

2. A simple method for inoculating breeding material with Helminthosporium turcicum.

Epidemics of Northern Corn Leaf Blight, caused by the fungus *Helminthosporium turcicum*, have been induced by using quantities of inoculum made from pure cultures of the fungus. (1) This method involved laboratory preparation of the cultures and considerable time in making repeated applications to the breeding material.

Methods were described in 1952 for using diseased corn leaves as a source of infection. (2)

A simple way of initiating and spreading Northern Corn Leaf Blight was tried in our breeding nursery at Tuscola, Illinois in 1952.

Leaves from corn plants which were heavily infected with *Helminthosporium turcicum* were collected from our 1951-52 winter nursery located in southern Florida in the spring of 1952. The leaves were dried by storing in a room with uncontrolled temperature. They were later ground up by running them through a hammer mill with a 1" screen.

Inoculations in the field were made on a susceptible single cross hybrid and on numerous susceptible x resistant crosses by dropping a quantity of the ground up infected leaves into the whorl of each plant when they were approximately 24" tall.

Infection was not well established until after tasseling. By harvest time infection was so severe that no differences in resistance were apparent on the susceptible x resistant crosses.

In 1953 a very susceptible single cross hybrid was used as a "spreader" row. Each row of breeding material was bordered by a "spreader" row which resulted in a planting pattern where every third row in the nursery was the susceptible single cross. Only the "spreader" rows were inoculated using the method described above. Infection became well established in the inoculated rows at tasseling time. Natural infection resulted in the breeding material after tasseling and was of such a magnitude as to allow effective selection to be practiced at harvest time.

This method of inoculation has been used on a large scale for the past three years in our disease breeding nursery. It involves a minimum of facilities and labor and has produced artificial epidemics without failure during the period mentioned.

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(1) Elliott, C. & Jenkins, M. T. *Helminthosporium turcicum* Leaf Blight of Corn. PHYTOPATHOLOGY 36:660-666, 1946.

(2) Robert, A. L. & Findley, W. R. Jr. Diseased Corn Leaves as a Source of Infection and Natural Epidemics of *Helminthosporium turcicum*. PLANT DISEASE REPORTER 36:9-10.