

Fig. 1. The growth of ears when first and second ear present.

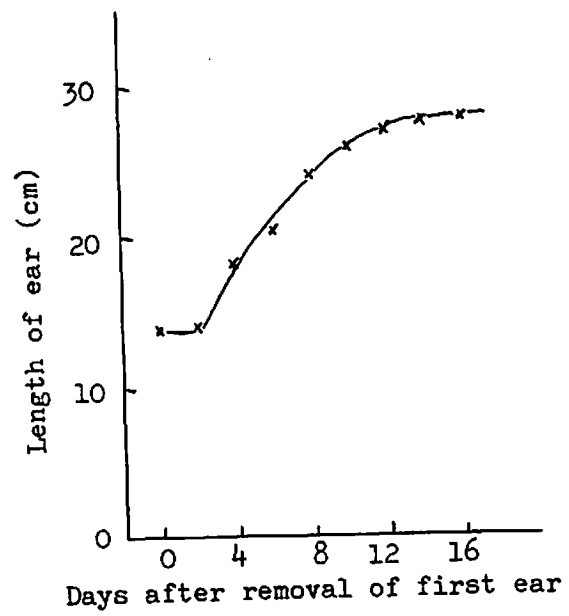


Fig. 2. The growth of second ear. The first ear was removed at time 0.

4. Regulation of ear growth by the organs of upper position in maize.

The experiment was conducted in 1968 using H-73, a homozygous diploid line. In the maturation period of the plant, the second ear from the top usually appeared from the leaf sheath earlier than the first ear, then entered into a temporary suspension for several days. The second ear resumed its active growth after the growth of the first ear attained nearly saturation. This is shown in Fig. 1, where the length (cm) of first and second ears was plotted against days scored from the date of silking of the first ear. Although the lengths of the youngermost ears lying concealed within the leaf sheath could not be measured, the two step growth of the second ear was easily estimated from the curve. The interposed suspension of second ear growth possibly resulted from the developing first ear, because the period of suspension coincided well with the logarithmic growth of the first ear. Then, first ears were removed as early as possible and the growth of the second ear was measured with time. Uniformly growing plants were selected for the experiment, and at the time of examination, all second ears were in the state of interposed suspension. As shown in Fig. 2, the second ears in seven out of 10 plants began to grow shortly after removal of the first ears. The reasons why the development of the first ear is retarded as compared with second ear in an earlier period have not been examined. However, it seems possible that the developing young tassel suppressed the first ear development. In many cases, it was observed that the first ears entered into prominent growth after the main emergence of tassels was finished.

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