LAMB SURVIVAL OF TEXEL AND POLL DORSET CROSSBRED LAMBS

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SUMMARY

Lamb survival of 1320 lambs of the genotypes Poll Dorset x Merino; Poll Dorset x (Border Leicester. Merino); Texel x Merino; Texel x (Border Leicester. Merino) was studied at Cowra. There was no difference in survival rates between genotypes (singles 89.8%; twins 86.2%; triplets 67.5%). The majority of lambs died from the affects of dystokia and it is suggested that nutritional management of the pregnant ewe was at fault.
Keywords: Lamb survival, crossbred lambs

INTRODUCTION

The breed structure of the Australian prime lamb industry is changing in response to consumer demands for a quality product (Thatcher 1992). Fertility remains an important component of profitability yet, two breeds, the Merino and Texel, are known to have lamb survival problems as purebreds (Stevens *et al.* 1982; Grommers *et al.* 1985). An understanding of the reasons for lamb mortality, can influence breeding and management and allow successful adoption of new genotypes.

Reported here is the lambing performance over two years, of four genotypes viz. Poll Dorset x Merino; Poll Dorset x (Border Leicester. Merino); Texel x Merino; Texel x (Border Leicester. Merino), when lambed together in late winter on the central slopes of New South Wales.

MATERIALS AND METHODS

The experiment was conducted over two years at the Agricultural Research Station, Cowra. Data were analysed from 1320 lambs born, the progeny of three Poll Dorset (D), seven Texel (T) sires and Merino (M) and Border Leicester x Merino (BLM) dams. The ewes were mated using laparoscopic artificial insemination with thawed semen in mid February of 1994 and 1995. Ewes were supplemented with grain and hay from prelambing to the end of lambing because of drought conditions.

Data collected. The ewes were inspected twice each day when new-born lambs were tagged and birth weight, sex, birth type, dam and when necessary, birthing assistance recorded. Dead lambs were collected for autopsy. Post mortem procedures followed those of McFarlane (1965), Haughey (1973) and Duff *et al.* (1982), where the central nervous system was also examined for presence and severity of cranial and spinal meningeal lesions. Birth weight (linear and quadratic) and survival were analysed using Genstat 5 (GENSTAT 1993).

RESULTS

Second cross lambs were significantly ($P < 0.05$) heavier at birth than first cross lambs (4.7 ± 0.07 v's 4.4 ± 0.05 kg) and single lambs heavier than twins ($P < 0.001$; single 5.1 ± 0.04 v's twin 4.4 ± 0.03 kg). There was a significant difference ($P < 0.05$) between genotypes in birth weight of twin lambs with T x BLM the heaviest genotype.

For lamb survival there was no significant variation due to sire, sex or genotype. However, the type of birth and the effects of birth weight ($P < 0.001$; Fig. 1) were highly significant. Overall survival for singles, twins and triplets was 89.8, 86.2 and 67.5 % respectively. Table 1 categorises lamb deaths for each birth type. Over 67% of all deaths were attributed to the effects of dystokia and presentation difficulties. There was a higher proportion of stillborn lambs amongst single than multiple born lambs and a higher proportion of starvation-mismothering amongst the latter. The between category pattern of loss was similar in twins and triplets.

Table 1. Death categories for all lambs dying before 72 hours post partum. Total number of dead lambs in parentheses

Category	Description	Percent within birth type		
		Single	Twin	Triplet
		(25)	(104)	(132)
A	Stillborn dystokia (disproportion or presentation), not breathed	40	15	22
B	Dystokia, breathed, died <12 hours	12	8	5
C	Dystokia, breathed, died 12-72 hours	24	38	34
D	Starvation - mismothering	12	31	29
E	Other	12	8	10

DISCUSSION

We observed no difference in survival between the genotypes nor in the pattern of loss. Losses were higher in multiples but the effect of birthweight was the most significant influence on survival in both singles and multiples.

The influence of birthweight on survival is well recognised but in this experiment it may be economically unimportant since between the birthweights of 3 and 6 kg there was no practical difference in survival rates within each birth type. The low-birthweight relationship with survival may be more an indication of foetal development and maturity. Similarly, under our climatic conditions, the birthweight - hypothermia relationship may be irrelevant since the light lambs were in categories A, B and C and were already "at risk"; and being few in number, economically less important. Birthweight in these breeds may simply reflect the foetal environment and condition of the dam.

The majority of lambs died as a result of dystokia. When all births were considered, presentation difficulties of the lambs at birth were estimated as 5% which contributed 26% of dead lambs. This is less than some reports (Grommers *et al.* 1995; Wilsmore 1986). Starvation - mismothering contributed a relatively low 24% of deaths (Knight *et al.* 1988) indicating that lactogenesis, maternal behaviour and chill were not significant problems. With two difficult pasture years, the ewes received supplements to ARC (1980) maintenance requirements prior to and throughout lambing.

Responses to selection for survival have been successful (Knight *et al.*1988). However, the non genotype-specific effects of dystokia must encourage a review of non-genetic ewe management. Both lamb birth weight and the ewe are implicated and we suggest that nutritional management (Holst and Allan 1992) of the ewe may provide a partial solution.

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Figure 1. Lamb mortality (0-3 days p.p.) as a proportion of total lambs born for each birth type at several birth weight classes. Numbers refer to lambs born in birth weight class.