

In the brachytic-2 inbreds themselves, there is considerable variation for height from about 80 cm for the shortest to 170 cm for the tall type in 1958. In crosses between the short and tall types, tall is dominant, a fairly good segregation occurs in F_2 and test-crosses. The height relationships of brachytic-2 types are being investigated further.

W. Ralph Singleton

CALIFORNIA STATE POLYTECHNIC COLLEGE
Pomona, California

1. Location of gene responsible for nutrient element uptake in corn.

Certain inbred lines of corn have been found to require different amounts of mineral nutrients for optimum growth. Dr. J. D. Sayre of the United States Department of Agriculture sampled field-grown plants for magnesium content and found a sevenfold difference between the highest and the lowest lines. Other inbred lines have been shown to be low accumulators of calcium, potassium and phosphorus. Under low or sometimes where normal mineral nutrition is provided, inbred lines with these characteristics will show leaf deficiency symptoms first, when grown with other lines which are high accumulators.

Studies were initiated to determine, if possible, the location of the gene character responsible for this differential uptake of magnesium and other elements. A number of inbred lines were crossed to the waxy translocation series in 1956. The inbred lines used were as follows: Oh 28, Oh 33, Oh 40B, Oh 51A, Cl 187-2, L-317, Ind WF9, and IllA.

In 1957 the F_1 were backcrossed to the related inbred lines and to the available waxy inbred lines.

In 1958, due to limited space, only two of the lines from crosses were planted. These were Ind WF9 and IllA. Tissue samples were collected for analysis when each plant was approximately one meter in height. The WF9 line is being tested for high magnesium and low phosphorus accumulation. IllA is being tested for low calcium accumulation. Data from the tissue analysis will be used in an attempt to locate any major gene affecting the uptake of these elements.

Walter H. Hesse