final report

Project code: B.COM.0255
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Date published: June 2010
ISBN: 9781741913927

PUBLISHED BY
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Prime lamb situation analysis

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

IMPORTANT CONSIDERATIONS AND INTERPRETATION OF SITUATION ANALYSES

What is a 'situation analysis'?

A situation analysis can take on a number of forms and utilise various methods of analysis to provide a snapshot of the current 'state of play' within a region, sector or industry. The aim of these analyses is to generate a greater understanding of the economic performance and issues impacting producers at the enterprise level. Importantly, these reports aim to complement other sources of data available on industry performance, including those from the Australian Bureau of Agricultural Resource Economics (ABARE) and the Australian Bureau of Statistics (ABS).

What is comparative analysis?

A commonly-used method to underpin a situation analysis is known as a 'comparative analysis'. By definition, comparative analysis is simply comparing two or more systems to identify and explain points of difference and/or similarities, along with associated trends (over time). The final output of a comparative analysis is an explanation of the drivers that directly and indirectly affect performance. These drivers are either causative (ie directly impact on performance) or associative (ie related parameters that won't or don't directly impact performance).

There are limitations to comparative analysis

Comparative analysis compares systems with a variety of physical and social attributes (eg geographical location, skills, human and natural resource base, enterprise mix and attitude towards risk). The robustness of the results is highly proportional to the levels of uniformity in these parameters, as well as the overall sample size. The methods, calculations and units used for conducting a comparative or situation analysis, including measures of profitability and productivity, are highly variable between analysts and therefore care should be taken when interpreting and/or comparing results.

How should a situation analysis be interpreted?

When reading this report, it is important to remember that:

- Situation analyses are conducted using a sample dataset (only) of the total population to which the analyst has access to and this dataset is not necessarily reflective of the total population averages.
- As the sample has been taken from a specific dataset, the resulting analysis may be skewed or biased, and thus may not accurately reflect the overall picture for a given region or the broader industry.
- An analysis uses historical data across a defined period of time and thus provides possible trends or indicators of local, regional or national performance at that point in time and under the particular market and seasonal conditions.
- The "top" category does not necessarily include the same producers over consecutive years, namely due to seasonal and market variations impacting year-on-year.
- The population sample on which the analysis is made may change from year-to-year, either deliberately in order to lessen statistical error or inadvertently in cases where the submission of data is voluntary.
- Wherever possible, a combination of available data sources should be used to make a more complete assessment of industry performance.

How is this information useful to producers?

Comparative analyses aim to highlight differences between the performance parameters of the "top" versus "average" producers. This information can be used to identify key issues and potential opportunities through which to improve one or more aspects of performance. In assessing these opportunities, it is important to prioritise and/or pursue them in accordance with the resources available (land, labour, skill and capital) and individual business and personal goals and limitations.

Executive summary

- Lamb enterprises are currently experiencing higher profitability than wool or beef but not cropping enterprises in higher rainfall zones.
- Across rainfall zones lamb enterprises are the most profitable livestock enterprise choice in the medium to high (>500mm) rainfall zones but in low rainfall zones they are the least profitable livestock enterprise.
- Wool represents an average of 43% of dual purpose income and in prime lamb 23%. Lamb producers seeking improved profitability should not ignore the opportunities offered by the wool component of their total income.
- There is more variation in profitability within lamb production businesses than there is between them and other enterprise options. The improvement in performance of a lamb production enterprise offers as much or more potential profit as changing between lamb and an alternate enterprise.
- The most profitable lamb production businesses have a superior combination of higher productivity, lower cost of production and higher price received. The important consideration is the combination of these factors, they do not have the single highest productivity.
- Productivity is driven by the number of ewes run per hectare, the number of lambs produced per ewe run and the weight of lambs when they are sold.
- Cost of production on average has appreciated by almost 100% in the past eleven years. Although productivity has increased over the period, this has come at ever increasing cost. The major cost for sheep flocks is the labour employed and improving labour efficiency should be a priority for flocks with high cost structures. Any reduction in cost needs to be considered in relation to the potential impacts on productivity.

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Introduction

This paper discusses the historical and current profitability of lamb enterprises, and the profitability differences of farms that are currently operating a lamb enterprise. It then looks at the questions managers need to ask now if they want to choose to strive for excellence in profitability in the future.

Net profit is defined as income adjusted for purchases of livestock and changes in inventory less all expenses with the exceptions of capital purchases, interest and lease costs. Depreciation on capital items is used in place of capital expenses. Owner drawings are included in the expenses.

Most of the data is reported in nominal terms. This means it is reported as the value at the time of data collection. Some data is represented in real terms. This means it has been adjusted for inflation since it was collated to reflect the value of that money now.

Lamb production is currently one of the most profitable livestock enterprises. Recent high profits have been driven primarily by high prices which gave lamb producers the luxury of being able to generate profits regardless of how efficiently the system was run.

With the opportunity of healthier cashflows and a general feeling of optimism within the industry, producers have the confidence and means to invest in their business to further improve its productivity, as well as to make it more resilient for the next seasonal or price downturn both of which are largely outside the producers control. There is however, the threat that good returns can lead to complacency. For those that resist complacency there is an opportunity to invest in productivity improvements now whilst profitability is good.

The bulk of the data presented within the report has been drawn from the Holmes Sackett benchmarking database which has been gathered over the past eleven years. This benchmarking service draws data from farms covering a geographic area extending from southern Queensland, the NSW New England through the Tablelands, Slopes and Wheat Sheep Zone country of NSW, across Victoria, Tasmania and South Australia.

The benchmarked data presented is not drawn from a random sample of farms. Owners of farm businesses who choose to benchmark their performance are, by definition, not a random sample. This is confirmed when the average performance of Holmes Sackett benchmarked farms are compared to the average performance of farms analysed by ABARE. The Holmes Sackett sample has been shown to be better than the ABARE average in terms of profitability over the past eight years (Table 1). So when reading this report it is important to always remember that the average performance referred to is not necessarily average for the industry as a whole.

Table 1: Return on Assets comparison – ABARE versus Holmes Sackett 2000-01 to 2007-08

Grazing Farms – Return on Assets	**2000/01**	**2001/02**	**2002/03**	**2003/04**	**2004/05**	**2005/06**	**2006/07**	**2007/08**
ABARE	1.7%	1.4%	-1.3%	0.7%	0.7%	0.2%	-0.6%	0.6%*
Holmes Sackett	5.8%	6.8%	2.2%	3.4%	3.1%	1.5%	0.0%	0.8%
HS Difference	**4.1%**	**5.4%**	**3.5%**	**2.7%**	**2.4%**	**1.3%**	**0.6%**	**0.2%**

* ABARE preliminary estimate

1 Current situation 2009

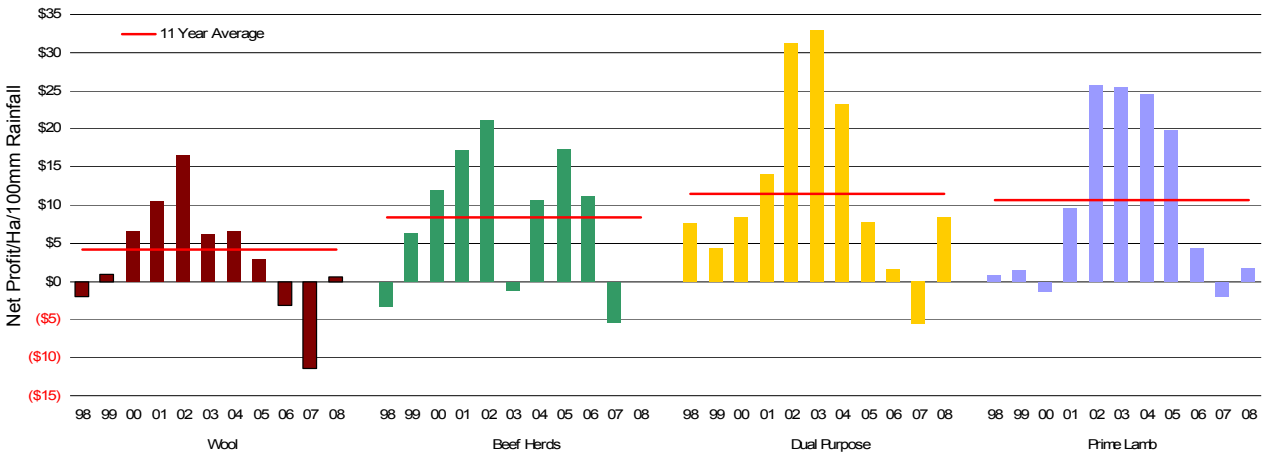
1.1 Relative profitability

Lamb enterprises are currently enjoying superior average profitability compared to wool and beef but this has not always been the case. Graph 1.1 shows that over the period of 11 years from 1998-2008, the fortunes of these industries have varied and that none are currently at their peak. The data in Graph 1.1 is in nominal terms meaning that the figures have not been adjusted for inflation over this period.

