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# A low cost method of artificially rearing lambs at pasture

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## ABSTRACT

Lambs were offered low (180 g DM/d) or high (320 g DM/d) allowances of cold ewe milk replacer until they reached live weights of 9 or 12 kg. Growth performance before and after weaning was compared with that of single-suckled lambs weaned at the 2 corresponding live weights.

Growth rates of lambs offered a high milk allowance were greater than for those offered a low allowance and were similar to those for suckled lambs. Low milk allowance groups showed a relatively smaller growth check following weaning. The major factor affecting post weaning live weights was weaning weight; lambs weaned at 9 kg weighed, on average, 18.4, 24.9, 34.8 and 42.5 kg respectively at 12 weeks, 18 weeks, 12 months and 15 months of age and those weaned at 12 kg weighed 20.3, 27.1, 36.3 and 44.7 kg at the corresponding ages.

It was concluded that the use of cold ewe-milk replacer and the encouragement of lambs to consume herbage at an early age provided a low cost, low labour method of artificially rearing lambs.

**Keywords** Artificial rearing; lambs; cold milk

## INTRODUCTION

With emphasis on improved fertility and greater numbers of multiple births, the sheep industry is likely to suffer increased production losses due to mis-mothering or the inability of ewes to rear all lambs. Such production losses can be reduced by artificially rearing some of these lambs.

Artificial rearing has, however, traditionally been considered uneconomic due largely to the use of labour, housing and expensive food supplements. The present experiment therefore investigated low cost, low labour methods of artificially rearing lambs at pasture.

## MATERIALS AND METHODS

Dorset lambs born over a period of 12 days in late September were randomly allocated to treatments (13 to 15 per group) balanced for birth date, birth weight and sex.

Suckled groups included single lambs. They fed until their live weights reached 12 kg (SH) or 9 kg (SL) and were then weaned.

Artificially reared lambs were removed from their mothers 24 to 48 h after birth and placed in pens (8 to 12 in each) in a sheep barn. They were offered a ewe-milk replacer reconstituted to 20% DM with water and chilled (Large and Penning, 1967; Brisson and Bouchard, 1970) at allowances of 320 (H) and 180 (L) g DM/lamb/d until their live weights reached 12 kg (HH, LH) or 9 kg (HL, LL). They were then weaned. Plastic 10-litre buckets were placed in wooden frames and with 4 teats attached to each (1 teat per lamb).

After an adaptation period of 6 to 9 days indoors the lambs were transferred to clover-dominant pastures for milk feeding. All groups were offered similar herbage allowances pre weaning (0.5 to 1.0 kg DM/lamb/d or 4.0 kg DM/ewe/d) and post weaning (2.0 kg DM/lamb/d). Groups were shifted to a fresh area each week and given an anthelmintic drench with selenium at weaning and every 3 weeks thereafter.

## RESULTS AND DISCUSSION

Growth rates of lambs before and after weaning are shown in Fig. 1. Lambs suckled and in high allowance groups appeared to have greater weaning growth checks than those on the low milk allowance at both weaning weights. The weaning check was relatively longer (about 10 days) in suckled and high allowance groups at the 9 kg weaning weight.

Growth rates of lambs on low milk allowances were relatively greater following weaning, however, and differences in mean body weight between low and high allowance and suckled groups declined by 18 weeks and had disappeared by 12 months. Mean live weight was greater, on average, in H compared with L weaning weight groups by 10, 9, 4, and 5% respectively at 12 weeks, 18 weeks, 12 months and 15 months of age (Table 1).

The ratio of live weight gain (g/d) to milk allowance (g DM/d) during the milk feeding periods (Table 1) was greater in low milk allowance groups (1.16) compared with suckled and high milk allowance groups (.79 to .89) suggesting successful substitution of grass

TABLE 1 Lamb weaning age and growth performance.

Group	Milk allowance (g DM/d)	Weaning age (d)	Lamb gain (g/d)‡ milk allowance (g DM/d)	Lamb live weight (kg)				
				12 weeks	18 weeks	12 months§	15 months§	
SH	350†	27	0.89	21.2	27.8	36.5	43.8	
HH	320	32	0.83	19.7	26.1	35.3	44.2	
LH	180	40	1.16	19.9	27.5	37.1	46.0	
SL	350†	18	0.80	19.6	26.2	35.3	42.9	
HL	320	22	0.79	18.1	24.2	34.8	42.0	
LL	180	30	1.16	17.6	24.2	34.4	42.7	
SD				1.49	2.31	3.17	3.91	
Significance tests:				Weaning weight	**	**	*	*
				Milk allowance	**	*	NS	NS
				Interaction	NS	NS	NS	NS

† Estimated by oxytocin-sample-milking.

‡ Birth to weaning.

§ Includes ewe lambs only, i.e. half of each group.

for milk at the low allowance. The apparently greater intake of grass at an early age by lambs offered the low milk allowance is also reflected in the comparatively smaller growth checks at weaning in these groups.

The growth rates of lambs offered the high milk allowance were similar to those for suckled lambs and also to those achieved in other experiments with cold ewe-milk replacer but with various food supplements offered in addition (Large and Penning, 1967; Frederiksen *et al.*, 1971). Lower pre weaning growth rates of lambs offered a low milk allowance were compensated for by a smaller growth check at weaning and slightly greater post weaning growth rate com-

pared with suckled and high milk allowance groups.

The quantity of milk replacer required in LL (5.4 kg DM/lamb) and LH (7.2 kg DM/lamb) groups showed that lambs could be successfully reared at feed costs of \$9.72/lamb and \$12.96/lamb based on present prices. Labour requirements were minimal, being approximately 2 man hours/d for the 56 lambs during milk feeding and slightly greater during the initial 2 to 3 d of the 'learning' period.

## CONCLUSIONS

Use of cold ewe-milk replacer and the encouragement of lambs to consume herbage at an early age successfully provided a relatively low cost, low labour method of rearing lambs. It is suggested that lambs could be reared for experimental purposes, or on a larger scale commercially, using this method.

## ACKNOWLEDGEMENT

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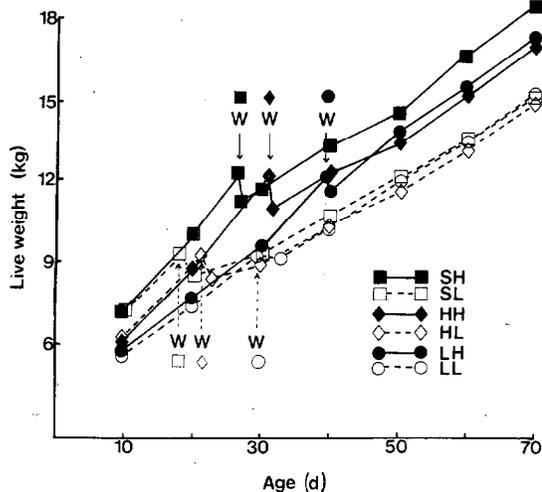


FIG. 1 Live weights of lambs in treatment groups before and after weaning (W).