

EFFECTS OF NUTRITION IN EARLY PREGNANCY ON EWE AND LAMB PERFORMANCE IN THE SUBSEQUENT LACTATION

H. DOVE, M. FREER and J.R. DONNELLY

In a study of the nutritional management of the breeding ewe, we examined the effects of three planes of nutrition, imposed from 30d before mating until day 100 of pregnancy, on the performance, during lactation, of 24 (Border Leicester x Merino) ewes and their Dorset Horn-sired single lambs. Grazing pressures were manipulated to achieve gain (H), maintenance (M) or loss (L) of maternal weight over this period. Observed weight changes, including conceptus, were 13.5, 10.0 and 6.1 kg respectively. In the last trimester of pregnancy, all ewes grazed together on abundant pasture; ewe weights immediately pre-lambing were 56.3 (H), 52.1 (M) and 50.1 (L) kg. Lambs were weighed near birth, then, starting on days 9, 23, 44, 69 and 86 of lactation, their milk intakes were estimated using a double-isotope dilution procedure (Dove 1988). On these days, the weights and body compositions of ewes and lambs were also measured (Donnelly and Freer 1974). Results are shown in the Table.

Plane of nutrition

	H	M	L	S.e.d ¹
Ewe LW, kg ²	50.8(-79)	49.1(-56)	44.4(-2)	2.17(27.1)
Ewe energy, MJ ²	654(-2.29)	551(-0.88)	409(0.23)	56.9(1.784)
Lamb birth wt, kg	4.6	4.4	4.6	0.11
Lamb LW, kg ²	6.5(224)	5.9(215)	6.0(186)	0.84(11.3)
Lamb energy ₃ , MJ ²	58(3.02)	49(3.08)	54(2.21)	19.9(0.538)
Milk intake ₃	1114	1036	888	56.7

¹Standard error of a difference.

²Fasted live weights or energy contents (MJ), day 9 of lactation. Values in parentheses are daily changes in weight (g/d) or energy content (MJ/d) up to day 86.

³Mean (ml/d) between days 9 and 86 of lactation.

Ewes on treatment L were significantly lighter than those on treatment H at day 9 of lactation ($P < 0.01$) and had greatly reduced energy contents ($P < 0.001$), due to lower estimated fat reserves. Thereafter, they lost less weight ($P < 0.01$) and tended to lose less energy, so that ewe weights were similar by the end of the study (H44.5 kg; M44.8 kg; L43.4 kg).

Ewe treatments had little effect on lamb weight at birth or on day 9 of lactation. However, milk intakes were significantly greater in lambs from treatment H ($P < 0.001$). These lambs grew faster ($P < 0.01$) during lactation and were significantly heavier by the end of the study (H23.4 kg; M22.4 kg; L20.4 kg, $P < 0.001$).

Despite the abundant feeding in late pregnancy, even moderate under-nutrition before day 100 led to detrimental effects on the level of ewe body reserves at lambing and on lamb milk intake and weight gain. The effects would be likely to be more severe in ewes carrying twins.

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CSIRO, Division of Plant Industry, G.P.O. Box 1600, Canberra, Australian Capital Territory, 2601.