Queensland **the Smart State**

beeftalk

Taking stock of your future

Prime news and views for beef producers of south-east Queensland

in this issue

editorial

Since our last edition of *Beeftalk* we have had good rain over much of south east Queensland. This has lead to very good pasture growth. The region, in general, looks the best it has for many years, although there are still areas that need run-off rain.

The improved pasture conditions provide a good opportunity to review your dry season and drought management plan.

The main feature in this edition is training to improve knowledge and skills and, ultimately, your income.

We ask the question, 'Can you afford not to undertake training?'

We also have a mix of articles on topics ranging from estimating the nutritive value of pasture, to calculating the real cost of a supplement, to information in the new vendor declaration/waybill and marketing.

As a result of feedback from readers, we have included a yearly 'Timely Tips' calendar. We hope you find this calendar helpful and look forward to your comments.

Good reading!

The Eds

Issue 17 autumn 2004

ISSN 1326 6101

Department of Primary Industries and Fisheries Queensland Government

Pasture quality – impacts on production

The quality of forage is largely determined by plant age, plant species and soil fertility. Forage quality and therefore animal production is highest when pastures are in the early phases of growth.

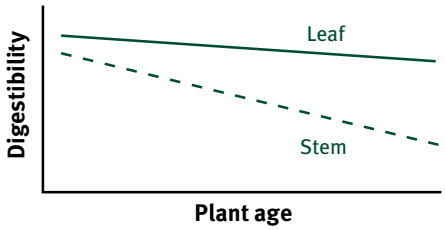
As pastures are most susceptible to grazing pressure in the very early phase of growth there is a trade-off between what is best for cattle and what is best for the pasture.

Factors determining pasture quality

Plant age

Plant growth is seasonal and can be broadly summarised into four phases of growth. Feed quality is highest in the early stages of growth. As pasture plants mature they become less digestible and protein levels fall.

Young leaf is the most digestible portion of a plant. Leaf is more digestible than stem. As plants mature the portion of young leaf decreases and the portion of stem to leaf increases, thus the digestibility decreases. This decrease in digestibility is due to an increase in the fibre (cell wall) relative to the more digestible cell contents.



Much of the protein in plants is associated with photosynthesis, so protein levels are highest in young green leaves. Proportion of green in the pasture is a good indicator of quality.

Where there is less than 10% green in the pasture, cattle have difficulty selecting it in their diet. However once the proportion of green in the pasture reaches 30%, cattle select over 80% of their diet as green feed.

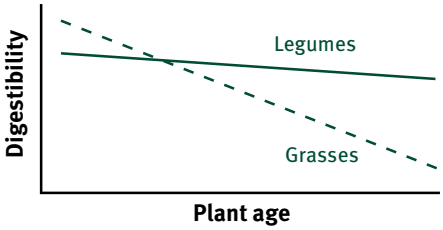
Plant species

As leaf is more digestible than stem, grasses that provide a high proportion of leaf relative to stem are of higher quality. Leafy grasses such as rhodes grass and the bluegrasses are of better quality than stemmy grasses such as the wiregrasses and lovegrasses.

In fresh growth, grass is more digestible than legumes. However as the pasture matures, the digestibility of the grass component falls more rapidly than the digestibility of the legume component. Legumes also provide more protein than grasses, especially as they mature.

The role of legumes in the pasture is primarily to provide high quality feed at times when the grasses are maturing, such as in the late summer and early winter. Where sown legumes such as stylo and Wynn cassia are established in a pasture, they can lift annual liveweight gains by 30 to 50 kg.

Soil fertility



Soil fertility has a big impact on pasture yield. The availability of nutrients in plants is also a reflection of soil fertility. Not only will there be more forage grown on a fertile soil (such as a cracking clay) than on an infertile soil (such as a granite sand) but the relative proportions of nitrogen and phosphorus etc. will also be higher.

Impacts of pasture quality on animal production

The quality of forage has a large impact on animal performance. In the following example we will determine the nutrient requirements for a lactating

Phase of growth	Description	Dry matter (DM)	Digestibility (%)	ME (MJ)	Protein (%)
Phase 1	Early, rapid growth	Low (<30% DM)	70	10	10–16
Phase 2	Beginning to grow stem, mostly green	Med (30–50%)	60	8.5	8–10
Phase 3	Flowering and seed set, growth slows, 10-30% green	Med/High (50–70%)	55	7.5	6–8
Phase 4	Senescence, no growth, no green	High (>80%)	50	6.5	3–6

Pasture	Feed intake (kg)	Energy intake (MJME)	Energy requirements (MJME)	Energy surplus or deficit (MJME)	Protein intake (g)	Protein requirement (g)	Protein surplus or deficit (g)
Phase 1	10.4	104	75	+29	1248	864	+384
Phase 4	6.4	42	75	-33	256	864	-608

cow and look at what impact pasture quality has on her ability to meet those requirements.

Nutrient requirements

A 400 kg lactating cow will require 75 MJME and 864 g of protein per day just to maintain weight.

Feed intake

As digestibility decreases so does an animal's intake of pasture. Intakes may be as high as 2.6% of liveweight on young pasture and drop to 1.6% or less on poor quality mature pasture. So the decrease in pasture quality has a two-fold effect: the pasture is of lower feed value and the animal eats less.

Our 400 kg lactating cow will eat, on a dry matter basis, about 10.4 kg (2.6% of bodyweight) of a phase 1 pasture per day. However, on a phase 4 pasture her daily dry matter intake drops to about 6.4 kg (1.6% of her bodyweight).

Daily nutrient intake

From the table above, phase 1 pasture supplies 10 MJME/kg DM and is 12% crude protein; phase 4 pasture supplies 6.5 MJME/kg DM and is 4% crude protein.

The balance between what a lactating cow can eat each day and what she requires can be summarized in the table above.

Phase 1 pasture easily meets the nutrient requirements for a lactating cow. However, when she is grazing a phase 4 pasture she is severely deficient in both energy and protein and looses weight rapidly.

This example highlights the importance of avoiding late born calves. Cows that calve in March to April hit their peak lactation in June to August. This is the time of year when feed quality is usually poorest. As breeders in this situation usually loose a lot of weight they are slow to go back into calf. As milk production is reduced, the calf usually suffers as well.

Further information:

Bill Schulke
Department of
Primary Industries and Fisheries
Bundaberg
Phone: 07 4131 5828
Email: bill.schulke@dpi.qld.gov.au

Measures of quality

The important measures of quality are digestibility, energy content and protein content.

Digestibility is a measure of how much of a feed is actually broken down and absorbed by an animal. It is expressed as a percentage and varies between 90% for high quality concentrates to 50% or less for poor quality roughages.

For ruminants we are interested in how much *energy* in a feed is able to be absorbed in a form useful for metabolism. We work in Megajoules (the unit of measure) of Metabolisable Energy (the type of energy). It is expressed as MJME.

Protein is an important nutrient for tissue growth and is also an important nutrient for rumen microbes. It is expressed as a percentage of a feed. Nutrient requirements of animals are expressed in grams per day (g/day).

Impacts of cattle on pasture

Feed quality is best in the first phase of pasture growth. However, this is the time when pastures are most susceptible to heavy grazing.

Most of our pasture systems are based on perennial grasses (introduced or native). Perennial grasses rely on stored root reserves to produce new leaf early in the growing season. As the season progresses and the grass plants produce more leaf, photosynthesis provides the energy for growth. As the pasture plants mature, carbohydrates are moved back into the root system.

Continually removing new leaves in the first phase of growth depletes the stored root reserves and prevents them from being replenished. As a result the tussock can die. If this happens throughout the entire pasture, land condition and productivity will gradually reduce over several seasons.

The challenge for grazing managers is getting the balance right between what is best for the cattle and what is best for the pasture.

Seasonal outlook – Where are we now?

- Early February rain in many parts of Queensland was due to the influence of the Madden Julian Oscillation (MJO) or 40 day wave (see Beeftalk No. 15, 'The 40 day wave' – what is it?)
- The MJO last impacted on our climate system between Christmas and New Year and is expected again in mid March.
- At this time of year the MJO can intensify the monsoon season and help trigger cyclones if there are any existing low-pressure systems in the Coral Sea. This can initiate westerly wind bursts in the Pacific which can to help start an El Niño event.
- The Bureau of Meteorology does not believe there is a strong likelihood of an El Niño developing in the short term. The Bureau also states that the recent Kelvin Wave of sub surface warming (a wave of warm water that moves eastward along the equator) should have only a minor impact on SST in the eastern Pacific when the wave reaches the South American coast in the next two to four weeks.
- The United States Climate Prediction Centre (CPC) www.cpc.ncep.noaa.gov/ in their February update they placed a lot more emphasis on the December MJO passage and the effect it had on producing a Kelvin Wave which can be an early indicator of the risk of an El Niño developing. Key times to watch for the development of an El Niño will be during March to June.
- Ocean and coupled ocean/atmosphere forecast models are used to show likely SST development out to 9 months. Of 11 models that forecast out to June, 6 indicate the continuation of a neutral SST pattern while 5 suggest the potential development of an El Niño (or warm) SST pattern.
- While it is positive that around half of these models highlight a continuing neutral SST pattern (rather than an El Niño), our policy remains to recommend caution when considering the longer term outlook given current conditions. It's also worth remembering that over autumn and early winter most models fall away in their forecasting skill.
- In short the best option is to monitor the SOI at the end of May, generally a negative SOI indicates greater chances of drier conditions.

