final report

Project code: B.COM.0255
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Date published: August 2010
ISBN: 9781741913934

PUBLISHED BY:
Meat & Livestock Australia Limited
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Southern beef 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

- Droughts in the past eleven years have had a substantial impact on the average profitability of beef herds across south eastern Australia.
- When compared to alternate enterprise choices of wool, dual purpose, prime lamb and cropping, beef has comparable profitability to other livestock options but has been less profitable – on average - than wheat. Across the low (<500mm), medium (500 to 650mm) and high (>650mm) rainfall zones over the long-term, average beef enterprise profitability has been greater than that for wool enterprises, but less than that of lamb and wheat enterprises.
- There is more variation in profitability within each of these alternate enterprises than there is between the average profitability of each enterprise. Beef producers therefore have more potential to improve their profitability by focusing on increased efficiency within their enterprise, rather than changing to an alternate enterprise.
- Variability in beef enterprise profitability, as with alternative livestock enterprises, is significantly lower than that for both wheat and canola enterprises in low, medium and high rainfall zones. These differences need to be acknowledged when considering equity levels at which the business can afford to operate.
- The most efficient and profitable beef producers have a combination of higher productivity, and a lower cost of production. They do not have the individual highest productivity or price.
- The trend among average producers over the eleven years is for a stagnated cost of production due to small increases in productivity coming at ever increasing cost.
- There remains significant potential in most beef (and livestock) enterprises to reduce costs per unit (kg, DSE, hectare) of production by increasing labour efficiency. The most efficient beef herds employ a full time labour unit for every 15,000 DSE run, while the average of all herds is 10,000 DSE per labour unit.
- Productivity improvements are possible but should be made in consideration of the changes to costs; in many cases, lower cost and/or simpler options are best undertaken before implementation of more expensive alternatives. In grazing operations, ensuring the efficient utilisation of existing pasture growth is the critical initial step, following which strategies to grow more pasture can be explored.
- In the main, increasing productivity in the herd is achieved through:
    - Optimising stocking rate – cost-effectively maximising and matching feed supply and demand, and the conversion of pasture into saleable product;
    - Ensuring optimum age and weight at sale – cost-effective management of nutrition and breeding to maximise specification compliance with the target market(s); and,
    - Optimising herd weaning weight - cost-effective management of nutrition, breeding and weaning to increase the rate of liveweight gain and consistency of weaning weights.

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Introduction

This paper discusses the current average profitability of beef enterprises, and the variation in profitability of beef enterprises. It then looks at the questions managers need to ask now if they want to strive for increased 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.

The average profitability of beef herds is currently low both in terms of historical performance, and in comparison to alternative livestock and crop enterprises. While there has been little improvement in the levels of production achieved by herds in the past 10 years (Graph 2.2), expenses (in real terms) have increased with relative consistency. To further compound their problems, these herds have seen their average price fall in recent years.

Although the recent run of poor seasonal conditions can be blamed to some extent, if average beef enterprise profitability is to reach and sustain viable levels over the long-term, changes will be required. The most profitable herds have sustained respectable returns through the same period where others have floundered. This has been largely achieved by focusing on the important drivers of herd productivity and profitability.

The bulk of the data presented within the report are drawn from the Holmes Sackett benchmarking database, which has been operating over the past eleven years. This benchmarking service draws data from farms covering a geographic area extending from southern Queensland, the Northern, Central and Southern Slopes and Tablelands and wheat-sheep zones of NSWNSW, Victoria, Tasmania and South Australia.

The benchmarked data presented are 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 representative of the industry average 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%**

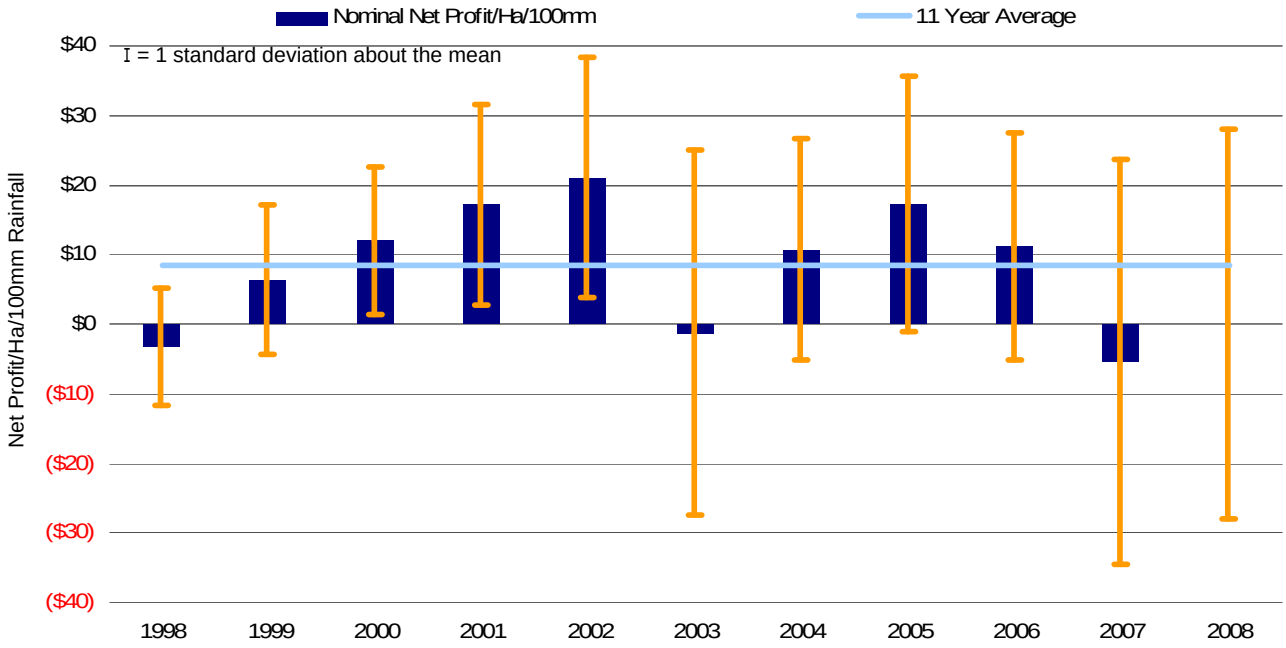
* ABARE preliminary estimate

1 Current situation 2009

1.1 Relative profitability

Graphs 1.1 and 1.2 provide a good perspective on where beef enterprises are situated now in both current and historical terms. They show that over the 11-year period from 1998 to 2008 the fortunes of beef herds have varied, and current net profits are below the long term average. The data in Graph 1.1 is in nominal terms, meaning that the figures have not been adjusted for inflation, and the figures in Graph 1.2 are in real terms having been adjusted for inflation over the period. The profit trends in both graphs are the same and therefore so are the messages to be garnered from the graphs.

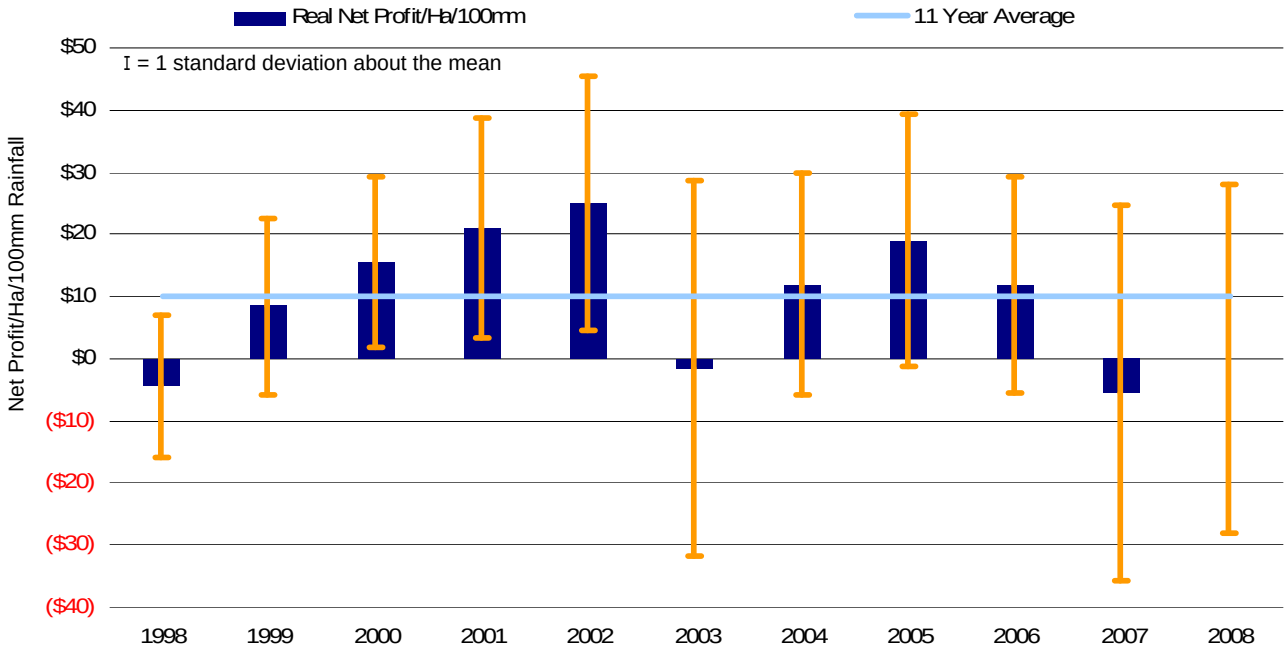
Graph 1.1: Nominal net profit per hectare per 100 millimetres of annual rainfall for beef enterprises over the 11 years from 1998 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998 to 2008

One of the key messages to take from Graphs 1.1 and 1.2 is the impact that drought has on beef herd profitability. Those years where major widespread droughts have occurred (1998, 2003, 2007 and 2008) also correspond to the years of lowest profitability for beef herds. While making the most of good years is imperative to long-term profitability, so is minimising the impact of bad years when they occur. Further information on how that might be achieved is included in the last section of this report.

