

Adaptation of Arabica Coffee Land Races along Topographic Gradients in Southern Ethiopia

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SUMMARY

A systematic survey was made in the major coffee growing areas of Southern Ethiopia with the major objective to establish systems shift and adaptation of Arabica coffee land races along topographic gradients. Frequency distribution and weighted means of landforms, soil types, shade trees and river recurrences were considered. Landrace coffee types: *Kurumie* (compact), *Deiga* (intermediate) and *Wolisho* (open) were categorized along topographic gradients. The results depict that short river recurrences in Sidama were more dominant than Gedeo zone. Flat lands dominated convex and concave land configurations. In the order of magnitude Cambisols dominated all other soil types. The compact local coffee types flourish ideally on moist flatter and bottom soils, intermediate and open types adapt and perform well on eroded lands and drier soils and steep slopes besides top and bottomlands. There was strong correlation between canopy diameter and growth of lateral branches for all coffee classes, which dominated at each farm. Rainfall patterns, soil types and slopes were more determinant factors than altitude in dictating *in-situ* Sidamo and Yirgacheffe Arabica coffee adaptations. As a whole, intermediate and open coffee types favored homogenous stands on relatively drier soils against heterogeneous coffee populations on almost flatlands and young soils, justifying their variability in adaptations and stand structures along soil moisture gradients.