

RESEARCH NOTES

## UNEXPECTED USEFULNESS OF SOME SELECTIONS

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The science of plant breeding, in which hybridization is used as a means of combining specific desirable characteristics such as disease resistance, color uniformity, yield, etc., has generally developed into an exact and calculated program in which selection is made toward a definite "blue printed" type or preconceived desirable segregant. Occasionally, however, varieties are developed which surprisingly exhibit useful characteristics not heretofore considered or searched for, or in other words are "kaperstarce" occurrences.

Such an example may be illustrated in the garden and processing greenpod bush bean, Tenderwhite, which was developed by Rogers Brothers Company, and released for general usage in about 1957. During the past two decades the tendency in developing new bush beans for processing has been toward white seeded characteristics, combined with resistance to bean mosaic virus and adaptability to mechanical harvesting. Tenderwhite was one of the first important processing bush beans of this general type. It was developed from a series of crosses with definite characteristics in mind. The resistance to bean rust disease was not considered in the program from which Tenderwhite was developed, as rust seldom occurs in the bean seed producing areas of Idaho where a major portion of the garden and processing bean seed is produced.

In 1959, Dr. W. J. Zaumeyer isolated a new race of bean rust (race #32) in Maryland, which soon developed into epidemic proportions. In 1960, Dr. Zaumeyer reported, "All snap bean varieties being grown in Maryland by processors and market gardeners, except Tenderwhite, are susceptible." In 1961, Dr. M. J. Goode reported a new race of bean rust (Race #34) which had become epidemic throughout the north west Arkansas area. Here again, Tenderwhite, was found to be resistant to this strain of the disease organism. Tenderwhite rapidly became the important processing bean variety grown in these two areas. Tenderwhite is a good example of chance combination and selection where the specific disease was not recognized or considered in the breeding program.

The great majority of new beans are developed by hybridization, with specific goals and combinations of characteristics in mind. On the other hand, however, several important varieties have been developed as a result of chance crossing in nature, natural mutation, and accidental selection of a single plant or even a single seed.

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