

# **Environmental Influence on Water characteristics of Soils in Two Semi-Arid Catchments in Laikipia, Kenya**

Kironchi, G; Kinyali, S M; Mbuvi, J P

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## **Abstract**

Influence of soil type and landuse on soil water retention and availability in the semi-arid Sirima and Mukogodo catchments in Laikipia District, were investigated. Representative soils, six in Sirima and four in Mukogodo, surveyed at a detailed level, were assessed using samples taken from 0-10, 20-30 and 40-50 cm depths of bush, greass, bare ground and cultivated sites. Sirima soils retained more water than Mukogodo soils due to differences in clay type and textural composition. All Sirima layers were clay while Mukogodo topsoils were sandy loan and subsurface layers sandy clay loam. Mukogodo soils were more compact and had significantly lower carbon content than Sirima soils at all depths. For each area, only the surface layer had significant difference ( $P < 0.05$ ) in water retention among landuses, with bare ground retaining the most especially at higher pressures. However, no distinction could be made between soil types in each area based on plant water availability. Unlike the increase in clay content with depth, bulk density and carbon content were not significant in influencing plant water availability