

## Leaf appearance and elongation in *Panicum maximum* cv. Tanzania tillers of varying ages

D. Nascimento Jr.<sup>1</sup>, R.A. Barbosa<sup>2</sup>, V.P.B. Euclides<sup>2</sup>, S.C. da Silva<sup>3</sup> and R.A. Torres<sup>2</sup>

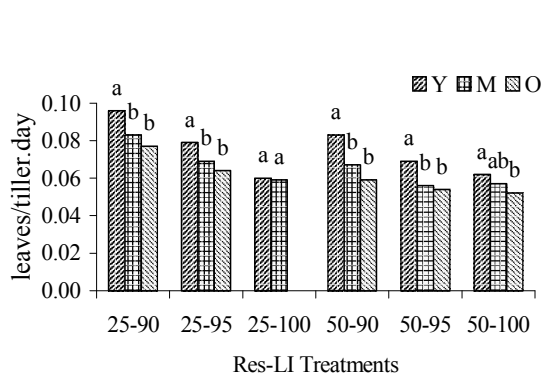
<sup>1</sup>Universidade Federal de Viçosa, Viçosa, MG, Brasil, Email: domicilio@ufv.br, <sup>2</sup>Embrapa – Gado de corte, Caixa Postal 154, Campo Grande, MS, 79002-970, Brasil, <sup>3</sup>Universidade de São Paulo, Piracicaba-SP, Brasil

**Keywords:** grazing frequency, grazing intensity, light interception, morphogenesis

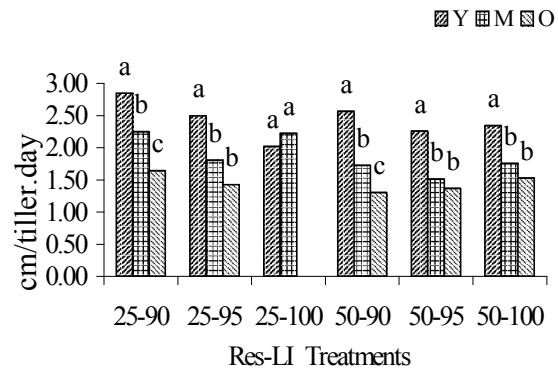
**Introduction** A sward may be considered as a tiller population of varying ages and sizes, and these different age groups are likely to present distinct behaviour in terms of growth and herbage production. However, there is very little information on how tiller age, in association with grazing management practices (e.g. frequency and intensity of grazing), alter morphogenetic characteristics and, therefore, herbage production. Against this background, the present experiment had the objective to evaluate leaf appearance and elongation in *Panicum maximum* cv. Tanzania tillers of different age groups when submitted to intermittent grazing regimes.

**Material and methods** Treatments consisted of combinations between three grazing intervals and two post-grazing residues. Grazing intervals corresponded to the time interval necessary to reach 90, 95 and 100% sward light interception (LI) during regrowth, and post-grazing residues were 25 and 50 cm. During the grazing period (July 2003 - May 2004), tagging and counting of tillers were performed every grazing cycle, generating at the end of the experiment the different tiller age groups used for measurements. Tillers were classified as young (less than 2 months old), mature (between 2 and 4 months old) and old (more than 4 months old) (Carvalho, 2002). Twelve tillers from each age category were randomly chosen and submitted to measurements of leaf appearance (leaves/tiller/day) and elongation (cm/tiller/day) rate.

**Results** Leaf appearance rate (LAR) was higher for young than for mature and old tillers, regardless of treatment (Figure 1). Shorter grazing intervals (90 and 95% LI) were responsible for larger differences in LAR from young and mature tillers. On the other hand, the long grazing interval (100% LI) associated with 25 cm residue did not affect LAR in either young or mature tillers. Leaf elongation rate (LER) varied considerably with tiller ageing, with young tiller presenting higher values of LER in all treatments, except for the 100% LI/25 cm treatment (Figure 2). Further, differences in LER from young and old tillers increased as grazing interval decreased, and did not exist when grazing interval was long (100% LI).



**Figure 1** Leaf appearance rate. Means followed by the same letter within treatment bars are not different ( $P>0.10$ )



**Figure 2** Leaf elongation rate. Means followed by the same letter within treatment bars are not different ( $P>0.10$ )

**Conclusions** The ageing process of tillers can result in progressive reduction in tiller vigour and growth. Grazing management practices that allow for a high turnover in tiller population (younger tillers) may revert this trend and ensure conditions to sustain and/or increase herbage production.

### References

Carvalho, D.D. (2002). Leaf morphogenesis and tillering behaviour in single plants and simulated swards of Guinea grass (*Panicum maximum* Jacq.) cultivars.. Ph.D. Thesis – Massey University, Palmerston North., New Zealand, 155p