Mp' from the P locus in a high proportion of the cells late in the development of the pericarp is the basis of the ground color. Variations in shade are due to varying proportions of the two kinds of cells, self red and colorless. The lower frequency of self colored striping and the lighter shade of ground color in the orange light variegated phenotype indicate that the frequency of all somatic mutations is decreased at all stages in the development of the pericarp. The mutation to P^{ovov} is interpreted to be due to a mutation of the Mp component of the P^{vv} allele to Mp'. The results of the comparison of the time of Ds breakage events induced by P^{vv} and P^{ovov}, though not conclusive, support this hypothesis.

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1. Recovered strains of inbred 33-16.

In the 1954 Newsletter (P 19) a report was made of the availability of strains of 33-16 in which the cytoplasmic contribution to male sterility had been eliminated through backcrossing.

Five recovered strains of 33-16 have been maintained through backcrossing by the Kentucky strain of 33-16 following the initial crosses on K64 and CI.43 as female parents and four recovered strains have been maintained by backcrossing with the Beltsville strain of 33-16, following initial crosses on K64 and Ky39 as female parents.

Crosses involving these recovered strains and original 33-16 (Kentucky strain) as seed parents by Ky 27 x CI.61, CI.43 x CI.61, K63, Mo2RF, Ky27, CI.43, and CI.61 as male parents were grown at Knoxville and Crossville, Tenn., Beltsville, Md., and Huntsdale, Mo., in 1956 and the amount of pollen sterility determined. The only pollen sterility observed occurred in test crosses with the original 33-16 as seed parent, indicating that the cytoplasmic contribution to sterility has been completely eliminated from the recovered strains.

Single crosses between the recovered strains and original 33-16 (Kentucky strain) as seed parents and K55, K64, N72 and Ky49 as male parents were compared for yield at Crossville, Tenn., Lexington, Ky, and Huntsdale, Mo., in 1956. Considering the average yields on all four testers, there were no significant differences in yield between any of the recovered strains and original 33-16 at any of the locations. Also

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