Further information
David McRae
Department of Primary Industries and Fisheries
Toowoomba
Phone: 07 4688 1459
Email: david.mcrae@dpi.qld.gov.au

Climate package gives rainfall insights

Farmers, graziers and businesses looking for an insight into rainfall during the coming season will welcome the release of the new "Rainman +StreamFlow" climate analysis and education package.

Department of Primary Industries and Fisheries Queensland project leader Jeff Clewett said the package provided climate information that could lead to better management, higher profits and improved land care.

Dr Clewett said some new features of Rainman Streamflow were world-wide rainfall data for 9500 locations and streamflow data for 400 Australian stations, the ability to compare and map the severity of droughts, and easy checking of when seasonal forecasts might be useful.

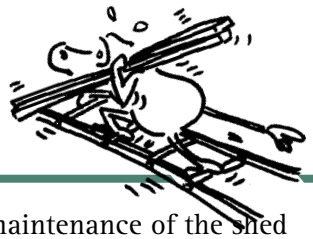
He said primary producers could use either their own rainfall records or historical data in the package to assess drought and seasonal forecasts.

"The detailed climate and river flow analyses in Rainman Streamflow are comprehensive and combine very well with the broad-scale three month seasonal forecasts and commentary issued by climatologists each month.

"One of the great advantages of Rainman StreamFlow is its ability to do in-depth tests on the accuracy and reliability of SOI-based forecasts for a particular location or season, and map the chances of rainfall for one location relative to others.

"Examples of information that

Fodder sheds – beware the costs



With the drought there has been considerable interest in hydroponically sprouting barley grain for 5 to 8 days to produce lush green sprouts as cattle feed. Though turning one kilogram of grain into 6 to 9 kilograms of lush sprouts any time of the year is appealing, the weight increase is due to water and comes at a considerable cost.

Overall sprouts are highly nutritious but expensive in terms of capital, labour, ingredients, running costs and risk. The high water content introduces logistical considerations in handling and total feed production, and mould is a common problem.

If evaluating a fodder shed, consider

- **Costs**
  - initial cost of the shed
  - depreciation
  - interest on money borrowed or not earned if the money had been otherwise invested
  - purchase of good quality grain
  - operation and maintenance of the shed
  - alternative uses for the money
- **Labour**
  - to run a shed properly requires 2 to 4 hours work every day
  - to learn a new enterprise
  - to research and overcome problems
- **Feed**
  - 1 kg of grain produces 6 to 9 kg of sprouts
  - sprouts are 80 to 90 per cent moisture
  - the increase in weight is due to an increase in moisture content
  - feed value of sprouts is little different from that of grain
- **Problems**
  - *Mould can be a major problem which may make the shed inoperable.*

Assuming

- a shed costs $70,000 to construct
- grain costs of $250 per tonne
- 100 kg grain produces 750 kg sprouts at 12% dry matter, then

one tonne of dry sprouts costs $1,022, compared with 1 tonne of dry grain at $278.

These figures are calculated by assigning costs to the dry matter of grain into the system and dry matter of sprouts out of the system. For example, with grain at $250/t then 100 kg of grain costs $25. Ten percent of the grain is water so the actual dry matter in 100 kg of grain is 90 kg. So the grain into the system costs **$25 for 90 kg** of dry matter (DM) or $278/t DM. If the sprouts are 12% DM, the actual weight of dry matter in 750 kg of sprouts is 90 kg. Assuming the daily input costs of power ($2.20), nutrients and chemicals ($2.80), labour ($30), depreciation ($19), interest ($13) and grain ($25) results in **$92 for 90 kg** of dry matter or $1,022/t DM.

Further information:

Roger Sneath
Department of Primary Industries and Fisheries
Dalby
Ph: 07 4669 0808
Email:
roger.sneath@dpi.qld.gov.au

can be generated are the chances of getting say 200mm of rain in the next cropping season, the severity of drought over the last two years, when the wet season is likely to start, how often rainfall events of say 25mm occur, on how many days is the river likely to flood during an El Niño, the chances of river flow for irrigation, and how a La Niña might affect rainfall in other countries."

Rainman StreamFlow was developed by the DPI&F, with support from many organisations including Land & Water Australia and the Bureau of Meteorology.

Cost of the program ranges from $125 for the standard version to $450 for professional version.

If producers are interested in learning more about the package DPI&F staff can conduct a half day workshop on Rainman and how to use it. The cost is negotiable with 10-15 people needed for a course.

To find out more about the program contact:

The DPI&F Call Centre on 13 25 23

More details at http://www.dpi.qld.gov.au/rainman/default.html

The AUS-MEAT language

If you had a VVS-1, 'Ideal', D, 2.5 you would know without seeing it that you had a spectacular diamond with excellent clarity, cut, colour and carat weight (the 4 Cs). With a standard language anyone in the world knows exactly what the diamond is like without seeing it.

AUS-MEAT language is a set of objective descriptions for meat and livestock that can be used by beef producers, abattoirs, wholesalers, retailers and the food service industry. It is a common language that enables all sectors of the industry to communicate their requirements to each other clearly and concisely.

AUS-MEAT stands for the Authority for the Uniform Specification of Meat and Livestock.

Characteristic	How it is measured	What it indicates
Sex	SSC – Male, entire, with secondary sex characteristics (bull) M Male, without secondary sex characteristics F – Female	Affects eating quality especially bulls (SSC). Little eating quality differences between M and F.
Dentition	Number of permanent erupted incisor teeth	Indicator of age. Younger cattle, more tender meat.
Fat P8 (mm)	Manual measurement using 'cut and measure' at the P8 site.	Yield indicator
HSCW (kg) (Hot standard carcase weight)	Hot weight of AUS-MEAT Standard Trim Carcase.	Determined of carcase value
Bruising	AUS-MEAT bruise score 1 to 9	Indicates quality and yield. Indicates handling problems.

AUS-MEAT slaughter floor language

The slaughter floor and chiller assessment language provides valuable feedback to producers on how well the carcase has met market specifications.

- AUS-MEAT slaughter floor language objectively describes yield and quality as they impact on the value and use of the carcase. It is used as a trading language for over-the-hooks sales and by meat retailers.

AUS-MEAT beef quality (chiller)

Assessment of beef quality focuses on key factors that influence carcase eating quality and yield. Assessment takes place in the chiller and provides a system by which customers, both export and domestic, can order and obtain a consistent product. Marbling, meat and fat colour, and eye muscle area are all measured on the rib eye muscle on a quartered carcase.

Feedback

All producers who sell over-the-hooks or by AuctionPlus to AUS-MEAT-accredited abattoirs will get feedback, using AUS-MEAT language, including the company's grade and value for each carcase. They also outline the specifications of relevant markets using the same language. This feedback is valuable for identifying problems and opportunities to improve production to meet specifications.

Characteristic	How it is measured	What it indicates
Marbling	Scale of 0 (least marbling) to 6 (most marbling)	Marbling is requested by some markets e.g. Japan, hospitality. Believed to indicate increased flavour and juiciness.
Meat colour	Scale of 1a (very pale, white veal) to 7 (very dark, dark cutter)	Influences consumers' purchase decisions. Consumers generally want light red to cherry red meat. Meat colour changes with maturity and is influenced by handling and slaughter conditions.
Fat colour	Colour of intermuscular fat (seam fat, not surface fat) Scale of 0 (white) to 9 (yellow)	Consumers prefer creamy white fat. Colour of fat generally indicates feeding regime, and some breeds are more susceptible to yellow fat. Cattle on green grass tend to have yellow fat. Grain feeding over a period of time produces white fat.
Rib gat thickness (mm)	Depth of the sub-cutaneous fat at a point three quarters along the lateral edge of the eye muscle from the chine, at the 10-11 rib site	Used by some customers in specifications. Has some influence on yield.

Store cattle language

The basic language used to describe store cattle includes fat score, liveweight, sex and dentition. Other descriptions that may be used include breed content, frame score, muscle score, pregnancy status, horn status, temperament, structure, colour, tail status and hide condition. A number of these factors can be used to describe the maturity type of an animal, which provides a guide to how quickly cattle will grow and at what weight cattle will fatten.

