Phenotypes of kernels selected from ears produced by cross of original \( a_1m^{-1} \) carrying plant to plants that were homozygous for the standard \( a_1 \) and for \( A_2 \).

<table>
<thead>
<tr>
<th>Phenotype of kernel</th>
<th>No. of kernels selected with given phenotype</th>
<th>Culture number of plant derived from selected kernel</th>
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</thead>
<tbody>
<tr>
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<td>4</td>
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</tr>
<tr>
<td>Uniformly pale colored</td>
<td>5</td>
<td>5713B, 5713C, 5713D, 5719B, 5700A</td>
</tr>
<tr>
<td>Few small colorless areas in deeply pigmented background</td>
<td>2</td>
<td>5713B-1, 5713B-2</td>
</tr>
<tr>
<td>Original type of variegation pattern</td>
<td>5</td>
<td>5717D 1 to 5</td>
</tr>
<tr>
<td>Large areas of deep-pigmentation, and areas with many small spots of deep-pigmentation in colorless background</td>
<td>2</td>
<td>5717B-1, 5717B-2</td>
</tr>
<tr>
<td>Very many small spots of deep pigmentation in colorless background</td>
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<td>5713G</td>
</tr>
<tr>
<td>Small spots of deep pigmentation in colorless background; uniformly distributed over aleurone layer</td>
<td>6</td>
<td>5714E, 5715A, 5717A, 5716, 5719A-1, 5719A-2</td>
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<tr>
<td>Few small deeply pigmented spots in colorless background</td>
<td>2</td>
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<tr>
<td>Large and small pale areas of different intensities in colorless background</td>
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<tr>
<td>Deeply pigmented areas of various sizes in a lightly pigmented background</td>
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Table 2

Types of kernels appearing on ears produced by test crosses of variegated plants entered in row 4 of Table 1. All variegated plants were $a_1m^{-1}/a_1m^1$. A. Ears produced by self pollination. B. Ears of variegated plants derived from cross with a plant homozygous for $a_1$. C. Ears produced when pollen of variegated plant was placed on silks of plants homozygous for $a_1$ and $H_2$.

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<tr>
<td>C.</td>
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* on some kernels pale areas also appeared. The meaning of these will be considered in section 4 of this report.
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1) Kernels selected from this class produced plants in culture 6452, table 3

2) Kernels selected from this class produced plants in culture 6453, table 3
Table 5

Phenotypes of kernels appearing on ears produced by cross of plants (a) (j) and (n) with each other in culture 6629 A showing the constitution of the kernel colors (a, a') and (j, j'). The kernels listed under 'Pale Colored,' were uncorrected before entry while variegated colors were labeled as 'Variegated Colored.' Product 'Totals' and figures in red indicate the position of the ear on the main stalk.

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<th>a'</th>
<th>j</th>
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<th>Total</th>
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Note: In addition to kernels entered in this table, there were 2 kernels, each on a different ear, that expressed the 'a' phenotype. Both were Sh and p4...
The degree of association of the pale phenotype with \( \gamma \) and the recessive phenotype with \( \gamma \) on ears of plants entered in Table 5 that exhibited a ratio of 1 pale to 1 variegated kernel among pale kernels having entirely green pigment.

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<th>Phenotype of kernel</th>
<th>Pale</th>
<th>Deeply-pigmented spots in colorless background</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>6629</td>
<td></td>
<td></td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \gamma )</td>
<td>I</td>
<td>36</td>
<td>58</td>
<td>66</td>
<td>195</td>
</tr>
<tr>
<td>( \gamma )</td>
<td>II</td>
<td>33</td>
<td>54</td>
<td>52</td>
<td>176</td>
</tr>
<tr>
<td>( \gamma )</td>
<td>I</td>
<td>34</td>
<td>53</td>
<td>44</td>
<td>168</td>
</tr>
<tr>
<td>( \gamma )</td>
<td>I</td>
<td>23</td>
<td>65</td>
<td>56</td>
<td>180</td>
</tr>
<tr>
<td>( \gamma )</td>
<td>I</td>
<td>34</td>
<td>67</td>
<td>79</td>
<td>217</td>
</tr>
<tr>
<td>( \gamma )</td>
<td>I</td>
<td>29</td>
<td>59</td>
<td>58</td>
<td>182</td>
</tr>
<tr>
<td>( \gamma )</td>
<td>I</td>
<td>40</td>
<td>41</td>
<td>49</td>
<td>168</td>
</tr>
<tr>
<td>( \gamma )</td>
<td>Tiller</td>
<td>41</td>
<td>59</td>
<td>50</td>
<td>184</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>270</td>
<td>456</td>
<td>454</td>
<td>1470</td>
</tr>
<tr>
<td>Plant number in culture 6629</td>
<td>Position of ear on plant</td>
<td>Phenotype of kernel</td>
<td>Deeply pigmented spots in colorless background</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------</td>
<td>---------------------</td>
<td>------------------------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-2</td>
<td>1</td>
<td>Y</td>
<td>7</td>
<td>108</td>
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</tr>
<tr>
<td></td>
<td>2</td>
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<td></td>
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</tr>
<tr>
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<td>3</td>
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<td>4</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>3</td>
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<td></td>
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</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-7</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td></td>
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</tr>
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<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 8

Phenotypes of kernels on ears of plants in B-1 derived from 6629 produced by inter-cross plants. When one kernel in 20 was abnormal, the constituent of the plants in 6629 B were: ari. she, she, ari. she.

