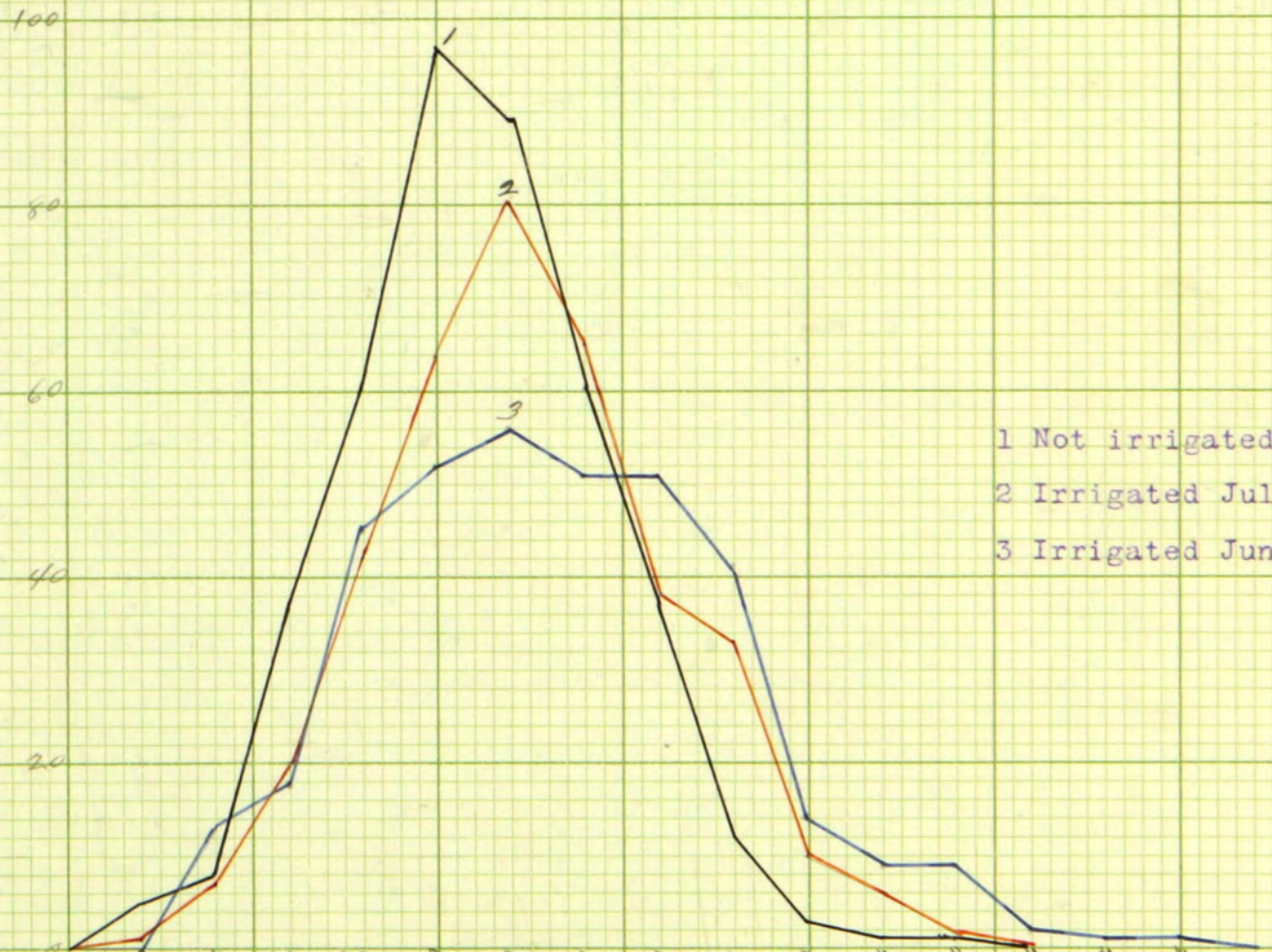
$A' = 4.7381$

$V_0' = 4.4875$

$\gamma_{V_0} = 0.2506$

$A = 9.4762 \pm 0.1271$

$\theta = 3.5914 \pm 0.0899$



	A.	S.D.
1 Not irrigated	10.0410 ± 0.1170	3.5077 ± 0.0827
2 Irrigated July 7	12.8726 ± 0.1181	4.3210 ± 0.1046
3 Irrigated June 22	12.1540 ± 0.1709	4.8288 ± 0.1209

Frequency distribution of total straw weight per plant, in grams. Great Dakota.

Classes	f	S_1'	S_2'	S_3'
0. — 1.99	5	409	2263	8021
2 — 3.99	8	404	1854	5758
4 — 5.99	37	396	1450	3904
6 — 7.99	60	359	1054	2454
8 — 9.99	96	299	695	1400
10 — 11.99	89	203	396	705
12 — 13.99	60	114	193	309
14 — 15.99	37	54	79	116
16 — 17.99	12	17	25	37
18 — 19.99	3	5	8	12
20 — 21.99	1	2	3	4
22 — 23.99	1	1	1	1

$\lambda = 2$

$A_0 = -1.0255$

$\theta' = 1.7536$

$V_0 = 10.9735$

$S_2 = 5.5330$

$S_3 = 19.6112$

$V_1' = 5.5330$

$V_2 = 3.0753$

$A' = 5.0205$

$V_0' = 5.4873$

$V_{V_0} = -0.4670$

$A = 10.0410 \pm 0.1170$

$\theta = 3.5072 \pm 0.0827$

	Classes	f	S_1'	S_2'	S_3'
1	0 – 1.99	1	388	2700	11630
2	2 – 3.99	7	387	2312	8930
3	4 – 5.99	20	380	1925	6638
4	6 – 7.99	21	360	1545	4713
5	8 – 9.99	42	339	1185	3168
6	10 – 11.99	64	297	846	1983
7	12 – 13.99	80	233	549	1137
8	14 – 15.99	65	153	316	588
9	16 – 17.99	38	88	163	272
10	18 – 19.99	33	50	75	109
11	20 – 21.99	10	17	25	34
12	22 – 23.99	6	7	8	9
13	24 – 25.99	1	1	1	1

