

***ESTIMATION OF GENOTYPIC VARIABILITY OF SOME QUANTITATIVE CHARACTERS IN BREAD WHEAT (*Triticum aestivum* L.)***

M. S. Rady(1), M. A. Abo Shereif(2), A. M. El-Zanaty(1), Marwa F. Hendawy(1)  
1- Field crops Dept. Fac. Of Agric., Minufiya Univ., Egypt, 2- Agric. Research Center, Giza.,,

***ABSTRACT:***

Nitrogen fertilizer levels mean squares were found to be significant for all traits studied except plant height, number of spikelets per spike length and 1000-grain weight, with the mean values of the first nitrogen fertilizer level i.e. 20 kg (faddan) being higher than those of the second nitrogen fertilizer level i.e. 30 kg nitrogen per faddan, in most cases. Genotypes, parent and the resultant forty five crosses mean square estimates were found to be highly significant for all traits studied under the two nitrogen fertilizer levels and their combined data. Parents vs crosses mean squares as an indication to average heterosis overall crosses, were found to be highly significant for heading data, plant height and 1000-grain weight under the two nitrogen fertilizer levels and their combined data. The interaction of genotypes with the two nitrogen fertilizer levels were found to be significant for only heading date and maturity date. The interactions of the two nitrogen levels with parents were found to be significant for heading date, maturity date, number of spikes per plant, spike weight and number of kernels per spike. The interaction of parents vs crosses with the two nitrogen levels were found to be significant for plant height, number of spikes per plant, spike length and grain yield per plant. The two crosses Gemmeiza 7  $\times$  Sakha 93 and Sakha 93  $\times$  Line 6 would of practical interest in hybrid breeding program because of their superiority in grain yield per plant and four traits contributing to yield, also heterosis for grain yield could be attributed to heterosis in number of spikes per plant and spike weight. General combining ability and specific combining ability were found to be highly significant for all characters under examination at the two nitrogen fertilizer levels and their combined data except number of spikelets per spike at both normal and stress nitrogen fertilizer levels and spike length under stress nitrogen level only. The GCA / SCA ratios were found to be greater than unity, indicating that additive and additive  $\times$  additive types of gene action were of greater importance in the inheritance of all traits. The interactions of nitrogen fertilization with both types of combining ability were found to be significant for heading date and maturity date. The parental variety Line 5 which possessed high general combining ability effects for grain yield per plant was found to be also good combiner for most of the attributes contributing to grain yield. For grain yield per plant, the wheat cross Sakha 93  $\times$  Line 4 showed highly significant specific combining ability effects under the normal nitrogen fertilizer.

***Key words:*** Genotypic Variability, Quantitative Characters, Bread Wheat, *Triticum aestivum*.