<table>
<thead>
<tr>
<th>Plant number</th>
<th>Position of ear on plant</th>
<th>Phenotype of kernel</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>in culture 6629</td>
<td></td>
<td>Sha 2 y</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pale</td>
<td>Variegated</td>
</tr>
<tr>
<td>B-1</td>
<td>I</td>
<td>184</td>
<td>171</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>43</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Tillier</td>
<td>45</td>
<td>58</td>
</tr>
<tr>
<td>B-2</td>
<td>I</td>
<td>52</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td>Tillier</td>
<td>24</td>
<td>51</td>
</tr>
<tr>
<td>B-3</td>
<td>I</td>
<td>91</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87</td>
<td>104</td>
</tr>
<tr>
<td>B-4</td>
<td>I</td>
<td>91</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td></td>
<td>87</td>
<td>104</td>
</tr>
<tr>
<td>B-5</td>
<td>I</td>
<td>91</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Tillier</td>
<td>47</td>
<td>97</td>
</tr>
<tr>
<td>B-6</td>
<td>I</td>
<td>64</td>
<td>171</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>47</td>
<td>122</td>
</tr>
<tr>
<td>B-7</td>
<td>I</td>
<td>126</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>B-8</td>
<td>I</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>23</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Tillier</td>
<td>30</td>
<td>135</td>
</tr>
<tr>
<td>B-9</td>
<td>I</td>
<td>38</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>24</td>
<td>129</td>
</tr>
<tr>
<td>B-10</td>
<td>I</td>
<td>112</td>
<td>136</td>
</tr>
</tbody>
</table>

* These kernels showed only very small dots of deep pigment in an otherwise colorless kernel.

Note: In addition to the kernels entered in this table, there were 3 deeply-pigmented kernels, A to D, that were soft and flake.
Table 9

Phenotypes of kernels on ears of plants grown in the greenhouse during the winter of 1950-51 from which plants were grown in the summer of 1951.

<table>
<thead>
<tr>
<th>Culture Number</th>
<th>Type of Cross conducted with a&lt;sub&gt;1&lt;/sub&gt;-&lt;sub&gt;1&lt;/sub&gt; plant</th>
<th>Phenotype of Kernels Selected from Ear</th>
<th>Culture Number of Plants Derived from Selected Kernels</th>
<th>Number of Plants in Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>5700A</td>
<td>a&lt;sub&gt;1&lt;/sub&gt;/a&lt;sub&gt;1&lt;/sub&gt;</td>
<td>Aleurone lightly pigmented</td>
<td>6078</td>
<td>9</td>
</tr>
<tr>
<td>5718</td>
<td>Self-pollinated</td>
<td>Dots of a&lt;sub&gt;1&lt;/sub&gt; pigment</td>
<td>6045</td>
<td>4</td>
</tr>
<tr>
<td>5719A-1</td>
<td>self-pollinated</td>
<td>Uniformly pigmented aleurone</td>
<td>6046A</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(see table 2)</td>
<td>Dots of a&lt;sub&gt;1&lt;/sub&gt; in colorless</td>
<td>6046C</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>background</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dots of a&lt;sub&gt;1&lt;/sub&gt; and some pale</td>
<td>6046B</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>areas in colorless background</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a&lt;sub&gt;1&lt;/sub&gt;/a&lt;sub&gt;1&lt;/sub&gt;</td>
<td>Dots of a&lt;sub&gt;1&lt;/sub&gt; in colorless</td>
<td>6047A, B, G</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>(see table 2)</td>
<td>background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5719A-2</td>
<td>self-pollinated</td>
<td>&quot;</td>
<td>6080C</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>(see table 2)</td>
<td>Dots of a&lt;sub&gt;1&lt;/sub&gt; and pale areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>in colorless background</td>
<td>6080B</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>a&lt;sub&gt;1&lt;/sub&gt;/a&lt;sub&gt;1&lt;/sub&gt;</td>
<td>&quot;</td>
<td>6081A</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>(see table 2)</td>
<td>Dots of a&lt;sub&gt;1&lt;/sub&gt; in colorless</td>
<td>6081B</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5720</td>
<td>self-pollinated</td>
<td>Pale areas of various intensities</td>
<td>6042</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>in colorless background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5720</td>
<td>a&lt;sub&gt;1&lt;/sub&gt;/a&lt;sub&gt;1&lt;/sub&gt;</td>
<td>&quot;</td>
<td>6043A, B</td>
<td>4</td>
</tr>
<tr>
<td>5720</td>
<td>a&lt;sub&gt;1&lt;/sub&gt;/a&lt;sub&gt;1&lt;/sub&gt;</td>
<td>&quot;</td>
<td>6044</td>
<td>9</td>
</tr>
</tbody>
</table>
Table 10.

Phenotypes of kernels on four pedigrees of plants in eastern 60xI A where constitutions were A1N(T) x A1N(T) / A2. A1N(T) can derive from self-pollination. B. Landworth strain of 60x1A x 9.14.07. C. Reciprocal of B.

<table>
<thead>
<tr>
<th>Plant Number</th>
<th>Multiramed: (a)</th>
<th>Poll</th>
<th>Deeply-advanced</th>
<th>Colored</th>
<th>Total</th>
<th>Spin Constitution</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-2</td>
<td>1</td>
<td>74</td>
<td>166</td>
<td>75</td>
<td>316</td>
<td>1</td>
</tr>
<tr>
<td>A-3</td>
<td>0</td>
<td>89</td>
<td>244</td>
<td>99</td>
<td>432</td>
<td>1</td>
</tr>
<tr>
<td>A-4 (r)</td>
<td>0</td>
<td>76</td>
<td>257</td>
<td>109</td>
<td>442</td>
<td>1</td>
</tr>
<tr>
<td>A-8 (r)</td>
<td>0</td>
<td>62</td>
<td>188</td>
<td>75</td>
<td>325</td>
<td>1</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>1</td>
<td>301</td>
<td>855</td>
<td>358</td>
<td>1515</td>
<td></td>
</tr>
<tr>
<td>A-4 (r)</td>
<td>0</td>
<td>99</td>
<td>110</td>
<td>214</td>
<td>423</td>
<td></td>
</tr>
<tr>
<td>B-5 (r)</td>
<td>0</td>
<td>7</td>
<td>23</td>
<td>32</td>
<td>62</td>
<td>2 (?)</td>
</tr>
<tr>
<td>A-6</td>
<td>0</td>
<td>123</td>
<td>136</td>
<td>262</td>
<td>521</td>
<td>1</td>
</tr>
<tr>
<td>A-8(r)</td>
<td>0</td>
<td>8</td>
<td>30</td>
<td>38</td>
<td>76</td>
<td>2 (?)</td>
</tr>
<tr>
<td>A-8(?)</td>
<td>0</td>
<td>65</td>
<td>72</td>
<td>131</td>
<td>268</td>
<td>1</td>
</tr>
<tr>
<td>C-2</td>
<td>0</td>
<td>110</td>
<td>131</td>
<td>272</td>
<td>513</td>
<td>1</td>
</tr>
<tr>
<td>C-4</td>
<td>0</td>
<td>124</td>
<td>127</td>
<td>258</td>
<td>509</td>
<td>1</td>
</tr>
<tr>
<td>C-5</td>
<td>1</td>
<td>88</td>
<td>238</td>
<td>290</td>
<td>617</td>
<td>2</td>
</tr>
<tr>
<td>C-8</td>
<td>0</td>
<td>114</td>
<td>151</td>
<td>264</td>
<td>529</td>
<td>1</td>
</tr>
</tbody>
</table>
Phenotypes of kernels appearing on ear produced by plant 6081 B whose constitution was qntz (more 579A-2) 191. A. Ear derived from self-pollination of B. Ear derived from cross 6081B x qntz A. 2. Three ear derived from reciprocal cross.

### Table 11: Phenotype of Kernel

<table>
<thead>
<tr>
<th>Party plant 6081B Tested</th>
<th>Deeply (A)</th>
<th>Uniformly</th>
<th>Deeply A Type pigment in colorless background</th>
<th>Colorless</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  Firstear main stalk</td>
<td>3</td>
<td>0</td>
<td>170</td>
<td>57</td>
<td>230</td>
</tr>
<tr>
<td>B Second ear, main stalk</td>
<td>0</td>
<td>12</td>
<td>96</td>
<td>111</td>
<td>219</td>
</tr>
<tr>
<td>Tiller Ear</td>
<td>0</td>
<td>5</td>
<td>136</td>
<td>141</td>
<td>282</td>
</tr>
</tbody>
</table>

### Table 11: Phenotype of Kernel (continued)

<table>
<thead>
<tr>
<th>Party plant 6081B Tested</th>
<th>Deeply (A)</th>
<th>Uniformly</th>
<th>Deeply A Type pigment in colorless background</th>
<th>Colorless</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>C  Pollen</td>
<td>0</td>
<td>38</td>
<td>191</td>
<td>245</td>
<td>444</td>
</tr>
<tr>
<td>Pollen</td>
<td>0</td>
<td>32</td>
<td>198</td>
<td>258</td>
<td>488</td>
</tr>
<tr>
<td>Pollen</td>
<td>0</td>
<td>24</td>
<td>167</td>
<td>192</td>
<td>383</td>
</tr>
<tr>
<td>Totals</td>
<td>0</td>
<td>94</td>
<td>556</td>
<td>695</td>
<td>1345</td>
</tr>
</tbody>
</table>
Table 12

Phenotypes of kernels on ears of plant 6080B, which was homozygous for state 5719A-2 m-1. Line 1: Kernel types on ear derived from cross of 6080B ♀ x a1/a1 ♀. Lines 2 and 3: Kernel types on ears derived from reciprocal cross.

<table>
<thead>
<tr>
<th>Phenotype of Kernel</th>
<th>A1 Uniformly Pale</th>
<th>Dots of A1 in Colorless Background</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 186</td>
<td></td>
<td>154</td>
<td>341</td>
</tr>
<tr>
<td>0 226</td>
<td></td>
<td>187</td>
<td>413</td>
</tr>
<tr>
<td>0 273</td>
<td></td>
<td>202</td>
<td>475*</td>
</tr>
</tbody>
</table>

* One colorless kernel was present in addition to those given in the table.
Table 13

Phenotypes of kernels on ears produced by test crosses conducted under plants in culture 60x0C that were homozygous for the allele 57119H-2 at q171.1. Ears derived from self-pollination. B. Ears derived from cross 60x0C × 57119H-2.

<table>
<thead>
<tr>
<th>Plant number</th>
<th>Part of plant tested</th>
<th>Phenotype of kernel</th>
<th>Dots of P1 in colorless background</th>
<th>Total</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-3</td>
<td>I</td>
<td>P1</td>
<td>1</td>
<td>2</td>
<td>124</td>
</tr>
<tr>
<td>C-5</td>
<td>I</td>
<td>Pale</td>
<td>3</td>
<td>2</td>
<td>272</td>
</tr>
<tr>
<td>C-6</td>
<td>I</td>
<td></td>
<td>3</td>
<td>2</td>
<td>205</td>
</tr>
<tr>
<td>C-8</td>
<td>I</td>
<td></td>
<td>0</td>
<td>62</td>
<td>133</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Remarks</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>15 pm</strong></td>
</tr>
</tbody>
</table>

|              |                      |                     |                                   |       | **2. Inherited** |
|              |                      |                     |                                   |       | **located 3 pm** |

