Gene Action Studies for Yield and Yield Components in Maize (*Zea mays* L.)

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ABSTRACT

The nature and magnitude of gene action was determined for various quantitative traits in a diallel set involving eight inbred lines of maize. Variance/covariance graphs revealed that number of kernels per row, cob length, cob girth, 100-seed weight and grain yield per plant were controlled by over dominance (non-additive gene effects), while number of kernel rows per ear showed partial dominance with additive gene effect. The parental lines possessed equal number of dominant and recessive genes for all the traits except number of kernels per row and cob length, for which the genes were distributed asymmetrically among the parents. From the distribution of the array points it appeared that inbred line BML 7 possessed maximum dominant genes for number of kernel rows per ear, cob length, 100-seed weight and grain yield per plant while the inbred line CM 133 possessed maximum dominant genes for number of kernels per row and cob girth. The graphic analysis revealed that most of the characters were under the genetic control of over dominance and therefore, the material can be effectively exploited for heterotic effects.

Key words : Gene action, Inbred lines, Maize,Over dominance.