

Situation analysis

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Situation analysis of productivity and profitability goat meat production systems 2020

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Abstract

The goat meat enterprise situation analysis provides an end of project report of productivity and profitability in goat meat production systems. The aim of this report is to provide data and analysis that will allow for identification of production and profit related issues to be identified in goat meat enterprises.

The goat meat situation analysis identifies the key influences on profit and areas of focus for goat producers to increase the resilience and productivity of their businesses. This analysis generates a greater understanding of the economic performance and issues impacting goat producers at the enterprise level.

This report highlights differences in performance parameters between goat producers generating high profits (top) versus those generating average profits (average). This information can be used to identify key issues and potential opportunities to improve one or more aspects of performance.

Executive summary

- Average profit (EBIT) of Rangeland goat meat enterprises from 2016 and 2020 equate to \$20 per dry sheep equivalent (DSE).
- This level of profit resulted in exceptional average Rangeland goat enterprise operating returns of 5.4 percent over the five year period from 2016 to 2020.
- Goat meat enterprises in the medium to high rainfall zone (MHRZ) have generated large losses. This weighted the average profit (EBIT) of all goat producers down to \$11 per DSE.
- A plausible explanation for the difference between Rangelands and MHRZ goat meat production is that Rangelands goat enterprises are treated as a business while goats in the medium to high rainfall zone are treated more as a hobby.
- Labour costs and scale are a key issue in the MHRZ. Labour costs per DSE in MHRZ goat production is greater than three times higher than labour costs in Rangeland systems.
- Reasonable seasonal conditions were experienced for two (16-17) of the five years benchmarked for most goat producers while poor seasonal conditions were a feature over the five year period 2018-2020.
- While the methodology is not exactly like-for-like, comparisons between enterprises show that rangeland goat meat enterprises are competitive with other livestock enterprises including lamb, beef and wool.
- The highest profit/EBIT goat meat producers all come from the Rangelands and generate double the profit per DSE of the remainder in the Rangelands.
- They do this by generating marginally (8 percent) more income from 60 percent less cost.
- The highest profit Rangeland goat producers generate \$36 per DSE in profit (EBIT) from a cost base of approximately \$25 per DSE and income of \$61 per DSE.
- There is more than one pathway to high profits in goat meat production. Some high profit goat producers derive more profit through more income per DSE and a reasonably high cost structure while others achieve it by driving an exceptionally low cost structure.
- Goat enterprises had far greater volatility in returns but the upside of the volatility in profits was greater than any other enterprise and the downside was better than beef.
- The effects of the drought have induced significant volatility but the average minimum profit over the had a lower financial impact on goat meat enterprises relative to other enterprises.
- Cost of production has increased significantly but this has been driven primarily by lower production related to drought.
- There is a huge range in labour efficiency between goat herds with the best achieving around 20,000 DSE per labour unit.
- Improved data collection and record keeping, systems development, genetic gain and labour efficiency represent areas of opportunity for improvement in efficiency.

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1 Background, definitions and methodology

1.1 Introduction

This paper analyses and reports the profit and profitability of goat enterprises in Australia over the five-year period from July 2015 to June 2020. It also reports the variability in goat enterprise profits and considers why this variation occurs.

The key differences between goat producers who consistently generate high levels of profit and the remaining goat producers have been highlighted to identify opportunities for improvement in profitability more broadly across the industry.

Data analysed for the goat situation analysis are extracted from farms with goat enterprises located in NSW and Queensland. In total, over the five years 100 data points (farm businesses managing goat enterprises) from 32 producers in 22 localities contribute to the goat enterprise data set. There are more goat enterprises than farm businesses managing goats as some managers run multiple goat enterprises. Goat enterprises analysed consist primarily of self-replacing herds however, there are a small number of herds with a trading component. Trading herds were not separated from breeding herds for comparison as herds were mixed on farm and sale records did not differentiate between bred and traded goats.

The locations of farms contributing goat enterprise benchmarking data are shown in Figure 1. Benchmarking participants were allocated to long term rainfall zones based on their location relative to the nearest Bureau of meteorology rainfall recording station.



Figure 1: Locations of goat enterprises benchmarked between 2016 and 2020 (n= 100 datapoints)
 Map source: Google maps/BatchGeo

1.2 Definitions

1.2.1 Period benchmarked

Goat enterprise benchmarking participants benchmarked the financial year (July to June). This provides all participants with a common production period. This report assumes that the year reported corresponds with the end of the financial period being assessed. For example, the 2018 year refers to the financial year starting July 2017 and ending in June 2018.

The benchmarking data presented are not drawn from a random sample of farms. Owners of goat enterprises were approached to have their businesses included in the benchmarking data set and only a small proportion of those approached were willing to have their farm data included. The project was MLA funded and the cost to goat enterprise managers contributing their data primarily includes the time required to collate the data needed for benchmarking. The benchmarking sample therefore is weighted towards those willing to have their goat enterprise business performance assessed.

1.2.2 Non-goat enterprises

The enterprises compared in this report, unless otherwise specifically stated, fall under the following definitions.

Beef enterprises (beef herds)

These enterprises are predominantly self-replacing beef breeding herds situated in Southern Australia. More detail regarding average herds are shown in Table 2.

Prime lamb enterprises (flocks)

These enterprises are those for which both the maternal and terminal breeds are known to be specialist prime lamb breeds with little wool value comparative to their sheep meat value. These flocks will include flocks where the more traditional first cross ewe (e.g. Border Leicester x Merino) are joined to terminal sires (predominantly Dorset and Suffolk), and also self-replacing pure bred or composite prime lamb flocks (e.g. Coopworth flocks).

Dual purpose sheep enterprises (flocks)

Dual purpose sheep enterprises generate income that is relatively evenly split between wool and meat. The majority of the income from the meat component of the income is derived from lamb. The majority of these flocks consist of surplus merino ewes from specialist wool flocks joined to either a maternal or terminal sire. There are only a few dual purpose breeds represented in the data.

Wool enterprises (flocks)

Wool enterprises consist primarily of self-replacing merino sheep enterprises. Some of these flocks retain wethers (castrated male sheep) in the flock for periods of up to three years of age.

1.2.3 Terminology

Net Profit (Earnings before interest and tax EBIT)

Net profit or earnings before interest and tax (EBIT) is defined as the operating profit of the business. It is calculated by deducting all operating expenses excluding capital equipment purchases, capital land developments, tax, financing costs on liabilities, land lease costs and personal expenditure not funded from salaries from gross profit (sales plus inventory change less purchases). Depreciation on capital items is included as an expense. Family remuneration is included in operating expenses as an imputed salary value.

Profitability

Profit differs from profitability. Profit is an absolute dollar figure while profitability is a ratio. The key measure of profitability at a whole farm level is operating return on assets managed. This is calculated by dividing whole farm profit by the total value of farm assets under management. Profitability, when calculated at the whole farm level, is a measure of the financial efficiency of the use of all the value of farm resources that have been deployed. Methodology for conducting return on assets managed at an enterprise level is delivered at 1.3 Methodology.

Nominal values

All of the data are reported in nominal terms. This means it is reported as the value at the time of data collection. This means it has not been adjusted for inflation since it was collated to reflect the value of that money in current day terms.

Dry sheep equivalent (DSE)

For the purpose of this report a DSE unit refers to the energy requirements of a young adult, 50 kilogram merino wether (castrated male sheep) at maintenance. Energy requirements of livestock vary according to:

- liveweight
- age
- sex and reproductive stage
- fecundity
- productive rate
- stage of the production cycle
- weather conditions

Application of the DSE unit of measurement to different livestock production systems allows for the application of a standard unit for comparisons within and between livestock enterprises and between businesses.

Broad DSE ratings for different livestock classes and reproductive stages for goat enterprises are shown in Table 1. Average annual DSE ratings for breeding livestock are calculated by multiplying the DSE rating for the stage of reproduction by duration of the stage of reproduction as a proportion of the year. As a simple rule of thumb, a breeding herd with does weaning 150% equates to an average DSE rating of 1.1 DSE per doe managed.

Table 1. DSE ratings table for goats used in the MLA benchmarking

Livestock class	DSE/hd	Weight (kg lwt/head)
Doe dry	0.75	30-40
Doe late pregnant	1.2	40-60
Doe - lactation (single)	1.5	40-61
Doe - lactation (twins)	1.9	40-62
Weaner (weaning - 12 mths)	0.7	20-40
Buck (>12 mth)	1.75	60-80

Source: <http://www.rangelandgoats.com.au/grazing-management/stocking-rate>

1.3 Methodology

The goat production and financial performance benchmarking template uses management accounting principles coupled with physical production related information to generate report outputs. The assessment of business performance uses management accounts because they reflect the true operational performance of the business. The benchmarking report is a full cost accounting system which allocates enterprise and overhead expenses by enterprise to allow for reporting of profit by enterprise.

Financial outputs in the benchmarking including components of gross profit and operating expenses are reported in gross terms as well as per dry sheep equivalent. The reason that they are reported per dry sheep equivalent is that the results can then be compared with any other livestock enterprises to assess relative enterprise performance.

The MLA goat benchmarking project only provides benchmarking data on the goat enterprise. Businesses managing multiple enterprises only receive a report on goat enterprise performance. Compliance accounts, livestock trading schedules and market valuations have been used to generate gross profit. Enterprises expenses have been established by extracting goat specific costs from compliance or management charts of accounts. Overhead expenses have been allocated to goat enterprises, in multiple enterprise businesses, by multiplying the gross overhead cost by the number of goat DSE as a proportion of the total DSE managed.

This requires a knowledge or estimate of herd numbers and herd structure. Unless specifically directed by a participant, opportunistically harvested goat herds have been assumed to be running twice the number of goats per annum as are harvested and the herd has been allocated an average DSE rating per head based on a typical herd structure.

Thus, while industry consensus appears to be that opportunistically harvested goat herds incur very little cost, using the benchmarking methodology they actually incur overhead costs at the same rate per DSE as would any other livestock enterprise. This means that they are allocated their proportion of administration, rates, insurance, repairs and maintenance, vehicle costs, fuel and electricity and gas costs.

Managers of opportunistically harvested herds appear to differ in their approach to managing sales and goat numbers as a source of future resources. Some choose to sell a high proportion of harvested goats on capture while others sell a smaller proportion of harvested animals and rely on the goats released replenishing the future resource.

Most of the opportunistically harvested herds are unfenced thus migration of goats occurs between properties. Benchmarking data collection did not quantify whether the loss of goats to migration was considered a risk by those managing unfenced land however the opportunistic nature of harvest of some would infer that it was. For example, the spotting of large numbers of goats during other operational tasks would result in a spontaneous harvest for a number of enterprise operators.

Anecdotally, those focussed on the retention of a greater proportion of goat numbers targeted the retention of breeding females as future breeders however the extent to which this occurred was not quantified.

Wages were allocated to the goat enterprise on a slightly different basis to the remainder of the overhead costs because wages are allocated based on the allocation of operational tasks. Operational tasks are broken into goat specific tasks, such as mustering and handling of goats and overhead tasks such as repairs and maintenance or water management. The operational labour is allocated based on time allocated to the task while the overhead labour is allocated on the proportion of goat DSE relative to total DSE managed. Family labour costs are allocated at an imputed rate of \$70,000 for the first labour unit and \$60,000 per family labour unit employed on farm thereafter.

Compliance or tax accounts serve the purpose of estimating the tax liability on the reported profit and should not be used to assess operational performance without understanding the potential shortcomings. Compliance accounts do not reflect the true operational performance of the business because tax reporting requirements result in distortion. The key areas of difference relate to depreciation rates, asset valuations and livestock profits.

Management accounts differ from compliance accounts in the following ways:

1. Repairs and maintenance costs do not include capital expenditure in management accounts. Repairs and maintenance should be a true reflection of the cost of operational maintenance in the business. In compliance accounts there can be motivation to allocate capital items to repairs and maintenance costs because capital items are not tax deductible while repairs and maintenance items are tax deductible.
2. Livestock inventory are allocated a market value rather than a value allocated by the tax office.
3. Depreciable items of plant and equipment are depreciated at market value rather than at depreciation values allocated by the tax office.
4. Owner operator labour is allocated in the expenses in the chart of accounts to reflect the true cost of labour in the business.

The outputs of the management accounts are known as key performance indicators because they provide an indication about some aspect of the financial or production performance of the business.

Benchmarking, which is also known as comparative analysis, is another word for a comparison. A benchmarking report shows farm or enterprise performance, or both, and compares this against some other information. The goat enterprise benchmarking report compares goat enterprise performance against the average of all data collected. It also compares performance against a group of goat producers with the highest 20 percent of profits ranked on a per DSE basis.

The reason for comparing results is to identify those outputs (income, costs or production) and features or characteristics that distinguish the highest profit goat producers from the remainder. This allows producers to establish where opportunities for improvement may exist.

Even without the comparative information benchmarking reports are useful. They are useful because they provide a measurement of the financial and production performance of the goat enterprise over a number of years. Examination and exploration of the numbers in the report will:

1. Allow for identification and rectification any mistakes that may have been made in the data entry process.
2. Assist in better understanding the business and how management accounts differ from compliance accounts.
3. Assist in understanding the relative performance of different enterprises within the business.
4. Assist in conducting partial budgets to assess marginal costs and benefits of investments.
5. Help to assess the extent to which changes in costs and income influence production.

One of the most important and useful measures (KPIs) of resource efficiency is return on assets managed (ROAM) which is also called operating return. This is a measure of resource efficiency because it measures profit (EBIT) relative to the financial value of all of the resources required to generate that profit. Resources utilised to generate farm profits typically include land, livestock and plant and equipment.

