

CQ BEEF

Better Economic and Environmental Futures

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Why weigh weaners?

Mick Sullivan DEEDI, Rockhampton

Enterprise analysis with properties participating in the CQ BEEF project has highlighted the need to have better monitoring of cattle weights and growth rates for cattle management and marketing.

Collecting weaner weight data has many management advantages as well as being a good starting point for implementing increased monitoring of cattle performance.

The weaning data for a group of Brigalow Research Station No 8 calves shown below can be used to highlight some of the issues.

Brigalow No 8s weaning summary
Calving period 12/9/07 – 29/11/07
Weaning date 30/4/08

Weights and numbers

	Bulls	Heifers	Total	Mob av
No	74	80	154	
Mean weight (kg)	243	220		231
Max weight (kg)	306	271		306
Min weight (kg)	183	162		162

Male calves were retained as bulls as they were used in the CRC Male Fertility project

Weight ranges

Weight (kg)	Bulls		Heifers		Total	
	No	%	No	%	No	%
161-180			4	5	4	3
181-200	6	8	16	20	22	14
201-220	10	14	21	26	31	20
221-240	18	24	26	33	44	29
241-260	21	28	7	9	28	18
261-280	10	14	6	8	16	10
281-300	7	9			7	5
301-320	2	3			2	1
Total	74	100	80	100	154	100

Benefits of collecting good weaner weight data

Improved weaner management

Weighing enables smaller animals which may require special treatment to be identified and segregated. Segregation and appropriate supplementation is critical to the

success of early weaning. Even with normal weaners (>160 kg), it can improve targeting of supplements and overall management. Reduced bullying is a major benefit of segregation on size.

Knowing weight ranges and managing accordingly can also be an advantage at marketing as animals that are likely to be turned off at the same time i.e. lead of the steers are paddocked together.

Predict and plan steer and cull heifer turnoff

Knowing the number of animals in weight ranges enables forward planning of turnoff and management (table 1). For example if the annual weight gain is 160 kg there is likely to be 40 head above 400 kg compared to 58 if the annual gain is 180 kg. Subsequent strategic weighing can be used to monitor and update planning in response to seasonal conditions and markets.

Table 1. Male weaner weight ranges and estimated weights after 12 months

Weight 30/4/08 (kg)	No head	Estimated weight ranges after 12 mths	
		160 kg annual gain	180 kg annual gain
181-200	6	341-360	361-380
201-220	10	361-380	381-400
221-240	18	381-400	401-420
241-260	21	401-420	421-440
261-280	10	421-440	441-460
281-300	7	441-460	461-480
301-320	2	461-480	481-500
Total	74		

Heifer selection and management

Weaner heifer weight data can play a valuable role in heifer selection and the management of both joiner and cull heifers. Assessing weaner heifer weights in relation to target mating weights (Table 2) enables identification of:

- Heifers that cannot achieve target mating weight
- Heifers that could achieve target weight with energy and protein supplementation



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Queensland Government

Editorial

The Billaboo group are currently collecting pregnancy testing and weaning data as part of their data collection for their Reproductive Performance Producer Demonstration Site (PDS). Billaboo group members Bruce and Trudy Roberts and their family feature as this edition's Producer Profile as told by Gina Mace. Bruce and Trudy are heavily involved with the Billaboo groups PDS and hosted the recent Breeder Reproductive Performance and Management field day.

The Rolleston group have also held a meeting to progress their Market Compliance Producer demonstration site and have now also commenced data collection.

A Leucaena Open Day was recently held by the Biloela group where paddock selection, planting methods, and other factors affecting Leucaena establishment were discussed. On July 15 the Biloela group will host a field day showcasing their NLIS Producer Demonstration Site. All are welcome to attend, please contact Lindy Symes for more information. Don Menzies from Outcross Performance has been involved in the data collection of the NLIS PDS from the onset and has written about some of the advantages of collecting performance data for this edition.

The Mackenzie River and Broadsound groups have hosted reflection and review meetings discussing the effectiveness of management strategies used last year. The Broadsound group will discuss /learn about off-farm investment avenues in June.



The Bajool group inspected pasture and reviewed land management strategies at their last meeting in May.

The Middlemount group held a meeting to prioritise future topics in May and will host a marketing day in July. A Nutrition Edge workshop will also be held in Middlemount in late August. If you would like a seat at the Nutrition Edge workshop please let me know.

ProfitProbe input time is quickly approaching so an update on the new improved version of Probe has been provided by economist Rebecca Gowen. Our last newsletter featured an article from Townsville based Economist Bill Holmes, you'll find the second installment of this article in this edition. Bill's article discusses the difference between tax and management accounting.

Unfortunately for the CQ BEEF team, Gina Mace and her husband Alistair have moved to colder pastures and have joined her husband's family on a grazing and cropping business at St George. Gina will be sorely missed by the CQ BEEF team and the Billaboo group.

Special thanks to Heather Lees for making the newsletter beautiful and to the administration staff in Rockhampton for distribution.

In this edition we have included a feedback sheet. Your feedback would be greatly appreciated as we are always looking for interesting topics and ways to improve the newsletter. Happy reading.

