# A PEA MUTANT HIGHLY SUSCEPTIBLE TO THE FUNGICIDE "Maneb"

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In the latter part of May, 1977, our young pea plants were sprayed with "Maneb", one of the CU-free carbamate fungicides commonly used for vegetables and other crops but not commonly used for peas. A few days later, the plants of mutant 239CH of our collection showed strong leaf symptoms. The foliage was injured and the plants lost turgor but they did not die. In fact, after some delay, they recovered, producing new leaves from the main growing points. They flowered a few days later than the mother variety and were less vigorous and productive. But the damaged leaves themselves did not recover. None of the other more than 400 different genotypes grown in 1977 showed this type of injury. Injury appeared exclusively in two single plant progenies of mutant 239CH, which is a highly inbred line homozygous for bif-1 (dichotomous stem bifurcation). In one of these families, all the plants were damaged by the spray. In the second family, three plants remained uninjured, whereas the other 16 plants were heavily damaged. In the $F_2$ of the cross Mut. 39 (abnormal leaflets) x 239CH, the 239CH segregants also exhibited spray injury.

In order to check whether the response was under genetic control, three progenies of the damaged and two progenies of the non-damaged plants were grown in 1978. The material was again sprayed with "Maneb". All the derivatives of the non-damaged plants remained healthy, whereas the derivatives of the damaged plants were again heavily damaged and showed segregation for damage and resistance. We therefore conclude that mutant 239CH not only carries bif-1 but also a gene which cancels the normal resistance of peas to "Maneb". This gene is normally not expressed because "Maneb" is not commonly used for peas. The second gene is obviously dominant and is provisionally designated "Man".

The genetic constitution of the two 1976 mother plants giving rise to the two diverging 1977 familes was as follows: The mother plant which produced the fully damaged 1977 progeny was homozygous for both the genes having the constitution bif-l/bif-1 Man/Man; the mother plant giving rise to the partly damaged, i.e. the segregating 1977 progeny, was heterozygous, having the constitution bif-l/bif-1 Man/man; the segregation of 16 damaged : 3 resistant plants indicates dominance of gene Man causing "Maneb" damage; the two resistant 1977 plants of the segregating family, which were used for growing the two non-segregating families in 1978, were homozygous recessive for man. The crosses necessary for clarifying the behavior of gene Man have been made.