

**SURVEY OF HIGH PERFORMING SHEEP FARMERS:
LAMB REARING PERFORMANCE**

J.M. Everett-Hincks, K.J. Stafford and H.T. Blair

Institute of Veterinary Animal and Biomedical Sciences, Massey University, New Zealand

SUMMARY

Data from 181 New Zealand sheep farmers were collected and segregated into two production groups based on mixed age breeding ewe lambing percentage: high (150% and greater) and low (less than 150%). High lamb rearing success was observed in high and low lambing percentage farms, which is not surprising considering high performing sheep farmers were surveyed. Average lambing percentage for the respondents surveyed was 143% compared to the national lambing percentage average of 115%. Shepherding frequency was significantly higher with high lambing percentage farmers compared with the low lambing percentage farmers.

Keywords: Sheep, *Ovis aries*, lambing percentage, lamb losses, shepherding.

INTRODUCTION

New Zealand sheep farmers have focussed selection pressure on fecundity traits in recent times. The prices for lamb are continuing to increase whereas wool prices are not (Anon 1999). Farmers wanting to produce more lambs per ewe mated are introducing one or a combination of the following to their flock: highly fecund breeds such as the Finnish Landrace and East Friesian; speciality genes; hogget mating; and application of fertility treatments like Androvax. The increase in number of lambs born per ewe mated comes at a cost if pregnancy and lambing are not managed appropriately. Lamb survivability is a problem with up to 30% lamb losses recorded between pregnancy scanning and tailing (Aspin 1997). These lamb losses are not acceptable from a production and animal welfare perspective.

This paper reports some results from a survey of sheep farmers with high producing flocks, which sought to explore current reproductive rates, lamb losses and management practices.

MATERIALS AND METHODS

Over 450 sheep farmers were selected nationwide to take part in a survey. The farmers were achieving a high lambing percentage for their farming conditions. The survey requested that answers be based on 1999 production. The respondents were separated into two groups: farmers achieving less than 150% lambing (69% of the respondents) and those experiencing 150% lambing and greater (31% of the respondents). The groups will be referred to as high (HighL) and low (LowL) lambing groups for the purposes of this paper. The term lambing percentage used in the survey and in this paper is taken as lambs weaned per 100 ewes mated.

Farmers were asked for the percentage of lamb deaths from lambing to 2 days of age (stage 1) and from day 2 to weaning (stage 2) for ewes carrying singles, twins and triplets. They were also asked to estimate the level of importance of factors that affect lamb survival. If they believed the trait was

not important they scored it 1, slightly important 2, important 3, very important 4 and extremely important 5. Frequency of shepherding was also requested.

Farmer level of importance data was analysed using chi-squared procedures. Differences between HighL and LowL groups for post parturient lamb losses were tested by analysis of variance using General Linear Model procedures. The model included the effect of lambing percentage group and stage post parturition. Shepherding frequency was analysed using the Student t-test.

RESULTS

Description. Survey forms were sent out to 450 farmers and 181 (40%) were returned (Table 1).

Table 1. Summary description of farms surveyed

Parameter	Average	Range
Farm size (Hectares)	583	33 - 25000
Sheep stock units per farm	4014	407 - 22000
Lambing % (to weaning)	143%	100% - 200%
Cattle stock units per farm	417	0 - 4800
Deer stock units per farm	67	0 - 2200
Sheep percentage of total stock units	71%	9% - 100%
Stocking rate over winter (SU/Ha)	16.5	1 - 55

Lamb losses. Farmers with higher lambing percentages (HighL) tended to have lower lamb losses from ewes raising twins and triplets up to 2 days of age (Figure 1). Differences in lamb losses post parturition, in either stage 1 or stage 2, between the HighL and LowL groups were not significant.

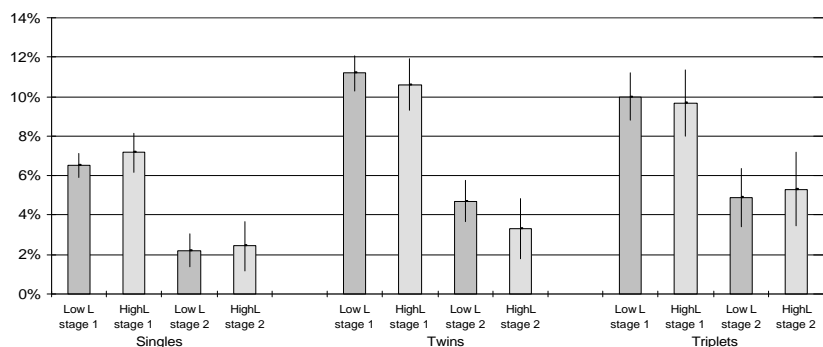


Figure 1. Percentage of post parturition lamb losses by birth rank and HighL, LowL group (standard error included).

