Exploitation of promising maize (*Zea mays* L.) hybrids for nitrogen (N) stress environment by studying the *sca*, heterosis and nature of gene action at different N fertilizer doses

P.M. TAMILARASI AND M. VETRIVENTHAN

**SUMMARY**

Twenty one hybrids obtained from seven lines x three testers crossing fashion were analysed for specific combining ability effects (*sca*), heterosis and nature of gene action at two nitrogen (N) levels. The hybrids UMI 1008 x UMI 12 (L₁ x T₁), UMI 4 x UMI 564 (L₂ x T₂), UMI 1007 x UMI 564 (L₃ x T₃), UMI 54 x UMI 826 (L₄ x T₄) and UMI 919 x UMI 12 (L₅ x T₅) recorded desirable *per se* performance, specific combining ability effects (*sca*) and heterosis for yield and most of the yield components in N₁ (100 kg/ha) level as well as N₂ (200 kg/ha) level. These five hybrids hold promise for exploitation under nitrogen stress. The hybrids UMI 1008 x UMI 12, UMI 1007 x UMI 564, UMI 54 x UMI 826 and UMI 919 x UMI 12 had desirable *per se* performance, *sca* effects and heterosis for days to anthesis, days to silking and grain yield at both N₁ and N₂ levels. Hence, these hybrids also need due consideration for promotion under nitrogen stress rainfed condition. Predominance of non-additive gene action revealed by the yield and its component traits indicated the possibility of exploiting promising hybrids identified for heterosis breeding.

**Key words**: Hybrids, Specific combining ability effects, Nitrogen stress, Rainfed, Heterosis, Gene action.