

**GENOTYPE X ENVIRONMENT INTERACTION WITH USE OF
PRINCIPAL COMPONENTS ANALYSIS IN SOYBEAN POPULATIONS
SELECTED FOR INSECT RESISTANCE**

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- **ABSTRACT:** *The objective of this study was to exploit the interaction among genotypes and environments in Glycine max using principal components analysis with multiple arrays of data. The experiment was a randomized block design with two replications stratified in three groups maintaining a common control. . The factors considered for analysis are: inbred lines (G1, G2,..., G44), environments, given by the combinations between localities, namely Experimental Stations Anhembi (ANH) and Areão (AR), both located at Piracicaba, and presence or absence of cultural practices. Principal component analysis was performed by general matrix components decomposition obtained via MATLAB software. Lines 27 and 40 at the Experimental Station Anhembi in presence of cultural practices, were tolerant to sucking and chewing insects and showed high productivity. As well as present specific interactions and may be recommended for this condition of cultivation. The genotypes 6, 7, 12, 26, 30 are responsive to environmental stimulation, presenting specific predictability at Fazenda Areão, in the absence of cultural practices. The experimental lines 2, 3, 6, 19, 23, 31 and 38 are very promising for yield considering that they group the control strain (44) productive performance presenting specific stability in Anhembi locality in the absence of management. The genotypes 3, 8, 13, 16, 22 and 23 might be recommended to Areão locality in the presence of cultural practices, since they are highly productive and carry genes in their genome that express tolerance to chewing and sucking insects, simultaneously.*
- **KEYWORDS:** *Glycine max, triple interaction, multiple arrays of data.*

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