8. Variable transmission for Tripsacum homeolog to maize chromosome 9.

In contrast to the consistent female transmission rate observed for the Tripsacum homeolog to chromosome 2 of maize, the Tripsacum homeolog of maize chromosome 9 showed a sudden reduction in its transmission on the female side after separation from the rest of the Tripsacum genome. This transmission is scored as percent of nonwaxy kernels on ears of addition monosomics for this extra chromosome which had been backcrossed to chromosome 9 tester maize. The data are as follows:

Year	Backcross Generation	No. Tripsacum Chromosomes	Wx %	N
1962	1	18	37.0	92
1963*	2	1	12.3	1688

*Pooled data from 7 ears.

On the male side, the transmission of this extra chromosome may be much higher. When 202 pollen grains of one of these addition monosomics (63-470-1) were scored, 116 or 57.4% were classified as nonwaxy.

W. C. Galinat
P. C. Mangelsdorf
R. S. K. Chaganti

9. Transmission of Tripsacum chromosomes in the progeny of a maize-Tripsacum dactyloides hybrid derivative.

Segregation of Tripsacum chromosomes in the progeny of a maize-Tripsacum dactyloides hybrid derivative with three extra Tripsacum chromosomes was studied in backcross progenies. One of the three chromosomes also carried the dominant allele for the lg_1 (chromosome 2) gene of maize. The transmission frequency of the Lg_1 carrying chromosome is reported in a different entry (see No. 6). The observed and random-expected segregation of the three chromosomes on the female side is shown in the following table.

Table 1
Segregation of Chromosomes in the Backcross Progeny of 62-588-89

Pedigree	Number of Chromosomes			
62-588-89 x lg_1 gl_2 B v_4 (23 chs. in ♀)	20	21	22	23
Plants observed	32	15	1	0
Plants expected with random segregation	6	18	18	6

As in the case of the segregation of Tripsacum floridanum chromosomes in the progeny of the triploid hybrid reported above, here also the distribution is nonrandom. However, a study of chromosome numbers in the microspores of 62-588-89 itself showed that the 10, 11, 12, and 13 chromosome classes are randomly distributed as shown in the following table.

The observed nonrandomness of segregation of the Tripsacum chromosomes on the female side could then be due to either preferential segregation on the female side or to gametic or zygotic lethality.