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Mean performance and stability of soybean lines through AMMI and GGE biplots

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In the later stages of plant breeding, the multi-environment trials are essential, but when there are genotype-environment, it difficult the interpretation of results. Since, in GE interaction presence, specific combinations of genotypes (G) with particulars environments may result in higher phenotypic responses than expected for the effects of genotype + environment, it is necessary to investigate the interaction to capitalize it and many efforts are devoted to study and interpret it. The aim of this study was to analyze the average performance and stability of soybean advanced lines by two linear - bilinear (multiplicative) models. Yield data of eight soybean advanced lines developed by the Soybean Improvement National Program of INTA and three control varieties seeded at five locations, were analyzed. For the statistical analysis, the sites regression model (SREG) and the additive main effects and multiplicative interaction model (AMMI), were used. Both models identified the J036074, J035352 and J035914 genotypes like the highest yield. However, in the stability analysis, the AMMI1 biplot showed that L9649001 and J035914 lines went the more stable and the less stable respectively between those of high yields, while, using the SREG model, the GGE biplot showed that J035914 line went the most stable and that L9649001 line went the less stable. Both analyzes agreed on the genotypes identification of better performance, but showed the opposite results in terms of their stability.