Throughout this 11 year period the profitability of beef and sheep enterprises have generally fluctuated independently of each other. Wool and lamb production follow similar profit trends, but for the majority of the period and particularly the past seven years, lamb has had superior profitability compared to wool.

Graph 1.1 provides a good perspective on where the specialist prime lamb and dual purpose enterprises are situated now in both current and historical terms. Right now these industries are enjoying profits that are higher than either beef or wool. However, in nominal terms the profits are not at historical highs, and neither is the gap between lamb and the other livestock enterprises higher than it has ever been.

Graph 1.1: Nominal net profit per hectare per 100 millimetres of annual rainfall for wool flocks, beef herds, dual purpose and prime lamb flocks over the 11 years from 1998 to 2008



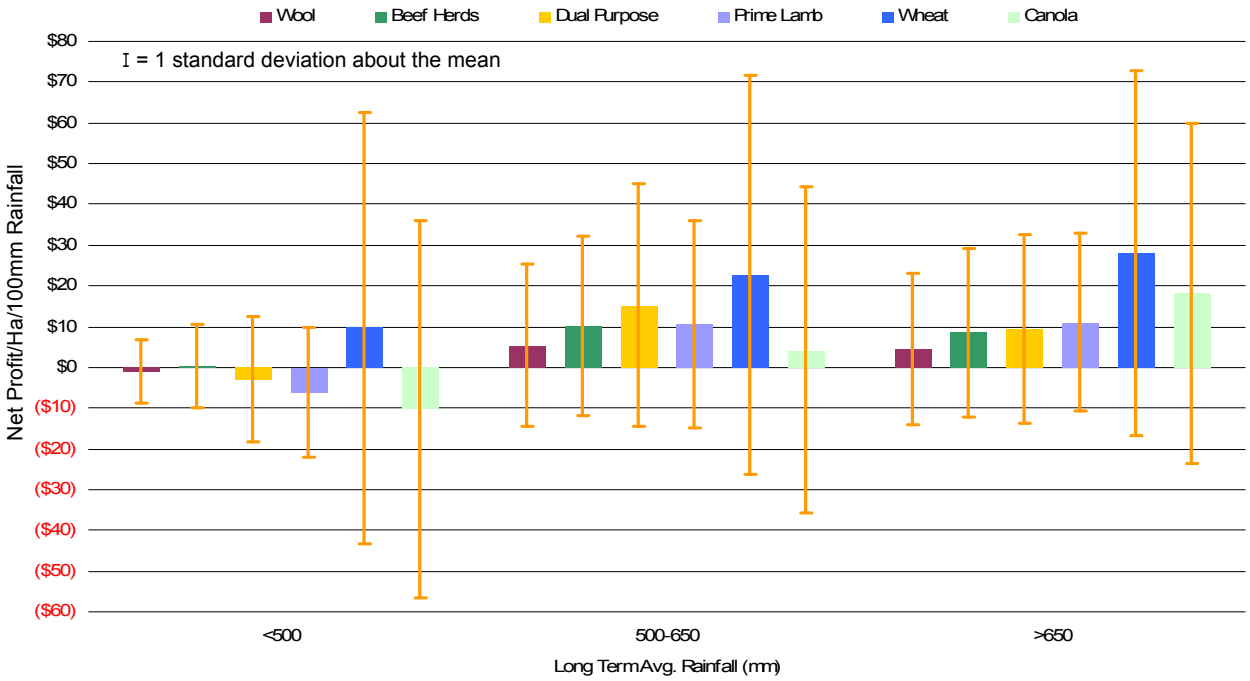
Source: Holmes Sackett Pty Ltd Benchmarking Database 1998 - 2008

A comparison between lamb enterprises, other livestock and crops in south east Australia over the same 11 year period (1998-2008) is shown in Graph 1.2. Data has been categorised based on average annual rainfall to represent the southern pastoral (<500mm), the Mediterranean (500-650mm) and the high rainfall (>650mm) zones. To allow direct comparison between cropping and livestock enterprises across zones performance is shown on a per hectare per 100 millimetres of rainfall basis. When interpreting these figures it needs to be considered that direct comparison may be limited because cropping on many farms is done on the most productive land classes, whilst the stock are relegated to less productive country with a similar level of intensity. The extent of this bias is unknown but our estimate is that this may close the gap in profitability between enterprise options, but not eliminate it.

Over the last 11 years the trend among enterprise performance has been similar across these three zones, with wheat enterprise profitability on average exceeding all livestock enterprises (Graph 1.2). Specialist prime lamb and dual purpose enterprise profitability exceeds other

livestock options in all zones except the low rainfall zone (<500mm). Although wheat has the highest average long term returns, it also has the greatest variability in profitability of any of the enterprises. Livestock enterprises have less variation in returns over time than either cropping enterprise.

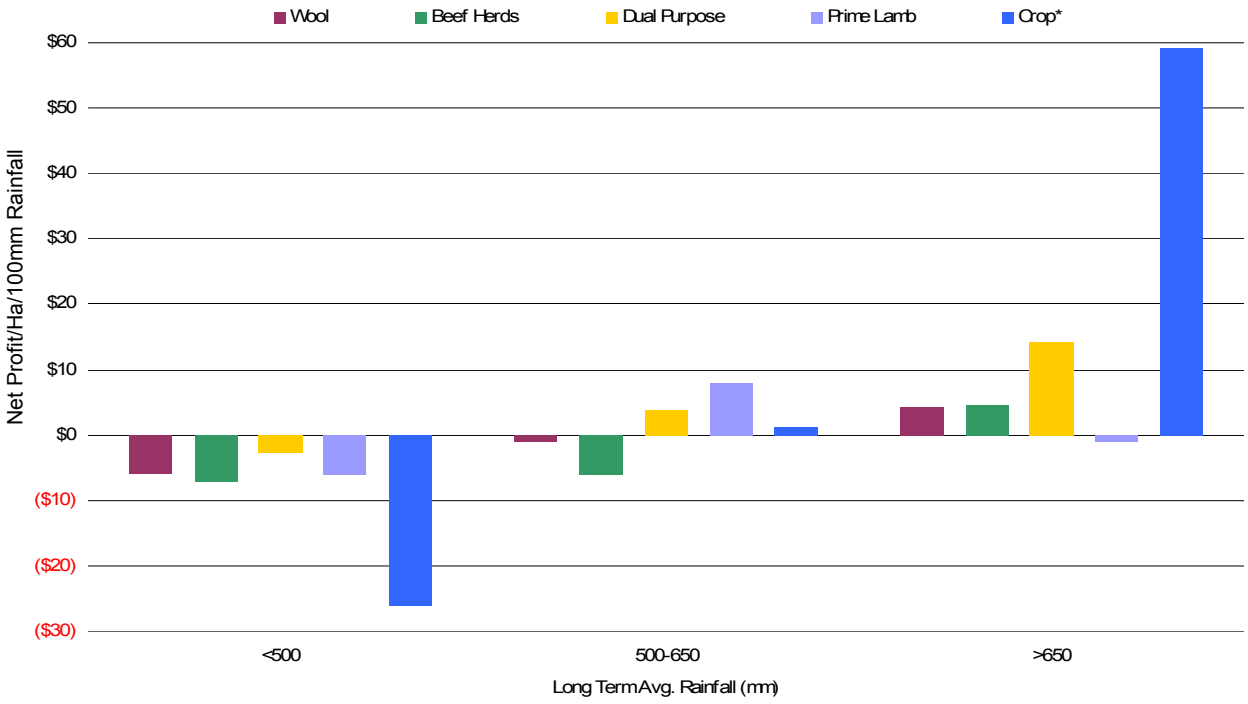
Graph 1.2: Average net profit per hectare per 100 millimetres of annual rainfall (nominal) for wool flocks, beef herds, dual purpose and prime lamb flocks, wheat and canola crops from 1998 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998 to 2008
*Average of canola and wheat crops

Cropping was significantly more profitable in 2008 in the high rainfall zone (>650mm) but not the medium or low rainfall areas (<650mm) where al enterprises had marginal profitability. This extraordinary result for cropping in the high rainfall zones reflected a combination of adequate growing season rainfall and very good grain prices as a result of failed crops across most of the sheep cereal zone.

Graph 1.3: Average net profit per hectare per 100 millimetres of annual rainfall (nominal) for wool flocks, beef herds, dual purpose and prime lamb flocks, wheat and canola crops in 2008



*Average of canola and wheat crops
Source: Holmes Sackett Pty Ltd Benchmarking Database 2008

The higher profitability for cropping enterprises over the past ten years in the sheep cereal and high rainfall zones where the majority of prime lamb production occurs presents a threat to future lamb production from the temptation to devote more resources to cropping as opposed to any livestock enterprise. Given lambs (in dual purpose or prime lamb flocks) tendency to be more profitable than other livestock enterprises it will most likely be the most resilient to enterprise change.

1.2 Differences in return on assets

Comparison of returns on assets under management are not explicit from the benchmarking methodology because land use is not determined by fixed geographic boundaries and therefore comparative land values between land used for livestock purposes and land used for cropping purposes is not available. This also applies for land used for one livestock enterprise in comparison to land used for another.

