

**Dağüstü N (2008)** Combining ability analysis in relation to heterosis for grain yield per spike and agronomic traits in bread wheat (*Triticum aestivum* L.) Turkish Journal of Field Crops 13(2):49-61.

Abstract

Variance, heterotic patterns, combining ability for plant height, spike length, spikelet number per spike, kernel number per spike, grain yield per spike, and 100 kernel weight, were evaluated in a 6x6 diallel cross of bread wheat (*Triticum aestivum* L.) genotypes, for three years (in 2002 / 03, in 2003 / 04, and in 2004 / 05), in the Southern Marmara area of Turkey. The 6 parents and 30 crosses were grown in a randomized complete block design with 3 replications for 2 years. The genetic analyses (variance, heterosis, combining ability) 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 100 kernel weight (HKW)] were evaluated. Analysis of variance showed significant differences among parents and hybrids. Among the 30 crosses, 6 had a positive potential for heterosis for almost all the yield components studied. The most promising crosses in two years, S-46 x Gönen and Prostor x Gönen had a positive and/or significant great potential for heterosis for almost all the components studied except for HKW. The cross S-46 x Prostor had significant positive heterosis for SL, SNS, KNS, GYS and HKW in two years.

General combining ability (GCA) effects were highly significant for almost all the traits, while specific combining ability (SCA) effects only for PH, SL, and KNS in two years. General reciprocal effects were significant for SL and HKW in both years. The parents Basribey and Gönen produced positive GCA values for KNS and SNS improvement.