

AN EVALUATION OF THE SCANOPROBE FOR MEASURING FAT DEPTH OF BEEF CATTLE

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The degree of fatness is a most important characteristic of a beef carcass, determining both the yield of retail cuts and consumer acceptance. Many techniques to estimate fatness rely on the strong positive correlation between subcutaneous fat depth (SFD) and total body fat. As well as visual and tactile methods, SFD can be measured on livestock by ultrasonic techniques (Tulloh et al. 1973). The Scanoprobe (Ithaca NY) is a portable battery powered ultrasonic machine. This paper examines the accuracy and repeatability of the Scanoprobe to predict subcutaneous fat depth.

SFD was measured on 20 Hereford steers and 30 Angus females. Three experienced operators, using two machines, each measured the 50 cattle on three occasions. Operators followed a standard measurement procedure at the 12/13th rib site (approximately .66 of the width of the 12th rib from the mid line). Cattle were slaughtered at a commercial abattoir and SFD was measured on cold carcasses, quartered at the 12/13th rib the following day.

TABLE 1 Scanoprobe measurements and cold carcass fat depth (CFD), and the correlation "r" between Scanoprobe measurements and CFD

Mean	CFD 10.8 (7.1) ¹	Operator 1 10.5 (5.2) ¹	Operator 2 10.1 (5.2) ¹	Operator 3 9.4 (6.0) ¹
"r" 1st measurement		.77 (3.6) ²	.83 (3.0) ²	.73 (4.2) ²
"r" 2nd measurement		.82 (3.4) ²	.85 (2.7) ²	.86 (3.1) ²
"r" 3rd measurement		.83 (3.1) ²	.79 (3.7) ²	.84 (3.4) ²
1 - Standard Deviation	2 - Residual Standard Deviation			

Differences between means of Scanoprobe readings and CFD were not significant ($P > 0.05$). CFD was the only significant factor influencing Scanoprobe readings ($P > 0.01$) while liveweight, carcass weight and the curvilinear effect of CFD were not significant ($P > 0.05$). Repeatability between operators was high ($t = .95$) as was repeatability between repeat measurements ($t = .98$).

Deliveries against Australian trade steer futures contracts or for classification price schedules have a 4-6mm premium fat band (Horcicka 1981). Scanoprobe means from all operators were sufficiently accurate to select stock for purposes such as these and our results also show that measurements at different times and by different operators can be reliable. The Scanoprobe also has application for teaching visual and tactile assessment skills.

These results suggest that the Scanoprobe when correctly used by experienced operators can measure SFD on live cattle in commercial situations.

REFERENCES

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