

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## RESIDUAL WATER INTAKE AS AN INDICATOR OF WATER EFFICIENCY IN CATTLE

Gabriel de Moraes PEREIRA\*<sup>1</sup>, Taynara Raimundo MARTINS<sup>2</sup>, Karla Izidio LATTA<sup>3</sup>,  
Marcelo Neves RIBAS<sup>4</sup>, José Antônio FERNANDES JUNIOR<sup>5</sup>, Rodrigo da Costa  
GOMES<sup>6</sup>, Andréa Alves do EGITO<sup>1,6</sup>, Gilberto Romeiro de Oliveira MENEZES<sup>6</sup>

\*corresponding author: gabriel\_m\_p@hotmail.com

<sup>1</sup>Universidade Federal de Mato Grosso do Sul, Campo Grande, Mato Grosso do Sul, Brasil

<sup>2</sup>Universidade Federal de Goiás, Goiânia, Goiás, Brasil

<sup>3</sup>Universidade Católica Dom Bosco, Campo Grande, Mato Grosso do Sul, Brasil

<sup>4</sup>Intergado Ltd., Contagem, Minas Gerais, Brasil

<sup>5</sup>Gramma Senepol, Fazenda Gramma, Pirajuí, São Paulo, Brasil

<sup>6</sup>Embrapa Gado de Corte, Campo Grande, Mato Grosso do Sul, Brasil

Growing concerns about the availability of drinkable water have increasingly pushed pressure on livestock production. Thus, the objective of this study was to evaluate the residual water intake (RWI) as an indicator of water use efficiency in beef cattle and its relationship with water consumption, feed intake, feed efficiency and growth. Records on 749 Senepol heifers, of approximately 17 months of age, involved in feedlot performance tests, were used. Traits studied included body weight (BW), RWI, residual feed intake (RFI), average daily feed intake (ADFI), average daily water intake (ADWI), average daily gain (ADG) and feed conversion ratio (FCR). Individual daily feed and water intake records were collected over a 70-day period, using electronic feed and water bunks developed by Intergado Ltd.. A linear regression model of ADFI on metabolic BW ( $BW^{0.75}$ ) and ADG was fitted. RFI was calculated as the actual ADFI minus that predicted using the regression equation. The same approach was performed for calculating RWI by using ADWI instead of ADFI in the linear regression model. The animals were divided into three groups according to RWI: high ( $>$  average RWI plus one standard deviation), medium (average RWI  $\pm$  one standard deviation) and low ( $<$  average RWI minus one standard deviation). The high and low RWI groups were compared using Tukey's test in relation to the other evaluated traits. Animals with low RWI had a mean of  $-3.23 \text{ L d}^{-1}$  whereas those with a high RWI had  $3.79 \text{ L d}^{-1}$  ( $P < 0.05$ ). Water consumption ( $28.6$  and  $21.6 \text{ L d}^{-1}$ ), water consumption ( $3.72$  and  $3.03 \text{ L kg ADFI}^{-1}$ ) and water consumption ( $35.5$  and  $26.6 \text{ L kg ADG}^{-1}$ ) were also different ( $P < 0.05$ ) between high and low RWI groups. There was no significant difference ( $P > 0.05$ ) for BW and ADG. For ADFI, FCR and RFI there were significant differences between the high and low RWI groups (ADFI:  $7.85$  and  $7.17 \text{ kg d}^{-1}$ , FCR:  $9.75$  and  $8.87 \text{ kg kg}^{-1}$  and RFI:  $0.31$  and  $-0.34 \text{ kg d}^{-1}$ , respectively). Senepol cattle present variability in the efficiency of water use. RWI can be used as an indicator of water efficiency in cattle.

**Keywords:** livestock, Senepol, sustainability, selection.

**Acknowledgments:** CAPES, CNPq, FAEG e Programa Geneplus-Embrapa.

Promoção e Realização:



Apoio Institucional:



Organização:

