

Agronomic Characteristics of Drought Tolerant Robusta Coffee Genotypes

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SUMMARY

Increasing trends towards dry weather affect coffee cultivation through high seedling mortality during establishment, poor plant growth and low yield. Identifying drought tolerant genotypes with good yield potential suitable for environments with unpredictable rainfall are major objectives in Robusta coffee breeding in Ghana. This study investigated associations among six agronomic traits and drought tolerance. Eighteen genotypes of Robusta coffee (*Coffea canephora*) with varying characteristics comprising 12 core selections and six introductions were investigated in three environments from 1996 - 2003. The genotypes were assessed for drought tolerance on a visual scale of 0-5 (resistant/tolerant – susceptible). Genetic correlations among drought tolerance scores and agronomic traits were calculated from a combined analysis of variance and covariance from the same data. Drought tolerance ability showed significant genetic associations with fruits per node ($r_G = 0.52^*$) and percent fruit-set ($r_G = 0.61^{**}$). Very strong associations were observed between drought tolerance and early yield ($r_G = 0.64^{**}$) and mean five-year yield ($r_G = 0.74^{***}$). The findings suggest that drought tolerant and high yielding genotypes can be identified at the early fruiting stages mainly by their fruit-setting ability. Fruit setting ability of trees could therefore be used as criterion for screening large numbers of genotypes for drought tolerance.