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*Figures assume a 15.8% liveweight gain advantage in cattle gaining 0.5 kg/day over 400 days, $1.70/kg liveweight and 100 implants per box. Results may vary according to seasonal and market conditions.

*Image for display purposes only. Please read and follow the instructions on the approved Compudose 400 label. Elanco®, Compudose® and the diagonal colour bar are trademarks of Eli Lilly and Company. EAH14225
Queensland’s drought: long-term perspective

Australia’s weather is influenced by many climate drivers. El Niño and La Niña have perhaps the strongest influence on year-to-year climate variability in Australia. They are part of a natural cycle known as El Niño-Southern Oscillation (ENSO). The state of ENSO is determined by the interactions between the atmosphere and ocean circulation. ENSO transitions between El Niño, neutral and La Niña. Sustained periods of warming or cooling in the central and eastern tropical Pacific is referred to as El Niño or La Niña, respectively.

El Niño is the negative phase of ENSO. An El Niño is associated with an extensive warming of the tropical eastern and central Pacific Ocean resulting in a major shift in weather patterns over the Pacific. El Niño events are often accompanied by cooler than normal sea surface temperatures in the western Pacific, and to the north of Australia. (See figure 2.1) HOW DO YOU IDENTIFY AN EL NIÑO? Indicators of El Niño events include:

- Sustained warmer-than-usual sea surface temperatures across the central and eastern tropical Pacific Ocean
- A decrease in convection, or cloudiness, over tropical Australia, Papua New Guinea and Indonesia. The convection migrates eastwards and forms far east of the Australian mainland.
- The trade winds’ (easterlies) in the tropical Pacific weaken or even reverse.
- There are sustained negative values of the Southern Oscillation Index (SOI), typically below -8. This means there is higher pressure than normal over Darwin and lower pressure than normal over Tahiti. It should be noted that daily values of the SOI can fluctuate markedly because of daily weather patterns rather than change in a broadscale pattern, so we look at a 30-day moving average of the SOI, not daily or weekly values.

When an event significantly exceeds these thresholds, the event is referred to as ‘strong’, while events that maintain close to these thresholds are referred to as ‘moderate’ or ‘weak’. However, the strength of an event does not correlate directly with the impacts over Australia. That is, a weak or moderate event can have greater impacts than a strong event.

WHAT ARE THE TYPICAL IMPACTS OF EL NIÑO? Historically, El Niño events are associated with a higher risk of low winter and spring rainfall, and a delayed start to the wet season, in many of the drought-affected areas. While El Niño increases the risk of drought, it does not guarantee it.

The most severe long-term droughts for western Queensland (and South Australia in the 1920s and 1930s), were notable for their lack of El Niño or La Niña events.

Potential impacts of El Niño in Queensland include:

- Reduced rainfall: as the convection shifts eastwards away from the western Pacific, there is usually a reduction in rainfall through the winter-spring in eastern and northern parts.
- Lower winter sea surface temperature. The southern oscillation index (SOI) is typically below -8. This means there is higher pressure than normal over Darwin and lower pressure than normal over Tahiti.

The Bureau of Meteorology issues monthly seasonal forecasts – climate outlooks – which includes outlooks on the state of ENSO for the upcoming months. What is a model? A complex system of physical processes is used to model a chaotic system. The SOCl’s greatest benefits will accrue from long-term use (for example, over 10 years), it is one tool to assist with risk management and decision making. JULY - SEPTEMBER OUTLOOK 2015 (ISSUED JUNE 25/AUG-UPDATE ON WEBSITE JULY 30) The rainfall outlook for July-August-September shows an increased chance of a drier three months over far northern Queensland and a roughly equal chance of a wetter or drier July to September in remaining parts of Queensland. Historical outlook accuracy for the July to September period is moderate over most of Queensland, but weak in the Gulf of Carpentaria and Cape York Peninsula. The outlook is based on the Pacific Ocean sea surface temperature conditions, variations in trade wind pressure and wind flow, the state of the tropical Pacific Ocean and the onset of the Australian monsoon.

In summary:

- The outlook for the three-month period is likely to be dryer than average across much of Queensland, but will be wetter than average over the Gulf of Carpentaria.
- The outlook is 60% for dry, 30% for wet and 10% for neutral.
- The outlook for the three-month period is likely to be drier than average across much of Queensland, apart from the far northern Cape York Peninsula.

The Beeftalk team also congratulates Emma Hegarty for winning the prestigious Zanda McDonald Award 2015. Emma Hegarty, 27, a beef extension officer for Queensland’s Department of Agriculture and Fisheries (DAF) competed in the trans- Tasman award against finalists Athol New, a dairy farmer manager from Christchurch, New Zealand; Luke Wright, a deer and beef farm manager from Te Anau, NZ; Platinum Primary Producers chairman and CEO of Alfite Asia, Shane McManaway, said Emma was tremendously deserving. Through her work she clearly displayed Zanda-like characteristics of leadership, passion, drive, ambition and commitment to her field. As always we value your feedback and suggestions for future issues. You can use the short survey at www.surveymonkey.com/jfeetalk43 or give the editor a call on 13 25 23 or email roger.snow@bom. qld.gov.au. HAPPY READING!
Graziers have a new guide to assist in forage production decisions

Summary of key performance figures averaged across all forage sites

<table>
<thead>
<tr>
<th>Annual forages</th>
<th>Perennial forages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forage biomass measurements in the grazed paddocks (kg DM/ha)</td>
<td>4,355 (2,299-8,443) 12,150 (2,070-23,200) 6,014 (6,048-0,442)</td>
</tr>
<tr>
<td>Total grazing days per annum or total period</td>
<td>116 (91-139) 107 (93-139) 107 (105-111)</td>
</tr>
<tr>
<td>Total LWG (kg/ha/annum or total period) per perennial grass</td>
<td>93 (64-144) 109 (81-140) 107 (105-111)</td>
</tr>
<tr>
<td>Forage costs ($/ha/annum) per forage area only</td>
<td>136 ($139-$169) 96 ($169-$169) 188 ($157-$169)</td>
</tr>
<tr>
<td>Gross margin ($/ha/annum or total period) per perennial grass area, owner rates</td>
<td>34 (-17.3-$17.4) 64 $4 (-80.1-$46.9)</td>
</tr>
<tr>
<td>LWG: liveweight gain</td>
<td>-240 (-476-$224) 108 (130-223) 224 (147-470)</td>
</tr>
</tbody>
</table>

**Economic performance**. Leucaena-grass sites had the highest average gross margin across all sites and years ($184/ha/annum), followed by butter fly pea-grass ($143), oats ($131), perennial grass pasture ($98), forage sorghum ($54), and lablab ($44).

Management issues limiting performance included:

- Low soil fertility (nitrogen, phosphorus) and lack of fertiliser application at most sites.
- Grazing management difficulties on forage sorghum crops.
- Not inoculating cattle or using carrier cattle on leucaena-grass pastures.
- Missed opportunities to use hormonal growth promotants (HGP's) for increased productivity if not restricted by the target market.
- Not regularly monitoring weight gain. Weighting can improve timing of sales and market compliance. Data is restricted by the target market.

**System to the whole farm** relative to alternatives such as grazing perennial grass pasture or growing a grain crop. Perennial legume-grass pastures, particularly leucaena-grass, had a substantial advantage over perennial grass-only pasture and annual forage crops in terms of whole-farm profitability. However, legume-grass pastures were not as profitable as grain cropping when grain was profitable. Annual forages were unable to add economic value to the beef enterprise due to their higher average growing costs and greater variability compared to perennial forages.

**TOOLS AND INFORMATION**

- For more information, contact Dr Maree Bowen, DAF, Rockhampton. Phone: (07) 4923 6207 Email: maree.bowen@daf.qld.gov.au

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THE Bureaus of Meteorology (BOM) introduced its northern rainfall onset outlook service in late June, in time for this year’s wet season. The northern rainfall onset outlook provides guidance on the timing of rainfall onset for the coming northern Australian wet season. That is, are rains likely to start earlier or later than normal at locations in Queensland, the Northern Territory and northern parts of Western Australia?

This provides important information for many industries across northern Australia that need to look ahead for their planning, particularly the agricultural sector. The BOM has defined the northern rainfall onset as the date after September 1 when a location has received a total rainfall accumulation of at least 50mm.

Depending on how this rain falls, this amount is roughly that required to stimulate plant growth after the dry season. The outlook will be issued monthly from late June through to the end of August. Generally, the closer to September an outlook is produced the higher its accuracy will be.

Typically, coastal parts of northern Australia accumulate 50mm of rainfall by October, with locations further south and inland reaching the onset threshold over the following weeks. Southern parts of the Northern Territory and western parts of Western Australia usually have the latest rainfall onset around late December.