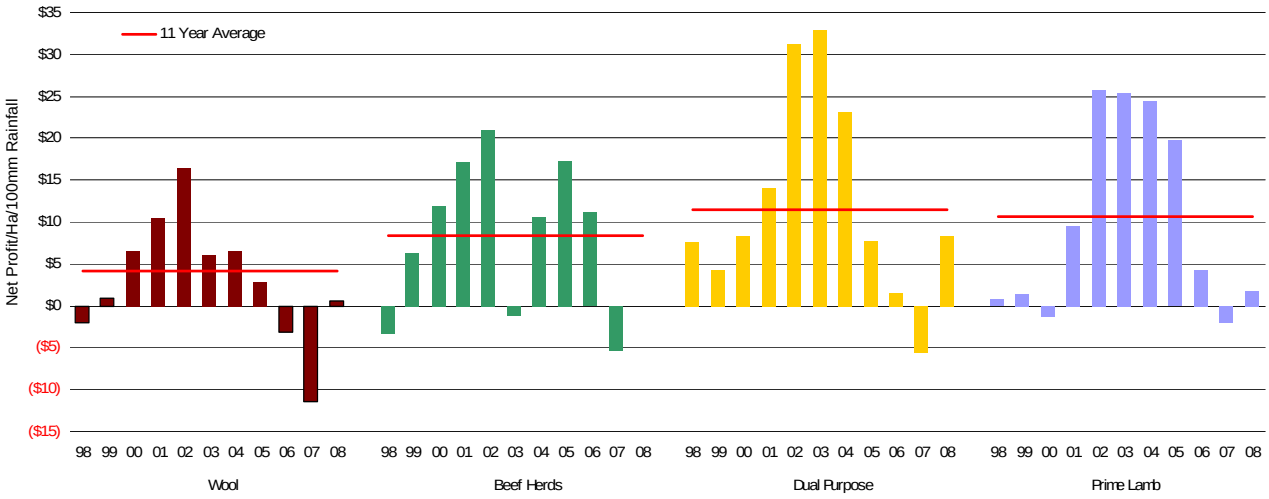
Graph 1.2: Real net profit per hectare per 100 millimetres of annual rainfall for beef enterprises over the 11 years from 1998 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998 to 2008

Beef enterprises are currently experiencing poor average profitability compared to lamb (Graph 1.3). However in nominal terms the net profits are not at historical lows and neither is the gap between beef and the other livestock enterprises greater than it has ever been - beef enterprises are experiencing bad times, but not the worst times. The beef production industry has been in the current position before and, based on past variability, it is reasonable to expect that it is unlikely to remain this way.

Graph 1.3: 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

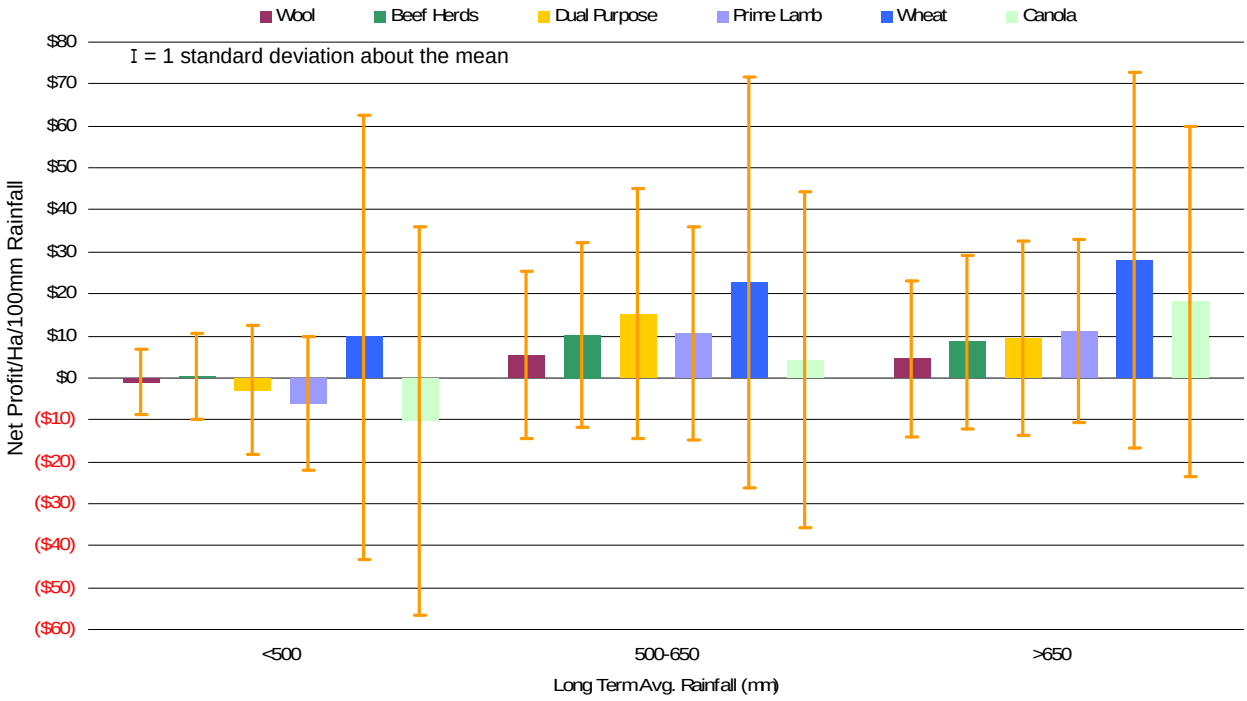


Source: Holmes Sackett Pty Ltd Benchmarking Database 1998 to 2008

Throughout the 11 year period represented in Graph 1.3, the profitability of beef and sheep enterprises have generally fluctuated independently of each other, while wool and lamb production follow similar profit trends.

A comparison between beef, other livestock and cropping enterprises in southeast Australia over the same 11 year period (1998-2008) is shown in Graph 1.4. 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. Data is shown in nominal net profit per hectare per 100 millimetres of annual rainfall terms, with standard deviations presented to demonstrate the variability in profit of each of the enterprises.

Graph 1.4: 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 over the 11 years from 1998 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998 to 2008

When interpreting these figures, it needs to be considered that the comparison may be biased because cropping on many farms is done on the most productive land classes, while the stock are typically relegated to less productive land classes. The extent of this bias is unknown as most crop rotations have a pasture ley and not all livestock enterprises are run in conjunction with cropping. Our estimate is that this bias may close the gap in profitability between enterprise options, but not eliminate it.

Over the last 11 years the trend among average enterprise performance in south-eastern Australia has been similar across these three zones, with average wheat enterprise profitability exceeding the average of all livestock enterprises (Graph 1.4).

Because crops are grown in rotation the higher wheat profitability has at least been partially offset by lower canola profitability which has been the least profitable enterprise on average in the low (<500mm) and medium (500-650mm) rainfall zones. Canola has been more profitable than livestock enterprises in the high (>650 mm) rainfall zone.

Because canola is typically not more than a third of the crop rotation and it is used less in low rainfall areas than high rainfall areas lower profits from Canola have not decreased total crop profits below livestock profits.
Wool has been the least profitable livestock option on average in the >500mm rainfall zones however it has been more profitable than lamb in the below 500mm rainfall zones where lamb has been the least profitable enterprise choice.

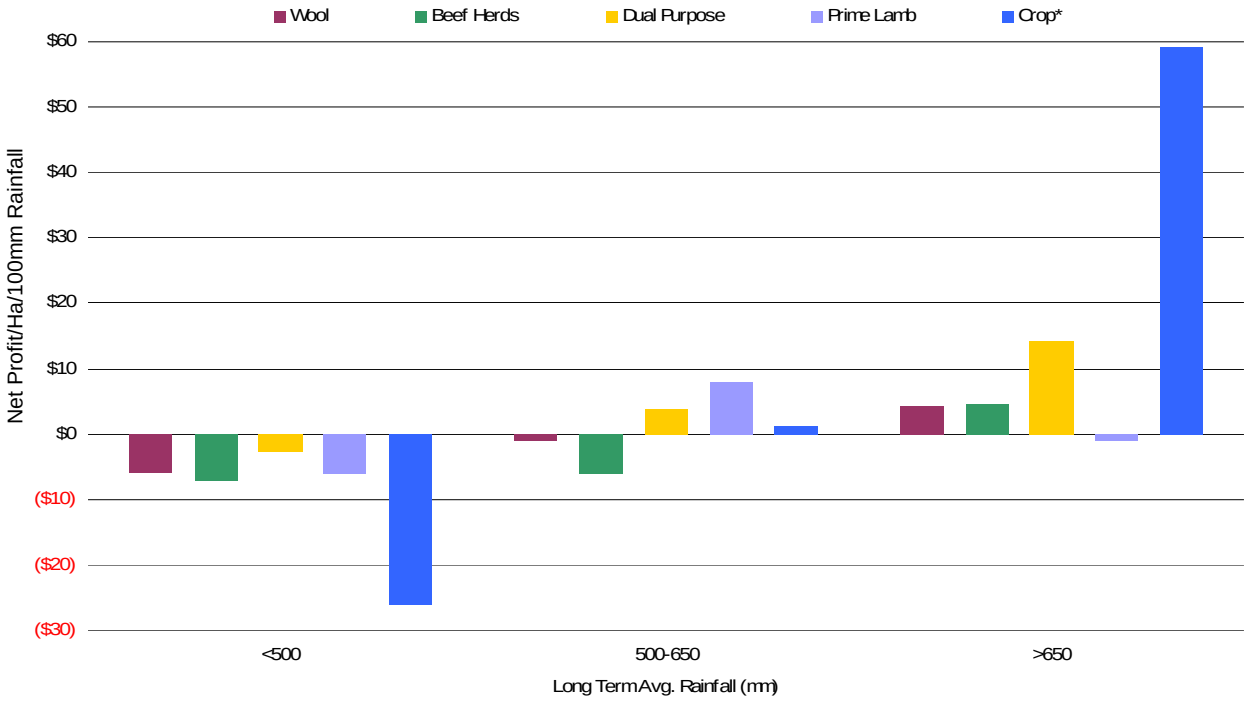
The most profitable livestock enterprise on average is lamb in the medium (550-600) and high (>650 mm) rainfall zones. Beef has neither the highest nor lowest average profitability of livestock enterprises across all three zones, but does retain the lowest to second lowest levels of variability in profitability across all three zones.

On average across the rainfall zones wheat has been the most profitable enterprise over the long-term, it also has the greatest variability in profits. The returns from canola enterprises are also highly variable, demonstrating that livestock enterprises - although being less profitable on average - are less prone to variation in profitability year-on-year. This is an important consideration in regards to risk management strategies in single- or multi-enterprise businesses.

Average beef enterprise returns were exceeded by lamb and wool enterprises in the less than 650mm rainfall zones in the latest year (2008). In the >650mm rainfall zone average beef profitability was higher than prime lamb production but not wool or dual purpose production systems (Graph 1.5).

