

tips & tools

BUSINESS MANAGEMENT



Calculating cost of production for your beef enterprise

For producers wanting to improve the performance of their beef enterprise, a good understanding of the current health of the business is essential.

Cost of production is a key factor affecting the profitability of beef-producing businesses. Calculating your cost of production is an important step in assessing herd performance and a first step to making change.

Cost of production

Cost of production (CoP), measured in cents per kilogram, is an indication of the outlay required to produce each kilogram of beef.

The MLA cost of production calculator has been developed to standardise this very common performance indicator, so you can easily compare your enterprise with others across the southern beef industry who have used this *Tips & Tools*. A quick comparison of your CoP will indicate whether you have great scope for improvement, or are already performing reasonably well.

CoP is simple to calculate. It is not complicated by how you have financed the business, how much of it you own or how you acquire your land, and it only deals with one enterprise at a time. Use CoP to compare the health of your business year on year, and then compare yourself against other beef producers with similar resources to your own.

In developing a standard approach to calculating CoP, care has been taken to ensure that while the easiest method has been applied at every step, the usefulness of the measure has not been compromised.

Designed as a 'do-it-yourself' tool, we hope that every beef producer will figure out their CoP and compare their performance annually.

Finally, knowing your CoP is just the first step. Once you have a rough idea of how you are performing, we strongly urge you to measure the performance of your business in more detail and for all enterprises. There are a number of other performance indicators that help define specific areas for improvement. There are many benchmarking groups already established, run by state departments or private farm management consultants.

Key benefits

- Learn to use the MLA cost of production calculator to measure the performance of your beef enterprise year on year
- Compare the health of your business annually with other beef producers and find out if there is scope for improvement, or if your enterprise is already performing well

How to use the MLA cost of production calculator

To help you fill out the MLA CoP calculator for your enterprise, a worked example is provided in this *Tips & Tools* with comments about how some of the costs were determined.

The CoP calculator is split into the following six sections:

1. Total beef production
2. Cattle enterprise costs
3. Total labour costs for all enterprises
4. Overhead costs for all enterprises
5. Calculation for allocating overheads to beef enterprise
6. Final CoP calculation

Each section has a number of questions to be answered from your own records. Where explanation is required, a number next to the question refers to a comment in the explanatory notes box.

There is a box at the end of each section with a letter beside it that refers to the figures used in the final CoP calculation.

Once your CoP is calculated with the help of the example provides, the next section of this *Tips & Tools* gives you an idea of how your performance ranks against other southern beef enterprises.

There are a couple of 'optional extras' you may wish to calculate: kg/LWt/ha, average selling price and margin. Please heed the WARNING section about the accuracy of CoP for different enterprise mixes.

The final section of this *Tips & Tools* discusses the next steps after you have benchmarked your CoP.

To make the job of calculating CoP easier, allocate costs to enterprises as they are incurred throughout the year.

Worked example

The MLA cost of production calculator on the next two pages has been filled out using the example below.

This example was taken from a 1,600ha sheep, beef and cropping property. About 650ha is cropped and 950ha grazed at an average stocking rate of 15 DSE/ha. The financial year July 1 to June 30 was used to calculate CoP.

Total beef production

- The cow breeder numbers were increased by 10 to 360 during the year. The average cow liveweight at the end of June was 450kg.
- The herd calves in late winter so by end of June the current calf drop was around 10 months old and had been weaned, so there were no calves. The average liveweight of the weaners was 300kg. There was a decrease in weaner numbers of six between opening and closing.
- Extra heifers were retained this year with a change from opening to closing of +10. The average liveweight of the heifers was 420kg. After two years of age, the heifers enter the cow class and are included in the cow numbers.
- In most previous years, weaner steers were sold during the year. However, 50 late lighter-weight steers were kept on and these weighed on average 450kg at the end of June. They were still under two years of age so were included in the steer one to two-year class.
- A >two-year class is included for enterprises that carry steers past two years of age.
- The total liveweight of cattle sold throughout the year was 108,350kg. This included a couple of cull bulls, a dozen cull cows, 105 steers at 440kg, and 135 heifers at about 410kg.
 - Some of the steers were sold over the hooks and the records showed only their carcass weight. To convert this to liveweight, carcass weight was multiplied by two (that is, a dressing percentage of 50% was assumed). The dressing percentage (ie the proportion of liveweight that is carcass) varies with age, breed, and other factors such as gut fill at weighing, so if anything 50% is probably a little low.
- Total weight of cattle purchased was 7,000kg which included a couple of replacement bulls and 10 cows with calves at foot.