It is common on properties that have multiple enterprises that enterprises use different land classes across the property i.e. cropping uses the most arable ground and wethers from a merino flock get the bush runs.

To work out an estimate of comparative profitability between enterprises if they were to get access to the same land the average land value for mixed farms with 600mm of rainfall was used. This rainfall was chosen because it is suitable for all enterprise purposes including crop. As rainfall increases above 800mm and decreases below 450mm the land tends to become less attractive for cropping purposes because of its variability of rainfall or because of the climate and risk of water logging and frost.

The average land value recorded for farms in this rainfall is $3800 per hectare. There is a wide range in land value at this level of rainfall from $5000 per hectare to $1500 per hectare which reflects different regions and different land classes. The actual value chosen does not really impact on the conclusions drawn from this analysis because it is the comparative profitability under the assumption that it is the same land being used that is of interest.
Land is not the only asset tied up in any enterprise and the relative values of other assets can be large. For the purpose of this analysis the other assets needed for the enterprise are livestock, plant and equipment and working capital. The estimates of livestock values per hectare have been taken from the expected average annual stocking rate for that rainfall by a standard valuation per DSE for each average annual DSE run. Cattle and crossbred ewes have been traditionally higher cost than merino ewes.

Average annual DSEs run per hectare vary for each enterprise according to that which would be achieved with commonly run production systems.

Plant and equipment per hectare is taken from the average benchmarked values per hectare for crops and livestock.

Working capital is the average $/DSE in direct and overhead expenses for each livestock enterprise multiplied by the average annual stocking rate and from the average direct and overhead expenses per hectare for crops.

Table 1.1: Historical benchmarking performance would indicate cropping has a higher return on assets than livestock

	Wool	Beef	Prime Lamb	Dual Purpose	Crop
Rainfall	600	600	600	600	600
Average annual DSE/ha	11.76	11.76	10.78	10.78	
Land value	$3,800	$3,800	$3,800	$3,800	$3,800
Livestock value ($/DSE)	$50	$70	$70	$60	
Livestock	$588	$823	$755	$647	$0
Working capital	$353	$294	$270	$270	$512
Plant and equipment	$100	$100	$100	$100	$327
Assets under management	$4,841	$5,017	$4,924	$4,816	$4,639
11yr average net profit ($/DSE)	1.96	3.83	4.71	5.09	
Average profit ($/ha)	$23	$45	$51	$55	$92
Return on assets under management	0.5%	0.9%	1.0%	1.1%	2.0%

This analysis would indicate that average cropping profits have produced a higher return on assets under management than livestock enterprises where land classes are suited to any enterprise (Table 1.1). The findings are supported by the shift in area devoted to cropping at the expense of area devoted to livestock over the last decade.

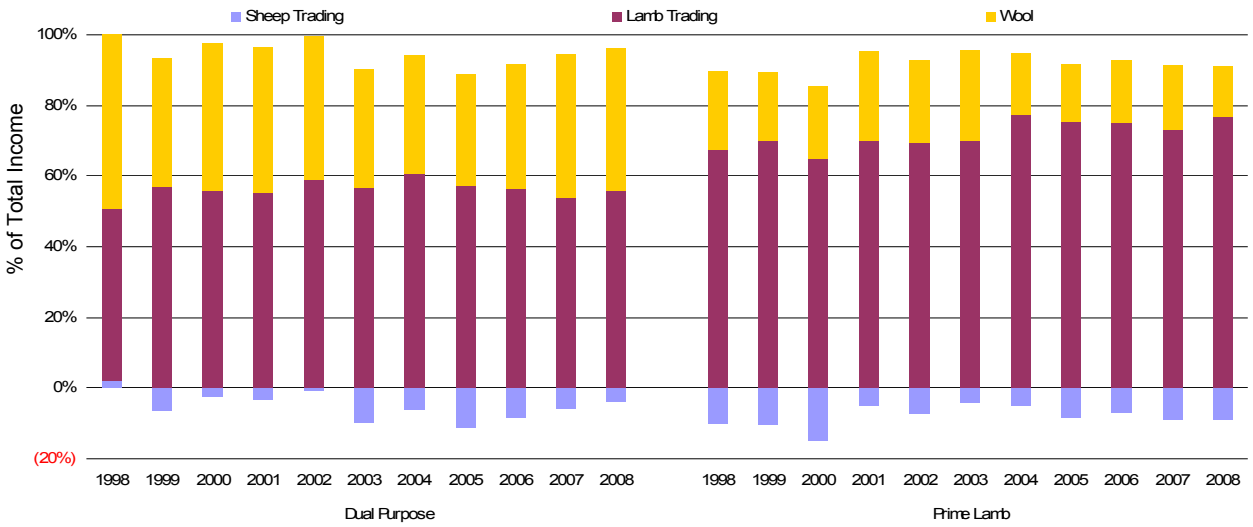
The analysis does not suggest the better than average livestock profits cannot be competitive with average cropping profits and therefore the most profitable livestock producers are likely to be less willing to change.

1.3 Enterprise characteristics

Production systems for prime lamb are as varied as the range of climates in which it is produced. Sustained high sheep meat prices have resulted in a continued increase in the number of ewes in the Australian flock joined to meat sheep breeds. Most of these ewes have been Merino, simply because they represent the greatest available resource, but dual purpose breeds such as the Corriedale or more recently introduced breeds such as Dohnes and SAMM's, and specialist meat sheep breeds such as Coopworth and the Border Leicester - Merino crosses have been used.

For the purpose of this report the different lamb production systems have been classified into two broad categories, being dual purpose and prime lamb. The reason for this distinction is the difference in the importance of wool, sheep and lamb trading to income. The major difference is in wool income with prime lamb flocks which are made up of specialist sheep meat breeds less reliant on wool income than those enterprises based on dual purpose and Merino ewes. Graph 1.4 shows the percentage of income derived from sheep trading, lamb trading and wool from each system over the period from 1998 to 2008.

Graph 1.4: Sources of income from wool, meat and sheep trading for dual purpose and prime lamb flocks 1998 to 2008



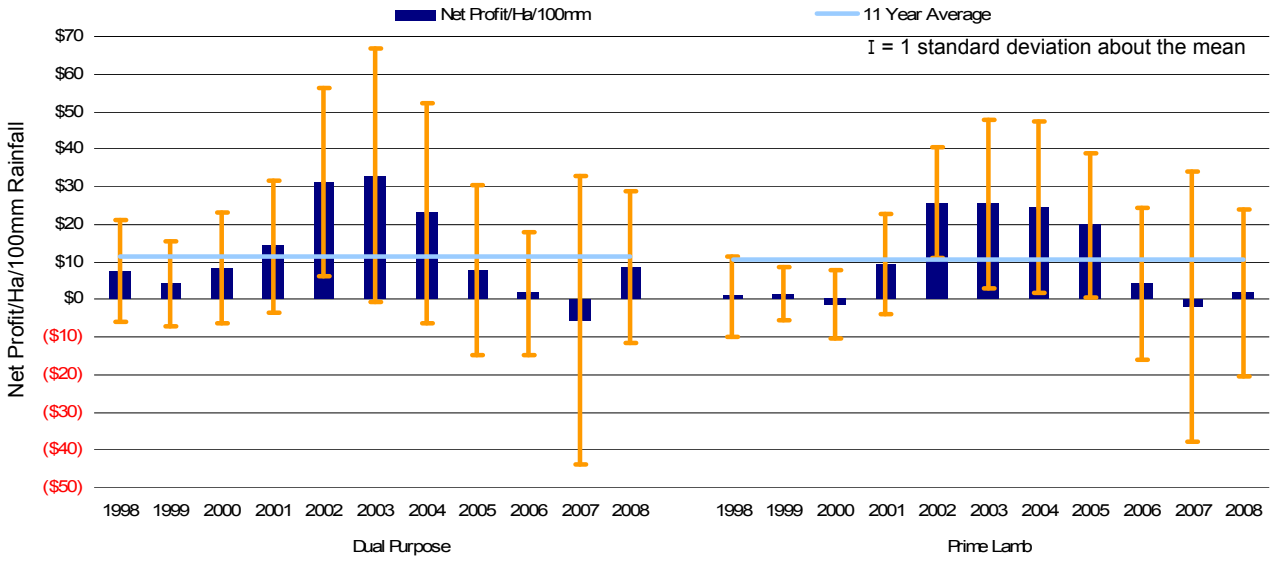
Source: Holmes Sackett Pty Ltd Benchmarking Database 1998 to 2008

Over the 11 year period from 1998 to 2008, wool income made up an average of approximately 43% of dual purpose enterprises total income, while lamb income accounted for 63%. In prime lamb enterprises wool accounted for 23% of total income and lamb 86% (Graph 1.4). In dual purpose flocks, on average over the eleven year period combined wool and lamb contribute 106% of total income for the enterprise and the average sheep trading income produces a 6% loss (e.g. 43%+ 63% - 6% = 100%). For prime lamb enterprises, wool and lamb contribute 109% of total income and the average sheep trading a 9% loss. In other words replacement ewes are on average a net cost to both enterprises. Self replacing flocks have positive sheep trading income but lower lamb trading income due to retained replacements.

