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Forage grasses evaluation in different agro-ecological zones in Tanzania

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Abstract

Tanzania has amongst the largest cattle population in Africa, but productivity has remained relatively low as in most parts of sub-Saharan Africa. Whereas there are various reasons as to the low productivity, inadequate feeds and feeding stand out. Further, Tanzania is characterised by limited forage cultivation which is essential in bridging the livestock roughages gap. As the feeds take the largest cost in cattle rearing enterprises, it therefore becomes essential for increased roughage production, especially using elite provenances selected or improved through breeding. In the current study we tested selected/bred forage grasses in three agro ecological zones in Tanzania namely Uyole site (Southern highland), Mpwapwa site (Semi-arid) and Tanga site (low land). Test forages were planted following Complete randomised Block Design and replicated three times at each site. Over three growth cycles, we measured Plant height, dry matter yields and root biomass. We analysed nutritional Crude Protein (CP), Neutral Detergent Fiber (NDF), Acid detergent fiber (ADF), Metabolizable Energy, and digestibility for 2 sites. There were significant differences ($p < 0.05$) amongst sites, forages grasses including their interactions. Megathyrus cv Massai produced tallest plants especially at low land. The grasses accumulated greater dry matter (t/ha) at the Low-Land and in the order of Cayman > Talisman > Mestizo > Massai that ranged 10.21 32.18 t DM/ha. Root biomass was greater at the Semi-arid site and in the order Mestizo > Talisman > Cayman > Massai. Crude Protein content ranged from 11.5 15.2%, with Urochloa hybrid Talisman consistently showing greater CP and digestibility across both Mpwapwa and Uyole sites. Cultivar Massai had the highest fiber content- NDF and ADF, and lowest digestibility, indicating lower forage quality compared to the Urochloa hybrids. On a dry basis, Cayman would be the grass of choice, especially at semi-arid Mpwapwa and Low land Tanga. However, studying the grasses across several years would be beneficial to bring out persistency and Mestizo having greater root biomass is likely to be more persistent.

Keywords: Dry matter yield, key words: forage grasses, root biomass