

Relationship between body condition score and muscle and fat depths measured by ultrasound in meat and dairy ewes¹

S. R. Silva², V. Santos, C. Guedes, A.L.G. Lourenço*, A.A. Dias-da-Silva, J. Azevedo.
CECAV-UTAD Department of Animal Science, PO Box 1013, 5001-801 Vila Real, Portugal
² ssilva@utad.pt



Objective

The objective of this study was to examine the suitability of body condition score (BCS) to predict fat and muscle reserves. This was assessed by plotting BCS against in vivo real-time ultrasound muscle and fat depth measurements.

Material and Methods

This study was conducted with 17 Ile-de-France (IF) mature meat type ewes (Figure 1) and 47 Churra da Terra Quente (CTQ) mature dairy type ewes (Figure 2).



Figure 1. Ile-de-France ewe.

The animals were scanned with an Aloka 500V using a linear probe of 7.5 MHz.

The probe was placed perpendicular to the backbone over the 13th thoracic vertebra and between the 3rd and the 4th lumbar vertebrae (Figure 3).



Figure 2. Churra da Terra Quente ewe.

The subcutaneous fat (SC13 and SC34) and the Longissimus thoracis et lumborum muscle (MD13 and MD34) depths were measured over these points (Figure 4).

BCS was assessed using the methodology proposed by Russel et al. (1969) with a half point interval.

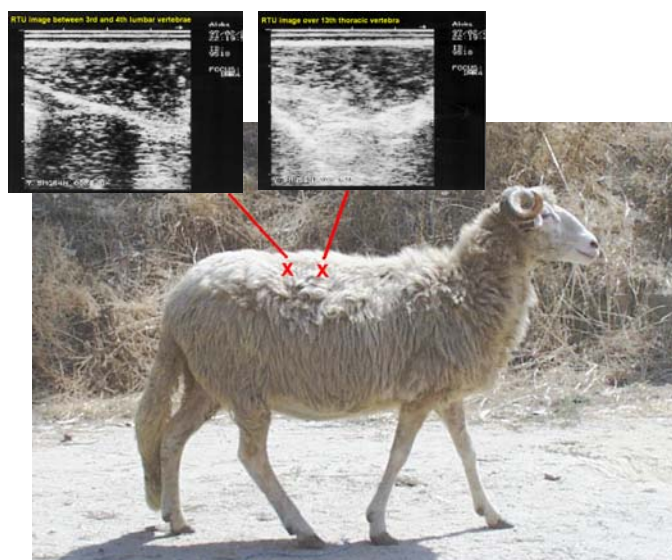


Figure 3. Scanning points on animal and ultrasonograms over the 13th thoracic vertebra and between the 3rd and the 4th lumbar vertebrae.

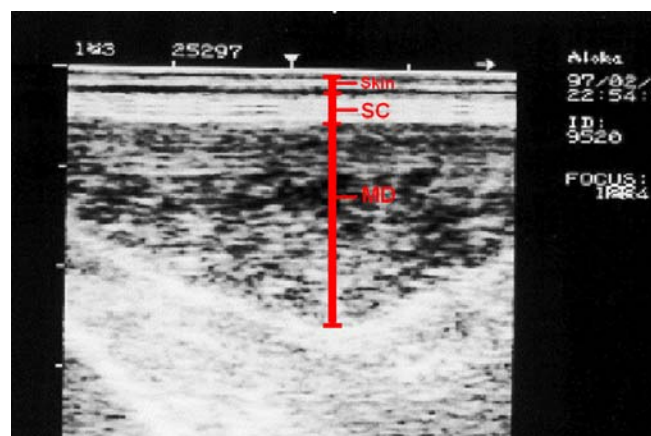


Figure 4. Ultrasonogram showing skin, subcutaneous fat depth (SC) and longissimus thoracis et lumborum muscle depth (MD).

Results

BCS ranged from 1 to 5 and 2 to 4.5 for CTQ and IF ewes, respectively.

The subcutaneous fat depth (SC13 and SC34) was reasonably predicted by BCS (r^2 range: 0.58 to 0.80; RSD < 1.0 mm).

BCS was inadequate to predict muscle depth (r^2 range: 0.013 to 0.42).

Conclusion

BCS reflects the subcutaneous fat depth variations, but the assessment of muscle variation by BCS is inadequate.

References

Russel, J. F., Doney, J. M. e Gunn, R. G., 1969. Subjective assessment of body fat in live sheep. *Journal of Agricultural Science, Cambridge*. 72: 451-454.

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