Influence of herbage allowance during the suckling period on subsequent growth and carcass fatness of twin lambs weaned at 6 weeks of age

J. M. MUNRO and K. G. GEENTY

Templeton Agricultural Research Station
Ministry of Agriculture and Fisheries, Templeton

ABSTRACT

Dorset ewes rearing twin lambs were offered herbage allowances of 2, 5 and 8 kg DM/ewe/d during a 6-week lactation period. Ewes and lambs were shifted at 3-day intervals. At 6 weeks lambs were weaned, combined into 1 mob and offered a fresh area of pasture *ad lib* every 3 days. Lambs were slaughtered at 6, 12 and 18 weeks of age. Carcass weight and fat measurements recorded.

There were significant live-weight differences (2.5 kg) between low and high allowances during the trial, but differences in carcass weight were only significant at 6 and 18 weeks. Average growth rate between 6 and 18 weeks was 176 g/d in all groups. Fat measurements suggested no differences in carcass fatness between groups.

It was concluded that herbage allowance pre weaning had little effect on subsequent lamb growth and carcass fatness when ewes were shifted to new pasture at 3-day intervals.

Keywords Ewe; lamb growth; herbage allowance; early weaning; carcass fatness

INTRODUCTION

Advantages of early weaning lambs include reduced feed requirements and lower carcass fat content (Rattray *et al.*, 1976; Geenty, 1979). Geenty (1979) has shown in some trials that lambs offered liberal quantities of pasture during suckling and weaned at 6 or 9 weeks of age reach comparable slaughter weights to those weaned at older ages. Actual weaning weights achieved at 6 weeks, however, have been directly reflected in similar differences at subsequent slaughter. This relationship was found with uniform nutrition pre weaning. This paper discusses the effects of varying levels of nutrition pre weaning on the subsequent growth and carcass fatness of twin lambs weaned at 6 weeks of age.

MATERIALS AND METHODS

Mixed age Dorset ewes, synchronised for oestrus and mated to Suffolk rams, lambed over a 5-day period in late September. Average litter size was 1.65. Lambs were fostered so all ewes reared twin lambs.

After lambing 19 or 20 ewes were randomly allocated to herbage allowances of 2 (low), 5 (medium) or 8 (high) kg DM/head/d. Ewes and lambs were shifted to fresh pasture every 3 days. At weaning (6 weeks) lambs were combined into 1 mob and offered herbage *ad libitum* (3 to 4.5 kg DM/head/d, utilisation approximately 30%, herbage mass 2500 to 4500 kg DM/ha). All lambs were drenched with anthelmintic plus selenium at weaning and thereafter at 3-weekly intervals.

Lambs were weighed weekly off pasture and following an 18-hour fast prior to slaughter. At 6, 12 and 18 weeks of age 13 lambs were randomly slaughtered from each herbage allowance group and carcass weight and fat measurements taken.

RESULTS AND DISCUSSION

The growth pattern of the lambs from 6 to 18 weeks is shown in Fig. 1. A live weight difference at weaning of 2.5 kg between low and high groups was apparent for the duration of the trial, although the significance levels varied (weeks 6 to 9, $P < 0.01$; weeks 10 to 18, $P < 0.05$). There was no difference in growth rate

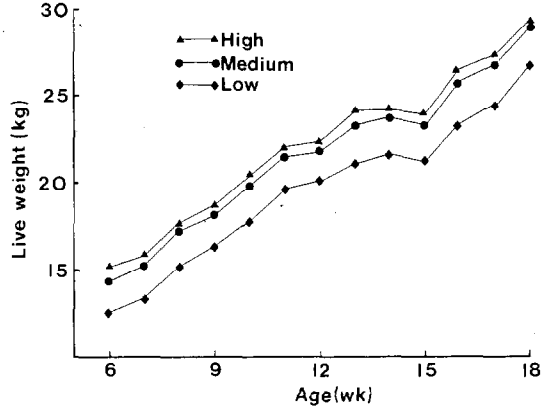

FIG. 1 Effect of pre weaning nutrition on lamb growth.

between the 3 groups over the 6 to 18-week period (average 176 g/d). Average growth rate was reduced by a period of weight loss during weeks 14 to 15 due to dry pasture conditions.

Rattray *et al.* (1982) have shown larger weaning weight differences (lambs weaned per ewe) of 9 to 10 kg between allowances of 2 and 8 kg DM/ewe/d at an older weaning age of 10 weeks. It is possible that the difference between groups in the present experiment, both at weaning and subsequent slaughter ages, was minimised (only 2.5 kg) by early weaning at 6 weeks of age. It has been suggested that early weaned lambs need to reach a critical live weight of 12 to 13 kg by weaning to perform satisfactorily post weaning and this has been associated with a liberal herbage allowance during the suckling period (Geenty, 1979).

Despite significant differences in lamb live weight at weaning in the present experiment, twin lambs reared on the low allowance attained this minimum weight and showed little difference in subsequent growth rate compared to those on medium or high allowances pre weaning. It is possible lambs in the low allowance group reached this weight because of the 3-day shift interval, allowing the lambs to supplement their milk diet with pasture initially at each shift. It is also possible that the ewes acted as a buffer by mobilising body reserves to maintain adequate milk production. Clark (1978) and Geenty (1983) have demonstrated this buffering ability of the ewe at low feed allowances (2 to 3.5 kg DM/head/d) pre weaning.

Although unfasted live weight differed significantly between low and high groups, this was only reflected in PSLW at the 6-week slaughter age. However there were differences in carcass weight at 6- ($P < 0.01$) and 18- ($P < 0.05$) week slaughter ages (Table 1).

Fat measurements in Table 1 suggest that pre weaning nutrition had no effect on carcass fatness at slaughter. Reductions in carcass fat have been attributed to early weaning (Fennessy *et al.*, 1972; Geenty, 1979) *per se* rather than to differential pre weaning nutrition. Since all lambs had similar growth rates post weaning it is perhaps not surprising that subsequent carcass fatness was not affected by level of nutrition during the suckling period.

It can be concluded from these results that although absolute differences in live weight at weaning at 6 weeks, caused by different pre weaning herbage allowances, were reflected at slaughter, adequate weaning weights can be achieved on low allowances. It is suggested that shifting ewes and lambs at frequent intervals is a major contributing factor.

TABLE 1 Effect of pre weaning nutrition on pre slaughter live weight (PSLW), carcass weight (CSSW), GR and kidney fat.

	Pre weaning nutrition				
	Low	Medium	High	LSD (5%)	Sig†
PSLW (kg)					
6 weeks	12.3	14.5	14.4	1.9	*
12 weeks	19.9	21.1	21.5	2.3	ns
18 weeks	24.4	26.2	26.8	3.1	ns
CSSW (kg)					
6 weeks	6.1	7.3	7.6	1.1	**
12 weeks	8.8	9.5	9.8	1.1	ns
18 weeks	10.7	12.3	12.3	1.4	*
GR (mm)‡					
6 weeks	3.6	2.7	3.6	0.8	ns
12 weeks	3.6	3.6	4.2	1.0	ns
18 weeks	5.4	5.1	5.6	1.1	ns
Kidney fat (g)‡					
6 weeks	42	31	39	15	ns
12 weeks	86	62	79	56	ns
18 weeks	128	117	119	34	ns

† Significance of difference between high and low.
‡ Adjusted for carcass weight by covariance.

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