A third case of linkage between the y factor on chromosome 6 and a japonica trait expressed in seedling stage is indicated by the following F_2 data:

Y kernels		y kernels	
J	j	J	j
201	85	76	0
243	114	83	0

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4. Another case of balanced lethal factors.

A series of self-pollinations carried out on plants derived from crossing individuals segregating for det 13 and det 25 (two extreme types of defective endosperm factors from maize-teosinte derivatives) has given the following results:

Number of ears segregating		
both defectives (in repulsion)	one defective (or two in coupling)	no defective
202	62	2

In the first group the defective seeds form about 50% of the total number of kernels, whereas in the second group the percentage varies from 20-25 to 30-35.

The data suggest that this is another balanced lethal system.

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1. Crossing-over in the Lg - Gl - V region.

Recombination data for markers of chromosome 2 in different genetic backgrounds are reported in the following table (backcross of the multiple recessive stock to heterozygous plants possessing T cytoplasm): (Table 1)

Table 1

Inbred Line	Lg_1 Vl_4 Gl_2	lg_1 Vl_4 Gl_2	Lg_1 vl_4 gl_2	Lg_1 vl_4 Gl_2	lg_1 Vl_4 gl_2	Lg_1 Vl_4 gl_2	lg_1 vl_4 Gl_2	lg_1 vl_4 gl_2
A 158	463	136	103	358	458	93	79	456
W 22	451	121	119	246	320	38	43	419
WF 9	722	204	178	581	534	108	74	749

Table 2

Genetic Region	A 158	W 22	WF 9	Average
Lg_1 - Gl_2	19.15 ± 0.84	18.26 ± 0.92	17.90 ± 0.69	18.38
Gl_2 - Vl_4	46.03 ± 1.06	36.82 ± 1.18	41.17 ± 0.88	41.57
Lg_1 - Vl_4	49.16 ± 1.08	45.87 ± 1.19	47.52 ± 0.89	47.61
Double crossing over	8.01 ± 0.52	4.61 ± 0.57	5.77 ± 0.43	6.16
Coefficient of coincidence	0.91	0.69	0.78	

From these data the following recombination frequencies may be calculated, together with their standard errors obtained using as $\bar{p}$ the average value, from the pooled data: (Table 2).

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2. Reversion frequency of waxy pollen type in normal and hypoploid maize plants.

In some organisms, and especially in Saccharomyces cerevisiae, it has recently been found that reversion rate of some biochemical mutants is much higher (tenfold or more) in diploid condition than in the haploid one, and that this is largely associated with chromosomal exchanges in the region involved (restoration of a normal genetic sequence as a consequence of unequal crossing-over).

To test the validity of such a phenomenon in maize the frequency of Wx pollen grains in normally diploid plants and in hypoploid individuals (obtained following appropriate screening of genetically marked X-rayed material) has been estimated, and is presented in the table on page 117.

It is evident that these data show no clear difference between the reversion rate at the wx locus of the haploid condition and that of the diploid one. These results, and the heterogeneity of the values exhibited by the different plants as well as within different sectors of the same tassel, may find their explanation in the nature of the mutant studied, as will be discussed in the paper which is being prepared for publication.

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