COMPONENTS OF YIELD AND OVER-DOMINANCE IN CORN

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AN ARGUMENT is presented by Grafius (4) that yield in corn is a "mental construct" because it can be expressed as the product of several component characters. On this basis it is inferred that the quantitative analysis of yield per se does not reveal the nature of genetic mechanisms in yield inheritance, and that it would be better to study the inheritance of the components rather than yield itself.

In studies of the inheritance of yield involving measurements of yield components the cause and effect relationships between yield and the components are very important. The primary effects of genes are undoubtedly biochemical in nature. It follows that characters such as ear number, kernels per ear, and weight per kernel, are themselves secondary effects of genes. One of the points that Grafius attempted to put forward seems to be that these components are one step closer to the primary effects of genes than yield itself. Since the primary effects of genes are biochemical, it might be more reasonable to think of yield as some function of the total energy produced minus the amount used for structural growth and chemical energy. The relationship of the genes influencing the distribution of the stored food (among ears and kernels per ear) to the genetic system influencing the production of energy to be stored is important in this connection but unknown. It is possible, however, that the physical components of yield

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