

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

RITA DE C.R. CARVALHO<sup>1</sup>, WELLINGTON W. ROCHA<sup>2</sup>, BRUNO S. PIRES<sup>1</sup>, CÉSAR T. PIZA<sup>1</sup>, LUZINEY D. SILVA<sup>1</sup>, PAULO R.V. LEITE<sup>1</sup> AND ELIEL A. FERREIRA<sup>1</sup>

<sup>1</sup>Faculdades Integradas do Sudoeste Mineiro, Passos, MG, Brazil. [www.fespmg.edu.br](http://www.fespmg.edu.br)

<sup>2</sup>Universidade Federal do Vales do Jequitinhonha e Mucuri, Diamantina, MG, Brazil. [www.ufvjm.edu.br](http://www.ufvjm.edu.br)

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## 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 pastures, like all forms of intensive grazing, requires the use of forage species with high potential for production and quality; *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. An area of 2 ha was irrigated by a conventional sprinkler system and the remaining 2 ha was 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 cycle. At the end of each cycle the animals were weighed. Animal weight data were analyzed 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 m<sup>2</sup> 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).

**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.

Factor	DM	PGM	IGM	PDM	IDM
	(%)				
Winter	32.95a <sup>1</sup>	1917b	552b	591b	171b
Summer	33.66a	2606a	764a	806a	238a
Irrigated	33.62a	2371a	664a	740a	208a
Non-irrigated	32.99a	2153b	652a	657b	201a

<sup>1</sup>Means within columns and factors followed by the same letter do not differ according to the Scott and Knott test (1974).

Correspondence: Rita de C.R. Carvalho, Faculdades Integradas do Sudoeste Mineiro, Av. Juca Stockler, 1130, Bairro Belo Horizonte, Passos CEP 37900-106, MG, Brazil.  
Email: [rita.carvalho@fespmg.edu.br](mailto:rita.carvalho@fespmg.edu.br)

Mean daily weight gains by steers were increased by 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 ( $P<0.05$ ).

**Table 2.** Effects of season and irrigation on mean liveweight gains (LWG) of steers (kg/d).

	Summer		Winter	
	Irrigated	Non-irrigated	Irrigated	Non-irrigated
LWG	0.68a <sup>1</sup>	0.68a	0.50a	0.16b

<sup>1</sup>Means followed by the same letter do not differ according to the Scott and Knott test (1974).

## 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.

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