

homozygous condition as well as heterozygous with any of the other alleles including the null-allele.

Reference:

Melville, J. C. and J. G. Scandalios, 1972, Biochem. Genetics 7:15-31.

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1. Tcms restoring genes in open-pollinated varieties.

Transfer of Texas male-sterile cytoplasm to several varieties was begun several years ago for the dual purpose of obtaining satisfactory restoring inbreds and the possible development of equilibrium populations for use in areas where the use of hybrid seed was not practical. The intent was that cultivators of maize could produce their own seed by harvesting ears from pollen sterile plants that would have been pollinated by plants carrying restorer gene(s) and presumably producing some degree of vigor. For various reasons, the method did not prove to be practical.

The percent fertile plants, following the crosses to Tcms, ranged from 0 in T61Y Syn. to 40.5 in Jellicorse (MGCNL31). Varieties Jellicorse, Rockdale and Salisbury White were considered good potential sources for restoring genes. Ten backcrosses of each variety using bulk pollen were made on sterile plants of the variety before the study was terminated.

Fertile plants in Jellicorse, Neal Paymaster, Teko Yellow, and Potchefstroom Pearl were self pollinated to homozygosity for fertility restoration. Crosses were then made among plants within and between varieties, as well as with restoring inbred T115. Following selfing, all crosses produced only fertile plants and the restoring gene(s) in all varieties are considered to be identical with those in T115.

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