Average cropping profitability was much higher than livestock profitability in the high rainfall zone (>650mm), but not in the medium and low rainfall areas (<650mm) where average lamb enterprise profitability was the highest.

Graph 1.5: 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 current and historical trends of higher profitability for cropping enterprises over beef enterprises across the zones presents both an opportunity and threat to future beef production. These will be discussed in further detail in following sections of this report.

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

Beef is unique among common broadacre enterprises in Australia in that it is produced across the entire spectrum of agricultural production zones and retains the highest geographical coverage of all broadacre agricultural industries. Even across the southern production area, where this report is focused, there are a vast range of operating environments and the production systems used for beef are as varied as the range of climates in which it is produced.

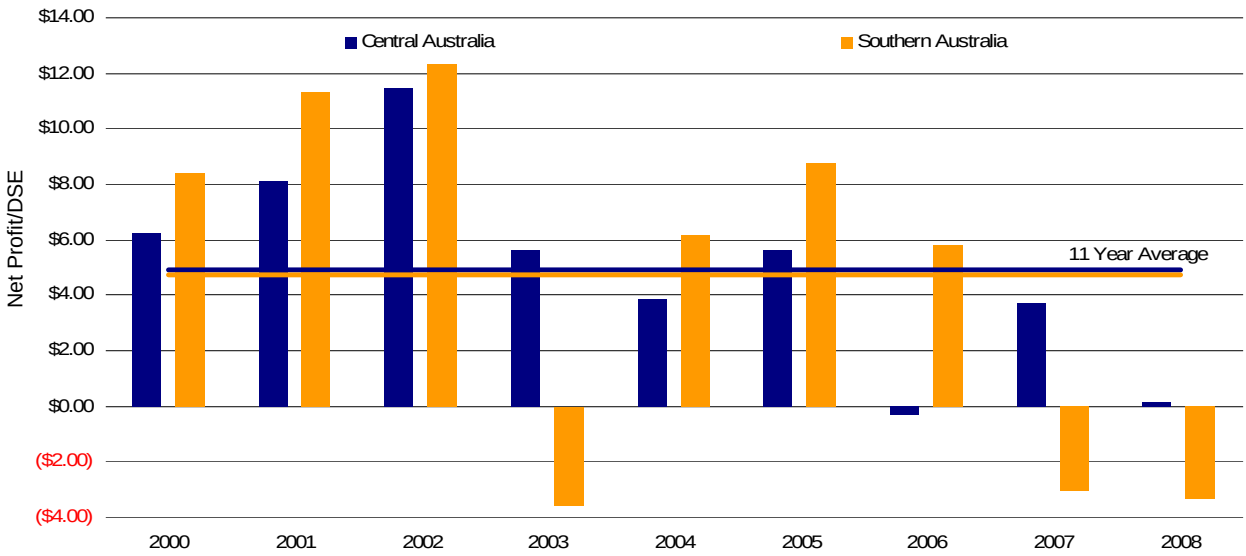
The beef herd performance shown in Graphs 1.1 and 1.2 is derived from self-replacing herds. Information from cattle trading herds, where animals are purchased with the intention of growing or fattening to be sold, is also gathered. The vast majority of the cattle trading herds from which the data is derived are opportunistic, and therefore only undertaken when favourable market and/or seasonal conditions prevail. This means that these enterprises are not necessarily undertaken each year and therefore it is difficult to compare their long term average profitability to breeding enterprises. As such trading herds are not considered an alternate enterprise choice and have not been analysed in the report.

The vast majority rely on pasture and specialist crops for their production systems. There are no specialist feedlot systems represented. Within the herds represented, the target markets range from store weaner production through to the production of heavy bullocks. It is not within the bounds of this document to provide a detailed discussion – or profitability analysis - of the main enterprise structure and environment combinations; however the market environment and the principals that separate the more profitable enterprises from the average will be discussed in some detail.

When the long-term performance of beef herds is compared across diverse geographic regions there is as much variability between areas as there is within any particular area. To demonstrate this point, the benchmarked profit performance of a group of central Australian beef herds has been compared to that of the herds from southern Australia (Graph 1.6).

Over the nine year period for which data is available, the average net profit per DSE of these two groups is very similar with the central Australian and southern returning $4.94 and $4.76, respectively. The differences in yearly profits of the two groups fluctuate independently; however, in the long-term there is little difference in performance. Put simply, there are no advantages offered by producing beef in any particular geographic region or area. Rather it is how well that system is managed within any particular area that will dictate how profitable it will be in the long term.

Graph 1.6: Nominal net profit per DSE for central Australian and southern Australian beef herds over the 9 years from 2000 to 2008



Source: Holmes Sackett Pty Ltd Benchmarking Database 2000 to 2008 and Holmes & Co. Benchmarking 2000 to 2008

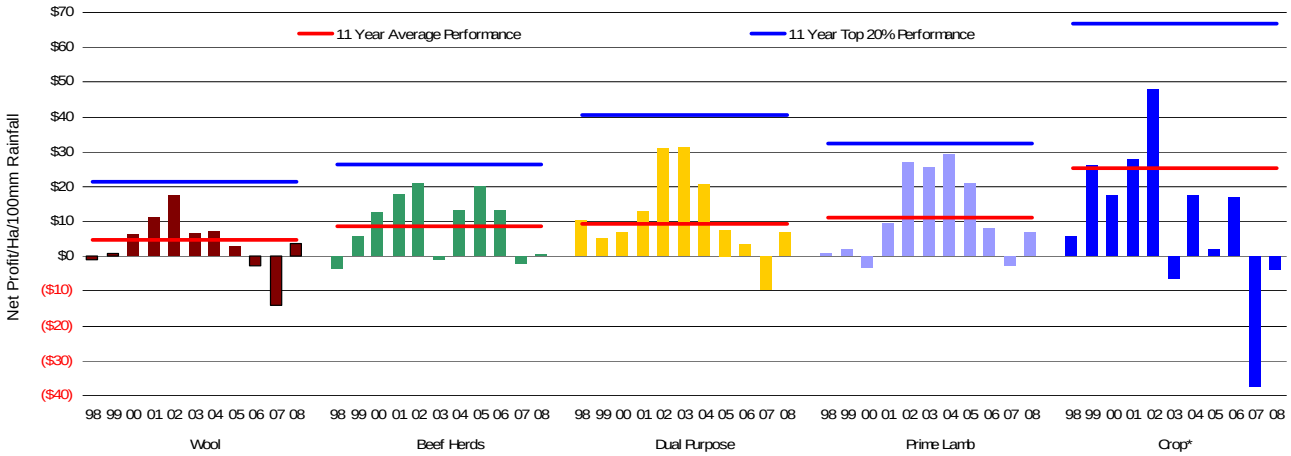
1.4 Variations in profitability within each enterprise

In just about every industry there is always more variation within an enterprise than there is between enterprises. Agriculture is no different.

Graph 1.7 shows the variation in average net profit per hectare per 100 millimetres of annual rainfall within and between wool, beef, dual purpose, prime lamb and cropping enterprises. The 11-year average and top 20% performances has been shown to demonstrate the variation in profitability within enterprises compared to that between enterprises. Top 20% performance is determined by ranking on net profit per DSE in livestock enterprises and net profit per hectare per 100 millimetres of rainfall in cropping enterprises.

It is important to note that it is unrealistic to expect any individual producer to achieve top 20% performance year-in, year-out. The reason for this is that seasonal conditions vary over time and usually prevent the consistent achievement of top 20% performance. This does not mean that good managers stop being good managers over the long-term; it simply means that good managers drift in and out of the top 20%. Evidence suggests that good managers will consistently achieve profits somewhere around the mid-point between top 20% and average performance over time.

Graph 1.7: 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

The information in Graph 1.7 demonstrates that there is as much – if not more - to be gained from improving the performance of the current enterprise as there is from changing to alternative enterprises. Therefore, rather than looking at alternate enterprises to improve farm profitability, beef herds should be first looking to see if there are improvements that can be made to the current system.

How well the chosen enterprise is managed is much more important than the decision on which enterprise is undertaken.

While this message is good in theory, it does not necessarily reflect commercial practice where, if being average at one enterprise is perceived to be worse than being average at another, enterprise switching may occur. A producer may alternatively choose to accept average performance and continue without recognising the opportunities available to them.

Table 1.2 shows the key differences between the top 20% and the average beef enterprise for 2008.

Table 1.2: Performance of average and top 20% beef producing enterprises in 2008

	Beef herds	
	Average	**Top 20%**
Total income ($/DSE)	$23.99	$29.23
Enterprise expenses ($/DSE)	$8.11	$6.66
Overhead expenses ($/DSE)	$16.53	$12.38
Net profit ($/DSE)	($0.65)	$10.19
Net profit ($/ha/100mm)	$0.32	$27.85
Key performance indicators		
Cost of production beef ($/kg Lwt)	$1.49	$0.98
Average price received per kg beef sold ($/kg Lwt)	$1.52	$1.58
Kg of beef (per ha/100mm)	30	47
Kg of beef (per DSE)	17.1	19.3
Avg. ann. stocking rate (DSE/ha/100mm)	1.7	2.4

Source: Holmes Sackett Pty Ltd Benchmarking Database 2008

The more profitable businesses within beef herds have a superior combination of:

- Higher productivity (kg of beef per hectare) namely through more efficient use of (+/- better) resources, such as land and pasture;
- Lower cost of production (they produce each kilogram cheaper), fundamentally by diluting overhead their cost structure; and

These two key messages are consistent in that they are repeated every year but, most importantly, that it is the combination of achieving these two things without any significant loss in average price received that collectively contributes to superior returns.

The reality is that choice of target market(s), genetics, calving and selling times, and all other inputs into the system are only a means to achieving a better combination of productivity, cost of production, and price received than currently exists. The complexity of the interactions between these three things means that you cannot look at any one in isolation. These factors are discussed in greater detail in the next section.

The top beef enterprises produced more kilograms of beef per hectare which was sold at a similar price and they were able to do this with a lower cost of production. The top 20% group does not have;

- The highest productivity.
- The lowest cost of production
- The highest price.

The relative productivity component of the differences in profit between beef herds is particularly powerful because it is largely under producer control and because of its associated influence on the cost of production. The top 20% producers achieve higher levels of productivity per hectare (adjusted for rainfall) by producing more kilograms of beef for each DSE run (kg beef/DSE) and by running more DSE per hectare after adjusting for rainfall received (avg. ann. stocking rate/ ha/100mm). In all grazing enterprises, productivity is driven primarily by:

- Stocking rate per hectare,
- Optimum herd weaning weight, and,
- The average weight and age of animals at sale and its impact on herd structure.

