

Survival of Twin Lambs Born in Edible Shelter is Not Increased During Mild Winter Weather in Western Australia

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Ten to 25 percent of lambs born die before weaning with the majority dying in the first three days after birth (Alexander *et al.* 1959; Stevens *et al.* 1982). Merino lambs born as twins are up to three times more likely to die than single lambs (Stevens *et al.* 1982). Cold, wet windy conditions in the absence of shelter are major environmental factors that contribute to the death of lambs soon after birth (Alexander *et al.* 1959; Obst and Day 1968; Alexander *et al.* 1980).

This study investigated whether edible shelter from an oat crop would increase the survival of twin lambs compared to lambs born in pasture. To reduce the possibility of ewe/lamb separation the oats were planted in either single (17.5 cm spacing) or double rows (35 cm spacing) with the latter to provide 'laneways' so the newborn twins could follow their mother. The expectation was that the mortality of twins born in edible shelter would be less than those born on pasture and that lamb survival would be higher in the oat crop with double compared to single rows.

Seventy eight twin-bearing Merino ewes (mated to Merino rams) from the Allandale research farm were randomly allocated into 3 treatments on 1 hectare plots (n=13); Saia oats in single rows (average height = 22 ± 0.9 cm), Saia oats in double rows (23 ± 2 cm high), or pasture (16 ± 3.2 cm high). Each treatment was replicated (total = 6 plots). Feed-on-offer was similar in all plots. Ewes were weighed, condition scored, side branded and allocated to plots at day 144 of pregnancy. Lambing over 23 days commenced on 11 July 2005. Live lambs were counted three times daily (07.00, 12.00 and 17.00 h) using binoculars to avoid disturbing the ewes. Temperature (min and max) and rainfall were recorded daily (07.00h) and wind speed at ground level was recorded three times daily (07.00, 12.00 and 17.00h). Ewes and lambs were weighed at marking. Weather data was averaged and compared to 10-year averages for the district. Data was analysed using Kruskal-Wallis rank sum test and Genstat was used for ANOVA.

The total number of lambs born and sets of twins alive at birth did not differ between treatments (Table 1). Thereafter more lambs tended to die in the single row oats and in the pasture plots than in the double row oat plots. However, at marking in mid August the overall survival of lambs born did not differ between treatments. There were no differences between treatments in ewe or lamb live weights at marking.

Table 1. Number of Merino twin lambs born in plots of either double or single row oat crops or pasture, sets of twins alive at birth, lamb mortality at birth and from birth to marking and live lambs at marking, percentages are means ± sem

Treatment	At birth		Lamb mortality (%)		% live lambs at marking
	Number of lambs	Sets of twins alive (%)	At birth	Birth to marking	
Double row	52	81 ± 12	5 (10)	3 (6)	85 ± 8
Single row	50	80 ± 3	6 (12)	7 (16)	74 ± 7
Pasture	52	73 ± 12	8 (15)	6 (14)	73 ± 10

The weather conditions during lambing were much milder than the 10-year average for the district. The maximum daily temperature was four degrees higher than the 10-year average (21 ± 0.5°C vs. 17 ± 0.1°C). The minimum daily temperature was fairly similar (2.8 ± 0.7 vs. 4.7 ± 0.2°C) with four days of sub-zero temperatures versus three for the 10-year average. Weekly rainfall during lambing was 13 mm less (8 ± 3.1 vs. 21 ± 3.5 mm) and wind speed was also much lower than the 10-year average (4 ± 0.4 vs. 11 ± 0.3 km/h).

The double row oats tended to have more twins alive at marking than the single row oats while there was no difference between the single row oats and pasture. The mild weather during this study did not allow us to adequately evaluate the potential for edible shelter to enhance survival of twins to marking in adverse weather. Nevertheless an oat crop, probably with double rows, could be useful to lift survival of twins even if the weather at lambing is similarly mild to that in this study. The results from this study are not dissimilar to those from the 2004 study of Oldham *et al.* (2008). This experiment was funded by Meat and Livestock Australia as part of the LambMax project.

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