

**BENEFIT COST ANALYSIS OF TGM  
SHEEP PROPERTY  
EXPLANATORY NOTES – DRAFT 1 OF MODEL.**

**Preliminary results**

<b>NPV</b>	<b>PV</b>	<b>PV</b>	<b>NPV</b>	<b>NPV</b>	
<b>Overall</b>	<b>WITHOUT TGM Scenario</b>	<b>WITH TGM Scenario</b>	<b>BENEFITS</b>	<b>COSTS</b>	<b>Benefit : Cost Ratio</b>
\$435,054	\$430,461	\$865,515	\$569,634	\$134,580	4.23
<b>Equivalent Annual Value of the Benefit - 20 years @</b>				<b>7%</b>	<b>\$53,769</b>

The net benefit of implementing TGM on a property over 20 years is \$435,054.

For every dollar spent on implementing TGM there was \$4.23 of benefit.

On average over the 20 years of the analysis the property was \$53 769 better off per year with TGM than without TGM. This is equivalent to an annual return on investment of 40% on the initial investment of \$134,580.

## Model Explanatory Notes

This analysis compares the cashflows of a casestudy property that has installed TGM over the whole property (the *with TGM scenario*) with the cashflows of the same property assuming that they continued doing what they have always done (the *without TGM scenario*).

The result of the analysis are presented as a net present value.

Net Present Value = Sum of the annual (Benefit of TGM – Cost of TGM)

Where Benefit of TGM = Annual Cash surplus' in TGM scenario – Annual Cash surplus' in the without TGM scenario

Cost of TGM = cost of establishing TGM on the property.

The analysis is like a partial budget in that it only considers cash income and costs expected to change with the introduction of TGM. Costs that aren't expected to change; for example accountancy costs, have been purposely excluded.

Steady state is a situation where opening stock = closing stock and there are no major changes taking place in an enterprise. This is the assumed starting position for the analysis.

In both scenarios the Year 1 cash flow is the steady state without TGM scenario

In the without scenario there are then a further 19 years of steady state. In the *with TGM scenario* a number of additional management practices were introduced that are now done due to additional control, ease of mustering possible with TGM. The cash flow effect of these additional practices was modeled over a further five years.

In the *with TGM scenario* Years 2 to 6 model a changing flock structure as improved lambing percentages and lower weaner deaths etc enables the age of the oldest ewe to be dropped from 8 to 6 years. By year 7 the flock has once again returned to a steady state and the year 7 cash flow result is carried forward until year 20 of the analysis.

A full list of the assumed changes resulting from implementation of TGM are listed on the next page, these are also highlighted with notes in the with TGM scenario spreadsheet.

<b>Change in variable</b>	<b>Due to management practice</b>
Increase in mustering percent from 85% to 100%	Year round operation of entry and exit trap gates.
Reduced ram% from 4% to 2%	Trapping to concentrate stock for mating.
Increased lambing % by 5% to 60% in Yr 1 then by 10% to 65% in year 2 onwards.	Trapping to concentrate stock for mating.
Reduction in overall deaths by average 2% YIYO	No straggles (lice) and opportunistic management eg. drenching, fly control.
Decrease in weaner deaths from 25% to 10%	Lamb marking in paddock (less stress) No young tail over summer due to control mating. No lambs present at shearing.
Increase in sheep sales price of 20%.	Able to sell sale sheep earlier before they lose condition over summer.
Additional increase in Ram Lamb price of \$5	Able to access premium pre-January market.
Increase culling of ewe hoggets from 10% to 20% initially then 30% in steady state flock.	Increased lambing and reduced weaner mortality giving ability for increased culling based on selection for wool quality.
Sell down to a 6 year old ewe flock as numbers allow.	Increased lambing and reduced weaner mortality giving ability to maintain a younger ewe flock.
Initially higher goat turn-off then reduced turn-off as numbers decline.	Ease of trapping v's mustering.
Increase in average goat sale price by 50%	Ability to meet early demand pre-Xmas.
Reduced labour for goat mustering from 60 hours to 20 hours in Yr2 then 10 hours Yr3 onwards.	Ease of trapping v's mustering.
Reduce labour for shearing from 4 men for 1 month to 3 ment for 10 days.	Ease of trapping v's mustering.
Overall fuel costs reduced from \$14,000 to \$10 000	Trapping instead of mustering.
Reduced agistment costs as ram lambs only on agistment for 4 weeks instead of 8.	Able to turn off stock earlier while still in better condition.
Increased feed costs.	Confined mating in yards. Pre-feeding of rams.
Increase wool price in main shearing by 10c/kg.	Mid-side sampling in yards.
Increase wool price by 5c/kg no W1 discount.	Change time of shearing to get rid of mid-break.
Higher average wool price over whole clip.	Straggler shearing wool usually sold at \$1 discount to main line.
Lower per head shearing costs	Straggler shearing usually costs \$0.50 more per head than main shearing.