Dry matter production and nutritive quality of wild Guinea grass (Panicum maximum) grown along roadsides in Sri Lanka

S. Premaratne[1] and G.G.C. Premalal[2]
[1]*Department of Animal Science, Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka, Email: suep@pdn.ac.lk,* [2]*Pasture Division, Veterinary Research Institute, Peradeniya, Sri Lanka*

Keywords: Guinea grass, roadside, productivity, quality

Introduction Wild Guinea grass (*Panicum maximum)* was introduced into Sri Lanka in the 1820s for forage purposes and has now naturalised in most ecological zones, ecosystems and habitats including roadsides with the exception of hilly and semi-arid parts of the country. The enormous distribution of the grass throughout the country has contributed much to supplying livestock feeds, soil erosion control, and improvement of soil fertility. The objective of this study was to investigate the growth, dry matter (DM) production and nutritive quality of wild Guinea grass along roadsides in different ecological zones.

Materials and methods The study was conducted in five ecological zones in which the Guinea grass is naturally abundant: Low Country Dry zone (LCD), Low Country Wet zone (LCW), Low Country Intermediate zone (LCI), Mid Country Wet zone (MCW) and Mid Country Intermediate zone (MCI) during the North East Monsoonal rainy period (Oct. 2002 to March 2003). Grass patches, which were flowering or near to panicle initiation stage, were selected for sampling. Plant density (culms/m^2), tiller production (active tillers/m^2) and fresh yield/m^2 were recorded randomly in five replicates from each zone at different times during this period. Sub samples were taken from the same locations and analysed for DM, crude protein (CP) and, neutral detergent fibre (NDF) and lignin.

Results There were significant difference ($p< 0.05$) in plant density, tiller production and DM production between the climatic zones, while no significant differences ($P< 0.05$) were observed in CP, NDF and lignin (Table 1). The highest DM production observed in MCW could be due to high and well-distributed rainfall and nutrient accumulation along roadsides due to the sloping topography towards the road in this zone. Seasonal and low annual precipitation seemed to have resulted in low DM production in LCD. Mean values recorded for CP, NDF and lignin contents were comparable with other studies (Peiris & Ibrahim, 1985; Gutmanis *et. al*., 2001)

Table 1 Mean growth, production and nutritive quality of roadside Guinea grass

Climatic Zone	Plant density (culms/m^2)	Tiller Production (tillers/ m^2)	DM Production (kg/m^2)	CP%	NDF%	Lignin%
LCD	6.00 ^{bc}	103.72 ^{b}	0.28 ^{d}	10.01	71.89	8.30
LCW	5.22 ^{c}	93.39 ^{c}	0.41 ^{c}	9.79	72.08	8.77
LCI	8.55 ^{a}	125.00 ^{a}	0.50 ^{b}	9.63	73.06	8.05
MCW	5.77 ^{bc}	96.17 ^{c}	0.58 ^{a}	9.82	74.17	8.34
MCI	4.33 ^{cd}	80.06 ^{d}	0.50 ^{b}	10.27	72.90	8.21
SEM.	0.21	2.09	0.01	0.34	0.50	0.23

SEM= Standard error of the mean. Means within a column having same superscript is not different ($P< 0.05$)

Conclusion Annual DM production of 20,000 - 25,000 kg/ha of satisfactory quality from roadside Guinea grass contributes substantially to livestock feed supplies in all parts of the country.

References

Gutmanis, D., V.B.G. Lourenco, & M.T Colozza,. (2001) Nutritive quality of tropical grass sown under a pine plantation. *Proceedings of the XIX Grassland Congress*, San Pedro, Brazil, 11-21 February 2001, pp. 663-664.

Peiris, H. & M.N.M. Ibrahim, (1985). Effect of intensity and frequency of defoliation on the yield and nutritive value of unfertilized Guinea grass (*Panicum maximum* ecotype A). *Sri Lanka Veterinary Journal*, 33, 11-18.