

Studies on Genetic Variability for Root Characteristics and Water Use Efficiency in Robusta Coffee

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SUMMARY

Thirty five promising robusta accessions were assessed for the genetic variability in root characteristics, water use efficiency and associated traits. By adopting gravimetric techniques, the plants raised from single nodal cuttings of selected accessions were grown in large containers and maintained under the moisture regime of 70% field capacity. The results indicated significant genetic variability with regard to root proliferation, water use efficiency and related traits. The total transpiration was high in genotypes having relatively high root biomass. However, mean transpiration rate and water use efficiency showed negative relationship. The relationships of water use efficiency with total dry matter production and photosynthesis were positive. Based on root biomass and total biomass and water use efficiency, the accessions 1932 (Madagascar), 879 (Java) and 3399 (Costarica) were found to be the most desirable genotypes and could be used as parents in crop improvement programmes.