Table 1. Representative statistical data. Dry weights of 10-kernel samples.

<table>
<thead>
<tr>
<th>Days after silking</th>
<th>Standard deviation, g.</th>
<th>Aver. wt., 10 kernels, g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0.16</td>
<td>2.88</td>
</tr>
<tr>
<td>20</td>
<td>0.20</td>
<td>2.28</td>
</tr>
<tr>
<td>30</td>
<td>0.22</td>
<td>2.98</td>
</tr>
<tr>
<td>40</td>
<td>0.25</td>
<td>3.48</td>
</tr>
<tr>
<td>50</td>
<td>0.30</td>
<td>3.98</td>
</tr>
</tbody>
</table>

Figure 1. Daily growth of corn kernels from 12 days after silking.

the smallest number of rows, all ears in the group were harvested. Sampling of a new group of plants was started on the same date.

Discussion

Two tests were made to see if the method of sampling affected the growth rate of the kernels remaining. In an early planting one or more rows of kernels and half of the husks were removed from several ears which were then covered with plastic or paper bags and observed until maturity. No ear rots developed and the kernel development appeared normal.

A more precise test was given by comparing the final samples taken from a group of ears with the initial samples taken from another group sampled at the same time. Eleven such comparisons were possible with 7 ears in each of the 2 groups. There were no statistically significant differences in the sample weight between the two groups. It was concluded that any effect on kernel growth caused by sampling could be ignored.

In obtaining the data shown in Figure 1, 14 plants were sampled each day beginning 10 days after silking and continuing for 44 days. Representative statistical data obtained from these observations are given in Table 1.

As shown in Figure 1, the average daily increase in weight of 10 kernels was approximately 0.09 g. per day for the first 30 days. The trend appeared uniform but daily increase varied from 0.05 g. to 0.14 g. The sensitivity of the method was such that more than a third of the daily increases in the first 30 days differed significantly from the average daily increase.

A SOURCE OF STERILITY MECHANISMS IN BARLEY AND WHEAT

Coit A. Suneson

PRODUCTION and distribution of barley (Hordeum vulgare L.) Composite Cross XXI and wheat (Triticum aestivum L.) Composite Cross I were not solely for promotion of "evolutionary breeding". These were service programs for breeders with many types of persuasion, experience, and purpose. These Composite Crosses featured two novelties—mass recombination of extreme genetic diversity and built-in sterilities to help the random recombination. One or both of the Composite Crosses are now being grown at more than 150 locations in the world.

These gene-pool resources should not be overlooked by heterosis-minded breeders seeking materials for exploiting heterosis. The ingredients and mechanisms for producing cytoplasmic, linked, and translocation sterilities, obviously exist in these populations. But these sterilities, like genetic mms, need help from plant breeders to survive in populations over time.

Such help requires programmed feed-backs of component sterile types into the population to counter their near-lethal behavior. Concurrently the sterilities should be mass selected for classification.

This laboratory has not yet precisely identified all of the named types of sterility from these populations, but enough diversity has been isolated to support the premise of the title.

1 Cooperative investigations of the Crops Research Division, ARS, USDA, and the University of California at Davis. Received April 13, 1964.
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ONE GENERATION CORN INBRED PRODUCTION

G. W. Gorsline and W. I. Thomas

THE possibility of obtaining homozygous corn (Zea mays L.) lines in one generation has attracted attention for some time. Lines have been successfully produced by at least three phenomena: production of monoploids and subsequent doubling (1), androgenesis (2), and parthenogenesis (3). No advantage or disadvantage in combining

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