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1. Golden-2.

The location of golden-2 is still in doubt (MGCNL 36:49). Further evidence that it is not near Bn on chromosome 7 where it is placed in some publications comes from the following data:

G2 Tp CB 32 35 29 36 total = 132 48% recombination

In this cross golden-2 segregated independently of Teopod which is located at 46 on the seventh chromosome, while Bn is located 25 units away at 71.

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2. Aleurone color in the presence of a_1 .

A stock in my culture with the genotype $a_1 A_2 C_1 C_2 R pr in y$ has a pronounced "blush" of color in the aleurone with occasional patches of deep red pigment, particularly in the region of silk attachment. Germless kernels in this background are nearly full red.

When c_1 segregates in this background, both blushed and pure white kernels appear.

It has not been determined whether the a -allele in this stock is unique, but the aleurone is completely colorless in the cross $a_1 A_2 C_1 C_2 R pr in y$ x $aU_3 A_2 C_1 C_2 R pr in y$, suggesting that intensifier 'In' may be responsible for the pigment and not the particular a -allele.

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3. Further tests for paramutation at the P locus.

The standard Wisconsin variegated pericarp allele (P^{vv}) has been shown to be non-paramutagenic with pr (MGCNL 35:86, 1961). Three additional unstable alleles are known at the P locus (PNAS 40:1118-1126, 1954) which condition pericarp striping of individually identifiable

pattern. It has now been determined that these alleles, p_{mo} (mosaic pericarp), p_{Boyaca}, and p_{Q36}, are also non-paramutagenic with a p_{r_r} allele derived from an old Cornell stock.

Heterozygotes between each of the unstable alleles and p_{r_r} in the same inbred W9 background were established and then crossed reciprocally with a p_W stock. The red and striped ears within each set of reciprocal crosses were compared with each other and with similar heterozygotes with p_W which had arisen from a previous heterozygote with p_W. No differences in either the striped pattern or the solid red pericarp color were noted which could be attributed to the peculiar ancestry of the allele in question.

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1. Diffuse action in Chocolate pericarp.

Pericarp and aleurone pigment genetics share in common the A₁ locus as a major conditioner and/or modifier (with one known exception). It was not surprising then to discover that the Diffuse gene (Idf) initially recognized as an inhibitor of pericarp pigment also inhibits aleurone pigments (MNL 33). Subsequent tests also disclosed that the plant pigments of B P₁ (either a₁ or A₁) are also susceptible to Idf action (unpublished data). The exception, the subject of this report, is the Chocolate pigment of the pericarp conditioned by the dominant Ch locus on the long arm of chromosome 2. This locus conditions a brownish pigment only in the pericarp. It was of interest therefore to test the inhibitory action of Idf in a Ch background. While there must be some major modifiers of Ch action (an extremely variable phenotype), Idf does not seem to be one of them.

Three levels of Idf action were tested in Ch backgrounds, (1) a high mutable state, (2) a low mutable state, and (3) an active stable state. All three test types provided no detectable reduction in pigment (the mutable forms would have been expected to produce a striping pattern in the pericarp) when compared to non-diffuse (idf) sib segregants serving as controls.