

2. Cytogenetic comparison of maize homozygous diploids and inbreds.

The homozygous diploids studied were crossed onto I205 X L289 and the 555 F₁ plants of 58 progenies carefully examined phenotypically for pollen sterility in field and laboratory, and cytologically for structural heterozygosity. A small percentage of F₁ showed pollen sterility but no structural aberrations were observed. The F₁'s were found to be vigorous, uniform, and in all respects normal.

The homozygous diploids derived from monoploids were then compared with inbreds by studying the hybrid progeny of each crossed onto the commercial single cross I205 X L289 and the F₁ of each subjected to detailed cytogenetic study. No particular difference between homozygous diploids and inbreds was noted in percentage of pollen sterility, phenotypes, appearance of mutants, or structural heterozygosity. An inversion, possibly associated with a deletion, was observed cytologically in the F₁ from one inbred, the hybrid of which had 50 per cent pollen sterility.

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