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1. Linkage relationships for two mutants detected in Italian populations.

Further investigations have been accomplished on linkage relationships of two mutants, described in 1967 MNL, with known genetic markers.

For the ij-type mutant, F_2 segregations (repulsion phase) presented the following data (inclusive of 1966 results):

Gl_1 Ij	gl_1 Ij	Gl_1 ij	gl_1 ij
3882	2037	1889	8

(c.o. 6.5% ± 1.5 st. error).

The data previously reported about close linkage between a shrunken type (bt) mutant and su_1, have been confirmed by the scoring of ears obtained from backcrossing, to the triple recessive, plants of the constitution Su_1 bt Gl_3 / su_1 Bt gl_3, as follows:

Su_1 Bt	su_1 Bt	Su_1 bt	su_1 bt
113	4124	4157	20

All the seedlings from the su_1 bt kernels had the Gl phenotype, while only 26 plants from Su_1 Bt seeds turned out to be gl, indicating that part of them derived from contamination. Consequently, considering the bt phenotypes only, the su-bt recombination is 0.5% ± 0.1.

The bt mutant, then, has to be placed on chromosome 4 (probably allelic to bt_2), between su_1 and gl_3 and very close to su_1.

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2. Abnormal segregations (significantly different from a 1:3 ratio) of genetic markers in the F_2 of lines derived from Italian populations.

In the analysis of a number of F_2 progenies derived from crossing lines from Italian populations to some genetic testers bearing recessive mutants, the following abnormal segregations have been observed: