

3. Perennialism attributes from Cuzco flour corn.

In our very long growing season at Greenfield, Calif. we have never seen black spot formation in Cuzco maize as long as growing cultural conditions are maintained. Vegetative senescence is likewise delayed indefinitely, until the intervention of an outside condition. Upon using Cuzco as a parent in crosses to an id/id gt/gt stock and sibbing to recover multiply recessive plants, vigorously perennial, vegetatively totipotent segregates were obtained. A field work thinning error prevented determination of a meaningful segregating ratio, but it is certain that Cuzco carries pe or a factor(s) that can produce the same effect in combination with homozygous gt and id. Anyone wishing to repeat this work should remember that Cuzco Flour Corn is a very heterogeneous population. Good insurance would indicate the use of a population of Cuzco, rather than single plants, in initiating an experiment.

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4. Failure to obtain ear-fertile perennial 2n maize.

Even though perennial maize can produce tassel seed (and under certain conditions regularly does so) without undergoing senescence and death of the seed-producing plant, it is regularly ear-barren. Dr. D. E. Johnson (Hamill) only once succeeded in obtaining a normal, many kernel rowed ear from the classical clone, 65-32-1, in a Brookhaven Lab. greenhouse from a very tall, old, potbound propagation of 65-32-1.

It seemed that the major reason for barrenness might simply be related to the fact that all perennial maize is id/id. Homozygous id maize is almost invariably barren, even in a very early background which permits flowering at a time of the summer very favorable for ear formation. Accordingly, a project was undertaken to incorporate id into an early Gaspé-based synthetic in which selection for ear fertility could be practiced. By sibbing with mass selection among the initially infrequent ear-fertile id/id plants a highly (more than 90%) ear-fertile