

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

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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 UMI12 ($L_1 \times T_1$), UMI 4 x UMI 564 ($L_3 \times T_2$), UMI 1007 x UMI 564 ($L_4 \times T_2$), UMI 54 x UMI 826 ($L_5 \times T_3$) and UMI 919 x UMI 12 ($L_7 \times T_1$) recorded desirable *per se* performance, specific combining ability effects (*sca*) and heterosis for yield and most of the yield components in N_1 (100 kg/ha) level as well as N_2 (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 N_1 and N_2 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.