VARIABILITY OF GRAIN SORGHUM YIELDS AS INFLUENCED BY SIZE, SHAPE, AND NUMBER OF PLATS

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Many experiments have been conducted with field and orchard crops to determine the most suitable size, shape, and number of plats necessary to obtain reliable comparisons of yield. Such experiments on sorghums seem to be limited to those reported by Stephens and Vinall (3) They sub-divided a field of feterita at Chillicothe, Texas, into 2,000 rod-row units. The rows were 40 inches apart and the rod-row units were equivalent to an area of approximately 1/800 acre. The total green weight of the forage in ounces from each unit was used as the basis for computation. From various combinations of the ultimate units into larger plats they concluded that three or four plats, 1/40 to 1/80 acre in size, gave results sufficiently reliable for determination of forage yields of sorghums.

This paper presents data on the influence of size and shape of plats and the number of replications on the variability in the yields of sorghum grain. The data were obtained at the Fort Hays Branch Experiment Station, Hays, Kansas, during the fall of 1923.

PLAT AND NURSERY METHODS IN USE

A questionnaire was sent recently to investigators located at agricultural experiment stations in the sorghum belt to ascertain the size, shape, and number of plats used in varietal tests. Twenty-three replies were received.

Four investigators favored plats less than 1/25 acre in area; 9 used 1/25 acre plats; 6 used 1/10 acre plats; and 6 used no definite size in their experiments. Two investigators favored plats with 2 rows; 6 used plats of 2, 3, or 5 rows; 12 used 4-row plats; and 3 used plats of 8 to 10 rows. As to length, 4 investigators used plats less than 100 feet long; 12 used plats 132 feet long; and 6 used plats of various lengths. The most popular widths between rows were 40, 42, and 44 inches.

The number of replications used varied widely. Five investigators planted single plats on one date, while 9 planted single plats on from two to four dates. Four investigators planted 2 plats of each variety on a single date, 2 used 2 plats for each variety on two different dates,

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3 Reference by number is to "Literature Cited," p. 838.

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