Further information:

Live, Chiller and Slaughter Floor standards can be purchased from AUS-MEAT
Phone: 1800 621 903
Website: www.ausmeat.com.au

This is a publication from the South Dakota State University Cooperative Extension Service on drought management. It appears the basics of drought management are the same the world over.

Managing pastures during and after drought

Barry H. Dunn and Patricia S. Johnson
Animal and Range Sciences Department

Drought provides dramatic evidence of the role of short and long-term management of native rangeland and tame pastures. Proper management of range and pasture resources during drought is critical for sustainable livestock production and centers on one key strategy:

reducing stocking rate

Failure to reduce stocking during drought may result in one or all of the following consequences:

- Destruction of plant growth buds needed for re-growth.
- Lost ability of the pasture to capture snow that serves as an insulating blanket and decreases winterkill of plants.
- Decreased water infiltration from precipitation due to increased runoff, which decreases the amount of precipitation available to plants for growth and reproduction.
- A change in the plant community, which could decrease future production.
- Increase in invasive, non-productive, plant species.

Proper range and pasture management during drought

Reduce stocking rate using one or more of the following strategies:

- Dry lot livestock. This requires facilities and increases labour and manure.
- Early wean calves. This reduces cows' demand for forage by 20%.
- Supplemental feed cows or creep feed calves. Hay and energy supplements can replace feed from pastures. Protein supplements can actually increase forage demand.
- Remove cattle either through selling or by shipping them to another area not affected by drought.
- Designate a sacrifice pasture where supplements are fed. This limits negative impacts to a confined area.

Proper range and pasture management during recovery from drought

- Continue reduced stocking rates for at least one year to allow for recovery.
- Delay turnout using supplemental feeds.
- Graze on cereal grains or annual grasses like Sudan grass to defer grazing on pastures.
- Fertilize tame pastures to boost recovery.

Be diligent in control of invasive species.

Interested in the EU Market?

Prices for cattle eligible for the European Union (EU) market have consistently been above that for other markets but there is more work involved in meeting their stringent requirements.

Australia has an annual quota of 7000 tonnes of HGP-free (hormonal growth promotant free) beef to the EU market. High value cuts, constituting around 15% of the carcase, are sent, which requires around 140,000 to 200,000 head of eligible cattle.

These are the main requirements for becoming accredited to supply this market:

- Cattle must never have been treated with HGPs.
- Properties must be accredited for supplying the EU market and can only run EU-accredited cattle.
- The business must become a participant in the National Livestock Identification Scheme (NLIS).
- Approved NLIS radio frequency identification devices must be fitted to all animals sold for the EU market.
- All weaned animals in accredited herds must have NLIS tags within 12 months of the property becoming accredited.
- Any cattle brought onto the property (except bulls for breeding and up to five designated house cows) must be sourced from EU-accredited properties and the NLIS database notified. (Accredited producers, feedlots and processors are listed on the MLA website).
- Change of stock ownership and stock movements on and off the property (except for short term emergency agistment stock) must be reported to and recorded on the NLIS database.
- To retain eligibility stock can only be sold through accredited saleyards or abattoirs or direct to another accredited property and must have correct identification and documentation

Some important questions to ask when considering accreditation are

- Can I produce enough cattle to meet EU specifications to make it worthwhile?
- Am I prepared to keep the records consistently up to date?
- Am I prepared to deal in only EU-eligible stock?

Potential advantages

For many producers the advantages compensate for their outlay of electronic ear tags and the time required for extra record keeping:

- a substantial price premium (30 cents per kg dressed weight is not uncommon)
- management advantages with good records such as measuring genetics and performance
- can opt out of the Scheme at any time if you find it is unsuitable
- can sell to other markets if there is better money, not dedicated to go to the EU.

Potential disadvantages

- cost of NLIS electronic ear tags or boluses ($3.60 – $5.80) and applicator
- optional: cost of a scanner ($1500 to more than $3000), computer and software
- diligent record keeping is required, matching numbers, accounting for lost tags and notifying the NLIS database
- can not deal in any ineligible stock on an EU-accredited property
- can not use HGPs on an EU-accredited property
- agistment of your EU-accredited stock is limited to EU-accredited properties, and only EU-accredited stock can be brought in for agistment on your EU-accredited property
- sourcing EU stock to purchase (a breeder fattener has an advantage in not needing to source EU stock).

Specifications

Being accredited to produce animals eligible for the EU market does not automatically guarantee they will be graded as suitable for that market. Carcasses must meet certain specifications to be eligible. General specifications are

- HGP-free
- heifers or steers
- carcase weights 240–339 kg
- 0–4 teeth
- 7–23 mm P8 fat
- light meat colour
- minimum C muscle
- grass or grain fed.

It is best to check with processors or agents for exact specifications.

Accredited processors in Queensland

Consolidated Meat Group Pty Ltd
Australia Meat Holdings Pty Ltd, Cecil Plains Road, Aubigny
Australia Meat Holdings Pty Ltd, Dinmore
Teys Bros Pty Ltd, Beenleigh
Teys Bros Pty Ltd, Biloela
Oakey Abattoir Pty Ltd.

Accredited saleyards in Queensland

Emerald saleyards
Gracemere saleyards
Moura saleyards
Roma-Bungil saleyards
Stanthorpe saleyards.

Further information

Further information on the EU market is available from

- local DPI&F stock inspectors
- NLIS database: www.mla.com.au for EU-accredited producers, feedlots, processors, saleyards
- DPI&F website: www.dpi.qld.gov.au /health/3603.html
- the DPI&F note 'Producing cattle for European markets', available from the DPI&F Call Centre, phone 13 25 23
- MLA Hotline: Ph 1800 635 445.

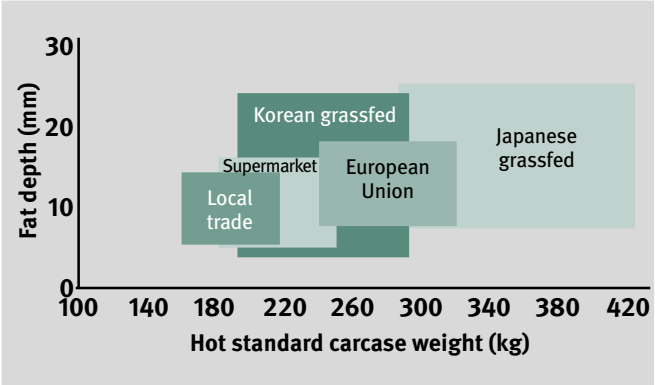
Am I selling or marketing cattle?

Selling is transferring ownership of livestock you have produced to the meatworks or store buyer.

Marketing is an overall management process of identifying, anticipating and satisfying customers' demands, for a profit. Marketing involves identifying customers and their needs, knowing what you can produce profitably, and using feedback to refine production and services.

Some steps include identifying:

- What are the main markets? (e.g. domestic, Japan, US, Korea, live export, others)
- What have we got now? (feedback, property records)
- What are the market trends? (market intelligence, e.g. MLA reports, customer communication)
- What can we produce profitably? (records, analyse enterprise and market options)
- Who are my target customers? (producers, feedlots, processors, retailers, consumers)
- What do they want? (specifications, use of standard language, other needs)
- Focus production and services (breeding objectives, best practice, accreditations, training)
- Promotion (objective data on product performance)
- Selling method (abattoir, agents, saleyards, private, AuctionsPlus, contracts, alliances)
- Delivering to the customer's expectations (live animal assessment to specifications, paperwork, other needs)
- Feedback on customer satisfaction (analyse feedback, follow up with customer as required)



- Refining production to specifications (adjust breeding objectives, management practices, measure results)
- Who can help? (own research, training, agents, government, friends, customers)

Market specifications

Your customer's specifications indicate the traits of greatest value to them. The best way to find out is directly from your customer. Examples of the main markets are depicted in the figure below. USA accepts most cattle, preferably greater than 220 kg HSCW.

Market intelligence

Meat & Livestock Australia (MLA) provides useful market information, as written reports via the web or email. As a cattle producer you can register with MLA for free and receive a number of free reports; other reports are for sale. MLA also provide a free weekly email news update. Subscription is via their website at www.mla.com.au. The farmshed website provides a similar news service at www.thefarmshed.com.au. MLA can also be contacted on the MLA Hotline 1800 635 445.

Further information:

Roger Sneath
Department of Primary Industries and Fisheries
Dalby
Phone: 07 4669 0808
Email: roger.sneath@dpi.qld.gov.au

What is the economics of ...?

- What if I sell weaners versus two year olds?
- How much more can I spend on a good bull?
- What return do I get from supplementing?
- What if I buy more land?