$\lambda = 2$

$A_0 = -1.025$

$\theta' = 2.1605$

$V_0 = 12.975$

$S_2 = 6.9588$

$S_3 = 30.0258$

$V_1' = 6.9588$

$V_2' = 4.6679$

$A' = 6.4463$

$V_0' = 6.4875$

$V_{V_0} = -.0412$

$A = 12.8926 \pm 0.1481$

$\theta = 43210 \pm 0.1046$

	Classes	f	S_1'	S_2'	S_3'
1	2 . 3.95	13	363	2029	7743
2	4 5.95	18	350	1666	5714
3	6 7.95	43	332	1316	4048
4	8 9.95	52	287	984	2732
5	X 10 11.95	56	235	697	1748
6	12 13.95	51	179	462	1051
7	14 15.95	51	128	283	589
8	16 17.95	41	77	155	306
9	18 19.95	14	36	78	151
10	20 21.95	9	22	42	73
11	22 23.95	9	13	20	31
12	24 25.95	2	4	7	11
13	26 27.95	1	2	3	4
14	28 29.95	1	1	1	1

$\lambda = 2$

$A_0 = 0.9735$

$\theta' = 2.1144$

$V_0 = 10.9735$

$S_2 = 5.5895$

$S_3 = 21.3306$

$\gamma_1 = 5.5895$

$\gamma_2 =$

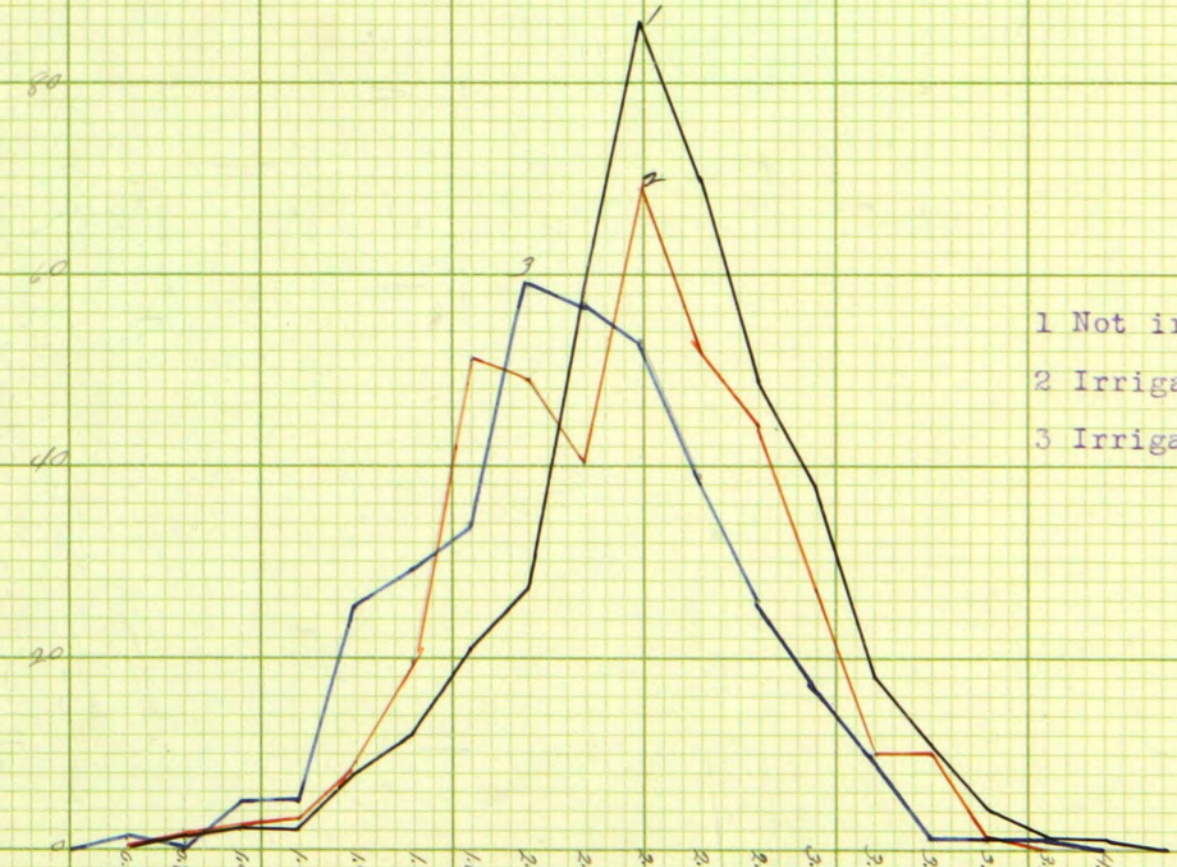
$A' = 6.0770$

$V_0' = 5.4875$

$\gamma_{V_0} = 0.5895$

$A = 12.1540 \pm 0.1709$

$\theta = 4.8288 \pm 0.1209$



	A.	S.D.
1 Not irrigated	2.5488 ± 0.0160	0.4797 ± 0.0113
2 Irrigated July 7	2.4434 ± 0.0176	0.4950 ± 0.0120
3 Irrigated June 22	2.2590 ± 0.0180	0.5074 ± 0.0127

Frequency distribution of average panicle grain yield per plant in grams.

Great Dakota.

	Classes	f	S_1'	S_2'	S_3'
1	0.80 — .95	1	[illegible]	3832	21344
2	1.00 — 1.15	2	503	3423	17212
3	1.20 — 1.35	2	406	3015	13789
4	1.40 — 1.55	8	404	2609	10774
5	1.60 — 1.75	12	396	2205	8165
6	1.80 — 1.95	21	384	1809	5960
7	2.00 — 2.15	27	363	1425	4151
8	2.20 — 2.35	58	336	1062	2726
9	2.40 — 2.55	86	278	726	1664
10	2.60 — 2.75	70	192	448	938
11	2.80 — 2.95	49	122	256	490
12	3.00 — 3.15	38	73	134	234
13	3.20 — 3.35	18	35	61	100
14	3.40 — 3.55	11	17	26	39
15	3.60 — 3.75	4	6	9	13
16	3.80 — 3.95	1	2	3	4
17	4.00 — 4.15	1	1	1	1

$\lambda = 0.20$

$A_0 = 0.675$

$\theta' = 2.3956$

$V_0 = 2.475$

$S_2 = 9.3692$

$S_3 = 51.4523$

$V_1' = 9.3692$

$V_2 = 5.7535$

$A' = 12.7442$

$V_0' = 12.3750$

$V_{V_0} = 0.3692$

$A = 2.5488 \pm 0.0160$

$C = 0.4797 \pm 0.0113$

	Classes	f	S'_1	S'_2	S'_3
1	0.80 – 0.95	1	388	3353	17353
2	1.00 – 1.15	2	387	2965	14000
3	1.20 – 1.35	3	385	2578	11035
4	1.40 – 1.55	9	382	2193	8457
5	1.60 – 1.75	20	373	1811	6264
6	1.80 – 1.95	51	353	1438	4453
7	2.00 – 2.15	49	302	1085	3015
8	2.20 – 2.35	40	253	783	1930
9	2.40 – 2.55	69	213	530	1147
10	2.60 – 2.75	52	144	317	617
11	2.80 – 2.95	44	92	173	300
12	3.00 – 3.15	27	48	81	127
13	3.20 – 3.35	10	21	33	46
14	3.40 – 3.55	10	11	12	13
15	3.60 – 3.75	1	1	1	1

