13. Pollen restoration.

When crossed with cytoplasmic male-sterile inbred $B8^t$ (BC_5), Minnesota inbred A293 completely restored fertility in the single cross. Plants from the cross of $B8^T$ and inbred A73 were completely sterile. All progenies from the cross of $B8^T$ x (A293 x A73) segregated 1 sterile: 1 fertile. Of the two groups of progenies resulting from crosses of $B8^T$ x individual (A293 x A73)A293 plants, the first had all fertile plants and each progeny of the second group segregated 1 sterile:1 fertile. Progenies derived from crosses of $B8^T$ x individual plants of the back cross (A293 x A73)A73 were also in two groups. Th individual F_2 (A293 x A73) plants in the ratio of 1 (all sterile):2 (seg. 1:1):l (all fertile).

Crosses of the same plants of A293, A73, their F_1 both backcrosses, and the F_2 to $A158^S$ (U.S.D.A. source) gave results which were entirely different. These data apparently do not fit any simple genetic ratios.

Results from crosses involving $B8^T$ fit the hypothesis that segregation occurred for one factor pair. Brunson (Maize Newsletter #28) reported Ia. 153 carries two complementary factors for restoration when crossed to $WF9^T$. Since A293 has Ia. 153 as oae of its parents, their genotypes may be AABB. If the genotype of $B8^T$ is aabb, then the genotype of A73 should be aaBB. If $B8^T$ has the genotype of aaBB, A73 may be aaBB or aabb. Duvick (Maize Newsletter #28) found a similar case with K4 and WG3 and suggested that the genotype of $WF9^T$ is aabb.

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