A simple format for assessing management options is to use a whole farm approach to modelling your current assets, income and cost structure and comparing this to a proposed new management system. If the figures look good, then do the sums in detail and carefully consider the cash flow needed to get there. The sums are easy to do on paper and even easier using spreadsheets.

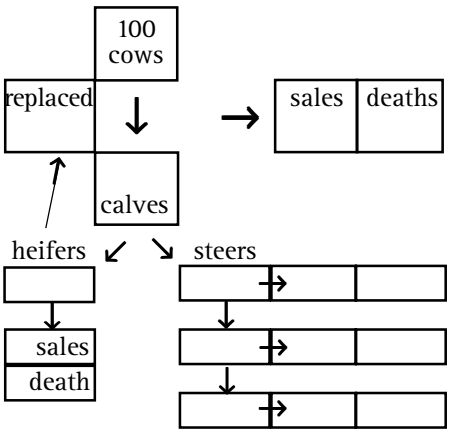
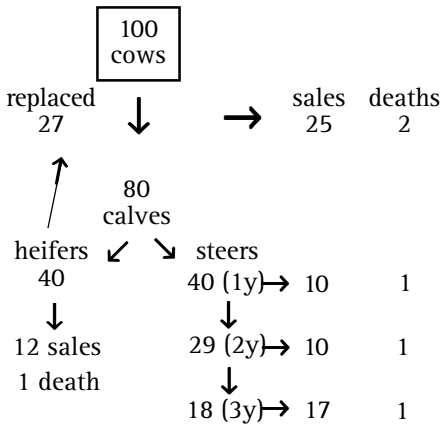
A template and a simple example of a 100-cow herd are provided.

You can redo the figures for your property or an alternative and compare the assets, liability, income and costs involved in each. It is also important to consider changes in lifestyle, whether the stock grazing pressure will be the same, and the impact of risks such as changes in climate, markets, finance, personal situation, and resource sustainability.

If the figures don't look right then they probably aren't, so be critical.

This basic format can be used for any business. It allows you to evaluate the impact of changes in capital invested, productivity, prices and costs. However while the format allows you to derive many financial benchmark figures, additional indicators are needed to monitor changes in land and pasture resources.

Some example benchmark figures:

	Template	Example
Describe the farm plan	Plan: Land: Stock rate: Carry capacity: Stock:	Plan: Run breeders, turn off 2.5-3 yo steers to Japan Land: 1000 hectares pasture Stock rate: 4 ha per adult equivalent (AE) Carry capacity: 1000 ha ÷ 4 ha/AE = 250 AEs Stock: 100 breeders x 2.5 AE = 250 AEs
Model the production system	100 cow herd model  From the 100-cow model then scale your numbers up or down to your herd size.	100 cow herd model  From the 100-cow model then scale your numbers up or down to your herd size.
Calculate the grazing pressure using AEs (Adult Equivalents)	Head AE/hd AEs Cows Heifers Steers Steers Steers Bulls	Head AE/hd AEs Cows 100 Heifers 27 Steers 40 Steers 29 Steers 18 Bulls 3 250 Graze pressure: 250 AE per 100 cows = 2.5 AE/cow

	Template		Example	
Assets				
Land	___ ha x $ ___/ha	= $ ____	1000 ha x $500/ha	= $ 500,000
Livestock		= $ ____	100 cows+followers x $1,100	= $ 109,950
Machinery		= $ ____		= $ 40,000
Inventories		= $ ____	e.g. hay etc	= $ 5,000
Cash		= $ ____		= $ 10,000
Total assets		= $ ____		= $ 664,950
Liabilities		= $ ____		= $ 0
Equity=assets-liabilities		= $ ____		= $ 664,950 (100%)
Gross income	Number x kg x cents/kg	= Total	Number x kg x cents/kg	= Total
Steers	____ x ____ x ____	= $ ____	10 x 250 kg x $1.70	= $ 4,250
Steers	____ x ____ x ____	= $ ____	10 x 450 kg x $1.70	= $ 7,650
Steers	____ x ____ x ____	= $ ____	17 x 600 kg x $1.70	= $ 17,340
Heifers	____ x ____ x ____	= $ ____	12 x 350 kg x $1.50	= $ 6,300
Cows	____ x ____ x ____	= $ ____	25 x 450 kg x $1.20	= $ 13,500
Bulls	____ x ____ x ____	= $ ____	1 x 750 kg x $1.20	= $ 900
Total		= $ ____ (1)		= $ 49,940 (1)
Variable Expenses				
Livestock purchases	__ hd x ___ kg x $/kg	= $ ____		= $ ____
Commission on sales	____ % x $ ____	= $ ____	4% x $ 49,940	= $ 1,998
Freight in and out	____ hd x $ ____/hd	= $ ____	75 hd x $ 10/hd	= $ 750
Vaccines, drenches etc	____ hd x $ ____/hd	= $ ____	217 hd x $ 6/hd	= $ 1,302
Supplements	____ hd x $ ____/hd	= $ ____	217 hd x $ 5/hd	= $ 1,085
Bull relacement	____ hd x $ ____/hd	= $ ____	1 hd x $ 2,000/hd	= $ 2,000
Wages		= $ ____		= $ 2,000
Cropping expenses	____ hd x $ ____/hd	= $ ____		= $ 0
Total		= $ ____ (2)		= $ 9,135 (2)
Gross margin = (1-2)		= $ ____		= $ 40,805
Fixed farm expenses				
Rates insure, admin		= $ ____		= $ 7,000
Repairs & maintenance		= $ ____		= $ 3,000
Depreciation		= $ ____	10% x $40,000	= $ 4,000
Fuel & power		= $ ____		= $ 4,000
Management allowance		= $ ____		= $ 15,000
Total fixed costs		= $ ____ (3)		= $ 33,000 (3)
Operating return=(1-2-3)		= $ ____ (4)		= $ 7,805 (4)
Minus business on liability	____ % x $ ____	= $ ____ (5)		= $ 0 (5)
Business return = (4-5)		= $ ____		= $ 7,805
Percent return on equity	Business return ÷ equity x 100 = ___%		Business return ÷ equity x 100 = 1.2%	

Cost per kg produced
= (total costs – livestock purchases) ÷ (kg liveweight sold – kg liveweight bought)
= **$1.26/kg**

Liveweight produced per land unit
= total kg liveweight produced ÷ land units
= 33,400 kg ÷ 1000 ha
= **33.40 kg/ha**

Land value per AE
= land value ÷ AE carrying capacity
= $500,000 ÷ 250
= **$2000/AE**

More information of this type is available from DPI Farm Financial Counsellors or at courses such as 'Breedcow and Dynama' and STORELINK.

Further information:
Roger Sneath
Department of Primary Industries and Fisheries
Dalby
Phone: 07 4669 0808
Email: roger.sneath@dpi.qld.gov.au

Beeftalk timely tips for

	BUSINESS	PASTURES	NUTRITION
Autumn	**R**eview business plan. **C**onsider enrolling in training to improve knowledge and skills. **M**eet with accountant for tax planning.	**A**ssess pasture quantity and quality for Winter. **R**educe cattle numbers if insufficient feed. **S**tart preparing land for sowing improved pastures in Spring.	**A**ssess pasture quantity and quality in each paddock and do up a forage budget. (Winter rain may improve pasture quality but not quantity.) **E**valuate effectiveness and cost benefit of winter supplementation program: • Plan supplementary feeding program. • Order supplement supplies, if required. **A**djust stock numbers according to feed available.
Winter	**A**ssess the last 12 months of cattle sales. **P**lan business strategies for the next 12 months.	**M**onitor pasture (quality and quantity) and adjust stock numbers as required. **C**ontinue land preparation for sown pastures.	**D**raft cattle according to nutritional need. **S**tart supplementary feeding program. **R**e-assess pasture quality and quantity: • If pasture quantity is below requirements, reduce numbers. • If pasture quality won't sustain required performance, assess options.
Spring	**M**eet with all staff to discuss the progress of the business and plan for the future. **R**eview overall property management and any changes that may be necessary. **R**eview breeding program; assess whether it is producing animals suitable for market requirements.	**C**heck pastures at the Spring break: • Is there enough ground cover? Consider spelling some paddocks. • Consider burning native pastures to maintain good pasture condition and control woody weed growth. • Check and control weeds before they seed. Actively patrol known 'hot spots'. **W**atch long-range weather forecasts for suitable time to plant pasture. **C**heck firebreaks and fire-fighting equipment. **C**onsider bloat control on lucerne- or clover-dominant pastures.	**R**eview dry season management plan and climate forecasts. **R**e-assess pasture quantity and quality in relation to ground cover and feed values at the end of the dry season. **F**eed energy and protein supplements to breeders that are heavily pregnant or lactating and weaners to maintain liveweight. **E**valuate effectiveness and cost benefit of winter supplementation program. **R**e-order molasses, grain supplies or supplements for next drought.
Summer	**H**ave a break with family over Christmas. **E**valuate markets and plan sales for coming year.	**S**pell leucaena for at least 2 months. **C**onsider applying maintenance fertiliser to sown pastures.	**S**tart phosphorus supplementation program in deficient areas. Continue until the end of the growing season.

