



Tropentag, September 14-16, 2022, hybrid conference

“Can agroecological farming feed the world?
Farmers’ and academia’s views”

Rotational grazing and water conservation as a strategy to enhance pasture productivity and resilience in semi-arid eastern Kenya

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Abstract

Livestock is an integral part of the livelihood of communities in semi-arid regions in Kenya, which occupy about 80 % of total land mass. Livestock serves as a safety net for food and economic stability, contributing about 12 % of Kenya’s GDP and 50 % of employment in the agriculture sector. It is particularly important when dwindling rains do not support crop growth. In recent years, the impact of climate change has resulted in extended droughts, leading to overgrazing and land degradation due to trampling and soil erosion. Consequently, rejuvenation of pastures has greatly reduced leading to significant loss of livestock. Among the strategies to mitigate degradation and loss of pasture is exclusion of livestock from designated grazing areas and enhancing soil/water conservation. This paper presents a case study on the potential of paddocking as an alternative to traditional pasture use to increase productivity and resilience in lower Yatta in Kitui County. Three dominant grass species (*Cenchrus ciliaris*, *Eragrostis superba* and *Megathyrsus maximus*) were grazed for maximum three months, after which the animals were moved to another paddock. Shallow terraces were dug to conserve soil water and prevent soil erosion for three years. Observations were made on percentage of land cover after the rains, percentage of weeds in the pasture as well as the animal body condition throughout the year. Results showed that vegetation had rejuvenated to a land cover of 100 % at two months after onset of rains comprising of about 90 % pasture and 10 % weeds. The animals remained in good body condition throughout the year (BCS>5). These results demonstrate that pastures in semi-arid pastures can be resilient and productive if indigenous grasses are managed appropriately. The study recommends promotion of the strategy for sustainable livestock production in semi-arid regions.

Keywords: Paddocking, pastures, resilience, semi-arid