Cattle enterprise costs

- The cattle health costs were \$5,500, ie about \$16 per breeder.
- Contractors were used for calf marking and some casual mustering which cost \$5,000.
- No home-grown feed was fed out, but 30 tonnes of grain was purchased, with 20 tonnes fed out. The cost per tonne recorded is 'on-farm' so it includes freight.

Total labour costs for full year for all enterprises

- The farm has two full time employees living in quarters on the property. The cost of these employees includes salaries, superannuation of 12% and bonuses paid at the end of the year based on performance. The farm also pays for some training and education and these costs are included too. The quarters are not included in these costs as they are accounted for in overheads.
- The owner operator and her daughter both work full time on the property, and the owner's father does the books, which they estimate to be a half time job.
- The owner estimated that they spent one working day a week on cattle work, or approximately 20% of their time.

Overhead costs for whole farm business

- Rates were \$10,100 with \$5,000 spent on agistment of a small mob of steers. The agistment cost is recorded here as a whole farm overhead rather than as a cattle enterprise cost, because agisting stock out leaves land available for sheep and cropping.

Optional extras

- A total area of 943 hectares was grazed, of which 345ha was allocated to the beef enterprise, based on the proportion of total livestock income (beef, wool and lamb) earned by beef. The total kg of beef produced (130,750) was divided by 345 to give a figure of 379kg of beef per hectare.
- Gross cattle income was divided by total liveweight sold to give an average sale price of \$1.80 kg/LWt. The CoP was 78 cents giving a margin of 102 cents per kg.

The MLA cost of production calculator – a worked example

Total beef production

	I Opening number Mth ____	II Closing number Mth ____	III II - I	IV Average kgs/hd (lwt)	V Total kgs (III x IV)	1
Cows	350	360	10	450 kg	4,500kg	
Calves				kg	kg	
Weaners	319	313	-6	300 kg	-1,800kg	
Heifers	10	20	10	420 kg	4,200kg	
Steers 1yr	0	50	50	450 kg	22,500kg	
Steers 2yr				kg	kg	
Bulls	10	10	0	0 kg	kg	

Total column V 29,400kg

Total weight of cattle sold (liveweight – lwt) 108,350 kg 2

Total weight of all cattle purchased (lwt) 7,000 kg 3

Total kg of beef produced (1+2-3) 130,750 kg A

COSTS SHOULD BE GST EXCLUSIVE

Cattle enterprise costs

Total herd health costs	\$ 5,500	4
Contractors and casual labour for cattle work	\$ 5,000	5
Total quantity of home grown feed fed out:		
t x value/tonne \$ = \$ 0		6
Total quantity of purchased feed fed out:		
20 t x value/tonne \$ 340 = \$ 6,800		
Transport and cartage	\$ 5,040	7
Selling costs	\$ 9,990	8
Total cattle enterprise costs (add 4 through 8)	\$ 32,330	B

Total labour costs for full year for all enterprises

Cost of permanent employees \$ 80,300 9

Owner/operator allowance
Number 1 x \$50,000 pa = \$ 50,000 10

Cost of additional family labour (not already included in above)
Number 1.5 x \$28,000 pa = \$ 42,000 11

Total cost labour (add 9+10+11) \$ 172,300 12

Percentage time on cattle work 20 % 13

Total labour cost of cattle enterprise (12 x 13) \$ 34,460 C

Explanatory notes

1 Use the most appropriate 12-month period, eg autumn calving herds may be better using 1 April–30 March. The period should coincide closely with the period used for the financial year.

