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COMPARISONS BETWEEN MEASURES OF FATNESS IN LAMB CARCASES

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The amount of trimming required is an important measure of fatness in carcases as excess fat reduces retail values. In competitions and commercial appraisal, fatness is commonly either measured at the 13th rib of the partially jointed carcase or assessed subjectively (Kempster et al. 1976). There are few reports comparing the usefulness for appraisal systems of visual fat assessments and measurements taken on intact carcases and major cuts.

Six measures were compared for their ability to explain variation in fat trim weight between carcases of similar weights and lengths. Some 273 carcases (weight range 10.2 to 26.5 kg) were broken into standard cuts, trimmed to approximately six mm, and fat trim weighed. Measures studied were subcutaneous fat depth close to the 13th rib of the intact chilled carcase (I13), fat depths at the anterior (AL) and posterior (PL) ends of the loin and on the chump (CH) and shoulder (SH) cuts, and visual fat (VFS) scored from one to five by an experienced operator. Simple and partial correlations with fat trim weight were calculated.

Simple correlations of 113, AL, PL, CH, SH and VFS with fat trim weight were 0.78, 0.77, 0.69, 0.71, 0.64 and 0.70 respectively ($p<0.001$). At similar carcase weights and lengths 113, AL, PL, CH and SH measurements accounted for 36, 32, 29, 26 and 18 percent of the variation in fat trim weight, while VFS explained 25 percent of this variation. Screening of combinations of measures showed that fat trim weight could be predicted from VFS in conjunction with carcase weight ($R^2$0.58), from 113 and carcase weight ($R^2$0.65), 113, VFS and carcase weight ($R^2$0.68), 113, CH and carcase weight ($R^2$0.69) or 113, VFS, PL and carcase weight ($R^2$0. 71). Replacing 113 by AL in equations did not improve their predictive accuracy.

In sheep carcase classification it is proposed that fatness be visually scored (Moxham and Brownlie 1976). The present results give an indication of the increase in accuracy of fatness estimation which could result from the development of an objective technique for measuring fatness on the slaughter chain. The results confirm that 13th rib measurements are more reliable as indicators of fatness than other measures and suggest that measurements on intact (113) and jointed (AL) carcases are equally reliable. Greater use of the intact measurement in carcase competitions would increase speed of appraisal. In competitions which include some degree of jointing, small increases in accuracy of fatness estimation can be achieved using chump or posterior loin measurements in conjunction with carcase weight and a measurement at the 13th rib.

KEMPSTER, A.J., AVIS, P.R.D., CUTHBERTSON, A. and HARRINGTON, G. (1976). J. agric. Sci., Camb. 86: 23.

MOXHAM, R.W. and BROWNLIE, L.E. (1976). Wool Technol. Sheep Breed. 23(2): 17.

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