In multi-enterprise, grazing-only, businesses the allocation of the value of resources is calculated by dividing the total number of goat enterprise dry sheep equivalents (DSE) by the total number of dry sheep equivalents managed in all enterprises across the farm.

The valuation of land assets, which typically account for approximately 80 percent of total assets, is conducted by participants based on their assessment of comparable sales. Where farm assets include short term leased land then that leased land is valued on the same comparable sales basis.

The value of return on assets managed as a measure is that it is a ratio or efficiency gauge. As it is a ratio, it allows for operating performance to be compared, not only with other farming businesses or enterprises, but also with businesses in other industries. Over the long term, it is then possible to assess whether the capital employed in agriculture would generate better returns elsewhere. This process can also be applied to the capital returns of the business which are generated passively through land ownership.

2 Historical and current situation 2020

2.1 Numbers in the data set

Farms with goat enterprises have been categorised based on long term rainfall received. Based on the historical rainfall recorded at the nearest Bureau of Meteorology weather station farms have been categorised into those receiving less than 500 millimetres of rainfall (<500mm) and those receiving more than 500 millimetres of rainfall (>500mm).

On average, 80 percent of the farms benchmarked are in rainfall zones historically receiving less than 500 millimetres. The average goat number managed on these farms is 5,481 head. The average goat number managed on those farms receiving more than 500 millimetres of historical rainfall is 161 head.

Total goat numbers on benchmarked farms managed over the five -year period were 535,213 equating to an average of approximately 107,000 per year. Figure 2 shows the total goat number benchmarked by year. Of the total number of goats benchmarked 97 percent were located in the <500mm rainfall zone (Rangelands). Given that the majority of the benchmarked goat meat production occurred in the <500mm rainfall zone this report will focus primarily on these businesses.

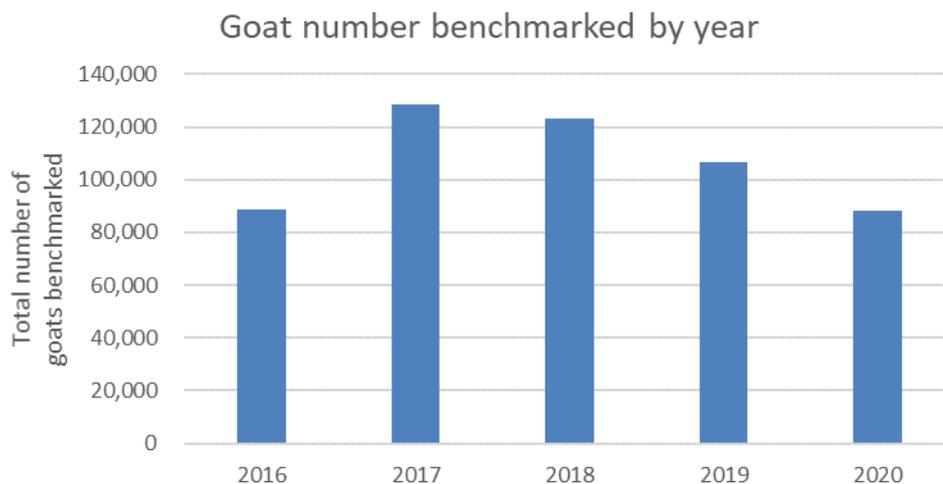


Figure 2. Total number of goats benchmarked by year

2.2 Goat enterprise profits – a tale of two results

Goat enterprise profits tell a tale of two results. Those businesses managing goats in the below 500 millimetre rainfall zone generated profits of \$20 per DSE while those in the above 500 millimetre rainfall zone generated losses of \$35 per DSE over the 5 year period from 2016 to 2020 (Figure 3). The small sample size in the above 500-millimetre rainfall zone goes some way to explaining this result however these results are consistent with the findings of a 2013 cost of production study showing 75 percent of businesses in the above 500-millimetre rainfall zone generated losses.

The difference between goat producer performance in the different rainfall zones appears to be related to their attitude in treating the enterprise as a business. Most Rangelands goat producers appear to manage their operational costs, inclusive of labour, according to the scale and income generating capacity of the enterprise. Most goat producers in the medium to high rainfall (MHRZ) appear not to treat their goat enterprise as a business but rather as a hobby or sideline revenue generating enterprise.

The argument that those in the high rainfall zone have fewer numbers and therefore have lower economies of scale may be true to some extent. The data show that it is possible to manage small goat herds efficiently. It is a matter of investing only the amount of time required to manage the key components of the enterprise and not investing time in the herd where there is no likelihood of

generating a return on that time. Small goat herds may not provide the same level of profit per DSE as larger scale businesses, but it doesn't preclude them from being profitable.

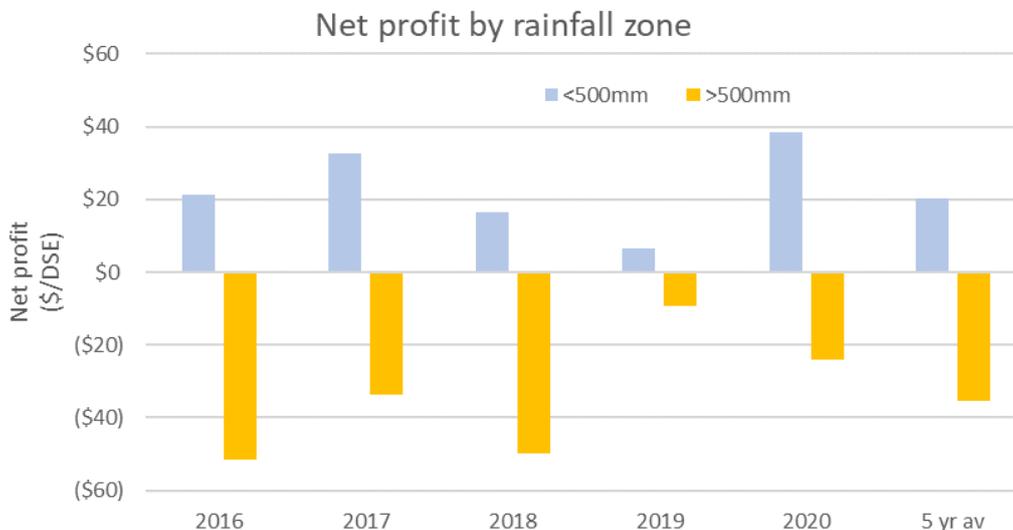


Figure 3 Goat production systems in the low rainfall environments generated profits while those in the medium to high rainfall environments generated losses.

The following comparative analysis (Figure 4) is provided to give some context of the relative financial performance between livestock enterprises. Commentary surrounding the context of data sources and differences in methodology between data sets is provided to deliver an understanding of the constraints in the comparative analysis.

Livestock enterprise comparison data comes from the Holmes Sackett benchmarking data set. While there are a number of data sets from the below 500-millimetre rainfall zone the majority of the data is sourced from farm businesses in rainfall zones receiving greater than 500 millimetres. This is in contrast to the results from the MLA Goat Benchmarking data set which primarily come from the rainfall zones less than 500 millimetres.

Bureau of Meteorology rainfall deciles show Rangeland goat producing areas of New South Wales and Queensland receiving very much below average to lowest rainfall on record over the period benchmarked. The majority of the goat benchmarking data sets for this project came from these areas. This compares with below average to average rainfall in areas of NSW, Victoria and Tasmania. The majority of the Holmes Sackett farms benchmarked are located in these areas.

Year analysed rainfall over the five-year period benchmarked represented 79 percent of long-term average rainfall for goat enterprises benchmarked while the average of beef and wool enterprises from the higher rainfall zone over the same period was 93 percent.

As rainfall has a major influence on the returns generated in the benchmarking it is highly probable that the profit comparison between enterprises is skewed in favour of the Holmes Sackett data set.

While most of the benchmarking methodology is similar between Holmes Sackett methodology and MLA goat enterprise methodology, family labour cost allocations are different. This means that the comparisons are not exactly like for like. Holmes Sackett allocates \$115,000 for the first family labour

unit and \$70,000 for each subsequent family labour unit thereafter. An allocation of \$70,000 for the first family labour unit and \$60,000 for each subsequent labour unit thereafter has been used in the MLA goat enterprise benchmarking. This has been used as it is closer to the labour rate used in the ABARE farm survey.

Over the five-year period from 2016 to 2020 goat profit per dry sheep equivalent in the less than 500-millimetre rainfall zone when compared with other enterprises was:

- slightly lower than comparative wool enterprises
- 15 percent lower than dual purpose sheep enterprises
- 14 percent higher than beef enterprises and
- 36 percent higher than prime lamb enterprises.

These results suggest that beef and lamb enterprises have not been competitive with goat enterprises over the period from 2016 to 2020 in these regions and this may present opportunity for further land use change. Given the majority of the beef and lamb data comes from rainfall zones greater than 500 millimetres it is possible that the extent of the difference between enterprises is underestimated in this analysis.

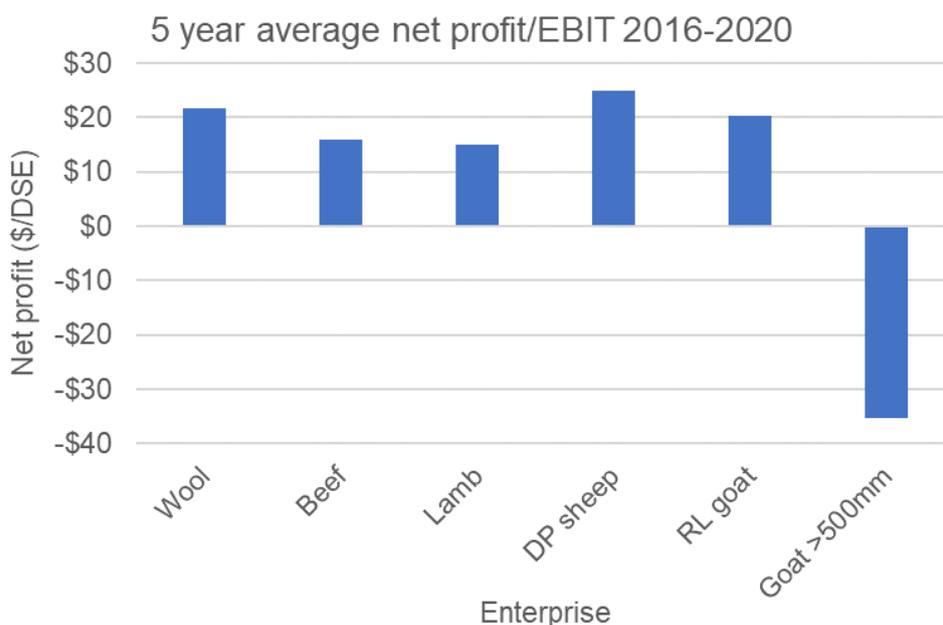


Figure 4 Five year comparative rolling average net profit/EBIT of livestock enterprises (RL – Rangelands)

Source: Goat data (MLA B.GOA.1903) Other enterprise data – Holmes Sackett

3 Goat enterprises

3.1 Goat enterprise characteristics, historical performance and variation

3.1.1 Benchmarking participation

In total, 100 goat enterprise data sets were collected for the five-year period from 2016 to 2020. Most, but not all, of these data sets include enterprises with multiple years of data. Goat enterprises have been categorised by rainfall zone and enterprise type. Several goat businesses manage multiple goat enterprise types however most of these enterprises have been benchmarked as one single benchmarking output. This occurred because these producers did not manage herds differently or allocate sales numbers according to different enterprises. This meant that there was no way to allocate, production, income and costs between different enterprise types.

3.1.2 Categorising goat meat production enterprises

Goat meat enterprises represented in this benchmarking data set come from NSW and Queensland. Enterprises have been categorised based on long term rainfall. Those enterprises located in the rainfall zone with long term rainfall less than 500 millimetres are categorised as Rangelands (RL) enterprises. Those in the long-term rainfall zone receiving greater than 500 millimetres are categorised as medium to high rainfall (MHR) enterprises.

Data has been further categorised by enterprise type by herd as:

Managed breeding – breeding herds, typically fenced. Management of breeding animals differs within these herds but typically most females of breeding age are joined with bucks or billies for breeding. Surplus females and male animals not required for breeding purposes are sold as trading animals. Management differs depending locality, practicality, producer opinion.

Opportunistically harvested – these herds move between properties where fencing infrastructure does not adequately confine the animals to a single property. As the name suggests, these herds are harvested as the opportunity arises. This may occur when herds of adequate size are located on farm, when animals are trapped on water or when resources are deployed to specific muster.

Trading – these herds typically consist of young light weight goats purchased typically from depots for retention on farm to gain weight for sale. Goat traders typically generate a margin on the weight gained. In some instances, a trading margin is also generated on the weight purchased.

Seed stock – these herds typically sell male goats for improved genetic merit to breeding enterprises.

Goat depots – A goat depot is a holding area where goats are brought together or accumulated before they are transported for slaughter, export or distribution to other businesses. (<https://www.mla.com.au/globalassets/mla-corporate/generic/extension-training-and-tools/gig-goat-depot.pdf>). Depot enterprises have been excluded from this analysis because of the small sample size and most depot operators were not willing to provide commercial information about their depot operations in any case. It is likely that the drivers of profitability are different for depots relative to broadacre goat grazing operations.

There are three fibre production data points in this data set. Only the meat key performance indicators of that enterprise are included in this data.

