

VARIATION IN COLOSTRUM LEVELS IN CROSSBRED EWES WITH VARYING LITTER SIZES

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For heat production in the first 18 hours after birth lambs require about 200 ml of colostrum/kg body weight (Mellor and Murray 1986). It is normally assumed that ewes producing single lambs will have at least the production to meet this requirement, although ewes poorly fed in late pregnancy will have a delayed onset of normal lactation (McCance and Alexander 1959). An aim of the experiments reported here was to measure the variation in colostrum level in crossbred ewes with varying litter sizes.

Three experiments were conducted in all of which adult Border Leicester X Merino ewes were individually fed restricted levels of lucerne or pasture hay, supplemented with either oat grain, barley or infusions of glucose from about day 120 of gestation to parturition. Ewes were observed continually from day 142 and at parturition lambs were weighed and separated from their dams if sucking was imminent. One hour after parturition ewes were injected with 5 i.u. of oxytocin and hand milked. Lambs were then returned to the ewe until 20 hours post-partum (p.p.), when ewes were milked again by the same procedure. Lambs were then separated from their dams for four hours, and the milking was again repeated and the yield adjusted to a 24 hour period. Colostrum yields one hour and one day p.p. were related to ewe liveweight and condition score prior to parturition, gestation length, litter number and weight, and dry matter and energy intake for the final three and 30 day periods pre-partum.

Colostrum yields ranged from nil to 1861 g at one hour and 510 to 3650 g at one day (Table 1). Both colostrum yield measures were related to litter number ($P < 0.05$). Ewes with higher energy intakes over the previous three or 30 days had higher colostrum yields at one day ($P < 0.01$, $r^2 = 0.19$). No other significant relationships were observed.

Table 1. Litter size, colostrum yields and its dry matter content (mean $\pm$ SE).

Litter size (number of ewes)	One (21)		Two (30)		Three-five (9)	
Litter weight (kg)	5.16	$\pm .15^a$	7.84	$\pm .21^b$	9.64	$\pm .50^c$
Colostrum one hour p.p. (g)	375	76^a	551	86^b	294	169^a
(DM %)	40.3	1.7^a	41.4	1.4^a	44.1	1.9^b
Colostrum one day p.p. (g/24 hr)	1951	138	1966	106	1623	209
(DM %)	22.1	0.9^a	25.4	1.2^b	27.7	2.3^b

Figures within rows with different superscripts differ significantly ($P < 0.05$).

The colostrum levels indicate that triplet lambs may often have dams with marginal levels of colostrum to maintain lamb heat production (Mellor and Murray 1986). The ewes were on restricted intakes and it is possible that nutrients were partitioned away from colostrum accumulation in ewes with three or more fetuses.

REFERENCES

- McCANCE, I. and ALEXANDER, G. (1959). Aust. J. Agric. Res. 10 : 699.
 MELLOR, D.J. and MURRAY, L. (1986). Vet. Rec. 118 : 351.