$\lambda = 0.20$

$A_c = 0.675$

$\theta' \quad 2.4750$

$V_0 \quad 2.475$

$S_2 = 8.6418$

$S_3 = 44.7242$

$V'_1 = 8.6418$

$V_2 = 6,1259$

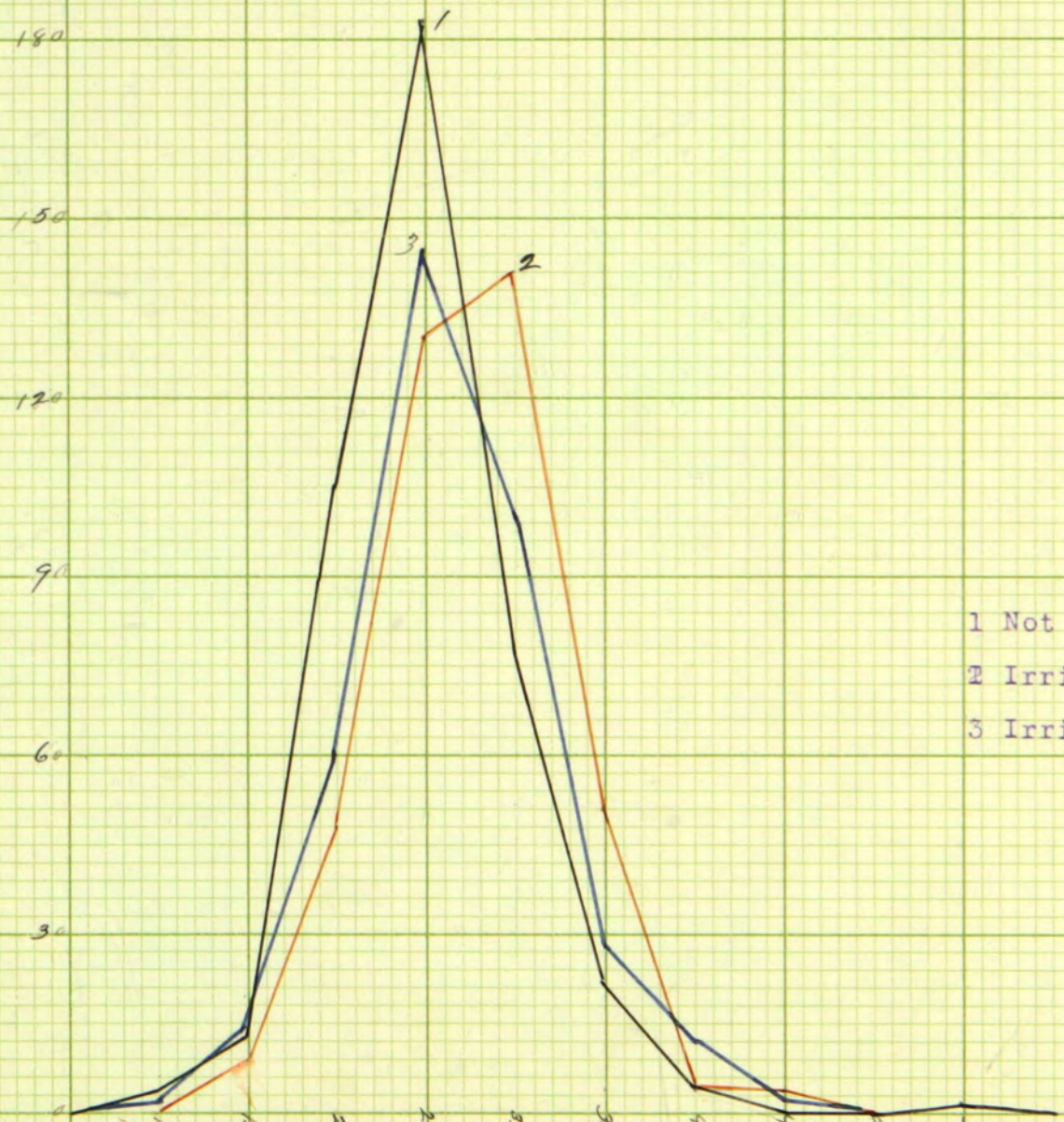
$A' = 12.0168$

$V'_0 = 12.3750$

$V'_{r_0} = -0.3582$

$A = 2.4034 \pm .0.0170$

$r = 0.4950 \pm 0.0120$



	A.	S.D
1 Not Irrigated	2.7201 ± 0.0171	0.5127 ± 0.0121
2 Irrigated July 7	3.0011 ± 0.0172	0.5015 ± 0.0121
3 Irrigated June 22	2.8813 ± 0.0191	0.5407 ± 0.0133

Frequency distribution of average stem straw weight per plant.
Great Dakota.

	Classes	f	S_1'	S_2'	S_3'
1	1 – 1.45	4	409	1632	4287
2	1.50 – 1.95	13	405	2223	2655
3	2.00 – 2.45	105	392	818	1432
4	2.50 – 2.95	183	287	−26	614
5	3.00 – 3.45	77	104	139	108
6	3.50 – 3.95	22	27	35	49
7	4.00 – 4.45	4	5	8	14
8	4.50 – 4.95	0	1	3	6
9	5.00 – 5.45	0	1	2	3
10	5.50 – 5.95	1	1	1	1

$\lambda = 0.50$

$A_0 = 0.7225$

$\theta' = 1.02524$

$V_0 = 2.7225$

$S_2 = 3.9902$

$S_3 = 10.4817$

$V_1' = 3.9902$

$V_2 = 1.0515$

$A' = 5.4402$

$V_{0_1}' = 5.45$

$Y_{V_0} = -0.0098$

$A = 2.7201 \pm 0.0171$

$\theta = 0.5127 \pm 0.0121$

Classes	f	S_1'	S_2'	S_3'
1.50 – 1.70	3	388	2561	10573
1.75 – 1.95	6	385	2173	7952
2.00 – 2.20	12	379	1788	5779
2.25 – 2.45	36	367	1409	3991
2.50 – 2.70	47	331	1042	2582
2.75 – 2.95	83	284	711	1540
3.00 – 3.20	77	201	427	829
3.25 – 3.45	64	124	226	402
3.50 – 3.70	35	60	102	176
3.75 – 3.95	17	25	42	74
4.00 – 4.20	4	8	17	32
4.25 – 4.45	0	4	9	15
4.50 – 4.70	3	4	5	6
4.75 – 4.95	1	1	1	1

