EAAP 2008

Session 21

Relative growth of ultrasound lumbar and tail-head subcutaneous fat depth of Barrosã autochthonous cattle breed

S.R. Silva, S. Sacoto, A.L. Lourenço, C.M. Guedes, M. Rodrigues and J.C. Almeida
CECAV, UTAD, PO Box 1013, 5001–801 Vila Real, Portugal
(Email: ssilva@utad.pt)

Background

Defining the pattern of growth of fat in ruminants particularly in extensive productions systems (Figure 1) is important to understand the body composition changes throughout the year. However, little is known about Barrosã autochthonous cattle breed.

Objectives

The main objective of this study was to define relative growth pattern of lumbar and tail-head subcutaneous fat (SF) depth obtained by real time ultrasonography (RTU)

Figure 1 Barrosã cows at Gerês, Portugal.

Material and Methods

- One hundred and seventy Barrosã cows were used to study the relative growth of SF depth to live weight (LW) and body condition score (BCS).
- The LW (404±31 kg, range: 330 to 483 kg), BCS (3.9±0.45, range: 2.75 to 5.00)
- Ultrasound fat depth measurements were recorded. Animals were scanned with a RTU machine (Aloka SSD500V) using a 7.5 MHz probe.
- The hair was clipped, a gel was used and the probe was placed at measurements points.
- When a satisfactory image was obtained it was captured and digitised. The measurements were made by image analysis (ImageJ 1.38X).
- The SF depth was measured over the 4th lumbar vertebra (SF4) and over the tail-head (SFT) (Figure 2).
- To establish the relative growth the Huxley allometric equation in its logarithmic form was used.
- Statistical analyses were performed using the JMP-SAS (Version 5.1). The data were analysed by regression analysis.

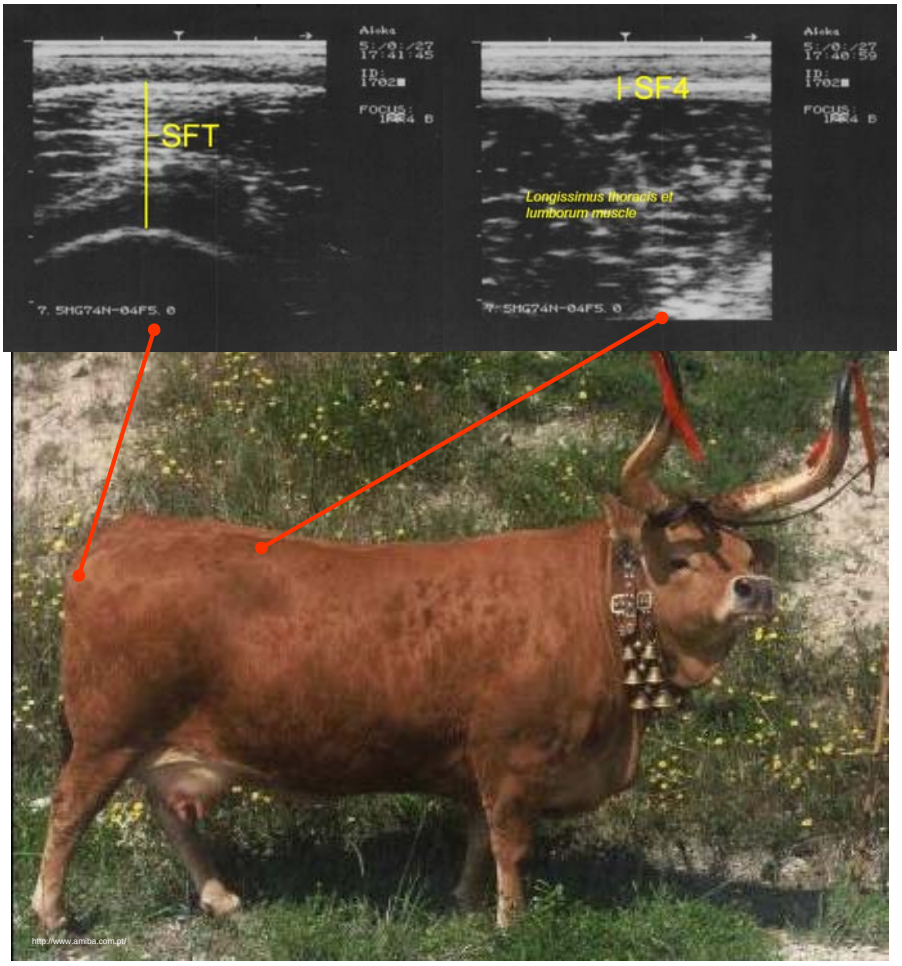

Figure 2 Location of measurement body areas and real time ultrasound images obtained over the 4th lumbar vertebra (SF4) and over the tail-head (SFT).

Results

The allometric coefficient (b) was obtained for SF4 (b=2.1>1 and b=0.79=1, P<0.05, relatively to LW and BCS, respectively) and for SFT (b=2.6>1 and b=1.78>1, P<0.05, relatively to LW and BCS, respectively)

Conclusions

Results indicate that the SFT exhibit a late development and therefore was more sensitive to body fat changes