

7. Progress towards isolating the Tripsacum homoeolog to maize chromosome 3.

Previously the tripsacum homoeolog to maize chromosome 3 has always immediately dropped out from the progeny of the second backcross to the marker stock maize. In a single plant it has now survived to the third backcross to maize, although unexpectedly captured together with three other extra tripsacum chromosomes. The four extra chromosomes of this plant ($2n = 20 + 4$) appeared throughout meiosis as univalents, indicating they are different from each other. At least one of them may carry A_1 , Sh_2 , Lg_2 loci corresponding to maize chromosome 3.

From 56 observations made at pachytene, it was possible to tentatively identify two out of the four univalents. One is a very short knobless chromosome averaging only 12.9 u in length, or similar to that of chromosome 18, the smallest in the complement of T. dactyloides. The other is the important nucleolus organizing chromosome, Tr 16, of tripsacum. Tr 16 as a univalent was observed to associate with the maize nucleolus along with the chromosome 6 bivalent of maize. The remaining two chromosomes each have a terminal knob. They could not be classified.

W. C. Galinat
R. V. Tantravahi
P. Chandravadana

8. Trivalent frequencies in one of the control crosses for the triple heterozygote of maize chromosome M4, teosinte segment t4s and tripsacum partial homoeolog Tr 7.

In last year's MNL (45:101) we reported that when tripsacum chromosome Tr7 marked by the Su_1 locus was added to the heterozygous fourth chromosome segment of teosinte to give the triple heterozygote M4, t4s, Tr7 a high frequency of trivalency of 60 to 70% was observed at diakinesis and metaphase I. One of the two isogenic controls, M4, M4, Tr7, has now been produced and studied. The second control t4s, t4s, Tr7 has not been studied.

In the first control, M4, M4, Tr7, 65 cells examined at diakinesis showed 24.6% trivalency and 30 cells at metaphase I had 20% trivalency.