Despite the fact that this paper is primarily about lamb production, it is apparent that profitable lamb production can be substantially influenced by wool income. In dual purpose flocks wool is not simply a by product as it represents over 40% of total income. A key performance trait for dual purpose flocks is the fleece value of the ewes used.

On average over the last 11 years, and also in the latest year, dual purpose enterprises have outperformed the specialist meat sheep enterprises on a profit per hectare per 100 millimetre basis (Graph 1.5). Note that this does not mean that dual purpose breeds have out performed specialist sheep meat breeds, as a large proportion of the enterprises in the dual purpose system are Merino ewes crossed with a terminal sire. The majority of these enterprises are therefore dual purpose systems using specialist breeds.

Graph 1.5: Nominal net profit per hectare per 100 millimetres of rainfall for dual purpose and prime lamb flocks 1998 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998 to 2008

A discussion about dual purpose lamb production systems cannot ignore the opportunities to boost returns by paying attention to the wool side of the equation. The top dual purpose enterprises do achieve more income pre DSE from both wool and lamb. The relative importance of wool will differ with changes in commodity prices.

There is a wide variety of production systems employed in lamb production. These are influenced by target market, enterprise mix and the environment in which the enterprises are run. The two main factors to consider in any production system are the lambing time and the age and weight at which lambs are sold.

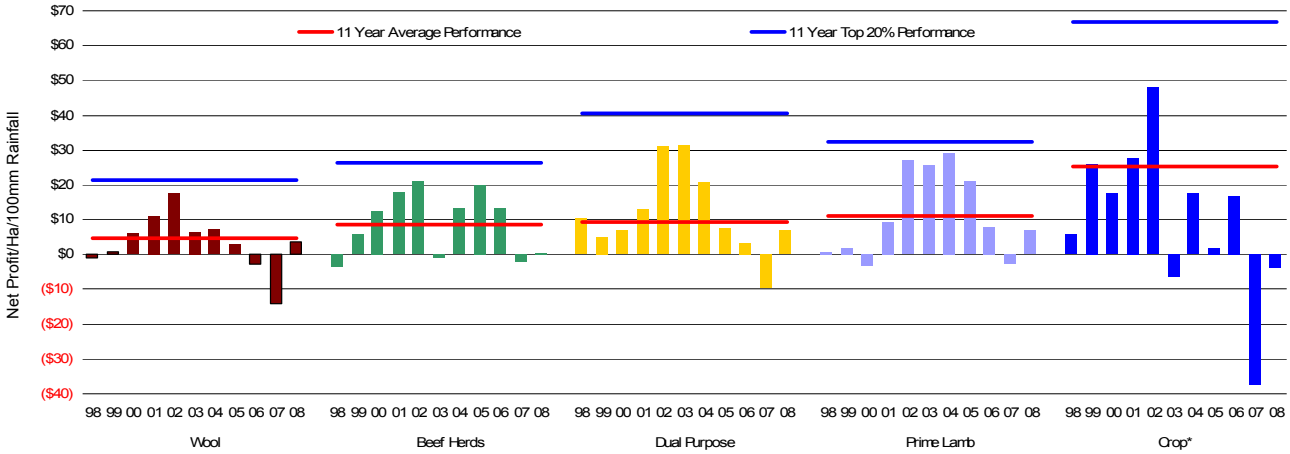
For instance a producer in the wheat sheep zone may choose to lamb in autumn and turn off 24kg export lambs in spring using a combination of stubbles, supplements, and grazing cereals. Another producer may choose to lamb in late winter and sell 18kg domestic weight lambs to the local supermarket trade. It is not within the bounds of this document to provide a detailed discussion of the main enterprise structure and environment combinations; however the market environment and the principals that separate the more profitable from the average will be discussed in some detail.

1.4 Variations in profitability within each enterprise

In every industry there is always more variation within an enterprise than there is between enterprises. Graph 1.6 shows the variation over the period from 1998 to 2008 in average net profit per hectare per 100 millimetres of rainfall within and between wool, beef herds, dual purpose, prime lamb and crop enterprises. The eleven year average performance for average and top 20% enterprises has also been shown. Average and top 20% enterprise performance is ranked according to net profit per DSE performance.

The data in Graph 1.6 shows that there is more variance in performance within an enterprise than there is between enterprises. The key message is, *how well the enterprise is run is much more important than the decision whether to produce lamb from either a dual purpose flock or a specialist lamb flock.* Despite this enterprise switching will occur on the basis of average profits being above or below other enterprises.

Graph 1.6: Nominal average net profit per hectare per 100 millimetres of annual rainfall for wool flocks, beef herds, dual purpose, prime lamb and crop enterprises over the 11 years from 1998 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 2008.
*Average of wheat and Canola crops

Table 1.2 shows the key differences between the top 20% and the average enterprise for 2007-08.

Table 1.2: Key differences between average and top 20% lamb producing enterprises

	Prime lamb		Dual purpose	
	Average	**Top 20%**	**Average**	**Top 20%**
Total income ($/DSE)	$28.83	$37.03	$35.11	$42.41
Enterprise expenses ($/DSE)	$10.48	$10.13	$12.97	$9.98
Overhead expenses ($/DSE)	$17.45	$16.54	$18.44	$16.21
Net profit ($/DSE)	**$0.90**	**$10.36**	**$3.71**	**$16.22**
Key performance indicators				
Kg of lamb Dwt (per ha/100mm)	18.2	19.6	11.4	16.6
Kg of wool clean (per ha/100mm)	5.1	4.9	3.6	4.5
Cost of production lamb ($/kg Dwt)	$3.07	$2.30	$2.73	$2.03
Cost of production wool ($/kg clean)	$1.95	$1.73	$6.22	$5.27
Price received lamb ($/kg Dwt)	$3.61	$3.73	$3.38	$3.55
Price received wool ($/kg clean)	$3.06	$3.63	$8.49	$8.83

Source: Holmes Sackett Pty Ltd Benchmarking Database 2008

The more profitable businesses within both the dual purpose and prime lamb groups have a superior combination of:

- Higher productivity (kg of lamb and wool per hectare),
- Lower cost of production (they produce each kilogram cheaper), and
- A higher price received.

The top 20% do not have the highest individual productivity, or the highest individual price. The most important concept for achieving top 20% profitability is that it is a 'combination' of these characteristics and therefore the target is optimum productivity and price.
The reality is that choice of market, genetics, lambing and sale time, and all other inputs into the system are only a means to achieving a better combination of productivity, cost of production, and price than currently exists. The complexity of the interactions between these three things means that any one cannot be looked at in isolation. These factors are discussed in greater detail in the next section.

The most profitable prime lamb enterprises produced more kilograms of lamb per hectare with a lower cost of production and a higher sale price per kilogram. The wool and sheep trading components although of greater significance to income for dual purpose flocks are higher in the top 20% dual purpose and prime lamb flocks.

The productivity component is particularly powerful for both prime lamb and dual purpose enterprises because it is largely under producer control and because of its associated influence on the cost of production. Productivity is driven primarily by:

- The number of ewes run per hectare,
- The number of lambs produced per ewe run, and
- The weight of lambs when they are sold.

These add up to kilograms of lamb produced per hectare. All of these things are influenced by rainfall, soil fertility, pastures, genetics, choice of lambing date, and target sale date to meet the market chosen.

There will always be compromises between these components depending on how the enterprise is structured. Lambing in autumn to target heavy weight export lambs at the end of spring will mean fewer ewes are carried per hectare than a late winter lambing system turning off lambs for the domestic trade at the end of spring. That is; should the aim be to produce a large number of smaller lambs or a smaller number of big lambs? This concept is depicted in Table 1.3. The net result of each movement will be at least partially dependent on enterprise mix, pasture resources and climate.

Table 1.3: The effects of production system on key profit drivers

	Autumn lambing for export market	Late winter lambing for domestic market	Late winter lambing for export market
Number of ewes	↓	↑	↓
Lambs per ewe	↓	↑	↑
Weight of lambs	↑	↓	↑

Not all expenses increase at a fixed rate per additional kilogram of lamb produced. These expenses are typically referred to as overheads and they provide a substantial opportunity to lower cost of production through additional productivity. Increasing the productivity of the farm

spreads those expenses over more kilograms of lamb. Therefore, if $200 per hectare is spent on overheads (such as labour, vehicles, fertiliser and repairs and maintenance) in order to produce 100kg of lamb per hectare, overhead costs will be $2.00 per kilogram. If productivity is improved to 125kg of lamb per hectare and there is no change in overheads costs fall to $1.60 per kilogram. This may be achieved with simple changes to the production system.

As productivity is increased, a point will be reached where every additional kilogram is costing more than it is worth (the concept of decreasing marginal returns). The amount of supplementary feed required for the ewes is sometimes a key indicator of this in prime lamb production. However, for most enterprises there is scope to improve production per hectare to lower costs per kilogram of lamb produced. The key issue for every producer is to identify where those opportunities are for the least cost and the least risk. This is discussed in more detail in section two.

