

Modifiers of Dt activity.

Almost every genetic culture that has a^m and Dt expresses Dt activity at a slightly different level, but two have had a striking effect. The first, designated the Lansing stock and carrying the genes a , sh_2 , dt_1 , has been found by subsequent tests to possess a gene (or genes) which can completely inhibit the dotting of one and sometimes two doses of Dt (with a^m), and markedly reduce the dotting of 3 doses. This agent, designated Id, has segregated in F_2 cultures but has not given consistent Mendelian ratios. Instead it has expressed itself in nearly all of the seeds from any cross in which Dt and Id come from the same parent even though that parent is only heterozygous for Id. When selfed, heterozygous Id id plants which are $a^m a^m$ Dt Dt produce seeds with four intergrading classes of dotting level ranging from 0 to a moderate dotting level. Seeds of the three levels that have some dots also have frequent sectors of the next lower dotting level suggesting instability of the normal id allele in this heterozygous condition. In preliminary linkage trials Id has shown a linkage to Wx with about 38% recombination. It has not shown close linkage to Dt_1 .

The second culture designated the Huntsdale stock was homozygous $a dt$ and also carried a modifier called Md, which reduces Dt_1 activity but does not completely inhibit it. The expression of Md, is much less drastic than that of Id but their behavior is similar. They probably are not alleles as different plants of the progeny from a plant with both included some which expressed each of these two effects and also some that expressed their normal alleles. Linkage data are not available for Md.

A similar effect, not yet identified, has been found in the Peruvian race from which Dt_3 was extracted.

M. G. Nuffer