

The Analysis of Diallel Crosses

1. Introduction.

Hull (1946) has developed methods of analyzing data from diallel crosses of homozygous lines using regression techniques and has applied them in particular to the estimation of dominance in maize yields.

Recently we have developed a different approach to the same problem based on Mather's (1949) components of variation, D and H. We have been experimenting with diallel crosses of *Nicotiana rustica* and have analyzed various quantitative characters of these plants. We have been able to prove conclusively that in some cases genic interaction may cause spurious overdominance, and, in the absence of such interaction to obtain reasonably accurate estimates of the dominance ratio, asymmetry of gene distributions, etc. We have also analyzed some maize yields from various sources and although these analyses do not provide quite the best illustrations of our method, we thought it would be of interest to report them here for comparison with Hull's method.