

## ABSTRACT

Although land terracing is promoted as a management practice for effective soil conservation in hilly areas, construction of terraces causes changes in soil properties. This study evaluated the effect of land terracing on some soil physical properties across slope positions and profile depths in medium and high altitudes of eastern and north-eastern Rwanda. Soil samples were collected from top, middle and bottom slopes of four year-old terraced and non-terraced lands. Results showed that soil textures were mainly sandy clay loams. At medium altitude, silt (19.6, 18.6%) and hydraulic conductivity (237.9, 129.8 mm h<sup>-1</sup>) were significantly ( $p < 0.05$ ) higher in terraced than non-terraced land, while clay (29.2, 27.8%) and total available water content (TAWC) (222.2, 201.7 mm m<sup>-1</sup>) were higher in non-terraced than terraced land. At the high altitude, hydraulic conductivity (194.3, 124.1 mm h<sup>-1</sup>) was higher in terraced than non-terraced land, while soil bulk density (1.42, 1.35 g cm<sup>-3</sup>) and TAWC (251.6, 235.3 mm m<sup>-1</sup>) were higher in non-terraced than terraced land. Terracing increased silt content and hydraulic conductivity, and slightly decreased clay and water retention capacity. These changes are important in soil water and fertility management, and therefore need to be considered when using terraced lands.

### Keywords:

- soil texture
- soil water retention capacity
- terracing