

merino INC. research

Are crossbred sheep now a better policy for high country stations?

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This is a research summary. The original report can be obtained from Allison Brook at Merino Inc. or downloaded from the Merino Inc. web site: www.merinoinc.co.nz

Executive summary

Since 2001, weakening fine wool prices have contrasted sharply with a strong and sustained rise in the value of lamb meat. This has led many high country farmers to question whether merinos provide the best revenue generating opportunities, and to consider changing from merinos to crossbred sheep to capture high lamb prices.

This theoretical study of a typical high country property found no financial benefits for high country merino properties shifting to crossbred sheep. In fact such a shift is likely to result in a decrease in revenue, even with excellent crossbred performance and reasonably conservative wool price expectations.

Key results influencing financial returns

- Crossbreds earn less per kg of dry matter consumed:
10.2 cents gross margin for crossbreds
10.6 cents gross margin for merinos.
- As crossbred sheep consume more, an equivalent cross bred enterprise would have 38% fewer sheep.
- The benefits of increased revenue from crossbred live stock sales and reduced animal health and shearing costs are outweighed by a large fall in wool revenue.

Approach

This study looks at the difference in revenue of running merinos versus a crossbred flock on a specific, but typical high country property comprising a merino sheep and a cattle enterprise with cattle equating to 35% of total feed eaten.

A computer model of the current farm system was developed using Stockpol 6 and the merino sheep enterprise was then replaced with a composite type breeding flock with considerable hybrid vigour. This flock was optimised by adjusting mating dates, weaning dates and sale dates, and by using a terminal ram on a proportion of the flock. Liveweight profiles were chosen to fit the overall feed supply pattern.

We did not change the cattle enterprise in any way as we assumed any changes that might benefit the sheep enterprise would have the same effect on the merino enterprise. We compared the financial outcomes from the two systems at a gross marginal level and did not compare economic farm surplus or earnings before interest and tax (EBIT). We did not consider the cost or the length of time required to make the transition to a crossbred flock.

Prices for livestock have been assumed as shown in Table 1. While cull for age crossbred ewes are making more than \$100/head we have assumed this will settle once stock number increases stabilise regionally. Livestock prices include the effect of the seasonal supply pattern on works prices.

Table 1. General price parameters net to the farmer.

Merino	
Cull works ewes (1.52c/kg carcass weight)	35.00
Wether hoggets (18.0kg @\$4.33/kg carcass wgt)	78.00
Terminal lambs (18.5kg@\$3.35/kg carcass weight)	62.00
Crossbred	
Cull works ewes (1.51c/kg carcass weight)	40.00
Cull for age ewes (1.25/kg liveweight)	80.00
Cull Ewe hoggets (\$1.62/kg live weight)	85.00
Terminal lambs \$3.48/kg carcass weight)	63.00
Composite lambs (\$3.35/kg live weight)	64.00

Current system

The property comprises a large area of irrigation (350 ha) and relatively productive dryland (450 ha). This is augmented by northerly facing lighter alluvial fans growing lucerne (200 ha) and a large area of undeveloped short and tall tussock (10500 ha).

The property runs a fine merino flock that is slightly coarser than the industry average. Lambing has averaged 104% over the past five years. Investment in improved paddocks, lucerne and irrigation has increased forage supply. This has been utilised by keeping all lambs through winter and selling surplus hoggets after shearing in July to December.

Results and discussion

Overall biological feasibility

The crossbred model could winter 8500 sheep compared to the 13950 smaller merinos. This 38% drop in numbers is an important factor in the final financial result. Many merino farmers overestimate the number of crossbreds they will be able to run, yet our modelling showed that even with a 38% reduction in the number of stock wintered, the amount eaten by the crossbreds was greater.

The large number of lambs in the crossbred scenario increases feed demand over summer, however, their feed demands are lower from April through to mid September which suits winter/spring pasture covers.

