Diallelic analysis to obtain cowpea (*Vigna unguiculata* L. Walp.) populations tolerant to water deficit

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ABSTRACT. The purpose of this study was to identify parents and obtain segregating populations of cowpea (*Vigna unguiculata* L. Walp.) with the potential for tolerance to water deficit. A full diallel was performed with six cowpea genotypes, and two experiments were conducted in Teresina, PI, Brazil in 2011 to evaluate 30 F_2 populations and their parents, one under water deficit and the other under full irrigation. A triple-lattice experimental design was used, with six 2-m-long rows in each plot. Sixteen plants were sampled per plot. The data were subjected to analysis of variance, and general and specific combining ability estimates were obtained based on the means. Additive effects were more important than non-additive effects, and maternal inheritance had occurred. The genotypes BRS Xiquexique, Pingo de Ouro-1-2, and MNC99-510F-16-1 were the most promising for use in selection programs aimed at water deficit tolerance. The hybrid combinations Pingo de Ouro-1-2 x BRS Xiquexique, BRS Xiquexique x Santo Inácio, CNCx 698-128G x MNC99-510F-16-1, Santo Inácio

x CNCx 698-128G, MNC99-510F-16-1 x BRS Paraguaçu, MNC99-510F-16-1 x Pingo de Ouro-1-2, and MNC99-510F-16-1 x BRS Xiquexique have the potential to increase grain production and tolerate water deficit.

Key words: *Vigna unguiculata*; OCC; SCC; Hybrid combination; Genetic control

