

2. Conversion of inbreds T115 and T202 to non-restoration of Tcms.

T115 is a natural restoring inbred to Texas male-sterile cytoplasm, as well as to several other sterile cytoplasms with which it has been tested. It is an excellent seed parent and it would be desirable to have a non-restoring version. Inbred T202 has reacted as a partial restorer in all crosses.

Non-restoring versions were developed by first crossing to a non-restoring source. Plants in the segregating progeny were then crossed to a Tcms tester and backcrossed by the recurrent inbred. The following generation, backcrossed progeny corresponding to testcrosses with only sterile plants were selfed to obtain the succeeding segregating progeny. Nine generations of backcrossing were made for each inbred. Sufficient generations of selfing followed to obtain homozygosity for non-fertility restoring to Texas cytoplasm.

The non-restoring versions of T115 and T202 have not been tested on other male-sterile cytoplasms. Seed can be obtained from the Tennessee Agricultural Experiment Station.

L. M. Josephson
H. C. Kincer

3. Conversion of virus-resistant inbreds to various male-sterile cytoplasms.

Following the epiphytotic of southern corn leaf blight in 1970, interest developed in using male-sterile cytoplasms other than the Texas source. Eleven virus-resistant inbreds have been converted to cytoplasms C, R, RB, J and S. C and RB appear to be similar based on these 11 inbreds. Cytoplasms J and S react similarly but form a different group from the other three. Based on tests with inbreds T232 and Ga209, nine other cytoplasms are similar to J and S while eight form a separate group different from all the above cytoplasms. A male-sterile cytoplasm occurring in variety El Salvador is stable and appears to be in a different group from the above.

All of these cytoplasms are resistant to race T of Helminthosporium maydis, the causal organism of southern corn leaf blight.

L. M. Josephson
H. C. Kincer