

Assessment of Combining Ability in Pearl Millet Using Line x Tester Analysis

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Abstract :

Present experiment was conducted at Raya, Mathura (U.P.) during the kharif season of 2008, 2009 and 2010 with four male sterile lines (female parents) and nine inbreds used as testers (male parents) of pearl millet in line x tester fashion. In general combining ability analysis GIB 144 found maximum g.c.a. effects for yield, stem thickness, leaf area, panicle length, panicle-girth, and 1000-grain weight, dry weight per plant and harvest index followed by ICMA 93222, GIB 3346 and ICMA 95333. None of the parents showed significant positive g.c.a. effects for number of nodes per main stem and number of leaves per main stem. In specific combining ability analysis seven crosses viz., ICMA 93222 x GIB 78, ICMA 96111 x GIB 129, ICMA 93222 x GIB 144, ICMA 93222 x GIB 129, ICMA 97333 x GIB 157, ICMA 97333 x GIB 135 and ICMA 95333 x GIB 157 were identified as the best specific combiners for yield and major yield components. Analysis of s.c.a. effects revealed that good combining parents yield better hybrids, because parents with significant positive g.c.a. effects were involved more in selected crosses than those with non-significant g.c.a. effects and negative g.c.a. effects. In the present study, the involvement of at least one good general combiner was found essential for obtaining combinations with high specific effects. Combining ability studies revealed that both general and specific combining ability variances were important but the estimates of s.c.a. variance were higher in magnitude for all the characters. Thus, indicating the predominance of non-additive gene action.

Key Word :

Kharif; Inbreds; Pearl; Millet; Line x Tester Analysis

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