south east Queensland

BREEDING	PARASITES & DISEASE
Weaners **V**accinate with booster 5-in-1 or 7-in-1. **V**accinate for tick fever (in ticky areas). **w**ean before pastures are frosted to allow cows to 'pick up' before winter. **w**eaners less than 150 kg need special attention. **F**eed from troughs to reduce parasite burden. **E**ducate weaners through the yards and by tailing them out every day. *Breeders* **N**ote cows with below average weaners for possible culling. **A**ssess need for supplementation. *Bulls* **R**emove from breeders. **C**heck for physical problems. **C**ull bulls on age (7 years old), temperament and physical defects. *Growing cattle (steers and cull heifers)* **A**re they on track to meet target markets? If not why not? Assess options.	**S**tart strategic pre-winter tick control. **C**heck worm burdens of weaners with WormCheck; treat if necessary. **T**reat for buffalo fly to reduce the numbers that may over-winter. **R**emove out-of-date buffalo fly tags.
Breeders **P**regnancy test. **C**ull breeders on pregnancy, temperament, age, defects. **V**accinate breeders for leptospirosis. **A**ssess mating program and plan/make changes if necessary. *Bulls* **C**onsider bull requirements for coming season. **A**ssess current bulls – are they giving you the progeny you require? *Growing cattle (steers and cull heifers)* **A**re they on track to meet target markets? If not why not? Assess options.	**C**heck late winter (early) calves for ticks.
Breeders **A**ssess breeder condition for mating. First calf cows may need extra care. **V**accinate maiden heifers for vibriosis (2 vaccinations 4 to 6 weeks apart). **V**accinate maiden heifers for leptospirosis if a problem has been diagnosed (2 vaccinations 4 weeks apart). **C**heck calving cows, especially heifers, regularly. **R**ecord all cows and heifers that have calving problems and sell them and their calves as soon as practical. *Bulls* **E**valuate the information available on potential bull supplies. **P**urchase bulls according to guidelines. **C**heck purchased bulls are in working condition, not sale condition. **C**heck all bulls for soundness (physical and reproductive) as well as for: • injuries, stiffness of gait, cuts or swelling • signs of three-day sickness. **C**ull any bulls with defects. **V**accinate bulls for three-day sickness and vibriosis (two doses one month apart initially, then annual booster). **C**heck that mating paddocks are secure. **P**ut bulls out with breeders: • Mate heifers one month before the main herd where nutrition is adequate. • Mate young bulls with young cows. • Avoid mixing different aged bulls if possible.	**V**ibrio vaccination for bulls. **T**hree day sickness vaccinations. **C**heck early calves (late winter) for ticks. **S**tart tick control program. **C**heck weaners for worms (WormCheck program) one month after season has broken. **O**btain cattle dip analysis and adjust chemical level if necessary.
Calves **B**rand, dehorn, castrate, tag and vaccinate (5-in-1 or 7-in-1). **E**nter new calves onto herd performance recording program. *Growing cattle (steers and cull heifers)* Weigh; assess individually rather than on average. **C**onsider HGP implants for steer calves for non-EU sale.	**C**ontinue tick control program. **C**heck young cattle for worms. Treat if necessary. **C**ontrol buffalo fly where applicable with insecticidal ear tags and buffalo fly traps.

Breed selection

Selecting a breed or breeds that are capable of meeting your breeding objective is an important decision in a beef production system. Beef production operations are ultimately concerned with the weight and quality of beef that can be produced within the capabilities of the production system.

Which breed is the most appropriate to do this job can be a source of endless debate between producers. There are more than 40 breeds of cattle available in Australia, so no wonder there is debate!

No particular breed is the 'best' for all environments and all target markets.

Issues that influence production which need to be considered when establishing a breeding objective include:

- fertility and structural soundness
- growth and maturity rates, carcase characteristics
- maternal ability
- survivability
- environmental adaptation.

The breed/s should exhibit the traits you have included in your breeding objective and display some genetic variation. Genetic variation exists both between and within breeds. Variation is important because it gives producers the opportunity to select animals with the most appropriate combination of traits to satisfy the breeding objective and hence meet the requirements of the target market.

Two examples of between-breed variation follow:

- *Bos taurus* have less resistance to tick infestations than *Bos indicus*.
- European breeds are generally larger and leaner than British breeds of cattle.

Variation also exists within breeds around a normal distribution. For example, not all individuals in late-maturing breeds are large and lean, and not all early-maturing animals are small and fatten quickly. Producers can exploit within-breed variation by selecting animals with desirable traits so that these traits accumulate within the herd.

Breeds can be loosely ranked according to trends exhibited by large numbers of animals and large-scale trials. The following table gives the specific rankings

Birthweight and likely calving difficulty (A)	Dam calving difficulty	Milk production (B)	Growth rate (A)	
			Tropical (•)	Temperate
Maine Anjou	Simmental	Friesian	Brahman	Maine Anjou
Chianina	Charolais	Jersey	Sahiwal	Blond D'Aquitaine
Charolais	Blond D'Aquitaine		Africander	Charolais
Brahman(*)	South Devon	Brown Swiss	Droughtmaster	Gelbvieh
	Limousin	Simmental	Santa Gerturdis	Simmental
Gelbvieh	Red Poll	Sahiwal	Belmont Red	Chianina
Brown Swiss	Hereford	Gelbvieh		
Blonde D'Aquitaine		Red Poll	Angus	South Devon
Simmental	Maine Anjou		Beef Shorthorn	Brown Swiss
South Devon	Gelbvieh	Brahman	Galloway	Friesian
	Devon	Santa Gertrudis	Jersey	
Friesan	Brown Swiss	Droughtmaster	South Devon	American Angus
Limousin	Friesian	South Devon	Brown Swiss	Limousin
Sahiwal(*)	Murray Grey	Maine Anjou	Friesian	Hereford
	Beef Shorthorn	Blond D'Aquitaine	American Angus	Belmont Red
Red Poll	Galloway	Charolais	Limousin	Santa Gertrudis
Hereford	Angus	Chianina	Hereford	Droughtmaster
Devon	Chianina	Angus	Murray Grey	Murray Grey
Santa Gertrudis (*)	Jersey	Beef Shorthorn	Red Poll	Red Poll
Droughtmaster(*)		Murray Grey	Devon	Brahman
Africander (*)	Belmont Red	Limousin	Gelbvieh	Africander
	Santa Gertrudis	Galloway	Maine Angou	Sahiwal
Murray Grey	Droughtmaster	Devon	Charolais	Devon
Beef Shorthorn	Brahman		Blond D'Aquitaine	
Angus	Africander	Belmont Red	Simmental	Angus
Galloway	Sahiwal	Africander	Chianina	Beef Shorthorn
Belmont Red		Hereford		Galloway
Africander (#)				Jersey
Brahman(#)				
Sahiwal(#)				

for various breeds in temperate climates (unless otherwise stated).

Even though breed selection comes down to personal choice, it is important to be realistic about your options. Use your breeding objective as a checklist to assess whether a particular breed is going to 'do the job' for you.

The DPI&F's *Breeding for Profit* booklet and the DPI&F note *Breed selection for beef cattle* contain further information on this topic Call the DPI&F Call Centre on 13 25 23 for copies.

