



Selection for wide adaptability and high phenotypic stability of Brazilian soybean genotypes

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ABSTRACT. Advances in genetic enhancement techniques have led to an increase in soybean production. Thus, soybean is currently one of the most economically important cultured species worldwide. The objectives of the present study were to study the interaction of soybean genotypes per environment in terms of grain productivity and to evaluate their phenotypic adaptability and stability, with the final aim of selecting lineages with high productivity, wide adaptability, and high stability. Seven soybean genotypes, consisting of five lineages developed by the soybean genetic enhancement program of the Universidade Federal de Uberlândia (Brazil) and two controls, were evaluated during several annual cycles in seven different environments. A randomized complete block design (RCBD) with three replicates was adopted in each site. This study followed the methodology

proposed by Eberhart and Russel and Lin and Binns, with modifications by Carneiro, and the AMMI (additive main effects and multiplicative interaction model) analysis. The average productivity of soybean cultivars in the trials was 2739.26 kg/ha. The L01V13 genotype and the UFUS Guarani cultivar had wide adaptation according to the methodology proposed by Eberhart and Russel and Lin and Binns, with modifications by Carneiro. When analyzed with the AMMI model, the UFUS Guarani cultivar showed high stability. In general, the methodologies studied are complementary and, when used together, increase the reliability of the classification, providing support for the use of specific soybean cultivars in different environments.

Key words: *Glycine max*; G x E interaction; Grain productivity