Lamb survival. When considering factors affecting lamb survival, both the HighL and LowL groups agreed that mothering ability was of greatest importance (Table 2). The HighL group believed breed of lamb to be of least importance while the LowL group believed ram breed to be of least importance.

Table 2. Factors affecting lamb survival by HighL and LowL group

	HighL Mean	Low L Mean	P
Mothering ability	4.5	4.4	ns
Feed management at lambing time	4.3	4.4	ns
Feed management throughout pregnancy	4.3	4.1	ns
Farm management	4.2	4.2	ns
Ewe health	4.1	4.3	ns
Shelter	4	4.1	ns
Ewe breed	3.9	3.6	ns
Ram breed	3.7	3.4	*
Breed of lamb	3.6	3.6	ns

ns = not significant; *P<0.05.

Farmers in the LowL group reported lamb loss of 12% as a direct result of poor mothering ability up to 2 days of age, compared with 6% observed by farmers in the HighL group. This difference was not statistically significant.

Shepherding. The majority of farmers (80%) shepherded their ewes at least once a day. HighL farmers practice greater shepherding at lambing than LowL farmers in all ewe classes (Figure 2). There were significant differences in the mean shepherding frequency between HighL and LowL farmers in all mixed age (MA) and 2-tooth ewe mobs (P<0.001) for ewes pregnancy scanned with singles, twins and triplets. There were significant differences in mean shepherding frequency between HighL and LowL farmers in hogget twinning (P<0.05) and tripletting (P<0.05) mobs and no significant difference for hoggets carrying one lamb.

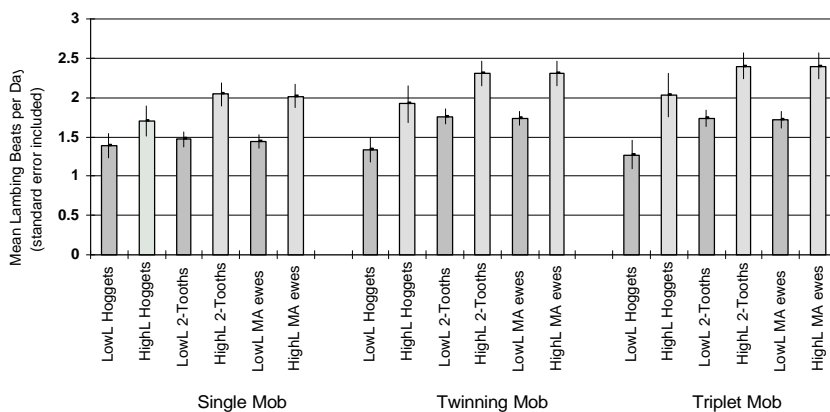


Figure 2. Mean shepherding frequency for sheep raising singles, twins and triplets.

DISCUSSION

It is assumed that as lambing percentages increase the proportion of ewes having singles, twins and triplets alters. Triplets become increasingly prevalent as prolificacy increases from 1.5 lambs born per ewe (Amer *et al.* 1999). As a general rule, greater lamb losses are expected with triplets than

twins or singles (Johnson *et al.* 1982; Hinch *et al.* 1983; Scales *et al.* 1986). Lamb losses from both groups reported here were low compared to results reported by Aspin (1997) and Geenty (1997). The lack of significant differences in lamb losses between the HighL and LowL farms may suggest that lamb-rearing ability was superior on both the HighL and LowL farms. This would not be surprising considering that high performing farmers were targeted for this survey.

Farmers in the HighL group reported less lamb losses as a result of poor mothering ability, however this difference was not statistically significant. O'Connor *et al.* (1985) reported an increase in maternal behaviour score with an increase in litter size. Maternal behaviour score is an indicator of mothering ability and measures the ewe's response to the shepherd when her lambs are tagged. The non-significant trend in improved mothering ability in the HighL group ewes, might be partly explained by an increased litter size and a greater acceptance of the shepherd, from increased shepherding exposure, leading to lower lamb losses.

Increased shepherding intensity improves rearing success and as a consequence is encouraged by animal welfare groups (Geenty 1997). The HighL farmers performed higher shepherding frequencies than LowL farmers. It appears that increased shepherding may be a practice associated with increasing lamb product prices. Aspin (1997) reported that 32% of respondents surveyed in the 1995 lambing did not shepherd their ewes and this had decreased to 20% of farmers in this study. This survey targeted high performing sheep farms, however, if they can be considered a representation of the NZ sheep farmer population, the results presented here translate to a 12% increase in shepherding in four years. A survey presents a snapshot of industry practices and the information gathered must be interpreted at best as a brief portrayal of a much larger, diverse picture.

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