

EVALUATION OF CARCASS TRAITS OF HEREFORD STEERS THROUGH ULTRASOUND IN DIFFERENT NATIVE PASTURE: PARTIAL RESULTS

Nalério S. Elen^{1*}, Yokoo J I. Marcos¹, Giongo. Citieli¹,

Cardoso L. Leandro², Kipper K. Djenifer³, Faria M. Bruna⁴ and Genro M C. Teresa¹

¹Embrapa Pecuária Sul, Bagé, Brazil

² CAPES PNP/Embrapa-CPPSul, Brazil

³ Universidade Federal do Pampa, Bagé, Brazil

⁴ Universidade Federal do Rio Grande do Sul, Brazil

*elen.nalerio@embrapa.br

Abstract –Beef quality traits can be influenced by different finishing diets which can be assessed in the carcass of the live animal through ultrasound technique. The aim of this study was assess the influence of different pastures in the carcass traits of Hereford steers. Were evaluated the carcasses of 36 steers divided into 3 different sorts of pasture: native pasture (T1), fertilized native pasture (T2) and improved fertilized native pasture (T3). The carcass traits assessed were live weight (W, kg), rib eye area (REA, cm²), backfat thickness (BF, mm) and rump fat thickness (RF, mm). There was highly pasture* time of year effect for all pasture sorts and in all carcass traits. The live weight of the steers were also significantly different among the treatments, 269.66, 306.06 and 333.91 kg respectively T1, T2 and T3 (P<0,0001). There was no significant differences for carcass characteristics between T1 and T2 (P>0.05) for REA (35.33, 37.31 cm²), BF (1.06,1.23 mm) and RF (0.82, 1.11 mm), respectively. T3 carcass traits were significantly divergent from T1 and T2 for REA (41.33 cm²), BF (1.87 mm) and RF (1.61 mm). Improved fertilized native pasture demonstrated be the best alternative for animal finishing diets resulting in better carcass traits.

I. INTRODUCTION

The production of high quality products has been a major focus of the beef cattle industry. The carcass quality traits prediction is a great concern in animal production once it can be applied to target the beef products to specific markets. Thus the carcass characteristics assessment through ultrasound is a useful and objective tool to estimate the fancy beef traits as back fat thickness, rib eye area and rump fat thickness. According to the different sort of pasture offering for animal feed, there will be roughly distinct beef quality outputs. The aim of this study was evaluate the influence of native pasture, fertilized native pasture and improved fertilized

native pasture in the live weight, rib eye area, back fat thickness and rump fat thickness carcass traits of Hereford steers. These results will be useful for the decision take of the producers in which pasture utilize to finish steers in grasslands.

II. MATERIALS AND METHODS

Were evaluated the carcasses of 36 live steers of Hereford breed from winter of 2012 till summer of 2014, totalizing 6 measurements which are our partial data set. The steers are kept into 3 different sorts of pasture: native pasture (T1), fertilized native pasture (T2) and improved fertilized native pasture (T3). The carcass traits assessed were rib eye area (REA, cm²), back fat thickness (BF, mm) and rump fat thickness (RF, mm). The carcass characteristics evaluation were carried out by ultrasound evaluation using ALOKA 500V equipment with linear probe of 17.2cm, 3.5 MHz together with a standoff and a system for image capture. REA and BF images were taken with the probe positioned transversally to *Longissimus* muscle between 12th and 13th rib. The RF image was taken with the probe positioned in the intersection between *Gluteus medius* and *Biceps femoris* muscles, localized between ilium and ischium bones. In the same day of the ultrasound evaluation the steers were weighted (W, kg). The analysis model included the random effect of paddock nested in treatment and the fixed effects of treatment, time of year and their interaction. Tukey tests means were applied for comparison among the treatments and carcass traits mean [1].