Byrony Daniels, CQ BEEF editor

- Heifers that may require only non protein nitrogen (urea) supplementation.

Table 2. Heifer growth rates required to achieve a target mating weight of 300 kg

Weaning weight 1/5/10 (kg)	Weight gain to reach 300 kg (kg)	Av daily gain required to reach 300 kg (kg/hd/day)	
		Yearling mating 1/12/10 (214 days post weaning)	Two year old mating 1/12/11 (579 days post weaning)
160	140	0.65	0.24
180	120	0.56	0.21
200	100	0.47	0.17
220	80	0.37	0.14
240	60	0.28	0.10
260	40	0.19	0.07

As for steer turnoff, cull heifer weights can be used to assess likely future weights and turnoff options.

Measure paddock/group performance

The weight of calves weaned represents the production achieved by a paddock or animal

group. Given the time (18 months) and cost to produce a weaner, the weaner weight produced is an important consideration.

The principal determinant of weaner weight is birth date. Cows that conceive early in the joining produce the heaviest calves. If suckling calf growth is 0.75/kg/day, each month of calf age equates to 22.5 kg of weaner weight.

Delayed conceptions can arise from:

- Poor end of dry season cow condition
- Feed quality and quantity
- Cow fertility i.e. how quickly the cow cycles after calving and conceives. Using days to calving EBVs in bull selection provides a means of improving this trait in the herd.
- Fertility diseases such as vibriosis and trichomoniasis.

Knowing the number of weaners in weight ranges in addition to the average, maximum and minimum weaner weights enables a better assessment of the paddock and group

performance. Weight of calf weaned per cow mated has a role as a performance indicator. Like all performance indicators, how it is calculated and factors which can affect it i.e. weaning age need to be considered.

Assessing market options

Identifying the most profitable markets and turnoff age is the most critical issue for beef enterprises. To do this requires accurate weight data. It is critical to know the full range of weights. The high prices often achieved for the lead of a weaner mob can create a false impression. Weight data from all animals enables the overall value of the age group to be assessed.

Weaner handling and training

Weighing weaners can form a valuable part of the weaner training program.

Weighing procedures and data management

To maximise the value of cattle weights it is important that the curfew and weighing procedures are standardised for all cattle groups and data collections.

NLIS technology and herd management software enables individual performance to be more

easily monitored. For example slower growing animals can be more readily identified. However, mob based paper recording systems can provide valuable data for management and marketing of growing cattle. Such systems are an excellent starting point as they can be implemented quickly and easily. If you would like information on these systems and the recording sheets please contact the CQ *BEEF* team.



Mick Sullivan
DEEDI, Rockhampton

Key Points

- Weighing weaners is the ideal point to start implementing improved monitoring of growing animals.
- Weighing enables identification of animals which may require special treatment. Segregation of these animals is crucial for good weaner management.
- Weaner weights are valuable for planning the ongoing management and marketing of steers and cull heifers. They are equally useful in the selection and management of joiner heifers.
- Weaning weights are a measure of breeder performance and can be used in assessing it.
- Individual animal data allows detailed monitoring of individual performance but simpler mob based systems are available that can assist herd management and marketing.

Managing variability in beef herds

Don Menzies, Outcross Performance Pty Ltd
Ph: 07 4927 4160 www.outcross.com.au

Some of the questions often batted around the beef industry are ‘what is the value of a second round weaner versus a first round weaner’ and ‘how do we get our cattle to finish earlier’. These questions are not easily answered and the answer is very dependent on the country and environment you are working within. As beef producers, there are many things you can’t control but you can manage the variability that you see within your herd without having to make radical changes to your enterprise. Outlined below are some key points on animal performance with examples taken from

Central Queensland beef businesses tracking performance from branding to slaughter.

Early versus late calves

Everyone has a different opinion on the merits of tight calving patterns as opposed to calving year round. At the one extreme are people who say I would rather have a calf out of season than not at all whereas others would say you are just setting the cow up for a failure in future seasons when she can’t get back in calf due to lack of body condition.

The optimal time of calving varies depending on when you can expect your country to get the break in season. Data for the 2007 drop of calves from a breeding and fattening operation demonstrates the impact of calf birth month on performance and returns (table 1).

Table 1. Impact of birth month on carcase weight, gross price, market compliance and annualised return on investment

Birth month	No head	Age at sale (months)	Sale liveweight (kg)	Carcase weight (kg)	Average carcase price (\$/kg)	Gross price (\$/hd)	Market compliance %	Whole of life ADG (kg/hd/day)	Annualised ROI %
August	84	22.2	604	335	2.90	970	81	0.518	5
September	347	21.3	610	327	2.91	949	70	0.523	6
October	484	20.3	579	312	2.90	904	54	0.523	7
November	224	19.3	561	301	2.91	879	40	0.508	6
December	142	18.3	560	295	2.90	859	37	0.538	10
January	18	17.3	539	289	2.89	838	11	0.529	8
February	2	16.3	500	278	2.86	795	0	0.519	2

The results show a stark difference in the performance of the early calves to the late calves in terms of carcase weight, \$/head, compliance to the Jap Ox grid and annualised return on investment although this peaks with the December born calves.

