

Lamb survival is improved by reducing mob size and stocking rate at lambing: Part 2

This is the second of a two part report investigating the impact of mob size and stocking rate on lamb survival. Part one was published in the December 2016 edition of the Ovine Observer.

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Introduction

Improving reproductive performance is a priority for the Australian sheep industry.

Industry-level analysis has identified that increasing the survival of twin-born lambs is likely to have the greatest economic pay-off when compared to other components of the reproductive process.

Survey data presented in Part One of this report showed that lamb survival decreased when mob sizes and stocking rates were increased.

The effect of mob size on the survival of twin-born lambs was more than double the effect in singles, with lamb losses of 3.5% and 1.4% per additional 100 ewes in the mob.

These losses are expected to be related to the greater number of lambs born per day and thus a greater risk of mismothering.

The current study aims to validate the effects of mob size and stocking rate on lamb survival at commercial farms across Australia. It will also provide knowledge on the relative effects of mob size and stocking rate across different breeds, environments and management conditions.

The study will test the hypotheses that (i) decreasing the mob size or stocking rate of twin-bearing ewes will increase the survival of their lambs and (ii) that when implemented together these effects will be additive.

Methods

A total of 70 demonstration sites will be conducted at commercial farms across Western Australia, South Australia, Victoria and New South Wales during 2016 and 2017.

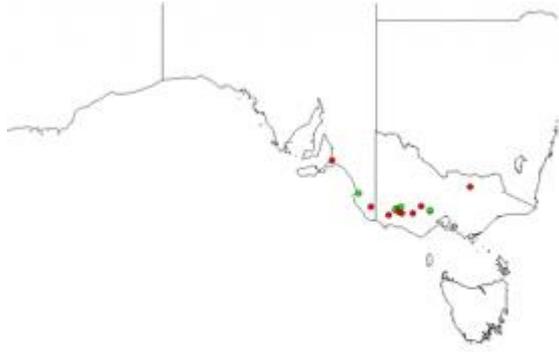


Figure 1 Locations of demonstration sites completed across Australia during 2016. Merino sites are shown in green and Maternal sites are shown in red

This report presents the preliminary findings from analysis of data collected from 22 sites which were conducted during 2016 (Figure 1).

Twin-bearing Merino or maternal ewes were allocated to one of four treatment groups at day 140 of pregnancy; high or low mob size and high or low stocking rate.

Pasture availability in each paddock and ewe condition scores ($n=50$ /treatment) were assessed at day 140 of pregnancy and again at lamb marking.

Lamb survival was calculated using the number of foetuses identified at pregnancy scanning and the number of lambs alive at marking.

Data was statistically analysed using ANOVA in GenStat (VSN International 2012). The factorial combination of mob size and stocking rate along with breed were fitted as treatments, while state and farmer were fitted as blocking effects.

Table 1 Average survival of lambs born in the high and low mob size and stocking rate treatments in Western Australia, South Australia and Victoria during 2016

		Mob size	
		High	Low
Stocking rate	High	71.5	74.5
	Low	73.4	76.2

Results

Survival of lambs of maternal breed was greater than that of Merinos (82.4% vs 68.0%; $P<0.001$).

Lamb survival was poorer where ewes lambed at a higher mob size ($P < 0.01$). Average survival was 72.4% for the high mob size and 75.4% for the low mob size.

At the 22 sites analysed, stocking rate did not impact lamb survival ($P = 0.120$). There was also no effect of mob size within the two different stocking rates, however the average survival of lambs was lowest in the high mob size/high stocking rate group and greatest in the low mob size/low stocking rate group (Table 1). Given this trend, work at additional locations during 2017 may reveal a cumulative effect of stocking rate and mob size on lamb survival.

Discussion

This preliminary analysis suggests that increasing mob size will decrease lamb survival.

Whilst there is currently no significant effect of stocking rate, lamb survival was poorest in the high mob size/high stocking rate treatment. This indicates that stocking rate does impact on survival and there was a trend suggesting that the effects of mob size and stocking rate may be additive. However, conclusions cannot be drawn until all data has been collected.

Further data analysis will also investigate interactions between mob size, stocking rate and breed, ewe condition score, pasture availability and characteristics of the lambing paddocks to assess their impact on lamb survival.

The average mob sizes for the high and low treatments during 2016 were 231 and 92. During 2017, the aim is to sample mob sizes up to 400 ewes in order to assess the effects of a mob size and stocking rate on lamb survival within the range of mob sizes and paddock sizes on commercial farms. Along with research investigating the impacts of lambing density on ewe-lamb and flock behaviour, the findings from this research will aid in the development of guidelines for producers on the mob size and stocking rates of ewes at lambing in order to optimise lamb survival.

Further information

If you are a producer interested in being involved in this project during 2017, please contact Serina Hancock or Amy Lockwood at Murdoch University for further information. The project is also seeking producers who scan for multiples that are interested in participating in a producer network. The network aims to collect survey data related to the effects of mob size and stocking rate on lamb survival from a range of producers throughout the nation.

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