

Abstract

One way of improving livestock health and productivity under the challenges of climatic variability and change is addressed through water harvesting technologies. A study was conducted to determine the water harvesting technologies for pasture improvement and pasture conservation practices in Kajiado District. An evaluation of water harvesting technologies for pasture improvement was conducted on-farm in Kajiado and on-station in the University of Nairobi Farm at Kabete. The experiment had two fertility levels. Randomized complete block design layout as split-split plot was adopted with cow manure (0 and 8t/ha) as the main plot, water harvesting technology (semi-circular bands, furrows, and control) as sub-plot and grass species (*Enteropogon macrostachyus*, *Eragrostis superba*, *Cenchrus ciliaris* and cowpeas (K80)) as sub-subplots. Addition of manure resulted in a significant ($P < 0.05$) increase in biomass production of the grass species together with cowpea at both sites. Total biomass produced was higher in furrows and semicircular bands than the control. The results further indicated that *E. macrostachyus* on furrows and semi circular bands produced the most biomass and had highest ground cover, followed by *C. ciliaris*, while *E. superba* had the least at both sites. The combination of appropriate water harvesting technologies and cow manure, which is locally available in the cowsheds, can be adopted to improve pasture productivity in Kajiado district. This would in turn improve the livestock productivity with the ultimate result of improved food security and livelihoods of the pastoralists.