SIZE OF PLAT AND NUMBER OF REPLICATIONS IN FIELD EXPERIMENTS WITH COTTON

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In varietal and other experiments with cotton, as with farm crops in general, the question of what size plat and the number of replications to be used to obtain reliable and accurate results is of great importance. The nature of the crop and the great amount of labor necessary in obtaining yield data make it desirable to have as small a plat and as few replications as possible. A great deal has been done in determining the size of plats and numbers of replications for small grains, corn, and other crops, but particularly the small grains. For a comprehensive review of this subject the reader is referred to "Breeding Crop Plants," by Hayes and Garber (1). The writer has found nothing, however, in regard to cotton.

The object of the study reported in this paper is to determine the minimum size of plat and number of replications consistent with accuracy for cotton experiments. At the Oklahoma Agricultural Experiment Station previous to the season of 1926 experiments with cotton, excepting varietal tests, have been with one-tenth to one-fifteenth acre plats replicated once. Varietal tests have been mostly single rows with no replications. In this test, check plats were included every third or fourth row.

EXPERIMENTAL RESULTS

It is realized that an adequate study of this problem requires the laying out of plats definitely for this purpose. Frequently, however, considerable information can be obtained from the yield data of experiments conducted primarily for other purposes. The data for this study were taken from plats in the cultural test for the season of 1925 and from the variety tests of 1926 and 1927.

The plats were harvested in such a manner as to permit the use of the data in studying the value of various sized plats and numbers of replications.

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3 Reference by number is to "Literature Cited," p. 699.