

cases reported in the table may also be interpreted as indicative of other Ga/ga differences besides Ga₉, but all giving rise to significant deviations in the Mendelian ratios of markers in chromosome 9. In the F₂ involving the line L 1047, a 4% frequency of colored kernels was observed in one ear which, however, showed normal ratios for the other markers. The inbred lines in which no significantly deviating values have been obtained are the following: A 90, A 158, A 239, A 251, A 364, A 374, B 2, B 6, B 14, C 103, Lo 5, Lo 11, Lo 12, Lo 22, Lo 32, Lo 38, Lo 58, Lo 289, MIBO 6, MIBO 7, MIBO 9, OH 7, R 87, R 117, RNY, Sel 224, W 9, W 15, W 22, W 23, W 37A, W 75, W 79A, W 85, W 153R, W 187d, W 324, W 374, WF 9, WM 13, WM 13R, WR 3, W 374R, M 14, Minn C₁, Minn C₆, SG 14, C 123, OH 41, L 1038, L 1111.

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3. Inbred mutations on prolific type of maize.

E.M.S. (ethyl-methane-sulphonate) induced mutations were studied in a pop line. Dry kernels were treated, just before sowing, with a 1.4% water solution of E.M.S. for 12 hours. The plants obtained were pollinated by a stock homozygous for several recessive markers. The female parent possesses the corresponding dominant alleles.

The results obtained are reported in the table:

Treatment	Examined plants	Plants with mutations					
		on 1 ear (1)			on more ears (2)		
0	1077	0			0		
E.M.S. 1.4%	2290	53			29		
(1) Position of the mutated ear							
	Position	1	2	3	4	5	6
	Frequency	18	16	9	3	4	3
(2) Position of the mutated ears							
	Position	1-3, 2-4, 1-3-5 ..		1-2, 2-3, 1-3-4 ...		all	
	Frequency	15		6		8	

The ear position number is 1 for the lower ear on the stem. Even numbered ears, in a plant, are located on one side of the stem, the odd ones on the other. The ears segregating for the markers of the pollinating stock are classified as mutated. In some cases the mutation is limited to a sector of the ear.

From the reported data, the following conclusions may be drawn:

- 1) The treatment is effective in inducing mutations;
- 2) The frequency of ears showing mutations decreases with the ear insertion height;
- 3) When two or more ears in a plant are mutated, they are frequently located on the same side of the stem. This suggests a common origin of these ears from a single mutated cell line.

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1. Changes in weight, protein and lysine content in opaque-2 kernels of corn during backcrossing.

Changes in weight in opaque-2 corn kernels as well as the changes in protein and lysine content were studied on segregating ears from selfed plants, phenotypically normal, but genotypically heterozygous. Studies were carried out in successive generations of backcrossing planted in one season. Segregation in every generation was considered on 7-10 selfed ears.

Lines A344, A198, Sg25, W155, Sg2, and WF9 were included in the experiments, and $\underline{o_2ra_1gl_1}$ and $\underline{o_2}$ Syn A were included as opaque-2 gene sources having protein content of 9.75% and 11.0% and lysine content of 4.32% and 4.50%, respectively.

To eliminate possible size differences in kernels from top and bottom parts of the ears, adjacent translucent kernels up or down in the row were taken as controls. These two classes were weighed and