| B            |                      |                     |                                   |       |         |
| C-2          | I                    | P1                  | 0                                 | 78    | 246     | 324     |
| C-3          | II                   | Pale                | 0                                 | 14    | 264     | 278     |
| C-4          | I                    |                     | 0                                 | 0     | 14      | 14      |
| C-4          | tiller               |                     | 0                                 | 0     | 18      | 18      |
| C-5          | II                   |                     | 0                                 | 1     | 278     | 279     |
| C-8          | II                   |                     | 0                                 | 51    | 44      | 95      |
| C-11         | I                    |                     | 1                                 | 2     | 216     | 219     |
|              |                      | **Total**           |                                   |       | **Total** |
|              |                      |                     |                                   |       | **15 pm** |

|              |                      |                     |                                   |       | **2. Inherited** |
|              |                      |                     |                                   |       | **located 3 pm** |

| C            |                      |                     |                                   |       |         |
| C-2          | Policy               |                     | 0                                 | 159   | 350     | 509     |
| C-3          |                      |                     | 2                                 | 60    | 492     | 554     |
| C-5          |                      |                     | 0                                 | 34    | 410     | 414     |
| C-6          |                      |                     | 7                                 | 100   | 422     | 529     |
| C-8          |                      |                     | 1                                 | 74    | 396     | 471     |
|              |                      | **Total**           |                                   |       | **Total** |
|              |                      |                     |                                   |       | **15 pm** |

2. Inherited 3 pm located 8 pm internode.
Table 14

Phenotypes of the lines in maize earro production: A. cross-conducted with plants in B of culture 6046. A. Ear derived by self-pollination. B. Ear derived by Cross 6046 B4 x Q.19.07. C. Reciprocal B. Plants B-1 and B-2 were qm-1 (AFAR 5719A-1)9 and plant B-3 was grown for test 5719A-1 qm-1.

<table>
<thead>
<tr>
<th>Plant number</th>
<th>Part of plant tested</th>
<th>A1</th>
<th>Pale</th>
<th>Spore A1 in median bud</th>
<th>Collor</th>
<th>Total</th>
<th>Spor constitution</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-2</td>
<td>I</td>
<td>1</td>
<td>46</td>
<td>121</td>
<td>0</td>
<td>168</td>
<td>1</td>
</tr>
<tr>
<td>B-3</td>
<td>Taller</td>
<td>2</td>
<td>14</td>
<td>217</td>
<td>85</td>
<td>318</td>
<td>2</td>
</tr>
<tr>
<td>C-1</td>
<td></td>
<td>3</td>
<td>33</td>
<td>376</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>C-2</td>
<td></td>
<td>3</td>
<td>32</td>
<td>371</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

| B             | II                   | 0  | 117  | 110                    | 0      | 227   | 1                |
| B-3          | I                    | 1  | 33   | 153                    | 181    | 365   | 2                |
| C-2          | Taller               | 0  | 35   | 141                    | 178    | 2     | 2                |

| C             | Pollen               | 0  | 127  | 140                    | 269    | 546   | 1                |
| B-1          |                      | 1  | 137  | 101                    | 232    | 471   | 1                |
| B-2          |                      | 0  | 172  | 173                    | 0      | 345   | 1                |
| B-2          |                      | 0  | 210  | 197                    | 0      | 407   | 1                |
| C-2          |                      | 1  | 212  | 465                    | 0      | 2     | 2                |
Table 15

Phenotypes of kernels derived from tests of plants in culture 6045.

Phenotypes of kernels derived from tests of plants in culture 6045.

<table>
<thead>
<tr>
<th>Plant number</th>
<th>A1</th>
<th>Pale color</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>1</td>
<td>0</td>
<td>57</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>6</td>
<td>72</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>0</td>
<td>73</td>
</tr>
<tr>
<td>A</td>
<td>4</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>207</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>387</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>83</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5(?)</td>
</tr>
<tr>
<td>Total</td>
<td>363</td>
<td>424</td>
<td></td>
</tr>
</tbody>
</table>

1) These kernels must probably belong to the pale class.

2) About 40 % these kernels probably belong to the pale class.
Table 16

Grain, n, x and variance

<table>
<thead>
<tr>
<th>q</th>
<th>t</th>
<th>Phenotype of kernel</th>
<th>pale areas, %</th>
<th>colorless</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>6044-3</td>
<td>6041B5</td>
<td>56</td>
<td>36</td>
<td>242</td>
<td>334</td>
</tr>
<tr>
<td>6044-4</td>
<td>7</td>
<td>90</td>
<td>34</td>
<td>301</td>
<td>397</td>
</tr>
<tr>
<td>6044-6</td>
<td>g</td>
<td>68</td>
<td>64</td>
<td>398</td>
<td>530</td>
</tr>
<tr>
<td>q, t, g</td>
<td>6044-7</td>
<td>112</td>
<td>54</td>
<td>429</td>
<td>595</td>
</tr>
<tr>
<td>6044-7</td>
<td>6041B6</td>
<td>88</td>
<td>55</td>
<td>434</td>
<td>577</td>
</tr>
<tr>
<td>6044-8</td>
<td>g</td>
<td>51</td>
<td>15</td>
<td>170</td>
<td>236</td>
</tr>
</tbody>
</table>

Uniformly pigmented class: intensity varied from very faint to dark brown in plants with q, t, and g.

Variegated class: few kernels with pale background instead of colorless.
Pale areas could have areas of darker intensity within.

Total explanation of uniformly class. Reason due to 2q, t, g in q, t, g class, only 1 in 57.
Table 17

A. Phenotypes of kernels on ears produced by cross $a_{1}^{m-1}$ (original state) $Sh_{2}$/

$\text{A}_{1} Sh_{2} \varphi \times A_{1} sh_{2}/A_{1} \text{ sh}_{2} \tilde{\text{F}}$. B. Reciprocal of A.

