

Abstract:

Semi-arid rangelands in Kenya are an important source of forage for both domestic and wild animals. However, indigenous perennial grasses notably *Cenchrus ciliaris* (African foxtail grass), *Eragrostis superba* (Maasai love grass) and *Enteropogon macrostachyus* (Bush rye grass) are disappearing at an alarming rate. Efforts to re-introduce them through restoration programs have often yielded little success. This can partly be attributed to failure of topsoil to capture and store scarce water to meet germination and plant growth requirements. A study was undertaken in the semi-arid environment of eastern Kenya to determine the effects of land treatment on morphometric characteristics of *E. superba*, *C. ciliaris* and *E. macrostachyus*. Seed viability of the grasses was estimated by germination tests. Land treatments involved soil ripping using a tractor and hand-clearing. Thirty-five plants were randomly selected per sub-plot and tagged for sampling. Morphometric characteristics of the grass species were measured weekly. Aboveground biomass was estimated by harvesting standing biomass three months after establishment. Seed viability tests showed significant differences ($p < 0.05$) among the three grass species. This was attributed to intrinsic properties of the grass seeds such as dormancy and tegumental hardness. Seedling survival, foliage cover, plant height, leaf and tiller numbers, and aboveground biomass were significantly higher in ripped plots than hand-cleared plots. It was concluded that soil disturbance influences plant morphometric charact