This paper reports studies on the variability among test plats of small grains under two general headings. First, are considered the effects on deviation from varying the size of planting or total area given over to a test. In this connection some consideration is given to shape of plantings as affecting variation. Second, studies are reported on the reliability of several plat types differing from each other in both size and shape.

**MATERIAL AND METHODS OF ATTACK**

Nursery tests made up of small plats planted by hand or with specially adapted machinery and general field tests comprising larger plats planted with ordinary grain drills were included in these studies.

Five years' data from general oat and wheat nurseries were used, and also data from four nurseries planted especially for studies of methods. The latter will be referred to as method-study nurseries as opposed to the general nurseries, which were primarily for variety tests.

Among field plats, the Ohio Station has for many years been using hundredth-acre plats and tenth-acre plats in variety testing. In 1926 a method-study planting of hundredth-acre plats was grown.

Checks were placed at regular intervals in all the general nursery and field tests. Checks are merely controls, all planted to the same variety of grain and given uniform treatment. Most of the data in this paper were taken either from check plats or from method-study plantings.

The influence of field-size on variability was studied by dividing the plantings into blocks of various areas and finding the deviation within the blocks.

Types of plats were made up in the nurseries by beginning with the smallest unit which was a single row, 1 rod long, then synthesizing larger plats by adding rows to the side, or to the end, or both. The variation exhibited by each type was found.

Synthesizing was possible among the field plats only in the field method-study planting of 1926. Among other field plantings it was...