It can often be difficult to achieve a tight calving pattern due to problems with bull exclusion and poor seasons but using pregnancy diagnosis with foetal aging you can maximise the number of calves in the desired calving window as well as managing those cows that fall out.

High versus low growth

The fact that average daily gain (ADG) is a major profit driver in the beef industry is well understood but how many operations are using ADG to make cull/keep decisions? A lot of factors come into valuing your enterprise but surely one of the most important question is ‘what could I get if my block was an agistment enterprise’. Common figures for agistment are between \$2.50 and \$4.00 per head per week for dry cattle. In the example below grow-out steers with a value of \$1.70/kg, agisted at \$3.50/week have to put on at least 0.3 kg/day just to cover the agistment fee (table 2). If you aren’t putting on that much weight you are paying more for agistment than the animal is increasing in value.

Table 2. Impact of average daily gain on value of weight gain for liveweight price of \$1.70/kg

ADG (kg/day)	Value of weekly weight gain (\$/wk)
0.1	1.19
0.2	2.38
0.3	3.57
0.4	4.76
0.5	5.95
0.6	7.14
0.7	8.33

Another critical consideration in relation to ADG is the additional time to turn off a low ADG animal and the lag in terms of return on investment. Table 3 shows the time required for a 35 kg birth weight calf to reach 600 kg for a range of average daily gains. To get a bullock to 600 kg when its whole of life ADG is 0.3 kg/day as opposed to another animal that is 0.5 kg/day it will taken an extra 24 months.

Table 3. Age at slaughter for 35 kg calf grown to 600 kg at a range of growth rates

Whole of life ADG (kg/hd/day)	Age at slaughter (days)	Age at slaughter (months)
0.3	1,883	61.9
0.4	1,413	46.4
0.5	1,130	37.2
0.6	942	31.0
0.7	807	26.5

Monitoring weights enables the value and earning potential of animals to be monitored during the production cycle. Table 4 shows data on a mob of 795 No. 4 Drop steers that were weighed progressively from branding to slaughter. The mob has been broken into ADG ranges, based on their ADG from branding to induction at the finishing property.

As the ADG from branding to induction increases the kill date and age at slaughter (months) decreases. The initial ADG trend appears to continue with the whole of life ADG showing the same trend. Carcase value is also increased as ADG increases probably due to animals being younger at slaughter and therefore having fewer teeth. Improving growth is the major opportunity for most enterprises trying to improve their market compliance.

If all other factors are equal (feed availability, disease burden, season etc) then an animal’s ADG is a direct result of its genetic potential, which won’t change throughout life so cull those animals that don’t perform.

Hopefully the two points above highlight the fact that managing the variability within your beef operation is as important as choosing the right operation for your country. The data illustrated is from commercial operations using standard NLIS technology to capture critical pieces of information. It is not futuristic research work but real life examples of using technology to assist in managing herd performance. Ask yourself ‘Am I harnessing the tools available to me to maximise the value on each individual animal and not be held back by the passengers in my herd’.

Table 4. Branding to induction weight gains, Whole of Life ADG, carcase value and slaughter age

Branding to Induction ADG Range (kg/hd/day)	No. head	Branding weight (kg)	Induction weight (kg)	Whole of Life ADG (kg/hd/day)	Kill date	Carcase value (\$)	Age at slaughter (months)
0.10 – 0.20	3	129	168	0.315	17/5/2007	690	42
0.21 – 0.30	82	144	230	0.417	10/2/2007	979	39
0.31 – 0.40	346	127	249	0.464	23/12/2006	1,022	37
0.41 – 0.50	328	117	271	0.504	7/11/2006	1,050	35
0.51 – 0.60	29	104	275	0.551	16/9/2006	1,071	33

Look out for tick fever!

Russell Bock from Tick Fever Centre warns that conditions are ideal for transmission of Anaplasmosis during the coming months and anticipates an escalation of Babesia cases particularly in spring. He explains the risk factors in the following notes.

Recent autumn rains may be good news for many producers, but they will also increase tick numbers, which is a serious risk for tick fever especially following a dry spell.

If you are in a tick area do not assume that there is adequate natural exposure of calves to ensure immunity. Eighty percent of all tick fever outbreaks occur in homebred cattle.

Why?

Calf exposure to infected ticks is the key to natural tick fever protection. However, exposure can be very unpredictable.

Cows that have either been previously exposed to tick fever or vaccinated against tick fever pass temporary protection (maternal antibody) against tick fever on to their calves through the colostrum. The colostrum protection only lasts about three months. In most calves this is followed by an age-related resistance that stays with the animal until about nine months of age. Calves exposed to tick fever when the age-related resistance is high rarely show clinical symptoms and develop a solid, long-lasting immunity. If this happens to all of your calves, tick fever will not be a problem, but they must be exposed to all three tick fever parasites.

If cattle are not exposed to tick fever as calves, the age resistance gradually wanes with time and these animals will become highly susceptible to tick fever. If exposed to tick fever later in life, cattle are likely to develop a severe life-threatening infection.

