EXPLORING EXOTIC GERMPLASM FOR IMPROVING LINT YIELD AND FIBER QUALITY IN UPLAND COTTON

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Abstract

This paper presents current exploration of the utility of two exotic germplasm resources, Species Polycross (SP) and John Cotton (JC). These two germplasm populations were initiated by US cotton breeders in 1960s and 1970s and underwent long term introgression and selfing. The two populations were evaluated in fields during 2005 and 2009 for lint yield and fiber quality. Significant genotypic variations for yield and fiber quality were identified in both SP and JC populations. Nine exotic germplasm lines were released for their desirable combination between lint yield and fiber quality. Multiple crosses were made between the selected exotic germplasm lines and existing cultivars and breeding lines. Positive general combining ability (GCA) for lint yield and favorable GCA effects for fiber properties were detected in some exotic parents. Thirty-nine SSR markers were identified significantly associated with yield traits and fiber properties.