results are possible:
(1) An Spm-En-like element could be present in some plants of
inbred A171 which I use as a recurrent parent throughout my
theoretical stocks. This is quite likely since I reported in
1964 that another breeding line carried an Spm-En like ele-
ment. The four isolated spotted kernels, then, could more
probably be contaminants. Family 2547 which seems to show
independence between mosaic and spotted kernels would be
explained.
(2) Spm-En occur in many states. (a) Mosaic pericarp might
contain a state which does not regulate m-1 ordinarily,
but which may change into a regulating state as in family
2547. It might be expected that such a change would also
be correlated with a change in pericarp phenotype. However,
no difference in pericarp phenotype could be detected in
ears with and without spots. (b) Inbred A171 could contain
a non-activating state of Spm which changes to an activating
state occasionally.
(3) All spotted kernels could have resulted from Spm con-
tamination either this year or in a previous year.

One last comment - Some states of mosaic pericarp are diffi-
cult to distinguish from variegated pericarp. Family 2547
is one of these and it is possible that this family is really
Pv. As far as I know, no one has ever determined if vari-
egated regulates m-1 gene action. Or perhaps Family 2547
contains neither Ppv nor Pm but another unstable allele
which is controlled by an Spm-like element while the con-
trolling element for mosaic pericarp remains unknown.

R. I. Brawn

2. A test for Spm in Diffuse pericarp.

Greenblatt has reported (M.G.C.N.L. 39:120. 1965) that the
Diffuse pericarp gene Idf does not substitute for either
Spm or Ac. I wish to present data which suggest that Idf
may substitute for Spm.

A different tester stock was used in my studies than was
used by Greenblatt. His test required the detection of
dark purple spots on a dilute purple background if Idf
caused instability in C2/C2mt heterozygotes. This may be
possible if Idf inhibits only the background pigment, for
Greenblatt has shown that Idf does inhibit aleurone pigmenta-
tion somewhat. However, I find that C2/C2mt Spm kernels
are uniformly purple and so perhaps his test was not ade-
quate to detect instability of C2mt.

My test involved the same m-1 Pww no Spm stock and cross-
ing scheme described in Note No. 1. The Diffuse stock was
also a fourth generation backcross to inbred A171 (Pww)
and so the Diffuse ears were A/ and heterozygous Prr/Pww
and Idf/idf. It was expected that ¼ the ears from the
backcross of the F1's to the m-1 Pww tester stock would
be Diffuse, ¼ red and ½ colorless pericarp, and on each of
these ears ½ the kernels would be $a^{-1}_{m-1}$ and liable to spotting. The results obtained with three families are shown in Table 2.

This test is far from definitive. The seven Diffuse ears which show strong $a^{-1}_{m-1}$ spotting and the nine colorless ears which are spotted could constitute the ½ of the backcross populations expected to carry Idf. On the other hand, if Idf does substitute for Spm, the one Diffuse ear with no spots and the four red ears with $a^{-1}_{m-1}$ spots would not be expected. The several explanations advanced in Note No. 1 are also applicable here to explain these exceptional ears. In the case of Diffuse pericarp, however, it seems more probable that Idf is substituting for Spm than in the case of $p^{mm}$ described previously.

<table>
<thead>
<tr>
<th>Family number</th>
<th>Pericarp and aleurone phenotypes of backcross ears</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diffuse P.</td>
<td>Red P.</td>
</tr>
<tr>
<td></td>
<td>spotted</td>
<td>no spots</td>
</tr>
<tr>
<td>2635</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2636</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2637</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

*all ears show a few kernels with a few spots.

R. I. Brawn

3. Isoalleles of $p^{WR}$.

The cob color of the Iowa inbred B14 is noticeably darker red than most other red-eared inbreds. This difference is most likely due to modifiers of the $p^{WR}$ allele and not to an isoallele of $p^{WR}$.

Inbreds B14 with dark red cob color and inbred W-9 with a much lighter red cob color were crossed and carried to $F_2$. It was not possible to detect separate classes of red; the $F_2$ ranged continuously from dark to light red.

The $p^{WR}$ alleles from both B14 and W-9 have been introduced into the white-cobbed inbred A171 ($p^{WW}$) by backcrossing. By the fourth backcross no difference in cob color could be detected between the two A171 sublines with different $p^{WR}$ alleles.