Many cattle producers say they like to see a few ticks on their cattle to ensure they are protected against tick fever, but does that work? An engorged female tick can produce more than 3000 seed ticks, but only a very small number of seed ticks (sometimes less than 1 in 1000) will carry the disease. Because of this, calves do not always become infected (and therefore protected) following exposure to ticks—even though it only takes one infected tick to transmit tick fever.

Ticks in themselves will affect production and most producers probably don't allow enough ticks on their cattle to be sure they are protected from tick fever. Low cattle tick numbers because



of dry seasons and strategic use of tickicides especially the longer acting tick development inhibitor Fluazuron (e.g. Acatak, Oztic, Wintik) can mean that a significant number of calves are not exposed to tick fever infections before they are nine months old and therefore not naturally immunised. For this reason, many cattle born during the past two to three years are now at risk.

Impact

Tick fever can have a devastating effect on herds, killing animals, causing abortions, and leaving others with loss of condition, loss of milk production and reduced fertility.

British and European breeds are most at risk but the condition can severely affect any breed of cattle.

As producers aim to build up cattle numbers again, demand for store cattle is likely to be very high. This may mean producers have to source cattle from different areas, and whether by choice or availability this may also mean buying different breeds. Both of these factors can alter the risk of tick fever occurring.

Tick numbers should fall over winter, but expect an explosion in spring—especially in the south-east and central Queensland areas.





Tick fever vaccine is readily available and cost effective

Tick fever vaccine is a 'live' vaccine that mimics natural infection and a vaccination program gives you peace of mind. It takes the guesswork away from the question 'Have all my weaners been exposed to natural infection'?

If we take a cattle herd with 500 weaner age cattle as an example and suppose there has been a significant tick challenge and 95% of them were naturally exposed to all three tick fever organisms before 9 months of age. That still leaves 25 head that are susceptible to at least one of the causes of tick fever when they reach the older more susceptible age group. The cost of buying vaccine for all 500 head would be \$1806.40 including freight and GST so if you save 2 to 3 head of the 25 susceptible cattle you have paid for the vaccine. In dry years or with good tick control or in marginal tick country it will be a lot more than 25 head you have protected in the long term.

Protect your investment and vaccinate your cattle as weaners, to be sure that they have immunity to all three tick fever organisms before they are most at risk as yearlings and adults. Winter is a good time to vaccinate your herd.

Vaccine is available in two forms:

- standard chilled vaccine with a shelf life of four days after it is despatched from the Tick Fever Centre, and
- Combavac 3 in 1 tick fever vaccine, which can be stored for up to five years in liquid nitrogen, but must be used within eight hours of being thawed.

More information

Tick Fever Centre
 Biosecurity Queensland
 280 Grindle Road Wacol, Qld 4076
 Phone: 07 3898 9655 Fax: 07 3898 9685
 Email: tfc@deedi.qld.gov.au
 Visit www.biosecurity.qld.gov.au and search for 'tick fever' or call 13 25 23

Lines written by a discontented cow on artificial insemination



Oh, I've just given birth to a heifer,
 Of pride and of milk I am full,
 But it's sad to relate that my lactual state,
 Was not brought about by a bull.
 I've never been 'naughty' — I swear it
 In spite of the calf I have borne,
 By Farmer Brown's tractor, I'm virgo intacta,
 I've NOT had a bull by the horn.
 How drab are the farmyard and meadow
 The shippon seems empty and gray,
 Now that one bit of fun in the year dreary run
 Has by science been taken away.

If what I've heard is the truth, sir,
 Unnatural though it may seem,
 A cow's female passion is all out of fashion
 And bulling is just a wet dream.
 I know that the farm is a business,
 In which we all pull our weight,
 Well, I'd pull and I'd pull for a strongly built bull,
 But this phoney business I HATE.
 It must not be thought that I'm jealous
 There are things that a that a cow shouldn't say,
 But these Land Army tarts who handle our parts
 Still get it the old fashioned way....

Observations on beef business performance

The following is a set of observations arising from my involvement first in surveying grazing enterprise profitability in western Queensland in the 1980s, and subsequently in performing options analysis on a whole lot more places in north Queensland.

Accounting framework – cash flow and profit

Business analysis, both of past and prospective performance, is based in accountancy concepts. The most fundamental is the understanding of cash flow and profit.

Cash flow is the net of all cash in and out. In the short term we need to pay attention to cash flow because it has to provide for the ongoing expenses of the business and the service of debt.

Profit is a 'wealth' concept that includes changes in asset values as well as cash flow. Thus the profit for a period should include any increase or decrease in the value of stock on hand (usually due to a change in numbers) and of other assets (especially due to depreciation). For any year, opening net worth at the start of the year, plus net profit, less drawings, equals net worth at the end of the year. Net profit therefore is the amount that can be drawn from the business without eroding net worth.

Over the longer term, periodic revaluations of fixed assets (land) will come into the picture also, with the increase being considered as capital gain rather than net profit. With asset revaluations included, net worth at end of year will equal net worth at start, plus net profit, less drawings, plus or minus asset revaluation.

