

mean performance and variability compare with the 'original' version of the variety we presently have in cold storage.

I have been able to recover 13 of the 16 lines from seed stocks at Iowa State University (Ia.I159, Ia.I224, Ia.0s420, Ia.WD456, Ill. Hy and CI187-2), Funk Brothers Seed Company (CI540, Ind.Tr9-1-1-6, A3G3-1-3 and Ill.12E), Pioneer Hi-Bred International, Inc. (LE23 and Ind.461-3) and Ohio Research and Development Center (Oh.3167B). In addition Mr. Baker of Pioneer Hi-Bred gave me seed of the parents (Fe and B2) of F1B1-1-7-1. I have not been successful in obtaining either seed for or information about Ind.AH83 and CI617-3-4. Dr. G. F. Sprague (personal communication) thought CI617-3-4 was a line developed by Dr. F. D. Richey from an Illinois variety; this is the extent of my information for Ind.AH83 and CI617-3-4.

If anyone can provide me with any information, suggestions or seed of Ind.AH83 and CI617-3-4, it would be appreciated. One or both of the lines may have been renumbered, or they may not have survived subsequent evaluation.

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Differences in absorption of foliar-applied high molecular weight phosphate among corn inbreds with three different cytoplasm — The Texas male-sterile cytoplasm (cms-T) has been shown to absorb a foliar-applied high molecular weight phosphate (HMP) more than its isoline with normal cytoplasm. In a similar experiment with the S cytoplasmic male-sterile (cms-S) and the C cytoplasmic male-sterile (cms-C), it was found that cms-C is similar to cms-T in its absorption of the HMP; cms-S showed no difference in absorption when compared with its normal isoline. In none of the three comparisons of each of the cytoplasmic male-sterile lines with its normal isoline was there a difference in orthophosphate absorption, nor did any of the lines show a difference in the translocation of either source of phosphorus inside the plant ten days after application. These results show that the three known cytoplasm are not similar in the property of absorption of foliar-applied HMP. Further, differences were found among lines in the rates of absorption of foliar-applied phosphorus.

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Gametophytic factor (ga10) on chromosome 5 distal to A2 — Reciprocal crosses of an A2 Bt/a2 bt stock with a homozygous a2 bt tester revealed a deficiency of colored kernels when the heterozygous plants were used as males (Table 1) compared to the results of crosses when the same plants were used as females (Table 2).

Table 1. The cross a2 bt/a2 bt X A2 Bt/a2 bt (4 3408 and 3409).

Male	<u>a2 bt</u> (%)	<u>A2 Bt</u> (%)	<u>a2 Bt</u> (%)	<u>A2 bt</u> (%)	Total
4 3408-4	276 (79.1)	50 (14.3)	23 (6.6)	0 (0.0)	349
-6	308 (79.0)	68 (17.4)	12 (3.3)	1 (0.3)	390
-7	126 (77.8)	31 (19.1)	3 (1.9)	2 (1.2)	162
-8	185 (79.1)	30 (12.8)	17 (7.3)	2 (0.8)	234
-9	507 (85.6)	61 (10.3)	24 (4.1)	0 (0.0)	592
-11	121 (72.4)	37 (22.2)	9 (5.4)	0 (0.0)	167
4 3409-1	343 (87.5)	39 (9.9)	10 (2.6)	0 (0.0)	392
-7	287 (77.6)	62 (16.8)	19 (5.1)	2 (0.5)	370
Average	(79.7)	(15.4)	(4.5)	(0.4)	
Average % <u>A2</u>		(15.4)		(0.4)	

Table 2. The cross A2 Bt/a2 bt (4 3408) and 3409) X a2 bt/a2 bt.

Female	<u>at bt</u> (%)	<u>A2 Bt</u> (%)	<u>a2 Bt</u> (%)	<u>A2 bt</u> (%)	Total
4 3408-4	161 (46.1)	167 (47.9)	11 (3.1)	10 (2.9)	349
-6	156 (44.2)	172 (48.7)	15 (4.3)	10 (2.8)	353
-7	52 (46.4)	52 (46.4)	3 (2.7)	5 (4.5)	112
-8	61 (44.9)	66 (48.5)	5 (3.7)	4 (2.9)	136
-9	150 (51.2)	135 (46.0)	4 (1.4)	4 (1.4)	293
-11	42 (45.2)	47 (50.5)	3 (3.2)	1 (1.1)	93
4 3409-1	204 (45.5)	207 (46.2)	23 (5.1)	14 (3.1)	448
-7	142 (48.3)	132 (44.9)	10 (3.4)	10 (3.4)	294
Average	(46.4)	(47.4)	(3.4)	(2.8)	
Average % <u>A2</u>		(47.4)		(2.8)	
Average % <u>a2-bt</u> c/o			(6.13)		

In view of the deficiency of A2 Bt kernels, it is assumed that the ga allele is linked with A2 and Bt. It does not appear, however, to be the same as ga2 (chromosome 5, distal to bt), based on the following. If the order on chromosome 5 of the parental genotype had been A2-Bt-ga, crossing over between A2 and Bt would have resulted in an excess number of the colored-brittle class (A2-bt-Ga) when compared to the colorless-round class (a2-Bt-ga). This was not observed. The excess crossover class was colorless-round (Ga-a2-Bt) rather than colored-brittle (Table 1). This would place the ga locus distal to A2, and the order would be ga-A2-Bt.

Since data are unavailable on the competitive disadvantage of the recessive ga10 allele, ga10 can tentatively be located 31 crossover units (15.4 x 2) from A2.

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The presence of En among some maize lines from Mexico, Colombia, Bolivia and Venezuela — In tests of an assortment of maize lines from Bolivia, Colombia, Mexico and Venezuela, five lines have been shown to possess En (Table 1). In the same tests the presence of r (or other distinguishable allele) and the color suppressor C-I was noted. The 23 lines tested can be grouped into five divisions with respect to the r allele, En and C-I (Table 2).

Table 2. Summary of the grouping of three characters.

	Presence of <u>r</u>	Presence of <u>C-I</u>	Presence of <u>En</u>	No. lines
1	Yes	Yes	No	12
2	Yes	No	No	3
3	Yes	Yes	Yes	4
4	R-st	No	Yes*	1
5	Yes	No	Yes*(a)	3
				23

\*Presence of En being confirmed.

(a) One of these already confirmed.

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Studies of a mutator locus on chromosome 10 — In the 1971 News Letter (45:81-87, 1971) I reported on an elevated spontaneous mutation rate that seemed to be under the control of a factor(s) at or near the y9 locus in chromosome 10. In genetic studies with y9 we had the opportunity to observe the self-progeny of numerous outcrosses involving heterozygous y9 plants as male parents; in these outcrosses there was an approximate 15-fold increase in mutation as compared to similar outcrosses not involving y9. The mutations occurred with equal frequency in outcross plants that received the y9 allele and those that did not; thus, they are not restricted to the chromosome carrying the y9 gene. A given outcross family frequently would have several plants that segregated for mutants which were quite similar in phenotype. If these represent identical mutants, it would suggest