$\lambda = 0.25$

$A_0 = 1.33$

$\theta' = 2.0039$

$V_0 = 3.10$

$S_2 = 6.6005$

$S_3 = 27.0954$

$V_1' = 6.6005$

$V_2 = 4.0237$

$A' = 12.0005$

$V_0' = 12.0400$

$V_{V_0} = -0.0395$

$A = 3.0001 \pm 0.0172$

$C = 0.5013 \pm 0.0121$

	Classes	f	S_1'	S_2'	S_3
1	1.25 – 1.45	2	363	2585	11344
2	1.50 – 1.70	2	361	2222	8759
3	1.75 – 1.95	12	359	1861	6537
4	2.00 – 2.20	18	347	1502	4676
5	2.25 – 2.45	42	329	1155	3174
6	2.50 – 2.70	61	287	826	2019
7	2.75 – 2.95	84	226	539	1193
8	3.00 – 3.20	59	142	313	654
9	3.25 – 3.45	41	83	171	341
10	3.50 – 3.70	19	42	88	170
11	3.75 – 3.95	9	23	46	82
12	4.00 – 4.20	8	14	23	36
13	4.25 – 4.45	4	6	9	13
14	4.50 – 4.70	1	2	3	4
15	4.75 – 4.95	1	1	1	1

$\lambda = 0.25$

$A_0 = 1.10$

$\theta' = 2.1607$

$V_0 = 2.85$

$S_2 = 7.1212$

$S_3 = 31.2507$

$V_1' = 7.1212$

$V_2 =$

$A' = 11.5212$

$V_0' = 11.4000$

$\sqrt{V_0} = 0.1212$

$A = 2.8813 \pm 0.0191$

$\theta = 0.5402 \pm 0.0135$

Classes	0.60 – 0.75	0.80 – 0.95	1.00 – 1.15	1.20 – 1.35	1.40 – 1.55	1.60 – 1.75	1.80 – 1.95	2.00 – 2.15	2.20 – 2.35	2.40 – 2.55	2.60 – 2.75	2.80 – 2.95	3.00 – 3.15	3.20 – 3.35	3.40 – 3.55	3.60 – 3.75	3.80 – 3.95	
1.25 – 1.45	48 1		36 1															2
1.50 – 1.70				25 2														2
1.75 – 1.95			24 3		16 5	12 3		4 1										12
2.00 – 2.20				15 1	12 5	9 6	6 3	3 3										18
2.25 – 2.45			12 1	10 1	8 5	6 11	4 10	2 9	0 4		4 1							42
2.50 – 2.70					4 4	3 2	2 11	1 19	0 16	1 7	2 2							61
2.75 – 2.95				0 1	0 4	0 5	0 2	0 16	0 21	0 22	0 7	0 6						84
3.00 – 3.20					4 2	3 2	2 5	1 5	0 10	1 12	2 15	3 5	4 3					59
3.25 – 3.45							4 2	2 2	0 4	2 7	4 11	6 8	8 5	10 2				41
3.50 – 3.70							6 1	3 2		3 3	6 3	9 3	12 3	15 3	18 1			19
3.75 – 3.95								4 2		4 1		12 1	16 1	21 3		28 1		9
4.00 – 4.20									0 1			15 3	20 1	25 2			40 1	8
4.25 – 4.45									0 1	6 1			24 2					4
4.50 – 4.70													28 1					1
4.75 – 4.95													32 1					1
	1	0	5	5	25	29	34	59	57	53	39	26	17	10	1	1	1	363

$$r = 0.7192 \pm 0.0171$$

Correlation between the average panicle grain yield per plant, subject; and the average stem straw weight per plant relative. Great Dakota.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	Classes	.80 — .95	1.00 — 1.15	1.20 — 1.35	1.40 — 1.55	1.60 — 1.75	1.80 — 1.95	2.00 — 2.15	2.20 — 2.35	2.40 — 2.55	2.60 — 2.75	2.80 — 2.95	3.00 — 3.15	3.20 — 3.35	3.40 — 3.55	3.60 — 3.75	3.80 — 3.95	4.00 — 4.15	
1	1.00 — 1.45	24 1	21 2		15 1														4
2	1.50 — 1.95			12 2	10 2	8 5	6 3	4 1											13
3	2.00 — 2.45				5 4	4 6	3 16	2 21	1 29	0 24	1 4	2 1							105
4	2.50 — 2.95				0 1		0 1	0 5	0 26	0 56	0 51	0 32	0 10	0 1					183
5	3.00 — 3.45					4 1	3 1		1 2	0 4	1 14	2 15	3 22	4 10	5 7	6 1			77
6	3.50 — 3.95								2 1	0 1	2 1	4 1	6 6	8 5	10 3	12 2	14 1	16 1	22
7	4.00 — 4.45									0 1				12 2	13 1				4
8	4.50 — 4.95																		0
9	5.00 — 5.45																		0
10	5.50 — 5.95															36 1			1
		1	2	2	8	12	21	27	58	86	70	49	38	18	11	4	1	1	409

$r = 0.7660 \pm 0.0138$

Correlation between the average panicle grain yield per plant, subject; and the average stem straw weight per plant, relative. Great Dakota,

Classes	0.80 – 0.95	1.00 – 1.15	1.20 – 1.35	1.40 – 1.55	1.60 – 1.75	1.80 – 1.95	2.00 – 2.15	2.20 – 2.35	2.40 – 2.55	2.60 – 2.75	2.80 – 2.95	3.00 – 3.15	3.20 – 3.35	3.40 – 3.55	3.60 – 3.75	
1 1.50 – 1.70		42 1	36 2													3
2 1.75 – 1.95	40 1	35 1		25 3	20 1											6
3 2.00 – 2.20				20 1	16 2	12 9										12
4 2.25 – 2.45			18 1	15 2	12 5	9 14	6 6	3 4	0 2							36
5 2.50 – 2.70					8 5	6 7	4 11	2 11	0 10	2 3						47
6 2.75 – 2.95				5 1	4 5	3 9	2 17	1 11	0 22	1 12	2 4	4 2				83
7 3.00 – 3.20				0 2	0 2	0 6	0 8	0 5	18	0 16	0 13	0 7				77
8 3.25 – 3.45						3 5	2 2	1 5	0 14	1 10	2 17	3 9	4 2			64
9 3.50 – 3.70							4 4	2 2	0 3	2 7	4 7	6 4	8 4	10 4		35
10 3.75 – 3.95						9 1	6 1			0 3	6 2	9 3	12 3	15 4		17
11 4.00 – 4.20										4 1		12 1	16 1	20 1		4
12 4.25 – 4.45																0
13 4.50 – 4.70												18 1		30 1	36 1	3
14 4.75 – 4.95											14 1					1
	1	2	3	9	20	51	49	40	69	52	44	27	10	10	1	388

$r = 0.7214 \pm 0.0164$

Correlation between the average panicle grain yield per plant, subject; and the average stem straw weight per plant, relative. Great Dakota.