Clearly, if good summer growth can be relied on, then a crossbred system would utilise more of the feed grown. However, driving up stock numbers to utilise pasture growth is risky in the dry high country environment. A separate analysis is required for moist/wet high country properties.

Financial outcomes of shift to crossbreds

A shift to crossbred sheep on this property would result in a decrease in revenue of \$27K. The financial benefits accrued from increased livestock sales revenue (\$129K) and reduced animal health and shearing costs (\$11K and \$29K respectively), are offset by a fall of \$202K in wool revenue in comparison to merinos. In summary, crossbreds earn less per kg of dry matter consumed; 10.2 cents gross margin for crossbreds and 10.6 cents gross margin for merinos.

Sensitivity analysis

Merino wool prices: The results show that we need to keep wool prices at their current very low levels before crossbreds could do slightly better than merinos. Even then the advantage of \$23K/annum amounts to only a 3% improvement in gross margin.

Lamb performance: Changes to lamb performance on this property are likely to affect both the merino option with its hogget finishing enterprise and the crossbred ewe lamb finishing enterprise.

Lamb prices: Changes in lamb price should also affect the livestock sales of both models similarly. Perhaps the only difference could be if the winter–spring window in which the merino hoggets are sold comes under pressure from carried over crossbred lambs.

In comparing the two outcomes there must be more “upside” possibilities for merino wool markets which are at a cyclical low than the current markets for lamb which are on a cyclical high. There must also be a value in having the more diverse merino income stream. Crossbred enterprises are solely determined by the price of lamb while 60% of the merino income stream is determined by wool price and 40% by stock prices.

Productivity comparisons

Wool and livestock production has been monitored on the property for the past six years by the Merino Monitoring Group. Table 2 compares those figures with the assumed figures used for the crossbred analysis.

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Conclusions

Merino farmers should be cautious about exiting the merino industry and moving to crossbred sheep. In this analysis we have looked at highly productive crossbred sheep achieving a breeding efficiency of 65% against a merino ewe achieving a breeding efficiency of 45%. Even with wool prices at their lowest level crossbreds do not generate sufficiently more than merinos.

As crossbreds do not generate as much revenue for each kg of dry matter they eat, they can only improve revenue by eating more of the feed that is potentially available. There may be situations where crossbred sheep do achieve a better utilisation of feed but this was not observed in this analysis. Previous research has shown that simply running a conservative stocking rate and accepting lower utilisation rates may be a better bet in this environment with its highly variable pasture growth rates.

Merino businesses considering a move to crossbreds need to assess the value of modest improvements in lambing percentage, hogget finishing and wool weight. If these are achieved, the value merinos can generate for each kg of dry matter they eat is difficult to beat.

For example this merino enterprise could earn \$23K more revenue by achieving any one of the following:

- A 7% increase in wool weights;
- A 4% increase in lambs weaned;
- A 1kg increase in hogget slaughter weights.

The major problem for merino business with low or negative cash surpluses may be the cost of growing the grass rather than in the animal's ability to convert that grass into revenue. This is a more difficult problem, and one which unlikely to be solved by switching to a different sheep breed.

Table 2. Recorded merino flock productivity versus crossbred assumption.

Wool weights (Clean)	Merino	Crossbred
Ewes	3.3	4.1
Hoggets	2.0	3.3
Lambs	NA	0.8
Wool Price (Clean)	\$	
Ewes	9.00	3.7
Hoggets	12.00	3.7
Lambs	NA	3.55
Wool Micron		
Ewes	19.9	39.0
Hoggets	18.1	37.0
Lambs	NA	35.0
Shearing costs		
Per Sheep Stock Unit	6.80	5.70
Reproduction		
Ewes		
Scanning Index	2.6	2.9
Tupping weight kg (fleece free)	54.5	63.5
Losses (scanning to tailing) %	18.4	22.0
Weaning %	109	142
Hoggets		
Tupping weight kg (fleece free)	NA	46.8
Losses (scanning to tailing) %	NA	28.0
Weaning %	NA	71
Breeding efficiency %	45	65