PERFORMANCE OF SOME FABA BEAN GENOTYPES UNDER DIFFERENT DISTRIBUTION OF PLANTS

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ABSTRACT

Two field experiments were carried out in the Research and Experimental Center of Faculty of Agriculture at Moshtohor, Benha University, Egypt, during 2008/09 and 2009/10 winter seasons to study the performance of 5 faba bean genotypes (Sakha 1, Moshtohor 151, Sakha 3, Giza 3 improved and Giza 843) under 4 plant distributions:- 1. Planting one side of ridge, 60 cm apart, two plants hill^{-1}, 10 cm-apart, 2. Planting two sides of ridge, at 60 cm apart, with one plant hill^{-1}, of 10 cm-apart, 3- Planting two sides of ridge, 60 cm apart, two plants hill^{-1}, 20 cm-apart, 4- Planting three sides on ridge, 60 cm apart, one plant hill^{-1}, 15 cm-apart. The plant population amounted to140,000 plants fed^{-1}. Studied traits were No. of days to flouring, plant height (cm), number of branches and pods plant^{-1}, number of seeds pod^{-1}, weight of pods and seeds plant^{-1}(g), weight of 100-seed (g), seed and biological yields fed^{-1}(kg). A split plot design with three replications was used with faba bean genotypes as main plots and plant distributions treatments as subplots. The results could be summarized from the combined analyses of the two seasons as follows: Sakha 3 genotype was of the highest values of number of branches plant^{-1}, number of pods plant^{-1}, number of seeds pod^{-1}, weight of pods plant^{-1}, weight of seeds plant^{-1}, seed yield fed^{-1} and biological yield fed^{-1} while, Moshtohor 151 genotype gave the highest value of 100-seed weight. Moreover, Sakha 1 and Giza 843 genotypes were flowered of earlier compared to the other genotypes. Planting in two sides of ridge, 60 cm apart, one plant hill^{-1}, 10 cm-apart (two sides) showed the highest values of number of branches plant^{-1}, number of pods plant^{-1}, number of seeds pod^{-1}, weight of pods plant^{-1}, weight of seeds plant^{-1}, 100-seed weight, seed yield fed^{-1} and biological yield fed^{-1}. Significant interaction effect was noticed between the grown faba bean genotypes and their plant distributions for all the studied characters except biological yield fed^{-1}. The highest number of branches plant^{-1}, number of pods plant^{-1}, number of seeds pod^{-1}, weight of pods plant^{-1}, weight of seeds plant^{-1} and seed yield fed^{-1} were recorded for Sakha 3 genotype when planting two sides on ridge, 60 cm apart, one plant hill^{-1}, 10 cm-apart. Whereas, the heaviest weight of 100-seed was recorded for Moshtohor 151 genotype at the same treatment of plant distributions. Simple correlation study indicated positive and high significant correlation coefficients between seed yield fed^{-1} and each of other studied traits except for plant height in the combined

analysis. Generally, it can be concluded that planting Sakha 3 faba bean or moshtohor 151 genotype planted in the two sides of the ridge, at 60 cm apart, one plant hill^{-1}, of 10 cm-apart may be the recommended treatment to improve the productivity of faba bean crop under the conditions of the present study.

Key Words: Faba bean, Genotypes, Plant Distributions, Yield and yield Components.