

With respect to sectoring, no ear sectors of yellow mosaic endosperms have been found. However, ear sectors of germinal mutations (yellow endosperms) have occurred. In all cases except one, the plant grown from yellow endosperm germinal mutations (from ear sectors) have been green. In other words, y^m and pg^m mutated simultaneously to the dominant.

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1. Placement of seedling chlorophyll mutants.

Seventeen radiation-induced seedling chlorophyll mutants have been placed in appropriate linkage groups by utilizing endosperm-marked translocations as testers. Crosses between the mutants and an array of translocations were made at Cal Tech and the F_1 and F_2 populations were grown at Penn State.

The series of translocations used involved breaks near Y_1 on chromosome 6, su on 4, or wx on 9; with breaks in different arms of all other chromosomes except 7. If clear-cut data indicated no linkage with any testers, the mutant was assumed to be on chromosome 7.

For each of the mutants the phenotype and number, the linkage group, and the translocation(s) with which each showed linkage are listed in the following table. Allelism tests have not been run on the two virescents and the two yellows which were placed in identical linkage groups.

<u>Mutant Phenotype</u>	<u>Mutant Number</u>	<u>Linkage Group</u>	<u>Translocations which identified linkage group</u>
(Pale green	8616	7	elimination)
Virescent	4873	3	3-9c
Virescent	5575	3	3-9c
Virescent	8623	4	4-9b
Virescent	8647	7	elimination (also linked to gl_1)
Virescent	8661	8	8-9d
White	8336	3	3-9c
White	8613	1	1-6c and 1-4d
White	8630	8	8-9a
White	8889	9	1-9c; 2-9b; 4-9b; 8-9d; 9-10b
White	9005	4	4-8a; 1-4a; 4-9(F-22)

<u>Mutant Phenotype</u>	<u>Mutant Number</u>	<u>Linkage Group</u>	<u>Translocations which identified linkage group</u>
White narrow leaf	8950	9	1-9c; 2-9b; 3-9c; 9-10b
White yellow	8721	10	9-10b
Yellow	8454	10	9-10b
Yellow	8793	10	9-10b
Yellow	8957	4	1-4a; 4-8a
Yellow	8954	3	3-9c

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1. Reduction in grain yield from the F₁ to the F₂ of parental single crosses and double-cross hybrids.

In the 1955-56 dry season performance yield test of parental single crosses and double-cross hybrids and their respective F₂'s at the U. P. College of Agriculture, College, Laguna, Philippines, the following results were obtained: (1) percentage decreases in the grain yield of the F₂ of five parental single crosses varied from 0.8 to 22.8 per cent, with a mean of 17.3 per cent and (2) percentage decreases in the grain yield of the F₂ of seven double-cross hybrids varied from 1.4 to 37.5 per cent, with a mean of 17.6 per cent. On the average, the F₂ yielded significantly lower than the F₁ in both the parental single crosses and the double-cross hybrids.

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2. Sweet corn in the Philippines.

In the performance trials for yield, agronomic characters, and quality of 13 varieties and hybrids of sweet corn, the top crosses of Hawaii Sweet x Golden Cross Bantam and Philippine Sweet x Golden Cross Bantam showed the best quality and were among the eight highest yielders, all of which yielded alike within the limits of statistical significance at the 1 per cent level. Sweet corn was preferred to glutinous or waxy corn by 80 per cent of the members of the panel.

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