		1	2	3	4	5	6	7	8	9	10	
	Classes	0 — 1.99	2 — 3.99	4 — 5.99	6 — 7.99	8 — 9.99	10 — 11.99	12 — 13.99	14 — 15.99	16 — 17.99	18 — 19.99	
1	0 — 1.99	20 5										5
2	2 — 3.99	16 2	12 6									8
3	4 — 5.99		9 7	6 29	3 1							37
4	6 — 7.99			4 8	2 44	0 8						60
5	8 — 9.99			2 2	1 33	0 36	1 5					96
6	10 — 11.99			0 1	0 4	0 23	0 53	0 6				89
7	12 — 13.99				1 1	0 3	1 19	2 36	3 1			60
8	14 — 15.99					0 2	2 3	4 18	6 12	8 2		37
9	16 — 17.99							6 3	9 6	12 3		12
10	18 — 19.99								12 2	16 1		3
11	20 — 21.99									20 1		1
12	22 — 23.99										30 1	1
		7	13	40	83	92	82	63	21	7	1	409

$$r = 0.9198 \pm 0.0051$$

Correlation between the total grain weight per plant, subject; and the total straw weight per plant relative. Great Dakota.

Classes	0 – 1.99	2 – 3.99	4 – 5.99	6 – 7.99	8 – 9.99	10 – 11.99	12 – 13.99	14 – 15.99	16 – 17.99	18 – 19.99	
1	0 – 1.99	30 1									1
2	2 – 3.99	25 2	20 5								7
3	4 – 5.99	16	12 9	11							20
4	6 – 7.99	12	9 2	10	6 9						21
5	8 – 9.99		6	3	4 23	2 15	0 1				42
6	10 – 11.99				2 13	1 30	0 19	1 2			64
7	12 – 13.99				0 8	0 18	0 46	0 8			80
8	14 – 15.99				2 2	1 8	0 19	1 30	2 6		65
9	16 – 17.99					2 3	0 5	2 12	4 15	6 3	38
10	18 – 19.99					3 1	0 4	3 6	6 11	9 9	12 2	33
11	20 – 21.99							4 2	8 2	12 3	16 1	10
12	22 – 23.99								10 1		20 5	6
13	24 – 25.99										24 1	1
		3	16	24	55	75	94	60	35	17	9	388

$r = 0.8849 \pm 0.0074$

Correlation between the total grain weight per plant, subject; and the total straw weight per plant, relative. Great Dakota.

Classes	0 — 1.95⁻	2 — 3.95⁻	4 — 5.95⁻	6 — 7.95⁻	8 — 9.95⁻	10 — 11.95⁻	12 — 13.95⁻	14 — 15.95⁻	16 — 17.95⁻	
2 — 3.95⁻	16 2	12 10	8 1							13
4 — 5.95⁻		9 8	6 10							18
6 — 7.95⁻			4 30	2 15⁻						45⁻
8 — 9.95⁻			2 7	1 29	0 15⁻	1 1				52
10 — 11.95⁻			0 1	0 11	0 27	0 17				56
12 — 13.95⁻				1 5	0 18	1 23	2 5⁻			51
14 — 15.95⁻				2 1	0 5	2 15⁻	4 26	6 4		51
16 — 17.95⁻				3 1	0 1	3 8	6 18	9 10	12 3	41
18 — 19.95⁻						4 4	8 2	12 4	16 4	14
20 — 21.95⁻						5⁻ 2	10 1	15 3	20 3	9
22 — 23.95⁻						6 2		18 4	24 3	9
24 — 25.95⁻							14 1		28 1	2
26 — 27.95⁻							16 1			1
28 — 29.95⁻							18 1			1
	2	18	49	62	66	72	55	25⁻	14	363

$r = 0.8644 \pm 0.0090$

Correlation between the total grain weight per plant, subject; and the total straw weight per plant, relative. Great Dakota.

Classes	0 — 4.95	5 — 9.95	10 — 14.95	15 — 19.95	20 — 24.95	25 — 29.95	30 — 34.95	35 — 39.95	40 — 44.95	
2 — 3.95	16 4	12 9								13
4 — 5.95		9 9	6 9							18
6 — 7.95			4 45							45
8 — 9.95			2 12	1 40						52
10 — 11.95				0 26	0 30					56
12 — 13.95				1 3	0 40	1 8				51
14 — 15.95					0 8	2 42	4 1			51
16 — 17.95					0 1	3 20	6 20			41
18 — 19.95						4 3	8 7	12 4		14
20 — 21.95							10 3	12 6		9
22 — 23.95							12 1	18 7	24 1	9
24 — 25.95								21 1	28 1	2
26 — 27.95								24 1		1
28 — 29.95									36 1	1
	4	18	66	69	79	73	32	19	3	363

$r = 0.9990 \pm 0.0001$

Correlation between the total plant weight per plant, subject; and the total straw weight per plant, relative. Great Dakota.

Classes	0 — 4.99	5 — 9.99	10 — 14.99	15 — 19.99	20 — 24.99	25 — 29.99	30 — 34.99	35 — 39.99	40 — 44.99	
0 — 1.99	24 1									1
2 — 3.99	20 1	15 6								7
4 — 5.99		12 12	8 8							20
6 — 7.99		9 1	6 19	3 1						21
8 — 9.99			4 7	2 35						42
10 — 16.99				1 30	0 34					64
12 — 13.99				0 4	0 63	0 13				80
14 — 15.99					0 12	1 52	2 1			65
16 — 17.99						2 14	4 24			38
18 — 19.99						3 3	6 19	9 11		33
20 — 21.99							8 2	12 8		10
22 — 23.99								15 1	20 5	6
24 — 25.99									24 1	1
	2	19	34	70	109	82	46	20	6	388

$$r = 0.9559 \pm 0.0029$$

Correlation between the total plant weight per plant, subject; and the total straw weight per plant, relative. Great Dakota.

