Click www.researchjournal.co.in/online/subdetail.html to purchase.



DOI: 10.15740/HAS/IJPS/11.1/1-7 Visit us - www.researchjournal.co.in

RESEARCH ARTICLE Heterobeltiosis in white seeded genotypes of maize (*Zea mays* L.)

■ P.P. SHARMA, MUKESH VYAS AND S.P. SHARMA

SUMMARY

The extent of heterosis depends generally on the magnitude of non-additive gene action and wide genetic diversity among parents. The investigation of heterosis of parent and their hybrids were studied for 14 traits involving of 45 hybrids along with 15 lines and 3 testers along with four checks viz., Arawali Makka-1, Mahi Kanhan, Navjot and PEHM-2, a total of 67 entries was conducted in Randomised Block Design having three replications. The data were recorded on fourteen traits to study the heterosis over better parents heterobeltiosis (BP) to identify suitable single cross hybrids using line x tester designed. The analysis of variance showed presence of significant amount of variability among parents and parents v/s crosses for all the traits except for anthesis silking interval and 100 grain weight and due to crosses were significant for all the traits. The inbred line L_{γ} exhibited maximum mean value for grain yield per plant and biological yield per plant. Tester to exhibited highest mean value for grain yield per plant, ear girth, harvest index and starch content. Hybrid $L_{14} \times T_2$, exhibited maximum mean value for grain yield per plant. Hybrid $L_{13} \times T_2$, exhibited minimum value of days to 50 per cent tasseling and days to 50 per cent silking. Out of 45 Hybrids, 25 hybrids exhibited significant positive heterobeltiosis for grain yield per plant. The maximum estimate of significant positive heterobeltiosis for grain yield per plant exhibited by hybrid L₁₁ x T₃ (60.00%) while the hybrid L₁₃ x T₃ and L₁ x T₂ exhibited highest estimates of significant positive heterobeltiosis for protein (66.93%) and starch content (9.92%), respectively. Majority of the hybrids exhibited significant positive relative heterosis for yield and yield contributing traits as well as quality traits, thereby indicating that for these traits the genes with positive effects were dominant. On the other hand for maturity traits as well as plant type traits, majority of hybrids exhibited significant negative relative heterosis. Therefore, indicating that for these traits. The genes with negative effets were dominant.

Key Words : Maize, Single cross hybrid, Heterosis, Heterobeltiosis, Check heterosis

How to cite this article : Sharma, P.P., Vyas, Mukesh and Sharma, S.P. (2016). Heterobeltiosis in white seeded genotypes of maize (*Zea mays* L.). *Internat. J. Plant Sci.*, **11** (1): 1-7.

Article chronicle : Received : 20.06.2015; Revised : 01.11.2015; Accepted : 15.11.2015

-• MEMBERS OF THE RESEARCH FORUM --

Author to be contacted :

P.P. SHARMA, Department of Plant Breeding and Genetics, Rajasthan College of Agriculture, Maharana Pratap University of Agriculture and Technology, UDAIPUR (RAJASTHAN) INDIA

Address of the Co-authors:

MUKESH VYAS AND S.P. SHARMA, Department of Plant Breeding and Genetics, Rajasthan College of Agriculture, Maharana Pratap University of Agriculture and Technology, UDAIPUR (RAJASTHAN) INDIA **Email:** vyas.mukesh66@gmail.com