<table>
<thead>
<tr>
<th>A.</th>
<th>B.</th>
<th>Number of kernels with new state</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Phenotypes of Kernels

<table>
<thead>
<tr>
<th>Culture</th>
<th>Plant Number</th>
<th>$A_{1}$</th>
<th>pale pigment</th>
<th>Variegated</th>
<th>Apparently colorless</th>
<th>Total</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>5994</td>
<td>8</td>
<td>68</td>
<td>56</td>
<td>186</td>
<td>332</td>
<td>642</td>
<td>0</td>
</tr>
<tr>
<td>5994</td>
<td>10</td>
<td>38</td>
<td>91</td>
<td>113</td>
<td>264</td>
<td>506</td>
<td>0</td>
</tr>
<tr>
<td>5994</td>
<td>12</td>
<td>60</td>
<td>11</td>
<td>163</td>
<td>266</td>
<td>500</td>
<td>0</td>
</tr>
<tr>
<td>5995</td>
<td>1</td>
<td>63</td>
<td>3</td>
<td>110</td>
<td>315</td>
<td>521</td>
<td>1</td>
</tr>
<tr>
<td>5995</td>
<td>2</td>
<td>51</td>
<td>12</td>
<td>193</td>
<td>290</td>
<td>5146</td>
<td>0</td>
</tr>
<tr>
<td>5995</td>
<td>10</td>
<td>76</td>
<td>42</td>
<td>70</td>
<td>329</td>
<td>517</td>
<td>0</td>
</tr>
<tr>
<td>5995</td>
<td>12</td>
<td>71</td>
<td>16</td>
<td>176</td>
<td>402</td>
<td>665</td>
<td>1</td>
</tr>
<tr>
<td>5996</td>
<td>1</td>
<td>16</td>
<td>44</td>
<td>54</td>
<td>159</td>
<td>273</td>
<td>0</td>
</tr>
<tr>
<td>5996</td>
<td>2</td>
<td>24</td>
<td>1</td>
<td>169</td>
<td>214</td>
<td>408</td>
<td>0</td>
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<tr>
<td>5996*</td>
<td>4</td>
<td>10</td>
<td>107</td>
<td>120</td>
<td>280</td>
<td>517</td>
<td>1</td>
</tr>
<tr>
<td>5996</td>
<td>10</td>
<td>48</td>
<td>68</td>
<td>43</td>
<td>203</td>
<td>362</td>
<td>0</td>
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<tr>
<td>5997</td>
<td>2</td>
<td>63</td>
<td>18</td>
<td>73</td>
<td>229</td>
<td>383</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>588</td>
<td>469</td>
<td>1500</td>
<td>3283</td>
<td>5640</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

B.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Plant Number</th>
<th>$A_{1}$</th>
<th>pale pigment</th>
<th>Variegated</th>
<th>Apparently colorless</th>
<th>Total</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>5994</td>
<td>2</td>
<td>57</td>
<td>10</td>
<td>97</td>
<td>278</td>
<td>442</td>
<td>0</td>
</tr>
<tr>
<td>5994</td>
<td>12</td>
<td>57</td>
<td>75</td>
<td>96</td>
<td>303</td>
<td>531</td>
<td>0</td>
</tr>
</tbody>
</table>

*The part of the plant that produced this ear had an altered state of $a_{1}^{m-1}$.

It is referred to in this report as state 5996-4 $a_{1}^{m-1}$.
Table 18

<table>
<thead>
<tr>
<th>Origin of Plants Grown in the Summer of 1954</th>
<th>Phenotypes of Kernels selected from ear.</th>
<th>1954 Culture Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of ( \alpha_1 \text{m-1} )</td>
<td>Pale Var. x Pale Var. Color Odds sh2 x sh2</td>
<td></td>
</tr>
<tr>
<td>( \Phi )</td>
<td>sh2</td>
<td>sh2</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>5718</td>
<td>6045-4 Self.Poll. Table 15</td>
<td>8</td>
</tr>
<tr>
<td>5719A-1</td>
<td>6046A-1 ( \alpha_1 \text{sh}_2 ) Page</td>
<td>30</td>
</tr>
<tr>
<td>6046B-2</td>
<td>&quot; &quot;</td>
<td>Table 14</td>
</tr>
<tr>
<td>6046C-1 Self-Poll.</td>
<td>&quot; &quot;</td>
<td>9</td>
</tr>
<tr>
<td>6046C-4</td>
<td>&quot; &quot;</td>
<td>&quot; &quot;</td>
</tr>
<tr>
<td>( \alpha_1 \text{sh}_2 ) 6047B</td>
<td>Table 4</td>
<td>9</td>
</tr>
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<td>6047B</td>
<td>( \alpha_1 \text{sh}_2 )</td>
<td>&quot; &quot;</td>
</tr>
<tr>
<td>6628-2 Contam. Page</td>
<td>&quot; &quot;</td>
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</tr>
<tr>
<td>6628-5 ( \alpha_1 \text{sh}_2 )</td>
<td>&quot;</td>
<td>19</td>
</tr>
<tr>
<td>6628-6</td>
<td>&quot; &quot;</td>
<td>&quot; &quot;</td>
</tr>
<tr>
<td>6628-8</td>
<td>&quot; &quot;</td>
<td>&quot; &quot;</td>
</tr>
<tr>
<td>6629A-4 t Self.Poll.</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>&quot; B-2t 6629A-4t &quot;</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>&quot; B-6t &quot;</td>
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<td>10</td>
</tr>
<tr>
<td>&quot; A-1 I ( \alpha_1 \text{sh}_2 ) Table 5</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>&quot; &quot; 11 &quot; &quot; &quot;</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>&quot; A-2 t &quot;</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
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<td>&quot; &quot;</td>
<td>&quot; &quot;</td>
</tr>
<tr>
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<td>12</td>
</tr>
<tr>
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<td>12</td>
</tr>
<tr>
<td>&quot; A-5t &quot;</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>&quot; A-6 I &quot;</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>&quot; A-7 I &quot;</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>&quot; &quot; &quot; t &quot; &quot; &quot;</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>&quot; A-8 I &quot;</td>
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<td>20</td>
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<td>&quot; B-1 I &quot;</td>
<td>Table 8</td>
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</tr>
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</tr>
<tr>
<td>&quot; B-4 I &quot;</td>
<td>&quot; &quot;</td>
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<td>&quot; B-5 t &quot;</td>
<td>&quot; &quot;</td>
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<td>&quot; &quot; &quot; II&quot;</td>
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<td>3</td>
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<tr>
<td>&quot; B-5t &quot;</td>
<td>&quot; &quot;</td>
<td>8</td>
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<tr>
<td>Origin</td>
<td>Text Reference</td>
<td>Phenotypes of Kernels Selected from Ear</td>
</tr>
<tr>
<td>--------</td>
<td>----------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>6629B-6 I a₁ sh₂</td>
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<td>66</td>
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<td>&quot; B-7 I &quot; &quot; &quot; &quot; &quot; &quot;</td>
<td>16</td>
<td>16</td>
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<tr>
<td>&quot; B-8 I &quot; &quot; &quot; &quot; &quot; &quot;</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>&quot; B-9t &quot; &quot; &quot; &quot; &quot; &quot;</td>
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<td>9</td>
</tr>
<tr>
<td>&quot; &quot; &quot; II&quot; &quot; &quot; &quot; &quot; &quot;</td>
<td>1</td>
<td>1</td>
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<tr>
<td>6080B a₁ sh₂</td>
<td>Table 12</td>
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</tr>
<tr>
<td>a₁ sh₂</td>
<td>6080B</td>
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<td>6080C-2 a₁ sh₂</td>
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<td>3</td>
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<tr>
<td>State 5700A</td>
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<tr>
<td>6078-3 I Self.Poll.Page</td>
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<tr>
<td>&quot; &quot;II 6041B-15 &quot; &quot;</td>
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<td>&quot; -5 Self. Poll, &quot;</td>
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<td>5996-2 6041B-6 Table 17</td>
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Table 18 continued

