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The XX International Grassland Congress took place in Ireland and the UK in June-July 2005.

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Introduction Recent evidence indicates that carbohydrate-rich grazed herbage is effective for improving milk production (Trevaskis *et al.*, 2004). However, the dynamics of water-soluble carbohydrate (WSC) seasonal accumulation as related to forage availability remains unknown, especially during the growth stage of tropical forage grazing systems. The objective of the work was to verify the seasonal WSC profiles of rotationally grazed elephantgrass (*Pennisetum purpureum* Schum.), by making measurements within each 30-day resting period.

Materials and methods Rotationally grazed elephantgrass paddocks were randomly sampled every 10 days within each 30-day resting period during the 2001-2002 rainy season. Stem bases were harvested, oven-dried (65°C, 72 h), and their WSC contents determined by an autoclave extraction procedure described by Passos *et al.* (2003). In addition, five months were randomly chosen for estimation of forage availability by using the random plate method. The experiment was conducted as split-plots (months set as plots and days within resting periods as subplots), in a randomised block design with two replicates. The data were analysed by ANOVA and means among treatments compared by the Tukey test. For reasons of clarity, data are shown with the SDs.

Results Significantly higher WSC levels were observed only in the period immediately before growth ceased in June (Figure 1). However, consistent tendencies of stabilised WSC contents were verified in the middle of the rainy season, which were not apparently related to increased pasture on offer. Higher pasture availability, on the other hand, appeared to be preceded by steady WSC enhancement during the resting period.

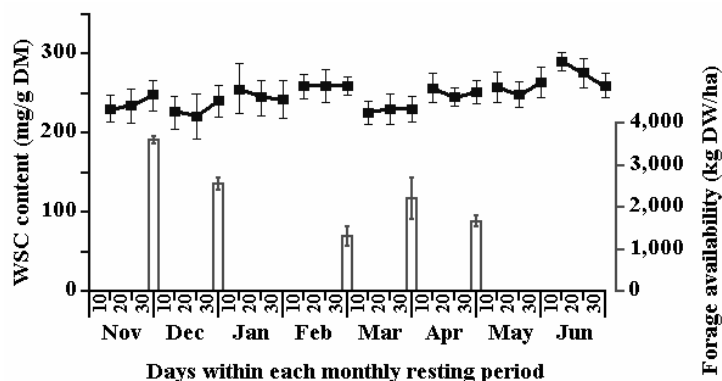


Figure 1 WSC levels of rotationally grazed elephantgrass within each monthly resting period

Conclusions The initial trends verified in the present study suggest that, within the resting period, rotationally grazed elephantgrass WSC levels increased steadily when pasture on offer was high. When forage availability decreased in the mid-rainy season, WSC contents levelled off. It is possible that varying resting periods need to be utilised in order to optimise elephantgrass grazing management.

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