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BIOMETRICAL ANALYSIS OF SOME METRIC TRAITS IN A 4 X 4 DIALLEL CROSS OF SPRING WHEAT

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ABSTRACT

Graphic analysis was made for 4 x 4 complete diallel cross involving four w[illegible] varieties/ strains, namely Pak.81, Punjab 85, Chakwal 86 and 4943 for plant height, flag leaf area, number of tillers per plant, spike length and grain yield per plant. Additive gene action with some degree of partial dominance was determined for plant height, flag leaf area and grain yield per plant, while number of tillers per plant and spike length were controlled by over-dominance type of gene action.

INTRODUCTION

Wheat occupies a prominent position in the cropping pattern of the country like Pakistan being a staple food of the people. To cope with ever increasing population in the country, it appears to be dire need to enhance the produc[illegible] of this cereal grain. Efforts are still required to boost per unit production of this vital cereal. Proper understanding of the genetic mechanism involved in the expression of important metric traits would certainly help in planning effective breeding strategies.

The diallel analysis techniques developed by Hdayman (1954) and Jinks (1955) provide a fairly reliable mechanism to properly understand the genetic system and gene action involved in the expression of important plant traits. Anand and Aulakh (1973), Gill *et al.*, (1979). Zia and Chowdhry (1980), Mao and Feng (1987) and Chowdhry *et al.*, (1992) reported that plant height was conditioned by additive type of gene action with partial dominance. Similar results have also been reported by Bural *et al.*, (1989) and Alam *et al.*, (1990) for flag leaf area. Regarding grain yield per plant similar findings were observed by Yadav *et al.*, (1981) and Singh *et al.*, (1990) while orver-dominance type of gene action was reported by Shah and Khan (1971), Khalid *et al.*, (1976) and Hasan (1982) for number of tillers per plant and spike length, respectively. The present study was conducted to ascertain the type of gene action involved in the expression of yield related traits.