RELATIONSHIP BETWEEN BODY CONDITION SCORE AND MUSCLE AND FAT DEPTHS MEASURED BY ULTRASOUND IN MEAT AND DAIRY EWES

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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

Figure 2. - CHURRA DA TERRA QUENTE 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).

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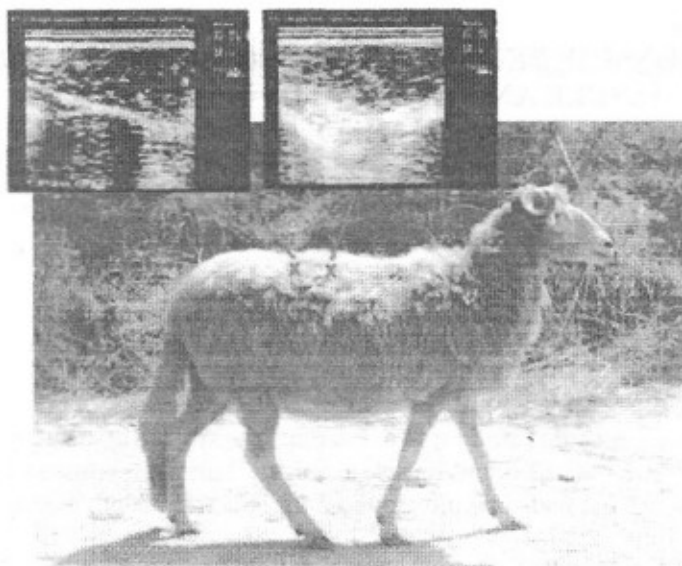
Figure 3. - SCANNING POINTS ON ANIMAL AND ULTRASONOGRAMS OVER THE 13TH THORACIC VERTEBRA AND BETWEEN THE 3RD AND THE 4TH LUMBAR VERTEBRAE

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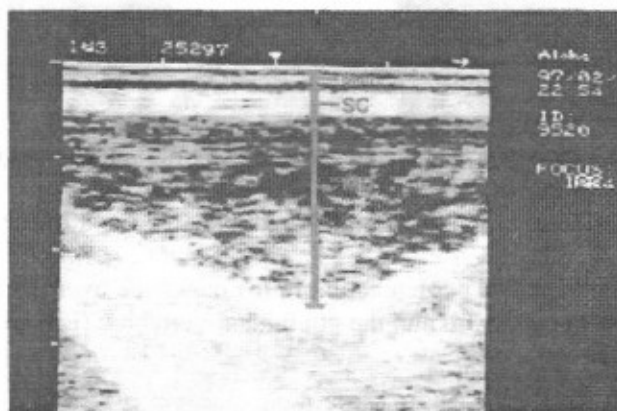

Figure 4. - ULTRASONOGRAM SHOWING SKIN, SUBCUTANEOUS FAT DEPTH (SC) AND LONGISSIMUS THORACIS ET LUMBARUM MUSCLE DEPTH (MD)

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

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.

LITERATURA

1. Russet, J. F., J. M. Doney, R. G. Gunn (1969): Subjective assessment of body fat in live sheep. Journal of Agricultural Science, Cambridge. 72: 451-454.

ODNOS IZMEĐU REZULTATA TJELESNE KONDICIJE I DEBLJINE MIŠIĆA I MASNOĆE MJERENE ULTRAZVUKOM U MESNIH I MLIJEČNIH OVACA

Cilj

Cilj ovog rada bio je ispitati prikladnost rezultata (skora) tjelesne kondicije (BCS) za predviđanje zaliha masnoće i mišića. Procjena je izvršena unošenjem BCS-a prema in vivo stvarnim ultrazvučnim mjerenjima debljine mišića i masnoće.

