

## ADAPTABILITY AND STABILITY OF SOYBEAN GENOTYPES ASSESSED BY ANNICCHIARICO'S METHODOLOGY

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The diversity of environmental conditions in which a soybean crop is subjected to contributes to the occurrence of G x E interaction. Therefore, knowing and evaluating the elements that compose this interaction is very important for genetic breeding programs. This study was aimed to evaluate the adaptability and stability of 20 soybean genotypes, ten of which were lines of Monsoy Ltd breeding program, whereas the other 10 genotypes were commercially used cultivars. The experiments were carried out in the agricultural years of 2005/2006 and 2006/2007, in the soybean macroregion 3 (microregions 301, 302 and 303). A randomized complete block design was used for all genotypes in each location, with three repetitions. Individual and joint analyses were done considering genotype yield in the different locations. In this study, the stability is measured by the superiority of the genotype compared to the average value in each environment, based on what it is called confidence index (or recommendation index ( $\omega_i$ )). By this method, the lines L1, L2, L3, and L4 accomplished higher values of  $\omega_i$ , and consequently, they are strongly recommended to wide environmental conditions. Those lines had also superior averages in regards to grain yield than the cultivars M-SOY 8199 RR, M-SOY 8045 RR, and Valiosa RR that reached  $\omega_i$  values superior than 100% (Table 6). Under favorable environments, the most stable genotypes were the lines L1, L3, L4 e 10 and the controls M-SOY 8199 RR, M-SOY-8045 RR, and Valiosa RR wherein all lines outperformed the controls concerning the grain yield aspect. The genotypes of soybean adapted to unfavorable environments were the lines L1, L3, L4, L10 and the controls M-SOY 8064 RR, M-SOY 8199 RR, M-SOY 8045 RR, and Valiosa RR as they superiorly performed in those environments with the highest values of  $\omega_i$ . In conclusion, the transgenic lines L1 and L4 and the cultivars M-SOY 8199 RR, M-SOY 8045 RR, and Valiosa RR are the most promising ones for soybean cultivation in the microregion 3 because they combine either stability and wide adaptation with high patterns of soybean yield.

**Key words:** *Glycine max*; G x E interaction; grain yield; soybean