	Classes	1 0 — 4.99	2 5 — 9.99	3 10 — 14.99	4 15 — 19.99	5 20 — 24.99	6 25 — 29.99	7 30 — 34.99	8 35 — 39.99	9 40 — 44.99	
1	0 — 1.99	15 5									5
2	2 — 3.99	12 4	8 4								8
3	4 — 5.99		6 21	3 16							37
4	6 — 7.99			2 44	0 16						60
5	8 — 9.99			1 2	0 93	1 1					96
6	10 — 11.99				0 14	0 75					89
7	12 — 13.99				0 1	1 26	2 33				60
8	14 — 15.99					2 1	4 29	6 7			37
9	16 — 17.99						6 2	9 10			12
10	18 — 19.99								16 3		3
11	20 — 21.99								20 1		1
12	22 — 23.99									30 1	1
		9	25	62	124	103	64	17	4	1	409

$$r = 0.9568 \pm 0.0028$$

Correlation between the total plant weight per plant, subject; and the total straw weight per plant, relative. Great Dakota.

		1	2	3	4	5	6	7	8	9	
	Classes	0 — 4.95	5 — 9.95	10 — 14.95	15 — 19.95	20 — 24.95	25 — 29.95	30 — 34.95	35 — 39.95	40 — 44.95	
1	0 — 1.95	12 7									7
2	2 — 3.95	9 2	6 11								13
3	4 — 5.95		4 14	2 24	0 2						40
4	6 — 7.95			1 38	0 45						83
5	8 — 9.95				0 73	0 18	0 1				92
6	10 — 11.95				0 4	1 72	2 6				82
7	12 — 13.95					2 13	4 49	6 1			63
8	14 — 15.95						6 8	9 11	12 2		21
9	16 — 17.95							12 3	16 2		7
10	18 — 19.95									25 1	1
		9	25	62	124	103	64	17	4	1	409

$$r = 0.9435 \pm 0.0036$$

Correlation between the total plant weight per plant, subject; and the total grain weight per plant, relative. Great Dakota.

Classes	0 — 4.99	5 — 9.99	10 — 14.99	15 — 19.99	20 — 24.99	25 — 29.99	30 — 34.99	35 — 39.99	40 — 44.99	
0 — 1.95	20 2	15 1								3
2 — 3.95		12 15	8 1							16
4 — 5.95		9 3	6 21							24
6 — 7.95			4 12	2 37	0 6					55
8 — 9.95				1 32	0 37	1 6				75
10 — 11.95				0 1	0 63	0 28	0 2			94
12 — 13.95					0 3	1 43	2 14			60
14 — 15.95						2 5	4 27	6 3		35
16 — 17.95							6 3	9 12 14		17
18 — 19.95								3	16 6	9
	2	19	34	70	109	87	46	20	6	388

$$r = 0.9406 \pm 0.0039$$

Correlation between the total plant weight per plant, subject; and the total grain weight per plant, relative. Great Dakota.

Classes	0 – 4.95	5 – 9.95	10 – 14.95	15 – 19.95	20 – 24.95	25 – 29.95	30 – 34.95	35 – 39.95	40 – 44.95	
0 – 1.95	16 2									2
2 – 3.95	12 2	9 16								18
4 – 5.95		6 2	4 45	2 2						49
6 – 7.95			2 21	1 37	0 4					62
8 – 9.95				0 29	0 36	0 1				66
10 – 11.95				1 1	0 38	1 28	2 4	3 1		72
12 – 13.95					0 1	2 41	4 10	6 2	8 1	55
14 – 15.95						3 3	6 14	9 8		25
16 – 17.95							8 4	12 8	16 2	14
	4	18	66	69	79	73	32	19	3	363

$r = 0.9362 \pm 0.0044$

Correlation between the total plant weight per plant, subject; and the total grain weight per plant, relative. Great Dakota.

	Classes	1 0.50 — 0.54	2 0.55 — 0.59	3 0.60 — 0.64	4 0.65 — 0.69	5 0.70 — 0.74	6 0.75 — 0.79	7 0.80 — 0.84	8 0.85 — 0.89	9 0.90 — 0.94	10 0.95 — 0.99	11 1.00 — 1.04	12 1.05 — 1.09	13 1.10 — 1.14	14 1.15 —
1	0 — 4.95				18 1	15 2	12 1	9 2	6 1			3 1	6 1		
2	5 — 9.95				12 1	10 1	8 2	6 4	4 3	2 3	0 3	2 4	4 2		8 2
3	10 — 14.95		8 1		6 1	5 1	4 3	3 3	2 8	1 10	0 14	1 11	2 7	3 3	
4	15 — 19.95	0 1	0 1	0 3	0 1	0 1	0 3	0 8	0 19	0 27	0 19	0 21	0 14	0 5	0 1
5	20 — 24.95				6 1	5 2	4 3	3 6	2 20	1 18	0 24	1 21	2 3	3 5	
6	25 — 29.95			14 1			8 3	6 9	4 8	2 18	1 10	2 9	4 4	6 2	
7	30 — 34.95							9 1	6 2	3 3	0 6	3 4	6 1		
8	35 — 39.95						16 2	12 1	8 1						
9	40 — 44.95								10 1						
		1	2	4	5	7	17	34	63	79	76	71	32	15	3

9
25
62
124
103
64
17
4
1
469

$r = 0.0215 \pm 0.0333$

Correlation between the ratio of total grain to total straw per plant, subject; and the total grain weight per plant, relative. Great Dakota.

Classes	0.40 — 0.44	0.45 — 0.49	0.50 — 0.54	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	
0 — 4.99		28 1					8 2		0 1							4
5 — 9.99				15 3	12 3	9 1	6 2	3 4	0 3		6 1				18 1	18
10 — 14.99	16 1		12 1	10 1	8 1	6 5	4 11	2 16	0 9	2 11	4 8	6 1	8 1			66
15 — 19.99			6 3	5 2	4 3	3 5	2 8	1 12	0 14	1 9	2 6	3 5		5 1	6 1	69
20 — 24.99		0 1	0 3	0 2	0 4	0 6	0 10	0 10	0 15	0 14	0 3	0 9	0 2			79
25 — 29.99			6 1	5 5	4 1	3 4	2 10	1 13	0 11	1 15	2 9	3 4				73
30 — 34.99		14 1	12 1	10 3	8 2		4 1	2 6	0 9	2 3	4 5		8 1			32
35 — 39.99		21 2	18 1		12 1	9 3	6 4	3 2	0 4	3 1	6 1					19
40 — 44.99		28 1				12 1		4 1								3
	1	6	10	16	15	25	48	64	66	53	33	19	4	1	2	363

$$r = -0.0337 \pm 0.0354$$

Correlation between the ratio of total grain to total straw per plant, subject; and the total grain weight per plant, relative. Great Dakota.

