The lysine content of the sectored seed has been analyzed and it was found to be similar in all the types including half opaque suggesting that the sector size may not alter the lysine content. The modified opaque may be more useful in breeding high lysine maize and also may be more acceptable for direct consumption.

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2. Electrophoretic studies of half opaque endosperm (S_5).

One of the S_5 cobs from the cross S_4 x S_7 was selected for biochemical studies. The normal half, $S_5(\pm)$, and opaque half, S_5 (o_2), were separated and the soluble proteins extracted with .01 M sodium pyrophosphate buffer containing 10^{-4} M EDTA and 0.7 ml of mercaptoethanol. The S_5 ($\pm$) and S_5 (o_2) tissues were also subjected to three consecutive extractions with water, 5% NaCl and 70% ethanol. All these protein extracts were subjected to electrophoretic separation in 7.5% polyacrylamide gels. The saline extract was dialysed before electrophoresis. Table 1 gives the pattern of protein bands in both translucent and opaque tissues of S_5.

Table 1. Endosperm protein pattern of $S_5 \pm$ and S_5 o_2

Extract	Tissue	1	2	3	4	5	6	7	8
Na Pyrophosphate	S_5 (+)	I	I	M	M	A	I	M	F
	S_5 (o_2)	A	M	A	M	M	M	M	M
Water	S_5 (+)	F	A	I	M	F	F	F	
	S_5 (o_2)	M	M	M	F	F	F	A	
5% Na Cl	S_5 (+)	F	M	F	M				
	S_5 (o_2)	F	F	A	A				
70% Ethanol	S_5 (+)	F	F	F					
	S_5 (o_2)	A	A	A					

(I = Intense, M = Medium, F = Faint, A = Absent)

Though both opaque and normal tissues are from S_5 kernels, they showed a significant difference in the protein pattern. The pyrophosphate extract of S_5 (+) shows the maximum number of bands. Also S_5 (+) showed a greater number of bands than S_5 (o_2) in all the extracts except the water fraction. The differences between these tissues were observed to be maximum in the ethanol extract where S_5 (o_2) is devoid of any protein bands. But in both tissues the intensity of the bands decreased with consecutive extractions.

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3. Induction of seedling and endosperm mutations with DES.

A homozygous dominant multiple stock, Bm_2 Lg_1 A_1 Su_1 Pr Y_1 Gl_1 J_1 Wx G_1, was treated with three different concentrations of DES (MNL 44:178). Seedling and endosperm mutations were observed in 0.006M treatment in M_2 and M_3, respectively (Table 1). The mutation frequency was calculated on the basis of the total number of independent mutations divided by the total number of M_1 ears.

Table 1. Mutation frequency observed for various seedling and endosperm characters.

No. of loci mutated	Type of mutation			Mutation frequency
	Seedling	Endosperm	New mutations	
1	-	a_1	-	0.01
2	-	$a_1 y_1$	-	0.02
6	bm_2, lg_1	a_1, y, wx	Salmon silk	0.06
8	lg_1, g_1	a_1, su, y, wx	White leaf sheath	0.08
14	bm_2, lg_1 gl, g_1	a_1, su, pr, y_1, wx	White leaf sheath, unbranched tassel, salmon silk, dwarf, albino.	0.14