Further information:

Rebecca Farrell
Department of Primary Industries, Yeerongpilly
Phone: 07 3362 9538
Email:
rebecca.farrell@dpi.qld.gov.au

Carcass Fat (C)	Lean/Bone Ratio (D)	Earliness of puberty
Beef Shorthorn	Blond D'Aquitaine	Jersey
Jersey	Limousin	Friesian
Angus	Charolais	Angus
Galloway	Chianina	Galloway
Red Poll	Maine Anjou	Murray Grey
Hereford	Gelbvieh	Beef Shorthorn
Devon	Simmental	Red Poll
Brahman	South Devon	Brown Swiss
Sahiwal	Murray Grey	Gelbvieh
Murray Grey	Angus	South Devon
Belmont Red	Galloway	Simmental
Santa Gertrudis	Brown Swiss	Maine Anjou
Africander	Red Poll	Belmont Red
Droughtmaster	Hereford	Hereford
Friesian	Devon	Devon
South Devon	Sahiwal	Santa Gertrudis
Brown Swiss	Belmont Red	Droughtmaster
Gelbvieh	Santa Gertrudis	Sahiwal
Limousin	Africander	Blond D'Aquitaine
Maine Anjou	Droughtmaster	Charolais
Simmental	Brahman	Limousin
Charolais	Beef Shorthorn	Chianina
Blond D'Aquitaine	Friesian	Brahman
Chianina	Jersey	

ABBREVIATIONS

A	Sire Breed Effect
B	Dam Breed Effect
C	When slaughtered at the same weight
D	The higher the lean/bone ratio, the more valuable the carcass
*	Sires mated to *Bos taurus* (non-zebu cows)
#	Sires and Dams mated to the same breed
•	Extremely stressful environments e.g. far north Australia

The rankings on this page are based on United States Department of Agriculture research results with some modifications on the basis on New Zealand and Australia experiments (which were reported in the Victorian Department of Agriculture's Hamilton Pastoral Research Institute Research Review for 1987-88). The highest value is at the top of the columns. Breeds within sections are relatively similar and within breed variation would be as important as variation between breeds. *Bos indicus* and *Bos indicus* crosses estimates are from DPI&F and CSIRO research.

New combined National Vendor Declaration (NVD) and waybill

From 1 March 2004 the new NVD Waybill backed by Livestock Production Assurance (LPA) will be available to producers. LPA is a new on-farm food safety certification program being implemented by Meat & Livestock Australia.

To get your new combined NVDs and waybills:

1 Register with LPA

Register your name, contact details and property number with LPA who will then send you a free information pack. This pack will include a free book of 10 NVDs to start using, a guidebook and CD to help you manage and implement elements of the program if necessary, and tips and tools on the new NVD Waybill.

2 Ensure you meet the LPA requirements

Read and understand the LPA guidelines and rules in the guidebook sent to you in the free information pack. Make sure you have in place the on-farm management systems to back up the declarations you make on NVDs.

3 Start using the new NVD Waybills

4 Become fully accredited with the LPA program

Once you finish the first book of 10 NVD Waybills, order a book of 20 NVD Waybills pre-printed with your property identification code (PIC) or tail tag number. You can do this through the internet at www.mla.com.au/lpa or over the phone on 1800 683 111.

You will need your LPA membership number and password, which will be provided with your first NVD Waybill book. Your agent can also register on your behalf.

When re-ordering you will need to declare that

- you have implemented the scheme
- you understand you are now part of a random audit process
- you understand that by being in this program you are bound by a sanctions policy, and
- you are aware of the new funding process for NVDs.

The NVD Waybill book of 20 forms costs $25. Credit card and alternative payment options are available.

Approximately 2000 independent, free audits will be conducted across Australia each year.

Livestock Production Assurance (LPA)

Livestock Production Assurance (LPA) is a new on-farm food safety certification program designed to help the beef, sheep and goat industries strengthen the food safety systems currently in place. More and more customers are looking for verification of the safety of the food they buy. LPA will help Australia maintain its reputation and competitive advantage for selling safe red meat and livestock both domestically and internationally.

LPA is designed to help producers deliver product that satisfies their customers' basic food safety requirements. It is based on a revised National Vendor Declaration (NVD) backed up by a set of guidelines, record keeping and random, free audits to help producers declare and prove that their livestock are safe from disease or chemical residues. In Queensland the NVDs will incorporate waybills.

The good news is that in many cases you will not have to change your on-farm management practices and you may already be keeping the types of records needed.

LPA will address the essential requirements for

1 property food safety risk assessment, e.g. regarding chemical residues

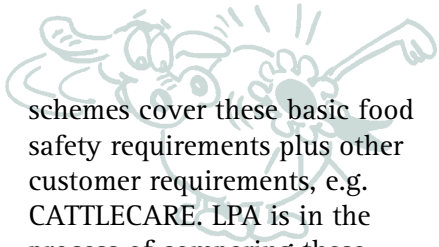
2 safe and responsible agricultural and veterinary chemical use, e.g. that with-holding periods and export slaughter intervals are adhered to

3 safe and responsible use of stockfeeds, e.g. that no meat or bone meal is fed to ruminants

4 preparation and dispatch of livestock, e.g. to minimise bruising and enable trace back

5 livestock transactions and movement, e.g. for trace back.

Other existing management systems and quality assurance



schemes cover these basic food safety requirements plus other customer requirements, e.g. CATTLECARE. LPA is in the process of comparing these existing systems with the LPA guidelines. It is envisaged that if you are already accredited through an equivalent scheme you will automatically qualify for LPA membership. Likewise LPA, in cooperation with AUS-MEAT and the relevant organisations, will try to streamline existing schemes or develop new ones as customers request them.

NVDs were developed by cattle industry organisations to assist producers to document the history of veterinary drug use and chemical treatments of cattle offered for sale. The details provided assist processors and buyers who are seeking information on the history of sale cattle. While NVDs don't have a statutory basis and

therefore aren't compulsory when selling cattle, there is strong commercial pressure to use them because of food safety concerns.

The necessity for improved accountability and trace-back in the food production business has become increasingly clear over the last 12 months with Foot and Mouth Disease in the UK and Bovine Spongiform Encephalopathy (BSE) in Japan, Canada and the USA. Nobody in the supply chain is exempt and there are no easy options. Just ask a butcher, processor or restaurant operator about the hoops they have to jump through and the costs they have to meet to ensure food safety requirements.

Further information on the NVD, waybill and Livestock Production Assurance:

Patrick Hutchinson
Meat & Livestock Australia
Phone: Free call 1800 683 111
Email: phutchinson@mla.com.au

Assessing your current mating program

Herd improvement through genetic selection requires a sound breeding objective and is a long-term process. In *Beeftalk 16* we looked at developing a SMART breeding objective as the first step in planning a balanced breeding program.

The next step is to assess your current mating program to ensure your breeding program is on track. The information and amount of detail recorded will vary according to your needs and how the information is to be used. Keeping accurate records of the performance of your herd is an effective way to evaluate progress toward your breeding objective. These records will provide useful information to assist in the selection of replacement stock.

Assessing your current mating program can be as simple or as complex as you wish to make it.

You will need these basic records and benchmark figures to make any assessment of a mating program:

- Pregnancy rate of the whole herd, which may be broken down by
  - maiden heifers
  - first calf cows
  - mature cows.
- Number of calves branded and weaned
- Weaning weight.

More detailed records would include

- Birth weight and date
- Calving difficulties.

To make meaningful comparisons between animals, you will need

- permanent individual identification
- a restricted calving period
- heifers and cows in separate mobs
- similar management and feeding conditions for each group being compared
- adequate yards/facilities
- cattle weighing scales.

Obviously the more records you keep, the more detailed you can make your examination of the mating program. It is up to you to determine what records you want to keep.

Each year you might record information about illness and preventative treatments, as well as

- Bulls
  - Bull breeding and soundness evaluation (BBSE)
- Cows
  - Sire mated
  - Preg test result
  - Condition score
  - Management group/paddock
  - Calf ID and sex
- Calves/weaners
  - Management group/paddock

Recording and storing data

Computers are probably the preferred and the most efficient and cost-effective way of recording and storing your herd performance records. For a simple performance recording system, a spreadsheet program is sufficient to store individual animal records and perform basic data analysis.

New herd performance software is continually being developed for producers in commercial and stud operations. These programs store relevant information and analyse data to generate detailed herd performance reports.

Some commercial software herd recording options are

- Cattlelink (stud and commercial) www.herdlink.com.au
- Cattle Plus! (stud and commercial) www.psystems.com.au
- Farm Excel – Livestock www.farmexcel.com.au
- Farm Stock www.farmworks.com/products/farmstock
- Herd Magic (stud) and Stock Recorder (commercial) www.saltbush.une.edu.au

Remember that assessing your current mating program is an important part of your breeding objective – it establishes the current performance of your herd. The information you collect is a measure of herd improvement and progress toward your breeding objective.

Further information:

Rebecca Farrell
Department of Primary Industries and Fisheries, Yeerongpilly
Phone: 073362 9538
Email: rebecca.farrell@dpi.qld.gov.au

Hand rearing calves

Rearing a baby calf can be extremely challenging and requires much patience and commitment. The key to success is keeping the calf in a comfortable environment, well fed and free of sickness. The initial three weeks of a calf's life are the most critical to its thriftiness in the future.

Calves must be kept in a clean environment with access to a dry and draught-free shed area. During wet periods hand-reared calves may need to be moved into the dry area until they get used to going there themselves.

It is essential for the newborn calf to receive colostrum. Colostrum is the first milk a mother produces. It is high in blood proteins that help the newborn calf develop its immunity to many illnesses and very high in vitamins and milk solids. The calf will generally consume about 4 litres within 6 hours of birth. It is handy to have a bottle of colostrum in the freezer to feed newborn calves that may not have drunk from their mothers. Warm it up to 36C before feeding, and if you have ample supply feed it for the first two days (normally up to 2 litres per feed) in the morning and evening.