These add up to kilograms of beef produced per hectare. All of these things are influenced by rainfall, soil fertility, pastures, genetics, choice of calving date, and target sale date to meet the market you have chosen. There are always compromises between these individual components.

Higher stocking rates have a positive impact on total beef produced per hectare. The optimum productivity is not reached where individual animal performance is maximised but rather where stocking rate is optimised, and this will usually have come at some cost to individual animal performance. The cost structure at this point, by definition, is also at its optimum. 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). Therefore, stocking rate targets need to be the optimum rather than the maximum. The key issue for every producer is to identify those cost-effective opportunities. This is discussed in more detail in section two.

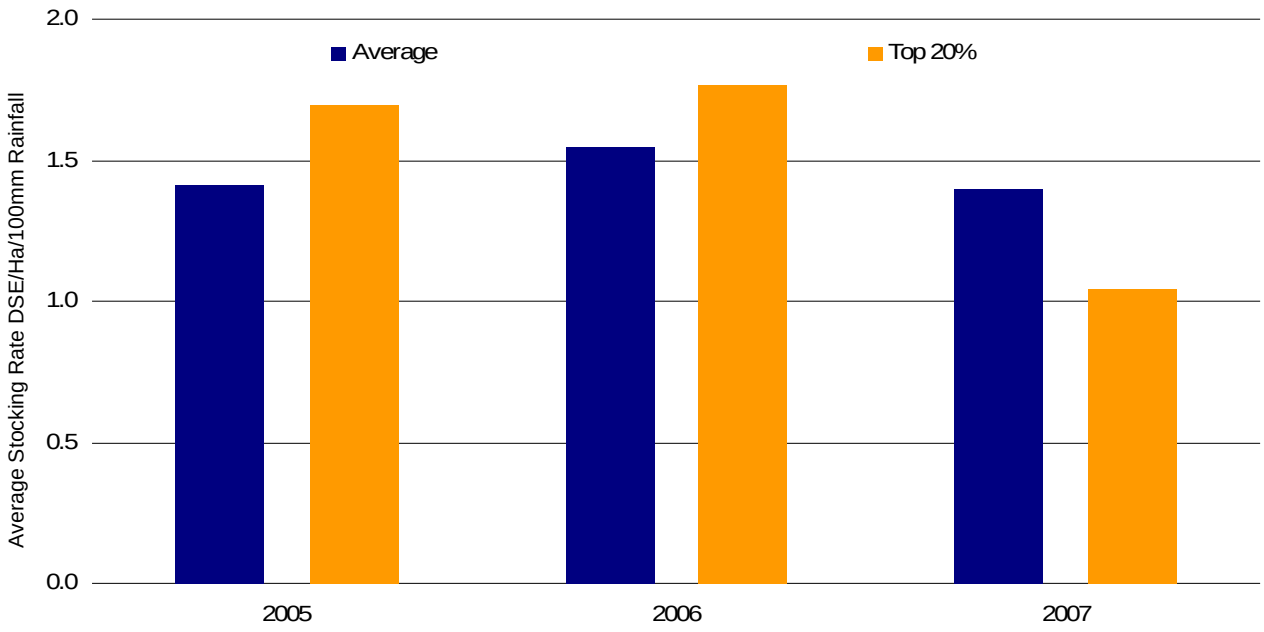
Drought, stocking rate and enterprise performance

One of the barriers often presented to running higher stocking rates is the perceived risk of doing so, especially in adverse seasonal conditions. The presumption is that higher stocking rates make the farm more susceptible – or less resilient - to droughts by increasing the cost and severity of them. The risk management strategy employed in response to this perceived risk is to run lower stocking rates in average and above average years, largely set around conservative stocking rates established during drought conditions.

To determine the effectiveness of running lower stocking rates as a drought risk aversion strategy, long-term benchmarked beef herds affected by the 2007 drought have been identified. These herds were benchmarked in each of the three years from 2005 to 2007 and were not drought-affected in 2005 or 2006, but were in 2007. They were then ranked according to their average performance over the three years.

The average annual stocking rates (DSE/ha/100mm rainfall) for the average and top 20% groups of herds, ranked according to their average profits over all three years are shown in Graph 1.8. The top 20% herds had higher stocking rates than average herds in the two years leading up to the drought but this fell to below the level of the average herds in the drought year.

Graph 1.8: Average annual stocking rate of average and top 20% drought affected beef herds



Source: Holmes Sackett Pty Ltd Benchmarking Database 2005 – 2007

The net profit per DSE performance of the two groups of farms over the three years is shown in Table 1.3. The top 20% had higher profitability in all three years, and this resulted in a higher average profit over the period. The top 20% result in the 2007 drought was largely a result of lower supplementary feeding costs on a per DSE basis, which in itself is a function of lower stocking rates in drought conditions. Running stocking rates that suit the seasonal conditions requires good tactical management in good and adverse seasonal conditions. Stocking rates are adjusted to be higher in the good years and lower in the adverse years rather than running lower stocking rates at all times in anticipation of adverse seasonal conditions.

Table 1.3: Three year net profit performance of average and top 20% drought affected beef herds

Net Profit - $/DSE	2005	2006	2007	Cumulative Total	Annual Average
Average	$10.67	$7.03	($7.52)	$10.18	$3.39
Top 20%	$19.81	$14.39	$4.53	$38.37	$12.91

Source: Holmes Sackett Pty Ltd Benchmarking Database 2005 – 2007

1.5 Impact of current and future prices for beef

Table 1.4 below shows where corresponding prices for the current analysis year (2008) were in relation to historical prices over the last 10 years. Beef prices were around their historical average, which is below where they had been in the few years preceding and undoubtedly had an impact on herd profitability in the current year. Lamb and mutton prices were above their historical average whilst crop prices are close to their historical highs.

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

ABARE predict that the national beef cattle herd will increase by 1% in 2009-10 to 25.1 million head as producers begin to rebuild herds that have been affected by droughts. This follows a decline in the number of beef cattle during 2007-08. The forecast increase in the national herd assumes favourable seasonal conditions and if adverse conditions prevail, increased turnoff is likely and the predicted increase in numbers unlikely.

Although the anticipated herd rebuilding is predicted to maintain the level of production, a 2% lower demand from export markets is likely due to the effects of the economic crisis. Subsequently ABARE predicts future beef prices will remain relatively unchanged in the short term following a forecast 3% increase during 2008-09. If adverse seasonal conditions eventuate the expected increased turnoff is likely to have a negative impact on the price forecast.

So what does this mean for beef enterprises? It essentially means that an increase in price to improve profitability over at least the short-term is unlikely. In a commodity market, and with continued average prices, those beef producers with the highest cost of production and lowest productivity will continue to be unprofitable. If these conditions persist, then these producers may look to switching enterprises.

If a producer wants to remain in the industry, or even better, to enjoy above average profitability then productivity and cost of production are going to be the key things to work on.

This does not mean that price is not important. It is still necessary to meet target market specifications in order to maximise price received.

1.6 What happens if beef prices fall?

The average beef herd made a loss in the 2008 financial year because the price paid could not sustain the level of productivity achieved. Any further deterioration in price is going to simply increase the enterprise losses incurred unless productivity is increased and cost of production is reduced. At the current cost of production, these herds need overall beef prices (average of steer and cow prices) to be between the 40% and 50% decile range to break even. The most profitable herds however would produce a profit until prices reach their lowest historic level. By remaining focused on productivity and cost of production, these herds have made themselves relatively resilient to any downward movement in price. For all but these most productive and profitable herds, there is a significant opportunity to increase productivity and reduce cost of production, and subsequently enhance their profitability.

1.7 Summary

Data within the Holmes-Sackett database indicate that the current average returns from beef enterprises are low in comparison to lamb and crops.

While this is a problem, especially for those producers who have low productivity and a high cost of production, the more profitable producers with below average cost of production and above average productivity can expect to enjoy good profitability for some time. If producers wish to achieve high profitability, they need to aim for optimum productivity and below average cost of production. Achieving them will make the business more resilient to market changes.

In addition to the vagaries of the market, there are also the vagaries of the seasons, with drought having a sobering impact on beef profits. The evidence from past droughts (Table 1.3) shows that the more profitable farms leading up to droughts are able to sustain higher profits through the droughts as well.

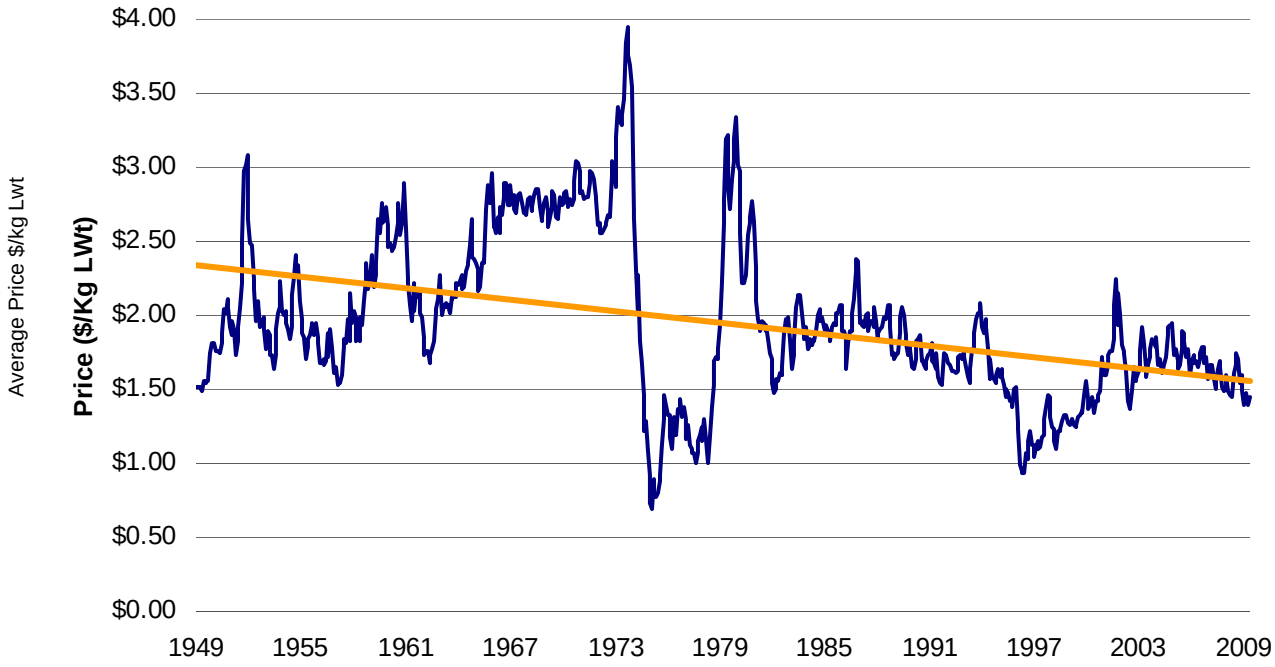
Increasing the market and seasonal resilience of the enterprise requires a combined focus on a number of key areas, as outlined in the next section.

