

while a reciprocal selection program would present difficulties in separating kernel colors if a broad range of material were used.

As the scheme was previously outlined, the seed parent of the final hybrid would be used as a pollinator in the intercrossing and testcrossing block during selection; therefore, a desirable yellow seed parent could be the tester for a heterogeneous group of white endosperm material with no problems in seed color separation expected.

B. The 21 possible yellow x yellow, 21 possible white x white and 49 possible yellow x white crosses were grown in micro-tests to determine the relative merit of the three groups of germ plasm. The material was grown at a harvested stand of 13M plants per acre and averaged approximately 95 bu/acre. In terms of yellow x yellow equals 100%, white x white yielded 97%, and yellow x white yielded 103%. The differences among groups were statistically significant. Evidently a "built-in" increase in heterosis could be expected in a yellow x white program probably due to the genetic divergence between these groups.

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1. Disease resistance of Mex 155.

The maize line Mex 155 (selected lines 86, 152 and 156), found to be highly resistant to *Helminthosporium* leaf blight at Pretoria in the Republic of South Africa, is reported to be highly resistant to leaf blight in France. Mex 155 is also highly resistant to downy mildew (*Sclerospora sorghi*) in the Republic of South Africa. It has a long growing season and good combining ability.

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2. Seed treatment with organic mercury fungicides discontinued.

Organic mercury fungicides used as standard seed treatment are being replaced by Captan 75. Captan 75 is the only fungicide recommended for use on maize seed at present in the Republic of South Africa.

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3. Are controlling elements episomic?

Controlling elements in maize are unique in that they can move spontaneously to a number of positions throughout the genome. The similarity of this behavior to that of episomic elements in bacteria has been pointed out by various authors. Episomic elements differ from controlling elements in that, in addition to occupying various chromosomal sites, they may also behave as cytoplasmic particles.