

5. Transformation of sex?

The  $C^I$  inhibitor mutant was grown for seed multiplication on 19th August 1967. The seed set was poor. It is interesting to note that 29.4% of the plants (47 out of 153) showed tassel seed, which is quite unusual and could be due to photoperiodism.

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1. Inheritance of resistance to strain A of Maize Dwarf Mosaic Virus.

In Maize Genetic Coop News Letter 40, 1966, p. 121 Wernham and Mackenzie reported on monogenetic control of resistance to M.D.M.V. (Strain A) in the inbred line Pa 11. The double cross Pa 444 selfed (Pa 54 x Pa 11) (Pa 32 x Pa 33) did not reveal a recognizable ratio in that 362 seedlings were symptomless whereas 454 susceptible plants could be separated into 4 distinct groups.

In the 1967 season an  $F_2$  population of inbred Pa 405 (resistant) x 63-604 (susceptible) was inoculated with strain A of MDMV. A population of 570 seedlings gave 426 resistant: 144 susceptible. An analysis of the data revealed the  $X^2$  probability for a 3:1 ratio to be .90. The data support a single gene hypothesis for MDMV control in Pa 405.

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## 2. Further studies on the inheritance of resistance to MDMV.

Additional data in support of the single gene hypothesis for MDMV resistance in Pa 11 has been obtained. In greenhouse inoculated tests the cross Pa 11 x W153R gave all resistant plants. The  $F_2$  segregated in a ratio of 3 resistant to 1 susceptible and the backcross to the susceptible parent, W153R, segregated in a 1:1 ratio. The data as observed:

	<u>Resistance</u>	<u>Susceptible</u>	<u>Total</u>
1. Pa 11 x W153R	92	1	93
2. (Pa 11 x W153R) $\otimes$	71	31	102
$X^2$ probability for 3:1 segregation is .20 - .30			
3. (Pa 11 x W153R) W153R	52	49	101
$X^2$ probability for 1:1 segregation is .70 - .80			