

## Abstract

A study was conducted to establish the contribution of reseeded using indigenous perennial grasses; *Eragrostis superba* (Maasai love grass), *Enteropogon macrostachyus* (Bush rye) and *Cenchrus ciliaris* (African foxtail grass) in improving soil hydrological properties and thus controlling soil erosion in the degraded areas of Kibwezi district, Kenya. The experiment was carried out using simulated rainfall, Kamphorst simulator, on bare ground and at different grass stubble heights. The experimental plots were set up under sprinkler irrigation controlled conditions to ensure availability of sufficient moisture for seed germination and subsequent establishment. Results showed that sediment production as a function of runoff and infiltration capacity was significantly different ( $p < 0.05$ ) at different grass stubble heights. *Cenchrus ciliaris* had the greatest influence on improving soil hydrological properties. *Enteropogon macrostachyus* and *Eragrostis superba* were ranked second and third, respectively. This was attributed to the growth characteristics of the perennial grasses. Generally, an increase in grass height increased infiltration capacity, reduced runoff and sediment production.