CANTERBURY MERINO SIRE TEST STATIONS

D.J. COTTLE[ac] and I.H. MACDONALD[b]

[a] Department of Wool Science, Lincoln College, Canterbury, New Zealand.
[b] Ambreed N.Z. Ltd, Kaiapoi, Canterbury, New Zealand.
[c] Present Address: Department of Wool and Animal Science, University of New South Wales, P.O. Box 1, Kensington NSW 2033, Australia.

INTRODUCTION

A Merino sire test station was initiated in North Canterbury in 1988 to estimate the breeding values of some New Zealand rams and imported Australian ram semen (Cottle and McDonald 1988). The advantages of a test station compared to on-farm sire referencing have been discussed by Roberts et al. (1988). The program was continued in 1989 with 200 Black Forest, 150 Tara Hills and 130 Mt. Otekaike ewes being inseminated. The 8 fine wool sires used in 1989 were Black Forest 74/85, Black Forest Noah, Eyreleagh 57, Forest Range 497/84, Flaxton 628/87, Moutere 716, Salt Creek 19 and Te Awa 11/87. Black Forest 74/85 has been used in both years to link results. A medium wool test site established in 1989 has had disappointingly low conception rates, possibly due to the high proportion of maiden ewes inseminated. It is planned to link a number of test sites in 1990 by using common reference semen.

METHODS

The liveweight and fleece data from 1989 hoggets were used to estimate the breeding value of the sires by calculating regressed least squares means. The sire, sex, rearing status and age of dam were treated as fixed effects in a linear model to estimate the mean effect of each ram (Harvey 1976). The two dam bloodlines which were allocated evenly between sires in 1988 (Cottle and MacDonald 1988) were not included as fixed effects, whereas the three dam bloodlines used in 1989 will be included in the model.

The mean effects of each sire were multiplied by $1/2\ nh^2/[1+((n-1).h^2/4)]$,

where n = number of offspring/sire
h^2 = assumed heritability of the dependent variable (Lewer and Wickham 1986)

to derive the breeding value of the ram as a deviation from the mean. These values were also calculated for a fleece selection index: 6.4 * clean fleece weight -10.0 * fibre diameter (Nicol and Cottle 1990). All progeny were classed by an independent stud owner.

The heritability of each trait can be calculated from the analysis of variance (Becker, 1984). The sires being progeny tested had been selected for fleece weight and fibre diameter which reduces the between-sires variance for these traits and thus underestimates their heritabilities (Ponzoni and James, 1978). The accuracy and precision of the estimates will improve as the number of sires with progeny test data increases in subsequent years and the estimates will not be presented until then.

RESULTS

The breeding values of the above average rams are presented in Tables 1 and 2. Breeding value estimates will also be calculated for predictive colour and staple strength.

Table 1. Hogget fleece data from the test station. Rams above average estimated breeding value for fleece index.

	Estimated Breeding Value			
Ram	Fleece Index ($)	Clean Fleece Weight (kg)	Fibre Diameter (mm)	% Culls
Black Forest 74-85	+11.00	-0.14	-1.3	4
*Sierra Park Urqhart 51st	+5.71	-0.10	-0.7	9
Cleardale Y986-85	+4.41	+0.39	-0.2	0
*Lochaber	+2.59	-0.46	-0.6	5
Castle Hill 09-85	+2.49	-0.25	-0.4	18

Least squares mean
* Australian ram/semen

Table 2. Bodyweight data from the test station. Rams above average estimated breeding value for hogget body weight.

	Estimated Breeding Value for Bodyweight (kg)	
Ram	5 months old	12 months old
Flaxton 535-85	+2.3	+2.7
Black Forest 74-85	+0.7	+2.0
Collinsville Thatcher 85-87	+1.8	+1.5
Cleardale Y986-85	+0.4	+1.1
Sierra Park Urquhart 51st	-1.1	+0.3
Least squares mean	25.4	35.7

DISCUSSION

The breeding value results should help New Zealand Merino breeders make more informed purchases of semen on the basis of relative production data. The fleece index values can be used to place a relative value on each dose of semen sold (Cottle, 1986). These values are strongly influenced by the economic value placed on clean fleece weight and fibre diameter (Nicol and Cottle, 1990).

The highest valued rams came from both sides of the Tasman, thus breeders can not take the genetic superiority of their rams in different environments for granted. The progeny from some Australian imported semen may be poorly adapted to the cold wet conditions common in New Zealand.

It must be emphasised that a general comparison of Australian and New Zealand rams can not be made from these results which relate only to the 9 sires tested. It would be of considerable interest if some New Zealand Merino sires were tested at both Australian and New Zealand sites.

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