CORRECTING YIELDS IN ROD-ROW TRIALS WITH THE AID OF THE REGRESSION EQUATION

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The fact of soil variation is generally recognized and usually in experimental work more or less consideration is given to methods of reducing the error due to chance differences in soil. Some measure of variability, such as probable error or standard deviation, is used as an index of the accuracy of the experiment. The greater the probable error the more variation there is supposed to be and, in a comparison of varieties, the greater the differences must be in order to be of significance. If some means are available whereby the probable error can be reduced, the actual differences between varieties or strains may assume greater significance.

The method applied to rod-row trials by Hayes is applicable to experiments in which systematic replication is used. This method consists of placing all the plats in the field on a percentage basis by dividing each plat of a variety by the average for that variety. By this method, the relative yielding ability of each plat is obtained. Correlation coefficients are then obtained for adjacent plats and for plats various distances apart. The regression equations also are calculated for these same plats. The percentage yield of each check is obtained by dividing its yield by the average yield of all the checks and multiplying by 100. The yielding ability of any plat is then obtained on a percentage basis by averaging the values for "x" of the checks on either side of that particular plat. Corrected yields are obtained by dividing the actual yield by the corrected percentage yield and multiplying by 100. Hayes found that the probable errors were reduced slightly by application of this method, although hardly enough to warrant the extra work exacted. The method, however, possesses some merits and may prove of considerable value under certain conditions.

Due to the fact that the probable errors in the rod-row trials for winter wheat at this station in 1927 were extremely high, the results offered excellent material to try Hayes' method under conditions of a highly variable soil.

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