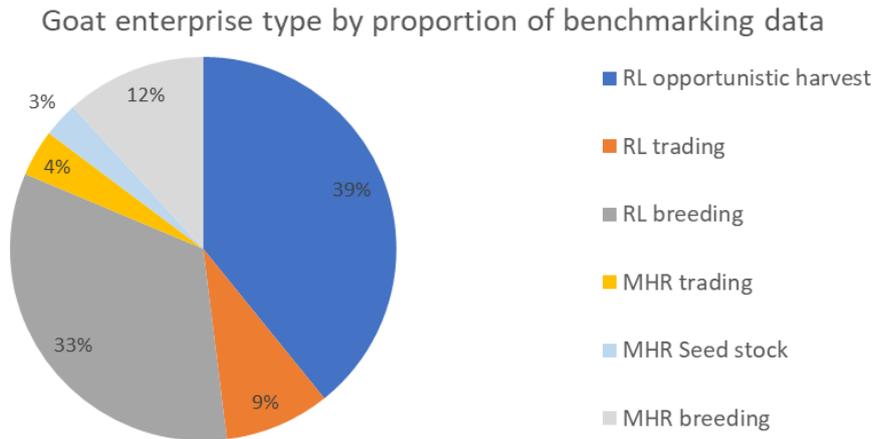


Figure 5 Goat enterprise type by proportion of enterprise data sets

Figure 5 shows the proportion of benchmarking data falling into different goat enterprise categories. The number of enterprises exceeds the number of total goat businesses as some businesses have multiple enterprises. Rangeland opportunistically harvested herds account for most enterprises benchmarked. Rangelands opportunistically harvested numbers accounted for over 50 percent of the numbers at the end of year 3 but this has declined to 30 percent over the five year period which reflects the broader industry issue of declining wild goat numbers. Rangeland trading enterprises (not depots) account for only a small proportion of the total number of enterprises but they account for a large proportion (35 percent) of the numbers. Rangeland breeding herds now represent 33 percent of the enterprises and 33 percent of the numbers. The three year interim report showed 33 percent of herds but only 11 percent of the numbers. Medium to high rainfall zone breeding herds account for 20 percent of the enterprises but the numbers represent two percent of the total number of animals benchmarked.

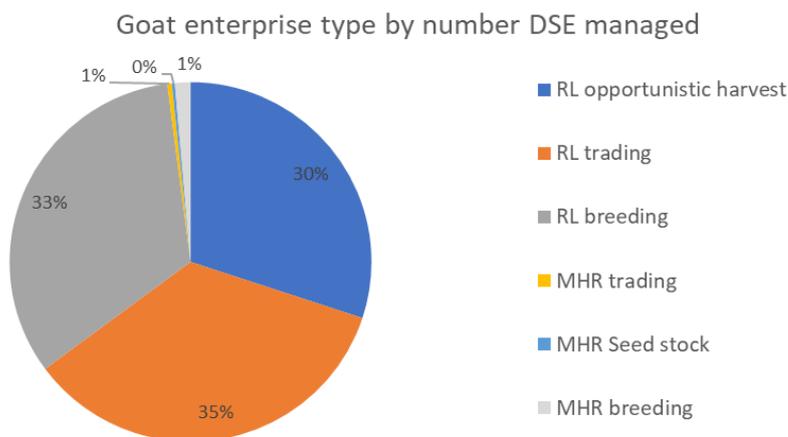


Figure 6 Goat enterprise type by number of DSE managed.

4 Current goat enterprise performance – average and top 20%

4.1.1 Rangeland data

Tables 2 and 3 show the financial, production and other performance measures of rangeland goat meat enterprises for 2016 to 2020. The measures are shown for the average of those ranking below the 80th profit percentile (0-80%), the average of all data, the average of those ranking above the 80th percentile for profit (Top 20%). Rankings have been made on both a profit (EBIT) per DSE basis.

The 0-80% data set excludes those ranking above the 80th percentile. It is possible to determine the extent to which those in the upper 80th percentile weight the average by comparing the average of all data with the average of those below the 80th percentile. Profit is weighted by approximately \$4.40 per DSE with the inclusion of the top 20% in the average.

Table 2 Per year and five year average financial performance of Rangeland goat enterprises

Rangeland goat enterprise financial performance (ranked on EBIT/profit per DSE)								
	15/16	16/17	17/18	18/19	19/20	5 yr average		
	Fin	Fin	Fin	Fin	Fin	0-100%	0-80%	80-100%
Sales (\$/DSE)	\$53.81	\$62.16	\$40.24	\$51.40	\$75.78	\$54.65	\$52.49	\$61.15
Purchases (\$/DSE)	\$5.83	\$13.61	\$36.37	\$18.60	\$5.07	\$17.73	\$21.31	\$6.97
Inventory change (\$/DSE)	\$0.27	\$20.17	\$42.72	\$22.30	\$5.43	\$20.60	\$25.21	\$6.74
Gross profit (\$/DSE)	\$48.26	\$68.72	\$46.60	\$55.10	\$76.14	\$57.52	\$56.39	\$60.93
Animal health and breeding (\$/DSE)	\$0.07	\$0.21	\$0.18	\$0.21	\$0.21	\$0.18	\$0.20	\$0.13
Contractors (muster/trap) (\$/DSE)	\$0.79	\$0.80	\$0.46	\$0.65	\$1.11	\$0.72	\$0.89	\$0.20
Transport & cartage (\$/DSE)	\$2.07	\$1.91	\$2.17	\$1.84	\$2.34	\$2.03	\$1.84	\$2.60
Selling costs (goats and fibre) (\$/DSE)	\$0.79	\$1.17	\$0.58	\$0.36	\$0.20	\$0.61	\$0.58	\$0.70
Other (materials/insurance) (\$/DSE)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Supplementary feed (\$/DSE)	\$0.48	\$0.38	\$0.90	\$0.93	\$2.87	\$1.01	\$0.76	\$1.77
Total Enterprise expenses (\$/DSE)	\$4.21	\$4.47	\$4.28	\$3.98	\$6.73	\$4.56	\$4.27	\$5.41
Gross margin (\$/DSE)	\$44.04	\$64.24	\$42.31	\$51.13	\$69.41	\$52.97	\$52.11	\$55.52
Administration (\$/DSE)	\$0.74	\$1.13	\$0.96	\$1.57	\$1.17	\$1.16	\$1.27	\$0.82
Contract services (\$/DSE)	\$0.00	\$0.15	\$0.01	\$0.00	\$0.00	\$0.03	\$0.04	\$0.00
Depreciation (\$/DSE)	\$2.64	\$3.93	\$2.55	\$4.80	\$1.78	\$3.37	\$3.94	\$1.64
Electricity and gas (\$/DSE)	\$0.43	\$0.39	\$0.52	\$1.24	\$0.25	\$0.65	\$0.76	\$0.32
Fertiliser (\$/DSE)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.74	\$0.10	\$0.13	\$0.00
Fuel and oil (\$/DSE)	\$1.42	\$2.29	\$2.06	\$3.85	\$2.07	\$2.51	\$2.45	\$2.69
Insurance - general (\$/DSE)	\$0.83	\$0.71	\$0.95	\$1.49	\$1.29	\$1.09	\$1.21	\$0.72
Materials and other (\$/DSE)	\$0.49	\$0.97	\$0.78	\$0.98	\$0.23	\$0.75	\$0.87	\$0.40
Motor vehicle expenses (\$/DSE)	\$1.01	\$1.85	\$1.87	\$2.03	\$1.75	\$1.76	\$2.03	\$0.95
Pasture costs (\$/DSE)	\$0.60	\$0.39	\$0.09	\$0.01	\$0.83	\$0.31	\$0.41	\$0.02
Rates and rents (\$/DSE)	\$1.68	\$1.24	\$1.47	\$1.72	\$1.70	\$1.56	\$1.62	\$1.38
R&M plant & equipment (\$/DSE)	\$0.41	\$1.01	\$0.62	\$0.67	\$1.36	\$0.78	\$0.63	\$1.21
R&M general - infrastructure (\$/DSE)	\$3.28	\$3.81	\$3.07	\$4.68	\$3.55	\$3.77	\$4.10	\$2.78
Wages and on costs (\$/DSE)	\$9.05	\$13.79	\$10.95	\$21.64	\$14.33	\$14.71	\$17.28	\$7.00
Total overhead expenses (\$/DSE)	\$22.58	\$31.67	\$25.90	\$44.67	\$31.05	\$32.55	\$36.75	\$19.92
Total operating expenses (\$/DSE)	\$26.80	\$36.15	\$30.18	\$48.64	\$37.78	\$37.10	\$41.03	\$25.33
Profit (EBIT) (\$/DSE)	\$21.46	\$32.57	\$16.42	\$6.46	\$38.35	\$20.42	\$15.36	\$35.60
Profit (\$/ha/100mm)	\$3.17	\$4.92	\$4.02	\$1.99	\$9.38	\$4.21	\$3.33	\$6.84

Table 3 Per year and five year average key performance indicators of Rangeland goat enterprises

Rangeland goat enterprise key performance indicators 2016-2020								
	15/16	16/17	17/18	18/19	19/20	5 yr average		
	Fin	Fin	Fin	Fin	Fin			
	0-100%	0-100%	0-100%	0-100%	0-100%	0-100%	0-80%	80-100%
Cost of production (\$/kg cwt)	\$2.93	\$3.06	\$4.49	\$6.41	\$6.01	\$4.73	\$5.06	\$3.75
Price received (\$/kg cwt)	\$4.91	\$6.26	\$5.34	\$7.16	\$10.73	\$6.75	\$6.33	\$7.93
Production (kg cwt/DSE)	9.42	11.55	8.08	9.82	7.28	9.34	9.76	8.09
Production (kg sold/hd sold)	16.4	16.3	15.5	14.8	15.8	15.6	15.7	15.5
Production (kg cwt/ha)	4.09	6.95	4.48	2.76	4.10	4.33	4.07	5.11
Production (kg cwt/ha/100mm)	1.21	1.73	1.76	1.25	1.44	1.47	1.41	1.67
Rainfall % LTA	95%	99%	68%	63%	68%	77%	75%	82%
Labour efficiency (DSE/LU)	9,647	8,600	7,328	5,780	6,718	7,414	6,610	9,828
Gross profit per labour unit (\$)	\$421,412	\$531,020	\$335,015	\$318,409	\$562,169	\$412,265	\$336,596	\$639,272
Goats % total DSE grazing (excl pests)	50%	59%	56%	56%	68%	57%	49%	80%
Long term rainfall (mm)	359	367	371	382	379	373	371	378
Year analysed rainfall (mm)	346	365	254	247	262	289	281	314
Goat enterprise AASR (DSE)	10,181	9,777	9,465	4,937	9,563	8,352	5,155	17,940
Average annual stocking rate (DSE/ha)	0.5	0.5	0.5	0.3	0.5	0.5	0.4	0.6
Net profit % Gross profit	40%	48%	26%	6%	39%	29%	22%	50%
Goat enterprise ROAM	6.1%	10.1%	3.1%	1.9%	9.4%	5.4%	4.2%	9.0%

0-80% - average of rangeland goat benchmarking data sets exclusive of those not in the top 20%. This aggregated data shows, when compared with the average of all data the extent to which the top 20% influence the average.

All – average of all rangeland goat benchmarking data sets.

80-100% - average of rangeland goat benchmarking data sets ranked in the top 20% by net profit/EBIT per DSE.

DSE- dry sheep equivalent / ROAM – return on assets managed / cwt – carcase weight / kg – kilogram / LU – labour unit (240 days) / GP – gross profit / AASR – average annual stocking rate / LTA – long term average / hd sold – head sold / mm – millimetres

Source: MLA Goat benchmarking data set

The key differences between the top 20% and the remainder over the five year period follow:

- Lower cost of production driven primarily by additional production. This is consistent with findings across other livestock enterprises.
- Higher enterprise expenses due primarily to supplementary feeding.
- Significantly lower overhead cost structure with a large portion of the lower cost being lower labour costs.
- Significantly higher sales income influenced by both price and weight
- Higher carcase weight per head sold
- Retention of 50 cents in EBIT/profit for every dollar generated in gross profit
- Greater labour efficiency and lower labour cost per DSE potentially due greater specialisation in goats and greater scale.
- Significantly more gross profit generated for every labour unit employed in the business.

As is typical of other analysed benchmarking data sets, rainfall plays some role but is not the main driver of the difference in performance between cohorts. All of those in the 80th to 100th percentile band (80-100%) for profits per DSE were affected by drought with each one having a range in profit per DSE of over \$50 over the five year period.

4.1.2 Medium to high rainfall zone data

Tables 4 and 5 show the financial, production and other performance measures of medium to high rainfall zone goat meat enterprises for 2016 to 2020 by year. The measures are shown only for the average as there is insufficient data to extract the most profitable from this cohort. The five-year average data is also presented for comparison with the 5-year average Rangeland data to establish what the differences are in business features that are leading to the differences in financial performance.

