METHODS OF TESTING INBRED LINES OF MAIZE IN CROSSBRED COMBINATIONS

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In testing inbred lines of corn, it has been the custom of many corn breeders to combine systematically the lines to be compared in a series of comparable crosses. Although the performance of the individual crosses is determined, the inbred line usually is saved or discarded on the basis of the mean of all of its crosses. This necessitates making and testing very large numbers of crosses.

In order to determine the feasibility of a less arduous method of testing inbred lines in crosses, comparisons of different methods of testing inbred lines were made in 1929 and 1930 at the Iowa Agricultural Experiment Station and in 1930 at the Kansas Agricultural Experiment Station. The results are presented in the present paper.

MATERIAL AND METHODS

The material on which this study is based may be arranged conveniently into five groups, as described below.

GROUP I

This group comprised 37 inbred lines which had been tested in series of nine comparable single crosses in Iowa in 1927, the crosses having been made after four generations of inbreeding. In 1928,

1The data on which this paper is based were obtained in connection with the corn breeding programs conducted by the Iowa and Kansas Agricultural Experiment Stations in cooperation with the Division of Cereal Crops and Diseases, U. S. Dept. of Agriculture. Journal Paper No. B19 of the Iowa Agricultural Experiment Station and Contribution No. 213, Department of Agronomy, Kansas Agricultural Experiment Station. Received for publication December 3, 1931.

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