A COMPARISON BETWEEN ACTUAL PLAT YIELDS AND THOSE CALCULATED FROM GRAIN-STRAW RATIOS

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The methods employed in securing plat yields vary widely, depending on the nature of the work under investigation. Plats may vary in size from the rod rows of the small grain nurseries to the comparatively large plats that are often found in outlying experimental fields and in tests carried out in cooperation with individual farmers. The technique involved in field experiments is rapidly becoming more complicated. To insure a valid interpretation of field results, the value of statistical methods is quite generally recognized. This has necessitated greater replication of treatments and a correspondingly larger consumption of time and labor. Any means, then, of reducing the labor involved in such experiments is now more valuable than it would have been when duplicate plats were considered sufficient. One of the most efficient means of limiting the time and labor involved in experimental work is to limit the necessity of hand labor. Since, in the case of experiments carried out in cooperation with individual farmers, the area of land available is not usually a limiting factor, it is customary to use plats sufficiently large to make possible the use of regular farm machinery. In the case of small grain experiments, this means that an entire plat, possibly one-twentieth acre, may be cut with a grain binder, resulting in a considerable saving of time as compared to the time required in the harvest of small measured areas by hand labor. There is one decided disadvantage, however, in that the threshing equipment used in experimental work is not of sufficient capacity to take care of the volume of grain results from harvesting such a large area. The following work was instituted to find some way to alleviate this disadvantage.

If one is to assume that the yield obtained from threshing the entire plat is the best criterion of the response of a particular treatment or test, then a method of harvest that will give a reasonable estimate of the total plat yield and at the same time materially reduce the time and labor involved, would prove advantageous in the field-work program. The degree of relationship between any two sets of values can be conveniently expressed by a correlation coefficient. In this case, linear correlation coefficients were determined between the actual plat yields and the plat yields calculated from the grain-straw ratio of a portion of the plat.

Procedure

The entire plat was cut with a binder, and three bundles were selected at random. The total bundle weight, grain weight of the entire plat, and the weight of each of the three bundles were recorded. From the grain-straw ratio of the separate bundles, an estimate of the plat yield was calculated by multiplying the total weight of the plat by a factor obtained by dividing the grain weight of the bundles by the combined grain and straw weight of the bundle. Correlation coefficients were obtained between the actual yields and calculated yields.