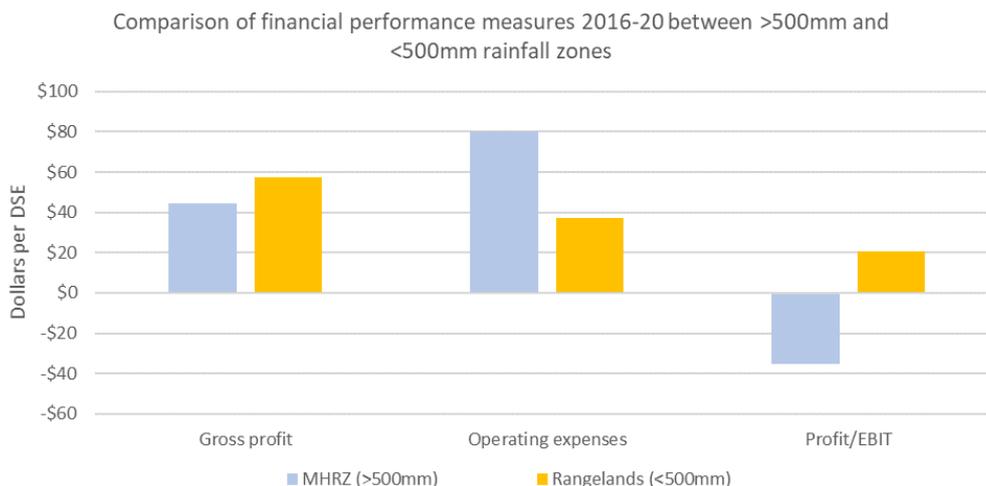


Figure 7 Five-year average comparison of Rangeland goat against goat production in the medium to high rainfall zone.

In contrast with the rangelands, the medium to high rainfall zone shows losses across four of the five years. Losses range from \$49.82 in the 2018 year to \$9.10 in the 2019 year. The losses appear to be driven by two factors. The first is an extremely high cost structure. The second is lower average sales values of \$46 per DSE.

Figure 7 shows that, on average over the five years, gross profit in the medium to high rainfall zone is \$44.61 per DSE which is 30 percent lower than in the Rangelands. Operating expenses are more than double those of the Rangelands sitting at \$80 per DSE leading to a \$55 per DSE difference in profit (loss) when compared to average Rangelands herds. Of the \$43 total difference in operating costs \$35 is related to additional labour in the medium to high rainfall zone. This suggests that these businesses either place little to no value on their time or view their goat enterprise as an expensive hobby.

The extent of the poor labour metrics in the medium to high rainfall zone are shown in the comparisons of Wages and on costs per DSE, Labour efficiency per DSE and Gross profit per labour unit. Labour costs are 3 times higher, labour efficiency is 2.8 times lower and the amount of gross profit generated per labour unit is 3.5 times lower than rangeland enterprises averaged over the last 5 years.

The problem in the medium to high rainfall zone however extends to production as well because even if no labour costs were allocated, profits would equate to zero over the five-year benchmarked period.

It could be argued that scale is part of the reason for the poor labour efficiency with average enterprise size of less than 628 DSE compared with greater than 8,000 DSE in the Rangelands enterprises. While managing large scale does lead to business efficiencies it is possible to manage small scale goat herds efficiently. Typically, this is achieved by treating the enterprise as a business rather than a hobby.

This is demonstrated with one rangelands manager who managed over 1,300 DSE in just 17.5 days per year inclusive of time to get to the property from off site. This producer was highly labour efficient and achieved the labour efficiency with the adoption of remote camera and water sensor technology allowing for monitoring of watering points off site.

Further labour concession is necessary to account for additional operational activities and handlings due to greater parasite pressure in high rainfall environments but even conceding these issues labour efficiency of 2,400 DSE per labour unit is still woeful whichever way it is considered. Further, there is a producer who generated reasonable profits in the medium to high rainfall zone in the non-drought years with reasonable levels of labour efficiency (8,000 DSE per labour unit) at a cost of \$9 per DSE suggesting reasonable levels of labour efficiency are achievable.

The benchmarking data shows that it is possible to generate reasonable profits in the medium to high rainfall zone with profits of up to \$24 per DSE recorded in that zone in the 2017 year. It is only likely to be achieved however, where there is a desire to manage the goat enterprise as a business rather than as a hobby.

The addition of more data in this zone is necessary to dig any deeper on this cohort.

Table 4 Financial and production performance of Medium to high rainfall zone goat enterprises by year and 5 year average compared with Rangelands data.

	Non Rangeland (>500mm) goat enterprise financial performance					>500mm	Rangeland
	15/16 Fin	16/17 Fin	17/18 Fin	18/19 Fin	19/20 Fin	Av 16-20	Av 16-20
	0- 100%	0- 100%	0- 100%	0- 100%	0- 100%	0-100%	0-100%
Sales (\$/DSE)	\$24.51	\$41.65	\$34.07	\$77.21	\$66.66	\$45.94	\$54.65
Purchases (\$/DSE)	\$2.10	\$13.13	\$5.54	\$59.99	\$31.20	\$20.21	\$17.73
Inventory change (\$/DSE)	-\$1.18	\$16.07	-\$3.34	\$73.36	\$12.61	\$18.88	\$20.60
Gross profit (\$/DSE)	\$21.24	\$44.58	\$25.19	\$90.58	\$48.07	\$44.61	\$57.52
Animal health and breeding (\$/DSE)	\$3.10	\$4.07	\$4.09	\$0.57	\$2.03	\$2.97	\$0.18
Contractors (muster/trap/handle) (\$/DSE)	\$0.00	\$0.00	\$0.12	\$0.95	\$0.10	\$0.23	\$0.72
Transport & cartage (\$/DSE)	\$0.07	\$0.65	\$0.33	\$0.80	\$0.00	\$0.42	\$2.03
Selling costs (goats and fibre) (\$/DSE)	\$0.19	\$1.32	\$1.54	\$0.47	\$0.24	\$0.87	\$0.61
Other (materials/insurance) (\$/DSE)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Supplementary feed (\$/DSE)	\$0.00	\$0.25	\$1.72	\$6.61	\$11.61	\$2.98	\$1.01
Total Enterprise expenses (\$/DSE)	\$3.36	\$6.29	\$7.80	\$9.41	\$13.98	\$7.48	\$4.56
Gross margin (\$/DSE)	\$17.87	\$38.29	\$17.39	\$81.17	\$34.09	\$37.14	\$52.97
Administration (\$/DSE)	\$2.98	\$2.65	\$1.92	\$1.04	\$2.13	\$2.16	\$1.16
Contract services (\$/DSE)	\$0.18	\$0.52	\$0.81	\$3.67	\$7.77	\$1.88	\$0.03
Depreciation (\$/DSE)	\$2.16	\$1.82	\$1.74	\$5.99	\$2.97	\$2.81	\$3.37
Electricity and gas (\$/DSE)	\$1.13	\$3.09	\$2.71	\$3.36	\$0.39	\$2.39	\$0.65
Fertiliser (\$/DSE)	\$0.12	\$1.07	\$0.91	\$1.44	\$3.25	\$1.13	\$0.10
Fuel and oil (\$/DSE)	\$0.85	\$0.87	\$1.02	\$5.98	\$2.46	\$2.08	\$2.51
Insurance - general (\$/DSE)	\$0.93	\$1.23	\$1.25	\$1.61	\$0.73	\$1.20	\$1.09
Materials and other (\$/DSE)	\$0.36	\$0.20	\$0.27	\$1.59	\$0.36	\$0.54	\$0.75
Motor vehicle expenses (\$/DSE)	\$2.67	\$2.67	\$1.98	\$1.08	\$2.70	\$2.18	\$1.76
Pasture costs (\$/DSE)	\$0.44	\$0.02	\$0.21	\$0.64	\$1.42	\$0.41	\$0.31
Rates and rents (\$/DSE)	\$0.61	\$1.40	\$1.19	\$1.65	\$1.35	\$1.23	\$1.56
R&M: plant & equipment (\$/DSE)	\$2.02	\$0.44	\$0.51	\$0.00	\$0.00	\$0.64	\$0.78
R&M general - infrastructure (\$/DSE)	\$4.04	\$4.32	\$3.65	\$3.45	\$4.81	\$3.97	\$3.77
Wages and on costs (\$/DSE)	\$50.98	\$51.51	\$49.04	\$58.76	\$27.71	\$49.86	\$14.71
Total overhead expenses (\$/DSE)	\$69.46	\$71.79	\$67.21	\$90.27	\$58.06	\$72.50	\$32.55
Total operating expenses (\$/DSE)	\$72.82	\$78.08	\$75.01	\$99.68	\$72.04	\$79.98	\$37.10
Profit (EBIT) (\$/DSE)	\$51.58	\$33.50	\$49.82	-\$9.10	\$23.97	-\$35.36	\$20.42

Table 5 Key performance indicators of Medium to high rainfall zone goat enterprises by year and 5 year average compared with Rangelands data.

	Non Rangeland (>500mm) goat enterprise key performance indicators					>500mm	Rangeland
	15/16 Fin	16/17 Fin	17/18 Fin	18/19 Fin	19/20 Fin	Av 16-19	Av 16-20
	0-100%	0-100%	100%	0-100%	0-100%	0-100%	0-100%
Cost of production (\$/kg cwt)	\$3.51	\$11.29	\$9.98	\$11.97		\$8.29	\$4.73
Price received (\$/kg cwt)	\$4.84	\$8.15	\$5.22	\$9.27	\$2.08	\$6.30	\$6.75
Production (kg cwt/DSE)	3.80	7.93	4.63	11.80	3.79	6.64	9.34
Production (kg sold/hd sold)	17.9	14.1	14.5	8.0	11.8	13.3	15.6
Production (kg cwt/ha)	26.92	35.01	28.61	37.50	29.00	31.69	4.33
Production (kg cwt/ha/100mm)	4.17	4.51	5.27	7.02	5.50	5.23	1.47
Rainfall % LTA	101%	108%	75%	70%	71%	87%	77%
Labour efficiency (DSE/FTE LU)	3,601	2,250	1,578	1,927	3,394	2,402	7,414
Gross profit per labour unit (\$/FTE LU)	\$96,408	\$100,758	\$42,634	\$181,529	\$88,598	\$100,295	\$412,265
Goats % total DSE grazing (excl pests)	33%	35%	44%	70%	43%	45%	57%
Long term rainfall (mm)	673	693	693	693	835	703	373
Year analysed rainfall (mm)	707	748	508	478	592	610	289
Goat enterprise AASR (DSE)	500	505	528	1,024	652	628	8,352
Average annual stocking rate (DSE/ha)	4.4	5.9	5.3	4.4	7.1	5.3	0.5
Net profit % Gross profit	-23%	-38%	-51%	26%	-29%	-24%	29%
Goat enterprise ROAM	-8.1%	-4.7%	-5.6%	1.6%	-1.7%	-4.0%	5.4%

0-80% - average of goat benchmarking data sets by year exclusive of those not in the top 20%. This aggregated data shows, when compared with the average of all data the extent to which the top 20% influence the average.

All – average of all goat benchmarking data sets by year.

T20% - average of those goat benchmarking data sets ranked in the top 20% by net profit/EBIT per DSE.

DSE- dry sheep equivalent / ROAM – return on assets managed / cwt – carcase weight / kg – kilogram / FTE LU – full time equivalent labour unit (240 days) / GP – gross profit / AASR – average annual stocking rate / LTA – long term average / hd sold – head sold / mm – millimetres

Source: MLA Goat benchmarking data set

4.2 Five-year average enterprise performance – average and top 20%

Outputs from analysis of a single year of benchmarking data can be misleading because it is possible in any year that a random event (timely sales delivering high price or a freak rainfall event), rather than management, was responsible for the result. Analysis of goat enterprise production and management over a longer time frame minimises the probability that random events are responsible for high profit outcomes. Therefore, it is generally more desirable to take a long-term assessment of farm business and enterprise performance than assessment of any single year in isolation.

A comparison over the period from 2016 to 2020 has been conducted between the pooled average of four managers with the highest profit per DSE over the five-year period analysed and others. This allows for exploration of the key differences between different groups (Table 6). The aim of this comparison is to establish whether there are easily discernible differences in production key performance indicators that lead to the differences in financial performance.

In order to qualify as one of the highest profit generating four goat producers the following criteria had to have been met:

1. Must have benchmarking data for all five years
2. Can include any type of herd other than depot. This includes trading, breeding, seed stock from an opportunistic harvested (non fenced) or managed herd (fenced).
3. Must be the highest ranked profit generating goat producers, of goat enterprises benchmarked.

Five-year benchmarking participants, for the purposes of this analysis, are those who have contributed all five years of data over the data collection period. The analysis differentiates between:

- the highest profit generators who are all Rangeland managers (High profit).
- the average of others which is the average of all goat benchmarking participants exclusive of the top 4 (All data - the rest).
- the average of all goat benchmarking participants inclusive of the high profit producers (All data average)
- the average of Rangeland others which is the average of all goat benchmarking participants in the Rangelands exclusive of the top 4 (Rangeland the rest).
- the average of Rangelands participants inclusive of the high profit producers (Rangeland average)

The high profit producers have also been categorised further into two groups.

- those who appear to be generating higher levels of gross profit /income per DSE (2 more productive and with more cost) and
- those that are generating lower income per DSE (2 less intensive and with a very low cost structure).

The exclusion of the highest profit generating goat producers from the average (average others) allows for the weighting of the highest profit producers on the average to be assessed. This is done by comparing the average of all with the average of others. The high profit goat producers can be used to set benchmarks for long term performance.

