



Mixed models for selection of *Jatropha* progenies with high adaptability and yield stability in Brazilian regions

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ABSTRACT. The aim of this study was to estimate genetic parameters via mixed models and simultaneously to select *Jatropha* progenies grown in three regions of Brazil that meet high adaptability and stability. From a previous phenotypic selection, three progeny tests were installed in 2008 in the municipalities of Planaltina-DF (Midwest), Nova Porteirinha-MG (Southeast), and Pelotas-RS (South). We evaluated 18 families of half-sib in a randomized block design with three replications. Genetic parameters were estimated using restricted maximum likelihood/best linear unbiased prediction. Selection was based on the harmonic mean of the relative performance of genetic values method in three strategies considering: 1) performance in each environment (with interaction effect); 2) performance in each environment (with interaction effect); and 3) simultaneous selection for grain yield, stability and adaptability.

Accuracy obtained (91%) reveals excellent experimental quality and consequently safety and credibility in the selection of superior progenies for grain yield. The gain with the selection of the best five progenies was more than 20%, regardless of the selection strategy. Thus, based on the three selection strategies used in this study, the progenies 4, 11, and 3 (selected in all environments and the mean environment and by adaptability and phenotypic stability methods) are the most suitable for growing in the three regions evaluated.

Key words: REML/BLUP; Genetic parameters; Genetic gain