ESTIMATING GENOTYPE X ENVIRONMENT INTERACTION FOR GRAIN YIELD IN SOYBEAN

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RESUMO

Soybean (Glycine max) crop is of great importance worldwide due to its highprotein and oil content. Brazil is leader in world production with 135 million tons. Plantbreeding aims to select productive genotypes with predictable performance over theyears. However, genotype x environment interaction (GEI) can difficult therecommendation of cultivars. This problem occurs due to the differential performanceof genotypes in the environments, especially in the context of cross-over interaction.Here, we selected soybean genotypes with general performance and high stabilityvia REML/BLUP approach. We evaluated sixty-eight genotypes in a randomizedcomplete block design with three repetitions, in three locations in Mato Grosso do Sulstate (E01 = Sindrolândia; E02 = Anaurilândia; and, E03 = Antônio João) conductedin the crop years 2019/2020 and 2020/2021. We evaluated grain yield and collecteddata on the basis plot area which was converted to kg/ha -1 . We used the MeanHarmonic Relative Performance of Genotypic Values (MHRPGV) and the WeightedAverage of Absolute Scores (WAASB) in order to select genotypes based on overallperformance and weighted for stability. All analyses were performed in R software,by using Metan package. By the MHRPGV parameter the genotypes G51 (2854.33kg/ha -1), G34 (2662.55 kg/ha -1), G22 (2791.91 kg/ha -1), G35 (2608.42 kg/ha -1), G45(2779.92 kg/ha -1) performed better than the general average (2443.45 kg/ha -1). By theWAASBB index the genotypes G51 (2633.00 kg/ha -1), G22 (2587.00 kg/ha -1) G45(2578.00 kg/ha -1), G02 (2545.00 kg/ha -1) and G03 (2543.00 kg/ha -1) were superior tothe general average. The genotypes G51, G22 and G45 performed similarly in bothanalyses. G51 stood out, even though it was not the most stable, it was the mostproductive.

PALAVRAS-CHAVE: Soybean, genotype x environmental interaction, REML/BLUP

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