Other lines that act as fertility restorers to T sterile cytoplasm have been crossed on J sterile cytoplasm and will be grown in 1957 to determine if lines other than Ky21, R7 and A14 will restore fertility to both types. Studies are also being made to determine the inheritance of the fertility restorers to J cytoplasm and also to determine whether the restoring ability of the three lines common to both types of sterile cytoplasm is due to the same or to different genes.

The J type sterile cytoplasm has now been transferred to inbred K55 and has remained stable through five generations of backcrossing. Since inbred K64 does not restore J cytoplasm it will be possible to produce hybrid U. S. 523W by the male sterile method. Inbreds Ky27 and Ky49 used in the pollen parent single cross of this hybrid are also being converted to fertility restorers using Ky21 and A14 as sources of restorer genes.

3. Male sterile restorers in varieties.

A number of open-pollinated varieties utilized in the breeding program in Tennessee were tested for restoring ability to cytoplasmic pollen sterility. The varieties were crossed with inbred T111 in which Texas sterile cytoplasm has been incorporated. Varieties Jellicorse, Rockdale and Salisbury White are good potential sources for restoring genes to Texas sterile cytoplasm.

Variety	No. of Plants	Fertile %	Part. Fertile %	Part. Sterile %	Sterile %
Jellicorse (W)	37	40.5	2.7	8.1	48.7
Rockdale (W)	34	23.5	17.6	11.8	47.1
Neal Paymaster (W)	39	5.1	2.6	7.7	84.6
T61 (Y) Synthetic	40	0	0	0	100.0
Bechino Hickory King (South Africa) (W)	31	0	6.4	0	93.6
Salisbury White (S. Rhod.)	43	20.9	0	4.6	74.5
Teko Yellow (South Africa)	25	0	4.0	0	96.0

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