Cattle are ruminants and have four stomachs. At birth, the abomasum or fourth stomach is the only stomach that is functioning. Feeding using teats may be harder work however when a calf sucks on a teat, it triggers a reflex which causes a groove in the rumen (the oesophageal groove) to close and direct milk past the rumen and into the abomasum where it is digested.

In contrast, if a calf drinks from a bucket, the reflex is often not activated and the milk goes into the rumen. As the rumen is not functioning, the milk is not digested and ferments, causing the calf to scour.

As the calf grows and starts to graze, the rumen, reticulum and omasum start to develop.

Calves need to have contact with animals whose rumen is developed to allow them to 'pick up' the microbes that digest food in the rumen. These microbes are thought to pass from one animal to another by licking and grazing common ground.

The following points are important to consider in a basic calf-feeding program:

- Milk should be given in separate feeds in the morning and evening, preferably at regular times. As the calf gets older, after 2 weeks, one feed per day is acceptable, but split feeding is still preferable.
- Feed using a teat rather than bucket feeding.
- Milk should be fed at 10 per cent of body weight per day; follow manufacturers' recommendations for powdered milk.
- Over-feeding the calf may cause scouring.
- Maximum hygiene is necessary at all times.
- Avoid making sudden changes to the quantity being fed.
- Always provide clean fresh water, particularly after the first week.
- Provide clean straw for the calf to eat if you are rearing the calf in a yard. This helps stimulate rumen development.
- As calves grow they will drink more, but milk replacer is expensive. It is often cheaper to supplement the calf with pellets/grain. Make this available to the calf all the time. The calf will gradually increase its intake of a grain supplement as it grows. Calf grain supplements can be purchased from most feed companies. For the first six weeks the supplement should be about 18 to 20 per cent crude protein with high energy levels of about 11 MJ. Just keep small amounts of feed in the feed trough at any one time, and clean out old feed before providing fresh feed.
- Calves may be weaned successfully at a young age. However providing some milk up to 12 weeks often gives the calf the best opportunity to grow.

Rearing a calf can be very rewarding. By following these simple steps you should be able to rear a healthy animal that will probably become the farm pet.

Further information:

Ross Warren
Department of Primary Industries and Fisheries
Gympie
Phone: 07 5480 4418
Email:
ross.warren@dpi.qld.gov.au

Fertiliser for sown pastures

In *Beeftalk 12* we discussed the role of sown pastures in south-east Queensland. The three major constraints to the economic viability of sown pastures are

- cost
- risk of failed establishment, and
- pasture run-down.

Pasture run-down is the reduced pasture productivity associated with the 'tie up' of nutrients in a form that is unavailable to the pasture plants. In all but the most fertile of our land types, run-down will occur quickly in 3 to 10 years.

In areas where sown pastures are established on relatively infertile soils, and are a significant component of a beef enterprise (i.e. to finish animals or to support high stocking rates), it may be necessary to apply maintenance fertiliser to overcome 'run-down' and ensure optimum pasture productivity. It is important in the planning phase of sown pasture development to properly account and budget for the ongoing maintenance costs.

What nutrients are important?

Highly productive pastures have a high nitrogen requirement. Phosphorus and sulphur are also important for the legume component of the pasture.

Many soils in south-east Queensland are deficient in nitrogen and phosphorus. The coastal lowland (Wallum) soils are also deficient in potassium and the trace elements copper, zinc and molybdenum.

Nitrogen

Pasture legumes can fix only moderate amounts of nitrogen. For high production it is necessary to apply a nitrogenous fertiliser such as urea (46% N) or nitram (34% N). Urea is the lowest cost nitrogen fertiliser per unit of N, but is also the least stable form for surface broadcasting. Urea should only be applied when there is a reasonable chance of rain within a few days of application or where irrigation is available.

Nitrogen is quick acting, but the main response only lasts for 2 to 3 months.

Phosphorus

The symbiotic nitrogen-fixing bacteria that nodulate the roots of legumes have a moderate to high phosphorous requirement. If adequate phosphorus is not available, nitrogen fixation can be affected and the growth and feed value of the legumes reduced.

Phosphorous is usually applied as superphosphate (9% P: 11% S) but can also be applied as DAP (diammonium phosphate 18% N: 20% P). One bag of DAP provides as much phosphorus as two bags of super and as much nitrogen as half a bag of urea. Unfortunately it only contains 2% sulphur. The continued use of DAP over many seasons can induce a sulphur deficiency.

Sulphur

This element can be deficient on some soils. It is usually applied as superphosphate (11% S) or Pasture P (14% S). If phosphorus levels are adequate, sulphur can be applied as gypsum (14% S) or flowers of sulphur (99% S).

Potassium

This element is deficient in the coastal lowland (Wallum) soils and can become deficient on other soils under intensive production systems such as irrigated ryegrass and hay production. It is usually applied as muriate of potash (50% K).

Trace elements

Deficiencies of copper, zinc and molybdenum occur in the very poor coastal lowland soils and should be corrected when the pasture is first established. Two methods can be used to correct these deficiencies. The most common is to apply super-phosphate to which these trace elements have been added. The alternative application method is to mix the small amounts of trace elements with muriate of potash.

Some pasture legumes such as Siratro and Wynn cassia have a high requirement for molybdenum in order to fix nitrogen and grow well, while others such as the stylos and lotononis have a lower requirement and do not usually require extra molybdenum.

The usual methods of correcting molybdenum deficiency are to apply Mo superphosphate, which has had molybdenum added, or to apply Mo on the legume seed pellet at planting.

Soil tests

It is important to test for the important nutrients before establishing a pasture. Test kits are available through local agribusinesses and should be used in accordance with the manufacturers' instructions. Generally, samples are taken from several parts of the area to be sown, bulked together and then sub-sampled. Where there are strikingly different soil types, these should be tested separately.

Regularly testing sown pasture soils every few years will provide information for improving maintenance fertiliser regimes.

Further information:

Bill Schulke
Department of Primary Industries and Fisheries
Bundaberg
Phone: 07 4131 5828
Email: bill.schulke@dpi.qld.gov.au

The Department of Primary Industries delivers workshops that are designed to directly impact on your beef business. The workshops are delivered by people who know your area and can tailor the workshop to local conditions. They use information from your business so that you can apply your knew knowledge to your property. Workshop group size is kept to 10 to 15 participants to allow maximum discussion and participation.

Nutrition

- Estimate pasture value & cattle performance
- Know what supplements to feed
- Save money on feeding
- Understand product labels
- Know the questions to ask feed companies
- Make better decisions

Grazing Land Management

- Develop and use grazing strategies suited to your property.
- Develop and improve land condition
- Calculate carrying capacities.
- Do forage budgets.
- Have the right balance of tress and grass.
- Select the right sown pasture
- Optimise production

Marketing

- Identify your most reliable markets
- Know what your customer wants
- Identify market trends
- Set strategic direction
- Develop a market plan
- Set production targets

Training

Better knowledge and skills

Business decisions

- Project future herd structure and financial position
- Compare profitability of ages of male turnoff and husbandry strategies
- Compare scenarios to reveal year by year differences, investment analysis
- Compare forced sales options.
- Determine what best to buy when there is surplus feed

Breeding

- Develop a planned breeding program
- Select better bulls
- Interpret breeding information
- Understand new tools, eg DNA markers
- Prevent or treat reproductive diseases
- Breed better animal that meet market specifications

Better knowledge and skills

⬇

Better business

⬇

More $$$

Join now !! ... phone the DPI&F Call Centre on 13 25 23

Better business through training ... a producer's strategy

It is hard to get away from the property, particularly in dry seasons: the waters and fences need checking, the molasses needs to go out, you can't afford to hire anyone because costs have gone through the roof, and you've destocked most of your cattle so you have nothing to sell.

Who can afford to get away?

Who can't afford to get away?

'If you are standing still, you are going backwards.'

Training is about continuously improving. It's easy to repeat what you did last year. It's more difficult to review what you did and change.

You've had rain and it is a new year – the perfect opportunity to develop some good habits.

Some hints to get you started:

1. Allocate a percentage of your gross income to training each year. This should be as high a priority as bank payments and development.
2. Consider what training your business and staff need. I recommend starting with strategic business training for managers and business owners, leaving operational training for later or employees.
3. Do your homework:

- Find out who is offering the type of training you need.
- Don't waste your time on poor quality courses and presenters.
- Consider whether this is the best course for your needs.
- Ask for contact details of past participants; ask them how relevant and practical the course is.

