Abstract

A study was conducted in the southern rangelands of Kenya to compare the effect of two micro-catchments, ox-furrows and crescent shaped pits (Kiboko range pits) on the above ground biomass production of three range grasses. The experimental design was a split plot with the micro-catchments as the main plots and grass species as subplots. Above ground biomass data were collected at flowering stage (twelve weeks post sowing), by clipping of the grasses at 5cm aboveg round in a quadrat placed in the middle of each sub-plot. The clipped material was separated according to grass species and oven-dried for 48 hours at 60^{o}C to get the dry matter (DM) weight which was extrapolated to DM/ha. The benefit cost ratio (BCR) of the two methods of land preparation was done. There was no difference between the two types of micro-catchments on above ground biomass production. Similarly, there was no difference ($P \leq 0.05$) in above ground biomass production between the grass species. In single stands, *Cenchrus ciliaris* outperformed *Enteropogon macrostachyus and Eragrostis superba*, in above ground biomass production. Both types of micro-catchments had a BCR of more than one with the range pits giving a slightly higher ratio than the ox-plough furrows. All the grass species also had BCR greater than one. These results will contribute to knowledge for rangeland rehabilitation and natural pasture improvement in arid and semi-arid areas (ASALs) of Kenya.