

3. Apomixis in teosinte.

Living hybrid plants of teosinte and Tripsacum have not previously been obtained. In the summer of 1964, attempts were made to hybridize five varieties of teosinte with Tripsacum floridanum. These were grown in a well-isolated garden and the tassels and staminate tips of lateral spikes of all the plants were removed before any anthers were exerted. Before pollination with Tripsacum, the silks were cut back to about the length of the silks of the male parent.

Seventeen days after pollination the fruits were collected and the embryos were dissected and transferred to a nutrient agar medium under sterile conditions. A total of 90 embryos were obtained from 3223 silks pollinated (Table 1). Embryos of Chalco teosinte remained viable for a few days and died; those of Guanajuato teosinte differentiated into coleoptiles and roots but developed no further. Embryos of other teosintes grew into normal plants which appeared to be teosinte plants and all of which had 20 root-tip chromosomes instead of the 28 expected in hybrid plants. Since there is no possibility that these plants are the result of accidental self-pollination, they must be the product of some form of apomixis.

Because teosinte is normally sexually reproducing, apomixis may be an isolating mechanism preventing hybridization with Tripsacum similar to the Ga gene, characteristic of many popcorns, which produces cross sterility with Tripsacum.

Table 1
Results of Pollinating Five Varieties of Teosinte by
Tripsacum floridanum

Variety of Teosinte	No. of Silks Pollinated	No. of Embryos Obtained	No. of Plants Obtained
Arroyo Seco	865	6	4
Chalco	618	37	0
Guanajuato	437	4	0
Huehuetenango	217	2	1
Jutiapa	1086	41	41

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