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1. Ac-Ds induced high amylose mutants.

An experiment was designed to induce new high amylose mutants by the use of the Ac-Ds mutator system. Since Coe (News Letter 31: 140), found that high amylose produced by the genes ae and du is expressed clearly on a wx background this experiment was conducted with homozygous wx stocks. Crosses were made in both directions between C^{i}-wx-Ds/C-wx-Ds, one Ac and a number of waxy stocks. The F_1 obtained was selfed and the ears examined for segregation of endosperm mutants of all types but specifically for the collapsed endosperm type that is typical of the high amylose waxy phenotype.

The following types of cases were found among 2417 selfed ears examined.

(1) Two ears (from the same family and therefore possibly the same mutant) segregating 3:1 for a collapsed type closely resembling the typical high amylose waxy phenotype, except that the collapsing is quite irregular suggesting that the new mutant is frequently mutating to the original form. Seedlings grown from these seeds are pale green and therefore rather weak.

(2) Four ears segregating 3:1 for wrinkled kernels the expression of which is not yet understood. Most of these seeds failed to germinate.

(3) Six ears segregating for tarnished kernels. The poor expression of this type prevents accurate classification.

(4) Seven ears with various sizes of ear sectors (from 20-100 seeds). Within the borders of these sectors there is a segregation for collapsed, or shrunken seeds. Some of the seeds themselves appear to be sectored for normal vs. collapsed tissue.

(5) In addition there were 19 ears with 1 to 5 scattered seeds of a tarnished or translucent type. All of these but two failed to germinate.

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