The usual accounting period is 12 months. The production cycle for a beef business may be as much as five years from conception to sale of a bullock, or ten years or more based on the life of a cow, and some depreciating assets may last 20, 50 or even 100 years. The profit accounting process seeks to slice up these longer cycles into units of one year, and estimate what each of the cycles has contributed or cost for each year. The slicing up process is achieved by depreciating 'lumpy' capital investments and allowing for increases or decreases in livestock inventories as numbers fluctuate or herd composition changes.

It is possible to run a business to keep the cash flow coming, but end up broke because the assets have been used up. This is why profit has to include allowance for asset changes

(inventory and depreciation). There is a cliché that says you go broke in the short term from lack of cash flow, and in the long term from lack of profit.

It is another cliché that farmers/graziers live poor and die rich – meaning that the main game is the value of the asset more than what you can make off it.

Increasing land value (capital gain) is generally not accounted as profit, though it is certainly true that some businesses have stayed afloat whilst drawing more than the profit by borrowing against increased land value – in effect spending the capital gain before it is cashed.

From my western Queensland surveys of long ago, a number that stands out in my memory is that the top one third of graziers made approximately TWICE as much as the average of the whole group (\$ return on capital/ha). Only some of them lived poor.

Compliance (tax) accounting and management accounting

A lot of people don't understand their accounts, or don't believe them. In part this is because tax accounts have their own rules, some of which are designed to misrepresent the 'real' profit, deferring the declaration of profit upon which tax is calculated. This is not altogether without logic, since it bends the payment of tax more towards the availability of cash flow. It does however make the accounts less useful from a management perspective.

Areas of concern with compliance accounts are:

- Livestock trading accounts using 'valuation at cost' can end up with inventory values as low as \$20/hd, which of course grossly undervalues any change in numbers in any one year. The low values come about because 'natural increase' is brought into the calculation of closing value at the minimum allowable \$20/hd and this progressively pulls the average down. *To convert compliance accounts to management accounts, first recalculate the livestock trading accounts with realistic average inventory values.* Opening and closing values can differ if herd composition has changed during the year.
- Some items of capital expenditure are subject to 'accelerated depreciation' for tax purposes, and this can vary from one Federal Budget to the next. Accelerated



W.E. (Bill) Holmes
DEEDI, Townsville

depreciation rates of 20%, 33% or even 120% can replace 'real' rates of 2%, 5% etc. Accelerated depreciation can also mean that some quite young assets will no longer be on the depreciation list because they have been written off long before they are used up. *If the amounts are significant, consider adjusting the depreciation calculation.*

- Assets such as land will appear at the value at the time of the last partnership reorganisation. This does not affect profit calculation, though it is relevant when declaring assets and liabilities for loan applications, calculating return on assets, or looking at annualised capital appreciation. *To fix, redo the balance sheet with land at (conservative) current market value.*

For the accounts to give a 'true' representation of the profitability and value of the business, it is perfectly legitimate and useful to calculate a set of 'management' accounts, using the tax accounts but applying different rules to livestock trading accounts (essential) and depreciation (possibly).

More accounting – profit and cost structures

For a cattle business, the income side of the profit calculation usually will comprise the cattle trading account, plus maybe a separate bull trading account (more advantageous from tax standpoint), a horse trading account and some sundry income.

The cost side will have an array of cash costs, at least one major non-cash cost (depreciation), and financial costs (interest and leases, but NOT loan principal payments).

The accounts usually will not be split into fixed and variable costs, but this distinction is very useful when analysing business performance.

A variable cost is one which varies with small changes in enterprise size. For a cattle enterprise this means 'one more animal, one more unit of cost'. For cattle we define the variable costs for each class in the herd. Examples of variable costs are weaner feed, supplement licks, vaccinations, labour for mustering (debatable) and yard work. Another name for variable costs is direct costs.

Everything that cannot meet the test of 'one more animal ...' is either a fixed cost or a finance cost. On the above definition of variable costs, the fixed costs become those that remain the same regardless of (at least small) changes in animal numbers or herd composition.

Selling and transport costs are tied to number

sold rather than to number carried, so I prefer to deal with them by reducing sale prices to a net basis.

For the management of financial crises it is useful to separate fixed costs into discretionary and non-discretionary groups (wants and needs). Discretionary expenditures may include some of the labour, a lot of the machinery, and maintenance (discretionary at least to the extent of whether to do it this year or next).

For business performance analysis however the big distinction is between variable costs and everything else, since it lets us pull out a very useful performance measure, the gross margin. The gross margin for the cattle enterprise is the livestock trading profit less the variable costs. Since the variable costs are defined as 'one more animal, one more unit of cost' and the fixed costs are by definition not tied to animal numbers, any change in gross margin is exactly equal to the change in net profit.

The gross margin (GM) for the whole herd is usually then expressed as GM per adult equivalent (AE) or sometimes per unit of livestock capital. The AE is used as a proxy for feed consumption. The GM can be used at two levels – GM/AE at a predetermined stocking rate, and GM per unit area, which allows consideration of stocking rates.

Using this distinction between the gross margin on the cattle enterprise, and the fixed cost structure which that enterprise supports, we can attack profitability on at least two fronts – by questioning the level of fixed costs, and/or by analysing herd performance through the gross margins.

