Diallel Analysis of F1 Hybrids among White Grained Temperate, Subtropical and Tropical Inbreds. (C01transue165002-Poster)

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Abstract:

Understanding how well temperate and subtropical/tropical maize genetic material combine lays the groundwork for further breeding efforts. Our objective was to study the combining ability of white-grained temperate, tropical and subtropical maize lines, and their adaptation to Texas. Twelve inbred lines of temperate (Tx71, Tx110, Tx114, NC340, Kyw13) and subtropical/tropical (CMLs 202, 206, 311, 321, 343; LPS144, SPL254) origins were crossed in a diallel mating design. The resulting 66 hybrids were evaluated across 4 locations in the southern U.S. Temperate line Tx114 and tropical line CML343 had the best overall general combining ability effects for grain yield (0.541 and 0.368 respectively) across locations. The best hybrids in terms of grain yield were Kyw13 x Tx114 (5.91 t ha-1), LPS144 x Tx114 (5.80 t ha-1) and CML343 x Tx114 (5.67 t ha-1). Overall, high specific combining ability effects for grain yield were observed in temperate x tropical/subtropical crosses. It may be possible to obtain good hybrids by crossing of maize genetic material from different regions.

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