

Total no. of kernels	Reversion for						Total no. of seed- lings	Rever- sion for <u>yg</u>	
	<u>C</u>		<u>sh</u>		<u>bz</u>			no.	x10 ⁻⁵
	no.	x10 ⁻⁵	no.	x10 ⁻⁵	no.	x10 ⁻⁵			
6,066	from normal x hypoploid						5,156	0	0.0
70,190	from normally diploid plants						48,000	0	0.0

The reversion rate of the genes considered, on the basis of these preliminary data, indicates that the hypoploid condition, where no opportunity for normal pairing and crossing-over is given, is accompanied, as in other species (Saccharomyces, e.g.) for certain mutants (supposed to be due to base losses and insertions in DNA), by lower reversion rates than in the normally diploid condition which has been postulated to favour such reversion by means of recombination phenomena. This finding is at variance with what has been obtained by Bianchi and Tomassini (Mutation Research, 2 : 352, 1965) for the waxy character on pollen grains with a much larger statistical basis, where no difference has been detected between the two chromosome conditions. However, obviously, more data are needed to confirm or to disprove the differential behavior of the markers yg, C, sh, and bz as compared with that of the wx locus.

Moreover, the figures of the normal x hypoploid combination are not directly comparable to those from the normally diploid plants, because in the former case the paternal chromosome has not undergone regular pairing and crossing-over, as contrasted, obviously, to the seed parent chromosome which, in this respect, has undergone the same meiotic processes as the chromosomes of the diploids.

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3. A three point test for an endosperm trait in chromosome 7.

Data reported in the last MNL issue indicated that a "collapsed endosperm" (cl) mutant uncovered by TB-7 showed 8-9% crossover with gl₁.

An F₂ of the mutant with a tester marked with c and gl₁ produced the following data:

Gene pair	Phase	A B	A b	a B	a b	Recombination %	
						<u>±</u>	st. error
o cl	R	101	56	33	1	16.1	± 4.5
o gl	C	146	11	9	25	13	± 1.8
cl gl	R	98	36	57	0	very	low

From these data it appears that the mutant is likely to be located distally to \underline{gl}_1 .

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1. Analysis of variation of growth rate of maize root tips cultured in vitro.

The technique of root cultures in vitro appears to be a useful tool for the study of the genetic control of continuous variation, because it offers the possibility of a rigorous control of the environmental factors. This technique offers the possibility of carrying out experiments for studying the effects of the gene action which control continuous variation at the biochemical level (Ottaviano and Zannini, 1965).

The main purpose of this work is to study the genetic control of variation of growth rate of maize root tips in order to see if this material is suitable for genetic biometrical studies. In this experiment five inbred parents and all their possible F_1 's, reciprocals included, have been considered. The biometrical analyses are those of diallel crosses as indicated by Jinks and Hayman (1953), Hayman (1954) and Jinks (1954).

The growth rate, expressed as weight after two weeks, has been studied on two different media: 1) Standard (Ottaviano and Zannini, 1965) and 2) standard with nicotinamide. For each genotype four repetitions on both media have been accomplished. The whole experiment has been completely randomized.