

INDIAN AGRICULTURAL RESEARCH INSTITUTE
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Division of Genetics

1. Cytoplasmic effects on quantitative characters in maize:

Reciprocal F_1 and backcrosses were studied between SP2 and Llera III, Yellow Tuxpañ, Eto Amarillo, San Andres Tuxtla and Colorado, and Colorado and Pira Blanco, Pollo Segregaciones and Pollo Amarillo. Quantitative characters such as yield, days to 75 per cent silking, plant height, ear height and no. of ears per plant were studied in all the reciprocal crosses with a view to find out whether the cytoplasm showed any effect on these characters. Significant cytoplasmic effects were obtained with four of the five characters studied. The character, number of ears per plant, did not show any cytoplasmic effect.

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2. Instability of cytoplasmic effects in different environments.

Reciprocal F_1 crosses were studied between Indian, Mexican, and Colombian varieties of maize. Data were recorded during 1964 and 1965 growing seasons on quantitative characters such as yield, maturity, plant height and ear height. The reciprocal crosses studied and the characters showing significant reciprocal differences in the two years are given in the table.

Pedigree	1964	1965
SP2 X Yellow Tuxpan	-	Days to silk
Yellow Tuxpan X SP2		
SP2 X Eto Amarillo	-	Plant height
Eto Amarillo X SP2		Ear height
SP2 X San Andres Tuxtla	-	Days to silk
San Andres Tuxtla X SP2		
Pira Blanco X Colorado	Days to silk	Plant height
Colorado X Pira Blanco		Ear height
KT41 X San Andres Tuxtla	Plant height	Yield
San Andres Tuxtla X KT41		
Basi X Eto Amarillo	-	-
Eto Amarillo X Basi		