2 Keys to profitable beef production – beyond 2009

2.1 Directions to improve herd profits

Commercial beef fits all the descriptors of a true commodity - producers are numerous (supply) and geographically diverse while buyers are few and concentrated (demand). There is limited opportunity to differentiate the product on price and it cannot be stored for any length of time. All true commodities, both agricultural and non-agricultural, suffer from a decline in their real price over time. The long-term real (adjusted for inflation) average Australian beef price from 1949 to 2009 is shown in Graph 2.1. Over this period, there is a declining trend if for the real price received for every kilogram of beef sold has declined. If price data in real terms for other commodities such as wheat, copper, wool etc. were plotted, they would show the same declining trend.

Graph 2.1: Long-term real average Australian beef price in $/kg Lwt (1949 to 2009)



Source: Independent Commodity Services Pty Ltd.

Coupled with this decline in real price for commodities is an increase in the real cost of inputs required to produce each commodity. The ratio of the price received for goods sold relative to the price paid for inputs is the terms of trade, and all commodity producers suffer from *declining terms of trade* over time. 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 and occurs because productivity gains enable the commodity to be produced for a lower cost and over time with markets reflecting the lower cost of production in the price they pay.

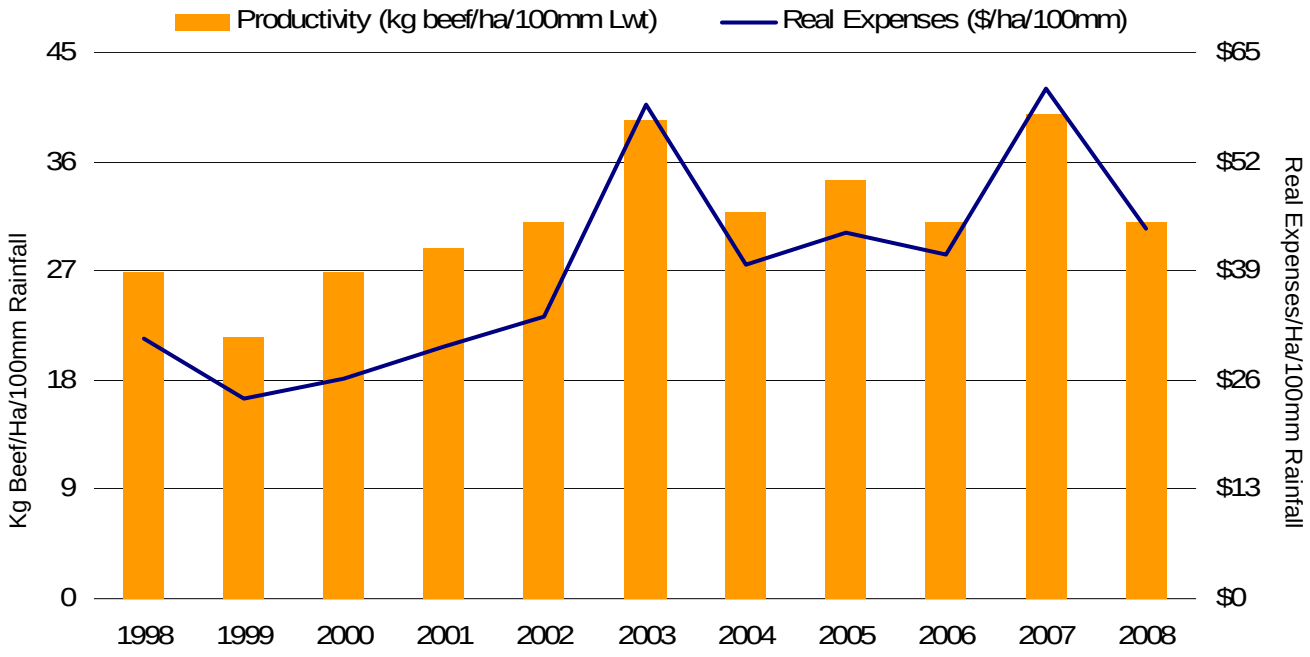
In a market where producers are striving to earn higher profits than their competitors, producers improve productivity, which – through basic supply and demand principles - in turn leads to further reduction in prices. This is a 'catch 22' situation but it is not new. Over the time since cattle were first introduced to Australia, the industry has managed to achieve productivity gains. Some of the most dramatic have come through technologies such as fencing and yards, genetics, mechanisation (including tractors and motor bikes), 'sub clover and super' and exotic perennials.

2.2 Productivity gains

Declining terms of trade need to be met by productivity gains in order for producers to maintain long-term viability. Failing to match the declining terms of trade will result in resources being diverted to more efficient beef producers or other industries which, in the case of beef, are likely to include cropping, lamb or wool production. This message has been directed at the agricultural sector for some years now.

Productivity is the relativity between production and costs associated with that production. The average production of beef herds over the past 11 years (1998 to 2008) is shown in Graph 2.2, as kilograms of beef per hectare per 100mm of rainfall.

Graph 2.2: Average productivity and expenses per hectare per 100mm annual rainfall for beef herds 1998 to 2008.

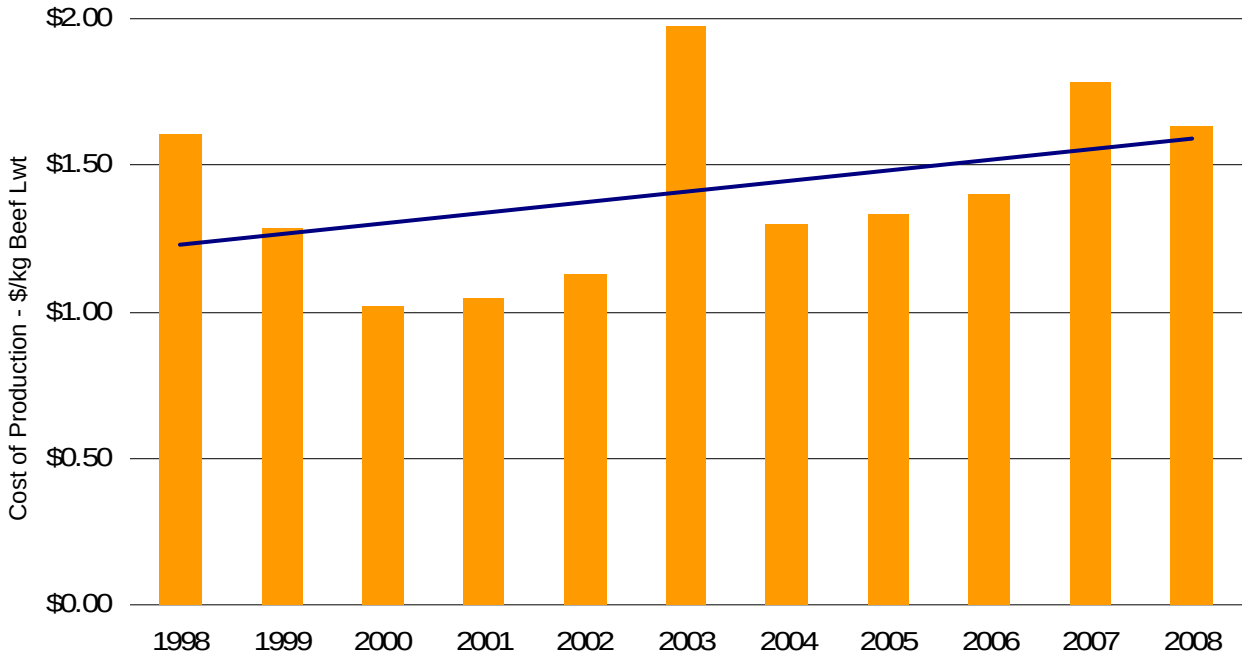


Source: Holmes Sackett Pty Ltd Benchmarking Database 1998-2008

The trend of production among these herds was increasing during the early part of this decade however it has struggled since. The two spikes in production per hectare per 100mm of rainfall in the graph in 2003 and 2007 coincide with the widespread droughts in spring 2002 and 2006 and are influenced by low rainfall rather than reflecting any increase in production per hectare. The major issue is that, in the same period where production has remained relatively constant, the expenses associated with this production have been ever increasing.

Graph 2.3 shows the trend in beef cost of production for the Holmes Sackett database since 1998. In real (adjusted for inflation) terms there has been a trend of increasing cost of production, albeit with fluctuations between years. Over this period the cost of production in real terms is the same now as it was eleven years ago. As was shown in Graph 2.2, these enterprises have had stalled productivity gains and have suffered from ever increasing cost.

Graph 2.3: Beef cost of production trend over time (real terms)



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998-2008

2.3 Where do the majority of beef producers sit?

Cost curves have long been used as a fundamental business tool in the mining industry. Few miners would not know where they sit on the cost curve for the particular commodity that they are producing. They have not been used extensively in agriculture but they are a useful management tool that can provide a new perspective for a farm business.