As an aside, I found in those surveys of long ago that the level of fixed costs tended to be driven by profitability rather than the other way around – in other words people spent what they could on their properties. The 'fixed costs' could arguably be considered to include elements of property development and investments in personal satisfaction. Since then I have left the cost cutting crusade to the consultants and concentrated my efforts on doing a better job of finding opportunities to improve the gross margins.

Accounting, budgeting and benchmarking

Accounting analyses the past, while budgeting analyses options for the future. Both use the same measures and conventions.

Benchmarking (which used to be known as 'comparative analysis' before it fell out of favour

with the agricultural economics profession) relies on accounting to compare businesses in the belief that this comparison will show how the less profitable can become more profitable by adopting the methods of the successful, using indicator ratios.

I learned a lot from the western Queensland surveys, which were comparative, and some previous work I did in NSW. One of the things I learned was that people's goals differ. In my groups the two or three at the top competed furiously while the ones at the bottom tried to

pretend it wasn't happening. So much for the good performers helping improve the rest.

Another thing I learned from ten years of data was the importance of one really good or bad decision in determining ranking within the group measured on the full term.

I also learned that the best explainers of comparative performance were the gross margins, the management practices that went to make them, and the obvious judgement and application of the owners, the latter for which I had no measure.

For those readers noticing a sudden stop in the narrative, the rest of the later part of this story appeared in a previous edition of *CQ BEEF*

Preparing for 'Probe' 2010

The next 'Probe' season is just around the corner so now is the time to start collating your data and making a checklist of what else you might need. The process for probe this year will be slightly different as you will now be able to download the required sheets directly from the RCS website, complete the sheets on your computer at your leisure and then reload them to the website to get an instant draft report. There are a couple of things to remember in regards to the new process.

1. You will need Excel 2007 to use the new version of Probe. If you don't already have Excel 2007, there are a couple of options available. You could purchase Office 2007 (prices range from \$150 – \$850 depending on whether you want a basic version or the professional version). You could also try using the free 60 day trial that Microsoft offer on their website. Just remember that you can only use this once and it may not be available next year.
2. To access the new sheets go to www.rcs.au.com/members and enter your log in details (we will forward these to you in the next couple of weeks). The actual input sheets will be available from mid-July and we will let you know exactly when. I will also send out more detailed instructions at that stage.
3. Download the sheets and make sure you save them to your computer in a place you can find them again.
4. When you are working on the input sheets, remember to save regularly and save a back up copy each day.
5. If you have problems completing the input sheets please contact us. The

contact details for everyone with 'Probe' knowledge are at the bottom of this article.

6. When you've finished completing the sheets, go back to the RCS website and follow the instructions to upload your files. You will be asked to attach your input file and enter your email address.
7. You should have a draft report back very quickly, depending on the speed of your internet connection and how busy the RCS server is.
8. CHECK your draft report. Please read it carefully and if you don't understand something give one of us a call.
9. Once you're happy the draft report is correct, you will need to email RCS to confirm this and they will then print the final report. As per usual, you will receive the final report at the Probe Interpretation meeting.

As the Probe analysis process should be much faster this year and everyone in *CQ BEEF* has done 'Probe' at least once, we are going to try to bring all the deadlines and meeting dates forward. Your group facilitator will work out exact dates for your group.

Probe help

Rebecca Gowen

Rebecca.gowen@deedi.qld.gov.au

(07) 4936 0205 0417 791 297

RCS

1800 356 004

Byrony Daniels

Byrony.daniels@deedi.qld.gov.au

(07) 4983 7467

Or your group facilitator.

Troy, Bruce, Trudy
and Carmel Roberts



Producer profile Bruce and Trudy Roberts Callistemon

BrUCE and Trudy Roberts operate a 15 400 ha aggregation consisting of three properties located around the Anakie, Springsure and Lochington districts.

Callistemon is the breeding block and is located approximately 100 km north-west of Springsure. It consists of 11 000 ha of pulled and blade ploughed brigalow with softwood scrub species. *Fairways* is one of two finishing blocks made up of 2200 ha of pulled brigalow/belah country with lighter soil and situated 30 km west of Emerald. *Westlyn* is the second of the finishing blocks located 35 km south of Springsure, and is made up of 2200 ha of black soil downs country with some brigalow.

Bruce and Trudy run the three properties as one operation breeding and fattening for the Jap Ox market and selling younger animals through MSA. 'In the past we have been targeting the Jap Ox market for our bigger animals and selling some of the younger animals through MSA' Trudy says. 'However this year we have just become accredited for the EU market and we are also looking to go more into MSA to turn off younger animals earlier'.

The Roberts' run a total herd of around 4700 head consisting of 1600 breeders and a further 200 breeders on agistment locally.

The Roberts' run a cross breeding operation with a base breeder herd of Santa Gertrudis cross breeding with Brahman, Droughtmaster and Charolais for hybrid vigor purposes. They run a control mating program, putting the bulls in early November until the end of February/early March. This sees the first of the calves on the ground from September, continuing until December. 'We normally pregnancy test everything except for the maidens at weaning, however this year we will be testing the maiden heifers as well' says Trudy. The reproductive rate across the whole herd averages 80% from mating to weaning, with a calving rate of 60% for the maidens. The calves are weaned at 6 to 9 months old, and the weaners are averaging a growth rate of 0.50 kg per day, weigh in at 300 kg at 12 months old. 'Normally we don't have to supplementary feed however because it was so dry last year we did have to supplement the maiden heifers' said Trudy.