Table 6 Five-year average comparison of key performance indicators of the highest profit producers with the average of all producers and the average of the others (2016-2020)

All goat enterprises financial performance - high profit compared with others (5 yr average)							
	High profit	High production	Low cost	All data - the rest	All data - average	Rangeland rest	Rangeland average
Sales (\$/DSE)	\$61.15	\$75.91	\$46.38	\$51.44	\$53.40	\$52.49	\$54.65
Purchases (\$/DSE)	\$6.97	\$0.10	\$13.83	\$18.81	\$16.42	\$21.31	\$17.73
Inventory change (\$/DSE)	\$6.74	-\$3.13	\$16.62	\$20.87	\$18.02	\$25.21	\$20.60
Gross profit (\$/DSE)	\$60.93	\$72.68	\$49.17	\$53.50	\$55.00	\$56.39	\$57.52
Animal health and breeding (\$/DSE)	\$0.13	\$0.15	\$0.11	\$0.88	\$0.73	\$0.20	\$0.18
Contractors (muster/trap/handle) (\$/DSE)	\$0.20	\$0.10	\$0.31	\$0.74	\$0.63	\$0.89	\$0.72
Transport & cartage (\$/DSE)	\$2.60	\$2.44	\$2.76	\$1.47	\$1.69	\$1.84	\$2.03
Selling costs (goats and fibre) (\$/DSE)	\$0.70	\$1.24	\$0.17	\$0.68	\$0.69	\$0.58	\$0.61
Other (materials/insurance) (\$/DSE)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Supplementary feed (\$/DSE)	\$1.77	\$3.53	\$0.00	\$1.33	\$1.42	\$0.76	\$1.01
Total Enterprise expenses (\$/DSE)	\$5.41	\$7.46	\$3.35	\$5.10	\$5.16	\$4.27	\$4.56
Gross margin (\$/DSE)	\$55.52	\$65.22	\$45.83	\$48.40	\$49.84	\$52.11	\$52.97
Administration (\$/DSE)	\$0.82	\$0.99	\$0.64	\$1.57	\$1.42	\$1.27	\$1.16
Contract services (\$/DSE)	\$0.00	\$0.00	\$0.00	\$0.51	\$0.40	\$0.04	\$0.03
Depreciation (\$/DSE)	\$1.64	\$2.36	\$0.91	\$3.52	\$3.14	\$3.94	\$3.37
Electricity and gas (\$/DSE)	\$0.32	\$0.39	\$0.25	\$1.02	\$0.88	\$0.76	\$0.65
Fertiliser (\$/DSE)	\$0.00	\$0.00	\$0.00	\$0.39	\$0.31	\$0.13	\$0.10
Fuel and oil (\$/DSE)	\$2.69	\$3.81	\$1.57	\$2.18	\$2.28	\$2.45	\$2.51
Insurance - general (\$/DSE)	\$0.72	\$1.11	\$0.32	\$1.17	\$1.08	\$1.21	\$1.09
Materials and other (\$/DSE)	\$0.40	\$0.32	\$0.49	\$0.73	\$0.66	\$0.87	\$0.75
Motor vehicle expenses (\$/DSE)	\$0.95	\$1.66	\$0.24	\$2.11	\$1.87	\$2.03	\$1.76
Pasture costs (\$/DSE)	\$0.02	\$0.03	\$0.00	\$0.41	\$0.33	\$0.41	\$0.31
Rates and rents (\$/DSE)	\$1.38	\$2.10	\$0.66	\$1.52	\$1.49	\$1.62	\$1.56
R&M: plant & equipment (\$/DSE)	\$1.21	\$1.85	\$0.57	\$0.64	\$0.76	\$0.63	\$0.78
General R&M - infrastructure (\$/DSE)	\$2.78	\$3.41	\$2.14	\$4.15	\$3.87	\$4.10	\$3.77
Wages and on costs (\$/DSE)	\$7.00	\$7.43	\$6.56	\$23.73	\$20.35	\$17.28	\$14.71
Total overhead expenses (\$/DSE)	\$19.92	\$25.47	\$14.37	\$43.63	\$38.84	\$36.75	\$32.55
Total operating expenses (\$/DSE)	\$25.33	\$32.94	\$17.72	\$48.73	\$44.00	\$41.03	\$37.10
Profit/EBIT (\$/DSE)	\$35.60	\$39.75	\$31.45	\$4.77	\$10.99	\$15.36	\$20.42
All goat enterprises key performance indicators - high profit compared with others (5 yr av)							
	High profit	High production	Low cost	All data - the rest	All data - average	Rangeland rest	Rangeland average
Cost of production (\$/kg cwt)	\$3.75	\$4.47	\$3.03	\$5.52	\$5.16	\$5.06	\$4.73
Price received (\$/kg cwt)	\$7.93	\$8.26	\$7.61	\$6.24	\$6.60	\$6.33	\$6.75
Production (kg cwt/DSE)	8.09	9.53	6.65	9.06	8.86	9.76	9.34
Production (kg sold/hd sold)	15.5	16.4	14.5	15.7	15.7	15.7	15.6
Production (kg cwt/ha)	5.11	4.97	5.25	11.17	9.95	4.07	4.33
Production (kg cwt/ha/100mm)	1.67	2.05	1.29	2.44	2.28	1.41	1.47
Rainfall % LTA	82%	77%	88%	78%	79%	75%	77%
Labour efficiency (DSE/LU)	9,828	8,572	11,084	5,646	6,490	6,610	7,414
Gross profit per labour unit (\$)	\$639,272	\$653,033	\$625,511	\$283,040	\$355,006	\$336,596	\$412,265
Goats % total DSE (excl feral animals)	80%	89%	72%	46%	53%	49%	57%
Long term rainfall (mm)	378	346	410	452	437	371	373
Year analysed rainfall (mm)	314	261	367	360	351	281	289
Goat enterprise AASR (DSE)	17,940	14,302	21,577	4,043	6,850	5,155	8,352
Average annual stocking rate (DSE/ha)	0.6	0.5	0.8	1.6	1.4	0.4	0.5
Net profit % Gross profit	49.6%	42.6%	56.6%	16%	24%	22%	29%
Goat enterprise ROAM	9.0%	9.1%	8.8%	2.3%	3.6%	4.2%	5.4%

DSE- dry sheep equivalent / ROAM – return on assets managed / cwt – carcase weight / kg – kilogram / FTE LU – full time equivalent labour unit (240 days) / GP – gross profit / AASR – average annual stocking rate / LTA – long term average / hd sold – head sold / mm – millimetres

Source: MLA Goat benchmarking data set

The metrics that differentiate the goat enterprise managers generating the highest profits, from the remainder (all data) in over the long term include:

- higher income derived primarily from higher price
- marginally higher average annual stocking rate per hectare per 100 millimetres rainfall (not shown)
- lower enterprise expenses and much lower overhead expenses
- similar production per head sold
- far higher labour efficiency and greater than double the gross profit per labour unit
- Four times the enterprise scale
- a significantly lower cost of production

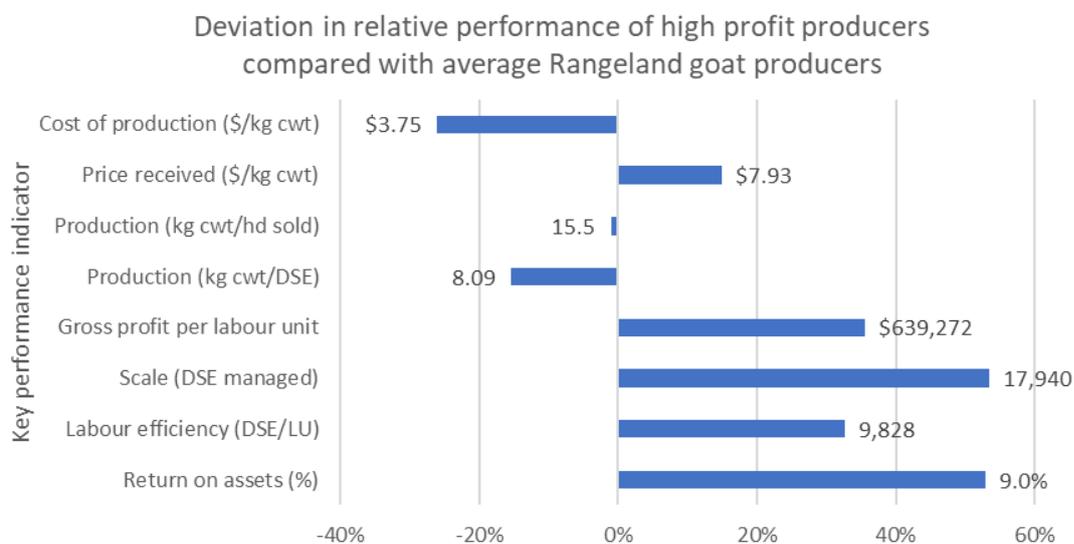


Figure 8 Percentage deviation of highest profit rangeland goat producers from the rest in the Rangelands

(Figures on the bars represent the performance measure of the best).

DSE- dry sheep equivalent / ROAM – return on assets managed / cwt – carcase weight / kg – kilogram / LU – labour unit (240 days) / GP – gross profit / AASR – average annual stocking rate / LTA – long term average / hd sold – head sold / mm – millimetres

The metrics that differentiate the goat enterprise managers generating the highest profits, from the remainder of Rangelands producers over the long term include:

- higher income derived from higher price and greater production per head sold but lower production per DSE managed
- marginally higher average annual stocking rate per hectare per 100 millimetres rainfall (not shown)
- higher enterprise expenses but far lower overhead expenses
- higher labour efficiency and income generation per labour unit
- triple the enterprise scale
- a significantly lower cost of production
- a lower cost of purchases indicating less trading

The proportion of gross profit (sales plus change in inventory value less purchases) that is retained as net profit by the highest profit generators is 50 percent. This means that for every dollar generated fifty cents is retained as profit. This compares with the rest, who over the same period, retained 16 percent of gross profit as net profit.

There is a solid relationship between the proportion of gross profit retained as net profit and cost of production. This means that a driver for retaining more gross profit as net profit is more kilograms of goat meat produced for every dollar spent.

4.2.1 Multiple pathways for high goat enterprise profits

An assessment of the top goat producers shows that there appears to be two different pathways for generating high levels of profit. The first pathway or production strategy, which generates the highest profits, is a strategy pursuing higher per DSE and per head income. The second pathway or strategy generates lower per head and per DSE production which comes at a very low cost.

4.2.2 High-income/high production strategy

Producers pursuing the high-income strategy have higher per DSE production, higher per head turnoff weights and higher average prices received resulting in higher income per DSE. Both these producers have a long history in the industry and have infused meat breed goats into their herds. While a higher price received contributes to superior income relative to the low-cost cohort the income would still be superior without any difference in price.

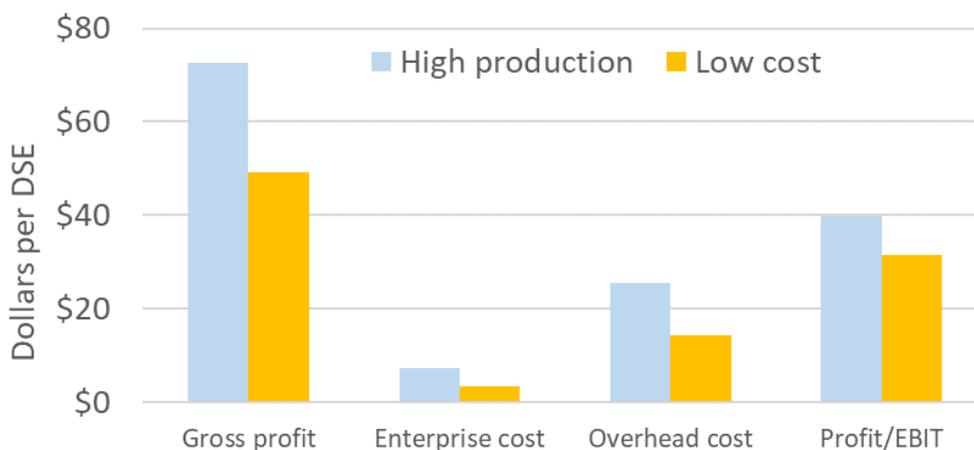


Figure 9 The high production pathway even with a far higher cost structure generates significantly more profit than a pathway of low cost.

The high profit goat producers pushing higher production per head have a far higher cost structure per DSE than do the high profit producers with lower per head production and lower costs (Figure 9). At an enterprise expense-level the higher costs include selling costs and supplementary feed. At an overhead expense-level the cost structure of the high-production strategy is more than 80 percent higher than that of the low-cost strategy when assessed per DSE.

The higher cost per DSE leads to a higher cost of production relative to the low-cost producers even with the higher production level per DSE of the high-income producers. The cost of production

equates to \$4.47 per kilogram of carcase weight, which is \$1.44 per kilogram of carcase weight higher than the low-cost producers. The high production cohort generate forty percent more carcase weight per head sold relative to the low cost cohort.

At the production level producers following the high-income strategy generate higher production per DSE leading to higher average weight at sale. Production per head sold is 13 percent higher in the high-income strategy relative to the low cost strategy but production per DSE is 43 percent higher. It is likely that herd structure and differences in management systems between strategies are causing this large difference at a per DSE level. The production per DSE seemed to follow through to rainfall adjusted per hectare production (kg cwt/ha/100mm) which is 60 percent higher than that of those pursuing the low-cost strategy.

Longer turn off times for young goats result in a higher DSE rating per animal. The same weight sold at a higher DSE rating results in fewer kilograms per DSE. It is possible that, given the high profit businesses have infused meat breed genetics into their herds that the hybrid vigour is at least partly responsible for the result.

It is also possible that the methodology for allocation of dry sheep equivalents has some role to play. The opportunistically harvested herds are given a DSE rating on the basis of an assumed herd structure and that the number of harvested goats represent 50 percent of the total number running on the property. It is plausible that this estimate is not truly reflective of the actual stocking rate.

At an enterprise level the high-income cohort of high profit producers spent less on contractors and freight and more on animal health, selling costs and supplementary feed than the low-cost cohort. At an overhead cost-level the higher costs were labour, depreciation, fuel and oil, motor vehicle expenses, repairs and maintenance, rates and rents.

