THE RELATIVE VARIABILITY OF CORN CROSSES AND VARIETIES

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It is a matter of common observation that corn varieties, single crosses, inbred-variety crosses, and double crosses differ in their relative variability. The present investigation was conducted to determine the differences in the amount of variability of varieties and these three kinds of crosses as measured by the standard deviations and coefficients of variation for various characters. The characters studied were plant height, ear height, total number of nodes, number of nodes below the upper ear, and number of kernel rows on the ears. Only the heights and numbers of nodes above the soil surface were measured or counted.

Data were taken on the plants in one replication of a yield comparison grown at Ames, Iowa, in 1930. The plants were planted thickly and thinned to fairly uniform stands. The average number of plants measured per plat was 36.3, with a maximum of 42 where the stand was perfect. The kernel rows were counted on the ears in a 50-pound drying sample of ear corn of each variety and cross.

The experiment included 12 varieties, 53 single crosses, 22 inbred-variety crosses, and 49 double crosses. The varieties were all standard Iowa varieties and represented fairly well the range of varieties grown in all sections of the state. The 53 single crosses represented all but 2 of the 55 possible combinations among 11 inbred lines. The 22 inbred-variety crosses were all made with the variety Four County White as the staminate parent. Most of the 49 double crosses involved single-cross combinations identical with those in the experiment but made one year earlier. The parental lines had been inbred 5 and 6 years when used in the double crosses, and one generation longer when used in the single crosses and inbred-variety crosses.

The minimum, mean, and maximum standard deviations and coefficients of variability are recorded in Table 1. The mean standard deviations are the root-mean-squares of the individual standard devi-

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