4. Block out the time in your diary now!
5. Organise casual labour to check waters etc.
6. When the date comes around, go!
7. When you get home, review what you learnt with family and staff. Decide on appropriate changes for your business, and make those changes.
8. Repeat the process annually.

Rick and I are strong advocates for training and education. Business training has enabled us to purchase property and cattle. Most of our profitable and sustainable practices we've learnt through training, which has enhanced what we've learnt from family and past generations.

We attend 10 to 15 days of training each year. The training we do is usually strategic, such as business, goal setting, off-farm investments etc, but we do operational level training as well, such as nutrition and pastures, timber control and stock handling.

To quote Rick: *'I had no formal education after Year 12. But I believe in continuing education throughout life and making sure that the education is taking you towards your goals.'*

One final word for those people who don't like training in the traditional sense: remember there is much that can be learnt though books, tapes, videos and by correspondence. Our bookshelves are full of other people's experiences. It is much easier to read about and learn from someone else's achievements and failures than to discover everything by yourself.

Happy training!

Further information:
Alice Greenup
'Cardowan'
Kumbia
Ph: 07 4164 4260

handy hint

When planning the training needs of your business, below is a template of a 'skills audit' that Jim Viner finds useful when assessing the training needs of partners and staff in his family business.

Name

Current skills

Current roles and responsibilities

Roles and responsibilities they would like to undertake in the future

Training required to obtain skills and knowledge to undertake these roles and responsibilities

Training available

Planning drought recovery

With good rain over most of Queensland, alternatives for drought recovery will be back on the agenda. The main question will be how best to get back to a normal herd structure and turnoff. Issues will be whether to buy breeders or breed up, whether to give country a spell or stock up quickly.

The workshop 'Better Decisions in the Business of Beef' offered by the Department of Primary Industries and Fisheries shows producers how to use computer programs to examine a range of herd management options. The workshop approaches business analysis on four fronts:

1. Where are you now and where are you going? Ten year projection of herd structure, cash flow, net income, net worth and return on capital are calculated from a given herd and financial position.
2. Is there a better way? This step calculates herd structure and gross margins for a range of options. Options that appear viable can then be projected for ten years.
3. Change as an investment determines year by year differences for ten years and difference in asset value at the end of ten years. The overall profitability of the change and the rate of return on the outlay required to make the change are also calculated.
4. Should you destock? The economics of destocking decisions in the face of drought or financial crisis are calculated by looking at the projected returns from all groups of animals on the property.

The 'Better Decisions in the Business of Beef' workshop can be organised by contacting me (Bill Holmes). The software used for these calculations, 'Breedcow and Dynama', can be purchased for $429 (incl GST). The Destock component of 'Breedcow and Dynama' is currently available free of charge as a DPI&F drought assistance initiative.

Further information:

Bill Holmes
Department of Primary Industries and Fisheries
Townsville
Phone: 07 4722 2663
Email:
bill.holmes@dpi.qld.gov.au

Thinking of supplementing – calculating the true cost

The range of commercial preparations – particularly liquid feeds – is growing rapidly and it is often difficult to determine which supplement provides the best value for money.

Supplements can be compared by calculating the cost of 1 kg of the particular nutrient you are buying. This will usually be protein or energy.

Use the following formula:

Step 1: Cost of 1 kg of supplement

$$= \frac{\text{Cost of 1 tonne of supplement}}{1000}$$

Step 2: Cost of 1 kg of nutrient

$$= \frac{\text{Cost of 1 kg of supplement} \times 100}{\text{\% of nutrient in feed}}$$

Example: Cottonseed meal at $450/tonne @ 43% protein

Cost of 1 kg of supplement

$$= \frac{\$450}{1000} = 45c$$

Cost of 1 kg of nutrient (i.e. protein)

$$= \frac{45c \times 100}{43} = 104.6 \text{ c/kg of protein}$$

Be careful of how the nutrient percentages are expressed. Some manufacturers quote on the percentage in the feed as you buy it. This is referred to 'as fed' or 'as is'. Others quote on a dry matter (DM) basis. It is important to compare all feeds on the same basis, particularly for the very wet feeds such as silage (up to 70% moisture) and sprouts (80–90% moisture).

If the analysis is quoted on a dry matter basis it can be converted to 'as fed' using the following formula:

$$\frac{\text{\% of the nutrient in DM} \times \text{dry matter \% of the feed}}{100}$$

So if a feed has 40% protein (on a DM basis) and is 90% dry matter:

$$\frac{40 \times 90}{100} = 36\% \text{ protein 'as fed'.}$$

Many of the common feeds such as grain, meals and hays are around 90% dry matter (i.e. 10% water) and so we can pretty much compare prices directly. If the feeds have different levels of water then it best to convert them all to dry matter figures for a standardised comparison.

To convert 'as fed' prices to dry matter prices use this formula:

$$\frac{\text{\$ per tonne 'as fed'} \times 100}{\text{dry matter \% of the feed}}$$

The example below compares silage at $50/t (30% dry matter) and grain at $150/t (90% dry matter) 'as fed' and shows why it is important to do your sums if buying and transporting very wet feeds. It is better to use landed-on-farm prices.

Silage $= \frac{\$50 \times 100}{30} =$ $167 per tonne DM

Grain $= \frac{\$150 \times 100}{90} =$ $167 per tonne DM

From this calculation it is easy to see the need to compare feeds on a dry matter basis particularly with feeds that have a high moisture content.

Further information:

Russ Tyler

DPI&F, Brian Pastures Research Station, Gayndah

Phone: 07 4161 3726

Email: russ.tyler@dpi.qld.gov.au

If you would like a copy of Beeftalk mailed to you, please complete the following form and send to Editor, Beeftalk, DPI&F, PO Box 395, Gympie 4570.

Name: .....

Address: .....

..... Postcode: ..... Shire: .....

Property Number: ..... No. of cattle: .....

Phone: ..... Fax: ..... Email: .....

Which of the following best describes you?

❑ Beef producer ❑ Agribusiness outlet ❑ Education ❑ Other (please state)

Review winter feeding options

Since the first edition of *Beeftalk* in Summer 1996 we have had many articles discussing supplementary feeding. Looking back through these articles, I notice the basic advice is still the same – plan, do a feed budget early, sell early. This was again borne out in the drought management survey – producers who had a plan and stuck to it, did a feed budget early (April, May), and sold early came out of the drought better than most.

With winter approaching we are again thinking of supplementary feeding. Before launching into a feeding program, consider the following points:

- What is the probability of this year being wetter or dryer than average?
- How well will the pastures hold out?
- Can you afford to feed?
- Would you be better off selling?
- If you do feed, do all animals need to be fed? Is it possible to draft cattle according to their need to be fed?
- What is the cost of the nutrient you are buying (protein, energy, phosphorus)?
- Consider the logistics of feeding. Some very wet feeds may require large amounts to be fed to meet certain nutrient requirements.

Further information:

Russ Tyler
Department of Primary Industries and Fisheries
Brian Pastures Research Station, Gayndah
Phone: 07 4161 3726
Email: russ.tyler@dpi.qld.gov.au

Photo CD for pasture budgeting

The Department of Primary Industries and Fisheries has compiled a compact disc (CD) of pasture photo-standards to provide graziers with a valuable tool for pasture budgeting and dry season management planning.

The CD covers 12 regions and carried photo standards depicting the various pasture yield estimates in kilograms per hectare for 26 readily identifiable pasture communities.

For example, you can go directly to the speargrass colour photo pasture standards and view six paddock yields ranging from 560 kg/ha to 4000 kg/ha. By comparing these to your own pastures, you can estimate how much standing grass you have available per hectare. Coupled with an estimate of the proportion that is unpalatable to stock, you can then calculate how much forage they have available.

In addition to being an extremely useful grazing management guide, this CD can be used to illustrate available pasture when negotiating agistment contracts or when assessing the market value of a grazing property.

If you do have computer access it is possible to place an order for full colour laminated copies of pasture standards for your pasture community.

Copies of the CD could now be ordered through the DPI&F Call Centre on 13 25 23 at a cost of $14.95 or by contacting the Rockhampton DPI&F beef Communications Coordinator on 4936 0393.

Further information:

Jillian Aisthorpe
Department of Primary Industries and Fisheries, Emerald
Phone: 07 4983 7421
Email: jillian.aisthorpe@dpi.qld.gov.au

Editorial Committee
Russ Tyler, Vince Edmonston, Jim Kidd, Jackie Kyte, Felictiy McIntosh, Damien O'Sullivan, Rebecca Farrell, Bill Schulke, Roger Sneath and beef producer Jim Viner.
Enquiries
Russ Tyler
Phone: 07 4161 3726
Mobile: 0408 780 597
Email: russ.tyler@dpi.qld.gov.au