



Stability and adaptability of popcorn genotypes in the State of Rio de Janeiro, Brazil

G.F. Pena¹, A.T. do Amaral Júnior¹, L.S.A. Gonçalves¹, L.S. Candido¹,
C. Vittorazzi¹, R.M. Ribeiro¹ and S.P. Freitas Júnior²

¹Universidade Estadual do Norte Fluminense Darcy Ribeiro,
Campos dos Goytacazes, RJ, Brasil

²Universidade Federal do Ceará, Juazeiro do Norte, CE, Brasil

Corresponding author: A.T. do Amaral Júnior
E-mail: amaraljr@uenf.br

Genet. Mol. Res. 11 (3): 3042-3050 (2012)

Received August 19, 2011

Accepted March 13, 2012

Published August 31, 2012

DOI <http://dx.doi.org/10.4238/2012.August.31.1>

ABSTRACT. This study aimed to obtain estimates of stability and adaptability of phase launched materials and materials recommended in the country, for the northern and northwestern regions of Rio de Janeiro State, Brazil, and made a comparative analysis of different methods to evaluate stability and adaptability of grain yield and popping expansion. To this end, 10 genotypes were evaluated (UNB2U-C3, UNB2U-C4, BRS Angela, Viçosa, Beija-Flor, IAC 112, IAC 125, Zélia, Jade, and UFVM2 Barão de Viçosa) in five environments. The Yates and Cochran method revealed that genotypes UFV2M Barão de Viçosa, BRS Angela and UNB2U-C3 were the most stable for grain yield. This method also indicated superiority of genotypes UNB2U-C3, UNB2U-C4, BRS Angela, Viçosa, IAC 125, and Zélia for popping expansion. The Plaisted and Peterson and Wricke methods demonstrated that genotypes Zélia and UNB2U-C4 were the most productive and stable. These methods indicated genotypes UNB2U-C3 and BRS Angela as the most stable for popping expansion. The Kang and Phan ranking system uses methods based on analysis of variance and classified population UNB2U-C4 as the genotype with the highest stability of grain production and confirmed cultivar BRS Angela as the most stable for popping expansion.

Genotypes IAC 112 and UNB2U-C4 were the most stable and adapted for grain yield, according to the Lin and Binns method. The P_i statistics also ranked UNB2U-C3 and UNB2U-C4 as the genotypes with the best predictability and capacity for popping expansion.

Key words: *Zea mays*; Genetic improvement; Popping expansion; Productivity