

Genetic parameters in parents and hybrids of circulant diallel in popcorn

R.M. Rangel¹, A.T. Amaral Júnior¹, C.A. Scapim², S.P. Freitas Júnior¹
and M.G. Pereira¹

¹Laboratório de Melhoramento Genético Vegetal,
Universidade Estadual do Norte Fluminense Darcy Ribeiro,
Campos dos Goytacazes, RJ, Brasil

²Departamento de Agronomia, Universidade Estadual de Maringá,
Maringá, PR, Brasil

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

Genet. Mol. Res. 7 (4): 1020-1030 (2008)

Received July 31, 2008

Accepted August 14, 2008

Published October 7, 2008

ABSTRACT. With the aim of estimating genetic parameters and identifying superior popcorn combinations, 10 parents were crossed in a circulant diallel and evaluated together with the 15 resulting hybrids at two locations in two growing seasons for grain yield, number of broken plants, number of partially husked ears and popping expansion. The hybrids were less sensitive to environmental variations than the parents of the diallel in the 2003/2004 and 2004/2005 growing seasons. The genetic parameters suggested possible genetic gains for grain yield and popping expansion, mainly. Bidirectional dominance could have occurred for popping expansion. Heterobeltiosis for grain yield seems to be a common effect in popcorn. The intrapopulation breeding for popping expansion may offer superior genetic gains, but for grain yield, interpopulation breeding is required. The performance of UNB2U-C1 x BRS Angela indicated this hybrid for experimental cultivation in the northern and north-western Fluminense region in Rio de Janeiro State, Brazil.

Key words: Combining ability; Diallel analysis; Heterosis; *Zea mays* L.