

Fact sheet

Merino triplets lamb loss – what’s happening, when, why and how to mitigate the risks?



What’s happening on Australian sheep farms with triplet lamb survival?

Producers in Australia that have been identifying and managing triplet-bearing ewes separately have reported average survival of triplet-born lambs of 52.9% for Merinos and 60.1% for Maternals. By contrast, the average survival of twin-born lambs was reported to be 75.5% for Merinos and 81.4% for Maternals.

This level of triplet lamb mortality limits the productivity of this cohort and in turn overall flock performance. It also represents an animal welfare challenge that needs to be addressed, especially given an increasing number of triplets are being conceived as reproductive rates (foetuses per 100 ewes) on Australian farms are rising.

When is the majority of triplet lamb mortality happening on Australian farms?

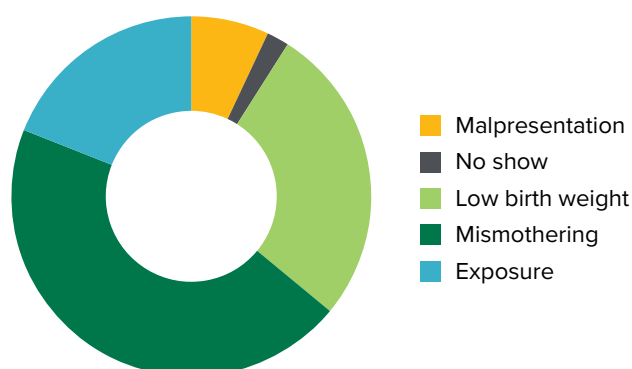
Most (>80%) lamb mortality occurs in the first few days following birth. Lamb birth weight is the biggest contributor to lamb survival, which is heavily influenced by ewe nutrition in late pregnancy. Smaller mob sizes are known to improve the survival of single- and twin-born lambs. The national triplet research project has determined the impact of mob size at lambing on the survival of triplet-born lambs. This project has also identified that ewe condition score and differential management of triplets significantly impact lamb survival. Survival of triplet-born lambs is lower:

- when triplet-bearing ewes lamb in bigger mobs
- for Merinos, when ewes are at a lower condition score at lambing or when ewes lose more condition score between pregnancy scanning and lambing
- when twins and triplets are managed together between pregnancy scanning and lamb marking rather than managing them separately.

Why do triplet lambs die?

The main causes of mortality of single- and twin-born lambs are dystocia and the starvation-mismothering-exposure complex. In comparison to twins, the triplet lamb is born at lower birth weight, more metabolically challenged, has lower body temperature, and receives less colostrum and milk which combined results in lower survival rates. Poorer ewe-lamb behaviour of triplet ewes and lambs also increases the risk of mismothering (Kenyon et al. 2019). Producers in Australia who differentially manage triplets have reported the top three causes of mortality of triplet-born lambs to be mismothering, low birth weight and exposure to adverse weather conditions resulting in hypothermia (Figure 1).

Figure 1. Top causes of death for triplet-born lambs reported by producers in Australia who differentially manage triplets (Thompson et al. 2023).



How to minimise mortality of Merino triplet-born lambs due to low birth weight?

Adult Merino ewes were allocated to a 'high' or 'low' condition score treatment after pregnancy scanning. Nutritional management after scanning aimed for the condition score of ewes in the high and low treatments to differ by at least 0.3 of a condition score at lambing. Ewe and lamb survival were assessed until lamb marking (Table 1).

Table 1. Average (range) condition score (CS) at pregnancy scanning, lambing and lamb marking for mobs of Merino ewes managed at the 'low' and 'high' condition scores, and lamb survival to marking.

	Low CS	High CS
CS at scanning	3.3 (3.0 – 3.6)	3.3 (3.0 – 3.7)
CS at lambing	2.9 (2.4 – 3.1)	3.3 (2.8 – 3.6)
Change in CS scanning to lambing	-0.4	0.0
Lamb survival	47.1%	53.4%
CS at marking	2.8 (2.5 – 3.3)	2.9 (2.5 – 3.3)

Key findings:

- Survival of triplet-born lambs was 6.3% greater (160% lambs marked compared to 141% lambs marked) when born from ewes managed to high CS from scanning to lambing, and late-pregnancy nutrition is a big driver of lamb birth weight.

- More Merino triplet born lambs are closer to the minimum critical birth weight and therefore sensitive to late-pregnancy nutrition that lifts birth weights and survival responds accordingly.

How to minimise mortality of triplet-born lambs due to mismothering?

Adult Merino or Maternal ewes were allocated to a 'high' or 'low' mob size treatment about 15 days before the start of lambing. Ewes in each treatment were allocated to lamb in paddocks with similar characteristics including feed-on-offer and shelter. Lamb survival was measured to lamb marking (Table 2).

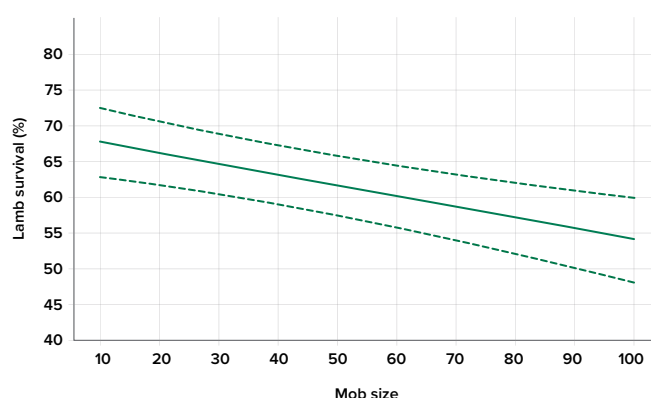
Table 2. Average mob size of ewes at lambing, condition score (CS) of ewes and feed-on-offer (FOO) pre-lambing, and survival of lambs to marking for mobs of Merinos and Maternals managed at the 'low' and 'high' mob sizes at lambing.

