

3. Resistance to Helminthosporium sp. and Puccinia sorghi.-

Helminthosporium leaf spot and rust, Puccinia sorghi, are probably the two most damaging diseases of corn in Colombia. The most common species of Helminthosporium involved is turcicum, but preliminary studies indicate that one and perhaps two other species are present.

Experiments were conducted to determine the genetic basis of resistance to those two diseases. The resistance or susceptibility to each of these diseases was found to depend primarily on a single pair of factors which are independently inherited. Dominance was not discernible in either pair of genes. There are numerous modifiers in each case (the exact number was not determined) that affect in a minor way the intensity of the attack. These modifiers did not, however, obliterate the ratios conditioned by a monofactorial segregation for each disease. Data were obtained in Medellin, Colombia in 1951 on ten F_2 families with 1910 plants, six backcross families to the resistant parent with a total of 1340 plants, and 10 backcross families to the susceptible parent with 1813 plants.

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