The systems of the two groups are very different with fencing and management being a feature of the high-income herds while the low-cost herds are a mix of trading, managed and opportunistically harvested goats. It appears that the high-income cohort have invested more on supplementary feed which indicates that they are taking a drought management approach which aims to maintain breeder numbers.

4.2.3 Low cost strategy

Producers pursuing the low-cost strategy had a mix of trading and breeding herds on multiple properties some that are opportunistically harvested and others that are managed. These producers appear to have a greater focus on maintaining a very low-cost structure than generating high levels of production. This results in \$23.70 per DSE less gross profit but it comes at cost saving of \$15 per DSE resulting in profit per DSE of \$31.45, which is \$8 per DSE lower than the high-production strategy.

The lower income is driven by a combination of 13 percent lower production per head sold and 8 percent lower price relative to the high production strategy. It is possible that the lower weights at sale when compared with the high production group are a function of genetics or seasonal factors.

The 33 percent lower cost of production comes from the extremely low-cost structure rather than being lowered by the denominator (production). If these businesses were in a position to increase weight at sale by retaining the light-weight goats, then additional kilograms would be produced on

farm. This may not be possible for any number of reasons including lack of fences to contain the goats, lack of labour etc.

The low-cost strategy, while still landing these goat producers in the high profit cohort, is \$8 per DSE behind the high income/production strategy. On the other side of the equation these businesses are generating profits that are double that of the rest of the Rangelands goat producers primarily through a very lean cost structure. Their cost structure is \$21.50 per DSE lower than the rest but the income is only \$5 lower.

This suggests that there is more than one pathway to high profit in goat production. It is possible to be highly profitable in the Rangelands as an opportunistically harvested operation, as a trading business or as a managed herd.

4.2.4 Targets or benchmarks for high profit in goat production businesses

On the basis of the five-year performance of the benchmarking data captured to date, and assuming that profitability is a major motivator for goat meat production, then the following should provide realistic targets for goat meat producers in the rangelands. These apply where sales numbers represent fifty percent of goats managed.

- Net profit of greater than \$30 per DSE (approximately \$60 per goat sold)
- More than \$60 in gross profit per DSE (approximately \$120 per goat sold)
- Less than \$30 per DSE in operational expenses (approximately \$60 per goat sold)
- Retention of greater than 50% of gross profit as net profit
- Average carcase weight of greater than 16 kilograms per head sold
- Greater than 10,000 DSE per labour unit (1 labour unit per 5,000 goats sold)
- Greater than \$600,000 in gross profit per labour unit
- Cost of production less than \$3.75 per kilogram carcase weight

These targets will deliver a reasonable margin even with a significant price fall.

4.2.5 Returns on assets managed and land prices

Figure 10 show average goat enterprise returns on assets managed for the Rangelands and for all goat enterprises regardless of rainfall zone. Return on assets managed is a financial ratio that assess profit (EBIT) relative to the total value of assets utilised to generate that profit. Typically, in broadacre livestock businesses, land accounts for the majority of the value of the asset base.

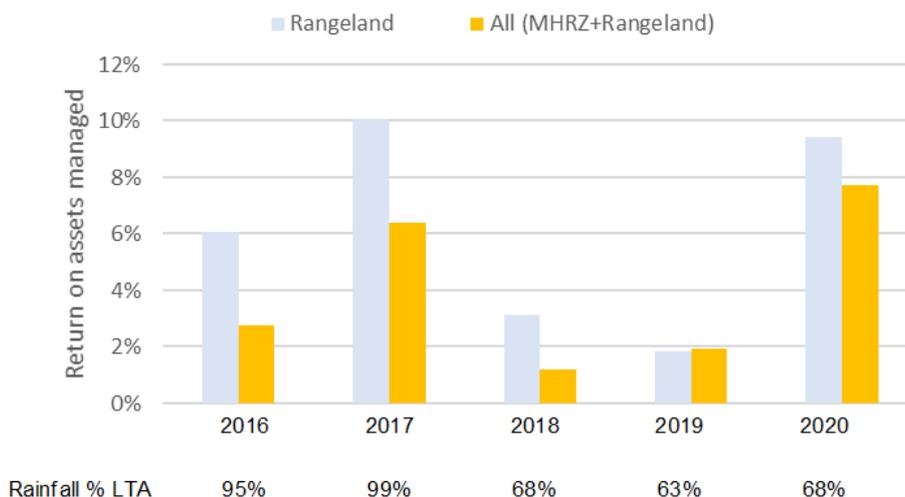


Figure 10 Operating returns of Rangelands goats and all goat meat enterprises benchmarked in the MLA benchmarking project to date (2016-2018)

The apportioning of assets to the goat enterprise in multiple enterprise businesses has been done by multiplying the total value of assets under management by a proportion allocated to goats. The proportion of land allocated to goats has been calculated by dividing the goat stocking rate in DSE by the whole farm stocking rate in DSE inclusive of all grazing livestock.

Valuations of land are conducted by benchmarking participants based on either comparable sales or, in some cases, on the basis of recent real estate valuations.

Figure 10 shows that goat enterprises have generated returns, on average across Rangeland enterprises, generated 5.4 percent compared with 3.6 percent in all rainfall zones including the Rangelands. The poor performance of goat enterprises in the medium to high rainfall zone, coupled with their higher land values per DSE, is the reason for the significant difference in returns.

There are several features of this graph. The first is that the average return of goat enterprises in the Rangelands is 5.4 percent. This is a very solid operating return particularly when it includes three seasons where rainfall was 32 to 37 percent below average for three of the five years in the series.

The second feature is the extent of the returns achieved in the 2017 and 2020 years. During these years received rainfall that was on par with the long-term average demonstrating that there is potential for even more upside than this is goat meat enterprises when rainfall exceeds the long term average (good seasons).

The third feature is the financial performance of goat enterprises during the period from 2018 and 2020. Rainfall received over this period represented approximately 67 percent of the long-term average. The increasing price over the period has played a major role in driving this outcome for this series of years. The fear in 2018 was that opportunistically harvested herds would not maintain the same level of profitability due to a depletion in the resource base. The depletion is reflected in numbers sold but this has been offset to some extent by solid prices. This result suggests that goat meat enterprises have a certain level of financial resilience in drought conditions that isn't replicated in other meat producing enterprises like prime lamb or beef.

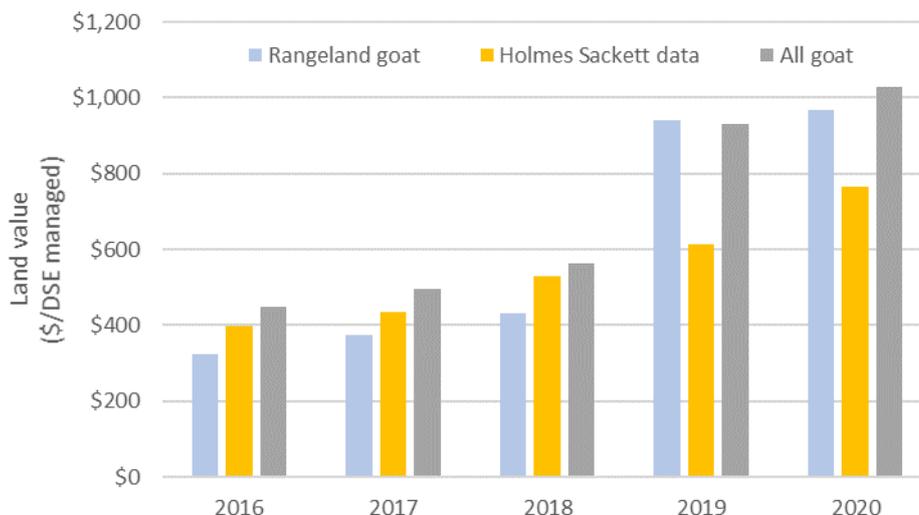


Figure 11 Land values per DSE by benchmarking cohort

Figure 11 shows land value per DSE of Rangeland goat enterprise businesses, the Holmes Sackett benchmarking database and all goat enterprise businesses. The Holmes Sackett data has been included as it is data sets from a greater area thus it provides validity or basis to the data. The most likely reason that the value of the “all goat” data exceeds the Holmes Sackett average is that this data set is weighted by a proportion of goat producers in the medium to high rainfall zone that are located in areas where rural/residential real estate value, rather than agricultural production capacity, is driving land value.

Data for 2016 to 2018 shows that Rangeland enterprises had the lowest land values per DSE. A plausible reason that land prices are lower in the Rangelands environment relative to the other data groups is that remote locations typically carry a discount. The discount is typically related to the cost of doing business in those locations, the cost of attracting labour and the increased volatility in returns when compared to more highly populated, less-remote locations.

The spike in Rangelands goat enterprise land values per DSE seen in 2019 and 2020 reflects the reduction in numbers by a few producers due to drought in those areas. Land value per DSE has been calculated by taking the gross land value and dividing by whole farm stocking rate. As stocking rates were low in 2019 and 2020 due to drought land values per DSE were inflated. Land values appreciated over this period but closer to 7 percent, not over 100 percent as is reflected in this data.

Figure 12 shows the land values data presented in Figure 11 but adjusted by excluding the outlying producers weighting the land values per DSE up. This data suggests that Rangelands farm assets are still trading at a disparity to higher rainfall areas with ending land values in 2020 sitting at an average of \$550 per DSE compared with the Holmes Sackett and All goat data sets which were above \$700 per DSE.

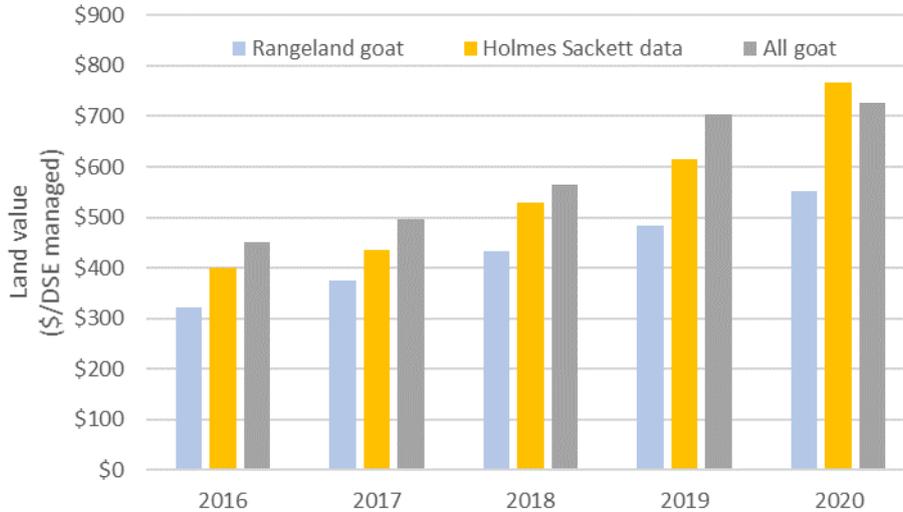


Figure 12 Land values per DSE by benchmarking cohort with outliers extracted

The land values data demonstrate the importance of a focus on financial performance in farm business. The increasing asset values are why it is necessary to keep finding and delivering business efficiencies to generate more profit over time. This is demonstrated using the following equations.

In 2016 land values in the Rangelands were \$320 per DSE while livestock, plant and equipment values were approximately \$100 per DSE. This meant that in 2016, for each DSE managed producers had \$420 per DSE in capital invested. To generate a 4 percent operating return on that investment it would have been necessary to deliver an operating profit or EBIT of \$17 per DSE.

By 2020 land values had increased to \$550 per DSE (11.4% growth) while livestock and plant and equipment value had increased to \$140 per DSE (7% growth). To generate the same 4 percent operating return operating profit/EBIT of \$28 per DSE was necessary. Had the same \$17 profit per DSE as was necessary in 2016 have been delivered in 2020 then the operating return would have declined to 2.4 percent.

$$\frac{\text{Operating profit (EBIT)}}{\text{Value of farm assets managed}} = \text{Return on assets managed}$$

$$\frac{\text{Value of assets managed}}{\text{Return on assets managed}} = \text{Operating profit (EBIT)}$$

Year	2016	2020
Land value (\$/DSE)	\$320	\$550
Livestock, plant & equipment (\$/DSE)	\$100	\$140
Total assets managed (\$/DSE)	\$420	\$690
Target return on assets managed	4.0%	4.0%
EBIT/Operating profit (\$/DSE)	\$17	\$28

On average, Rangeland land values per livestock unit (DSE) represented only 80 percent of those in the higher rainfall zones. This suggests that there is potential for higher operating returns to be

generated by Rangeland producers where enterprise profits per DSE don't differ between Rangeland and higher rainfall zones.

4.3 Impact of current and future prices for goat meat

Operating returns of 4.4 percent are achieved at future projected land values of \$650 per DSE given the following assumptions:

- prices of \$8.00 per kilogram carcass weight
- production of 8.0 kilograms carcass weight per DSE
- total operating costs of \$30 per DSE
- livestock inventory values of \$100 per DSE and
- plant and equipment accounts for \$20 per DSE over the total asset base.

Table 7 shows the sensitivity of operating returns in goat enterprise to price received and to land value in the Rangelands. The targets deliver a cost of production of \$3.75 per kilogram of goat meat carcass weight produced which delivers a 2.3 percent operating return if the price reverts back to \$6 per kilogram of carcass weight.

Table 7 shows that at projected land values of \$650 per DSE and the targets outlined above then operating returns increase to 5.5 percent where prices of \$9 per kilogram of carcass weight are achieved.

The ability to reduce operating costs by \$5 per DSE to \$25 per DSE delivers an increase in operating return of approximately 0.6 percent or \$6,000 for every million dollars in asset value managed across the goat enterprise.

