

Ingestive behaviour of steers in native pastures in southern Brazil

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Keywords: native pasture, steers, ingestive behaviour

Introduction The Campos biome, particularly its native pastures, is the main resource for livestock production in southern Brazil (Boldrini, 1997). It has a huge floristic diversity in which more than 400 grass and 150 legume species are found. These pastures are very heterogeneous with horizontal as well as vertical structure. Hodgson (1985) stressed the importance of sward structure upon diet selection, emphasizing the difficulties animals could have to access all pasture layers in temperate pastures. This experiment investigates how variation in herbage allowance along the growing season influences the ingestive behaviour of steers.

Material and methods The treatments consisted of different herbage allowances (kg DM/100 kg liveweight per day, expressed as %) and different combinations of herbage allowance in sequence: 4%, 8%, 12% and 16% allowance during the entire year; 8% forage allowance in spring and 12% in summer/autumn; 12% forage allowance in spring and 8% in summer/autumn; 16% forage allowance in spring and 12% in summer/autumn. The grazing method was continuous with variable stocking, and the experimental animals were crossbred steers. Treatments were in 14 paddocks (64 ha) in a completely randomized block design, with two replicates. Pasture accumulation was measured by four enclosure cages per paddock, herbage mass by the comparative yield method and grazing behaviour variables obtained by visual assessment. Data from summer/autumn 2002 are reported here.

Results The forage allowances observed were different from those imposed (Table 1) although the objective of creating different grazing allowances was attained. There was no significant difference between the herbage allowances in grazing time ($P>0.05$). In such complex vegetation, classical relationships established with cultivated pastures were not observed. However, when a variable which takes into account and controls for pasture heterogeneity was used, then pasture abundance was associated with animal performance and behaviour (Figure 1). As allowance increased, the frequency of tussocks increased, pastures becoming more heterogeneous. Nevertheless, between-tussock vegetation was less variable, and models fit better when between-tussock sward height was used as the independent variable, and using only that data associated with fixed forage allowances. Treatments with low forage allowance restricted animal intake, and they increased grazing time as a strategy to compensate. Each 1.0 cm increase in between-tussock sward height decreased grazing time by 66 minutes. Animal performance decreased with decreasing between-tussock sward height, indicating animals cannot compensate for the reduction in intake at low forage allowances.

Table 1 Grazing time of steers at different levels of forage allowance in a native pasture in southern Brazil

Forage allowance (kg DM/ 100 kg LW per day)						
4.0	8.0	12.0	16.0	8→ 12	12→ 8	16→12
Observed forage allowance (kg DM/ 100 kg LW per day)						
4.7	12.4	17.7	23.5	13.7	15.4	17.8
Grazing time (minutes/day)						
564.4	498.3	571.7	453.3	512.8	559.2	542.2

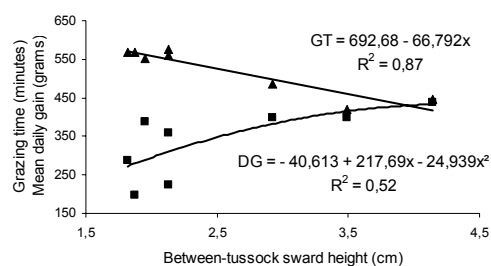


Figure 1 Grazing time (GT, minutes) and mean daily liveweight gain (DG, g) of steers in relation to between-tussock sward height (cm.)

Conclusions Contrary to classical relationships based on homogenous cultivated pastures, it seems variables such as forage allowance or herbage mass do not explain sufficiently animal performance and behaviour in more complex vegetation. The characterization of the between-tussock vegetation is essential to construct response functions to obtain advances in knowledge in order to manage effectively native pastures in southern Brazil.

References

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