<table>
<thead>
<tr>
<th>State 5713B-2</th>
<th>Origin</th>
<th>Text Reference</th>
<th>Phenotypes of Kernels Selected from Ear</th>
<th>1954 Culture Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pale $Sh_2$ Variegated $CMut$</td>
<td></td>
</tr>
<tr>
<td>$q$ $r$</td>
<td>5713B-2</td>
<td>I Self.Poll. Tables 1 and 2</td>
<td>$Sh_2$ $Sh_2$ $Sh_2$</td>
<td>6644</td>
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</tbody>
</table>

| $a_1 Sh_2$ | 5713B-2 | Table 2 | 12 | 6645 |

State 5714F

| $a_1 Sh_2$ | 5714F | Table 2 | 3 | 6 | 6646 |

| $a_1 Sh_2$ | 5714F | Table 2 | 3 | 6 | 6646 |

State 5715A

| $a_1 Sh_2$ | 5715A | Table 2 | 10 | 6648 |

| $a_1 Sh_2$ | 5715A | Table 2 | 10 | 6648 |

State 5720

| $a_1 sh_2$ | Page | 5 | 5 | 6651 |

| $a_1 sh_2$ | Page | 5 | 5 | 6651 |

| $a_1 sh_2$ | Page | 5 | 10 | 6655 |

| $a_1 sh_2$ | Table 16 | 8 | 9 | 6657 |

Combinations of states:

| 5700A x 5719A-2 | Colorless $Sh_{14}^2$ | 6703 |

| 5720 x Original State | | |

| 6078-5t 6080C-3 | Page | 20 | |

| 6078-5t 6080C-3 | Page | 20 | |

*Colorless kernels with 1 or several small $A_1$ dots.  
+ $Spm$ entering inactive phase in some cells of kernel
<table>
<thead>
<tr>
<th>T</th>
<th>H</th>
<th>10</th>
<th>( \text{Total} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>( \text{Total} )</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{Total} = \text{Number} \times \text{Value} \]
Table 19

Constitution of tester plants whose culture numbers are given in last column

Part I. Homozygous for \( a^{-1}_{m-1} \) and \( Sh_2 \)

<table>
<thead>
<tr>
<th>State of ( a^{-1}_{m-1} )</th>
<th>Chromosome 5</th>
<th>Chromosome 6</th>
<th>Chromosome 9</th>
<th>Spm</th>
<th>1954 Culture Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5718 pr/pr</td>
<td>( Y/Y )</td>
<td>( Wx/Wx )</td>
<td>0</td>
<td></td>
<td>6638A</td>
</tr>
<tr>
<td>5719A-1 pr/pr</td>
<td>( Y/Y )</td>
<td>( Wx/Wx )</td>
<td>0</td>
<td></td>
<td>6641A</td>
</tr>
<tr>
<td>5719A-1 pr/pr</td>
<td>( Y/Y )</td>
<td>( Wx/Wx )</td>
<td>0</td>
<td></td>
<td>6641B</td>
</tr>
<tr>
<td>5719A-1 pr/pr</td>
<td>( Y/Y ) or ( Y/Y )</td>
<td>( Wx/Wx )</td>
<td>0</td>
<td></td>
<td>6642</td>
</tr>
<tr>
<td>5719A-2 pr/pr</td>
<td>( Y/Y )</td>
<td>( Wx/Wx )</td>
<td>0</td>
<td></td>
<td>6643</td>
</tr>
<tr>
<td>5700A Pr/Pr</td>
<td>( Y/Y )</td>
<td>( sh_1 Wx/sh_1 Wx )</td>
<td>0</td>
<td></td>
<td>6701-2</td>
</tr>
</tbody>
</table>

