

4. Unique characters in maize.

Cultivated maize is unique among cereals in many ways, for example, in possessing the pistillate inflorescence in the form of an ear, in being one of the most heterotic organisms, in possessing peculiar mutagenic systems, and in throwing extreme segregates on inbreeding. There is evidence from our studies, and from those of Mangelsdorf and his associates, that these unique properties of maize result, in part at least, due to introgression from teosinte and possibly even from *Tripsacum*.

S. M. Sehgal

5. Evidence for transposition in maize.

In single crosses between some of the teosinte and "*Tripsacum*" derived lines of inbred Al58, segregation into normally tripsacoid ears and extremely tripsacoid ears was found (Sehgal, 1963). The internal morphology of the two types of cobs supports the previous assumption that the extremely tripsacoid ears are homozygous for the introduced germ plasm, and the normally tripsacoid ears are heterozygous. Furthermore, the extremely tripsacoid ears show numerous differences in internal morphology when compared to the parental derivatives, thus suggesting that these are not the result of accidental selfing. The homozygosity of the introgressed segments is tentatively attributed to the transposition of the chromosomal segments from one chromosome to another.

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6. Crossing inbred Al58 and its modified derivatives with Florida teosinte.*

In a previous News Letter (No. 36), I reported the results of crossing original Al58 and its teosinte and "*Tripsacum*" derivatives, with Nobogame teosinte. The same group was studied in the summer of 1962 in crosses with Florida teosinte. The pistillate inflorescences in the F_1 's remained in their initial stage of development till late October due to the long day environment in which they were grown and therefore could not be studied. The staminate inflorescences, although late, were well developed and were employed for various observations. The hybrids between Al58 and Florida teosinte showed a well developed compact central spike with polystichous arrangement of the spikelets, whereas the hybrids between modified derivatives x Florida teosinte, fell into one of the following categories:

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| (1) Lax central spike with polystichous arrangement of spikelets | Florida 3A
Florida 3B
Florida 9
Mexico
Honduras |
|--|---|

*This work was done at the Bussey Institution of Harvard University.