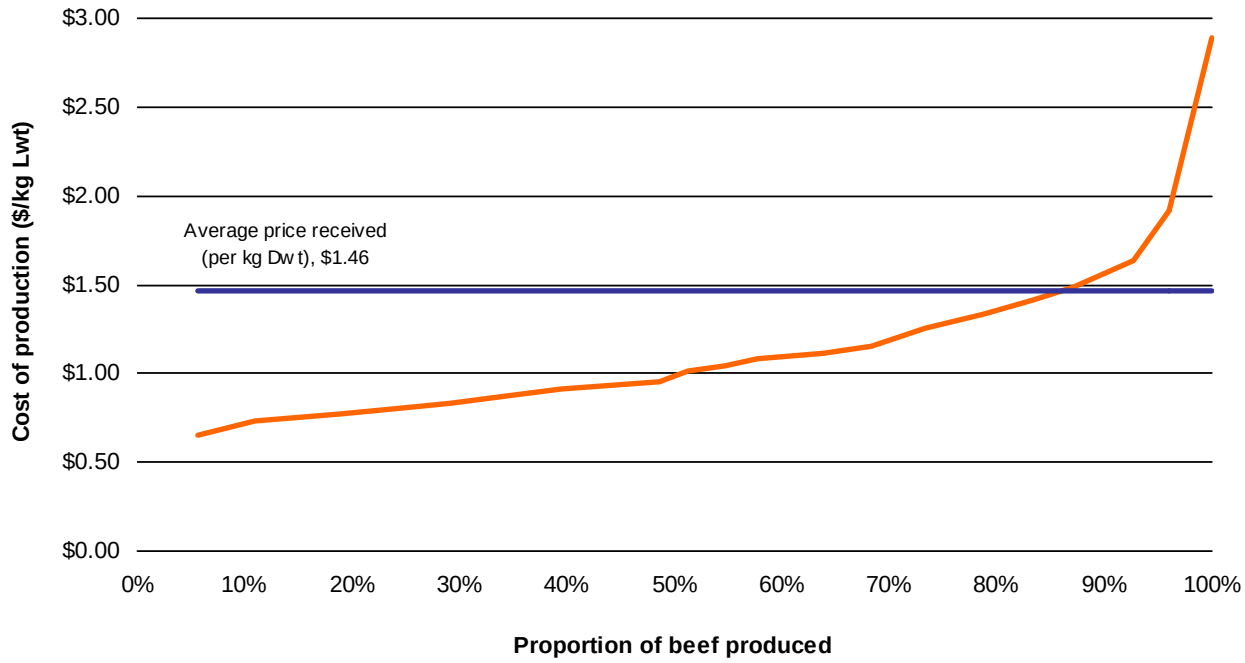
Cost curves show how much product is produced for a given cost. They take into account the fact that in some industries the lowest cost producers may be larger than average while the high cost producers can often account for a relatively small proportion of the total amount of production. This is similar to the 80:20 rule or Pareto principle, where 80% of the product is produced by 20% of the producers. That is not to say that this situation applies in all agricultural products, but cost curves allow for the fact that the volume of production varies with different producers.

In Graph 2.4, the cost curve is based on beef herds with at least three years data since 1998. For each farm, the cost of production and the quantity of product produced has been averaged over the number of years for which information is available (1998-2008). Therefore, the data represents a medium-term picture of performance rather than one year, which can influence the results positively or negatively. The effect of droughts is included in the data. The results are then ranked according to the average cost of production. As an example, approximately 80% of all beef is produced for less than $1.35/kg Lwt, 20% is produced for less than $0.78/kg Lwt and 100% is produced for less than $2.89/kg Lwt.

The farm businesses that are represented in this benchmarking group are not a random sample, so the cost curves are not representative of the whole Australian industry. The sample is biased towards more profitable producers.

On the cost curve, the average price of beef over the same time frame has been included. The cost of producing most beef has been well below the average price. All but the most inefficient beef producers should be making a profit at current beef prices (Graph 2.4).

Graph 2.4: The proportion of beef produced at various costs of production (1998-2008)



Source Holmes Sackett Pty Ltd Benchmarking Database 1998-2008

Cost curves move over time. As productivity improves, mainly through improved technology, costs are lowered by 2-4% per annum for most commodities. This is reflected in declining real prices over time. To ensure that the position on the cost curve does not become eroded over time, a plan to maintain or improve that position is required. This plan will involve the development, investment and implementation of superior technology that will allow cost-effective increases in productivity. The key areas for ongoing improvement are in soils, pastures, animal performance and labour and the integrated management of these fundamentals.

2.4 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 herd that produces 100,000kg Lwt of beef for a total cost of $200,000 has a cost of production of $2.00 per kilogram Lwt.

$200,000 cost
100,000kg beef = $2.00/kg Lwt

Therefore, cost of production can be reduced by increasing production, providing any associated cost increases are negligible, or of a smaller proportion. Alternatively, cost of production can be reduced by reducing costs whilst maintaining (or increasing) production. Both of these options are discussed below. All cost of production data are shown before financing costs (interest, lease, etc) are applied, and do not make any allowance for the cost of capital in business (land, stock, plant), or adjustments to inventory. As such, cost of production does not represent an alternative to robust business analysis, but rather an interim indicator for assessing and monitoring the diffusion of variable costs in an enterprise.

2.5 Cost reduction

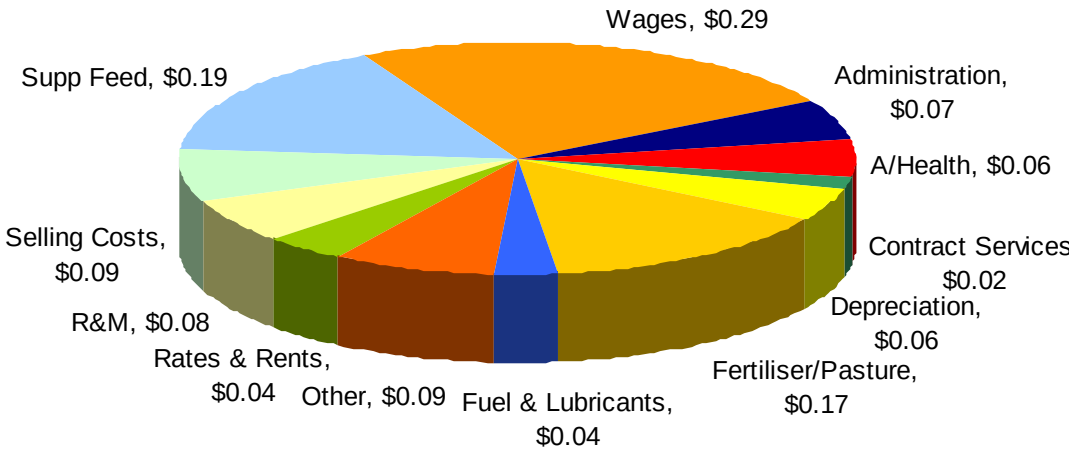
The factors that make up an enterprise's cost of production are important when determining where to direct priorities to increase productivity and lower production costs. Graph 2.5 shows the components of the cost of producing a kilogram of beef.

For many herds, the greatest potential for reducing production costs in the business will be via an increase in the efficiency of labour, and hence a reduction in the relative cost of labour. In the Holmes Sackett benchmarking analysis, labour consists principally of wages and also includes the "on costs" of motor vehicles, depreciation and fuel and lubricant, which are required for the efficient utilisation of human resources. In many cases, there is the potential for reductions in labour costs to be achieved without affecting productivity.

The next most significant cost centres are fertiliser and supplementary feeding, and any reduction in these costs needs to be achieved without any impact on productivity to be effective. There is sufficient evidence to demonstrate the beneficial impact of fertiliser use on pasture production. What is not entirely clear – within the realms of current knowledge - is at what point, both from a cost per unit of nutrient and soil fertility level, fertiliser becomes uneconomic. Further work on this issue would enhance the ability for beef producers in their decision making process.

A reduction in supplementary feeding in some herds could be achieved where this cost is incurred for no marginal production gain. In other situations, the consequences on productivity would far outweigh the benefit of reduced per unit expenses. These decisions can only be made considering individual circumstances and there are numerous information sources and tools available to producers to aid in making such a decision.

Graph 2.5: Average components of beef production costs (total = $1.19/kg Lwt)



Source: Holmes Sackett Pty Ltd Benchmarking Database 1998-2008

For cost reduction strategies to be effective in reducing cost of production, a target of being able attain the same level of productivity for lower cost, or a reduction in cost greater than the proportional reduction in production, is critical.

2.6 Increase production

If cost reduction has been considered and actions taken to address the issues identified, the other potential method of lowering cost of production is by increasing production without a commensurate increase in costs. In other words, under this strategy any increase in production costs should only be accommodated where the value of productivity gains derived from additional inputs exceeds their costs.

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 technologies that will provide the technology 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.

2.7 What are the priorities?

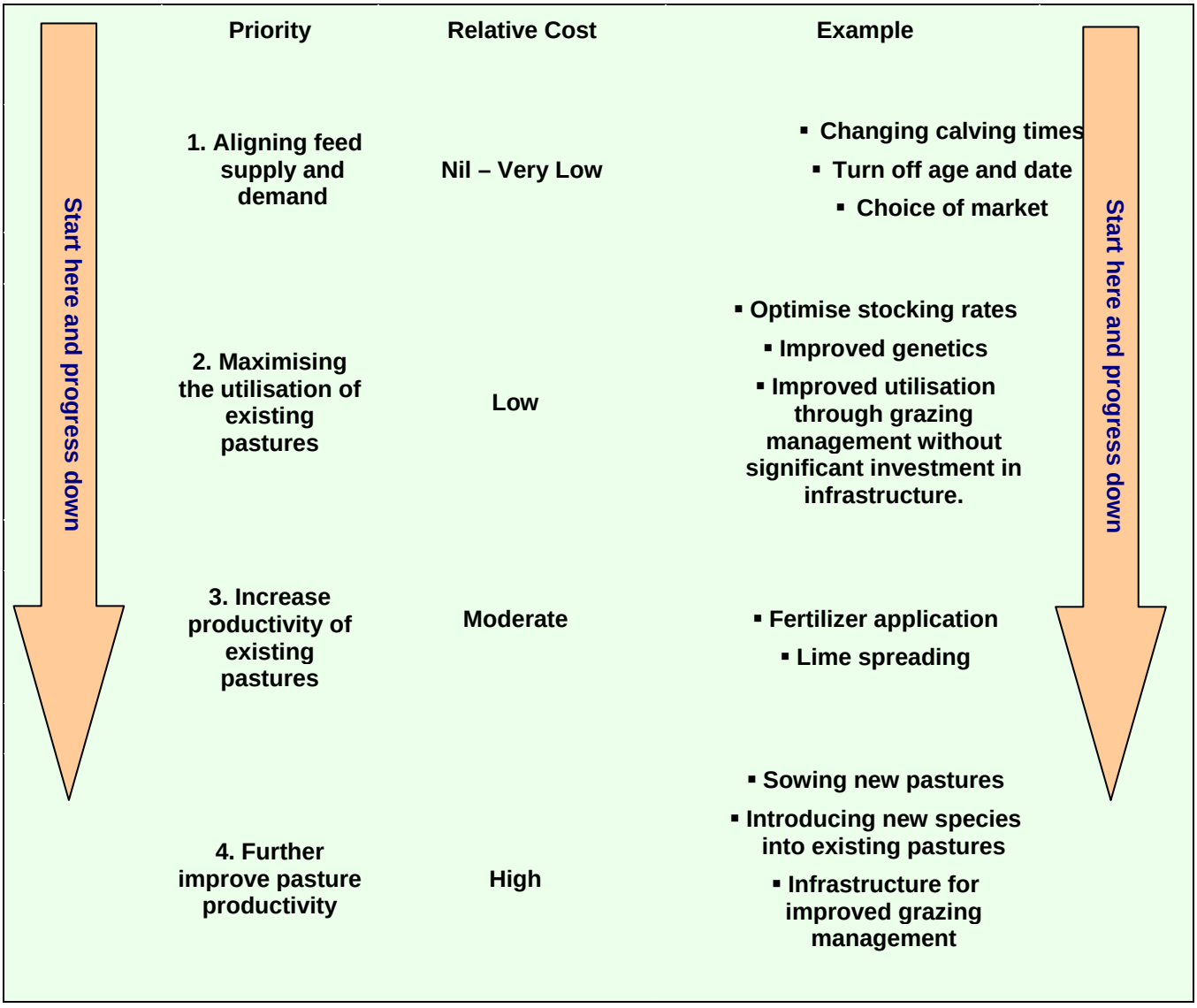
In any business there will always be some factors that result in relatively easy gains. These will include the implementation of low- or nil-cost strategies that improve productivity and dilute costs. Examples might include an adjustment of calving time or a change in target market to allow more efficient utilisation of pasture.