Part II \( a^{-1}_{m-1} \) \( sh_2/a_{m-1} sh_2 \), no Spm (state 5719A-1 in all plants)

| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | 0            |     | 6662C               |
| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | 0            |     | 6675G               |
| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | 0            |     | 6678                 |
| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | 0            |     | 6669C               |

Part III \( a^{-1}_{m-1} \) \( sh_2/a_{m-1} sh_2 \) (state 5719A-1 in all plants)

| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | \( Y 3pm/Y \) | 6666E |
| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | 1 Spm         | 6671E |
| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | 1 Spm         | 6673F |
| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | 3 Spm         | 6680D |
| Pr/pr                     | \( Y/Y \)    | \( Wx/Wx \)  | 1 Spm         | 6690  |
Table 20

Phenotypes of kernels from which plants were grown under culture number indicated in column 1

<table>
<thead>
<tr>
<th>1954 Culture Number</th>
<th>Cross that produced ear from which kernels were selected</th>
<th>Phenotypes of kernels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pale Sh&lt;sub&gt;2&lt;/sub&gt; Variegated Sh&lt;sub&gt;2&lt;/sub&gt; Colorless Sh&lt;sub&gt;2&lt;/sub&gt; Odds</td>
</tr>
<tr>
<td>6665</td>
<td>6629A-1 x 1041-5</td>
<td>6 7 10 3 21 12</td>
</tr>
<tr>
<td>6666</td>
<td>6629A-1 x 1041-4</td>
<td>5 6 7 5 10 13 1*</td>
</tr>
<tr>
<td>6670</td>
<td>6629A-4 x 1041-5</td>
<td>6 7 7 5 6 14</td>
</tr>
<tr>
<td>6673</td>
<td>6629A-6 x 1040-1</td>
<td>6 6 12 5 17 18 1†</td>
</tr>
<tr>
<td>6674</td>
<td>6629A-7 x 1040-1</td>
<td>5 7 7 4 5 6 3†</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>28 33 43 22 59 63 5</strong></td>
</tr>
</tbody>
</table>

* This kernel was variegated, Sh<sub>2</sub>, Y
† Kernel was variegated for pale and colorless areas with few dots of A<sub>1</sub> pigment within the colorless areas; Sh<sub>2</sub>, Y.
‡ Kernels were colorless with 1 or 2 small dots of A<sub>1</sub> type pigment; Sh<sub>2</sub>, Y.
<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
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<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
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<tr>
<td>8</td>
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<tr>
<td>9</td>
<td></td>
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<tr>
<td>10</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>18</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 2*
<table>
<thead>
<tr>
<th>Cultiv</th>
<th>Plant no.</th>
<th>Stem</th>
<th>Node</th>
<th>Method</th>
<th>II</th>
<th>III</th>
<th>100%water</th>
<th>oddo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6665 F</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>6641F</td>
<td></td>
<td>6678</td>
</tr>
<tr>
<td></td>
<td>6666 D</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>6641F</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>666 E</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>6641F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: 5/20
Test crosses conducted with plants in culture 6665G and H and culture 6666G and H derived from colorless, sh kernels on ears of lent 6629A-1. Plants in Parts I and II were Y/y in constitution. Those in parts III and IV were y/y. Each plant was used as the ear parent in the cross.

<table>
<thead>
<tr>
<th>Part</th>
<th>Y/y Spm present</th>
<th>Source of pollen used in making test cross</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Culture and Plant number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pale plants with states other than those in Table 19</td>
</tr>
<tr>
<td>Part I</td>
<td>15 plants</td>
<td></td>
</tr>
<tr>
<td>6665G-1</td>
<td>5718</td>
<td>5700A</td>
</tr>
<tr>
<td>6666G-1</td>
<td>5718</td>
<td>5719A-2</td>
</tr>
<tr>
<td>6665G-7</td>
<td>5718</td>
<td>5718</td>
</tr>
<tr>
<td>6665G-2,-5,-6,-12,-13,-16,-21</td>
<td>5718</td>
<td></td>
</tr>
<tr>
<td>6666G-2,-5,-6,-9,-10</td>
<td>5718</td>
<td></td>
</tr>
<tr>
<td>Part II</td>
<td>15 plants</td>
<td></td>
</tr>
<tr>
<td>6665G-9</td>
<td>5718</td>
<td>5700A</td>
</tr>
<tr>
<td>6665G-3</td>
<td>5718</td>
<td>5700A</td>
</tr>
<tr>
<td>6665G-10</td>
<td>5718</td>
<td>5719A-2</td>
</tr>
<tr>
<td>6666G-14</td>
<td>5718</td>
<td>5719A-2</td>
</tr>
<tr>
<td>6665G-18,-11,-17,-18,-19,-20</td>
<td>5718</td>
<td></td>
</tr>
<tr>
<td>6666G-1,-3,-8,-15</td>
<td>5719A-1</td>
<td></td>
</tr>
<tr>
<td>6666G-7</td>
<td>5719A-1</td>
<td></td>
</tr>
<tr>
<td>Part III</td>
<td>6 plants</td>
<td></td>
</tr>
<tr>
<td>6666H-6</td>
<td>5718</td>
<td>5719A-2</td>
</tr>
<tr>
<td>6666H-5</td>
<td>5719A-1</td>
<td></td>
</tr>
<tr>
<td>6666H-10,-13</td>
<td>5718</td>
<td>5719A-2</td>
</tr>
<tr>
<td>6666H-2,-12</td>
<td>5718</td>
<td></td>
</tr>
<tr>
<td>Part IV</td>
<td>18 plants</td>
<td></td>
</tr>
<tr>
<td>6666H-9</td>
<td>5718</td>
<td>5719A-2</td>
</tr>
<tr>
<td>6665H-3</td>
<td>5700A</td>
<td></td>
</tr>
<tr>
<td>6665H-1,-4,-10</td>
<td>5718</td>
<td></td>
</tr>
<tr>
<td>6666H-1,-3,-8,-11</td>
<td>5718</td>
<td></td>
</tr>
<tr>
<td>6665H-6,-7,-9,-11,-12</td>
<td>5719A-1</td>
<td></td>
</tr>
<tr>
<td>6666H-4,-5,-7</td>
<td>5719A-1</td>
<td></td>
</tr>
</tbody>
</table>
Table 23.
Types of kernels appearing on ears of pale-colored plants in cultivars 6665 and 6666 that were grown in landrace 74 constitution.

