

II SIGEE – Second International Symposium on Greenhouse Gases in Agriculture – Proceedings



II Simpósio Internacional sobre Gases de Efeito Estufa na Agropecuária - II SIGEE -

*II International Symposium on Greenhouse
Gases in Agriculture*

ISSN 1983-974X

outubro, 2016

*Empresa Brasileira de Pesquisa Agropecuária
Embrapa Gado de Corte
Ministério da Agricultura, Pecuária e Abastecimento*

Documentos 216

II SIGEE – Second International Symposium on Greenhouse Gases in Agriculture – Proceedings

Organizadores

Roberto Giolo de Almeida (Coordenador)

Patrícia Perondi Anchão Oliveira

Maurício Saito

Cleber Oliveira Soares

Lucas Galvan

Lucimara Chiari

Fabiana Villa Alves

Davi José Bungenstab

Embrapa

Brasília, DF

2016

Exemplares desta publicação podem ser adquiridos na:

Embrapa Gado de Corte

Av. Rádio Maia, 830, Zona Rural, Campo Grande, MS, 79106-550

Fone: (67) 3368 2000

Fax: (67) 3368 2150

<http://www.embrapa.br/gado-de-corte>

<https://www.embrapa.br/fale-conosco/sac>

Comitê de Publicações da Unidade

Presidente: *Ronney Robson Mamede*

Secretário-Executivo: *Rodrigo Carvalho Alva*

Membros: *Alexandre Romeiro de Araújo, Andréa Alves do Egito, Kadijah Suleiman Jaghub, Liana Jank, Lucimara Chiari, Marcelo Castro Pereira, Mariane de Mendonça Vilela, Rodiney de Arruda Mauro, Wilson Werner Koller*

Supervisão editorial: *Rodrigo Carvalho Alva*

Revisão de texto e Editoração Eletrônica: *Rodrigo Carvalho Alva e Adionir Blem*

Foto da capa: *Luiz Antônio Dias Leal*

1ª edição

Versão online (2016)

Todos os direitos reservados.

A reprodução não-autorizada desta publicação, no todo ou em parte, constitui violação dos direitos autorais (Lei nº 9.610).

**Dados Internacionais de Catalogação na Publicação (CIP)
Embrapa Gado de Corte.**

Anais - 2º Simpósio Internacional Sobre Gases de Efeito Estufa na Agropecuária [recurso eletrônico] / Roberto Giolo de Almeida et al. - Campo Grande, MS : Embrapa Gado de Corte, 2016.

502 p. ; 21cm. - (Documentos / Embrapa Gado de Corte, ISSN 1983-974X ; 216).

Sistema requerido: Adobe Acrobat Reader, 4 ou superior.

Modo de acesso: <<http://www.cnpqg.embrapa.br/publicacoes/doc/DOC216.pdf>>

Título da página da Web (acesso em 16 de outubro de 2016).

1. Gases de efeito estufa. 2. Agropecuária. 3. Emissões de GEE. 4. Embrapa Gado de Corte. I. Almeida, Roberto Giolo de. II. Oliveira, Patrícia Perondi Anção. III. Saito, Maurício. IV. Soares, Cleber Oliveira. V. Galvan, Lucas. VI. Chiari, Lucimara. VII. Alves, Fabiana Villa. Bungenstab, Davi José.

CDD 636.213

© Embrapa Gado de Corte 2016

Ruminal methane emissions in grazing beef heifers

*Vanessa C. PIOTTO*¹, Valdo R. HERLING¹, Leandro SAKAMOTO¹, Amanda LEMES², Fabricio NAREZZI³, Eduardo F. INOJOSA¹, Patricia P.A. OLIVEIRA⁴, Alexandre BERNDT⁴, Rosa Toyoko Shiraishi FRIGHETTO⁵*

¹Universidade de São Paulo–FZEA/USP, ²Universidade Estadual Julio de Mesquita Filho– UNESP/ Jaboticabal, ³Engenheiro Agrônomo, ⁴Embrapa Pecuária Sudeste, ⁵Embrapa Meio Ambiente E-mail address of presenting author*: vanepiotto@hotmail.com

Introduction

Brazil is one of the largest beef exporter in the world, and this is due to the introduction of Nellore cattle which has been adapted to the edaphoclimatic conditions of the country. With more than 200 million head, distributed in different production managements, producing through mainly extensive grazing system, Brazil has the responsibility to increase its productivity. That means, to produce more in smaller areas using fewer animals. One option to achieve that goal is to make the rotational management, thus, it may provide a better control of food supply for animals. However, it is also necessary to be concerned about the environment, especially for the methane produced from enteric fermentation in rumen. The objective of this study was to measure the emission of enteric methane in beef heifers in rotational and continuous grazing systems.

Material and Methods

The experiment was conducted at FZEA / USP in Pirassununga / SP in the year of 2014. It was used 18 Nellore heifers with an average initial body weight of 275 kg grazing *Brachiaria brizantha* cv Marandu pasture under two grazing systems. The continuous grazing system was composed of three areas of 3.10, 3.86 and 5.63 ha and the rotational system consisted of 3 paddocks of 0.315 ha each (7

days occupation x 28 days of rest). Every 35 days, the heifers body weight (BW) was obtained and average daily gain (ADG) was calculated. The measurement of ruminal methane was performed by tracer gas SF6 technique, in which animals were adapted for 15 days to the use of halters and sarongs for data collection. Collections were held four times a year for 5 consecutive days which were 01/20, 04/28, 07/07 and 09/21 representing, respectively, Summer, Fall, Winter and Spring seasons. The CH₄ and SF₆ concentrations were determined by a gas chromatography by Embrapa Meio Ambiente, Jaguariuna / SP. The data was submitted to analysis of variance by MIXED procedure using the SAS statistical software and applied multiple test averages for comparison of treatments.

Results and Conclusions

The results are shown in Table 1.

Table 1. Methane variables of heifers in continuous and rotational grazing system.

Heifers	Treatment		Average	P
	Continuous	Rotational		
BW (kg)	341,1	333,0	340,1	0,5430
ADG (kg/d)	0,587	0,543	0,540	0,6138
CH ₄ (g/d)	171,1	174,4	176,7	0,7589
CH ₄ ADG (g CH ₄ /kg ADG)	656,4	789,1	723,7	0,6839
CH ₄ BW (g CH ₄ /kg BW)	0,501	0,521	0,516	0,4317

BW: body weight, ADG: average daily gain, CH₄: methane emission.

Acknowledgements

Pecus, Embrapa Meio Ambiente, Embrapa Pecuária Sudeste.