

In the same manner, the inheritance of photoperiodism in selfed backcrosses of (Inb. Kys x Fla. Teosinte) x Kys was studied in 11 progenies totaling 107 plants. Photoperiodism of the type found in adjacent plants of pure maize carrying the id locus was not found at all. Whereas the pure maize plants segregating for id fell into two sharply separate classes of determinant and photoperiodic-indeterminant, the maize-teosinte derivatives showed a continuous range of flowering times, none, however, as late as pure maize homozygous id/id. No distichous plants at all were found in this selfed population of 75% Kys, 25% Florida teosinte plants.

One must concede that this study has failed to reveal the existence of teosinte loci which can confer either distichy or the id type of photoperiodism in a 75% maize background as single gene expressions.

A year ago the writer reported that 3 plants of the hybrid between teosinte and Andean maize which has been reported to be homozygous id/id were indeterminant-photoperiodic in growth habit. This appeared to be true in greenhouse culture. However, the observation could not be repeated out of doors in 1962, since this hybrid flowered about a month before either pure teosinte or maize homozygous id/id. Moreover, there has been no indication of a single gene segregation for photoperiodism in selfed hybrids of the Andean maize and corn belt inbreds. Therefore, there is no evidence in these studies that the Andean maize carries the classical id/id locus.

Donald L. Shaver

3. Further studies of linkage and preferential segregation in allotetraploids of Zea.

Data from a new region, $\underline{gl}_6 - \underline{lg}_2$ have been obtained from both autotetraploids and allotetraploids of Zea. Testcross data from the two types of coupling duplexes were as follows:

	... "Phenotype of Gametes" ...				Total	Constitution of Duplex tested
	$\underline{Gl}_6 \underline{Lg}_2$	$\underline{Gl}_6 \underline{lg}_2$	$\underline{gl}_6 \underline{Lg}_2$	$\underline{gl}_6 \underline{lg}_2$		
allotetraploid percent	1165 86.2	25 1.8	36 2.7	126 9.3	1352	$\left. \begin{array}{l} \underline{Gl}_6 \quad \underline{Lg}_2 \\ \underline{Gl}_6 \quad \underline{lg}_2 \\ \underline{gl}_6 \quad \underline{Lg}_2 \\ \underline{gl}_6 \quad \underline{lg}_2 \end{array} \right\}$
autotetraploid percent	524 70.7	84 11.3	54 7.3	79 10.7	741	

Coefficient of linkage in allotetraploid, $B = .782 + .036$
 Coefficient of linkage in autotetraploid, $B = .419 + .110$
 Coefficient of preferential segregation in allotetraploid for $gl_6 = .333$
 Coefficient of preferential segregation in allotetraploid for $lg_2 = .496$

These data are in agreement with the range of results reported for other segments in previous work with these types of polyploids (Maize News Letter 34 : 56-59).

Donald L. Shaver

4. Further studies of trivalent frequencies in the interspecific triploid hybrid of perennial teosinte x annual teosinte.

A year ago (Maize News Letter 36: 4-5) it was reported that the frequency of trivalents in the triploid hybrid between perennial and annual teosinte was only about 0.36. This seemed surprising since this indicated less homology between the chromosomes of the two teosinte species than between the chromosomes of maize and perennial teosinte, where the trivalent frequency at diakinesis was about 0.65.

Since the first value was taken from the study of only one plant, two additional plants of $4n$ teosinte x $2n$ annual teosinte were studied. In one, the trivalent frequency among 1000 sets of homologues at diakinesis was $0.269 + .1210$. In the other, the trivalent frequency among 300 sets of homologues was $0.397 + .1795$. These additional data reconfirm the results reported a year ago. However, when univalents at MI-AI in the second plant were scored, in 200 cells, an average of $8.89 + .0723$ was found. Hence it appears that over 1/2 of the diakinesis figures scored as trivalents were actually bivalent-plus-associated-univalent configurations. This indicates that caution must be used in interpreting diakinesis associations in this triploid. It seems likely that in the maize-teosinte triploids studied last year, many diakinesis figures scored as trivalents were also bivalent-plus-associated-univalent configurations.

The simplest interpretation of these results is that there is a high degree of preferential pairing and segregation in the teosinte inter-specific triploid, perhaps even more than in the teosinte-maize inter-specific triploid. However, since there are no genetic markers to follow in the teosinte triploid hybrid, it is still only a supposition that the preference for pairing is perennial teosinte chromosome with perennial teosinte chromosome. A clarification of this point could be made by inserting markers into annual teosinte from maize, and then determining the degree of genetic preferential segregation in the teosinte triploid.

Donald L. Shaver