Table 7 Sensitivity of operating returns from goat enterprises achieving target performing to price received (\$/kg cwt) and land value (\$/DSE).

Land value (\$/DSE)	Price (\$/kg cwt)			
	\$6	\$7	\$8	\$9
\$550	2.7%	3.9%	5.1%	6.3%
\$600	2.5%	3.6%	4.7%	5.8%
\$650	2.3%	3.4%	4.4%	5.5%
\$700	2.2%	3.2%	4.1%	5.1%
\$750	2.1%	3.0%	3.9%	4.8%

Figure 13 shows the expected difference in return on assets managed between those producers who were not in the most profitable cohort in the less than 500-millimetre rainfall zone ("the rest" and the target performance. The key difference between these groups is the cost base with most other variables remaining the same.

The rest had a cost base of \$41 per DSE while the target has a cost base of \$30 per DSE. These apparent small cost base changes drive a difference in cost of production of \$1.35 per kilogram of carcass weight produced delivering a cost of production of approximately \$5.10 per kilogram of carcass weight for the rest.

The differential margin between the systems with a different cost base does not change with price increases, rather it remains constant. The value of the difference between systems is between

\$14,000 for every million dollars-worth of goat enterprise assets managed at land values of \$650 per DSE.

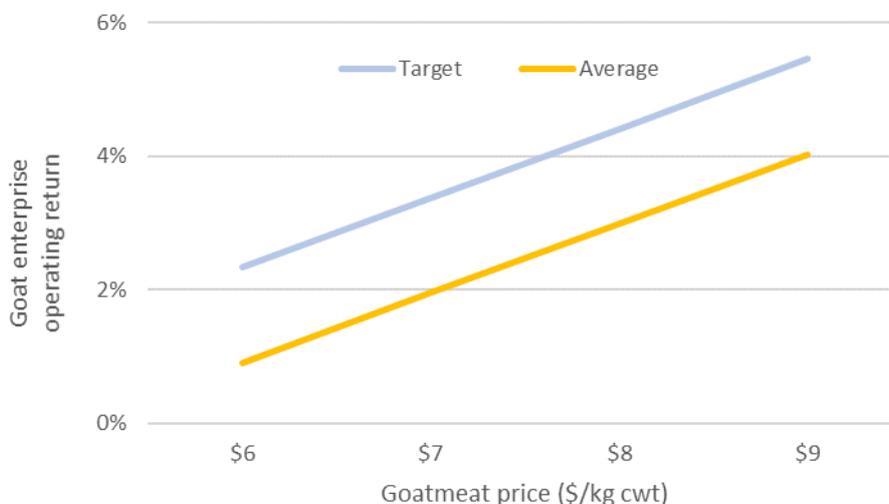


Figure 13 Sensitivity of operating returns to goat meat price received based on benchmarked average production and cost base and target production and costs. (Land price \$650/DSE, Operating costs per DSE \$30 v \$41)

5 Keys to profitable goat meat production – beyond 2020

5.1 Changing price and cost of production

5.1.1 Goat meat price

Figure 14 shows the MLA-reported over the hook’s carcass weight prices for 12.1 to 16-kilogram goats from January 2010 to October 2020. The graph shows a period of relatively static prices from 2010 to 2015 with a rapid rise from 2015 to 2017. A major fall occurred in mid-2017 followed by the same price increase trajectory seen over the period from 2015 to 2017. An extreme sharp short-supply related increase occurred mid-2019. At the end of financial year 2020 prices were back to around \$7.30 per kilogram carcass weight. The benchmarking average price received of \$9 per kilogram carcass weight, it did not impact the 19/20 benchmarking year.

The ability for producers in the rangelands to capitalise on the very high prices is limited by production and the ability to muster large numbers of goats at market weights during the price peaks. These constraints suggest that adequate margins in rangelands goat production comes not by relying on high price but by delivering a low cost of production. For a business with a low cost of production to deliver reasonable profits the low cost of production must be matched with optimum production levels which typically means that they are suited to the resource base and its constraints.

Some producers have missed this nuance and have focussed heavily on the message and delivered low cost of production, but it has come with suboptimal levels of production. The issue with such an approach is that a low cost of production with suboptimal levels of production per unit area generates low profitability. Given land makes up the majority of the value of assets under management in a farm

business, profitability is a useful measure of financial resource efficiency as it measures profit relative to the value of assets required to generate that return.

Two areas of focus for goat managers looking to lower cost of production while maintaining optimum levels of production would be to ensure that goats at sale are above a predetermined minimum weight and to ensure that labour and labour related expenses are matched to business scale. This not dissimilar to some of the messages delivered in the Beef and Lamb situation analyses.



Figure 14: Goat meat prices for 12.1-16 kilogram carcass weight goats
 Source: MLA Eastern states OTH weekly goat prices 12.1 – 16 kilograms

5.1.2 Goat meat cost of production

Cost of production is a ratio. Cost of production is calculated by dividing the total operating cost of producing each kilogram in carcass weight of goat meat by the number of kilograms produced. In some enterprises, goat meat is not the only product produced, for example, a herd that produces milk and meat or fibre and meat has more than one income stream from the herd.

The method for establishing cost of production in these herds is to establish the proportion of gross profit that is generated from meat component of the business relative to the total. That proportion is then multiplied by the cost base to establish the component of meat enterprise costs. These costs are divided by the meat production in kilograms carcass weight.

Meat production is calculated as kilograms of carcass weight sold less kilograms of carcass weight purchased plus any change in inventory carcass weight. This is why it is critical that there is an understanding of the numbers being managed within the business.

Where considering a single meat producing enterprise an example of how cost of production is calculated follows. A carcass weight of goat meat of 100,000 kilograms is produced for a total cost of \$450,000 has a cost of production of \$4.50 per kilogram liveweight.

\$450,000 operating cost
 100,000 kilograms carcass weight = \$4.50 per kilogram carcass weight

Cost of production can be reduced by increasing production, providing any associated cost increases are negligible, or of a smaller proportion. It is also possible to reduce cost of production by lowering costs and maintaining (or increasing) production.

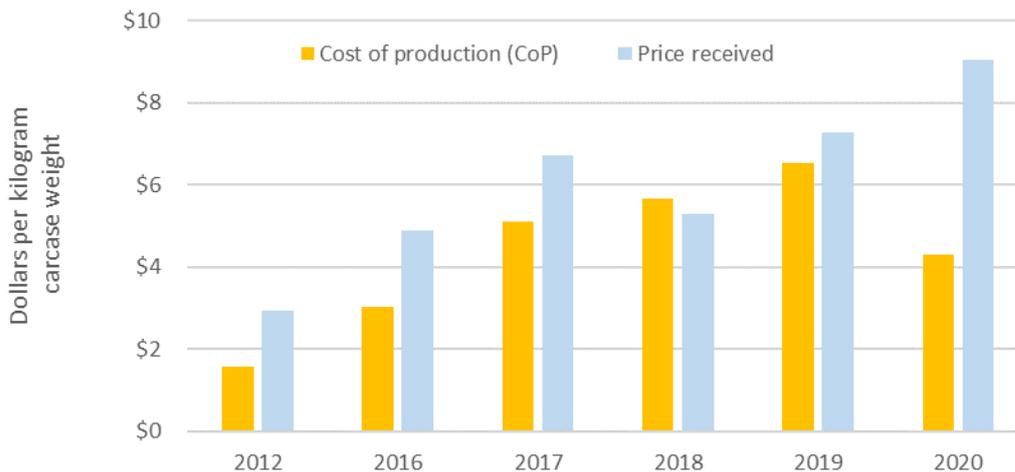


Figure 15 Cost of production (average of all data) is increasing at a slower rate than is price received

Figure 15 uses data from the MLA funded goat project B. GOA. 0077 and combines it with data from the current benchmarking analysis to demonstrate the extent of changes in cost of production and price received over time. The data shows an increase in the price received to 2017 followed by a decline in 2018 and two more years of price increase over the 2019 and 2020 years. The increase in cost of production over time, seen in Figure 15, has been shown to occur in other meat enterprises. It could be the result of inflation, seasonal conditions lowering production, seasonal conditions increasing costs or a mix of all of these.

The margin per kilogram of carcass weight increased from \$1.37 in 2012 to \$1.70, averaged over the three-year period from 2018 to 2020. This was weighted heavily by the 2020 year where the cost base decreased considerably year on year. This suggests that despite the dry conditions, producers are retaining a greater margin in recent times relative to 2012. This has to continue in order to maintain financial resource efficiency as the rate of increase in asset values over time has also increased.

5.2 What are the opportunities and challenges?

In any business there will always be some changes that can be made that result in relatively low cost and easy gains. These gains are often called the low hanging fruit because they are the easiest gains to achieve without much, or any, additional cost. These will include the implementation of low, or nil-cost, strategies that improve productivity and dilute costs.

5.2.1 Weight and age at sale

It is possible, though not necessarily demonstrated in this benchmarking data as it is too coarse a measure, that there is much to be gained from increasing weight gain and reducing age at sale. In other meat production enterprises, such as prime lamb and beef, this is achieved through the adoption of sensible systems that match feed supply with feed demand, improved genetics and improving feed utilisation.

The adoption of a systems approach requires control over mating to ensure that peak energy supply (lactation) occurs at the typical time of peak energy demand. There are a few rangelands enterprises in this data set that use controlled mating to achieve this objective. These businesses are collecting data to establish the extent of the benefits that are not easily established in the benchmarking. There are also trail blazers who are adopting such an approach but without objective production and financial information. In these businesses it will be difficult to assess the value of the changes.

Genetics is an area where there is considerable potential for good returns on investment but still little objective data. Experience and anecdotes suggest that the introduction of meat breed goat genetics into Rangeland herds is pointless without the ability to remove male goats of reproductive age from the females in the herd. Rangelands billies dominate the females such that there is no chance for meat breed billies to serve. Even the presence of weaner age kids can be problematic as experience suggests that they start working from a relatively young age.

The ability and desire to introduce meat breed genetics to rangelands herds is dependent on labour, the perceived costs and benefits and the management required to do so. In some businesses there may be limited ability remove all males from the female herd due to the cost of mustering, the fencing and handling infrastructure or the scale of the business.

Several of the cohort of the most profitable had successfully infused non-rangelands genetics using meat breed rams. The journey was not straight forward or without unforeseen costs. One producer suggested there was cost in lower fertility and fecundity in the early stages and there were also challenges with the social behaviour of animals. These producers however persisted and now believe they have better meat characteristics in their majority Rangelands herds. Typically, the superiority in genetics relative to straight rangelands genetics is delivered through improved growth rates resulting in a quicker time of turnoff and improved yield.

Data quantifying the investment return on genetics is scarce due largely to the scarcity of growth rate and carcase yield data. Improvements in uptake may result if there were some clearer recommendations on the rules for success of the introduction of the genetics and data surrounding the value of the benefits.

5.3 Labour

Labour and labour related expenses should represent no more than 50 percent of the total costs in a goat herd. Labour related expenses include the cost of motor vehicles, depreciation, fuel and repairs.

That is, for every labour unit, a business incurs costs in each of these additional line items as a result of that labour unit being dependent on these to conduct the work.

The high profit cohort of goat producers, that all came from the rangelands, had labour and labour related costs of \$12.50 per DSE representing 50% of the total operating costs of \$25 per DSE. The rest of the rangeland goat producers incurred labour and labour related costs of \$26.60 per DSE representing 65 percent of the total operating costs which sat at \$41 per DSE.

This is typical of other livestock enterprises and represents one of the greatest challenges and opportunities facing livestock enterprises. Labour efficiency is a useful measure as it assesses the number of livestock units relative to each operational labour unit employed within the business.

Labour efficiency in goat enterprises is measured in DSEs per labour unit. A labour unit is considered as any labour working within the goat enterprise without no distinction in ability or skill. A labour unit works 240 days per year after accounting for weekends and leave. All labour associated with managing and operating a goat herd is included in this calculation.

This includes not only farm labour but other labour related to managing the goat operations which could include pilots, earthmoving machinery operators, mustering or yard work contractors or veterinarians. These contractors may contribute only a small proportion of total time or a large proportion depending on the operational requirements of the business.

Labour cost is not necessarily directly proportional to labour efficiency. The same level of labour efficiency can result in different labour costs because an operator has a lower weighted average cost of labour than another.

For example, an owner manager who conducts all of the operations on his/her goat enterprise is charged at \$70,000 per annum. A larger scale business with one manager costing \$70,000 and two jackaroos, each costing \$40,000 per annum, has a weighted average cost of labour of \$50,000. On a labour unit for labour unit basis the owner manager has a cost per labour unit 75 percent higher than the jackaroo. Therefore, it is possible to have the same level of labour efficiency but very different labour costs.

Figure 16 shows average labour efficiency, over the period benchmarked, of goat producers in the rangelands and in the medium to high rainfall zone. The graph shows the proportion of total data points (enterprises) that fall into different labour efficiency categories. The figures on top of the bars represent the average scale measured in DSE of each labour efficiency cohort.

In the medium to high rainfall zone 75 percent of goat managers achieve labour efficiency of less than 2,500 DSE per labour unit. This represents a huge opportunity for these businesses and is likely to be the biggest single change that could be made to bring efficiency to these businesses. Twelve and a half percent of the enterprises benchmarked in the MHRZ achieve between 2,500 to 5,000 DSE per labour unit.

