Optimum Plot Size for Oat Yield Tests
K. J. Frey and W. D. Baten

IT IS a well established fact that nursery plots are as effective as large field plots in determining comparative yields of small grain varieties (2, 4). The plot sizes most commonly used are either 3 or 4 rows wide and 16 feet long, with the center one or two rows, respectively, being harvested. With the development of mechanized planting and harvesting equipment and certain changes in plant breeding technics, it seems desirable to re-examine the plot size practices now being used for small grain testing to determine whether greater efficiency can be obtained by increasing or decreasing the present plot size.

Since the soil in Michigan is so extremely heterogeneous, a study was undertaken using uniformity data from small plots of oats to determine the optimum plot size and number of replication for oat yield tests. Cost functions were also applied to the data to determine the optimum plot size.

LITERATURE CITED

Elliott, et al (1) working with spring wheat found the efficient of variability method that a plot 12 feet long was sufficiently large, but when cost functions were applied the optimum plot size was found to be one row long.

In studies by Love and Craig (4) on uniform data on oats, wheat, and barley it was found that plots 16 feet long were as efficient as those 12 feet long. Hayes found little advantage in harvesting more than one row per plot. For a further review of plot technic studies refer to the bibliographies by Kiesselbach (3, 8, 9, 10).

MATERIALS AND METHODS

The uniformity trial on oats used in this study was planted in rows 150 feet long and 1 foot apart, allowing for borders, was harvested as 30 ranges each containing 80 rows 4 feet long.

1 Published with the approval of the Director of the Michigan Agr. Exp. Sta. as Journal Article 1486. Received for publication April 16, 1953.