The northern rainfall onset service was developed with support from Managing Climate Variability – a consortium of primary industry research and development corporations (www.managingclimate.gov.au/research). The northern rainfall onset outlook complements the Bureau’s broader Climate Outlooks service, which indicates likely temperature and rainfall variations over the next three months, driven by large-scale shifts in the climate such as El Niño or La Niña events.


You can also subscribe to our Climate Outlook updates at www.bom.gov.au/enviro-news.

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Dr Jeff Saltburg, Bureau of Meteorology Phone: (07) 3231 8600 Email: j.saltburg@bom.gov.au

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Want to know when the rains are coming?

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Get the most from forages for production

THE Department of Agriculture and Fisheries has undertaken a high-output forage project to examine the profitability of key forages for backgrounding or finishing cattle in the Fitzroy River catchment. Six forage systems were measured at 24 sites on 12 beef properties from 2011 to 2014. The forages were oats, forage sorghum, lablab, leucaena-grass, butterfly pea-grass plus perennial grass-only pasture as a benchmark.

Animal production: Leucaena-grass sites had the highest average gross margin across all sites and years ($184/ha/annum), followed by butter fly pea-grass ($143), oats ($131), perennial grass pasture ($98), forage sorghum ($54), and lablab ($44).

Economic performance: Leucaena-grass sites had the highest average gross margin across all sites and years ($184/ha/annum), followed by butterfly pea-grass ($143), oats ($131), perennial grass pasture ($98), forage sorghum ($54), and lablab ($44).
**Perennial pasture legumes: plan ahead**

**Start planning for them now**

**Fallowed strips through an existing grass pasture in preparation for planting. The planting area can be cultivated initially and sprayed later on if necessary to control weeds or grasses.**

**Prograded Desmanthus established in strips throughout the existing grass pastures. Strips need to be at least 5 metres wide.**

**Why do we have so much trouble getting legumes established?**

Poor agronomic practice when sowing pasture legumes is a major factor for high failure rates. A cereal farmer wouldn’t plant into a dry, uneven, blade ploughed strip, months before the expected start of the growing season, yet so often pasture legumes are simply sown this way and expected to establish, survive and thrive.

Experience and research tell us that the reality is that small seeded legumes cannot establish and compete with existing grass under such conditions.

Practices which reduce the effects of our variable rainfall on pasture establishment, similar to those used in commercial farming enterprises, such as falling the planting area to store moisture and reducing competition will increase the chances of pasture legume germination, growth, seed set and survival.

Results from field trials in central and southern Queensland show that a fallow period (period of ploughing or spray treatment to permit a reduction in grass competition and allow moisture storage) of one month or greater can greatly improve legume seedling numbers and growth rates.

The worst results were observed when legumes were planted without fallowing or preparation of a proper seedbed, such as by deep ripping with tines or a plough or spray treatment to permit a reduction in the planting area to store moisture and reducing weed competition. The worst results were achieved with longer fallows of four or more months combined with post-sowing weed control.

Results from field trials in central and southern Queensland show that a fallow period (period of ploughing or spray treatment to permit a reduction in grass competition and allow moisture storage) of one month or greater can greatly improve legume seedling numbers and growth rates.

**What can I do now in preparation for planting summer legumes to maximise success?**

You want to aim to plant in late summer/early autumn to ensure that the ground is already wet from earlier rains. There is a high probability of further falls over the coming months and that seedlings are less likely to encounter severe heat waves. Preparing paddocks or strips now will give five to six months fallow time to accumulate moisture and enable multiple weed control operations.

Below are some key actions to take before spring arrives:

1. Decide which paddock to do first

   Decide how much area you can afford to put aside from grazing once legumes are planted until the first frosts arrive. Plan which paddock to do first, do it well and then move onto the next paddock.

   Idealy, choose a paddock with high phosphorus as this will provide the best legume growth and persistence without the need for fertiliser.

   Preparing strips across the paddock to plant legumes into is a good option when there is standing or flattened timber across the paddock. However, the smaller the area planted (i.e. less number of strips) the longer it will take for legumes to spread across the remainder of the paddock.

   Planting larger areas or the entire paddock where possible (e.g. in paddocks that have been cropped in the past) will ensure legumes establish across the paddock sooner and improve cattle productivity earlier.

   If strips are better suited to your situation, they can be initially cultivated followed by several sprays from behind a four-wheel motorbike or, if you don’t have the machinery, simply spray out strips without cultivation.

   Research shows that buffel grass will remove moisture aggressively as far as 1.5 to 2 metres out from the edge of a grass strip into the fallow area, so the strip needs to be at least 5 metres wide to have a 1m strip of moist soil in the middle upon which to plant.

