Ear No. 65-174	Kernel types Bz	bz	Wx	wx	Total No. of kernels	% of bz	Wx	Cumulative %
/169-4	–	–	13	56	69	–	18.8	–
/169-18	244	20	51	213	264	7.5	19.3	26.8
/170-22	–	–	35	219	254	–	15.9	–
/170-22	297	59	80	276	356	16.6	22.5	39.1
/171-6	166	36	26	176	202	17.8	12.9	30.7
/171-44	164	8	25	147	172	4.6	14.5	19.1
/171-52	298	9	55	252	307	2.9	17.9	20.8
/172-1	339	28	79	288	367	9.1	21.5	30.6
/172-20	294	33	64	263	327	10.1	19.6	29.7
/172-40	205	28	52	181	233	12.0	22.3	34.3
Total	2007	221	480	2071	2228 2551	9.9	18.8	} 28.7

(standard about 25)

Such data suggest that Ga_8 is placed closer to bz than to wx and that it is located between the two markers.

The Ga_8 factor of the pollinator parent used in these back-crosses is the allele present in the stock originally obtained from Dr. Schwartz. In such a strain (Ga wx/ga Wx) the Ga - wx distance calculated on the basis of the frequency (17.4%) of the class segregating 25% of waxy kernels is approximately 22.8%.

These data, as well as others of a different nature, suggest that the Schwartz factor is different from that reported by Bianchi, which, on the basis of previous results, appeared identical or allelic to the former one.

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M. R. Parlavecchio

2. Linkage relationships for some mutants.

For some of the recently detected mutants in Italian culti-vars linkage relationships with well-known markers have turned up.

A shrunken type, known to be "uncovered" by TB-4, should be placed close to su_1, although the unreliability of the classification of the double recessive makes it difficult to measure exactly the intensity of the linkage (which, however, should be close). Data involving gl_3 and gl_4 are presented in the following table (all data derived from F_2 from repulsion phase):

Gene pair	A B	Ab	aB	ab	Recombination % $\pm$ st. error
gl_3-shrunken type	2445	690	1041	82	32.5 $\pm$ 0.9 (1)
gl_4-shrunken type	2248	818	940	26	18.7 $\pm$ 1.0 (2)

(1) The gl_3-su_1 distance, from data based on these ears, is

35.7 $\pm$ 0.6.

(2) The gl_4-su_1 distance, from data based on these ears, is

17.8 $\pm$ .4.

These values together with those reported in the table suggest close linkage between su_1 and the shrunken factor.

Four mutants exhibiting a japonica phenotype recognizable in the seedling stage (in the background used) yielded the following linkage relationships (F_2 data; repulsion phase).

Gene pair	A B	A b	a B	a b	Recombination % $\pm$ st. error
su_1- jap. type	1122	401	309	46	37.8 $\pm$ 1.3 (1)
gl_3- " "	190	83	77	1	12.0 $\pm$ 3.5 (1)
y - " "	10845	5532	5466	0	very low (2)
su_2- " "	8675	3626	2928	291	30.5 $\pm$ 0.5 (2)
y - " "	683	280	329	18	8.1 $\pm$ 1.8
gl_1- " "	254	143	114	0	low

(1) The su_1 - gl_3 distance in these experiments turned out to

be 41.0 $\pm$ 2.4.

(2) The y - su_2 distance in these experiments turned out to be

30.0 $\pm$ 0.3.

Other chlorophyll mutants show indication of linkage with genetic markers, as follows (F_2 data; repulsion phase).

Gene pair	A B	A b	a B	ab	Recombination % ± st. error
$\underline{su_1}$ - virescent-type	909	366	195	55	43.5 ± 1.4 (1)
$\underline{gl_3}$ - " "	264	109	94	0	low (1)
$\underline{gl_1}$ - $\underline{yg}$-type	731	425	282	109	44.2 ± 1.4
$\underline{gl_1}$ - $\underline{f}$-type	542	161	191	40	45.1 ± 1.7 (2)
$\underline{o_2}$ - " "	169	57	63	4	29.1 ± 3.6 (2)
$\underline{wx}$ - $\underline{v}$-type	584	336	248	5	13.0 ± 1.9

(1) the $\underline{su_1}$ -$\underline{gl_3}$ distance in these experiments turned out to be 42.0 ± 2.1.

(2) The $\underline{o_2}$ -$\underline{gl_1}$ distance in these experiments turned out to be 14.2 ± 1.5.

C. Lorenzoni
M. Pozzi

3. Balanced lethal systems and physiological responses.

Two balanced lethal systems, based on defective caryopsis traits, have been recently described in maize - teosinte derivatives:

$\underline{De^{t1}\ de^{t2}/de^{t1}\ De^{t2}}$ and $\underline{De^{t13}\ de^{t25}/de^{t13}\ De^{t25}}$. The crossover percentage between the factors in both cases is about 14 so as to permit recovering of the normal genotype (ear segregating no defective) in about one case out of one hundred.

The double heterozygous plants have been compared with the normal ones for the field and laboratory traits, as follows: