GENETIC STABILITY ANALYSIS OF SOME NEW SNAP BEAN GENOTYPES

By

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A Thesis Submitted in Partial Fulfillment
Of
the Requirements for the Degree of

DOCTOR OF PHILOSOPHY
in
Agricultural Sciences
(Vegetable Crops)

Department of Horticulture
Faculty of Agriculture
Ain Shams University

2020

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ABSTRACT

Heba Zeinel-Abedin Ibrahim Abo Elkeir, Genetic stability analysis of some new snap bean genotypes. Unpublished Ph.D. Thesis, Department of Horticulture, Faculty of Agriculture, Ain Shams University, 2020.

A field experiment was conducted during 2015/2016 and2016/2017 seasons to study the genetic stability analysis of some new snap bean genotypes. Four sowing dates were conducted namely September 1st, October 1st, February 15th and March 15th. Twenty one promising snap bean genotypes and four commercial cultivars namely Bronco, Paulista, Samantha and Xera were used in the experiment. Randomized complete block design with three replications was used. Results showed that significant increase in dry weight/plant was found in first year than in second year which gave average values of 16.54gm and 16.72gm for the two years, respectively. Number of days to flowering was significantly affected by years, sowing dates, genotypes and their interaction. Genotypes G_{10} and G_6 possessed the lowest means of pods fiber content which gave mean values of 1.29 and 1.32 g/100 g fresh pod weight, respectively, with non-significant differences between them and with significant differences among G_{10} with check cultivars Bronco, Paulista, Samantha and Xera. Genotypes evaluated showed that 18 lines were absolute resistant against rust in all sowing dates. These 18 promising lines proved superiority than all evaluated commercial cultivars for this character. However, three breeding lines (G_{10}, G_{11} and G_{12}) showed variable severity of the disease over the eight sowing dates of investigation and rated as susceptible genotypes. Besides, the check cultivars *viz.,* Bronco, Paulista, Samantha and Xera cultivars were also rated as susceptible. Pod weight was not significantly affected by years of study but was significantly affected by sowing dates, genotypes and their interactions. The comparisons among means of different twenty five genotypes overall environments, generally, indicated that early and total green yield traits of genotype G_8 gave the highest yield followed by G_2

and G_{10} with significant difference between them, and compared with the highest check cultivars poulista and Bronco respectively. As for bi stability all parameters the majority of genotypes namely; genotypes numbers 1, 5 , 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 19, 20, 21 and the check Cvs. Paulista, Samantha and Xera have significant bi values close to unity, indicating general adaptability across all environments. Genotypes numbers 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 13,14,17,20 and the check variety Xera exhibited specific adaptability to favourable environments, since they have bi exceeding unity for leaf area.

Key words: Snap bean, Stability, Genotype, Environment, Yield and Rust resistance.