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MARKED UDDER METHOD (MUM) — A TECHNIQUE FOR IDENTIFYING THE PROGENY OF EWES WHERE IDENTIFICATION AT BIRTH IS NOT PRACTICABLE.

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SUMMARY

Coloured aerosol raddle was applied to the udders of ewes 3-12 weeks post-partum and the resultant coloured marks on the heads of suckling lambs tested as a means of identifying groups of ewes with their progeny. The accuracy for group identification as measured by the percentage of lambs present marked with the correct colour, ranged from 94.5-99.3%.

INTRODUCTION

On most hill and high country farms lambs cannot be tagged at birth. Where two or more groups are lambed together under these conditions the separation of lambs into different groups is dependant on them being distinguished phenotypically. The marked udder method (MUM) for identifying lambs to their dams described in this paper was devised specifically for a trial where three groups of Merino ewes were to be lambed as one flock.

METHOD

Ewes were drafted from their lambs and the bare skin on the udder of each was liberally sprayed with aerosol raddle ("Sprayline", Stafix Ltd, Invercargill). A different coloured raddle was used for each group. Ewes were released into an adjacent paddock and the lambs then released to join their mothers. As a lamb suckled, some of the raddle from the ewe's udder was transferred to the head of the lamb. The flock was mustered the following day and ewes and lambs drafted again. The colour on each lamb's head indicated the breed or group to which it belonged. To test the accuracy of this method, it was used in three flocks with known lambing records compiled by direct observation.

Intensive management at lambing involved twice daily shepherding to weigh and tag newborn lambs. Unlambded ewes were shifted daily and the ewes with newborn lambs remained in their lambing paddock for 2 to 4 days before being mobbed together with other ewes and lambs.

TRIAL 1.

A flock of 192 Romney and Perendale ewes with 246 lambs aged 6 to 7 weeks was randomly divided into 6 groups and the udders of the ewes sprayed with either green, black, red, blue, orange or yellow raddle. The tag number and raddle colour of each ewe was recorded. The raddle colour and tag number of each lamb was recorded the following day.

TRIAL 2.

A flock of 100 Booroola x Merino ewes with 150 tagged lambs aged 3 to 4 weeks were treated as in Trial 1. Ewes were divided into 4 groups using the 3 most satisfactory colours from Trial 1 (red, orange, blue) plus purple.

TRIAL 3

A flock of 341 Romney and Booroola x Romney ewes with 475 lambs which had been tagged at birth was divided at lambing into 4 flocks of approximately equal size. Two flocks were udder marked at approximately 3 weeks of age and all 4 flocks at approximately 6, 9 and 12 weeks of age. Equal numbers of ewes within each flock were marked red, orange, and blue. The distribution of lamb rearing rank was singles 42%, twins 44% and triplets 14%.

Accuracy was determined by the number of lambs marked in agreement with lambing records as a percentage of the total number of lambs. Confidence limits for the accuracy of the technique were determined by least squares analysis.

RESULTS AND DISCUSSION

Results of the 3 trials are summarised in Table 1.

TRIAL 1.

All of the 187 tagged lambs were coloured, indicating that they had suckled during the previous 24 hours. The detected errors comprised 4 lambs (2.1%) marked 2 colours, one of which was the same as their dam and 5 lambs (2.7%) marked a different colour from that of their recorded dam.

TRIAL 2.

Only one lamb in this flock (0.7%) was marked the wrong colour.

TABLE 1: FLOCK SIZE, AGE OF LAMBS, NUMBER OF GROUPS AND ACCURACY OF MUM

<i>Expt</i>	<i>No. ewes in flock</i>	<i>No. lambs present</i>	<i>Mean age of lambs (weeks)</i>	<i>No. Groups Tested</i>	<i>Accuracy* (%)</i>
1	192	246	6-7	6	95.2
2	100	150	3-4	4	99.3
3	170	238	2-4	3	98.3
	341	475	5-7	3	97.9
	341	458	8-10	3	94.5
	341	459	11-13	3	96.3

* Mean = $96.92 \pm 1.98\%$ (95% confidence limits were determined from the arithmetic means. Limits using logit and square root transformations were substantially the same).

TRIAL 3.

At 3 weeks of age the detected errors were 3 lambs (1.3%) marked the wrong colour and one (0.4%) marked with 2 colours. From 6 weeks of age some of the error was comprised of lambs which had no marks. The number of lambs in this category was highest (4.4% of the flock) at 9 weeks of age (when the ewes and lambs were damp and this caused particular difficulty in reading red marks). Seventeen of the twenty lambs not marked at 9 weeks were marked at 12 weeks and 14 of these were in the red group.

A comparison at 6, 9 and 12 weeks between the groups first tested at 3 weeks and the groups first tested at 6 weeks showed no effect of treatment at 3 weeks on subsequent accuracy. The technique can thus be used on lambs at 3 weeks of age without causing permanent mismothering.

The accuracy of MUM was not significantly affected by breed of ewe (Booroola x Romney v Romney), age of ewe (2 years and 5 years), or lamb rearing rank.

MUM was also used in a flock of 572 ewes comprised of 3 groups of Merino ewes lambed as one flock on a hill block. There were no birth records from this flock but results from MUM at marking (621 lambs aged 1 to 7 weeks) and a repeat observation 5 weeks later at weaning were in 96.7% agreement. This result compares favourably with the 94.6% agreement between the 6 and 12 weeks' observations in Trial 3.

Wilkin^s and Cox (1980) described a mothering technique involving a raised netting fence between adjacent pens of ewes. The accuracy of their technique ranged from 75-97 percent, where only 2

groups were involved. The results of the present trial show that the accuracy of MUM is 94-99 percent where ewes are separated into 3 to 6 groups. These values would be expected to be higher if only 2 groups were to be distinguished. Further efforts can be made to identify lambs marked 2 colours or unmarked, whereas with Wilkins and Cox's system it is not known which lambs are mis-identified.

In the present trial lambs were tagged within 20 hours of birth but no measure could be made of mismothering before tagging. The close agreement between MUM results and lamb tag records suggests that early post-partum mismothering as described by Winfield (1970) and Welch and Kilgour (1971) was of low magnitude after tagging.

CONCLUSION

MUM is a simple technique which can be used where lambs are not identified at birth. The technique is highly accurate from 3-12 weeks of age. It is particularly useful in experiments where different treatment groups have to be lambled on large hill blocks on which it is impossible to accurately record lambing. Other practical uses of MUM include splitting a flock of ewes and lambs into smaller groups to suit feed supply, identification of lambs where two or more mobs of ewes and lambs have inadvertently been grouped together, and the removal from the flock of ewes with disease problems such as footrot. The reverse technique where lambs have been sprayed on the head to identify their dams can also be used.

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