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quartered and the coefficient of $F$ (term in h) was halved. The resulting loss of
information about contribution of dominance to means and variances was
compensated by raising correspondingly larger $F_2$ progenies. Since all
families will have a within family environmental component of variation, $E_1$, the
mean within-family variances will be $\frac{3}{4}D + \frac{1}{8}H_1 + E_1$. It can therefore, be
used as an additional statistics to provide information about $D$, $H_1$ and $E_1$. The
environmental component of variation of diallel analysis, $E$ for $F_2$ families of a
diallel set of crosses has the expectation.

$$E = \left[ \frac{1}{m} \right] \left[ \frac{1}{4}D + \frac{1}{8}H_1 + E_1 \right] + E_2$$

Where, $m$ is the number of individuals in each family in each replication
(Mather and Jinks, 1971). Therefore, the composition of $F_2$ variance and
covariance according to Jinks (1956) were as follows:

<table>
<thead>
<tr>
<th>$F_2$ statistic</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean variance of arrays</td>
<td>$V_1L_1 = \frac{1}{4}D + \frac{1}{16}H_1 - F + E_2$</td>
</tr>
<tr>
<td>Mean covariance of arrays</td>
<td>$W_0L_1 = \frac{1}{2}D - \frac{1}{8}F + \frac{1}{n}E_2$</td>
</tr>
<tr>
<td>Variance of arrays means</td>
<td>$V_0L_1 = \frac{1}{4}D + \frac{1}{16}H_1 - \frac{1}{16}H_2 - \frac{1}{8}F + \frac{1}{n}E_2$</td>
</tr>
<tr>
<td>Mean family variance</td>
<td>$V_{F_2} = \frac{1}{4}D + \frac{1}{8}H_1 + E_1$</td>
</tr>
</tbody>
</table>

The significance of genetic components were tested using their
respective standard errors. These standard errors were calculated by using
the diagonal elements in the variance covariance matrix of genetic
components in the least square equations (Hayman, 1954b).
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Place: Baraut

(Daya Chand)