For dual purpose enterprises the key differences in profitability between enterprises are due to both lamb and wool productivity (kilograms produced) and the value of the lamb and wool (cents/kg). The difference in merino genetics can easily result in a $7 per head difference in average fleece value. This should be a consideration in ewe selection.

1.5 Impact of current and future prices for lamb

Table 1.4 below shows where corresponding prices for the current analysis year (2008) were in relation to historical prices over the last ten years. Both lamb and mutton prices fell from previous highs but remained above their historical average. Crop prices were around their historical highs whilst beef prices were around their long term average.

Table 1.4: Price percentiles (1998 to 2008) and 2008 prices for common broadacre commodities

Percentile	17.5 Micron c/kg Clean	19 Micron c/kg Clean	21 Micron c/kg Clean	Lamb c/kg Dwt	Sheep meat c/kg Dwt	Steers c/kg Lwt	Cows c/kg Lwt	Wheat $/tonne	Canola $/tonne
100%	2,194	1,535	1,382	525	276	232	189	490	800
90%	1,800	1,312	1,025	396	206	202	158	309	595
80%	1,447	1,224	973	367	193	195	150	270	510
70%	1,327	1,136	873	348	179	188	146	216	420
60%	1,265	1,070	813	334	169	181	141	195	403
50%	1,191	1,009	754	313	156	176	137	179	385
40%	1,091	975	716	285	128	166	128	173	362
30%	1,036	949	667	233	84	149	117	170	349
20%	1,008	924	608	192	74	130	106	162	312
10%	949	861	537	165	65	116	90	153	295
0%	720	672	476	116	18	91	61	129	255
2008	1238	1185	973	341	170	177	132	386	630

Nearest percentile to 2008 price

Source: AgInsights 2008, Holmes Sackett Pty Ltd

Throughout 2008-09 supply of lambs has been tight and as a result prices have increased on those shown in Table 1.4, and approached historical highs again. In the same period wool prices have decreased. As a consequence there is an expectation that this will provide further incentive for merino producers to join more ewes to terminal sires. This, along with anticipated improved

seasonal conditions, is expected to result in a 2% increase in the production of lamb during 2009-10. This increase in supply is expected by ABARE to see prices fall by 1.7% in 2009-10 from the historical highs reached in 2008-09.

ABARE predict that the national sheep flock will continue its decline during 2009-10 and expect numbers to reach their lowest level for well over 50 years. The continued increase in lamb price in relation to wool has however, seen a higher proportion of breeding ewes in the national flock and this trend is anticipated to continue. In combination with improved seasons there is likely to be increased supply of lamb in the short term.

At present prime lamb profitability is very dependent on above average prices to maintain profitability. The 2008 benchmarking year is testament to that. Small decreases in prices erode profitability very quickly. As prices come down the first lamb producers to be squeezed are going to be those with the highest cost of production and lowest productivity.

Changes in price received over coming years are more likely to be associated with fundamental changes in industry supply and demand. As lamb is the most profitable livestock enterprise when prices are good it is likely that there will be a continued shift towards lamb production, some of which will put pressure on ewe replacement costs, and also downward pressure on prices.

1.6 What lamb price is acceptable?

Based on average performance, to reach a gross margin of $20/DSE (assuming that wool and sheep trading income and enterprise expenses remain the same per DSE) the lamb price needs to be $3.43/kg dressed weight for average prime lamb enterprises and $3.01 for dual purpose enterprises. Referring back to Table 1.4 this is the equivalent to somewhere between the 60th and 70th percentile of historical lamb prices for prime lamb enterprises and the 40th and 50th percentiles for historical lamb prices for dual purpose enterprises. The dual purpose enterprises are buffered by the greater proportion of wool income, whilst obviously the prime lamb enterprises are particularly susceptible to any fall in lamb prices. With this in mind improving performance of the system is imperative for long term profitability.

1.7 Summary

The main points from this section are that the current average returns from lamb and dual purpose enterprises are good in comparison to beef or wool but still behind cropping. If the production of lamb continues to increase as predicted, it is reasonable to assume that lamb prices will start to fall as the increases in production outstrip the rate of increase in demand.

Whilst this is a problem, especially for those producers who have low productivity and a high cost of production, the better producers with below average cost of production and above average productivity can expect to enjoy very good profits for some time. If producers wish to ensure high profitability they need to aim for above average productivity and below average cost of production. Achieving them will make the business more resilient to market changes. Increasing the market and seasonal resilience of the enterprise requires focus on a number of key areas outlined in the next section.

2 Keys to profitable lamb production – beyond 2009

2.1 Directions to improve flock profits

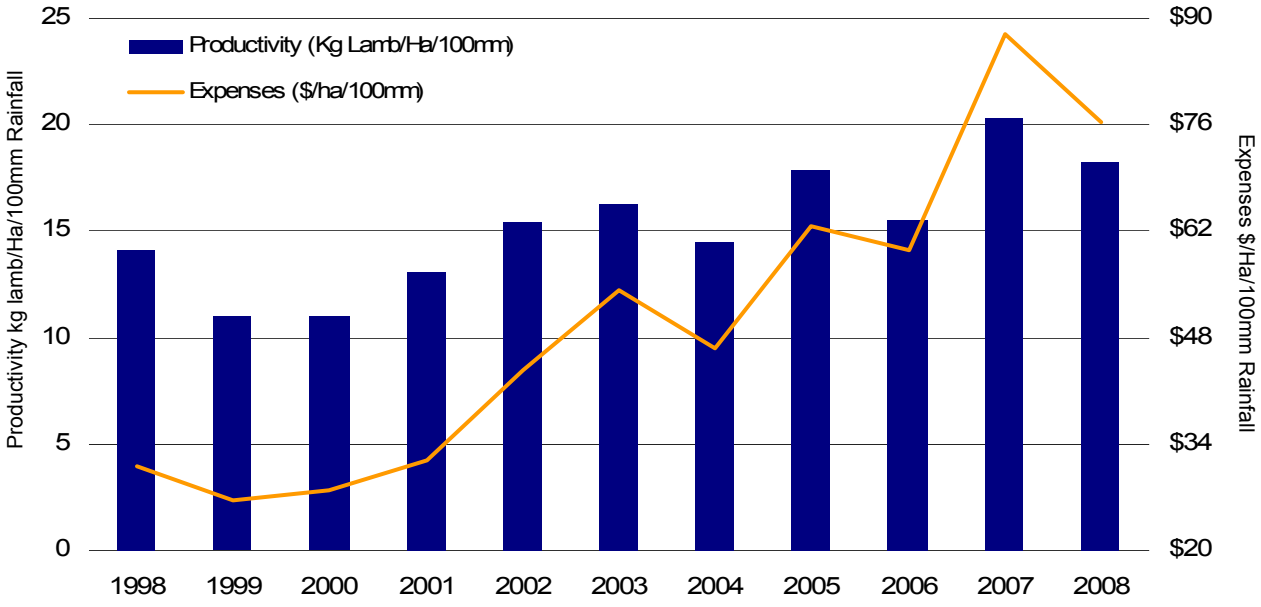
All commodity producers suffer from declining terms of trade. This situation has been occurring since the industrial revolution, which provided the catalyst for specialisation across a range of sectors in the economy. Efficiency gains in agriculture have been a trigger for the industrialisation and subsequent urbanisation that is a feature of modern economics.

There is no reason to consider that this trend is about to change. It is inexorable. It occurs because productivity gains enable the commodity to be produced for a lower cost and over time, efficient markets reflect the lower cost of production in the price they pay.

2.2 Productivity gains

Declining terms of trade need to be met by productivity gains for producers to maintain long term viability. Failing to match the declining terms of trade will result in resources being diverted to other industries. The productivity of specialist prime lamb flocks over the past eleven years (1998 to 2008) is shown in Graph 2.1. Productivity is measured as kilograms of lamb per hectare per 100mm of rainfall received for the year. This data would indicate that the message has been received by lamb flocks with productivity clearly increasing. Care should be exercised in the interpretation of this data as lower rainfall years tend to give increased productivity per hectare per 100mm of rainfall as supplementary feed is used to replace pasture not grown. This is reflected in escalating costs per hectare per 100mm of rainfall as well. Because of the influence of variation in rainfall no firm conclusions can be drawn however it appears that increasing costs are increasing at a faster rate than productivity. This may in turn be partially or wholly offset by increased price received.

Graph 2.1: Average productivity and expenses per hectare per 100 millimetres of rainfall for lamb flocks 1998 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998-2008

Graph 2.2 shows the trend in cost of production for a group of lamb producers since 1998. In nominal (not adjusted for inflation) terms there is a significant trend upwards in cost of production. The average cost of production in this period has increased by 100%. The same analysis in beef showed a 50% increase over the same period which means beef producers have done a much better job of controlling cost of production.