Classes	0.45 — 0.49	0.50 — 0.54	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	
1 0 — 4.99			20 1	16 1											2
2 5 — 9.99	21 1		15 1	12 1	9 1	6 3	3 2		3 4	6 3	9 2		13 1		19
3 10 — 14.99			10 1	8 3	6 2	4 1	2 7	0 4	2 8	4 5	6 2	8 1			34
4 15 — 19.99	7 1	6 2	5 5	4 3	3 5	2 6	1 7	0 12	1 11	2 7	3 9	4 2			70
5 20 — 24.99	0 1	0 2	0 3	0 6	0 11	0 11	0 21	0 14	0 17	0 16	0 4	0 2		0 1	109
6 25 — 29.99		6 2	5 3	4 3	3 9	2 5	1 10	0 13	1 18	2 13	3 6				82
7 30 — 34.99			10 2	8 2	6 3	4 3	2 12	0 8	2 8	4 3	6 5				46
8 35 — 39.99					9 1	6 1	3 2	1 5	3 8	6 2	9 1				20
9 40 — 44.99							4 2	0 1	4 2	8 1					6
	3	6	16	19	32	30	63	57	76	50	29	5	1	1	388

$$r = 0.0613 \pm 0.0341$$

Correlation between the ratio of total grain to total straw per plant, subject; and the total plant weight per plant; relative. Great Dakota.

Classes	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	
1 20 – 24	35			24 1	18 1				5						2
2 25 – 29	1					10 1	5 1		1						4
3 30 – 34			20 1	16 1		8 1		0 1	4 1	8 1					6
4 35 – 39			15 2	12 4	9 2	6 2	3 7	0 6	3 5	6 3	9 1				32
5 40 – 44		12 2	10 3	8 4	6 9	4 6	2 7	0 9	2 7	4 5	6 3			12 1	56
6 45 – 49	7 2	6 2	5 5	4 6	3 9	2 7	1 19	0 16	1 10	2 11	3 4	4 2	5 1		94
7 50 – 54		0 1	0 3	0 1	0 7	0 8	0 12	0 11	0 20	0 13	0 11	0 1			88
8 55 – 59		6 1	5 2	4 2	3 3	2 4	1 14	0 6	1 16	2 11	3 8	4 2			69
9 60 – 64					6 1	4 1	2 2	0 6	2 13	4 4	6 1				28
10 65 – 69								0 1	3 3	6 1	5 1				6
11 70 – 74							4 1			8 1					2
12 75 – 79															0
13 80 – 84								0 1							1
	3	6	16	19	32	30	63	57	76	50	29	5	1	1	388

$$r = 0.2646 \pm 0.0318$$

Correlation between the ratio of total grain to total straw per plant, subject; and the average panicle number of spikelets, per paint, relative. Great Dakota.

Classes	0.40 – 0.44	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	
15 – 19				25 1												1
20 – 24				20 1			8 1	4 1								3
25 – 29		24 1			12 1	9 1			0 2							5
30 – 34		14 1		10 3	8 1	6 3	4 7	2 13	0 5	2 3						36
35 – 39	8 1	7 1	6 2	5 3	4 8	3 6	2 10	1 12	0 10	1 4	2 5	3 1	4 2		6 1	66
40 – 44	0	0 2	0 7	0 1	0 2	0 5	2 12	0 18	0 23	0 10	0 10	0 3			0 1	94
45 – 49		7 1	6 1	5 3	4 1	3 5	2 8	1 10	0 12	1 18	2 6	3 7	4 1	5 1		74
50 – 54				10 2	8 1	6 2	4 5	2 6	0 6	2 15	4 6	6 5				48
55 – 59				15 1	12 1	9 2	6 3	3 4	0 6	3 1	6 3	9 1	12 1			23
60 – 64				20 1		12 1	8 2		0 2	4 2	8 2	12 1				11
65 – 69												15 1				1
70 – 74											12 1					1
	1	6	10	16	15	25	48	64	66	53	33	19	4	1	2	363

$$r = 0.2636 \pm 0.0329$$

Correlation between the ratio of total grain to total straw per plant, subject; and the average panicle number of spikelets per plant, relative. Great Dakota.

	Classes	1 0.50 – 0.54	2 0.55 – 0.59	3 0.60 – 0.64	4 0.65 – 0.69	5 0.70 – 0.74	6 0.75 – 0.79	7 0.80 – 0.84	8 0.85 – 0.89	9 0.90 – 0.94	10 0.95 – 0.99	11 1.00 – 1.04	12 1.05 – 1.09	13 1.10 – 1.14	14 1.15 – 1.19	
1	15 – 19							18 1								1
2	20 – 24					25 1		15 1								2
3	25 – 29				24 1	20 1										2
4	30 – 34				18 1				6 4	3 1	0 1	3 2	6 1			10
5	35 – 39			44 1	12 1	10 3	8 4	6 5	4 7	2 7	0 6	2 2			8 1	37
6	40 – 44				6 1		4 5	3 4	2 13	1 16	0 11	1 5	2 3	3 1		59
7	45 – 49	0 1		0 1			0 1	0 6	0 20	0 21	0 18	0 22	0 8	0 2	0 2	102
8	50 – 54		8 2		6 1	3 1	4 6	3 10	2 11	1 23	0 14	1 15	2 10	3 4		97
9	55 – 59						8 1	6 1	4 4	2 8	0 18	2 10	4 7	6 3		52
10	60 – 64			21 2				9 6	6 2	3 2	0 6	3 9	6 2	7 4		33
11	65 – 69					20 1			8 2	4 1	0 2	4 5	8 1			12
12	70 – 74											6 1				0
13	75 – 79													21 1		1
14	80 – 84															1
		1	2	4	5	7	17	34	63	79	76	71	32	15	3	409

$r = 0.2638 \pm 0.0910$

Correlation between the ratio of total grain to total straw per plant, subject; and the average panicle number of spikelets per plant, relative. Great Dakota

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Classes	0.50 — 0.54	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	1.15 — 1.19	
1 75 — 79							18 1								1
2 80 — 84								10 1							1
3 85 — 89					20 1		12 2								3
4 90 — 94			21 1	18 1		12 1					3 1	6 1			5
5 95 — 99		16 1	14 1			8 1	6 2	4 5	2 5	0 4	2 5	4 4			28
6 100 — 104				6 1	5 2	4 5	3 3	2 10	1 9	0 13	1 17	2 9	3 3		72
7 105 — 109	0 1	0 1	0 1	0 1	0 2	0 4	0 7	0 20	0 27	0 20	0 16	0 7	0 7	0 2	116
8 110 — 114			7 1	6 2	5 1	4 3	3 10	2 19	1 27	0 24	1 22	2 8	3 4	4 1	122
9 115 — 119						8 2	6 7	4 5	2 11	0 14	2 9	4 3	6 1		52
10 120 — 124					13 1	12 1	9 2	6 2		0 1	3 1				8
11 125 — 129								8 1							1
	1	2	4	5	7	17	34	63	79	76	71	32	15	3	409

