pattern. It has now been determined that these alleles, \( P^m_0 \) (mosaic pericarp), \( P^{Bo} \), and \( P^{Mo} \), are also non-paramutagenic with a \( P^{Fr} \) allele derived from an old Cornell stock.

Heterozygotes between each of the unstable alleles and \( P^{Fr} \) in the same inbred W9 background were established and then crossed reciprocally with a \( P^{Ww} \) stock. The red and striped ears within each set of reciprocal crosses were compared with each other and with similar heterozygotes with \( P^{Ww} \) which had arisen from a previous heterozygote with \( P^{Ww} \). 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.

R. I. Brawn

MARQUETTE UNIVERSITY
Milwaukee, Wisconsin

1. **Diffuse action in Chocolate pericarp.**

Pericarp and aleurone pigment genetics share in common the \( A_1 \) 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that the plant pigments of \( B_{Pl} \) (either \( A_1 \) or \( A_1 \)) are also susceptible to \( Idf \) action (unpublished data).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.
In the pericarp the red pigment conditioned by \( A_1, P^{RR} \)
and the brown pigment conditioned by \( Ch \) apparently both
come to expression in individuals carrying all three
dominant alleles. \( Idf \)-mutable will suppress the red
pigment in the typical mutable pericarp pattern of such
individuals while not affecting the co-present brown
pigments. Inasmuch as the brown pigment conditioned by
\( A_1^B, P^{RR} \) does not develop in the presence of \( Idf \) it may
be concluded that these two brown pigments are not the
same.

Another brown pericarp pigment, recessive \( bp \) on
chromosome 9 is known to interact with \( P^{RR} \) and thus
would be expected to respond to \( Idf \). A direct test
of this assumption is now in progress.

Irwin M. Greenblatt

2. Tests for \( Ac \) and \( Spm \) in Diffuse stocks.

In recent years loci in corn exhibiting high rates of
somatic instability have generally been found to involve
one or another of the recognized transposable elements.
Since the Diffuse gene (\( Idf \)) is characterized by a high
degree of somatic mutability it is of major interest to
determine if one of the now recognized transposable
elements is involved in this case.

By utilizing tester stocks (developed by Dr. B.
McClintock) \( Idf \) was evaluated for \( Ac \) and \( Spm \) factors.
This was accomplished by the following matings:

1. Test for the presence of \( Ac \) by using a
\( C-Ds \) tester.

\[
C\ Ds,\ A_1,\ R,\ idf\ \times\ C\ \rightarrow\ A_1,\ R,\ Idf
\]

If \( Idf \) could substitute for \( Ac \) a pattern
of \( C\rightarrow C \) breaks would be expected on the
resultant kernels. No such \( C\rightarrow C \) events
occurred.

2. Test for the presence of \( Spm \) by using a \( c_2^{mt} \)
tester.

\[
c_2^{mt}/c_2,\ A_1,\ C_1,\ R,\ idf\ \times\ C_2,\ A_1,\ C_1,\ R,\ Idf
\]

In this case if \( Idf \) could substitute for \( Spm \) one-
half of the kernels would exhibit a spotting of
dark purple in a dilute purple background. No
such spots were observed on seven test ears.