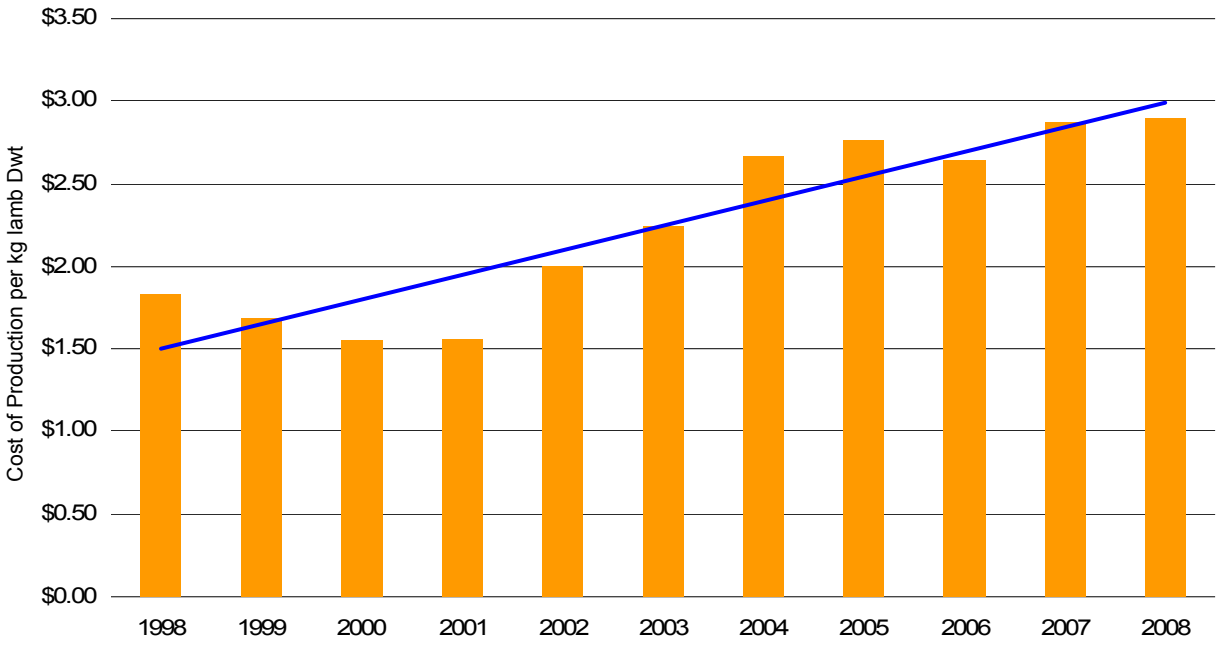
The reasons for the more rapid increase in cost of production in lamb as opposed to beef are not immediately evident from benchmarking data however it is possibly a consequence of the lamb industry chasing productivity gains without consideration to the costs of getting those productivity gains.

Though this does not represent the whole lamb industry the rate of increase in cost of production is a concern because it makes the industry ever dependent on price. As was shown in Graph 2.1, these enterprises have achieved increased productivity but this has been achieved with ever increasing cost. So although the message appears to be received that productivity gains are essential, the concept that optimum rather than maximum is the target has been lost.

Although price has helped to mask the effects of the increase in cost of production in lamb flocks over recent years, any decrease in price will be detrimental to those producers who have failed to maintain their focus on cost of production.

The data over the analysis period shows a few years from 1998 through to 2001 of steady cost pf production then a dramatic rise between 2002 and 2004 and only steady increase from that time onwards. There is steady increase in all expenses through this period of time but there is also a dramatic increase in the use of supplementary feed from 2002 onwards which has had the single biggest contribution to the rise in cost of production over that period. This increased use of supplementary feed is a combination of drought management and also feeding for productivity gains.

Graph 2.2: Nominal lamb cost of production trend 1998 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998-2008

2.3 Changing cost of production

Cost of production is a ratio with total production on the numerator and total kilograms produced on the denominator. For example, a flock that produces 100,000kg Dwt of lamb for a total cost of $200,000 has a cost of production of $2.00 per kilogram Dwt.

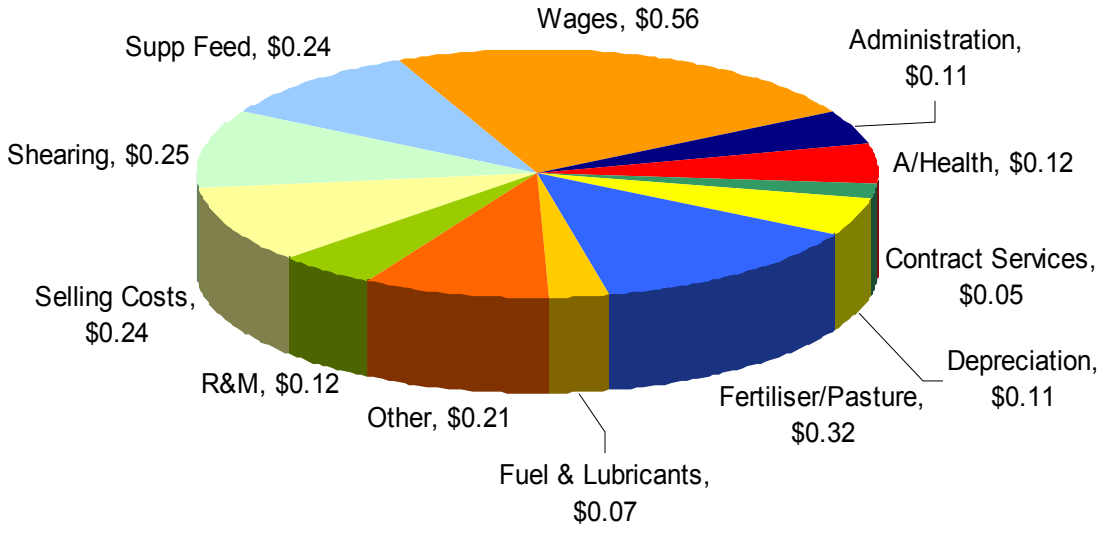
$200,000 cost
100,000kg lamb = $2.00/kg Dwt

Therefore cost of production can be altered by increasing production providing any associated cost increases are of a smaller proportion. Alternatively cost of production can be reduced by reducing costs whilst maintaining production. Both of these options are discussed below. All cost of production data are before financing costs (interest, lease, etc) and do not make any allowance for the cost of capital in business (land, stock, plant).

2.4 Cost reduction

The factors that make up the cost of production are important when determining where to direct priorities to lower production costs. Graph 2.3 shows the components of the cost of producing a kilogram of lamb.

Graph 2.3: Components of lamb production costs (total = $2.40/kg Dwt)



Source: Holmes Sackett Pty Ltd (1998-2008)

For many flocks the greatest potential for reducing production costs in the business will be via a reduction in the labour and labour related costs. These principally include wages, but also selling costs, shearing, fuel and lubricants and contract services. Costs which directly impact potential productivity such as fertiliser, and supplementary feeding are the next most important categories.

Any reduction in these costs needs to be achieved without an equivalent impact on the value of productivity to be effective. Given the rate at which costs are rising in relation to productivity it would suggest that there is room for carefully selected reductions in these cost items with perhaps some fall in productivity but not an equivalent fall in value terms.

2.5 Increase production

The sources of increased production can be divided into two categories, those that can be achieved by implementing existing technology and those that will rely on as yet unknown technology. It is not the objective of this paper to identify the new technologies that will provide the productivity gain – that is the role of research. Rather the discussion will focus on the cost centres and productivity of the business in order to provide an indication of the potential areas for improvement and the extent of the gains required.

Most of the information that follows is about how to manage cost of production in individual businesses.

