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1. Mutation rates in maize-teosinte derivatives.

Certain derivatives of maize-teosinte hybrids which have mutated once continue to mutate at a fantastic rate. For example, a stock in which chromosome 4 from new teosinte had been introduced first mutated to dwarf. This same stock has subsequently mutated to defective seeds (eight times), albinos, virescents, two other types of chlorophyll deficiencies, and a gametophyte factor which affects Mendelian ratios. During the years in which these fourteen mutations occurred, the total number of plants grown did not exceed 195 (based on perfect stands) consequently more than seven percent of the plants grown produced mutations.

A similar situation has occurred in a stock in which chromosome 4 from Florida teosinte was introduced. In a population of not more than 85 plants, there have been four mutations to defective seeds, one to dwarf, one to virescent, one to yellow-green seedlings, and one to a gametophyte factor. A total of 9.4% of the plants have mutated.

2. The nature of the unstable mutants in maize-teosinte derivatives.

Many of the mutations which occur in derivatives of maize-teosinte hybrids are, as has been previously reported (MNL, 1956), unstable and the genetic nature of this instability has now been determined for one of these, a defective seed, and a similar situation is suggested for two others: a dwarf and a gametophyte factor.

The unstable defective seed, de^{t5}, is linked with c or r as is indicated by ears grown in 1955 and 1956 which were segregating for both c and r as well as de.

Year	No. Ears	De color	De not	de color	de not	Total
1956	10	1322	832	265	460	2879
1955	3	265	180	46	60	551

Similar ears which were also segregating for wx indicate that it is chromosome 9 and therefore the c factor which is involved in the linkage shown above. Following are the data from three ears: