

FURTHER OBSERVATIONS ON FACE COVER SCORE IN CORRIEDALES, MERINOS AND THEIR RECIPROCAL CROSSBREDS

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Summary

Corriedale and Merino ewes and their reciprocal cross breeds born in June 1961 were scored for face cover in January 1963 before mating, in May before lambing, in September after lambs were weaned, and in January 1964, again before mating. A similar group of ewes born on the same property in June 1962 were scored in January 1963, January 1964 and, in the cases of the Merinos and Merino x Corriedales, in September 1963.

Among the 1961 ewes there was a significant increase in face cover in all breeds during the period from January to May 1963, and a significant decrease from September 1963 to January 1964. A significant decrease between September 1963 and January 1964 was also shown by the 1962 ewes in the cases of the 2 breeds scored on both of these dates.

A significant decrease in face cover occurred in the 1962 ewes between 6 and 19 months of age, suggesting an age effect. However the 1961 ewes showed no constant reduction between 18 and 31 months.

The results also suggest a reduction in face cover associated with pregnancy and lactation.

I. INTRODUCTION

Jefferies (1964) reported changes in face cover through the year of **Peppin** Merino and Corriedale ewes aged six years, and indicated that the shedding of wool fibres from the face was affected more by seasonal stresses than by those of either late pregnancy or lactation. As Dun (1963) predicted, and Dun *et al.* (1964), Mullaney (1965) and **Cockrem** (1962, and personal communication) have subsequently shown, face cover can be affected by pregnancy and lactation. Further work on the relative importance of season and reproductive status was indicated.

This paper records the effects of season, age, pregnancy and lactation on the face cover of the progeny of the ewes examined previously (Jefferies 1962, 1964).

II. MATERIALS AND METHODS

Corriedale, **Peppin** Merino, Corriedale x Merino and Merino x Corriedale ewes, born in 1961 (1961 ewes) and 1962 (1962 ewes) to Corriedale and **Peppin** Merino ewes examined previously (Jefferies 1962), were run together at "Beaufront", Ross, Tasmania, except during mating and lambing. In the case of the

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TABLE 1

Mean face cover scores and variances for ewes of four breeds born in 1961 and scored on various occasions. (Numbers of ewes are shown in brackets)

Date	Age (months)	Status	Corriedale (108)		Corriedale x Merino (75)		Merino x Corriedale (95)		Merino (98)	
			Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
3.i.63	18	Before mating	5.0	1.58	4.8	2.42	5.0	1.53	4.6	1.08
31.v.63	23	Before lambing	7.1***	0.98	6.5**	1.34	6.0**	1.49	5.0*	2.87
23.ix.63†	27	After lambs weaned	6.1***	1.53	5.8**	1.37	5.2**	1.44	4.7	1.38
30.i.64	31	Before mating	4.8***	1.02	4.4**	0.92	4.4**	1.27	4.2***	1.24

Asterisks indicate that a mean differs from the preceding one; *P<0.05; **P<0.01; ***P<0.001.

†Lambs weaned at 11 weeks of age because of drought conditions.

Pooled variance: Merino x Corriedale 1.43.

TABLE 2

Mean face cover scores and variances for ewes of four breeds born in 1962 and scored on various occasions. (Numbers of ewes are shown in brackets)

Date	Age (months)	Status	Corriedale (106)		Corriedale x Merino (88)		Merino x Corriedale (98)		Merino (89)	
			Mean	Variance	Mean	Variance	Mean	Variance	Mean	Variance
3.i.63	6	After Weaning	6.1	1.54	5.6	1.34	5.4	1.38	5.0	1.48
23.ix.63	15						5.4	1.80	5.4**	1.35
30.i.64	19	Before mating	5.0***	159	5.1***	0.95	4.7***	1.21	4.1***	0.75
Pooled within class variances				1.57		1.15		1.46		

Asterisks indicate that a mean differs from the preceding one; ** $P < 0.01$; *** $P < 0.001$.



Fig. 1.—A face cover score of 2 (1 for nose and 1 for jowl) on a Merino ewe in January at weaning of her lamb.



Fig. 2.—A face cover score of 3 (1 for nose and 2 for jowl) on a Corriedale x Merino in May.



Fig. 3.-A face cover score of 4 (2 for nose and 2 for jowl) on a Corriedale ewe in January at weaning time.



Fig. 4.-A face cover score of 5 (2 for nose and 3 for jowl) in July.



Fig. 5.—A face cover score of 5 (3 for nose and 2 for jowl) in January.



Fig. 6.—A face cover score of 6 (3 for nose and 3 for jowl) in July.



Fig. 7.-A face cover score of 7 (3 for nose and 4 for jowl) in July.

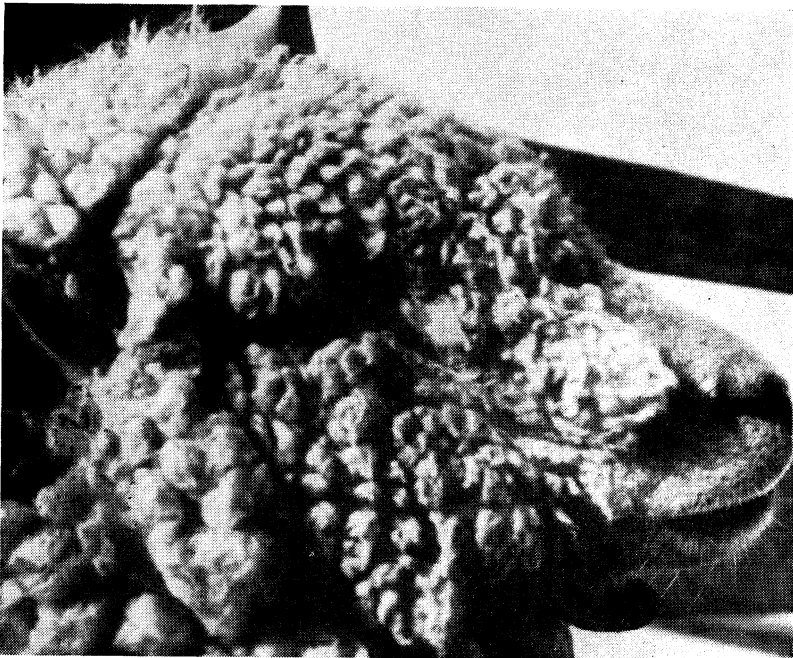


Fig. 8.—A face cover score of 8 (4 for nose and 4 for jowl) with no clear channel from the eye or space around the eye.

crossbreeds, the first breed named is that of the sire. The numbers of ewes **in** each group are shown in Tables 1 and 2.

Face cover was scored on the dates and at the ages shown in Table 1 for the 1961 ewes and in Table 2 for the 1962 ewes.

The face cover score indicated the extent of the area bearing wool, including short fluffy fibres, on the face. Nose and jowl were scored separately, **using** a modification of the system devised by Hyland and Turner (personal communication), and these two scores were added to give a combined score ranging from 2 to 8. The system used is illustrated in Figures 1 to 8.

Body weights of all ewes were taken at approximately 18 months of age before mating.

The 1961 ewes were identified with their 1963 progeny, and so could be classified as (1) failed to lamb, (2) bore a lamb or lambs but reared none, or (3) lambed and reared at least one lamb to weaning age. Class (3) included ewes raising single or twin lambs, the number of twins being few.

Data in Tables 1 and 2 were analysed by the method of Analysis of Variance for each breed separately, following Bartlett's test for homogeneity of variances. The difference between means of two drops in each breed at first mating at approximately 18 months of age was tested by "t" test. The data in Table 3 were analysed by method of Analysis of Variance of unweighted means as described by Snedecor (1956). It is recognised that the method of unweighted means is only approximate, and that the pooled within-sub-group variance may be biased by the fact that it includes repeated observations on the same animals. The least significant difference between means for date of scoring and birth or rearing class was found by using a "t" test as complementary to the analysis of variance test.

III. RESULTS AND DISCUSSION

The mean face cover scores, with their variances, are given in Table 1 for the 1961 ewes, and in Table 2 for the 1962 ewes. The mean face cover scores for the 1961 ewes which did not lamb, for those which lambed but did not rear a lamb, and for those which lambed and reared one or two lambs, and the mean scores of all ewes which lambed, are shown in Table 3 together with the differences between means for the four scoring dates within birth and rearing classes.

For all breeds of 1961 ewes which did not lamb, there was a marked increase in face cover during late summer and autumn (January to May), little or no change during winter (May to September) in all but the Merino x Corriedales which decreased significantly ($P < 0.01$), and considerable reduction during spring and early summer (September to January) (Table 3). It has been suggested that this marked change in face cover is due to seasonal influences on feed quality (Jefferies 1964; Cockrem, personal communication), which may affect the level of substrate available to the wool follicles on the face, particularly towards the extremities (Cockrem 1962).

The September 1963 scores for the 1962 ewes (Table 2) did not differ from the January 1963 scores for the Merino x Corriedales but increased by

TABLE 3

Mean face cover scores for ewes of four breeds separated according to breeding performance

Classification of ewe and ewe attribute	Corriedale (108)			Corriedale x Merino (75)			Merino x Corriedale (95)			Merino (98)		
	Jan. 63	May 63	Sept. 63	Jan. 63	May 63	Sept. 63	Jan. 63	May 63	Sept. 63	Jan. 63	May 63	Sept. 63
<i>Did not lamb</i>												
No. of ewes	12			4			8			11		
Face Cover												
Score	5.4	7.5	7.3	5.1	6.6	5.5	7.5	5.5	6.8	4.8	6.1	5.4
Differences	+2.1***	-0.2***	-2.2***			+2.0**	0	-2.0**		+1.3***	-0.7***	-1.1***
<i>Bore a</i>												
<i>lamb(s) but reared none</i>												
No. of ewes	11			10			6			21		
Face Cover												
Score	4.9	6.7	5.7	4.5	5.6	4.6	5.9	5.4	3.8	5.0	5.3	5.7
Differences	+1.8***	-1.0***	-1.2***			+1.3***	-0.5***	-1.3**		+0.8**	+0.4	-1.5***
<i>Reared</i>												
<i>lamb(s)</i>												
No. of ewes	85			61			81			66		
Face Cover												
Score	5.0	7.0	6.0	4.8	5.9	5.0	6.5	5.8	4.5	5.6	6.0	5.1
Differences	+2.0***	-1.0***	-1.2***			+1.5**	-0.7**	-1.3**		+1.0***	-0.9***	-0.9***
<i>Mean of all ewes that lambed</i>												
No. of ewes	96			71			87			87		
Mean Face Cover Score	5.0	7.0	6.0	4.8	4.9	6.4	5.7	4.4	5.0	6.0	5.1	4.2
Differences	+2.0***	-1.0***	-1.2***			+1.5***	-0.6***	-1.3**		+1.0***	-0.9***	-0.9***

Asterisks indicate that a mean differs from the preceding one; *P<0.05; **P<0.01; ***P<0.001.

TABLE 4

Body weights of ewes of four breeds at approximately 18 months of age

Date of weighing	Breed and Body Weight (lb)			
	Corriedale	Corriedale x Merino	Merino x Corriedale	Merino
3.i.63 (1961 Ewes)	105 (47.7 kg)	108 (49.1 kg)	101 (45.9 kg)	89 (40.5 kg)
30.i.64 (1962 Ewes)	109 (49.5 kg)	115 (52.3 kg)	109 (49.5 kg)	99 (45.0 kg)

0.4 ($P < 0.01$) for the Merinos. For both these breeds there was a subsequent fall in face cover during spring and early summer (September to January).

Cockrem (personal communication) has evidence to show that there is little seasonal stress in the Palmerston North area of New Zealand where rainfall distribution is even throughout the year.

The face cover scores at approximately 18 months, i.e. in January 1963 for the 1961 ewes, and January 1964 for the 1962 ewes, were similar for Corriedales and Corriedale x Merino (Tables 1 and 2). The 1962 Merinos **had** significantly less face cover at this age than the 1961 Merinos ($P < 0.01$), while the difference for the Merino x Corriedales was close to, but did not reach, significance (P just > 0.05). For comparison the body weights on the two dates are given in Table 4. The sheep weighed in January 1964 were consistently heavier than those weighed in January 1963.

Within each breed of the 1962 ewes, there was a significant decrease in face cover between the ages of 6 and 19 months of approximately 1 score, i.e. January 1963 scores compared with January 1964 scores (Table 2). This is the first time such an age effect on face cover has been demonstrated.

In only the Merino x Corriedale breed among the 1961 non-lambing ewes was there a significant decrease in face cover from 18 to 31 months ($P < 0.01$). This suggests that the adult face cover is reached by 18 months and that adult face cover under Tasmanian conditions is modified mainly by season.

The increase in face cover between January and May for the 1961 ewes which lambed was less than that for the ewes which did not lamb in all breeds indicating a possible pregnancy stress effect (Table 3). This agrees with the previously reported findings of Dun *et al.* (1964), Mullaney (1965) and Cockrem (personal communication).

The change in face cover from May to September, which coincided with lactation, can be seen from the differences in mean scores between the 1961 ewes which lambed and reared a lamb and those which lambed but lost their lamb(s) (Table 3). For ewes which lambed, but did not rear a lamb, there were moderate reductions in face cover during this period only in Corriedales and Corriedale x Merinos. The Merinos showed no change and the Merino x Corriedales showed an increase. Reductions occurred in all breeds of ewes, which

lambled and reared lambs and, in the case of the Corriedale x Merinos, this reduction was greater than in the non-rearing ewes. In the Corriedales the reduction was the same (Table 3).

However, for neither pregnancy nor lactation effects can statistical significance be established for these results.

Dun *et al.* (1964) and Cockrem (personal communication) found that the stresses of pregnancy and lactation caused a significant decrease in face cover whose degree was dependent, in the case of lactation, upon number of lambs reared. Mullaney (1965) found no pregnancy effect with November mated fine Merino ewes but quite a large effect with May mated ewes, while changes associated with lactation were found in both groups.

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