

Grazing steer performance in pure stands of dwarf elephant grass or mixed with *Arachis pinto*

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Introduction

The introduction of legumes in grass-based swards provides some economic and agronomic advantages, often producing an increase in performance of grazing ruminants. In this context, *Arachis pinto* is a species that has a high nutritional value compared with the most of the tropical legumes (Lascano, 1994). The aim of this work was to assess grazing steer performance in pure stands of dwarf elephant grass (*Pennisetum purpureum* cv. Mott) with nitrogen (N) fertilization or mixed with *Arachis pinto* without N fertilization.

Material and methods

The experiment was conducted at Epagri Experimental Station near to Ituporanga (Santa Catarina, Brazil), from January to March 2010. A 14 ha experimental unit, one half established with *Pennisetum purpureum* (PG) and the other half as a mixed sward of *Pennisetum purpureum* cv. Mott/*Arachis pinto* (PAG), was used. Pasture was divided into 32 paddocks, 16 for each sward type. Twelve Charolês × Devon breed steers, aged up to 16 months with initial live weights of 288 ± 15 kg were divided in four uniform groups (two per treatment) according to body weight. The pastures were managed under rotational grazing with an herbage allowance of 6 kg of grass leaf dry matter (DM) per steer per day irrespective of the treatment. The grazing time for each paddock was calculated from the herbage mass estimated daily by a visual method (Haydock and Shaw, 1975). The sward height was measured daily with a sward stick and the morphological composition of the swards for each treatment and the proportion of *Arachis pinto* in the PA swards were determined on two paddocks by grazing cycles, before and after grazing. Each constituent was dried in an oven for 48 h at 60°C to determine morphological composition on a DM basis. Steers were weighted at beginning and at the end of each grazing cycle in order to estimate the average daily gain (ADG). The data were submitted to the variance analysis using as factors the grazing cycle and the pasture type within each cycle.

Results

Average daily gain was around 1.0 kg in both studied pastures (Table 1). Pre- and post-grazing sward height did not change ($P > 0.10$) with the introduction of the *Arachis pinto* in comparison with the pure dwarf elephant grass. Sward surface height decreased around 35% of pre-grazing height and the proportion of *Arachis pinto* was 25% of green DM on pre-grazing and 40% of green DM on post-grazing. These results showed that the animals mainly eat the upper stratum of the pasture, composed basically of live lamina of elephant dwarf grass. Therefore within the grazing management regime the legume featured as a low proportion of the diet.

Table 1 Effects of sward type on sward height and animal performance

Parameters	1st cycle		2nd cycle		s.e.d.	Effects	
	PG	PAG	PG	PAG		Sward	Cycle
Pre-grazing sward height (cm)	94.2	87.3	91.2	84.2	4.50	NS	NS
Post-grazing sward height (cm)	61.2	61.2	56.0	56.0	3.68	NS	NS
Average daily gain (kg)	0.80	0.97	1.05	0.99	0.195	NS	NS

Conclusions

The presence of the *Arachis pinto* in pastures of elephant grass is insufficient to improve the animal performance when the intensity of grazing does not exceed 35% of the pre-grazing sward height. The effect of the introduction of this legume in situations of higher grazing intensity or offering the *Arachis pinto* in strips adjacent to mixed swards should be studied.

References

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