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BOOK REVIEW

HALLAUER, A. R., MIRANDA, J. B.: *QUANTITATIVE GENETICS IN MAIZE BREEDING*. — Iowa State Univ. Press 1981. \$ 33.95.

The book presents a successful application of the methods of quantitative genetic analysis in breeding a certain produce, which distinguishes it from the concepts applied in handbooks of similar type. It is meant chiefly for breeders and experts in agriculture and the theoretical approach is adjusted to this purpose. Maize is a produce having a broad spectrum of practical use and a plant whose quantitative characters have been investigated most thoroughly. In breeding of maize, a number of new methods of the quantitative genetic analysis has been developed, which made the work on this highly specialized book easier and enabled the authors to demonstrate the theoretical explication of genetic principles and breeding methods by concrete results. The practical examples submitted are a great asset of the book and of primary importance to the readers for whom it is intended. On the other hand, however, they expand its volume and the theoretical explication being necessarily condensed is in places less comprehensible.

The introductory chapter presents a brief survey of breeding methods applied to maize in the last fifty years. In the following chapters the authors define all population and mating systems, which come into account in maize breeding, by means of statistical and genetic parameters. The subjects described are the genetic properties of random-mating and autogamic populations, the progenies of two inbred lines crosses, progenies of diallels, triallels and quadriallels, genetic characteristics of full-sib and half-sib populations and other mating systems. In all these population types the basic statistical parameters are at first derived, which are used for calculations of genetic variation components and for estimation of the basic genetic and breeding parameters. All these processes are applied in genetic study of yield characteristics in a broad pattern of breeding material. Theoretical considerations concern the principles of selection, methods of estimating its efficiency in populations of different origins, the analysis of correlations between several characteristics and their probable role in various selection procedures. Further chapters are devoted to testing of general and specific combining ability, to the mode of selection of prospective lines, to the genetic mechanisms of inbreeding and heterosis and the possibility of predicting the heterotic effect. The final chapters deal with the origin, genetic sources and properties of the material available to the breeder today. Of interest is the chapter on planning effective breeding programs.

The book fulfils its purpose. It is an excellent working manual for breeders, an adequate textbook for students in this field, and a successful instance of application of quantitative genetic knowledge in breeding a given produce.

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