When it comes to per hectare production, the focus is about efficiently growing and using pasture which generally comes at lower cost than fodder crops or supplementary feed. The place to start is to ensure that the enterprise is already efficiently utilising the pastures that are currently grown; it makes little or no sense to grow more until this step is complete.

After an optimum level of utilisation has been achieved, the next best investment returns are usually found by producing more pasture as cheaply as possible, and to concurrently match the additional feed with increased production per hectare. In higher rainfall regions the most important technology for increased pasture production is fertiliser. There are smaller but still important gains that might be attained through grazing management practices that don't require additional infrastructure. In lower rainfall regions fertiliser opportunities might be more marginal.

Lower but often still adequate investment returns are then found through investment in longer-term payoff strategies such as lime application, sowing new pastures or grazing management techniques which require additional infrastructure investment. These priorities are illustrated in Figure 2.1.

Figure 2.1: Suggested program for improved productivity

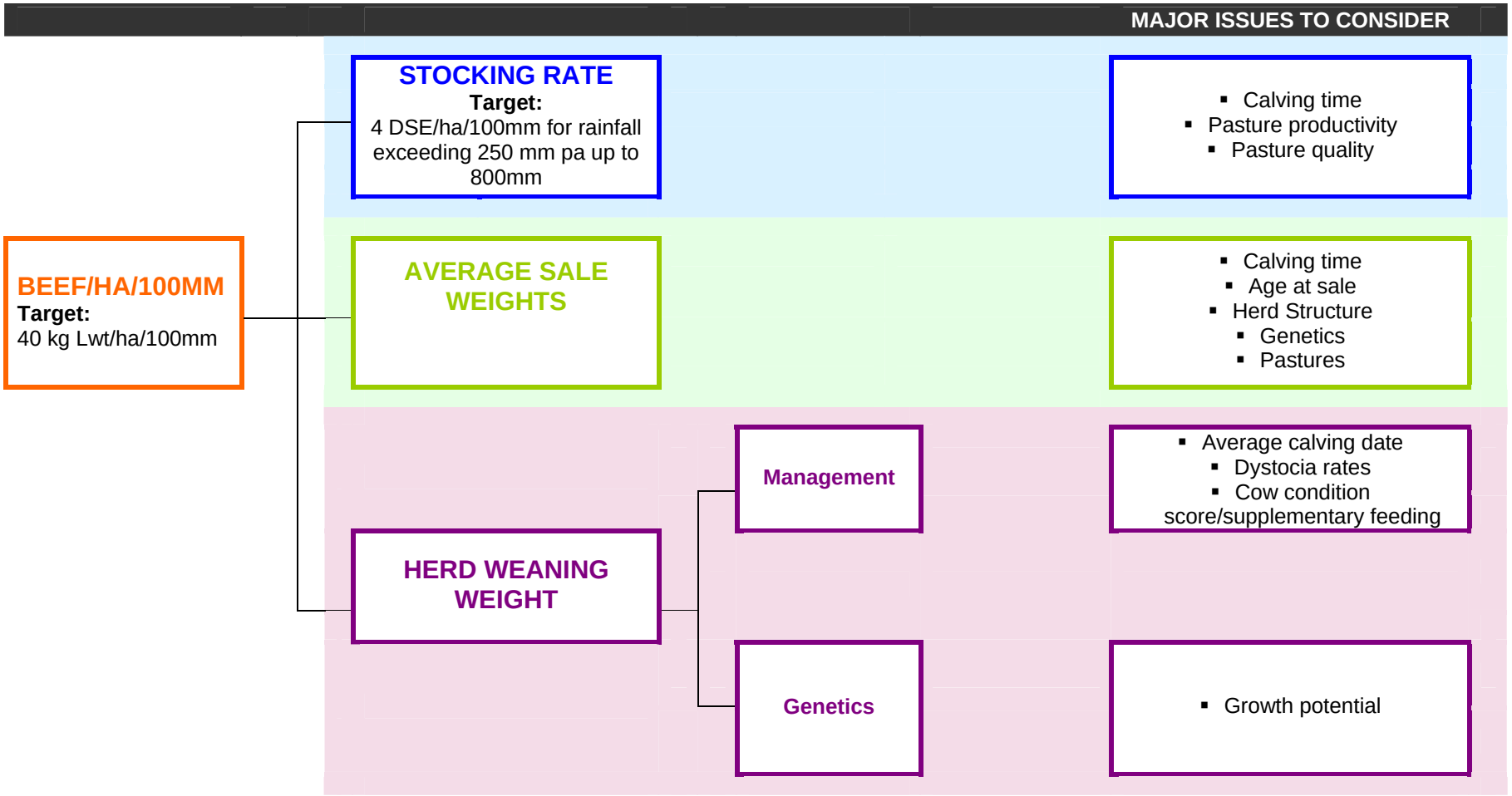


2.8 Per head or per hectare

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 and sale weight per head.

Table 1.2 demonstrates that the more profitable beef producers produce more kilograms of beef per hectare than the average at lower cost per kilogram. The driving principals relating to how are pictured in Figure 2.2.

Figure 2.2: The most important factors that influence per hectare production of beef are stocking rate and average sale weight



A suggested target productivity for efficient beef production is 40kg/ha/100mm. The three key influences of this productivity target are:

Stocking rate

In winter-dominant rainfall regions, a useful rule of thumb is the French Shultz model which suggests an optimum stocking rate of 4DSE/ha/100mm above 250mm for improved pastures. 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 above the district average. It is stressed that these are generic targets and they need to be tailored to individual farms. Some farms with poor quality soils and low quality land classes will be constrained by environmental parameters well before they reach these stocking rate targets. It is also 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.

Determining long-term optimum stocking rates that meet profit and environmental objectives is a difficult decision for those involved in livestock production, but it is too important not to get it right. A more difficult process than determining optimum stocking rate is actually (a) achieving and (b) maintaining it at levels suitable within the constraints of season. Decisions on when to destock and/or feed animals through poor seasonal conditions *early* enough for action/s to be beneficial can be complex. This is an area where further R&D investment may yield improvements in the accuracy and application of decision-support tools and information.

Increasing stocking rates will have major interactions with sale liveweight and herd fertility because individual animal performance will be suboptimal where per hectare performance is optimised.

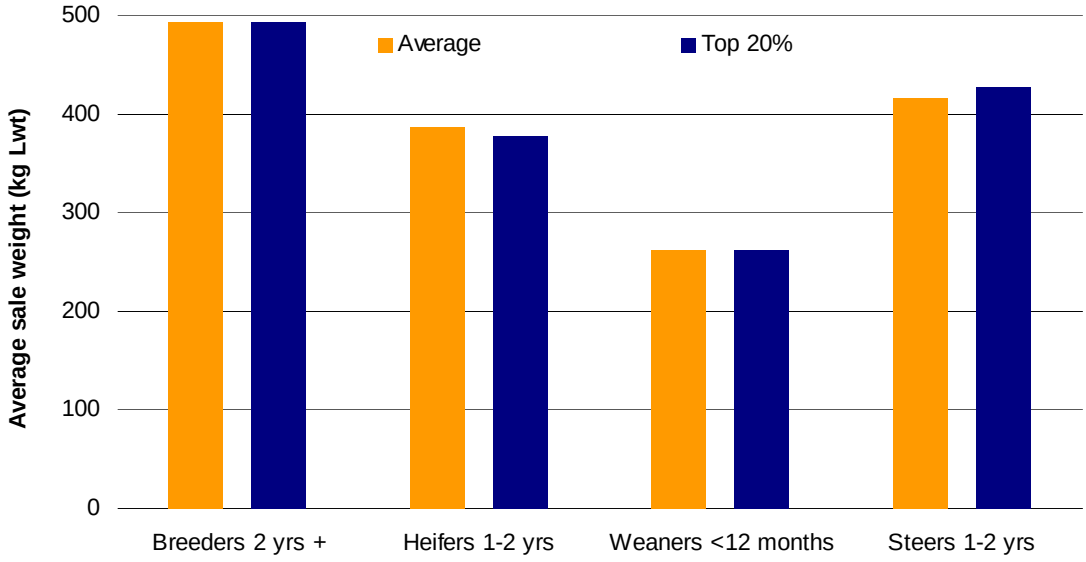
To help manage these negative impacts on individual animal performance, it is necessary to pay attention to calving time and seasonality of pasture production. Choice of calving time will determine how closely cow requirements are matched to pasture availability. At higher stocking rates, there will also be a requirement for pastures that are able to persist and provide adequate ground cover in autumn, which will be a function of grazing management, species selection and soil fertility.

Weight and age at sale

The most profitable herds consistently produce more beef per hectare than the average. Part of this advantage is achieved through above-average kilograms of beef per head sold.

Because any beef herd has the potential to sell a mix of bullocks, steers, heifers, weaners or cows, the mix of what is being sold is just as important as the sale weights of individual classes. This is often not well understood. Higher than average sale weights are not achieved by selling animals of any class heavier per head, but rather by selling more heavy animals.
To demonstrate this, the average sale weight by class of the top 20% and average beef herds is shown in Graph 2.6. There is very little difference in the weight of animals in each class between groups.