2.6 What are the priorities?

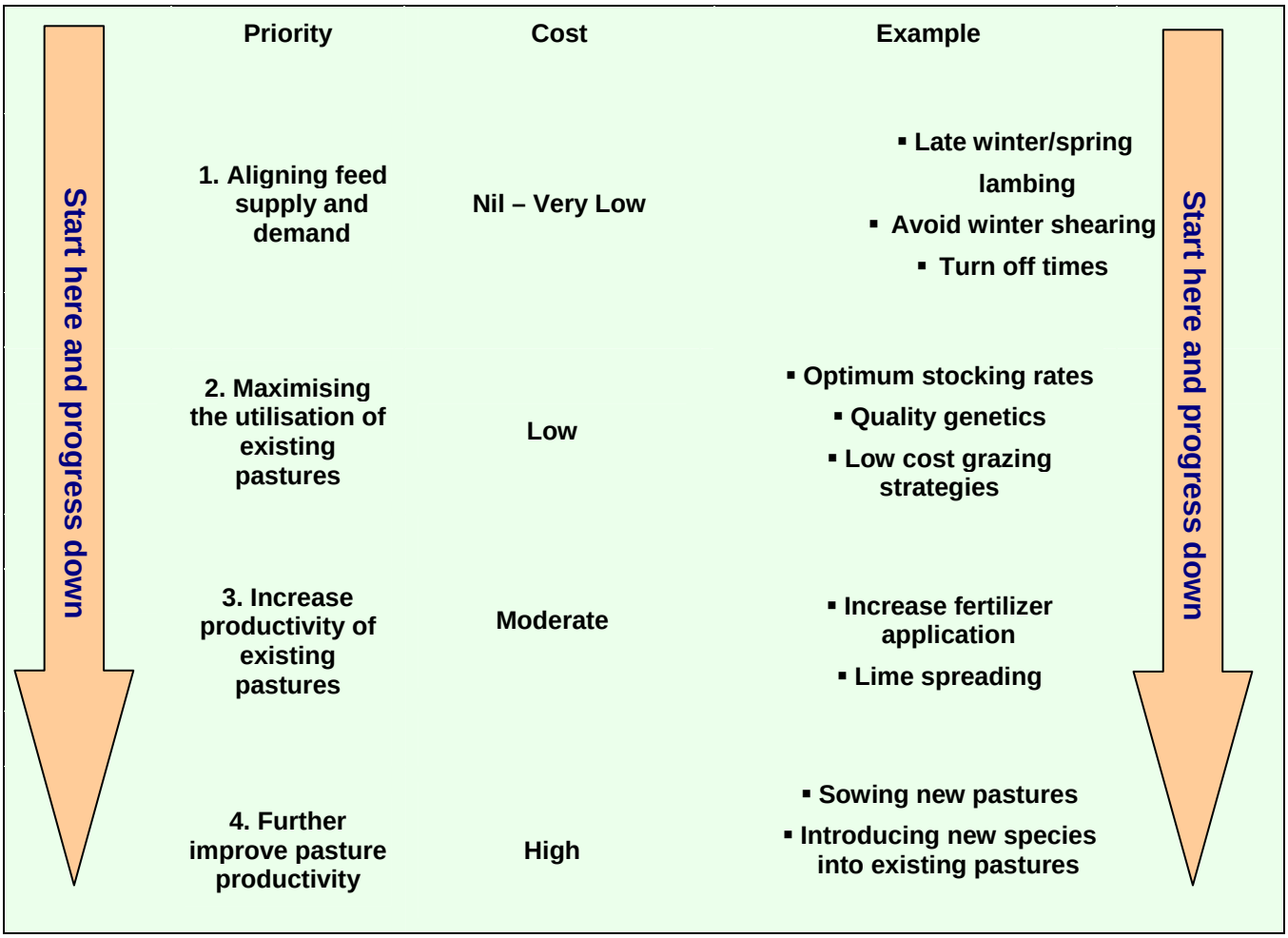
In any business there will always be some factors that result in relatively easy gains. These will include the implementation of low or nil cost strategies that improve productivity. Examples might include an adjustment of lambing time to reduce supplementary feed costs, or an adjustment of target condition scores to allow a higher stocking rate.

When it comes to per hectare production, the focus is about growing and using pasture. The place to start is to ensure pastures currently grown are being efficiently utilised. It makes little or no sense to grow more if it is already being wasted. This message is distinct from the message that all pasture should be utilised. As with any key performance measure there will be an optimum level of utilisation achievable which strikes a balance between the waste incurred from not having enough stock to consume pasture in the spring and the additional supplementary feeding required in autumn and winter because pastures are unable to meet demands.

Once utilisation is improved the next step is to produce more pasture as cheaply as possible and to match the increase with increased stock numbers. Typically the most important technology in this step is fertiliser. Grazing techniques such as mobbing up which requires no investment in additional infrastructure can also be considered as a low cost strategy.

Once the productivity of existing pastures is improved, it is time to invest in the essential but longer payoff strategies such as lime application, grazing strategies involving infrastructure investment or sowing new pastures. These priorities are illustrated in Figure 2.1.

Figure 2.1: Suggested program for improved productivity

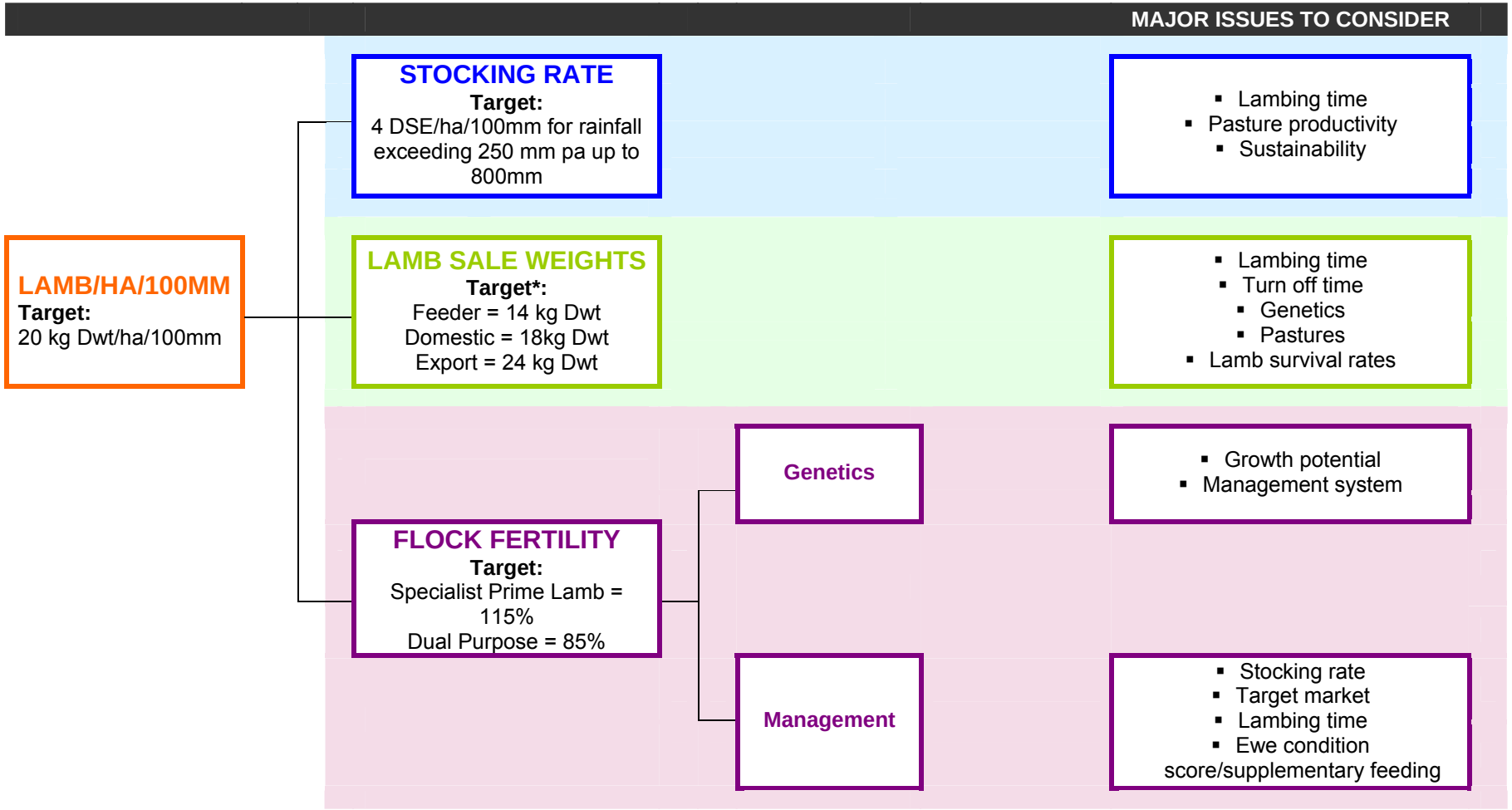


2.7 Per head or per hectare

One of the key changes that is required to focus on cost of production and hence profitability is to move from thinking about per head returns to per hectare returns. Per head measures that are commonly used include price per head, sale weight per head and lambing percentage. This is the single most common mistake in thinking in prime lamb flocks. If a lamb producer measures flock performance primarily by these measures they are missing the main story. It is not that these measures are irrelevant but rather they are a means to an end, not an end by themselves. Optimum per hectare performance comes at the cost some per head performance.

Table 1.1 demonstrates that the more profitable lamb producers produce more kilograms of lamb per hectare for a lower cost per kilogram produced (not the maximum individual kilograms of lamb per hectare at any cost). The principals relating to how are pictured in Figure 2.2.

Figure 2.2: Factors that influence per hectare production of lamb



*Note: These are suggested optimums. Producing heavier lambs in many cases may reduce overall profitability due to the high cost of additional kilograms

Suggested target productivity for prime lamb production is 20 kg/ha/100mm. The three key influences of this productivity target are:

Stocking rate

The key time of year to measure stocking rate for most regions where prime lamb is produced is early to mid winter (June/July).

Where there is a winter dominant rainfall the best rule of thumb is the French Shultz model which suggests an optimum stocking rate of 4 DSE/ha/100mm above 250mm. This model provides a guide for those regions in the range of 400mm and 800mm rainfall. For those regions that fall outside these rainfall conditions then look for local benchmarks.

It is stressed that these are generic targets and they need to be tailored to the individual farm. Some farms with poor quality soils and low quality land classes will be constrained by environmental issues well before they reach these stocking rate targets. It is important that these stocking rate targets are long term targets – it is no good meeting them one year at the expense of longer term productivity. It is also no good meeting them in a particularly dry year where they have become unrealistic.

