GENETIC ANALYSIS OF YIELD AND ITS COMPONENTS OF FABA BEAN (*Vicia faba* L.)UNDER TWO IRRIGATION REGIMES

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ABSTRACT

The present investigation was conducted during 2000/01, 2001/02 and 2002/03 seasons to estimate the type and relative amount of genetic variance components and their interactions with environments for yield and its components in faba bean. For these purposes, factorial mating design was used , where 5x5 line x tester analysis as outlined by (Kempthorne,1957) was used . The resulted 25crosses and their 10 parents were arranged in two field experiments under normal irrigation and stress condition, each was grown in a RCBD with three replications. Highly significant mean squares of genotypes, parents and crosses were found for all traits of yield and its components. Mean squares of lines were found to be significant for 100-seed weight, while it was not for the other traits under normal irrigation. However, the same mean squares were significant for no.of seeds/plant , seed yield /plant and 100-seed weight under non- irrigation condition. With respect to mean squares of testers, it was found to be insignificant for all studied traits, except 100-seed weight and no.of seeds /pod . Regarding to lines x testers mean squares, it was found to be highly significant for all studied traits under normal irrigation as well as stress condition .Mean squares of the interactions of genotypes, parents and crosses with irrigation regimes were highly significant for all studied traits, indicating that these traits behaved in different way with changing irrigation regimes.The varieties; Bpl710, Ryousia-issun and Ohishima-zairai could be considered as good combiner for seed yield /plant and its components under stress condition. The most desirable inter and intra-allelic interactions were represented by the crosses; Giza Blanka x Uchikosi-issun, Giza843 x Shimizu-issun , Giza843 x Shizouka-gokuwase and ILB 4726 x Shizouka-gokuwase for most studied traits of yield and its components under stress condition. However, the crosses; Bpl710 x Ohishima-zairai, Giza843 xUchikosi-issun and Sakha1 x Ryousia-issun had highly significant(Sij) for most studied traits at normal, sress condition and the combined of both.

Key Words: Faba Bean, Genetic Components, Irrigation Regimes.