

also made heterozygous with the cytoplasmic male-sterile inbred produced only 3 mutations in 1,718,989 kernels. It is significant that all three of these mutations came from a single family (57,879 kernels) and that this family involved several teosinte chromosomes (3,4, and 9).

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2. Mutations at the A locus in teosinte derivatives.

Although mutations at specific loci in teosinte derivatives are rare in the controlled experiments reported immediately above they may be more common in certain other stocks. In 1956, 241 ears were grown from crosses of an inbred strain of the genotype A C R with respect to aleurone color and an inbred strain homozygous for the unstable defective endosperm mutant de^{t5} and having the genotype A c r. The F₁ ears from this cross would be expected to segregate for colored and noncolored seeds in a ratio of 9:7 and all but two did segregate in this manner. The two exceptions had 57.0 and 53.4% of noncolored seeds. These percentages suggested a 27:37 ratio. The colored seeds from one of these ears were grown in Florida in the winter of 1957-58 and produced ears segregating for colored and noncolored seeds in ratios of 27:37, 9:7, and 3:1. Some of the colorless seeds from the second ear when grown in the summer of 1958 proved, when tested, to be of genotype Aa, showing that a mutation from A to a had occurred.

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3. Peculiar behavior of the C locus in crosses of teosinte derivatives.

A third ear from the population described in the section above segregated in a ratio of 9:7 in the F₂ endosperm generation but produced an ear segregating in a ratio of 27:37 in the F₃ generation. Colored seeds from one of these ears produced 27:37, 9:1, and 3:1 ratios in the following generation. All selfed plants were also tested for A, C, and R. Plants producing 27:37 ratios in selfed ears proved either to be heterozygous for A, C, and R or homozygous for A and heterozygous for R, C, and an unidentified color gene. Three of the plants segregating in a 9:7 ratio proved to be homozygous for both A and R and heterozygous for C and an unidentified color gene. In test crosses on the C tester all of the plants which were segregating for the unidentified color gene produced 1:3 ratios instead of 1:1 ratios of colored and noncolored seeds. Apparently this stock which originally was heterozygous for the C factor is now heterozygous for two C factors both of which are required to produce aleurone color. The significance of this situation is not yet clear and the presently known facts are being presented here only as a matter of record.

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