

## Use of Real Time Ultrasound for the Prediction of Carcass Composition in Serrana Goats

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**Abstract :** The objective of this study was to compare the carcass and in vivo real-time ultrasound measurements (RTU) and their capacity to predict the composition of Serrana goats up to 40% of maturity. Twenty one females ( $11.1 \pm 3.97$  kg) and Twenty one males ( $15.6 \pm 5.38$  kg) were utilized to made in vivo measurements with a 5 MHz probe (ALOKA 500V scanner) at the 9th-10th, 10th-11th thoracic vertebrae (uT910 and uT1011, respectively), at the 1st- 2nd, 3rd-4th, and 4th-5th lumbar vertebrae (uL12, uL34 and uL45, respectively) and also at the 3rd-4th sternbrae (EEST). It was recorded the images of RTU measurements of Longissimus thoracis et lumborum muscle (LTL) depth (EM), width (LM), perimeter (PM), area (AM) and subcutaneous fat thickness (SFD) above the LTL, as well as the depth of tissues of the sternum (EEST) between the 3rd-4th sternbrae. All RTU images were analyzed using the ImageJ software. After slaughter, the carcasses were stored at 4 °C for 24 h. After this period the carcasses were divided and the left half was entirely dissected into muscle, dissected fat (subcutaneous fat plus intermuscular fat) and bone. Prior to the dissection measurements equivalent to those obtained in vivo with RTU were recorded. Using the Statistica 5, correlation and regression analyses were performed. The prediction of carcass composition was achieved by stepwise regression procedure, with live weight and RTU measurements with and without transformation of variables to the same dimension. The RTU and carcass measurements, except for SFD measurements, showed high correlation ( $r > 0.60$ ,  $P < 0.001$ ). The RTU measurements and the live weight, showed ability to predict carcass composition on muscle ( $R^2 = 0.99$ ,  $P < 0.001$ ), subcutaneous fat ( $R^2 = 0.41$ ,  $P < 0.001$ ), intermuscular fat ( $R^2 = 0.84$ ,  $P < 0.001$ ), dissected fat ( $R^2 = 0.71$ ,  $P < 0.001$ ) and bone ( $R^2 = 0.94$ ,  $P < 0.001$ ). The transformation of variables allowed a slight increase of precision, but with the increase in the number of variables, with the exception of subcutaneous fat prediction. In vivo measurements by RTU can be applied to predict kid goat carcass composition, from 5 measurements of RTU and the live weight.

**Keywords :** carcass, goats, real time, ultrasound

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