
Over the past several years we have carried on a limited program designed to introduce the shrunken-2 factor on chromosome 3 into the standard Golden Cross and Iochef lines of sweet corn. Because the double recessive combination of sugary-1, shrunken-2 is obviously not a commercially suitable type we have substituted the sh2 factor for the su1 factor in the converted lines.

It is apparent that hybrid combinations involving the converted lines (sh ah Su Su) retain the characteristics found to be associated with the sh2 factor in the original genetic background. They have a higher sugar content at picking and at maturity than the standard su material; they also have a superior sugar-holding capacity after picking. Because there is a longer period during which ears of shrunken-2 material may be picked without sacrifice of quality it is conceivable that double-cross production of sh2 sweet corn may be feasible ultimately.

Limited amounts of hybrid shrunken-2 seed are available at this time. Persons interested in receiving small samples of same should write Dr. Earl B. Patterson, Maize Genetics Cooperative, Department of Botany, University of Illinois, Urbana, Illinois.

Lines of shrunken-2 material will be increased this year and will be available for distribution upon request after harvesting of the 1952 summer crop.

John R. Laughnan


It has been shown by Dr. Laughnan that both A^b:P and A^b:Ec yield pales of noncrossover origin, besides crossover pales due to the normal separation of the a component from the A^b complexes. In heterozygotes with a, A^b yields a second type of pale of crossover origin. This pale is mutable as it carries a in the position occupied by b in the A^b complex when it is tested for mutability under the influence of D. The rate of crossover pales is about 1/2,000 in both A^b:P and A^b:Ec but the rates of noncrossover pales differ; in A^b:P the noncrossover derivatives are about twice as frequent as the crossover pales but in A^b:Ec they are only about 1/10 of the crossovers.

Among several hypotheses put forth as explanations for the origin of noncrossover alpha derivatives, mutation of the b element in the complexes a^b (A^b:Ec) and a^b (A^b:P) to a null level element b0, was tested. If a b0 element is present as a component of the noncrossover a^b derivatives, this should be separable by crossing over as a colorless element from the complexes a^b0 and b0^a. As controls in this experiment, stable and mutable alphas of crossover origin were included. The fre-