$r = 0.0515 \pm 0.0333$

Correlation between the ratio of total grain to total straw per plant, subject; and the average stem height per plant, relative. Great Dakota

Classes	0.40 – 0.44	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	
95 – 99							12 1									1
100 – 104		35 1														1
105 – 109				20 1	16 1											2
110 – 114				15 1	17 1		6 1	3 1		3 1						5
115 – 119	16 1			10 2		6 2	4 3	2 7	0 4	2 2	4 3		8 1		12 2	27
120 – 124		7 1	6 1	5 4	4 1	3 3	2 7	1 15	0 10	1 6	2 8	3 1	4 2			57
125 – 129			0 2	0 2	0 3	0 3	0 12	0 14	0 16	0 22	0 9	0 6				85
130 – 134			6 3	5 4	4 3	3 7	2 12	1 16	0 21	1 13	2 9	3 5	4 1	5 1		99
135 – 139		14 3	12 3		8 5	6 5	4 9	2 7	0 11	2 8	4 4	6 1				56
140 – 144		21 1	18 1	15 2	12 1	9 4	6 2	3 4	0 4	3 1		9 2				22
145 – 149						12 1	8 1									2
	1	6	10	16	15	25	48	64	66	53	33	19	4	1	2	363

$$r = -0.0358 \pm 0.0354$$

Correlation between the ratio of total grain to total straw per plant, subject; and the average stem height per plant, relative. Great Dakota.

Classes	0.45 — 0.49	0.50 — 0.54	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	
1 95 — 99								1							1
2 100 — 104	1														1
3 105 — 109				1											1
4 110 — 114						1	1		2						4
5 115 — 119				2	1	1	1	2	2	1					10
6 120 — 124			1	3	3	2	5	4	2	4	2				26
7 125 — 129	1		4	5	4	4	12	10	8	6	5			1	60
8 130 — 134		5	5	5	11	8	14	17	21	21	10	3	1		121
9 135 — 139	1		5		8	11	20	15	20	10	9	2			101
10 140 — 144		1	1	3	5	3	10	8	20	7	3				61
11 145 — 149									1	1					2
	3	6	16	19	32	30	63	57	76	50	29	5	1	1	388

$r = 0.1173 \pm 0.0338$

Correlation between the ratio of total grain to total straw per plant, subject; and the average stem height per plant, relative. Great Dakota.

	Classes	1 0.50 — 0.54	2 0.55 — 0.59	3 0.60 — 0.64	4 0.65 — 0.69	5 0.70 — 0.74	6 0.75 — 0.79	7 0.80 — 0.84	8 0.85 — 0.89	9 0.90 — 0.94	10 0.95 — 0.99	11 1.00 — 1.04	12 1.05 — 1.09	13 1.10 — 1.14	14 1.15 — 1.19	
1	1				18 1	13 2	12 1	9 2	6 1			3 1	6 1		12 1	10
2	2			14 1		10 1	8 4	6 7	4 5	2 6	0 8	2 11	4 7	6 3	8 1	54
3	3		8 2	7 1	6 2	5 3	4 1	3 5	2 21	1 25	0 25	1 24	2 11	8 4	4 1	125
4	4	0 1		0 1	0 1		0 5	0 8	0 21	0 24	0 25	0 17	0 9	0 6		118
5	5			7 1	6 1	5 1	4 2	3 11	2 11	1 17	0 13	1 14	2 3	3 2		76
6	6						8 4		4 3	2 7	0 5	2 4	4 1			24
7	7							9 1								1
8	8								8 1							1
		1	2	4	5	7	17	34	63	79	76	71	32	15	3	409

$$r = -0.0398 \pm 0.0333$$

Correlation between the ratio of total grain to total straw per plant, subject; and the number of stems per plant, relative. Great Dakota.

Classes	0.40 — 0.44	0.45 — 0.49	0.50 — 0.54	0.55 — 0.59	0.60 — 0.64	0.65 — 0.69	0.70 — 0.74	0.75 — 0.79	0.80 — 0.84	0.85 — 0.89	0.90 — 0.94	0.95 — 0.99	1.00 — 1.04	1.05 — 1.09	1.10 — 1.14	
1						9 1	6 1		0 1		6 1					4
2		14 1		10 2	8 3		4 6	2 6	0 6	2 4	4 4	6 1			12 1	34
3			6 1	5 2	4 1	3 7	2 11	1 18	0 14	1 14	2 8	3 7	4 1	5 1		85
4	0 1		0 4	0 4	0 3	0 6	0 12	0 14	0 19	0 15	0 6	0 7	0 1		0 1	93
5			6 3	5 4	4 4	3 7	2 12	1 17	0 13	1 17	2 10	3 3	4 2			92
6		14 2	12 1	10 1	8 3		4 4	2 8	0 9	2 3	4 3	6 1				35
7		21 1	18 1	15 2	12 1	9 3	6 2	3 1	0 4		6 1					16
8		28 1				12 1										2
9		35 1		25 1												2
	1	6	10	16	15	25	48	64	66	53	33	19	4	1	2	363

$$r = -0.1845 \pm 0.0342$$

Correlation between the ratio of total grain to total straw per plant, subject; and the number of stems per plant, relative. Great Dakota,

Classes	0.45 – 0.49	0.50 – 0.54	0.55 – 0.59	0.60 – 0.64	0.65 – 0.69	0.70 – 0.74	0.75 – 0.79	0.80 – 0.84	0.85 – 0.89	0.90 – 0.94	0.95 – 0.99	1.00 – 1.04	1.05 – 1.09	1.10 – 1.14	
1	1			13 2	12 1							9 1	15 1		5
2	2	14 1		10 1	8 1	6 1	4 2	2 3	0 2	2 8	4 6	6 2	8 1			28
3	3			5 1	4 3	3 5	2 7	1 8	0 9	1 13	2 10	3 9	4 1			66
4	4	0 1	0 3	0 8	0 6	0 13	0 6	0 21	0 15	0 23	0 15	0 8	0 3			122
5	5		6 2	5 3	4 5	3 8	2 11	1 17	0 17	1 19	2 14	3 4			6 1	101
6	6		12 1	10 1	8 2	6 3	4 4	2 11	0 11	2 12	4 4	6 4				53
7	7	21 1			12 1	9 2		3 3	0 2	3 1	6 1	9 1				12
8	8								0 1							1
		3	6	16	19	32	30	63	57	76	50	29	5	1	1	388

$r = -0.0067 \pm .0341$

Correlation between the ratio of total grain to total straw per plant, subject; and the number of stems per plant, relative. Great Dakota.