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Abstract

Coastal arid and semi-arid lands (ASALs) comprise 80% of the land area of coast province of Kenya. Lack of water for livestock is a major constraint to land productivity in coastal ASALs, as it affects feed quantity and quality for year-round feeding. The ASAL community's livelihoods depend largely on livestock as source of income to buy food and meet domestic and social obligations. Livestock in these areas depend on natural vegetation, as cultivated forages are non-existent due to lack of water. Once developed, these areas could account for nearly all the meat requirements for the coastal region, improve food security status, generate income and reduce the milk deficit. Technologies for more humid areas could be adapted for the ASAL to improve productivity. Experiments were conducted to determine suitability of selected pasture grasses grown in furrows or Zai pits as water harvesting treatments. Similarly experiments were conducted to identify drought resistant Pennisetum purpureum (Napier grass) varieties for coastal ASALs. In the first experiment, five pasture grass species (Eragrostis superba, Cenchrus ciliaris, Chloris gayana (var. ex-Tozi), giant Panicum maximum (var. Makueni) and Panicum maximum (local ecotype) were randomly allocated to the two water harvesting treatments and replicated three times. The grasses were planted using splits spaced 0.5 m apart. In the second experiment, Napier grass var. Bana was evaluated at three levels of manure: control, low and high and the Zai pit water harvesting technique. In the third experiment, three Napier grass varieties (ex-Matuga, Pakistan Bajra and Bana) were evaluated for survival in the ASALs. The results showed that furrows contributed to better establishment of pasture grasses. Under low moisture conditions, use of manure in Zai pit for fodder production did not influence survival and dry matter production. Napier grass variety ex-Matuga and Pakistan Bajra showed better survival characteristic under extreme drought conditions. Further work to ascertain the interactive effects of nutrient supply and moisture availability in coastal ASALs is suggested.