

Dağüstü N (2008) Genetic analysis of grain yield per spike and some agronomic traits in diallel crosses of bread wheat (*Triticum aestivum L.*). Turkish Journal of Agriculture and Forestry, 32(4): 249-258.

Abstract

To introduce new germplasm into breeding programs in Turkey, 3 lines [Samsun - 46 (S - 46), Samsun/Bafra - 333 (SB- 333), Population - 311 (P - 311)] and 4 cultivars [Marmara - 86 (M - 86), Gonen, Golia, and Pehlivan] of bread wheat (*Triticum aestivum L.*) were crossed in 7×7 diallel crosses. The trials were conducted at Uludağ University, Research and Training Center, Turkey, over 3 years (in 2000/01, in 2001/02, and in 2002/03). The 7 parents and 42 crosses were grown in a randomized complete block design with 3 replications for 2 years. The genetic analysis (variance, combining ability, correlations, and path coefficient analysis) of grain yield per spike (GYS) and some agronomic traits [plant height (PH), spike length (SL), spikelet number per spike (SNS), kernel number per spike (KNS), and 1000 kernel weight (TKW)] were evaluated. Differences among parents and hybrids were significant. General combining ability (GCA) effects were highly significant for all the components, while specific combining ability (SCA) effects were significant only for PH, GYS, and TKW. General reciprocal effects for PH and GYS and the correlations for GYS and yield components were significant in both years. Path analysis indicated that KNS had the highest effect on GYS, followed by TKW. The parents Gonen and S - 46 for KNS and P - 311 and SB -333 for TKW and GYS showed positive GCA values in both years. They could be considered for developing desirable progenies in selection programs.