# CAN COTTON HYBRID PERFORMANCE BE PREDICTED BY MARKER-BASED GENETIC DISTANCE?

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## Abstract

Analysis of relationships between genetic distance and hybrid performance may promote utilization of exotic germplasm in hybrid production. However, results in previous studies of cotton hybrids have shown low correlations between molecular marker-based genetic distance and hybrid performance. This study was designed to analyze relationships between SSR-based genetic distance (GD) and F2 hybrid performance in cotton. Forty-eight F2 hybrids derived from crosses between four elite germplasm lines and twelve exotic germplasm lines including 6 Species Polycross (SP) lines and 6 John Cotton (JC) lines were evaluated during 2008 and 2009. The GD among the 16 parents was analyzed by 284 SSR markers. Genetic differentiations between exotic germplasm and elite germplasm lines were also analyzed. Moderate correlations were detected between the GD among parents and fiber properties in JC-derived F2 hybrids.