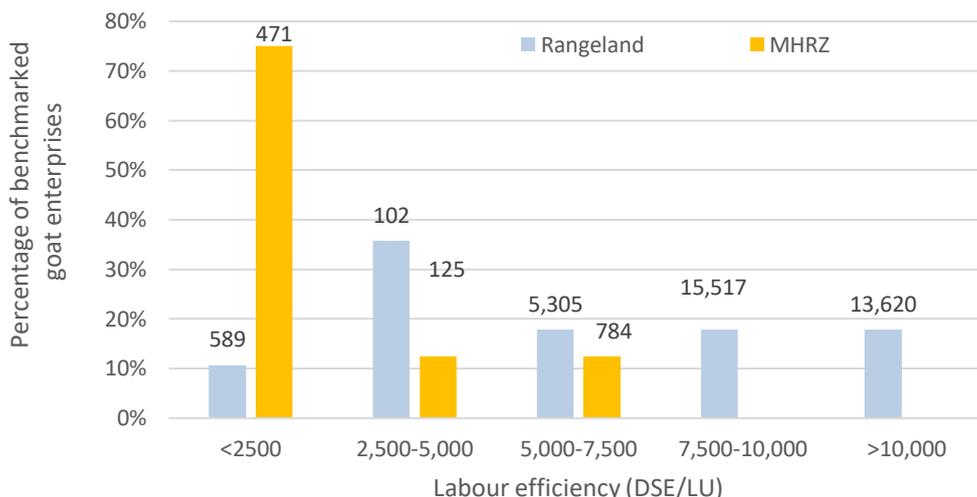


Figure 16 Labour efficiency by cohort (Figures on top of the bars represent the average scale of the businesses in DSE managed by labour efficiency cohort).

Twelve and a half percent of those in the MHRZ are shown to be achieving labour efficiency of greater than 5,000 to 7,500 DSE per labour unit with an average of only 784 DSE under management. This suggests that scale is not necessary to achieve reasonable levels of labour efficiency in the medium to high rainfall zone. No business in the MHRZ achieved labour efficiency greater than 7,500 DSE per labour unit.

It is unrealistic to expect that enterprises in the MHRZ achieve the same level of labour efficiency as those in the Rangelands as there are many additional operational requirements. Additional handling operations for animal health applications and for controlled mating and weaning are some examples. Pasture management and maintenance in the high rainfall zone may also increase labour requirements. On the flip side it could be expected that less labour is required for general repairs and maintenance, water monitoring and water maintenance given the smaller area to cover for these tasks.

In the rangelands there are over 35 percent of total data points with labour efficiency greater than 7,500 DSE per labour unit. There are 10 percent that have labour efficiency less than 2,500 DSE per labour unit. The data shows that the least labour efficient businesses run less than 500 DSE and the most labour efficient running more than 13,000 DSE.

The average number of DSE managed in the greater than 10,000 DSE per labour unit cohort is made up of some very large enterprises and some small enterprises. In fact, the business with the second highest level of multiple year labour efficiency of 16,125 DSE per labour unit opportunistically harvests a herd of only 1,050 DSE. This is the type of business that demonstrates the value of benchmarking as it shows what can be done.

This business achieves the high level of labour efficiency largely through the use of trap yards and remote sensor watering technology. The remote sensor watering technology does have an up-front infrastructure investment cost associated with it however this is dwarfed by the returns generated in the reduced labour cost.

5.3.1 Labour savings and labour challenges – labour saving but at what cost?

A detailed analysis of the aspects of operational and overhead labour would be useful in establishing where the opportunities for labour saving exist in different goat enterprises. Unfortunately, such an analysis is beyond the scope of this project.

The important issue to consider when assessing labour saving technologies, based on return on investment, is to understand the existing cost of labour, the value of any marginal labour-saving benefits and the up-front cost of the infrastructure and skill development in using it efficiently. Sadly, the skills in such investment analysis are lacking across the industry. The approach currently for investment in labour saving infrastructure appears to be more about gut feel than objectivity. This is reflected in the benchmarking results in labour costs. Investment in improving business skills and assisting farm business managers with accountability mechanisms may go some way to improving this situation.

A current labour-related challenge for the goat meat industry is the adoption of “labour-saving” devices and data tracking and management technologies without any change in the level of labour employed. There is any number of high cost handling devices that reduce the physical nature of operations and can save time but unless it results in labour being made redundant, or generating revenue elsewhere, the investment in the device is unlikely to generate a reasonable rate of return. One of the factors that was evident in some of the lower cost businesses was that they had rudimentary but fit-for-purpose home-made handling infrastructure. The view that these producers took was that unless there was a need to handle goats more frequently there wasn't a business case for greater investment in handling infrastructure.

Individual electronic identification is another source of potential increased labour cost if not well considered. The investment in capital equipment and software to collect data is of little benefit if the data does not lead to change or cost saving. The integration of electronic identification with robotic technologies like drafting on weight has been shown to present opportunities for labour savings at reasonable cost in other enterprises in a rangeland environment however it is likely that there is lower hanging fruit to be gained by most goat managers.

One highly admirable feature of Rangelands goat herds, relative to other livestock enterprises, is the lack of need to handle the herd with the exception of mustering and drafting. Many of the technological changes that may lead to more efficient or higher levels of weight gain may require additional handling of the herd. Careful consideration of the marginal weight gain should be given with equal consideration to the marginal labour costs as these will be considerable where additional handlings are necessary.

Repairs and maintenance in goat enterprises, particularly in the Rangelands, can be one area where a large proportion of labour resources are consumed. Investing more heavily on high quality fencing, gateways, and watering points usually reaps significant rewards in lower repairs and maintenance costs down the track.

Technologies like the use of drones for mustering, exclusion fencing for pest animal management, remote water monitoring and pregnancy scanning were all implemented by goat producers in the benchmarking. These are the types of technologies that lead to labour efficiency in one way or

another. The extent to which they are adding value was specific to the circumstances of each producer.

5.4 Business resilience to unfavourable seasonal conditions

The enterprise performance data collected in this project was confined to goat meat enterprises thus comparisons with other enterprises within business were not conducted. The extent of the range in maximum and minimum average profits over the five year period has been used to compare goat profit volatility relative to alternative enterprises. The data shows that Rangeland goat profits had the greatest volatility of all enterprises, but the lowest profits exceeded those of beef (Figure 17). Volatility wasn't all bad for goats as goat enterprises achieved the highest average profits of any enterprise over the five year period.

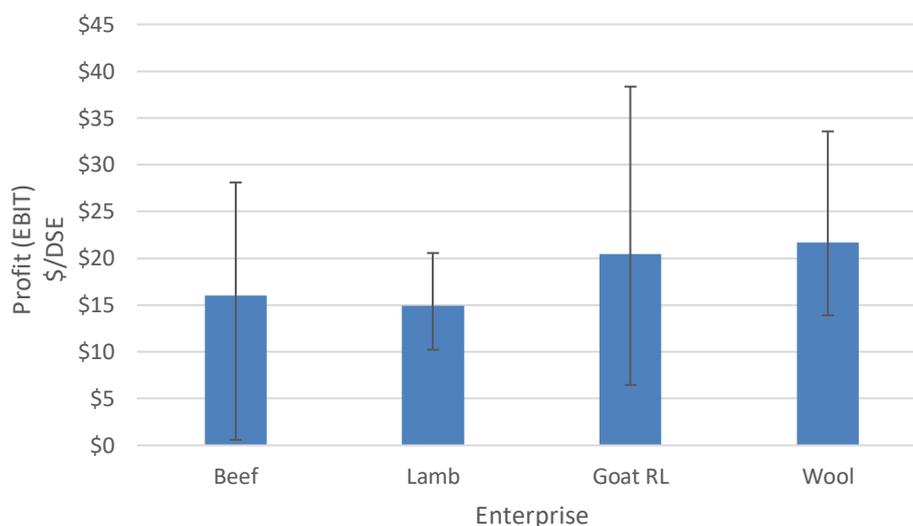


Figure 17. Five year average profit and range in profit over the five year period. (The extremities of the black lines through the bars indicate the average 5 year maximum and minimum)

Data from this project has shown so far, that in one of the five years which had 32 percent less rainfall relative to long term average, goat enterprises in the Rangelands generated profits of \$38 per DSE equating to operating returns of 9 percent. The price of over \$10 per kilogram carcass weight obviously played a significant role in this result but even with prices around \$7 per kilogram it would have been an impressive operating return given the seasonal conditions.

One feature of goat enterprises that appears to be resonating with managers in the Rangelands is their apparent better adaptation to volatile seasonal conditions relative to alternative livestock species, particularly beef cattle. The cost of feeding beef cattle during drought can be high and this is an unappealing feature of this enterprise for some. Given the incidence of drought feeding is high over the last five years this may drive a push in land use change to goats.

It may, of course, not be that simple to switch enterprises in many localities as wild dogs are now an ever-increasing feature of the rangelands landscape. If an investment in exclusion fencing is required to change enterprise, then it does increase the cost of changing enterprise. Many producers are

reaping the rewards of such investment not only in the value of the enterprise but also in the additional production due to reducing pest animal grazing pressure.

The investment analysis will be far easier over the coming years as those with exclusion fences quantify the value of the production gain from additional feed.

There may be room for improvement in goat herds with regard to drought management. The use of supplementary feed to generate income, particularly at current goat meat prices, warrants consideration from an economic perspective. The issue is, like many of the other issues in goat meat production, there is little objective evidence upon which to base a decision. This appears to be the reason that anecdotes, stories and experience are being sought.

5.5 The path and opportunities over the next five years?

This situation analysis has highlighted that the last five years have delivered very favourable financial performance for Rangelands goat producers despite two or more of these years being severely drought affected.

The same cannot be said for goat producers in the medium to high rainfall zone where financial and production performance has been poor. The poor results for the medium to high rainfall goat producers appear not to be due to any physical resource constraint or rainfall result but rather it is due to management factors.

Goat producers in the medium to high rainfall zone appear not to value their time, or they perceive the management of goat enterprises as a hobby rather than as a business enterprise. This is potentially a key constraint to change being instigated in these enterprises.

This project will go a long way to shaping the future of the industry as it delivers some objective evidence upon which strategic decisions surrounding research and development can be based. The attitude of goat enterprise managers to investing their time and contributing their financial and production data into this project has been underwhelming.

Those goat producers who have actively participated by contributing benchmarking data have acquired knowledge about the financial and production performance of their goat enterprise. They have also started to learn more about their enterprise strengths and weaknesses and how their performance compares with others. This has allowed them to identify the opportunities for improvement within their enterprise.

Data collection and data management will be an increasingly important area for investment in the goat industry, particularly given that it is a relatively immature industry. Collection of the simple things like livestock number by class and sex will be a useful starting point. Progressing to weaning percentages, and production measures such as rate of weight gains or losses will be the next. During the benchmarking data collection process some producers reported their weaning percentages. When pressed, they couldn't provide an accurate count of the number of does/nannies joined which suggests that weaning percentages were little more than an uneducated guess.

One of the challenges for this project has been the lack of knowledge of livestock numbers by class of livestock or the rate of reproduction in the herd. One recommendation for goat producers is to start

making records of numbers by class when conducting other operations. Some methodology for conducting a tally by sex and class during water running, mustering, handling or trucking would be useful as extrapolations could be made on the basis of smaller scale observations. Clearly this is far easier in managed than opportunistically harvested herds.

Genetics. It is plausible that investment in genetics will deliver solid returns on investment. This will more than likely deliver results by increasing the efficiency of weight gain in younger animals driving a quicker time of turnoff. This leads to greater herd level efficiencies. Introducing new genetics is not as simple as the inclusion of meat breed bucks to Rangelands type herds. Producers who have gone down this path suggest that there are management techniques necessary to deliver success.

There are already a number of goat producers who have goat meat breeds infused into their Rangeland herds. These producers believe that they are reaping the rewards of hybrid vigour in the growth rate and meat yield of their goats but there is little data to support these claims. The view of these producers is that they couldn't wait for the industry to find genetic solutions, so they worked it out for themselves using trial and error. This is not to say that these producers are not achieving superior rates of weight gain than Rangeland only herds rather it is a comment on the lack of data. Any production data capture may prove extremely valuable to new entrants, particularly if it can be linked to the changes made by those producers.

One potentially concerning feature of opportunistically harvested herds is the rate and weight of removal of females to slaughter. It is plausible that the decisions to sell heavier females for processing and retain smaller females for breeding is pushing opportunistically harvested herds towards lower rates of weight gain as this is effectively adding selection pressure for this trait.

Labour efficiency. Possibly the biggest opportunity is for the average producer to lower the cost of labour. A starting point would be to understand the existing cost of labour and then start an inventory of time to establish where it is going. Investments in capital works and infrastructure may be warranted if the return is delivered in lower annual labour costs. Further opportunities will exist in automation and technology but only after the clear business case is established.

Continued research and extension. Given the immaturity and growth of the industry there is a clear case for investment in research and extension. Projects such as this one are a great starting point as they deliver base cases. The extent to which principles and systems from other livestock species can be usefully adapted to goats would be useful. There are producers investing in the development of the technology.

The approach of case studies to explore success is only partly useful. Without rigorous and objective economic analysis or performance data demonstrating the extent of the value of change over time these case studies add little value. Skill development in financial literacy and business management will also assist in the identification of those investments that generate the best returns on investment.

Appendix

5.6 Important considerations and interpretation of situation analyses

5.6.1 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).

5.6.2 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 (i.e. directly impact on performance) or associative (i.e. related parameters that won't or don't directly impact performance).

5.6.3 Limitations to comparative analysis

Comparative analysis compares systems with a variety of physical and social attributes (e.g. 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.

5.6.4 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, within a particular market and under seasonal conditions.

5.6.5 Goat situation analysis

- The “top” category does not necessarily include the same producers over consecutive years, due primarily 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.

5.6.6 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 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.