	Low mob size	High mob size
Mob size of triplet-bearing ewes	20	63
Ewe CS pre-lambing	3.2	3.1
FOO pre-lambing (kg DM/ha)	1210	1110
Lamb survival	65.6%	56.6%

Key findings:

- Survival of triplet-born lambs was greater when born at the low mob sizes (Table 14).
- Reducing mob size at lambing by 10 triplet-bearing ewes increased the survival of their lambs to marking by 1.5%, when mob size ranged from 10–139 ewes and stocking rates ranged from 0.7–13.4 ewes/ha (Figure 1).

Figure 2. The effect ($\pm 95\%$ confidence intervals) of the mob size of triplet-bearing ewes of Merino and non-Merino breeds at lambing on the survival of their lambs to marking at 15 research sites across southern Australia between 2019 and 2021.



Economics

The optimum mob size at lambing varies depending on enterprise-specific factors such as the target return-on-investment, stocking rate of the ewes, breed and lamb price. The optimum mob size for triplet-bearing ewes is approximately 30% that for twins if ewes are allocated to existing paddocks.

The optimum mob size for triplet-bearing ewes is between 30 and 38 ewes when paddocks are subdivided using permanent fencing with lamb price at \$7/kg and a target return-on-investment of 5% (Table 3). This optimum mob size when subdividing paddocks is approximately 35% that for twins, which reflects the greater response in lamb survival for triplets compared with twins, when paddocks are subdivided.

The economic analysis is that scanning and identifying Merino triplet-bearing ewes, costing an extra \$0.40/ewe scanned, is justified purely from the benefits of differential paddock allocation even if the scanning percentage is only 150% (6% triplets).

Table 3. Optimum mob size and paddock size for twin- and triplet-bearing Merino ewes when paddocks are permanently subdivided in half with lamb price at \$7/kg and a target return-on-investment of 5%.

	DSE/ha	Twin	Triplet
Optimum mob size	2.1	110	38
	4.2	96	35
	8.4	86	32
	14.7	81	30
Optimum paddock size	2.1	94	38
	4.2	41	17
	8.4	18	8
	14.7	10	4

On average, 70% of the benefit of identifying the Merino triplet-bearing ewes is from differentially allocating to lambing paddocks improving lamb survival, with the remainder of the benefit from differential nutrition that's improves both ewe and lamb survival. Collectively, differential management (lambing paddock allocation and nutritional management) of triplet bearing ewes, for a Merino flock with 10% triplets, increases profit by about \$0.80/ewe scanned or \$8/triplet bearing ewe after the costs associated with scanning, labour and supplementary feeding.

What are the best practice recommendations?

- Survival of triplet-born lambs on commercial farms has been reported to be about 20% lower than that of twin-born lambs.
- Triplet born lambs from Merino ewes are closer to the minimum critical birth weight and therefore more sensitive to late pregnancy nutrition that lifts birth weights and survival responds accordingly.

- Survival of triplet-born lambs was 6.3% greater (19% extra lambs marked) when born from Merino ewes managed to at least maintain CS from pregnancy scanning to lambing compared to Merino ewes that lost 0.4 CS over the same period – late pregnancy nutrition is a big driver of lamb birth weight and the survival Merino triplet lambs is very responsive to increases in lamb birth weight.
- Reducing mob size at lambing increases the survival of triplet-born lambs.
- The optimum mob size at lambing varies depending on enterprise-specific factors such as the target return-on-investment, stocking rate of the ewes, breed and lamb price.
- The optimum mob size for triplet-bearing ewes is approximately 30% that for twins if ewes are allocated to existing paddocks.
- The optimum mob size for Merino triplet-bearing ewes is between 30 and 38 ewes when paddocks are subdivided using permanent fencing with lamb price at \$7/kg and a target return-on-investment of 5%.
- For a Merino flock with 10% triplets, differential management increases profit by about \$0.80/ewe scanned or \$8/triplet bearing ewe after the costs associated with scanning, labour and supplementary feeding.
- On average, 70% of the benefit of identifying the Merino triplet-bearing ewes is from differentially allocating to lambing paddocks improving lamb survival, with the remainder of the benefit from differential nutrition that's improves both ewe and lamb survival.

References

- Kenyon, P. R., Fraga, F. J. R., Blumer, S., & Thompson, A. N. (2019). Triplet lambs and their dams – a review of current knowledge and management systems. *New Zealand Journal of Agricultural Research*, 62(4), 399–437. <https://doi.org/10.1080/00288233.2019.1616568>
- Thompson, A. N., Allington, T., Blumer, S., Cameron, J., Kearney, G., Kubeil, L., Lockwood, A., Trompf, J., Winslow, E., & Kenyon, P. (2023). Reproductive Performance of Triplet-Bearing Ewes on Commercial Farms and Research Priorities Identified by Sheep Producers to Improve the Survival of Triplet-Bearing Ewes and Their Lambs. *Animals*, 13(7), 1258. <https://doi.org/10.3390/ani13071258>

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