Diallel analysis of single cross hybrids among white QPM inbreds. (C01-bhatnagar100245-Poster)

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Abstract:

Development and adoption of Quality Protein Maize (QPM), a homozygous o2 hard endosperm high lysine maize, would increase the nutritional value of maize. Breeding programs at CIMMYT, Texas (TAMU), and South Africa (SA) have developed high lysine inbreds. Our objective was to estimate the general (GCA) and specific combining abilities (SCA) for grain yield (t ha-1) and secondary traits among high lysine inbreds from different sources. Hybrids from a diallel among 7 white QPM inbreds (CML176, CML181, CML184, Bo59W, Tx807, Tx811, TxX124) and from a diallel among 9 yellow QPM inbreds (CML190, CML193, Tx802, Tx814, Tx818, Tx820, Do940y, TxX808, TxX806) were evaluated in 5 and 6 Southern U.S. environments, respectively. CML176 (0.212**) had the best GCA for grain yield among the white inbreds, and Tx802 (0.313**) and Tx814 (0.187**) among the yellows. TAMU inbreds had earlier maturities, shorter plants, and less grain moisture than the more subtropical CIMMYT and SA inbreds. The best yielding hybrids and highest SCA resulted from crosses among inbreds from different programs: Tx802/Do940y, TxX124/CML176, Tx811/CML181, Bo59w/CML184 suggesting potential heterotic groups.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 4:00-6:00 pm
Poster Board Number: 1002

Keywords:
diallel, QPM, Single cross , white inbreds