Cows >2 years Heifers 1–2 years
Calves 0–7 months Steers >1 year
Weaners 7–12 months

Liveweights (lwt) — it is assumed that opening and closing are the same. Use the average liveweight of each class of stock at the opening date.

2&3 From transaction records or weighing a sample. If not available, use an estimate. As a guide, multiply carcase weight by two to convert to liveweight.

4 Includes drenches, dips, vaccines, animal identification, breeding (eg AI) and vet costs.

5 Includes marking, classing, mustering and casual labour used for cattle work.

6 Feed should be valued at market price, not cost of production because if it wasn't fed to cattle it could have been sold on the market.

7 Include cost of all cattle transport.

8 Include commissions, fees, taxes and levies.

9 Include any permanent paid labour (casuals go in 5) and not owner/operator or family members. Includes all on-costs, eg worker's compensation, superannuation, etc.

10 This is an allowance for the 'manager' of the business. If 'manager' is less than full time, pro rata the \$50,000 annual allowance, ie 50% = \$25,000 pa. Exclude off-farm labour.

11 Only include if not already included in 9, for example one full time and one part time = 1.5.

13 Estimate if time records unavailable.

Overhead costs for whole farm business

Repairs and maintenance: shed, yards, fences, land	\$ 25,580	14
Repairs and maintenance: plant and equipment	\$ 19,240	15
General insurance	\$ 4,200	16
Administration	\$ 9,000	17
Rates, agistment	\$ 15,100	18
Fuel and oil	\$ 15,600	19
Electricity and gas	\$ 3,000	20
Depreciation	\$ 25,000	21
Pasture costs	\$ 42,000	22
Other	\$	23
Total overheads (add 15 through 23)	\$ 158,720	D

Explanatory notes

- 14** Do not include labour if already accounted for previously.
- 15** Includes vehicles, motor bikes, tractors, etc. Do not include labour if already accounted for previously.
- 16** Includes public liability, sickness and accident insurance.
- 17** Telephone, fax, postage, book keeping, consultants, subscriptions, conferences etc. Do not include labour if already accounted for previously.
- 18** Rates include shire, RLP Board and levies (such as rural fire service).
- 19** Includes petrol, distillate, fuel oils and lubricants. Exclude personal use.
- 20** Exclude personal use.
- 21** Use the depreciation figures from your most recent tax return.
- 22** Include chemicals, fertiliser, seed, irrigation. If sheep and beef are run, allocate costs to beef based on the percentage beef income is of total livestock income.
- 23** Include items not already accounted for.
- 24** Do not include off-farm contracting or labour or off-farm investment income.
- E** Overhead costs are allocated according to the income produced from the cattle enterprise.

Calculating the percentage of overhead costs allocated to cattle

(Your most recent tax return may be useful. If not able to separate gross incomes, only **CATTLE GROSS INCOME** and **TOTAL GROSS INCOME** are necessary)

Year _____	GROSS INCOME	
CATTLE		194,500
	+	
WOOL		260,000
	+	
LAMB/SHEEP		77,000
	+	
CROP		358,000
	+	
OTHER*		
	=	
TOTAL GROSS INCOME		\$ 889,500
Percentage of income from cattle =		22%
	$\left(\frac{\text{GROSS CATTLE INCOME} \times 100}{\text{TOTAL GROSS INCOME}} \right)$	
Overhead costs (D)	\$ 158,720	F
Overheads attributed to cattle enterprise (ExF)	\$ 34,706	G
Total cost of beef production (B+C+G)	\$ 101,496	H
Total kg beef produced (A)	130,750 kg	I

COST OF PRODUCTION PER KG BEEF LWT (H÷I)

0.78

See 'How does your CoP compare with others' on page 5 for an interpretation.

