

Variability in Yield and Yield Components of Wild Arabica Coffee Populations in the Montane Rainforests of Ethiopia

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SUMMARY

The study was conducted with the objective to compare the variability in yield and yield components of wild coffee trees in montane rainforests of Ethiopia. The results depicted that mature coffee trees showed significant variations for most traits considered at each montane rainforest. Accordingly, the highest mean clean coffee yields were obtained at PIS3 (161.86 g tree⁻¹) and PIIS3 (149.27 g tree⁻¹), whereas PIS1 (11.24 g tree⁻¹) and PIVS3 (11.51 g tree⁻¹) had the lowest yields. The proportion of crop bearing surface of wild coffee tree was also different at each site. The correlation results depicted significant ($P < 0.001$) positive associations between yield components, indicating the inherent growth relations and the possibility to predict yield potential of wild coffee trees. According to the cluster analysis, wild coffee populations were classified into five broad classes where most of them were grouped according to their geographical areas. Hence, the variations in the architecture and reproductive performances of wild coffee trees could largely reflect the influence of site features. In general, the findings demonstrated the influence of environmental variables on yield performances of wild coffee trees. However, further investigations should continue, among others, to determine the intensity of manipulating the heterogeneous forest environments in a way to improve growth, reproductive efficiency of wild coffee trees and promote sustainable production of high quality organic coffee, while conserving the genetic diversity of wild Arabica coffee populations in the montane rainforests of Ethiopia.

Key words: Ethiopia, rainforest, wild coffee populations, yield and yield components