

EFFECTS OF NUTRITION IN LATE PREGNANCY AND EARLY LACTATION ON EWE PRODUCTIVITY

R.M. DIXON^{AB}, P. CAMPBELL^A and A.R. EGAN^A

^A School of Agriculture, University of Melbourne, Parkville, Vic. 3052

^B Present address: Swan's Lagoon Research Station, Millaroo, Ayr, Qld 4807

Although it is clear that nutrition both pre-partum and post-partum is important to birth weight, survival and early growth of lambs, interactions between nutrition during these intervals and mobilization of ewe body reserves are not well understood (Cowan *et al.* 1980; Hall *et al.* 1992). The present experiment examined ewe and lamb productivity when grazing ewes were fed a high level of supplement during late pregnancy and/or early lactation.

Pregnant 4-year old Merino x Corriedale ewes (50) were selected for similar stage of pregnancy following synchronized joining. The ewes were allocated to 4 treatments as follows: (i) LL, no supplements, (ii) HL, plus supplements pre-partum, no supplements post-partum, (iii) LH, no supplements pre-partum, plus supplements post-partum; (iv) HH, plus supplements both pre- and post partum. The supplement consisted of 500 g/day of lupin grain fed individually for 30 days pre-par-tum and/or 40 days post-partum. Ewes also grazed winter pasture. In addition to the above treatments, 14 ewes selected at random from the original flock and not joined constituted a non-pregnant non-lactating (NP-NL) group. Ewes were weighed frequently. Lambs were weighed at birth and weekly thereafter. Milk secretion during a 4 hour interval was measured by milking ewes following oxytocin injection at 14 days and 28 days after parturition, and wool growth was measured by clipping patches.

Table 1. Liveweight (LW) change (g/day), wool growth (mg/patch.day) and milk secretion (kg/day) of ewes, and growth of single lambs (g/day) after parturition (n 9 - 11)

Measurement	LL	HL	LH	HH	SEM	Significance
Ewes						
LW change (days 7 - 36)	-105 ^{ab}	-126 ^b	-61 ^a	-74 ^{ab}	17.7	***
Wool growth (days 12 - 41)	65	70	73	77	8.3	ns
Milk day 14	1.53 ^a	1.68 ^{ab}	1.90 ^b	1.86 ^b	0.090	*
day 28	1.11 ^a	1.21 ^a	1.58 ^b	1.54 ^b	0.110	*
Lambs						
LW change (days 1 - 35)	220 ^a	243 ^a	282 ^b	285 ^b	11.5	**

Within row means with different superscripts differ significantly (P<0.05).

Lupin supplements increased (P = 0.06) LW gain of ewes during the last month of pregnancy from 233 to 274 g/d, but neither ewe LW immediately after parturition nor lamb birth weight were affected (P>0.05; means 46.0 kg and 5.2 kg respectively). Unsupplemented NP-NL ewes gained 25 g/day during the same interval. Lupin supplements fed post-par-turn reduced ewe LW loss, and increased milk secretion and lamb LW gain, and these responses were not affected by the provision of supplement pre-partum (Table 1). In LL and HL ewes, supplements pre-partum tended to increase post-par-turn ewe LW loss, milk secretion and lamb LW gain, but these effects were much smaller than those due to providing supplement post-partum. During the same interval NP-NL ewes gained 46 g/day and wool growth was 88 mg/patch.day. This experiment demonstrated that although ewes given an increased plane of nutrition during late pregnancy could mobilize additional nutrients post-par-turn, the effect on milk secretion and lamb growth was much less than providing a similar amount of additional nutrients post-partum.

COWAN, R.T., ROBINSON, J.J., McDONALD, I. and SMART, R. (1980). *J. Agric. Sci., Camb.* 95: 497-514.

HALL, D.G., PIPER, L.R., EGAN, A.R. and BINDON, B.M. (1992). *Aust.J.Exp. Agric.* 32: 587-93.