LIFETIME WOOL 13. CALIBRATION OF CONDITION SCORING BETWEEN OPERATORS

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Accurate and consistent assessment of the condition score (CS; Russel *et al.* 1969) of flocks of Merino ewes is a critical activity in the 'Lifetime Wool', a national project attempting to formulate ewe management guidelines that optimize ewe and progeny performance and systems profitability (Thompson and Oldham 2004; *these proceedings*). On four occasions, a subset of eight operators involved in this project estimated the CS of a number of sheep (n = 28 to 50 with 3 records per sheep). The aim was to correct for differences between operators in condition scoring across the project.

Table 1. Details on condition score calibration exercises for 'Lifetime Wool' project.

	Exercise 1	Exercise 2	Exercise 3	Exercise 4
Location:	Kendenup (WA)	Ballarat (VIC)	Kendenup (WA)	Coleraine (VIC)
Date:	January 2003	June 2003	July 2003	August 2003
Number of sheep:	50	30	28	28
Number of operators	5	4	7	6

Actual CS for each sheep was estimated. A simple average of all condition scores recorded for each sheep was not appropriate because each exercise was attended by different operators and differences in measurement of CS between Western Australia (WA) and Victoria (VIC) were expected. Instead the CS for each sheep was estimated from the five operators who attended exercises in both States in a way that gave equal weighting to each State:

$$CS_{Act} = [CS_{Operator\ 1,WA} + CS_{Operator\ 4,WA} + CS_{Operator\ 7,WA}]/6 + [CS_{Operator\ 3,Vic} + CS_{Operator\ 5,Vic}]/4$$

Some of these operators were absent from the first two exercises, so their condition scores were estimated from relationships obtained by multiple regressions on the last two exercises where all five operators were present. Having obtained comparable estimates of actual CS for the sheep in all exercises, a linear mixed model with the following fixed terms was fitted to operator condition scores:

$$Operator + Operator.CS_{Act}$$

Residual variance was allowed to differ for each operator enabling the estimation of a 95% confidence interval about the mean condition score for each operator (Figure 1).

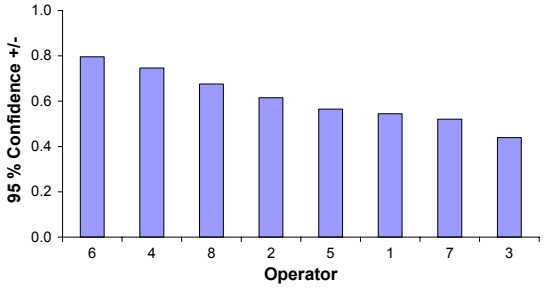

Figure 1. 95% Confidence Intervals (+/-)

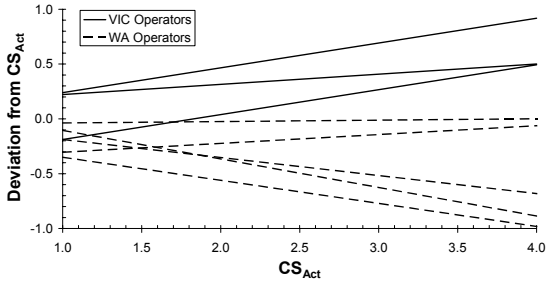

Figure 2. Operator Condition Score Corrections

All terms in the model were significant (P<0.001) indicating differences between operators and that these differences changed as the level of CS varied. Correction equations obtained from the model for each operator are illustrated in Figure 2. The distance between each line and the horizontal axis can be interpreted, as the estimated correction required at different condition scores to bring the operators in line with the actual CS. The distance between two lines can be interpreted as the correction required to bring two operators condition scores in line with each other.

RUSSEL,A.J.F., DONEY,J.M. and GUNN,R.G. (1969). *J. Agric. Sci. Camb.* 72, 451-4.
THOMPSON,A.N. and OLDHAM,C. (2004). *Aust. Soc. Anim. Prod.* 25, *(these proceedings)*

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