3. Shrunken-2 sweet corn hybrids.

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 Iochief 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 sh_2 factor for the su_1 factor in the converted lines.

It is apparent that hybrid combinations involving the converted lines (sh sh Su Su) retain the characteristics found to be associated with the sh_2 factor in the original genetic background. They have a higher sugar content at picking and at maturity than the standard su_1 material; they also have a superior sugar-holding capacity after pick-ing. 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 sh_2 sweet corn may be feasible ultimat

Limited amounts of hybrid shrunken-2 seed are available at this time. Persons interested in receiving small samples of same should wr Dr. Earl B. Patterson, Maize Genetics Cooperative, Department of Botan 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 19 summer crop.

John R. Laughnan

4. A test of the mutational hypothesis for the origin of the noncros over alpha derivatives from A^b:P and A^b:Ec.

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 norma separation of the α component from the A^b complexes. In heterozygote with a, A^b yields a second type of pale of crossover origin. This pal is mutable as it carries a in the position occupied by β in the A^b com plex when it is tested for mutability under the influence of Dt. The rate of crossover pales is about 1/2,000 in both A^b:P and A^b:Ec but th rates of noncrossover pales differ; in A^b:P the noncrossover derivati are about twice as frequent as the crossover pales but in A^b:Ec they a only about 1/10 of the crossovers.

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