Cows are removed from the breeder herd at eight years old and allowed to have their last calving at nine years old and then sold before they reach

ten with an average weight of 580 kg.

Once weaned, half the steers are moved from *Callistemon* to finish at *Fairways* and are sold up to three years old at an average weight of 630 kg. The cull heifers are taken to *Westlyn* to grow out and sold at 2.5 years old.

All stock are normally sold direct to the works, however this year some of the lighter tail have been sold direct to a feedlot. 'Last year the steers were finished using a production ration which worked well so we will look at using this again this year.' Trudy said 'We have also produced some silage this year to finish heifers and maybe some steers'.

Bruce and Trudy together with other Billaboo CQ BEEF group members have been working with project staff to develop an MLA Producer Demonstration Site looking into the management of reproductive diseases in central Queensland breeder herds. Bruce and Trudy are experiencing some losses to Pestivirus and have done some herd modelling using Breedcow Dynama to look into a number of different scenarios, one being whether they would be better off going out of breeders altogether. However the results of the modelling did support having breeders as long as their weaning rate was at 80% and the steers were gone by three years of age. At weaning time the weaners will be weighed and sub-samples of the breeder herd, across the different ages, will be bled for Pestivirus. 'This year as a part of the PDS we will also be pregnancy testing the maiden heifers as well as the rest of the breeder herd' said Trudy.

Over the last 2.5 years the Roberts' have been working on increasing stock numbers and using agistment as a practical option for doing this. They are hoping to be in a position where they can wean 1260 head in June this year. Bruce and Trudy have also been improving their livestock weight record keeping. They hope that these changes will allow the next generation to become more involved in the business. 'Carmel our eldest daughter and future son in law currently work and manage *Westlyn* in between their jobs as a teacher and working in the mine. Our son Troy goes between *Fairways* and *Callistemon*, working most of the time at *Callistemon*' said Trudy.

When asked why they are part of the CQ BEEF group and what their hopes are for being part of the project they commented 'We think it is great to be a part of the group as we are all doing the same thing but in slightly different ways and we can compare what we are all doing. We think the PDS will be very useful and help locate any obvious problems in our cows. It is great to have such a great group of staff working with us, and for us to be able to have access to these trained staff.'

Save \$: use NIRS DMD:CP ratio to determine start of urea supplementation

Felicity Hamlyn-Hill DEEDI, Charters Towers

Cost effective supplementation depends on knowing when, what and how much supplement to feed. It is also about predicting the 'response' to feeding. In the instance of commencing urea supplementation NIRS analysis of dung samples can help determine the likelihood of a response.

The amount of protein in a pasture diet will vary depending on a number of factors, one of these being the amount of green 'leaf' available. Depending on the land type if there is more than 30% green in the pasture, the stocking rate is right and there is a good body of feed to select from, then it may be possible for cattle to 'select out' a diet that has adequate protein for maintenance. If there is already sufficient protein in the diet, there may not be an economic response to feeding urea, until diet quality drops further.

NIRS (Near Infrared Reflectance Spectroscopy) technology was developed primarily to give us a better understanding of the quality of the diet cattle are grazing and from this we can determine their 'expected productivity'. Analysis of dung samples using NIRS is the best tool we have to estimate dietary crude protein (CP), dry matter digestibility DMD), dietary non-grass proportions and faecal N (Coates 2000). Although NIRS technology has many applications, one of the key applications is as a decision support tool to assist with

determining when to start feeding urea.

How can NIRS be used to assist with determining start of feeding? MLA funded Research (Dixon et al., 2008) showed that a response to Non Protein Nitrogen supplementation (i.e. urea) was most likely when the DMD:CP ratio was greater than 10:1 for spear grass pasture communities. For the Mitchell grass downs there is a greater likelihood of a response to urea when the DMD:CP ratio is 11-12:1 or greater.

For example if DMD is 55% and CP is 5.5% then the ratio is 10:1. As diet quality deteriorates and CP% then drops in relation to DMD the ratio will increase. For example if DMD stays at 55%, and CP% then drops to 5%, the ratio will increase to 11:1. If NIRS results show the DMD:CP ratio is between 8:1 and 10:1 there is increasingly likelihood of a response to urea, and this becomes more certain when the ratio is greater than 10:1 or 11:1 depending on the land type.

Note that on landtypes where there is quite high levels of native browse the NIRS results may show dietary CP levels well above that of the grass in the diet. These inflated figures present difficulties in assessing faecal NIRS predictions on high browse diets, which are high in condensed tannins. The tannins impact on digestibility and also the browse is often low in digestibility.

NIRS results should be used in conjunction with your own observations. These observations should include cattle condition, lactation status, pasture quality and quantity, pasture spoilage due to frost, grasshoppers, etc, plus recent rainfall events and how the rain fell.

