Table 1

Transmission frequencies of the *Su*^{d} allele in selfed pseudo-substitution stocks of corn-Tripsacum hybrid derivatives (Stock 67-262)

Plant No.	Total kernels	Observed *Su*^{d} kernels	Percentage of *Su*^{d}
67-262-1	120	29	24.2
-2	170	10	5.9
-3	264	33	12.5
-4	287	52	18.1
67-263-1	308	51	16.5
-2	317	72	23.5
-3	310	39	12.6
-4	298	21	7.1
-5	304	64	21.0
-6	319	59	18.5
-7	372	29	7.8

Both the stocks 67-262 and 67-263 were derived from selfing of 66-368-8

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1. Effect of temperature on the rate of crossing-over in maize.

Preliminary experiments have been carried out in the Phytotron at the Plant Industry Division, C.S.I.R.O., Canberra, to estimate the effect, if any, on the rate of crossing-over in stable stocks of *C Sh* maize. Homozygous recessive *c sh/c sh* plants kept at 27°C were used as female parents, while heterozygotes in coupling phase were used as pollen parents after being grown to anthesis in glasshouses set at 24°C, 27°C, 30°C, 33°C and 36°C. The daylight length was 16 hours and the humidity was kept constant for all glasshouses.

At anthesis the plants were transferred to the 27°C glasshouses and crosses made. Subsequently, the ears were harvested and calculations of recombination values from 17 ears in each treatment were made. The results were as follows:

Treatment	1 27° x 24°	2 27° x 27°	3 27° x 30°	4 27° x 33°
Mean value for recombination between C and Sh	10.10	9.31	9.04	6.21

No ears were collected from the 27° x 36°, as the pollen was inviable, possibly an effect of the constantly high temperature in the 36° glasshouse.

"t" tests showed no significant differences between treatments 1 and 2, between 2 and 3 and between 3 and 4, but a significant difference was observed between treatments 1 and 4 and 2 and 4. It was therefore considered worthwhile repeating the experiment with more sophistication, and this is being done.

The possibility of B chromosomes producing these differences was considered but eliminated when, on examination, no B chromosomes were found to be present in any of the stocks. These stocks have been grown for 15 years in Melbourne, where the fluctuation in recombination values seemed to be correlated with fluctuation in temperatures from year to year, and this prompted the carrying out of the experiment under controlled conditions.

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1. Phenotypic stability in maize.

Phenotypic stability in maize has been the subject of many investigations. It has been demonstrated that the degree of phenotypic stability exhibited by various genotypes in response to environmental variations is not the same for all characters considered. Furthermore differences in phenotypic stability between genotypes may change after exposure to different environmental variations.

In a previous report (M.N.L., 1967) we presented data on phenotypic stability of eight inbred lines and all their F_1 crosses in relation to the effect of plant spacing. These results indicated that various plant characters are affected by spacing in the field. The degree of change is under genetic control in two of the four characters studied. No significant genetic differences in stability were observed in the flowering time