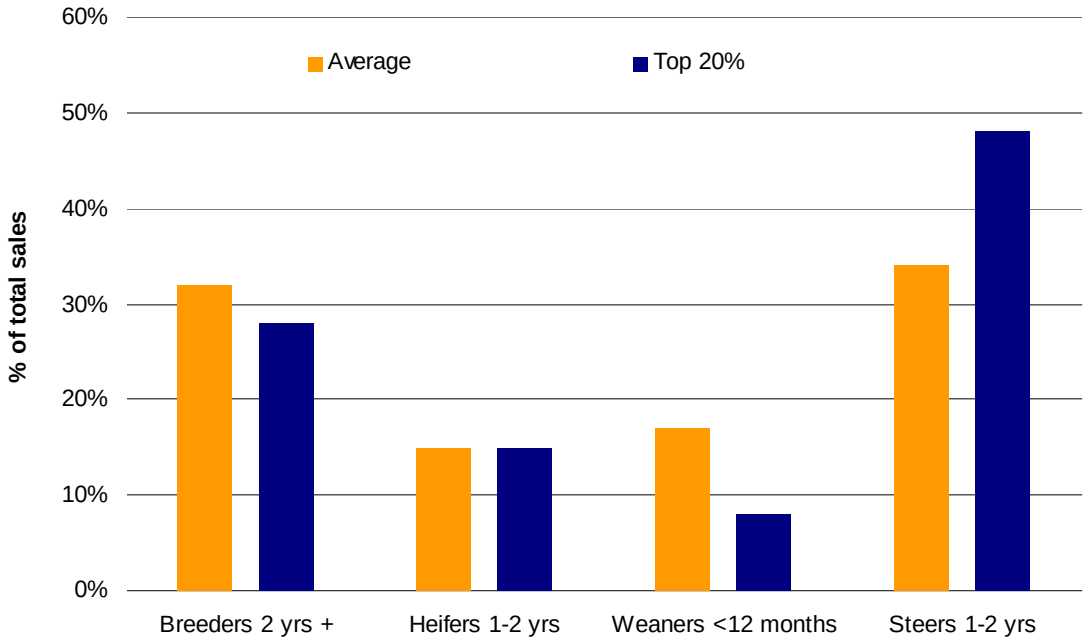
Graph 2.6: The average sale weight per animal sold for average and top 20% beef herds



Source Holmes Sackett Pty Ltd Benchmarking Database 2008

It is the percentage of sales made up by each class that is the difference between the two groups (see Graph 2.7). The more profitable herds sell a greater percentage of heavier classes of animals, and therefore the average weight of all the animals sold is heavier.

Graph 2.7: The percentage of total sale numbers by class for average and top 20% beef herds



Source Holmes Sackett Pty Ltd Benchmarking Database 2008

Optimum herd weaning weight

The issue in cattle is less about calves weaned per cow joined than it is about calves weaned per cow pregnancy tested in calf. Because of the longer gestation period, longer effective working life and the relative ease of getting enough females in calf to compensate for the culling rate, there is most often a surplus of females in calf anyway.

The main issue in beef herds is the weight of calves weaned per cow run after pregnancy testing; this encompasses average calving date and dystocia rates. More calves born earlier in the calving span gives higher herd weaning weight due to a greater number of average growing days for the calves.

It is therefore also influenced by herd age structure, and therefore consideration needs to be given to the interacting impacts with average sale weight. The primary driver in herd weaning weight is management. Ensuring heifers are managed to calve early in the calving span will ensure efficient lifetime performance.

Genetics can influence the result, with occasional direct correlations between genetics and dystocia rates. Aside from isolated genetic impacts on dystocia rates, the main genetic influence on weaning weight is via hybrid vigour. Crossbreeding systems have been demonstrated to have the potential to increase weaning weights by up to 23.3%.

The management of condition score at calving and joining has both primary and secondary influences on herd weaning weight, respectively. Management decisions related to tactical supplementary feeding and stocking rate adjustments can be used to

manipulate optimum condition scores in cows. Condition score at calving and joining influence how quickly cows return to oestrus, and therefore set up how quickly the herd will calve in the subsequent year. Research has shown that a condition score of 2.5 to 3 should be targeted for cows at calving for optimum productivity.

Management changes can also be used to set the lower limit on average age of calving by implementing a shorter joining period. Assuming a fixed weaning date, the average growing days per calf weaned for a nine week and eighteen week calving span can be 258 versus 241, respectively. In this scenario, the shorter calving span and subsequently greater number of growing days could result in as much as a 13% increase in weaning weight.

If discretion is not exercised, the management influences can come at a significant cost, and therefore the sums must be done carefully to ensure that the changes are profitable from season to season. Too many herds achieve higher herd weaning weight at the cost of low per-hectare production; It is important to avoid that trap.

2.9 Increasing business 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.

First, some farms do suffer from a lack of scale, but this is often because they refuse to recognise and act on the issue. These farms will typically be those that have less than $4-6 M of farm assets under management. At today’s land values of say a conservative figure of $300/DSE, that represents about 14-20,000 DSE. These smaller farms tend to have lower profitability because they do not have sufficient production income to absorb a fixed labour cost – the owner operator. This is a question of attitude rather than economics, and these businesses do not have to get bigger to become viable. They can, as an alternative, move from a full-time position on the property to a part time position.

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

- The farm can be treated as a part -job and surplus labour can be put to work off -arm;
- The business can be expanded by intensification; that is producing more from the current area; and/or,
- The business can look to acquire greater operating scale through acquisition or leasing.

On many farms the second option is quite possible by improving the pasture productivity and then by running the most efficient beef production system to harvest that pasture. The advantage of this approach is that it tends to be relatively low cost compared to buying the farm next door, particularly at current land prices. Generally most farm business with small scale cannot readily afford an acquisition because of the high relative cost and it impact on equity levels.

The advantage of leases are that they require only sufficient working capital for running costs and stock purchase, and therefore they represent a means of expansion when

capital is limited. They are not however always successful because the price paid can often preclude the benefits. Usually only the most productive farms can sensibly lease additional area.

2.10 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 an average of two thirds of the total farm business returns. It is capital gain that makes seemingly unviable businesses (those running at an operating loss) actually very viable.

2.11 Labour

The ability to lower labour costs is a source of significant potential wealth from beef herds. Labour efficiency is not just about how much time is spent in the business; it is also about where that 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. Labour costs typically make up 35% of the total expenses for the farm each year. This includes owner wage costs, employee costs and contractor costs. When on-costs of employing labour such as vehicle, fuel and depreciation are included (as part of a broader employment package) it can approach 50% of total costs. The variation in labour efficiency for herds of varying profitability is shown in Table 2.1. To achieve high labour efficiency, the aim should be to run 15,000 DSE per full time labour unit.

Table 2.1: Labour efficiency and herd profitability, all beef herds 2008

	Bottom 20%	Average	Top 20%
Beef Herds	7,400	10,100	15,700

Source Holmes Sackett Pty Ltd Benchmarking Database

To help interpret the labour efficiency targets, it is reasonable to assume that in a herd where calves are sold at weaning, one cow is equivalent to an average of 13 DSE over the year; therefore, a reasonable target is 1,150 cows per full time equivalent (FTE). An FTE equates to 240 days worked per year. The quality of infrastructure (labour saving, throughput and automation aspects) and the production systems employed are major drivers of labour efficiency.

2.12 Genetics

Genetics used in the production system refers to breed selection and selection of animals within a particular breed or breeds.

In the case of breed selection, the only consideration that needs to be made is to ensure that the breeds that are chosen do not jeopardise market access. An example is some domestic and long-fed export markets where a limit on *Bos indicus* or European content can be applied.

Likewise, there are widely acknowledged benefits to be gained by efficient use of cross breeding to capture hybrid vigour. The advantages of various crossbreeding programs are well documented. Often though, these programs are discarded due to the complexity

involved in some systems. Simple systems that may only capture some of the potential hybrid vigour benefits of crossbreeding are effective in increasing productivity in herds with no changes to costs.

In terms of within-breed genetic selection, numerous research and extension programs have highlighted the potential impact that the selection of better genetics can have on herd productivity and profitability. The use of objective measurement, including Estimated Breeding Values (EBV) and the tools associated with their use, allows significant and select genetic gains to be achieved.

Importantly, the actual impacts of any genetic gain on the variation in herd productivity and profitability are often swamped by other key drivers; as a consequence, genetics in isolation can be much less important to producer profitability than other aspects of management (Table 2.2). A genetically superior herd in an inefficient or poorly managed production system has no chance of making top 20% profits, whereas a genetically average herd in a very efficient, well-managed production system will always make top 20% profits.

Table 2.2: Contribution of genetic improvement and non-genetic technologies to productivity improvement in the Australian Beef Industry from 1985 to 2005 (Oddy, 2009)

Year	1985	2005
Annual production beef (million tonnes)	1.3	2.06
Carcass wgt (kg)	218	270
No cattle (million hd)	5.96	7.63
Turn-off age	2.75	2.3
Average growth rate (kg/hd/d)	0.370	0.559
Genetic change (kg/head)*	0	35
Genetic contribution to improved average growth rate %		22
Non-genetic contribution %		78

* Contribution of increased liveweight due to genetic improvement was estimated over an animal's lifetime (turn-off age)

2.13 How resilient is the business to unfavourable seasonal conditions?

While all enterprises are susceptible to adverse seasonal conditions, the 11 years of Holmes Sackett benchmarking data shows that beef enterprises seem to be the least resilient (they experience the greatest impact on per-hectare profitability) of the livestock systems. This is most likely because, unlike the case in wool production, beef productivity and price tend to concurrently collapse in a drought. While lamb supply (productivity) and demand (price) systems have the same dynamics, specialist lamb production generally has less geographically spread, being predominantly confined to the high rainfall and sheep meat regions. This means lamb production systems are less exposed to drought in terms of regularity and severity.

Comparison of benchmarking performance prior to, and during, the 2006-07 drought (Table 1.2) confirmed that it is not how the business operates in the seasons prior to the drought that determine the impact that it will have on the business. Rather, it is the planning processes before and 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 over the long term, taking into account the drought years.

There is significant room for improvement in beef herds in regard to drought management. Severe losses incurred by the less productive and profitable producers because of poor drought decision making drag the average profits down.

2.14 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:

- Better alignment of feed supply and demand, irrespective of seasonal conditions;
- Matching costs to caps in production capabilities (optimising costs of production);
- Productivity improvements in soils and pastures through better forecasting and decision support technologies;
- Fine tuning (optimising productivity and risk variables) of the production system;
- Labour productivity through enhanced efficiency and automation; and,
- Genetics to improve productivity and environmental adaption.

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.

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