Post-weaning diarrhoea

*Alan Laing DEEDI,
Ayr Research Station*

Post-weaning diarrhoea (PWD) is a very common condition in weaned calves in north Australia. It is mainly caused by two coccidia that are normal intestinal inhabitants, *Eimeria bovis* and *Eimeria zeurnii* which cattle contract within a day of birth from herd mates.

Under normal circumstances, coccidia cause no significant problems in cattle as they develop immunity and keep populations suppressed. If the immune system in the gut of a calf is compromised, the parasite can

rapidly reproduce and cause substantial damage to the lining of the intestines. This is expressed as bloody or black diarrhoea. Usually it takes about 4 weeks from the time of immune suppression to clinical disease.

This disease causes considerable losses both from deaths and lost production.

The parasite usually damages its own environment to the extent that it no longer has a suitable environment in which it

can successfully reproduce. This causes a rapid decline in intestinal populations and regression of the disease; i.e. the disease is typically self-limiting. This effect is usually potentiated by a recovery of immune competence following removal of whatever caused immune system impairment initially. Often, by this time there have been deaths and/or permanent effects turning animals into poor doers.

Stress can compromise immunocompetence of the whole animal. To exemplify its effect on PWD, experimentally, a single injection of steroid stress hormone can precipitate coccidiosis in weaners.

The immune system functioning in the intestinal lining requires a constant flow of digesta. Interruption to feed supply for as little as one day can compromise the gut's immune system and precipitate coccidiosis in weaned calves.

A young calf experiencing PWD may be a long way from the disease limiting itself as described above. If not given drugs to control the parasite, the calf may continue to suffer chronic intestinal damage from coccidia. If left

untreated, scarring of the intestine can occur, which may affect long-term growth. These animals become poor doers for whole of life.

Recommended methods of managing this disease include:

- Prevention is far better than having to treat or cure affected animals
- Ensure calves have access to nutritious palatable feedstuffs to satisfy voluntary feed intake from the point of weaning.
- In calves that may be at risk of stress or coccidiosis, include monensin (active ingredient of an Elanco product, Rumensin™) in a supplement (e.g. licks, meals or fortified molasses) to achieve intakes of approximately 25 mg/day.
- In calves that suffer severe and or chronic PWD, treat individually with Scourban™, a product which includes a coccidostat, an antibiotic and anti-diarrhoeal powders. Put in a management group by themselves and feed extra well with high quality supplements, for example, 1 to 2 kg per day of MUP (molasses, urea, protein meal).

Department of Employment, Economic Development and Innovation						
Byrony Daniels	Beef Industry Development Officer	Emerald	4983 7467	0427 746 434	byrony.daniels@deedi.qld.gov.au	
David Hickey	Beef Extension Officer	Rockhampton	4936 0217	0427 427 503	david.hickey@deedi.qld.gov.au	
Ken Murphy	Beef Extension Officer	Rockhampton	4936 0337	0419 585 412	ken.murphy@deedi.qld.gov.au	
Lindy Symes	Beef Industry Development Officer	Biloela	4992 9178	0428 104 248	lindy.symes@deedi.qld.gov.au	
Mick Sullivan	Beef Industry Development Officer	Rockhampton	4936 0239	0428 104 374	mick.sullivan@deedi.qld.gov.au	
Rebecca Gowen	Agricultural Economist	Rockhampton	4936 0205	0417 791 297	rebecca.gowen@deedi.qld.gov.au	
Peggy Rohan	Beef Industry Development Officer	Emerald	4983 7413	0427 019 287	peggy.rohan@deedi.qld.gov.au	
Fitzroy Basin Association						
Gina Mace	Grazing Land Management Officer	Emerald	4987 7904	0429 992 810	gina.mace@fba.org.au	
Jill Lyons	Three Rivers Catchment Coordinator	Rockhampton	4999 2820	0427 992 800	jill.lyons@fba.org.au	
Joe O'Reagain	Grazing Land Management Officer	Biloela	4992 5417	0427 572 200	joe.o'reagain@fba.org.au	
Kristie Rudd	Isaac/Connors Catchment Field Officer	Middlemount	4985 7511	0428 985 440	kristie.rudd@fba.org.au	
Kate Wilson	Mackenzie Catchment Field Officer	Emerald		0429 992 822	kate.wilson@fba.org.au	
Kellie Nilsson	Dawson Callide Catchment Coordinator	Theodore	4993 1004	0417 938 022	knilsson.dcca@bigpond.com	
Lisa Sutton	FRCC Project Officer	Rockhampton	4921 3834	0428 123 017	lisa.sutton@frcc.org.au	
Sara Cue	Lower Dawson Field Officer	Wowan	4993 1777	0417 938 739	scuedcca@bigpond.com	
Bronwyn Roberts	Farm Project Development Officer	Emerald	4982 2996	0427 326 400	bronwyn@chrrup.org	
Vicki Horstman	BMP Officer	Emerald	4982 2986	0427 320 539	vicki@chrrup.org	
Prue Becker	Grazing Land Management Support Officer	Biloela	4992 5417	0457 789 219	prue.becker@fba.org.au	