

B38, K148, etc. located near the end of chromosome 10 (Page 47, 1960 M.G.C.N.L.). The dominant genes for resistance in GG208R, B38, K148, Cuzco, B149, and P. I. 172332, previously designated as Rp_1^1 , Rp_1^2 , Rp_1^3 , Rp_1^4 , Rp_1^5 , and Rp_1^6 become Rp_1^a , Rp_1^b , Rp_1^c , Rp_1^d , Rp_1^e , and Rp_1^f , respectively.

A. L. Hooker

2. A gene for resistance to *P. sorghi* present in a resistant source from Mexico

Inheritance studies involving F_1 , F_2 , F_3 , and backcross progenies derived from a cross of a rust-resistant inbred M166 from Mexico with the susceptible inbreds B14 and R168 indicate that M166 contains a single dominant gene for resistance to *P. sorghi*. This is indicated by the following number of resistant, segregating, or susceptible progenies when tested with the rust culture 901aba.

Cross	Number of plants or progenies observed			Expected ratio	P value
	Res.	Seg.	Susc.		
(M166 x B14) F_2	121	0	30	3:0:1	0.10-0.20
(M166 x R168) F_2	89	0	33	3:0:1	0.50-0.70
(M166 x B14) x B14	82	0	67	1:0:1	0.20-0.30
(M166 x R168) x R168	73	0	68	1:0:1	0.50-0.70
(M166 x B14) x M166	141	0	0	all res.	
(M166 x R168) x M166	107	0	0	all res.	
(M166 x R168)	24	40	29	1:2:1	0.30-0.50

Hooker (Page 53, 1961 M.G.C.N.L.) has demonstrated that M185-1 has a single dominant gene for resistance which assort independently of the genes at the Rp_1 locus (Syn. A and B.Y. Dent) and that the single genes in M189 and M212 are either at or closely linked to the Rp_1 locus.

Inbred M166 was crossed with M185-1, M189, M212, and B.Y. Dent. These single crosses were advanced to the F_2 and crossed with the susceptible inbred Oh07K. The following data were obtained in greenhouse tests with rust culture 901aba which is avirulent to the resistant inbreds.

Cross	No. of plants Res.	observed Sus.	Expected ratio	P value
(M166 x M189) F ₂	163	9	15:1	0.50-0.70
(M166 x M189) x Oh07K	413	144	3:1	0.50-0.70
(M166 x M185-1) F ₂	108	14	15:1	0.01-0.02
(M166 x M185-1) x Oh07K	408	148	3:1	0.30-0.50
(M166 x M212) F ₂	112	11	15:1	0.20-0.30
(M166 x M212) x Oh07K	352	144	3:1	0.02-0.05
(M166 x B.Y.Dent) F ₂	132	3	15:1	0.05-0.10
(M166 x B.Y.Dent) x Oh07K	432	141	3:1	0.80-0.90

These data indicate that the gene for rust resistance in M166 assort independently of genes at the Rp₁ locus and is at a different locus than the gene in M185-1. Work is in progress to determine the relationship of the genes in M185-1 and M166 to locus Rp₃. Both of these genes cannot be at locus Rp₃; therefore, at least one of these genes would be at a new locus.

W. L. Hagan

3. Reactions of certain corn relatives to Puccinia sorghi.

A number of corn relatives were tested for reaction to culture 901aba of Puccinia sorghi. Coix lacryma-jobi, Tripsacum lanceolatum, and 2 seedlings of T. dactyloides gave the chlorotic fleck reaction. Three other seedlings of T. dactyloides showed no symptoms.

Resistant and susceptible reactions similar to those of corn were expressed by annual teosinte (Euchlaena mexicana), but only chlorotic flecks were noted on perennial teosinte (E. perennis). Some progress has been made in transferring rust resistance from teosinte to corn. The high resistance of perennial teosinte (2n = 40) persisted after two backcrosses to tetraploid corn. A single dominant gene appeared to be involved. A lesser degree of resistance from annual teosinte (2n = 20) remained after two backcrosses to diploid corn.

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