   When preparing larger sections of the paddock or the entire paddock area consider the equipment you have available.

   Conventional cultivation with offset discs or chisel ploughs can provide a good seedbed for planting into and the fallow period can be maintained by either further cultivation or spraying. Weeds can be killed if necessary.

2. Get fallowing!

   The sooner competition is controlled the better to increase the chance of storing moisture (fallowing).

   Ideally, the aim is to plant into good subsoil moisture and time plantings to maximise in-crop rainfall opportunities soon after establishment. This means aiming for a full profile.

   Don’t plant on less than 50-60 centimetres of water in the profile.

   For central and southern Queensland, late summer or early autumn are likely to be best as you’ll hopefully have stored some moisture, will have reasonable prospects of some follow-up showers, will have avoided the worst heat waves but still have enough time to get the plants up and robust before the arrival of frost.

   If paddocks are frost-prone, mid to late summer may also work, depending on how much moisture has been stored. Remember, even starting your fallowing in June/July doesn’t always deliver the subsoil moisture needed to plant in February, so get cracking!

3. Start thinking about the right legume varieties for your situation

   What kind of pasture are you aiming for? Is the species suited to the country and climate? Do some research and talk to an agronomist about what species are likely to perform best.

   There are a range of perennial legumes that will persist with sown grass species in clay soils, if a short-term pasture in a cropping system, e.g. key pasture is what’s required, use a different set of legumes.

   4. Check soil has adequate nutrition

   Some legumes have high phosphorus requirements and if these are not met the legumes will be stunted and grow poorly, reducing the amount of nitrogen they can supply. Phosphorus fertiliser may need to be applied at planting. The lead up to planting in spring is a good opportunity to soil sample so that you have time to organise fertiliser and the gear for its application. Get your local agronomist to sample at the following depths for the following tests:

   - 0-10cm: Full comprehensive of normal soil parameters (often sold in packages).
   - 10-30cm: Phosphorus (Colwell P at minimum, but if possible also get BS50 (acid) and phosphorus buffer index (PBI)). Sulphur.

   - 30-60cm: Sulphur (and chloride if budget permits).
   - 60-90cm: Sulphur (and chloride if budget permits).

   Fertiliser is required, the best time to apply it is before or at planting. Fertiliser containing phosphorus ideally needs to be incorporated into the soil to provide the best opportunity for the new pasture to utilise in the establishment phase. You might need to consider future applications if your soil has a high phosphorus buffering capacity.

**Future Beef**
Jen O’Prayag and Stuart Duck, DAF, St George, Toowoomba and Nambour.
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30 July 2015
TO support sustainability in the Queensland grazing industry, AgForce and the Department of Agriculture and Fisheries have recently recruited additional staff members to bolster the growing Grazing Best Management Practice (GBMP) program. The two new officers will assist the expansion of the program into South East Queensland and the Burnett and Mary River catchments.

They will collaborate with partners Fitzroy Basin Association, Burnett Mary Regional Group and North Queensland Dry Tropics to deliver the program to engage the grazing community in adopting best management practices.

The appointment of the two officers is made possible with funding from the Australian and Queensland governments’ commitment to improving water quality to the Great Barrier Reef.

Andrew Taylor has been appointed to GBMP to support graziers to identify opportunities for increased production, improved environmental outcomes for the land, and improved profitability with consumers and the broader community in land stewardship and animal welfare. More information about Grazing BMP is available at www.bmpgrazing.com.au.

Andrew has a ‘grass roots’ background in the grazing industry, starting as a jackaroo in the Gulf, moving to managing grazing properties in northern New South Wales and back to servicing north Queensland as a rural loans officer for Rabobank.

Andrew’s professional career in rural development spans 10 years where he has worked as a consultant for a range of organisations including the Food and Agriculture Organization of the United Nations and GRM International.

Stocktake Plus App

THE Department of Agriculture and Fisheries’ popular beef business app – Stocktake Plus – has been updated for Android device users. Forget the pen and paper, GPS, camera and land type information that is available to producers, enabling useful information that brought attention to grazing BMP. You can contact Megan on 0475 973 323 or email megan.gurnett@daf.qld.gov.au.

Grazing BMP helps practice change

Since attending the Grazing Best Management Practice (Grazing BMP) workshops the Roberts family have changed their breeder management to save money and improve heifer fertility.