III. RESULTS AND DISCUSSION

Mean values analyses data are grouped in Table 1. The live weight of the steers were significantly different among the treatments, 269.66, 306.06

and 333.91kg respectively T1, T2 and T3 (P<0.0001). There was no significant differences for carcass characteristics between T1 and T2 (P>0.05) for REA (35.33, 37.31cm²), BF (1.06, 1.23mm) and RF (0.82, 1.11mm), respectively. The T3 carcass traits were significantly divergent from T1 and T2 for REA (41.33 cm²), BF (1.87 mm) and RF (1.61 mm). There was highly pasture*time of year effect for all pasture sorts and for all carcass traits.

Devincenzi *et al.* [2] finished Angus steers in three pastures, and found similar behavior of this study in live weight of finished animals. Steers fed natural pasture (514.8 kg) and improved-natural pasture (496.9 kg) were statically similar, in the other hand, the steers fed annual-summer grassland were distinct from the others (458.1 kg) (P< 0.0023). Conversely the same authors did not found significant differences for REA, BF and RF among the grass fed animals as showed in the present research.

Table 1 – Means for carcass traits related to the different pastures

Total means	Native Pasture	Fertilized Native Pasture	Improved-Fertilized Native Pasture	Pasture*time of year effect
W (kg)	269.66 ^a	306.06 ^b	333.91 ^c	<0.0001
REA (cm ²)	35.33 ^a	37.31 ^a	41.33 ^b	<0.0001
BF (mm)	1.06 ^a	1.23 ^a	1.87 ^b	0.0001
RF (mm)	0.82 ^a	1.11 ^a	1.62 ^b	0.0012

W – weight; REA – Rib Eye Area; BF – Backfat thickness; RF – Rump fat thickness.

^a same letters in the same line show no significant difference

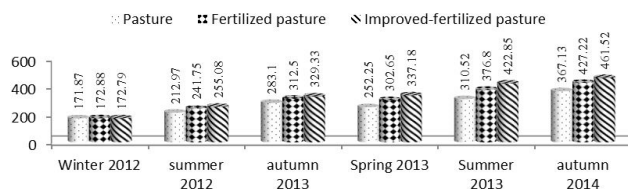


Fig 1 – Live weight of the steers for the pastures during the time of the year

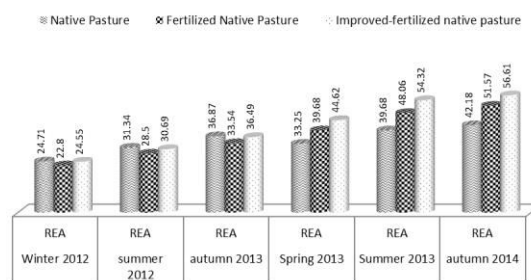


Fig 2- Rib eye area (REA) for the pastures during the time of the year

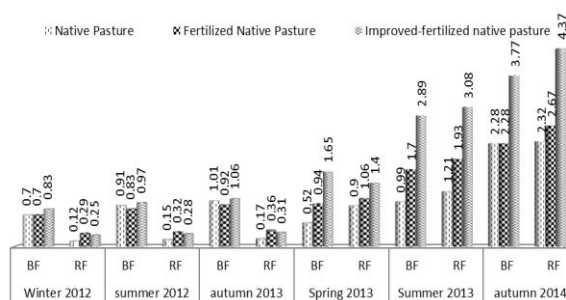


Fig 3- Backfat thickness (BF) and rump fat thickness (RF) for the pastures during the time of the year

IV. CONCLUSION

During the evaluated period of time, steers fed improved-fertilized native pasture demonstrated to have carcasses with superior quality traits. Thus this sort of grassland can be an interesting alternative for finishing beef cattle efficiently.

ACKNOWLEDGEMENTS

For financial support for research, we thank Embrapa and CAPES for the scholarship founding.

REFERENCES

1. SAS. Statistical Analysis System user's guide: Stat, version 8 ed. Cary: SAS Institute, USA, 2001, 1464p.
2. Devincenzi, T., Nabinger, C., Cardoso, F. F., Nalério, E. S., Carassai, I. J., Fedrigo, J. K., Tarouco, U. J. & Cardoso, L. L. (2012). Carcass characteristics and meat quality of Aberdeen Angus steers finished on different pastures. R. Bras. Zootecnia 41:1051-1059.