

represents an 0.5 per cent of seed set. When Wilbur's flint was used as the female parent, the seed set was normal and abundant. It appears likely that the low percentage of seed set on the Chalco teosinte is due to a barrier similar to the Ga factor found in the majority of popcorn varieties and in many varieties of Mexican maize. Chalco teosinte--one of the most maize-like teosintes--has absorbed R plant coloration and pilose leaf sheaths of the predominating maize of the vicinity. These facts on cross sterility may indicate that it has also absorbed the Ga locus.

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1. Effect of natural and artificial selection on seed set of elongate-derived autotetraploids.

A major disadvantage of raw tetraploids derived from diploid species is reduced fertility. We have found that newly-established tetraploid stocks are relatively sterile. However, pronounced improvement in seed set has been encountered in synthetic varieties created by pooling the derivatives of corn belt inbreds. Doubtlessly natural and artificial selection both have contributed to the improvement since mass selection has been practiced since the inception of the experiment.

Summary of Fertility Data in Tetraploid Synthetic Varieties,
1958 - 1960

Synthetic	Seed Set (%)		
	1958	1959	1960
B	59 ₂	68 ₃	76 ₄
C	54 ₁	59 ₂	65 ₃

The subscripts indicate the number of generations the synthetic has existed as a tetraploid, i. e., the number of generations separating it from its diploid ancestors.

Individual ears have been encountered that have exceedingly high seed set, as high as 94% in fact.

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