GENETIC POTENTIAL OF EARLY BLACK BEAN GENOTYPES REGARDING GRAIN YIELD

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RESUMO

Brazil is the world's largest producer of beans and, despite this, the demand for beans in the state of Rio de Janeiro is high. In this way, breeders are encouraged to select genotypes with high grain yield potential. The aim of this study was to estimate genetic parameters and practice selection for grain yield in early black bean genotypes. The experiment was installed in 2018 on the Ilha da Saudade farm in Macaé-RJ. Fifteen early black bean genotypes were evaluated, four cultivars (controls) and eleven strains. A randomized block design with three replications was used. Statistical analysis was performed using mixed models via the REML / BLUP procedure. There was variability between the genotypes and the genetic variance accounted for 34% of the phenotypic variance. This shows the existence of genetic variability between genotypes, which can be used promisingly in obtaining considerable gains with selection. The average heritability was 61%, which suggests a strong genetic control in terms of the average of the genotypes. Individual heritability was 34%, considered average. The selective accuracy showed high magnitude, in the order of 78% in the selection of the genotypes, which suggests high experimental precision. The overall average of the experiment was 3196.34 kg ha-1. The analysis of individual BLUP showed gains higher than the general average, with a variation between 6.14% to 0.41%. The CNFP 17459 strain was superior to the four controls, with a gain of 196.24 kg ha-1 if selected, providing a new average of 3392.58 kg ha-1. Thus, the use of estimates of genetic parameters such as inheritable genetic variation, genetic control of character, selective accuracy and selection intensity contribute to selection gains. Therefore, the selected strains are promising to increase the current levels of productivity of black beans.

PALAVRAS-CHAVE: Phaseolus vulgaris, common bean breeding, selection

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