SOME OBJECTIVES IN BREEDING FOR YIELD AND OTHER AGRONOMIC CHARACTERS IN WHEAT

W. W. Worzella

IN considering the objectives in breeding for yield and other agronomic characters in wheat, one must include the objectives having immediate and practical value, as well as those involving the accumulation of basic facts or the establishment of fundamental principles. It is evident that they should reflect a sound analysis and probable solution of our present problems and demands. Obviously, the specific demands of a particular locality or territory will determine the amount of emphasis to be placed on any particular problem. However, the objectives of a fundamental nature, such as a study of the nature of various characters, their inheritance, interrelationships, and synthesis, will have general application.

Because of the varied demands for wheats and their products, the objectives cannot be static but must be ever changing. Our aim is, not only a stable wheat crop, but also one that is more uniform and superior in quality to our present wheats. We do not want varieties that produce large crops some years and failures in others, but rather those that are able to resist the rigors of hard winters, drought, delayed harvests, etc., and that produce a uniform crop. Since wheat is the raw material that goes into the production of many foods and other products, new varieties must be "built up" to meet the requirements of these specific demands. The purpose of this paper, therefore, is to discuss several pertinent objectives that should aid in the breeding of superior wheats, and to analyze them in the light of our present knowledge.

INVENTORY OF WHEATS AND THEIR CHARACTERS

The first objective of a sound breeding program must involve an inventory of all wheat varieties and their characteristics. This includes not merely a cataloging of strains and varieties, but the recording of their individual characteristics, particularly those having superior germ plasm. As more information regarding the nature, adaptation, and usefulness of these characteristics becomes available, it should be recorded. A good inventory, therefore, makes available and keeps up to date all the information regarding the raw materials. It is a compilation of facts on wheat representing a digest and summary of the work of many investigators. One must not only know his own material, but also be familiar with the work of other investigators before he can proceed intelligently and effectively in a constructive breeding program.

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