

Effects of irrigation and season on performance of grazed pastures of *Brachiaria brizantha* cv. MG5

Rita de C R Carvalho^A, Wellington W Rocha^B, Bruno S Pires^A, César T Piza^A, Luziney D Silva^A, Paulo R V Leite^A and Eliel A Ferreira^A

^A Faculdades Integradas do Sudoeste Mineiro. www.fespmg.edu.br

^B Universidade Federal do Vales do Jequitinhonha e Mucuri. www.ufvjm.edu.br

Contact email: rita.carvalho@fespmg.edu.br

Keywords: Irrigation, *Brachiaria*, rotational grazing, cattle.

Introduction

In Brazil, livestock production is based primarily on systems with continuously grazed natural or cultivated pastures (FAO 2009). Intensifying animal breeding, handling and knowledge strategies is necessary to obtain improvements in production indices for economically feasible and sustainable grazing systems (Cedeño *et al.* 2003). Beef cattle breeding on irrigated pasture, like all forms of intensive grazing, requires the use of forage species with high potential for production and quality, and *Brachiaria brizantha* cv. MG5 is considered a good option. This study aimed to evaluate the effects of irrigation on the performance of *B. brizantha* cv. MG5 grazed rotationally by beef cattle at different times of the year.

Methods

An area of 4 ha of *B. brizantha* cv. MG5 on the Experimental Farm at FESP – Minas Gerais – Brazil was divided into 32 paddocks. A total of 2 ha was irrigated by a conventional sprinkler system and the remaining 2 ha were not irrigated. Ten steers grazed the irrigated area and 10 grazed the non-irrigated area. Animals were shifted between paddocks every 2 days, providing 30 days rest for each paddock and a 32-day grazing period. At the end of each cycle the animals were weighed. Animal weight data were analysed over 2 seasons (November-February, summer, 4 cycles; and April-July winter, 4 cycles) in 2011/2012. For quantitative and qualitative forage evaluation, samples from each paddock were collected before animals entered and immediately after removal by using a 1.0 m² board launched randomly, and cutting the forage 20 cm from the soil. Harvests were done between June and August 2011 (winter) and November 2011 and January 2012 (summer). Green samples were weighed to determine production of green mass (PGM) and subsamples were taken for drying to assess the content of total dry matter (TDM). The data were submitted to statistical analysis using the GENES program (Cruz 2006).

Results

Production of green and dry mass as well as voluntary intake was higher in summer than in winter and irrigation increased production of both green and dry mass (Table 1). Mean daily weight gains by steers were increased by

Table 1. Effects of season and irrigation on dry matter content (DM), production of green mass (PGM), apparent intake of green mass (IGM), production of dry mass (PDM) and apparent intake of dry mass (IDM) of *Brachiaria brizantha* cv. MG5. Means within columns and factors followed by the same letter do not differ according to the Scott and Knott test (1974).

Factor	DM	PGM	IGM	PDM	IDM
	(%)		(kg/ha)		
Winter	32.95 a	1917 b	552 b	591 b	171 b
Summer	33.66 a	2606 a	764 a	806 a	238 a
Irrigated	33.62 a	2371 a	664 a	740a	208 a
Non-irrigated	32.99 a	2153 b	652 a	657 b	201 a

Table 2. Effects of season and irrigation on mean weight gains of steers (kg/d). Means followed by the same letter do not differ according to the Scott and Knott test (1974).

	Summer		Winter	
	Irrigated	Non-irrigated	Irrigated	Non-irrigated
GPD	0.68 a	0.68 a	0.50 a	0.16 b

irrigation in winter ($P<0.05$) but not in summer (Table 2). Weight gains in winter were lower than summer gains on both irrigated and non-irrigated pastures but the differences were significant only on the non-irrigated area ($P<0.05$).

Conclusion

This study has shown that there is no merit in irrigating *B. brizantha* cv. MG5 pastures during the summer months but that weight gains are improved by irrigating in winter. The economics of such a strategy will depend on the particular situation.

References

- Cedeño JAG, Rocha GP, Pinto JC, Muniz JÁ, Gomide EM (2003). Efeito da idade de corte na performance de três forrageiras do gênero *Cynodon*. *Ciência e Agrotecnologia* 27, 462-470.
- Cruz CD (2006). 'Programa GENES: Estatística experimental e matrizes'. (Editora UFV: Viçosa, MG). 285 p.
- FAO (Food and Agriculture Organization of the United Nations) (2009). <http://www.fao.org/ag/AGP/AGPC/-doc/counprof/Brazil.htm>. Accessed 20 Dec 2012
- Scott A, Knott M (1974). Cluster-analysis method for grouping means in analysis of variance. *Biometrics* 30, 507-512.