

strain from Brazil designated as Xp-Brasil. The previously reported tolerant germplasm, now susceptible to Xp-Brasil, was then crossed to GN Nebraska #1 sel. 27, a breeding line that has been used extensively in the Nebraska breeding program for tolerance to the USA strains of X. phaseoli. The purpose of making this cross was to determine if increased levels of tolerance to this new virulent strain could be obtained through the genetic process of transgressive segregation. If this germplasm differed in some genes controlling the reaction to the pathogen, it would be reasonable to expect segregates to occur in the F₂ generations which would possess a recombination of the favorable genes and possibly provide a level of plant tolerance to the pathogen. Transgressive segregation for a high level of tolerance was noted in some F₂ plants from crosses between GN Nebraska #1 sel. 27 x GUALI (ICA, Colombia) and GN Nebr. #1 sel. 27 x PI 163117. The parents and F₂ generations were grown in the field. This tolerance was confirmed in the F₃ and F₄ derived progeny grown in the greenhouse during this past winter and spring. This research shows that it is not necessary to screen new PI lines of P. vulgaris in order to possibly obtain tolerance to new virulent strains of X. phaseoli but that tolerance can be obtained by recombining favorable genes which exist in some susceptible germplasm in order to obtain transgressive segregates with high tolerance to X. phaseoli.

HALO BLIGHT RESISTANT GREEN BEAN LINE NEBR. HB-76-1

Dermot Coyne and M. L. Schuster
University of Nebraska
Lincoln, Nebraska, USA

A green bean line, designated Nebr. HB-76-1, resistant to race 1 and race 2 of Pseudomonas phaseolicola was derived from complex parentage involving crosses among Great Northern Nebraska #1, sel. 27 (resistant to halo blight - race 1, 2) dry bean selection with the green bean varieties and lines Slimgreen, Harvester, Bush Blue Lake, OSU 949, and White Seeded Tendegreen. It is also tolerant to a new virulent isolate found by Dr. Schuster on dry beans in Nebraska. The line shows a hypersensitive leaf and pod reaction to the bacteria and is also highly resistant to the halo blight bacterial toxin. Nebr. HB-76-1 is also resistant to three strains of BCMV and the pea strain of BYMV. It is susceptible to the type strain of BYMV. The virus inoculation test was conducted by Dr. R. Provvidenti, N.Y. State Agricultural Experiment Station, Geneva, New York.

Nebr. HB-76-1 combines good bush habit with attractive straight medium length, fairly slim pods.

A small seed sample of this line will be made available to breeders on request. It is expected that this line will be released in 1978.