Instead of dispersing heifers into the main breeder herd during their first pregnancy, heifers are now managed separately until their second calving. Bruce and Trudy Roberts operate three grazing properties in partnership with their son and his wife. The home property Callistemon, west of Springsure is used as a breeding block and the other two are used as fattening blocks. The Roberts target the EU and PCAS markets. Steers are turned off at two and half years old into these blocks as well as for fattening.

The herd has a Santa Gertrudis base, with Angus and Droughtmaster bulls. Approximately 4000 cattle are grazed across the three properties and 160 of these are breeders. The breeders are joined at three bulls per 100 females. The Angus bulls were introduced to conform to grazing standards. They are selected on sh架构 shape, testicle size and structural soundness.

A proportion of the females are joined to Santa Bulls in breed replacement heifers and some herd bulls for their own use. Most of the Santa-cross Angus heifers are sold and slaughtered. The breeding heifers are joined at 15 months of age.

Boars enter the breeding paddocks in November and are removed at the end of March. Three hundred and fifty heifers are joined each year and empty heifers at pregnancy diagnoses are slaughtered. Feedlots are culled for fertility, structural faults, body size and temperament. Bulls stay allocated to the same paddocks for their entire breeding career.

Since completing Grazing BMP, the Roberts family have adopted several best management practices from the animals side. During the 2014 dry season, they decided to separate their heifers from the main breeding herd until their second calving.

Historically, the heifers were dispersed through the breeding paddocks, all the weaners received lick. Because of completing the animal production module, the Roberts family saw the benefits in keeping the heifers separate until their second calving.

Segmenting the heifers until their second calving lets the Roberts closely monitor their performance. ‘Since we have kept them separate for breeding management we have been able to take after them more. We have been able to feed them lick without feeding all the other breeders and wear the calves earlier to maintain the mother’s body condition, as we haven’t had to feed the calves a big dairy type diagnosis yet, we are hoping that there is an increased conception rate in the heifers as a result of these changes in management,’ Mr Roberts said.

This has saved the family money by only feeding those animals needing supplementary feeding.

In the past when the heifers started to slip in the breeders management, all the weaners received lick. Because the heifers are now segregated, if they start losing condition, feeding lick can be targeted to the heifers to ensure they are maintained in condition.

The Roberts ‘have also started using EBVs to select bulls. In addition to selecting bulls for breed health, testicle size and structural soundness, they are using EBVs as a tool to increase the genetic progress in their herd. Angus bulls are used to improve the fat cover on slaughter animals and they select sires with superior EBVs for their marbling, real beef yield, and intramuscular fat (marbling).

Mr and Mrs Roberts believe that participating in Grazing BMP and completing the workshop modules benefited their business.

Mrs Roberts said that the program provided a useful information that brought attention to grazing practices.

She also believes that the program promotes information that is available to producers, enabling them to access their animal information.

Mr Roberts believes the program has merit with banks and lending institutions, as it demonstrates that producers have more control over productivity and sustainability. “Grazing BMP is a great opportunity for graziers to strategically assess their business,” Mr Roberts said.

Matt Brown, DAF, Rockhampton

Phone: 07 4975 1855

Email: m.brown@daf.qld.gov.au
**Pasture quality.**

The type of calves best suited for your potential markets.

Test each breeding bull, and determine numbers of first calf cows is good husbandry and gets them used to siphon from this depth. A boat also allows for the rise and fall of the water level. The main problem with this system is a faulty thorough that allows large quantities of water to be lost.

Walkway with fences: some dams have been set up to allow stock to access the water on a gravelled path into the dam. This obviously has to be done when the dam is empty but has the advantage of not being needed to check as regularly as a trough system. Water quality will not be as good as a piped system but water quality and quantity will be far better than a dam that has total access around the perimeter.

**FENCING DAMS**

Some dams can present a problem when it comes to fences and water facilities in breeding paddocks. To maintain or improve pasture composition, ensure that fences are free of leaves.

**PARASITES AND DISEASES**

Plan check fence, check for resistance if control a problem.

Order buffalo fly tags if using them or maintain rubbers or whatever else you use for buffalo fly control.

**PERSONAL**

It is not just the animals and property that need maintenance. You and your family are the most important assets on your property. Make sure you go for your annual health checks and ensure that you have quality family time together.

