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ABSTRACT

Non-destructive, ultrasonic evaluation of meat quality in live Japanese Black steers from coloured images produced by a new ultrasound scanner.

Ozutsumi K[1], Nade T, Watanabe H, Tsujimoto K, Aoki Y, Aso H.

[1] *National Institute of Animal Industry, Tsukuba 305, Japan.*

An improved colour scanning scope was used for evaluating meat quality (marbling) of live Japanese Black steers. This equipment consisted of a small size ultrasonic probe (2 MHZ) and LCD display. Seventeen fattened Japanese Black cattle were scanned at the region of the 7th rib about one week before slaughter. A picture of the cross-sectional area of the back was obtained immediately after applying the probe and contained 15 colours representing different signal strengths. The time for each scan was 2 seconds. The picture signals were fed into a computer for rapid estimation of fat percentage of the M. longissimus thoracis. After slaughter, the fat content and chemical characteristics were determined on the M. longissimus thoracis obtained from the same rib section. The range of fat content was 7.0 to 23.7% (average 18.47%). A high correlation coefficient (r = 0.90; r.s.d. = 2.01%) was obtained between actual fat percentage of the M. longissimus thoracis and colour-scanning scope SR200 estimates based on the percentage of the weak blue dot(1) in the echo. Estimates of the subcutaneous fat thickness and the cross-sectional area of M. longissimus thoracis from the scans were in good agreement with the actual carcass measurements (r = 0.69; r.s.d=0.52 cm and r = 0.81; r.s.d. = 4.26 cm(2), respectively). These results show that the new colour scanning scope is a useful instrument for estimating meat quality (marbling) in live cattle.

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