Table 1. Continued.

Analysis of Variance			
Source of Variation	d.f.	s.s	M.S.
Total	20	24.383	
Between treatments	6	13.916	2.319*
Error	14	10.467	.748

*Significant at the .05 level.

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1. Maize-Tripsacum hybrids.

Hybrids between Texas inbred 203 and diploid Tripsacum dactyloides backcrossed to inbred 203 for five generations are under study, and the results obtained thus far are different in certain respects from any yet reported. Two related groups of the hybrid derivatives may be recognized on the ground that the phenotypic differences between them are significant for certain characters. One peculiar feature of both groups is that, in spite of their being fifth generation backcrosses, above 99 percent of the plants are completely pollen sterile and about 90 percent ovule sterile.

Although most of the work done to date is genetical in nature, cytological examinations have been made on about half of the nearly sterile B_3 plants of each group, and every plant examined was found to have an extra chromosome. Many of them also showed a chromatin tie and occasionally other irregularities. The plants of inbred 203 used in the work contained no B-chromosomes, and the Tripsacum had only the usual 18 pairs, characteristic of the diploid forms. Much additional cytological work is needed, but a tentative conclusion that most or all of the nearly sterile plants are 2n+1 is justified.

2. Characters of hybrid derivatives having only inbred 203 in their maize ancestry.

In 1955, 45 B_3 plants which had inbred 203 as their only source of maize ancestry were grown to maturity; in 1956, 290 B_4 plants; in 1957, 84 B_5 plants. Of these 419 plants only three had fertility approaching normal. These three plants produced pollen in abundance, and their ears were approximately filled with grains. However, their pollen,