

Factsheet

Optimising the reproductive performance of maiden Merino ewes

Background

Maiden ewes represent about 30% of the breeding ewe flock. However, getting good reproductive outcomes from maiden ewes remains a challenge for many producers, with the scanning percentages of maidens often being about 20% lower than adult ewes.

The Magnificent Maidens Producer Demonstration Site (PDS) project aimed to demonstrate best-practice management of maiden ewes to improve their reproductive performance and narrow the gap between the reproductive performance of maiden and adult ewes. The project included five demonstration sites across southern Australia where producers compared managing the nutrition of maiden Merino ewes based on 'best-bet' management versus 'normal' management for the farm on reproductive performance at the maiden joining at 19 months of age and second joining. 'Best-bet' management aimed for ewes to receive about 30% more energy and protein than the normal group throughout joining as a maiden. The differential nutrition ceased at the end of the maiden joining.

Results

Findings from the Magnificent Maidens PDSs showed:

- 'Best-bet' nutrition during joining increased conception rates (93.5% vs 89.1%) and scanning percentages (124.6% vs 113.8%) of

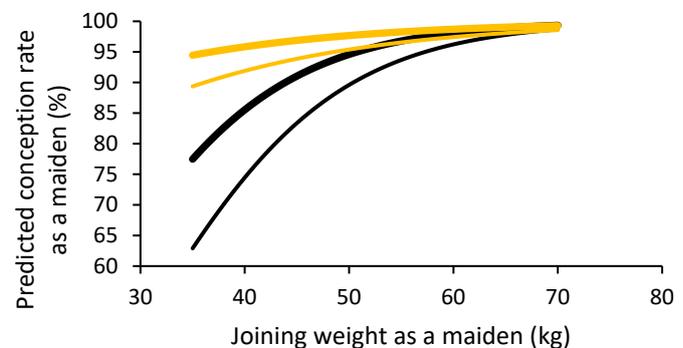


Figure 1. The effect of joining weight on the predicted conception rate of maiden Merino ewes when losing (thin line) or gaining (thick line) 100 g/hd/day during joining when and joined at condition score 2 (black) or 3 (yellow) across four producer demonstration sites across Australia

maiden Merino ewes compared to those managed in the 'normal' group.

- Ewes that were heavier and in better condition score (CS) at joining and that gained more weight during joining were more likely to conceive. These effects were greater when ewes were joined lighter and in poorer CS (Fig. 1).
- Ewes that were heavier, in better CS and gained more weight during joining were more likely to be scanned twin-bearing and less likely to be scanned dry (Fig. 2).
- Ewes that were in better CS at their second joining were more likely to achieve higher conception rates at the second joining.
- Ewes that were heavier at their second joining were more likely to be scanned twin-bearing and less likely to be scanned single-bearing or dry at the second joining.

- Ewes that were pregnancy scanned as twin-bearing as a maiden were more likely to be scanned twin-bearing and less likely to be scanned single-bearing or dry at the second joining compared to those ewes scanned dry as a maiden.

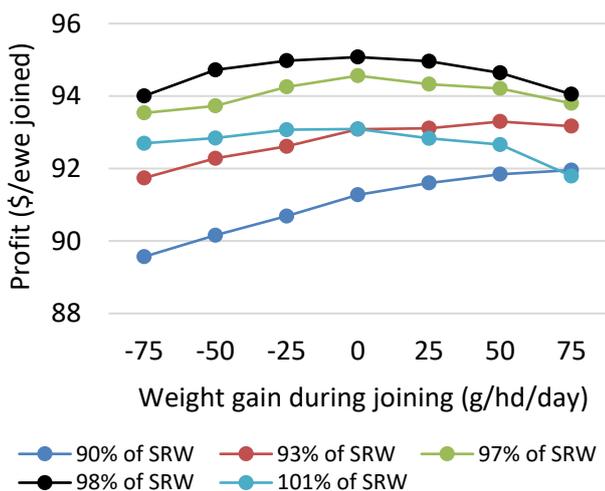
Economic analysis

The analysis was undertaken for a 'typical' 1000 ha farm in the Hamilton region of south-west Victoria that runs a medium-framed, 21-micron Merino flock with a 60 kg Standard Reference Weight (SRW), lambing in spring and pregnancy scanning ewes for multiples. The results are specific to the modelled farm, however it is expected that similar conclusions can be drawn for other systems.

The economic modelling showed that producers should now aim for maiden Merino ewes to:

- Reach a joining weight equivalent to 96 – 98% of SRW.
- Maintain weight during joining.

Profitability is sensitive to these targets, with higher joining weights and maintaining weight during joining generally leading to greater returns (Figure 3). However, profitability can decline sharply when joining weight exceeds the SRW, due to the inefficiency of weight gain when ewes are in higher condition.



percentage of Standard Reference Weight (SRW) for maiden Merino ewes

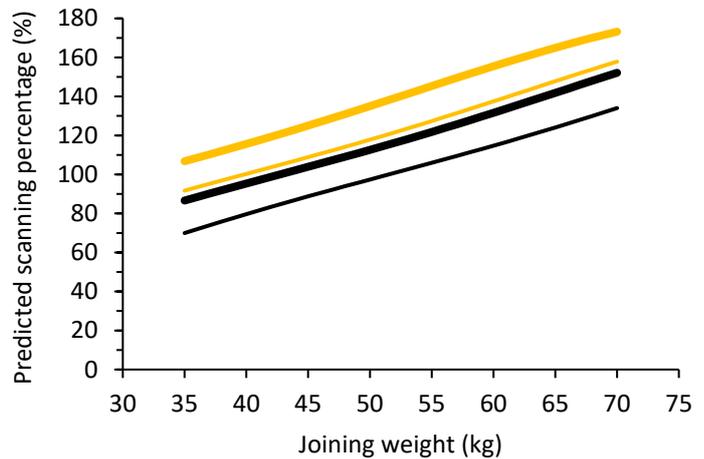


Figure 2. The effect of joining weight on the predicted scanning percentage of maiden Merino ewes when losing (thin line) or gaining (thick line) 100 g/hd/day during joining and joined at condition score 2 (black) or 3 (yellow) across four producer demonstration sites across Australia

Under a scenario where producers are currently using established best-practice guidelines, such as those recommended by Lifetime Ewe Management, the new targets are projected to increase (i) whole-farm profit by 0.5%, (ii) income per ewe by \$4.90 and (iii) weaning rates by 10%. The improved reproductive performance allows for a 2.1% reduction in the number of ewes mated and 0.5% reduction in stocking rate.

Changes in supplementary feed costs do not significantly alter the optimal nutrition targets, provided that producers can respond to rising feed costs by adjusting the stocking rate (e.g. through destocking) and/or the amount of supplementary feed fed.

Key outcomes

- Improved nutrition of maiden Merino ewes increases their scanning percentages
- Maiden ewes that conceive twins have higher scanning percentages at their second joining
- New targets for weight at joining and weight gain during joining have been established for maiden Merino ewes to optimise productivity and profitability. Further work is required to validate these findings across a range of Merino genotypes and environments.

New targets for maiden Merino ewes	
Joining weight	96 – 98% of SRW
Weight gain during joining	Maintain

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