

98/V02



Producer Research Support

Merino Dam and Progeny Evaluation

Murray Mallee Prime Lamb Producers



The project

Prime lamb producers can optimise their profit by either increasing the return per kilogram they receive, or by increasing the total number of kilograms.

The Murray Mallee Prime Lamb Group sought to investigate a means of increasing muscle and consistently producing heavier lambs without a subsequent increase in fat score.

There is a large variation in the muscling of lamb in the prime lamb industry. Differences in muscling are enhanced in the Mallee region, where most prime lambs are bred from Merino ewes. The heritability of muscling has been studied under LAMBPLAN[®], and has shown that breeding with heavily muscled rams is the most effective way of increasing muscling in progeny.

Research into the effects of maternal genetics on their progeny has not previously been carried out in the Victorian Mallee.

This trial was undertaken to study the commercial impact of selecting heavily muscled Merino ewes as prime lamb dams.

Objectives

- Test the feasibility of increasing the weight, muscle component and uniformity of first cross lamb carcasses by selecting high eye muscle depth Merino ewe dams; and
- Assess the commercial impact of this activity.

What was done

The trial was conducted over two years. Two hundred maiden Merino ewes (1_ years old) were divided into four groups of comparable liveweight and categories of eye muscle depth.

Animals and Trial Management

In September, two hundred ewes of Keri Keri bloodline were purchased and scanned for Eye Muscle Depth (EMD) with a 5 mm difference. They were tagged into High EMD groups (Blue and White tags) and Low EMD groups (Red and Orange tags). All ewes were weighed and fat-scored.

Four LAMBPLAN[®] tested Poll Dorset rams were purchased – two with high muscle index (YEMD 1.8 & 1.5) and two with low muscle index (YEMD -1.7 & -1.8).

In October, teasers were introduced to the young ewes. In November, the teasers were taken out and joined with trial rams. White and red tagged ewes were joined with high muscle rams, and blue and orange tagged ewes were joined with low muscle rams. Ewes were run in two separate mobs over the joining period, but on similar paddocks.

The Murray Mallee Prime Lamb Group, in conjunction with Department of Primary Industry (formerly DNRE), sought to investigate a means of increasing muscle, and consistently producing heavier lambs without a subsequent increase in fat score. This trial clearly demonstrated that ewes with higher EMD produce progeny with higher lean meat yield. This provides an opportunity for producer groups in other regions to undertake similar trials to optimise prime lamb production using maternal genetics.

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Lambing was finished in June and the lambs marked. Blue and orange tagged ewes had 73% lambs, red and white tagged ewes had 28% lambs. Both lambs and ewes struggled for feed because the season was bad and lambs didn't reach the required market weight. They were shorn, drenched and weaned onto cereal stubble paddock. After introducing teasers for a month in October, the ewes were then joined with the same rams as the previous year.

In February (year three) lambs were drenched and put on dryland lucerne paddocks. All lambs were scanned for EMD, weighed and fat scored in May. In the same month, lambs were sold over-the-hook and carcass data collected.

In year three, a lambing percentage of 98 was recorded. Feed was still scarce and many did not reach expected liveweight, so they were shorn, weaned and grazed on dryland lucerne.

In February (year four) lambs were again scanned for EMD, weighed and fat-scored, then sold over-the-hook in May and carcass data collected.

Statistical Analysis

EMD, Liveweight (LW), fat, Hot Carcass Weight (HCW) and Chilled Carcass Weight (CCW) were statistically analysed using the REML (Restricted Estimated Maximum Likelihood) variance components analysis method. Data was analysed by Genstat® statistical package. In years two and three, data was statistically analysed, but in year three, high lambing percentages made it possible to analyse the data using Fixed Model (fixed explanatory) variables. In December of year four, statistical analysis of EMD data was completed and results tabulated.

What happened?

The year two lambing data was confounded by lambs from the red and white ewes being born seven weeks later than those in the orange and blue group. This was due the two high EMD rams not performing well during the joining period, and suggests that pre-joining health and nutrition management of rams is very important.

Because of this, the EMD and LW data from the two groups born seven weeks later resulted in no statistically significant difference being observed.

In year three, there was no material difference in LW between the four groups, but carcass weight differences were very significant. The progenies of high EMD rams/ewes showed a dressing percentage (yield) 1.32% higher than the other groups. At a market price of 320c/kg, this means an extra \$1 for every 24kg lambs. The higher dressing percentage is also reported through VIAscan™ as a higher lean meat yield.

In year four, lambs from high EMD rams and ewes again showed a significantly higher carcass weight ($p < 0.05$).

Key points

- A difference of 1.32% dressing percentage (yield) between the progenies of high and low EMD rams/ewes was achieved. At a market price (320 c/kg) this means an extra \$1 for every 24 kg lambs.
- Second-cross ewes could also be scanned for eye muscle depth and high EMD ewes used to increase lean meat yield of their progeny.
- Producer groups in other regions could undertake similar trials to optimise prime lamb production using maternal genetics.



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Discussion

Although the results of this trial were very positive, it took four years to be able to see measurable results and some group members lost interest. The trial took place on only one member property and the pasture feedbase during the trial was very poor. During a season with a better feedbase, even better results could be expected.

Group members were concerned that scanning young ewes for EMB was too much hassle, and thought it would be easier to try to increase muscling through buying better indexed LAMBPLAN rams.

The project determined that using high muscled Merino ewes with LAMBPLAN selected rams could achieve a carcass weight increase - in this project an increase of 0.57kg.

There was some concern an increase of 0.57kg would not be enough to offset the cost of scanning the maiden ewes, making it economically unattractive to most large producers. Calculations against lamb market prices have shown that - at an increase of 0.57kg - this is a financially significant and attractive option.

Next Steps

This trial clearly demonstrated that ewes with higher EMD produce progeny with higher lean meat yield.

This provides an opportunity for the lot-feeding industry looking for consistent lambs to finish on grain. Producers on supply chain alliance could also source maternal genetics to improve lean meat yield.

In the future, scanning could be applied on-farm with commercial success provided that scanning technology advances for the assessment of meat yield in live animals.

Producer groups in other regions could undertake similar trials to optimise prime lamb production using maternal genetics.

Second-cross ewes could also be scanned for eye muscle depth and high EMD ewes used to increase lean meat yield of their progeny.