Materijal i metode

Istraživanje je provedeno na 17 odraslih Ile-de-France (IF) ovaca mesnog tipa (Sl. 1) i 47 Churra da Terra Quente (CTQ) odraslih ovaca mliječnog tipa (Sl. 2).
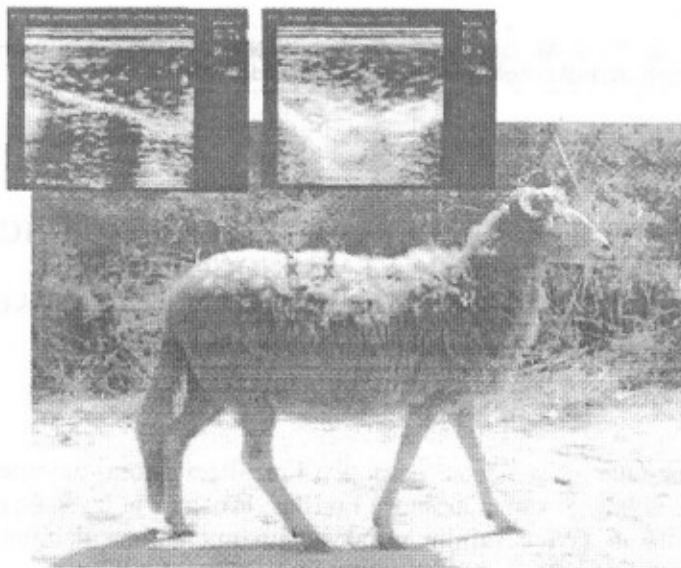
Sl. 1. - OVCA ILE-DE-FRANCE


Sl. 2. - OVCA CHURRA DA TERRA QUENTE

Životinje su skenirane pomoću Aloka 500V primjenom linearne sonde od 7,5 MHz.

Sonda je bila smještena okomito na kralježnicu iznad 13. prsnog kralješka i između 3. i 4. lumbalnog kralješka (Sl. 3).

Sl. 3. - TOČKE SKENIRANJA NA ŽIVOTINJI IZNAD 13. PRSNOG KRALJEŠKA I IZMEĐU 3. I 4. LUMBALNOG KRALJEŠKA

Potkožna masnoća (SC13 i SC34) i dubina mišića Longissimus thoracis et lumborum (MD13 i MD34) mjereni su iznad ovih točaka (Sl. 4).
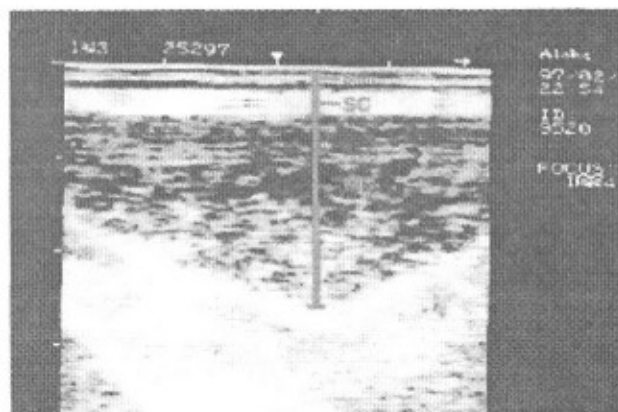
SI. 4. - ULTRASONOGRAM KOJI POKAZUJE KOŽU, DEBLJINU POTKOŽNE MASNOĆE (SC) I
DUBINU MIŠIĆA LONGISSIMUS THORACIS ET LUMBORUM (MD)

BCS je procijenjen po metodi koju su predložili R u s s e l i sur. (1969) s
intervalom od pola stupnja (točke).

Rezultati

BCS se kretao od l do 5 i 2 do 4,5 za odrasle ovce CTQ i IF.

Debljina (dubina) potkožne masnoće (SC13 i SC34) bila je opravdano
predviđena BCS-om (r^2 raspon: 0.58 do 0.80; RSD < 1.00 mm).

BCS nije mogao predvidjeti debljinu (dubinu) mišica (r^2 raspon 0.013 do
0.42).

Zaključak

BCS odražava variranje debljine (dubine) potkožne masnoće ali procjena
variranja mišića pomoću BCS-a je nedostatna.