4. Cytoplasmic male sterility: Separation of Ky21 restorer into T-restorer and S-restorer components.

Several inbreds have been shown to act as fertility restorers on more than one type of sterile cytoplasm. It is important, both theoretically and practically, to know whether this multiple restoring ability is due to the same or to different genes.

Ky21 fully restores fertility when crossed on either S or T sterile inbreds. In the course of transferring the Ky21 restorer gene (or genes) to a non-restorer inbred (utilizing a backcross-testcross method) three types of backcross sub-lines have been obtained. When test-crossed to $WF9^{s}$ and $WF9^{T}$ the three types will give: (1) fertility in approximately 50% of the plants in both S and T crosses; (2) fertility in 90% of the plants in S, but none in T crosses; (3) no fertile plants in S, but fertility in 50% of the plants in T crosses.

This would indicate that two different genes govern the Ky21 fertility restoration in S and T cytoplasm. However, the data at hand do not rule out the possibility that some of those sub-lines which still restore fertility on both S and T may carry a third locus which acts as a restorer on both S and T.