WARNING

CALCULATE CoP FOR A NUMBER OF YEARS TO GET AN IDEA OF YOUR AVERAGE

CoP can vary greatly between years due to a range of circumstances. These include but are not limited to:

- Unusual rainfall
- Changes to herd management or structure, such as calving date
- Greater than normal expenses, such as capital fertiliser applications or pasture establishment

As a general rule, the more variable the rainfall for your location, the more years you should calculate to determine your average CoP.

THIS CoP CALCULATOR IS MOST ACCURATE FOR A BUSINESS THAT RUNS BEEF ONLY

For businesses that run both cattle and sheep, the calculator is reasonably accurate because costs can be split reliably by using the percentage of gross income each contributes.

For cattle, sheep and cropping businesses, calculating CoP for individual enterprises requires estimating how much of some costs should be allocated to each. This is difficult and can lead to significant inaccuracies. While this calculator attempts to address this with guidelines about how to proportion costs, a full benchmarking program across all enterprises is advised.

In any case, the results will be a useful starting point for further discussion with your farm management advisor or benchmarking group.

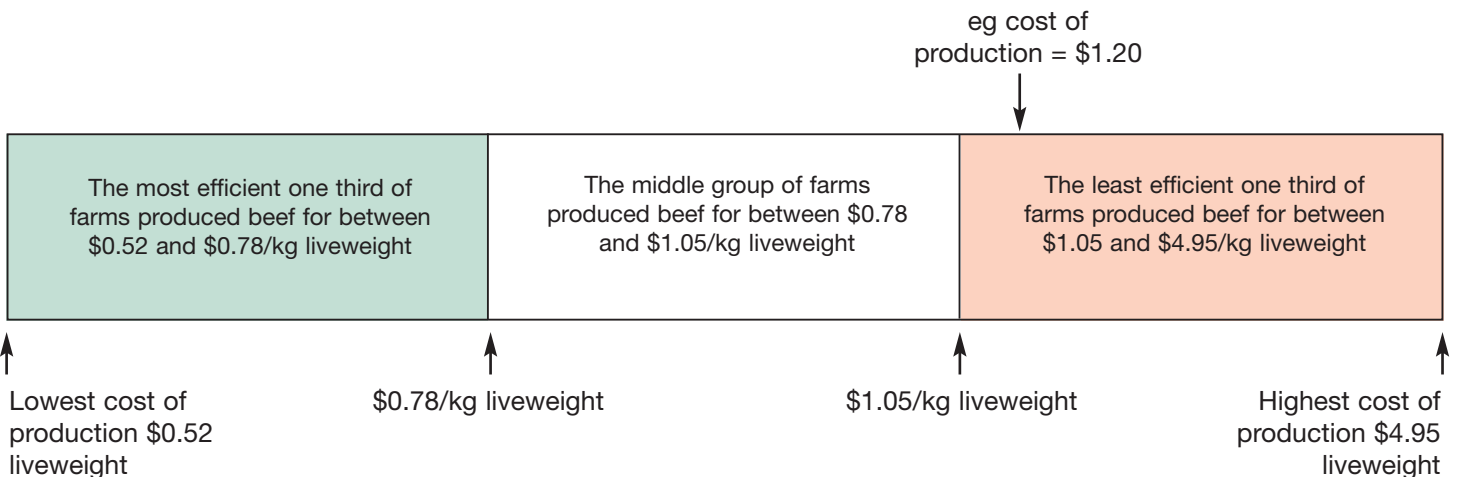
How does your CoP compare with others?

By industry standards, if you have a cost of production of less than \$1.00/kg liveweight, you are performing better than the average beef producer. As shown in the diagram below, the most efficient producers have a regular cost of production of below 78 cents – a good goal for any producer interested in wealth creation.

A cost of production of between \$1.00 and \$1.50 would suggest significant room for improvement.

