the recovered strains were equal to or better than original 33-16 in all important agronomic characters, except that original 33-16 produced more ears per plant in Tennessee. The data indicate that any of the recovered strains may be substituted for original 33-16 in crosses to eliminate the possibility of pollen sterility without lowering the performance of the hybrid.

Visual comparisons of the 33-16 recoveries indicate distinct phenotypic differences between the recoveries backcrossed to the Kentucky strain of 33-16 and those backcrossed to the Beltsville strain. Recoveries involving both the Kentucky and Beltsville strains are available to interested breeders. It is suggested that breeders interested in 33-16 having normal cytoplasm obtain a strain from each of the writers for comparison. These may then be further backcrossed by their own 33-16 if this seems desirable.

Seed of the recovered strains may be obtained from the writers at the Tennessee Agricultural Experiment Station and Plant Industry Station, Beltsville, Maryland, respectively.

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2. Stability of 33-16 sterile cytoplasm.

In a previous publication (Em. Jour. Exp. Agric. 23: 1-10, 1955) the writer reported on the behavior of various inbred lines to Texas sterile cytoplasm and that carried in inbred 33-16. The latter type, designated "J" type sterile cytoplasm, was incorporated into inbred Ky27. This line has remained completely sterile through nine generations of backcrossing. The two types of cytoplasm can be differentiated by the reaction of the following inbreds:

Inbred	T cytoplasm	J cytoplasm
Ky21	Fertile	Fertile
R7	Fertile	Fertile
A14 (South Africa)	Fertile	Fertile
Ky39	Sterile	Fertile
Ky39xKy21	Seg.	Fertile
K55	Fertile	Sterile
K64	Seg.	Sterile
K63	Fertile	Sterile
R6	Fertile	Sterile
K6	Fertile	Sterile
Ky122	Fertile	Sterile
E184 (South Africa)	Fertile	Sterile

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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