

A NEW MUTANT GENE AFFECTING THE MAIZE ENDOSPERM PHENOTYPE*

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In the course of the author's investigations in maize genetics an ear of a 'Flint Synthetic' variety which segregated for a dull endosperm phenotype was found. Of the plants grown from putative mutant kernels, some were self pollinated and some were reciprocally crossed to normal plants. Self pollinations produced kernels which were all of the mutant phenotype. All kernels obtained from the crosses to normal plants had the normal phenotype, no matter the source of pollen. These normal kernels were planted, the plants grown were self pollinated, and the ears obtained were classified for *normal* and *mutant* endosperm phenotypes.

The data presented in Table 1 indicate that the mutant phenotype is determined by a recessive allele.

The endosperm phenotype of the mutant described here varies from almost translucent to a dull, opaque appearance. Modifiers are certainly involved which affect the expression of the mutant gene. This often makes classification difficult. The mutant endosperm is hard, and this distinguishes it from some opaque mutants, such as *opaque-2* (*o₂*). Its phenotype tends to resemble the expression of *dull* (*du*), described by Mangelsdorf (2).

Allele tests were carried out by crossing plants derived from homozygous mutant seeds to plants singly homozygous for the endosperm mutants, *du*, *floury-1* (*fl₁*), *opaque-1* (*o₁*), *o₂*, *soft-starch* (*h*), and *sugary-2* (*su₂*). Only the crosses in which *fl₁* was used as the female parent yielded the opaque endosperm phenotype (+ *fl₁fl₁* genotype). This was expected due to the dosage effect of *fl₁* (1). All other crosses produced normal endosperm phenotype, indicating that a different locus is involved in the control of the mutant phenotype reported here. The symbol *du 2* (*dull-2*) is proposed for the new mutant.

RESUMO

Relata-se uma nova mutação recessiva, que modifica o aspecto do endosperma do milho para opaco. Propõe-se o símbolo *du2* (*dull-2*) para o novo mutante.

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TABLE 1 - Segregation for normal and mutant kernels on ears of selfed plants derived from normal seed

Ear number	Number of kernels		χ^2 (Exp. 3:1)
	Normal	Mutant	
219-2	382	113	1.245
219-10	388	131	0.016
225-5	327	100	0.569
232-1	348	105	0.801
232-3	269	103	1.434
232-5	253	83	0.016
232-7	252	101	2.456
Pooled data	2219	736	0.014 (1 d. f., P = 0.95 - 0.90)
Heterogeneity			6.523 (6 d.f., P = 0.50 - 0.30)

LITERATURE CITED

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2. MANGELSDORF, P.C. The inheritance of amylaceous sugary and its derivatives in maize. *Genetics*, 32:448-458. 1947.