If your cost of production is greater than \$1.50, the future of your business may be at risk. Based on beef prices less than \$2.00/kg/LWt, you will generally not be earning sufficient income to service debt. If you own all your assets your return on equity will be poor in comparison with other investment opportunities unless your land value is appreciating considerably.

Find out where your CoP falls on the diagram below. The bar provides an indication of the spread of CoP over a three–five-year period and represents a group of above average beef producers.



Optional extras

Using the figures you have drawn on to measure CoP, there are a couple of extra indicators you can calculate. In many cases their accuracy may be limited because they require you to estimate the figures. However, should you choose to fill these extras out, the results will be a useful starting point for further discussion with your farm management advisor.

Kilograms of beef produced per hectare (kg/ha)

You can calculate kg/ha by simply dividing the number of kilograms of beef produced (Box A on the calculator) by the number of hectares used for beef production. If beef cattle is your only enterprise, this is easy to determine accurately. However, where you have a number of different enterprises, deciding on the number of hectares you allocate to the beef enterprise as opposed to the others may be difficult, so don't rely too much on the result.

Average sale price

You should be able to get an idea of your average sale price per kilogram liveweight from your sales records. Alternatively, divide the CATTLE GROSS INCOME by the total kilograms of beef sold (Box 2). Just remember that income will include cows, bulls and other classes of stock.

Margin

Subtracting your CoP from your average sale price (cents/kg/LWt) will give you an idea of the margin you are making from your beef enterprise. Note, however, that this does not include the interest cost for cattle purchases. If this figure is less than or close to 0, your business may be at risk.

Where to from here?

Congratulations! You have taken the first step. Benchmarking your CoP has given you an idea of the scope you have for improving the profitability of your beef enterprise.

The next step is to very clearly decide the lifestyle and financial goals your business has to support, and then determine the enterprise strategy, herd structure and markets that will best achieve these goals.

Access to capital, attitude to risk, land class and rainfall are some of the factors that make your situation different to others and will govern the enterprise choices available to you.

However, all options you might take will influence either of two things – your feed demand or your feed supply.

Feed demand is influenced by the herd structure and target markets you choose. The tactical options you may choose from to change feed demand include: classes of stock, breed, time of calving, age at weaning, target growth rates and turn-off weights. All of these factors influence the feed demand in terms of quality and quantity required at different times of the year.

Acknowledgement

The method for calculating CoP was developed by Holmes Sackett and Associates for Meat & Livestock Australia.

Further information

For more information or to order your free copy of the MLA cost of production calculator for your beef enterprise (provided separately to this *Tips & Tools*) call the MLA producer hotline on 1800 675 717.

On the other side of the equation, options for providing the feed required include: the pasture species grown on different land classes; the grazing rotation, which includes fencing, grazing and rest times; the use of irrigation, supplementary feeding, and fodder conservation.

Based on your current enterprise structure, you need to determine how well your feed supply matches your feed demand. There are a number of programs provided by MLA and others to help you do this, such as Prograze, as well as various tools and information in the MLA More Beef from Pastures manual: *The producer's guide*. Alternatively, you can contact your local state department or farm management consultant for assistance.

If the match between your feed supply and demand is poor, look for options to change either or both. Other producers, often from regions quite different to yours, can be a great source of new options for you to consider. Keep an open mind, listen to others and read widely.

When you have chosen a few possible options, you should do an economic analysis of each of those options to ensure they will meet the profit goals you have set. The MLA More Beef from Pastures manual – *The producer's guide* – provides a partial budget template to assist with this.

Once you have decided on the herd structure, target markets and feed supply options you want to implement, you need to develop a transition plan to get from the current enterprise strategy to the new one. This plan needs to account for access to capital, and have defined limits for cash flow and liquidity against which you can monitor progress. If these limits are breached, action can be taken in advance to get the business back on track. This is critical to managing risk.

Developing an enterprise strategy is a complex task requiring many repetitive calculations. Most farm management consultants have a range of computer tools to automate this process, and they are aware of most of the pitfalls that may confront you. It is strongly advised that you seek professional support.



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