

UNIVERSITY OF ILLINOIS
Urbana, Illinois
Department of Plant Pathology

and

IOWA STATE UNIVERSITY
Ames, Iowa
Department of Agronomy

1. Genes for resistance to rust, Puccinia sorghi, Schw.

Six major genes which condition resistance to Puccinia sorghi have been located by means of inheritance studies involving rust-resistant inbreds and rust-susceptible inbreds and F₁, F₂, F₃, and backcross progenies derived from them. These studies have been referred to in previous News Letters. The genes are in an allelic series. Their designation and the corn strains in which they were located are indicated in the following table:

| Gene | Corn strain in which located | Additional corn strains which probably contain this gene |
|-----------------|------------------------------|--|
| Rp ¹ | GG208R | Golden Glow O.P., Golden King O.P., P. I. 213777 |
| Rp ² | B38 | B216, B217, Burr White O.P. |
| Rp ³ | K148 | Synthetic A |
| Rp ⁴ | Cuzco | |
| Rp ⁵ | B49 | |
| Rp ⁶ | P. I. 172332 | |

The gene Rp¹ is believed to be identical to the gene previously identified as Rp discovered by Mains and located in chromosome 10 by Rhoades. This is supported by the data in the following article.

-- A. L. Hooker

2. Translocation studies involving GG208R.

To check on the location of the resistance gene (Rp¹) in GG208R, semi-sterility due to a heterozygous translocation was used as a marker. Two populations of (susceptible translocation x resistant GG208R) x susceptible B14 were classified; one involved T5-10 wherein the break in #10 is at 0.54 on the short arm and the second involved T8-10a with the break in #10 at 0.48 in the short arm. The segregations showed 6.4 per cent crossing over between semi-sterility and susceptibility in T5-10 and 10.3 per cent in T8-10a. These data indicate that the gene for resistance to P. sorghi in GG208R is probably the same as reported earlier by Rhoades.

-- W. A. Russell