Determining long term optimum stocking rates that meet profit and environmental objectives is one of the hardest decisions in livestock production but it is too important not to get it right.

Increasing stocking rates will have major interactions with lamb liveweight and flock fertility because individual animal performance will be suboptimal where per hectare performance is maximised. To help manage these negative impacts attention should be payed to lambing time, pasture production and supplementary feeding. Choice of lambing time will determine how closely ewe and lamb requirements are matched to pasture availability. At higher stocking rates you will also need pastures that are able to persist and provide adequate ground cover in autumn, which will be a function of species selection and soil fertility.

Lamb weight at sale

Lamb liveweight targets are dependant on the choice of market, i.e. feeder lambs, domestic market lambs or export lambs. Each market requires a different length of time to reach and therefore requires a lambing time further from the optimum from the point of view of matching pasture availability to ewe requirements or the pasture quality available for high growth rates in the lambs.

With this in mind the target should be the minimum requirement to meet the market specifications that is aimed for, 24kg for export lambs, 18kg for domestic lambs and 14kg for feeder lambs. Producing lambs heavier than these targets will often achieve a higher per head price but will come at a cost of lower per hectare production. Consideration should be given to genetics, specifically in relation to the Australian Sheep Breeding Values (ASBV's) of rams used in order to ensure that they arrive at target weights at the right fat score.

Flock fertility

Flock fertility is important but not at any cost. The two key opportunities for improvement are through genetics and management. Maternal Central Progeny Test (MCPT) results show that genetic selection for improvement in fertility can make the prime lamb production system more profitable. Given that superior genetics are virtually free with the exception of a small premium for the ewes or rams they are worth pursuing. As with any selection criteria, selection for fertility needs to be considered in the context of what gains are being sacrificed in other traits. There are tools available such as ASBV's that allow this to be efficiently undertaken.

Management can influence fertility through choice of joining time to best fit the compromise between the seasonal oestrus activity (increases into autumn) of the ewes and condition score at joining (often decreases into autumn). Usually the joining decision is based more on the target market for the lambs. Management decisions also relate to tactical supplementary feeding and stocking rate decisions in order to meet optimum condition scores in sheep.

Unlike genetics, management influences usually come at a significant cost and therefore the sums must be done carefully to ensure that the strategies and tactical changes are profitable from season to season. Too many flocks achieve higher lambing percentages at the cost of low per hectare production or irretrievable additional costs. It is important to avoid that trap.

2.8 Increasing enterprise scale

The traditional 'get big or get out' has long been one of the methods that farmers have used to improve efficiency. It offers a simplistic recommendation to what is a complex issue.

Firstly some farms do suffer from a lack of scale at the whole farm level. These will typically be those that have less than $4-6 M invested in the business. At todays land values of say a conservative figure of $300/DSE, that represents about 14,000 to 20,000 DSE.

The issue is largely one of attitude because it relates to the ability to spread the income earning potential over the overhead labour cost of one full time operator. It is attitudinal because there are two options to fix this problem. The labour unit can be reduced to part time or scale can be increased.

The issue of scale is normally a problem at the whole farm level not specifically at the enterprise level because the required farm scale may be achieved with two enterprises, for example 6,000 DSE of sheep and 500 hectares of crop. For most farms scale is more about the whole business than it is about individual enterprise size.

If lack of scale is currently limiting productivity and resulting in an uncompetitive cost of production there are a number of options:

- The farm can be treated as a part time job and surplus labour can be sold to someone else.
- The business can be expanded by intensification, which is producing more from the current area.
- The farm can expand through leasing or acquisition.

On many farms the second option is quite possible by improving the pasture utilisation and productivity and then by running the most efficient lamb production system to harvest that pasture. The advantage of this approach is that it tends to be relatively low cost compared to going out and buying the farm next door, particularly at current land prices.

If the current farm is at its productive limit, which the majority are not, the next option for expansion is with additional land. This can be done by owning the land or by paying for the right to use someone else's land, for example, in a leasing arrangement. The advantage of leases are that they are require only sufficient working capital for running costs and stock purchase so they represent a means of expansion when capital is limited. Unfortunately during the last couple of years the price being paid for leases has increased substantially. That might be fine for high profit farms or during periods of high commodity prices but it does present some risk if commitments are made over a longer term lease.

2.9 Capital appreciation

A common mistake in the analysis of farm business viability is to ignore the return from capital appreciation. Over the last eleven years capital gains have produced two thirds of the total farm business returns. It is capital gains that make seemingly unviable (producing operating losses) businesses actually very viable.

2.10 Labour

The ability to lower labour costs is a source of significant potential wealth from most farm businesses. Labour efficiency is not just about how much time is spent in the business, it is also about where time is spent.

The issues of labour efficiency and the associated costs are important because labour is a very large component of total farm costs. Direct labour costs typically make up 35% of the total expenses for the farm each year, and when indirect costs are added this can easily be 50%. To provide some idea of the importance of this issue, the labour efficiency for flocks of varying profitability is shown in Table 2.1. A lamb producer should be targeting labour efficiency of 8,000 DSE per full time unit inclusive of shearing and crutching labour.

Table 2.1: Labour efficiency and flock profitability

	Bottom 20%	Average	Top 20%
Dual purpose	5,100	6,600	7,800
Prime lamb	4,700	6,300	7,100

Source Holmes Sackett Pty Ltd Benchmarking Database
Note; includes shearing and contract labour

To help interpret the figures, it is reasonable to assume that one ewe is equivalent to 2 DSE so a reasonable target is 4,000 ewes per full time equivalent inclusive of shearing and crutching which typically make up nearly half of the labour requirements. If shearing and crutching are excluded then the task is 8000 ewes.

Because the ability to generate farm income is the number one profit driver, labour cost per hectare should not be reduced at the expense of the equivalent or more farm income. That will invariably be an unprofitable thing to do. The aim should be to either earn the same amount of income with less labour or earn a greater amount of income with the same labour.

2.11 Genetics

Numerous research and extension programs have highlighted the potential impact that the selection of better genetics can have on your prime lamb business. The use of Australian Sheep Breeding Values (ASBV's) information when making sire purchasing decisions can have substantial implications to flock profitability.

A ram purchased that is capable of producing progeny 2kg heavier than your current average liveweight of lambs sold, joined for four years at a ram to ewe ratio of 1.5% in a flock of ewes that average 115% lambing with five year average prices of $3.00 per kilogram dressed weight inclusive of skins will return the buyer an additional $600 worth of income after future cashflows are discounted back to today's dollars at a rate of 15% per annum. This means that the buyer can spend up to $600 more than the price paid for rams of their existing quality and before a loss is incurred. This is not to say that the buyer should spend that much on the ram of superior quality as the less spent the better the return and this is one area of the business where very high returns can make up for much lower returns in other areas.

For self replacing flocks or where 1st X ewes are being purchased for prime lamb production, the rams used to breed the replacement ewes can also have a big impact on profitability. This was well researched in the Maternal Central Progeny Test where substantial variation in weight of lamb produced per ewe was found to exist depending on which sire was used.

In the final report of this project, compiled by the NSW and Victorian Department of Primary Industries, as well as the Australian Sheep Industry CRC, it is reported that the maternal sires can substantially influence all of the key profitability traits of their daughters including lambs weaned per ewe joined, growth rate, carcass conformation, meat yield and wool traits.

The relative weighting of traits will vary according to the enterprise that is being run. Dual purpose enterprises, having more wool income, need to put a lot more emphasis on the wool traits than a specialist prime lamb enterprise. Given the returns available from improved genetics it cannot be stressed enough how important finding the best genetics is for the prime lamb or dual purpose enterprise.

2.12 How resilient is my business to unfavourable seasonal conditions?

Comparison of benchmarking performance prior to and during the 2006-07 drought confirmed that it is not how the farm is operated in the seasons prior to the drought that determines the impact that it will have on the business, but rather the planning processes before and tactical decision making during the drought that are critical. Simply, those who were more profitable prior to the drought because of their increased productivity also tend to be more profitable in the drought years.

The aim in drought years should be to minimize the losses that are incurred by the system rather than trying to capitalise on any opportunities they might present. The quandary faced by any producer in a drought year is that the earlier action is taken to minimize the losses, the lower the impact on the business. Acting early is often difficult as the actual outcome of the season is not known until it is too late and action to minimize losses at that time is limited. A range of decision making tools would be useful for making such a decision.

2.13 The path over the next five years?

There are a large number of potential areas for improvement in productivity and it would be unlikely that the individual producer is at the limits of available knowledge and technology for all of them. These opportunities have been mentioned throughout this document but in summary include:

- A more prudent cost structure for the target market.
- Improved balance between pasture utilisation, stock condition and supplementary feeding.
- Improvements to fertility of soils and pastures
- Improved labour productivity

The process of reviewing these potential areas for improvements in profitability of the enterprise should be continual and should be based on identifying and implementing those changes that are going to provide the best return for the least cost. Improvement is an evolutionary process and developing a systematic and methodical way of capturing the benefits is critical.

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