A STATISTICAL ANALYSIS OF YIELD FACTORS IN SOYBEANS

J. H. WEATHERSPOON and J. B. WENTZ

This paper is a report of a study of the relation between certain plant characters and yield in 237 strains of soybeans. First, a study was made of the extent of the differences between the 237 strains in the characters to be considered and then a statistical analysis was made of the relation of these characters to yield.

Although there have been extensive yield-analysis studies with the small grain crops, Woodworth has done about the only work on analysis of yield in soybeans. He names number of nodes per plant, number of pods per node, number of seeds per pod, percentage of abortive seeds, and size of seed as important yield factors and emphasizes the importance of the use of these factors in selecting parents to be used in crosses. However, he found significant correlation between only two factors, percentage of abortive seeds and the weight of 100 seeds, and yield. Percentage of abortive seeds was negatively correlated with yield to the extent of —0.521, and the weight of 100 seeds was positively correlated with yield to the extent of 0.519. This study was made on 26 standard varieties. Under 25 degrees of freedom in tables given by Wallace and Snedecor the least significant correlation is 0.381.

MATERIALS AND METHODS

The material used in this study was 237 soybean strains selected from the F₁ bulked progeny of a single F₁ plant arising from a cross of the two varieties Soysota and Ogemaw.

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2Teaching Fellow and Associate Professor, respectively. The authors are indebted to Prof. G. W. Snedecor, statistician of the Iowa Agricultural Experiment Station, for suggestions relative to statistical methods and interpretations.


5The cross was made in the summer of 1922 by W. T. H. Ho, then a graduate student at Iowa State College and now engaged in teaching in China.