

Translo- cation	Chrom. 9 Break point	Non- chrom. 9 Break point	Parental Classes		Recom- bina- tion Classes		Total	% C. O.
8-95300	S.43	L.85	214	201	0	0	415	0.0
8-95391	S.33	L.07	188	188	3	4	383	1.83
8-96921	L.15	L.85	277	195	7	5	484	2.48
9-104303	L.26	S.44	151	149	5	5	310	3.23
9-108630	S.28	L.37	121	136	0	3	260	1.15

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1. A possible study of crossing-over on the basis of pollen traits.

The strict linkage between the waxy gene and Ga_g (gametophyte factor detected by Schwartz - MNL, 25 : 30, and by myself, MNL, 31 : 40) offers a case, perhaps unique, for studying crossing-over on the basis of pollen grain characters. We have done some attempts, collecting and fixing, after different times since hand pollination was performed on plants of given genotypes.

Plants of constitution Ga Wx/ga wx, when selfed, are known to produce ears with no or very few wx kernels. The genotype Ga wx/ga Wx, on the contrary, following self-pollination, gives wx kernels with a percentage even over 45%.

When self-pollinated silk of the former type are scored for germinating pollen grains, results of the following type are obtained:

Plant and No. Ear	Kernel Type		Pollen Type		Fixing Time in Hours, after Hand Pollination
	Wx	wx	Wx	wx	
1096 - 17	112	14	452	7	1
			500	54	2
			276	63	3
1096 - 54	291	9	478	22	1
			411	96	2
			312	167	3
1097 - 30	77	8	447	15	1
			193	67	2
			275	172	3

The repulsion condition, in a different genetical background, has produced data of the following type:

Plant and No. Ear	Kernel Type		Pollen Type		Fixing Time in Hours after Hand Pollination
	Wx	wx	Wx	wx	
1101 - 2	171	183	100	395	2
			31	469	6
			13	487	8
1101 - 83	107	89	65	364	2
			27	389	6
			5	154	8
1102 - 8	114	86	21	93	2
			21	143	6
			23	314	8

It seems, from these data, that the waxy and gametophyte-8 factors can constitute a new type of genetic material for studies of various kind. However, the proper time for the scoring should be carefully identified. The genetic background, e.g., of the coupling phase stock, which is associated with earlier flowering, seems to be adequate for screening the pollen grains 1-2 hours after

pollination. In the other stock, which is a late one, the differential germination of the two pollen types appears to show better several hours later.

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2. Reversion frequency of alleles of the gl_1 locus and of some of their compounds.

As reported in the previous MNL a quite large proportion of the glossy types detected in the Italian open pollinated varieties turned out to be mutants of the locus gl_1 . This has provided the opportunity for analysing their nature by studying the reversion frequency of some of these mutants in comparison with some of their compounds. The data so far collected, for the self-pollinated mutants, are presented in the following table:

Identification No. of the gl_1 Mutant	Total No. of - Seedlings	No. of Gl Seedlings	Frequency of Gl Seedlings $\times 10^{-4}$	Fiducial Limits ($P = .05$) $\times 10^{-4}$
'63- 302	7538	1	1.33	0.03 - 7.39
'63- 305	1522	0	0.00	0.00 - 24.24
'63- 307	20931	1	0.48	0.01 - 2.66
'63- 324	14332	29	20.23	19.35 - 21.11
'63- 329	1692	0	0.00	0.00 - 21.81
'63- 334	4782	0	0.00	0.00 - 7.72
'63- 359	6223	0	0.00	0.00 - 5.93
'63- 350	5209	0	0.00	0.00 - 7.08
'63- 347	1295	0	0.00	0.00 - 28.5
'63- 796	41601	0	0.00	0.00 - 0.89
'62- 824	17927	0	0.00	0.00 - 2.06
'63- 51 } '63- 495 }	12375	2	1.62	0.02 - 4.5

The compound types which have been studied have yielded the following data: