# Estimation of combining ability and heterosis for yield and yield attributing traits in Indian mustard (Brassica juncea) [2018]

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Indian mustard [Brassica juncea (L) Czern. and Coss.] is an important oilseed crop which occupies leading position in oilseed sector of Indian agriculture. Development of high yielding genotypes with high oil content in Indian mustard has been a major breeding objective owing to high edible oil import in India. Present study was conducted with a set of 53 genotypes, that included 40 crosses and 13 parents evaluated for pooled estimation of combining ability and heterosis for yield and yield attributing traits during rabi 2014-15 under timely sown, late sown and extra late sown environmental conditions. The crosses were developed in line × tester design involving 8 lines and 5 testers during rabi 2013-14. The genotype × environment interaction was significant for almost all the traits studied indicating differential response of genotypes to the change in environments. The pooled analysis of variance over environments revealed sufficient differences among environments, parents, hybrids and parent vs. hybrids for most of the traits studied. Importance of both additive and non-additive types of gene actions was observed for seed yield and yield attributing traits. Estimates of GCA effects indicated that NRCHB-101, Pusa Bold and RGN-73 were good general combiners for seed yield/plant and yield attributing traits, i.e. 1000-seed weight, siliqua length, number of primary branches and number of secondary branches. The parent, Pusa Mustard-25 showed good combining

ability for dwarfness and early maturity. The hybrids, viz. NRCHB-101 × EC552577, NRCHB-101 × BPR543-2, Pusa Mustard-25 × EC552577, BAUM-2007 × EC552577 and BAUSM 92-1-1 × RGN-73 had significantly high SCA effects, >15% heterobeltiosis and high per se performances for seed yield per plant. The parents showing good combining ability would be identifiedas promising genotypes and the hybrids having high SCA effects with high heterobeltiosis could give transgressive segregants for seed yield and yield attributing traits under different sowing conditions.