**FEEDING RATES FOR CALVES 4-6 MONTHS OLD (120-150 KG)**

<table>
<thead>
<tr>
<th>Weight Group</th>
<th>Feeding Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>121-200 Kg</td>
<td>0.5 kg/head/day grain mix</td>
</tr>
<tr>
<td>201-300 Kg</td>
<td>0.5 kg/head/day grain mix + 0.5 to 1kg/head/day protein meal</td>
</tr>
<tr>
<td>301-400 Kg</td>
<td>0.5 kg/head/day grain mix + 0.5 to 1kg/head/day protein meal + 12-15pc protein meal</td>
</tr>
</tbody>
</table>

Feeding recommendations: pasture, hay, grain mix, protein meal, etc. as per manufacturers’ recommendations. Free access to molasses plus 12-15pc protein meal ( Beware of souring.)

Feeding rates for calves over 3 months of age and 100kg.

Calves less than 60kg should only be weaned in extreme drought conditions to save the cows. These very young calves require special attention and it may be easier to feed the cow and calf until the calf reaches at least 60kg.

If appropriate, consider burning native pastures for most of the time. Organic matter breaking down in dam water can cause a lack of oxygen causing off smells and deaths of aquatic organisms in the water can reduce water quality. In any drought time is scarce and if dams do not have to be desilted as regularly it is one less time-consuming job.

Water quality and adequate quality is paramount to maintain livestock production. Any means we can use to maintain the quality and quantity of dam water will be well and truly appreciated in any drought.

Damen O’Sullivan, DAF, Kingaroy

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Make a plan for feeding calves

In any breeding operation it is often necessary to feed calves. It may be early weaning due to drought, giving first-calf heifers a break to grow and gain condition for future calving and conception, or allowing older calves to put weight on so they can be culled. Calves under six months can be weaned successfully provided they are fed and managed well. Whatever the reasoning for feeding calves, it can be an expensive and time-consuming process.

At the outset you need to plan:

- How many to feed?
- How long will the weaning program last?
- How much will it cost?
- Who will do it?

**WEANING AGE**

Radical weaning refers to calves less than three months of age and under 100kg. Early weaning refers to calves 3-4 months of age and 100kg.

Until 60kg may be kept in good condition with concentrate feed and be rationed with the cows. At birth a calf’s rumen cannot digest grass. Milk suppression prevents the growth of the rumen and it is digested in the abomasum or true stomach. The calf’s rumen gradually develops and functions fully at three months of age. For a successful feeding program draft calves into the following weight groups: 60 to 120kg, 120 to 150kg and over 150kg.

Put calves in a good condition with a grower group. This will give all calves a better chance of succeeding and competing with others in the group. Limit 20 cm of trough space per weaner. Feed hay in sheds and supply 10-20 litres of high quality water per day per weaner. Clean troughs regularly, especially when feeding meals or grain in the yard. Calves 60kg or less need a mix replacer and a meal or pellets. For details see ‘Tailing’ on the FutureBeef website. Calves 60-100kg can survive if supplemented with high protein meals or pellets (16-20 per cent crude protein).

**FEEDING RATE FOR CALVES 2-4 MONTHS OLD (60-120KG)**

Feed unlimited pasture if available or 0.25 to 0.5kg per head per day of grass hay, good quality grass or forage hay. Beware of souring, particularly in loose hay. Plus feed one of the following supplements:

- 0.5 kg/head/day grain mix (3 parts crushed grain, 1 part protein meal)
- 0.25 to 0.5kg/head/day protein meal
- calf pellets/crumbles/meal – as per manufacturers’ recommendations
- free access to molasses plus 12-15pc protein meal ( Beware of souring.)

**FEEDING RATES FOR CALVES 4-6 MONTHS OLD (120-150 KG)**

Feed unlimited pasture or hay plus one of the following supplements:

- 1 kg/head/day grain mix
- 0.5 kg/head/day protein meal
- calf pellets, etc. – as per manufacturers’ recommendations
- free access to molasses plus 12-15pc protein meal
- no more than 0.5 kg/head/day whole cotseddie

**FEEDING RATES FOR CALVES OVER 150 KG**

Feed unlimited pasture or hay plus one of the following supplements:

- 1 kg/head/day grain mix
- 0.5 kg/head/day protein meal
- 0.5 kg/head/day molasses plus 12pc urea and 12pc probiotics
- 0.5 kg/head/day whole cotseddie

**0.5 kg/head/day whole cotseddie.**

These feeding levels should hold weight or give slight weight gains but are a guide only. calf performance is the best indication of how much supplement is required and intake should be varied accordingly. Weather conditions will also affect the calves. Avoid sudden changes in supplements. A transition period is needed for the rumen bacteria to change.


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