THE USE OF SUBCUTANEOUS FAT THICKNESS TO PREDICT MUSCLE AND FAT IN GRASS-FED AND GRAIN-FED DOMESTIC BEEF CARCASSES

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When investigating the effects of breed on the regression of percentage carcass components o subcutaneous fat thickness, Johnson and Priyanto (1991) used carcass weight categories. They repor that the effects of breed were not as important in lightweight carcasses (153-267 kg) as in heavyweigl carcasses (277-382 kg). Therefore, the general use of fat thickness as a predictor was much mor precise in the lighter weight carcasses than in the heavier weight carcasses. Evidence in the literatu indicates that a high level of nutrition fed to cattle of the same liveweight induces a higher rate of deposition than a lower intake of the same diet (Butterfield 1966; Murray *et al.* 1974). Under the circumstances a high proportion of fat was deposited in the subcutaneous depot. Therefore t prediction of carcass composition using subcutaneous fat thickness and carcass weight may need to ta into account plane of nutrition. The current study examines the prediction of carcass composition grass-fed and in grain-fed steers.

Regression equations for predicting carcass composition using 12th rib fat thickness were develo from 35 carcasses (153-267 kg) of grass-fed steers (Hereford, Brahman and Brahman-Hereford crossbred). The equations from this reference group (Gsl) were compared with those of 2 other groups; 12 grass-fed steers (Gs2) (Hereford, Africander-Hereford and Simmental-Hereford crosses) and 14 grain-fed steers (Gn) (Brahman, Angus and Friesian) with carcass weight ranges of 188-267 kg and 158–263 kg respectively.

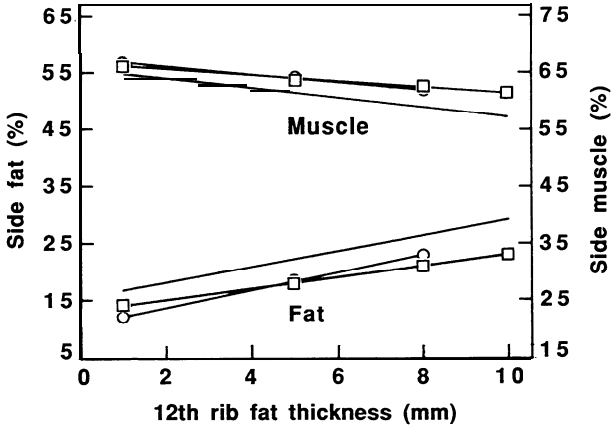

Fig. 1. Regressions of percentage side components on 12th rib fat thickness for the Gs1(□), Gs2 (○) and Gn (—) groups.

Comparisons of regression coefficients revealed that there were no significant differences in the regression slopes between groups for either the prediction of percentage side fat or percentage side muscle using 12th rib fat thickness. However, at the same fat thickness fat proportion was significantly lower ($P<0.01$) and muscle proportion significantly higher ($P<0.01$) in the carcasses from the reference group (Gsl) than in the grain-fed steers (Gn). The differences were 4% for fat and 2.5% for muscle. The carcass composition of the 2 grass-fed groups (Gsl and Gs2) did not differ significantly. The fitted regressions of the 3 groups are shown in Fig. 1. It was concluded that the prediction equations developed from grass-fed steers applied only for estimating carcass composition of steers which had been grass-fed. They were unlikely to accurately describe the carcass composition of steers which had been grain-fed, unless adjustments were made.

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