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Prediction of the chemical body composition of suckling goat kids protected by the PGI "*Cabrito de Barroso*" from ultrasound measurements

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Introduction

In the Portuguese region of Barroso there is a traditional consumption of light goat kids (Cabrito de Barroso), from the local breeds Serrana and Bravia (Figure 1) supported by a well implanted Protected Geographic Indication (PGI).

Objectives

The present study was undertaken to determine the best combination of Real Time Ultrasonography (RTU) measurement and live weight (LW) to predict the body composition in PGI kids.

Figure 1. Bravia goats at Barroso, Portugal

Results

For Fat the best fit was achieved with LW and 3 RTU measurements (SF8th, SF3rd and SF13th) (r^2=0.924; rsd=130g; Cp=0.95; respectively).

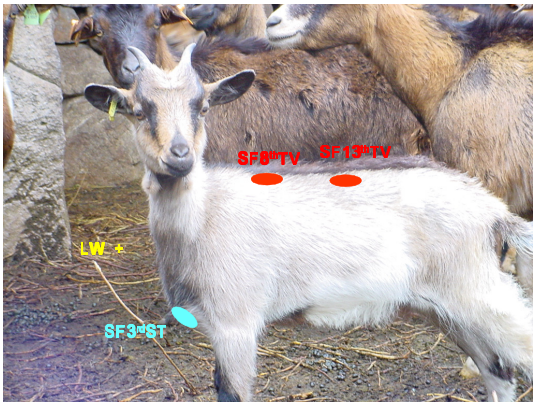

Figure 2. Location of best predictor RTU measurements

Material and Methods

- Forty-three kids (10±2 kg LW) were scanned with an Aloka SSD500V real time scanner using a linear probe of 7.5 MHz.
- The probe was placed over the 8th, 11th, 13th thoracic and over the 4th lumbar vertebrae.
- At these points the subcutaneous fat depth (SF) and *Longissimus thoracis et lumborum* muscle depth (MD) were measured.
- The probe was also positioned over the 3rd sternebra of the sternum and over the 11th rib at the middle of thoracic cage, the SF and the tissue depth (TD) being recorded.
- The RTU measurements were obtained after image analysis using the ImageJ software.
- Body components were ground. Two samples were obtained and analyzed for moisture, protein, fat and ash.
- Stepwise regression analyses were established between chemical body components and RTU measurements and LW as independent variables.
- The best fitting regression equations were evaluated by the coefficients of determination (r^2), residual standard deviation (rsd) and Mallows statistic (Cp).

For Protein the best fit was obtained with LW and one RTU measurement (SF13th) (r^2=0.794; rsd=129g; Cp=7.1).

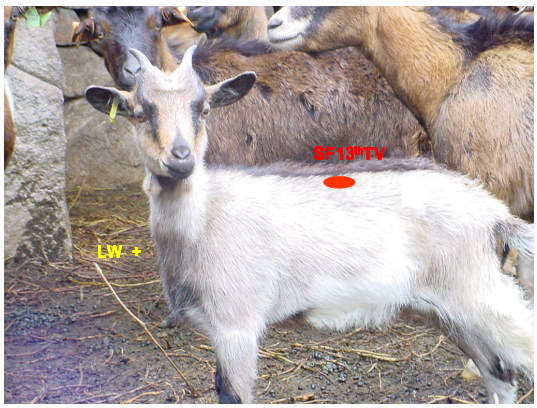

Figure 3. Location of best predictor RTU measurements

Conclusions

These results show the usefulness of *in vivo* RTU measurements in assessing body composition of kids protected by the PGI certification Cabrito de Barroso.