Tripsacum and 10 corn chromosomes. If the cases where seeds were set on a specific side of the rachis are also the result of a more "localized" somatic sector, then 91% of the individuals occurred from unreduced eggs resulting from somatic doubling. If further analysis should show that somatic doubling is the cause of unreduced eggs, the event must occur with a high frequency. This mechanism could allow for backcrossing of corn-Tripsacum hybrids to corn parent under natural conditions.

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4. Maize X Tripsacum lanceolatum (Ruper. ex Fourn.) hybrids.

Attempts to hybridize maize with Tripsacum lanceolatum,* on a limited scale, have been very successful. From five pollinations, using three different maize stocks as female parent, 20 hybrids were obtained. Thirteen of these hybrids were obtained using translocation stock Tl-6c as female. Seven of the hybrids were obtained with inbred W153R as female. Table 1 summarizes the results for the five pollinations.

Table 1

	Number of seeds set	Total number of ovules	Number of hybrids
W153 x T. lanceolatum	31	420	7
Tl-6c x T. lanceolatum	39	700	13
Tl-6c x T. lanceolatum	19	500	--
c sh wx gl_{15} y R x T. lanceolatum	3	526	--
c sh wx gl_{15} y R x T. lanceolatum	35	675	--

The percentage of hybrid plants obtained was similar to that reported by other workers (.07%) for intergeneric crosses of this type. However, the author is not aware of any similar reported crossing experiments where the percentage of hybrid individuals has been as high as 1.85% for an individual pollination.

No special technique was used to obtain the hybrids other than the "shortened silk" technique of Mangelsdorf and Reeves. The seeds obtained appeared poorly developed; however, some germinated after the removal of the pericarp. The seed was germinated about 40 days after pollination.

Cytological analysis of a limited number of microsporocytes of two hybrid plants showed cells with 46 chromosomes. Most of the cells had 18 Tripsacum bivalents and 10 corn univalents; however, some cells did not have this number of chromosomes. No cells were found where pairing occurred between corn and Tripsacum chromosomes. A more detailed cytological analysis is necessary before conclusions on chromosome number or pairing relationships of all hybrid plants are known. Sterility of

*Plant used as pollen parent obtained from seed collected by D. E. Alexander near Taxco, Mexico, in 1959.

these two hybrid plants appears to be high. Pollinating 167 ovules of these two hybrid plants with pollen from the maize parent resulted in no seed. This would indicate female sterility for these two hybrid plants.

A number of species of Tripsacum have been hybridized with maize by different workers (Mangelsdorf, Farquharson, Galinat). It is interesting to speculate which species was involved in the tripartite hypothesis of Mangelsdorf and Reeves.

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1. Additional sources of chlorotic lesion resistance to Helminthosporium turcicum Pass.

A dominant gene resistance to northern corn leaf blight caused by H. turcicum and expressed in the form of chlorotic lesions supporting limited fungus reproduction was reported from our laboratory in the 1963 M.G.C.N.L.

This past year data have been obtained from other corn selections showing this type of resistance. In addition, field data were obtained for F_2 populations involving W37A shown to have a single dominant gene for resistance on the basis of greenhouse seedling tests in our previous report. Two sweet corn inbreds EES647 and EES650, the dent corn inbred W37A, and the pop corn inbred 35 (a white rice type and distinctly different in plant and ear type from Ladyfinger popcorn) were crossed with inbreds expressing susceptible-type lesions. These hybrids were advanced to the F_2 generation. With the Pop 35 hybrids, backcross populations were also tested.

The following data obtained from inoculated field plots or from inoculated seedling tests in the greenhouse indicate that resistance is due to a single dominant gene in each of the 4 sources. The data further suggest that homozygous plants can be distinguished from heterozygous plants.

The parental resistant inbreds, F_1 hybrids, and susceptible inbreds gave highly resistant, resistant, and susceptible reactions, respectively, in these tests.