

RELATIONSHIP BETWEEN BACK AND RUMP FAT THICKNESS AND RESIDUAL FEED INTAKE OF YOUNG NELORE CATTLE¹

RELAÇÃO ENTRE ESPESSURA DE GORDURA SUBCUTÂNEA NO LOMBO E NA GARUPA E CONSUMO ALIMENTAR RESIDUAL EM BOVINOS NELORE JOVENS

GUSTAVO EIMAR DE OLIVEIRA LARA^{2,3}, MARIA EUGÊNIA ZERLOTTI MERCADANTE^{2,4}, ANDRÉ LUIZ
GRION^{2,3}, ENILSON GERALDO RIBEIRO², RENATA HELENA BRANCO²

¹Financial support: FAPESP and CNPq “REPENSA-Redes Nacionais de Pesquisa em Agrobiodiversidade e Sustentabilidade Agropecuária”.

²Centro APTA Bovinos de Corte, Instituto de Zootecnia (IZ), APTA. Rodovia Carlos Tonani, km 94, Sertãozinho, SP, Brazil. E-mail: gustavoeimar@gmail.com.

³CAPES scholarship.

⁴CNPq scholarship.

Residual feed intake (RFI) is a feed efficiency trait defined as the difference between actual feed intake and the one predicted on the basis of requirements for production and maintenance of body weight. Evidence exists of a positive correlation between RFI and fat thickness in *Bos taurus*, suggesting that low RFI cattle (feed efficient ones) are leaner. The objective of this study was to access the relationship between fat thickness and RFI by partial correlation including all animals (n=603, 300 bulls and 303 heifers), and by means comparison including only animals divergently classified by RFI (low RFI, n=192 and high RFI, n=186). The animals were born from 2004 to 2010, and were performance tested after weaning for 56 to 112 days, depending of test year and sex. The average age and body weight at the beginning of performance test were 286±42 days and 225±51kg. At the end of performance test images of backfat thickness (BF) were obtained by ultrasound (Pie Medical-Aquila-3.5 MHz linear probe) between the 12th and 13th ribs, transversely over the *longissimus* muscle. Images of rump fat thickness (RF) were obtained at the junction of the *gluteus medius* and *biceps femoris* muscles between the hook and pin bones. The images were saved and subsequently analyzed using Echo Image Viewer 1.0. For partial correlations (MANOVA, SAS 9.3), the model included fixed effect of contemporary group (GC=year, sex and installation) and age of the beginning of performance test and age of ultrasound fat measurement (average of 373±42 days) as covariates (linear effect). For means comparison (GLM, SAS 9.3), the model included fixed effects of GC, RFI classes (only low RFI and high RFI, excluding medium RFI) and age of beginning of performance test. Partial correlations between fat thickness and RFI were close to zero (-0.006 for BF and 0.010 for RF). Reinforcing these results, there were no significant differences of BF and RF from feed efficient (low RFI class) and feed inefficient animals (high RFI class), although there were significant difference between them on the dry matter intake independently of average daily gain (ADG) and metabolic body weight. These results show that animals with low RFI have lower feed intake, similar ADG and subcutaneous fat thickness than high RFI animals, fact that is desirable for slaughterhouses and consumers.

Least squares means for backfat thickness (BF), rump fat thickness (RF), average daily gain (ADG) and residual feed intake (RFI) by RFI classes

	low RFI	high RFI
BF, mm	1.90 ± 0.06	1.91 ± 0.06
RF, mm	4.98 ± 0.11	4.96 ± 0.11
ADG, kg/day	0.876 ± 0.010	0.883 ± 0.011
RFI, kg dry matter/day	-0.389 ± 0.014	0.401 ± 0.015

Keywords: *Bos indicus*, correlation, performance test, subcutaneous fat.