

## Pre-lambing Ewe Condition Score did not Influence Lamb Survival

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Nutritional management of ewes is a potential means of increasing lamb survival. Previous studies have shown that the survival of lambs is not compromised by ewe condition between 2 and 3 pre-lambing, where pasture supply is non-limiting from day 136 of pregnancy (Kenyon *et al* 2012). The current study examined whether a relationship existed between the pre-lambing condition score of ewes and lamb survival and growth.

Data were combined from two shelter experiments conducted between 2007 and 2010 (Robertson *et al* 2011). Briefly, between 2007 and 2009 Merino ewes pregnant to a terminal ram breed were stratified on condition score (using a 0 = emaciated to 5 = obese scale) (Jefferies 1961) and liveweight and allocated to six plots each of single or twin-bearing ewes approximately one week before the start of lambing. In 2010, only twin-bearing ewes were used. A similar number of ewes were placed in each paddock within years, but varied between 17 and 23 ewes. Paddock size was 1 ha for single-bearing and 1.3 ha for twin-bearing ewes. Ewes were checked daily during lambing and lambs identified to their mothers, tagged, weighed and survival and growth to lamb marking recorded. After marking, all sheep were grazed together until weighing at weaning. Data from a small number of triplet-bearing ewes were excluded. The quantity of live pasture available varied between years, from as low as 0.4 T DM/ha in 2008, to above 2 T DM/ha in 2007 (Robertson *et al* 2011). Survival data was analysed using generalised linear mixed modelling with a binomial distribution, with plot and ewe within year as the random effects. Lamb weights and growth were analysed using linear mixed models.

While the survival of single lambs was higher ( $P < 0.05$ ) than that of twins, there was no interaction with the condition score of ewes, and for all lambs born, the survival of lambs did not differ ( $P > 0.05$ ) for ewes in different condition score pre-lambing (Table 1). Similarly, there was no interaction between condition score and birth type for the survival of lambs born alive, but the proportion of lambs born alive which survived was lower ( $P < 0.05$ ) for ewes in condition score 2.0 compared with 2.5 and above, possibly due to few ewes in the former category. Neither lamb birth weight nor weaning weight varied ( $P > 0.05$ ) with ewe condition score if birth type was included first in the model. However, the growth rate of lambs to marking was reduced ( $P < 0.05$ ) from ewes in condition score 2.5 or less, compared with condition score 2.75 to 3.25.

The results suggest that within a flock, a ewe condition score of ewes immediately pre-lambing between 2.25 and 3.25 has a limited impact on the survival and weaning weight of lambs, at least under pasture conditions similar to that of the current study.

**Table 1. Mean proportion of lambs surviving for ewes in different condition score pre-lambing**

	Ewe condition score						
	2.0	2.25	2.5	2.75	3.0	3.25	3.5
No. twin lambs	6	54	190	374	206	64	8
No. single lambs	4	10	38	140	124	53	11
Survival of total births	0.55	0.65	0.80	0.76	0.76	0.77	0.70
Survival of live births	0.56 a	0.76 ab	0.86 bc	0.84 bc	0.83 bc	0.89 c	0.83 abc
Birth weight (kg)	4.9	5.9	5.7	5.7	5.7	5.8	5.6
Growth to marking (g/day)	225 a	272 a	292 ab	310 c	308 c	309 bc	243 a
Weaning weight (kg)	34.9	32.3	31.4	31.7	32.3	32.4	31.5

a,b,c: Different letters within rows indicate means differ at  $P = 0.05$ .

Jefferies B.C. (1961). *Tasmanian J. Agr.* 32, 19.

Kenyon P.R., Ilickson R.E., Hutton P.G., Morris S.T., Stafford K.J. and West D.M. (2012). *Anim. Prod. Sci.* 52, 483.

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