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The Australian Meat Board has developed a carcass classification scheme for sheep based on measurements of weight, age, sex, fatness and conformation (Moxham and Brownlie 1976). Attempts to assess these and other factors as predictors of carcass quality have been frustrated by the lack of an adequate criterion of quality. In these experiments, differences in purchases of carcasses by buyers were taken to be indicative of perceived differences in quality. Stepwise discriminant analysis was used to analyse the allocation of carcasses to buyers, given a number of measurements on the carcasses. The usefulness of these measurements is indicated by the proportion of carcasses "correctly" allocated. A similar approach has been used in research into description of beef carcasses (Anon 1976).

Two trials were conducted at a large private abattoir in Victoria. The first involved analysing the allocation of 425 new season's lambs to three buyers in October 1976. The second involved the allocation of 147 old lambs to four buyers in July 1977. The variables used in analysing the first trial were: carcass weight (CW), conformation score (CS), fat score (FS), carcass weight to length ratio (CLR) and the interactions (CW x CS, CW x FS and CS x FS). The second trial differed only in that daily variations (DAY) were also taken into account in the analysis. Both trials considered only carcasses within the weight range 14 to 18 kg.

In the first trial the significant discriminating factors ($P < 0.05$) were CW, CS and CW x CS, selected in that order. The standardised discriminant function coefficients for these factors were all of similar magnitude which means that they all have similar importance. These factors correctly predicted the allocation of 57% of carcasses to their actual buyer. This proportion is not high, although a goal of 100% is unrealistic because of inconsistencies in actual buying procedures. However, two buyer groups were purchasing similar carcasses and so the data were regrouped and re-analysed. This increased the proportion of correct allocations to 79%.

In the second trial the significant factors were CW, DAY and CLR, in that order. During this period there was a general shortage of lambs and this is reflected both in the significance of DAY which shows daily variations in supply and demand, and in the lower proportion of carcasses correctly allocated (43%) which points towards lax specifications.

Carcass weight (CW) is obviously the most discriminating variable and this is because it can be objectively assessed in the buying procedure. Shape is also important as shown by CW, CW x CS and CLR. Fat score (FS) was not a significant discriminator in either trial, probably because there is too much variation within the central fat score, as defined by Moxham and Brownlie (1976). Narrowing this range of "fatness" would increase the discriminating power of FS within this weight range. Generally, discrimination between buyers on the basis of these factors was not good, unless buyers differed obviously in one or more factors.

ANON (1976). Beef research report 19, Bureau of Agricultural Economics..
MOXHAM, R.W. and BROWNLIE, L.E. (1976). Wool Tech. Sheep Breed. 23: 17.

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