INTRODUCTION

Wheat is considered one of the most important economic crops.Its importance due to the multipurposes using wheat grains.

The improvment of wheat yield is dependent upon a better understanding of the type of the gene action underlying the inheritance of yield and yield contributing characters. Information about the mode of inheritance, heritability, combining ability and manifestation of heterosis would be of extreme importance for breeding high yielding wheat varieties.

Evaluation of genotype performances in different environments is important in plant breeding. The differential response of genotypes when subject to different environments possess a major problem of relating phenotypic preformance to genetic constitution and makes it difficult to decide which genotype should be selected. It is important to more fully understand the nature of genotype X environment interaction to make testing and selection of genotypes more efficient.

For quantitative traits such as yield, the relative performance of genotypes is often changed from one environment to another. Extensive testing is required to identify the genotypes that show maximum desirable interaction with the environments. Among those materials in a set being tested, an ideal cultivar would be adapted to a wide range of growing condition in a given production area with above average yield over a wide range of environments and below average variance a cross environments.

Heterosis is a complex genetical phenomenon, which depends on the balance of different combinations of gene effects as well as on the distribution of plus and minus alleles in the parents of a mating.

Nevertheless, great success of utilizing hybrid vigor have been established for certain field crops. This fact encouraged plant breeders to ascertain the potentiality of using heterosis in cereal crops such as wheat.

This study was undertaken to determine the genetic variance components of wheat under three different environments for 6X6 half diallel cross for nine economic characters.

This investigation was planned to study the following items:-

1- General and specific combining ability.
2- Heterosis
3- Nature of genetic variance components.
4- Correlation between grain yield and its contributing characters under different environments.