



## Tillering dynamics in *Brachiaria decumbens* pastures under continuous stocking



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### Introduction

The cattle industry in Brazil uses pastures for meat and milk production predominantly under grazing. *B. decumbens* is one of the most popular grasses used to support livestock in Brazil and is continuously grazed.



Therefore, understanding the development and perpetuation of this specie managed under continuous stocking is important.



For this purpose, the study of tillering dynamics throughout the seasons of the year and in swards under different defoliation regimes is appropriate.

**Objective** ⇒ evaluate the demographic distribution patterns of *B. decumbens* tillers, subjected to two managing strategies under continuous stocking

### Materials and methods

- **Experiment:** Animal Science Department, Universidade Federal de Viçosa, Brazil
- **Period:** June 2008 to March 2009
- **Treatments:** two strategies for managing *B. decumbens* under continuous stocking
  - ✓ Swards with 15 cm of average height in the winter and 25 cm in both the spring and the summer;
  - ✓ Swards with 25 cm of average height during the winter, the spring and the summer;
- **Experimental design:** randomized block design and subdivided plots were used with four replicates
- **Experimental units:** eight plots of 0.3 ha
- **Monitoring and evaluations:**
  - Seasons: winter (July 2008 to September 2008); spring (October 2008 to December 2008); summer (January 2009 to March 2009).

**Evaluations:** tiller emergence rate and the tiller mortality rate

Data regarding the management strategies of the pasture were compared using the F-test, while the ones regarding the seasons of the year the Tukey's test (10%).

### Results and discussion

Table - Emergence and mortality rates (%) of the basal tiller of *Brachiaria decumbens* pastures managed under continuous stocking and fixed (25 cm) or variable (15-25 cm) height during the seasons of the year.

Pasture height (cm)	Seasons of the year			Mean
	Winter	Spring	Summer	
Basal tiller emergence rate (%)				
25	3.0	35.9	37.3	25.4 B
15-25	6.5	51.0	45.3	34.2 A
Mean	4.7 b	43.5 a	41.3 a	
Basal tiller mortality rate (%)				
25	3.4	21.6	17.3	14.1 A
15-25	6.1	20.7	12.8	13.2 A
Mean	4.7 c	21.2 a	15.1 b	

For each characteristic, means followed by the same letter in lowercase in the same line or in uppercase in the same column do not differ ( $P > 0.10$ ).



The lower tiller mortality rate in the winter may be an ecological strategy of *B. decumbens* to save nutrients since the absorption of nutrients by the plant, via mass flux and/or diffusion, is interfered with by the water deficit in the winter.

There was no effect of management strategies of the pasture on the tiller mortality rate were not observed.

For lower canopies, the higher light incidence at the base of the plants stimulates tillering.



The lower tiller emergence rate in the winter was due to the climatic conditions which were unfavourable to *B. decumbens* growth in this season which was characterized by lower temperatures, precipitation and sunshine duration.

The higher tiller mortality rate in the spring coincides with the higher tiller emergence rate in this season, which indicates higher tiller turnover in the *B. decumbens* pasture in the spring.

The lowering to 15 cm high of *B. decumbens* pasture in the winter did not compromise the balance between the emergence and mortality of tiller, which was positive.

### Conclusions

- The renewal of *B. decumbens* tillers is low in the winter and intense in the spring and summer.
- The management of the *B. decumbens* pasture under continuous stocking should be seasonal, keeping the forage grasses at 15 cm high in the winter and 25 cm in the spring and summer in order to optimize the turnover in the spring.