

All seed was planted ear-to-row in 1960. Of the approximately 30 small 'inbred-appearing' plants, 26 were successfully selfed. The seeds from these 26 ears were planted in 1961 for a between plants within ears uniformity test. On the basis of segregation for cob color, kernel color, kernel flintiness, and kernel degree of dent 16 entries were eliminated. During 1961 several selfs of each entry were also made.

The 10 remaining stocks will be more carefully screened in 1962. This will mainly be based on variances within and variances between ears of entries. The lines W D, Co 106, Co 109, Co 110, and W 59E (important components of the original synthetic), the original synthetic, and four single crosses will be used for comparison.

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2. A computer method of double cross prediction.

A new program has been devised at the Pennsylvania State University Computation Center to predict the results of double cross hybrids. The program was written in FORTRAN and compiled on the IBM 7074 but is adaptable to any computer for which a FORTRAN compiler is available. The program can accommodate the single cross data of twenty inbred lines for eighteen or fewer variables. It features adjustable limits for each variable so that only prediction values above a chosen limit are included in the output. The table or card output includes a program title, experiment identification, designation of the inbreds and variable designation in addition to the prediction values. The computation time is too brief to estimate. This program is available on request.

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1. Segregation for a cyclic hydroxamate in maize seedlings.

Maize contains high concentrations of a phenol-like sweet substance (R. J. Suhadolnik, Ph.D. Thesis, Penn. State Univ. 1957; R. H. Hamilton, Ph.D. Thesis Mich. State Univ. 1960). The structure is now established to be 2,4-dihydroxy-3-keto-7-methoxybenzoxazine [A. I. Virtanen, P. Hietala, and E. Honkanen, Acta Chem. Scand. 114:502-507 (1960); R. H. Hamilton, R. S. Bandurski and W. R. Reusch, Cereal Chem. (in press)]. This cyclic hydroxamate may be a factor in resistance of maize to 2-chloro-s-triazine herbicides. [W. Roth and E. Knüsel, Experienta 17:312 (1961); R. H. Hamilton, and D. E. Moreland, Science 135:373 (1962)]. Also 6-methoxybenzoxazolinone (implicated in resistance to disease and corn borer) is a degradation product of this substance.