<table>
<thead>
<tr>
<th>Constitution &amp; Pale</th>
<th>Number &amp; Total</th>
<th>Pale</th>
<th>Variegated</th>
<th>Colored</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>61 in class.</td>
<td></td>
<td>8</td>
<td>123</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>91a (sh2/a2d2/a2d2)</td>
<td></td>
<td>1</td>
<td>428</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6638A-1</td>
<td></td>
<td>2</td>
<td>299</td>
<td>128</td>
<td>0</td>
</tr>
<tr>
<td>6702-2</td>
<td></td>
<td>2</td>
<td>413</td>
<td>164</td>
<td>88</td>
</tr>
<tr>
<td>6678</td>
<td></td>
<td>2</td>
<td>299</td>
<td>128</td>
<td>0</td>
</tr>
<tr>
<td>6690</td>
<td></td>
<td>2</td>
<td>299</td>
<td>128</td>
<td>0</td>
</tr>
<tr>
<td>6690D</td>
<td></td>
<td>1</td>
<td>9</td>
<td>1</td>
<td>164</td>
</tr>
<tr>
<td>6666E</td>
<td></td>
<td>3</td>
<td>413</td>
<td>1</td>
<td>164</td>
</tr>
</tbody>
</table>
I. By $A_1 \times B_2$ method:
\[
\begin{align*}
6666 \times A - 2 &= 0 \\
6665 \times A - 5 &= 0 \\
6665 \times B - 3 &= 0 \\
6666 \times B - 4 &= 0 \\
6666 \times B - 5 &= 0
\end{align*}
\]
\[
\begin{align*}
6665 D &\vdash \\
6665 E &\vdash
\end{align*}
\]

II. By $A_1 \times B_2$ law 1. paso $6638 B - 1 = 6665 B - 5$

By $A_1 \times (5768)$ $Sh_2$ law 3. paso $6702 - 2 = 6665 H - 0$

III. By $A_1 \times A_2 \times A_3$ law 2. paso
\[
\begin{align*}
6665 A - 5 &= 0 \\
6666 B - 2 &= 0
\end{align*}
\]

IV. By $A_1 \times 2$ law 3. paso 1. plant 6690
\[
\begin{align*}
6665 A - 6 &= 0 \\
6666 B - 4 &= 0
\end{align*}
\]

3. plant 6680 D
\[
\begin{align*}
6666 B - 5 &= 0
\end{align*}
\]

3. 6660 E
\[
\begin{align*}
6665 B - 6 &= 0 \\
6666 B - 0 &= 0
\end{align*}
\]
<table>
<thead>
<tr>
<th>No. A</th>
<th>Ch+2</th>
<th>Ch-2</th>
<th>Ch+2</th>
<th>Ch-2</th>
<th>Sh+2</th>
<th>Sh-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>666B-3</td>
<td>49</td>
<td>93</td>
<td>42</td>
<td>20</td>
<td>55</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>56</td>
<td>88</td>
<td>72</td>
<td>32</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>72</td>
<td>56</td>
<td>33</td>
<td>46</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>160</td>
<td>253</td>
<td>186</td>
<td>120</td>
<td>1</td>
<td>358</td>
</tr>
</tbody>
</table>

Note: The table seems to have some missing or unclear entries, especially in the Sh+2 and Sh-2 columns.
Phenotypes of kernels appearing on ears of 15 plants in cultures 6665G and 6666G in which Spm was present. The constitution of these plants was \( q_1 q_1 / q_1 q_2, y/y, \) etc. The pollen used to produce these ears was from plants in culture 6638A or 6701 of table 19, or from a plant in an inbreeding 6693A-2 whose constitution was \( q_1 q_1 / q_2 q_2 \) (state 5719A-2) \( S_m / S_m S_m \).

### Table 24

| Part I. Phenotypes of kernels on ears whose constitution was \( Y S_m Y \). Part II. Phenotypes of kernels on ears whose constitution was \( Y S_m Y^+ \). Part III. Phenotypes of kernels appearing on an ear of each of two plants where \( S_m \) did not appear to be linked with \( Y \). |
|---|---|---|---|---|---|---|
| Y/y, no Spm. | \( 6665-2 \) | \( 6666-2 \) | Total |
| **Y/y** | 1 | 1 | 2 |
| **y/y** | 1 | 1 | 2 |
| **Total** | 2 | 2 | 4 |

| Part II. Phenotypes of kernels on ears whose constitution was \( Y S_m Y^+ \). |
|---|---|---|
| \( 6665-2 \) | 100 | 143 | 25 |
| \( 6666-2 \) | 70 | 90 | 50 | 14 | 236 |
| **Total** | 170 | 233 | 85 | 14 | 438 |

| Part III. Phenotypes of kernels appearing on an ear of each of two plants where \( S_m \) did not appear to be linked with \( Y \). |
|---|---|---|---|---|---|
| \( 6665-2 \) | 18 | 67 | 27 | 31 |
| \( 6666-2 \) | 4 | 1 | 6 | 1 |
| **Total** | 22 | 68 | 33 | 32 |

* Table 24 showing generation indicated that \( Spm \) was closely linked with \( Y \).

† Table 24 showing generation indicating \( Spm \) was not linked with \( Y \).