A COMPARISON BETWEEN YIELDS CALCULATED FROM THE GRAIN-STRAW RATIO AND THOSE CALCULATED FROM SMALL CUT-OUT AREAS

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IN order to insure a valid interpretation of field plat data the value of correct statistical analysis of the results is practically universally recognized. With the use of statistical methods requiring more replicates the number of field plats is materially increased and the labor involved in the care of these extra plats is correspondingly greater. Therefore, any means that results in a saving of time and which does not lessen the accuracy of the data obtained would be a very desirable addition in field work operations.

In a recent paper, a plan was suggested in which the yields of experimental plats can be accurately determined from the grain-straw ratio. If plat yields determined from the grain-straw ratio are sufficiently reliable, the hand labor involved in cutting out small areas in the plat can be eliminated, thus materially facilitating harvesting operations. This proposed method of plat yield determination would apply primarily to plats with sufficient area so that a binder can be used in harvesting. Plats with an area of 1/30 acre can be harvested in this way. Also, this size of plat is large enough to allow for the discarding of a portion of the crop to eliminate border effects.

In order to simulate field conditions and farming practices as closely as possible in carrying out an experiment, a program that allows for that size and shape of plat which makes practical the use of ordinary machinery is very desirable. The relationship of fertilizer placement to growth response of a crop makes it extremely important that results secured from an experiment carried out under one set of conditions are not allowed to refer to similar work carried out under different conditions. For example, in fertilizer studies with small grains it is illogical to assume that fertilizer applied broadcast over a plat is necessarily going to produce the same response as it would if applied with a grain drill with fertilizer attachment, the usual method employed by Michigan farmers. It would appear, then, in this particular case that the plat should be large enough to allow the use of a grain drill. However, this increases the area and requires more labor.

Past experience has shown that one of the most important limiting factors in small grain fertilizer experiments is the labor involved at