FutureBeef

Beeftalk

Taking stock of your future

in this issue

Flock talk

ISSUE 43 WINTER 2015

Queensland Government

QUEENSLAND Country Life

Queensland's drought: long-term perspective

Australia's weather is influenced by many climate drivers

LARGE parts of Queensland have been drought affected over the past three years.

Forty five percent of Queensland (central west, northwest and southern inland) has experienced serious or severe rainfall deficiencies from July 2012 to June 2015.

Western Queensland rainfall was 41 per cent below normal for 2012-13, 20pc below normal for 2013-14, and 26pc below normal for 2014-15.

While none of these individual seasons was especially extreme, it is unusual to get three wet seasons in a row so dry without any recovery in between. 2012-13 ranks 11th driest on record, with more than double the rainfall of the two worst wet seasons on record, 1901-02 and 1934-35.

The most severe long-term drought on record in western Queensland occurred in the 1920s and 1930s. During this time, the dry conditions we have seen in the past three years persisted for a decade; all 10 of the wet seasons from 1925-26 to 1934-35 had below-normal rainfall, with eight of the 10 being 20pc or more below normal.

The 1920s and 1930s stand well above all other long-term droughts for duration; the only other occasion when there have been three or more wet seasons in a row as dry as the past three was from 1963-64 to 1966-67.

It is also rare for both the north and south to be very dry at the same time. For example, most of the Maranoa and Warrego had a drier three-year period in 1990-93 than they have had in 2012-15, but the early 1990s drought left the northwest largely unaffected.

Rains in the last month have been welcome and locally useful, especially around the Queensland-NSW border, but have had only a marginal impact on long-term rainfall deficits.

WHAT IS AN EL NIÑO?

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.

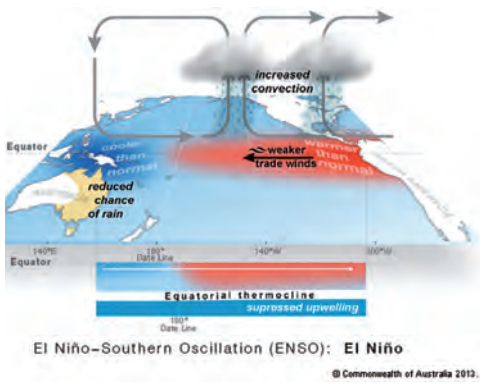

Figure 2.1

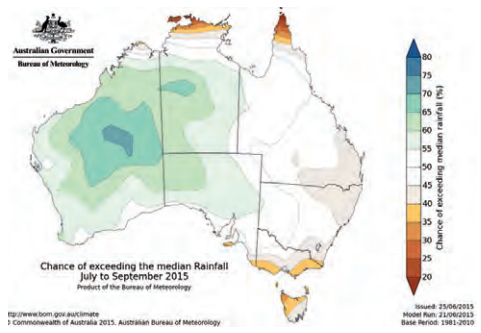

Figure 2.2

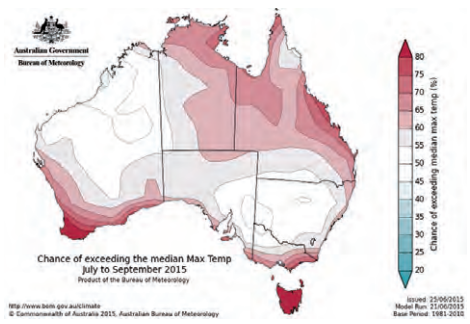

Figure 2.3

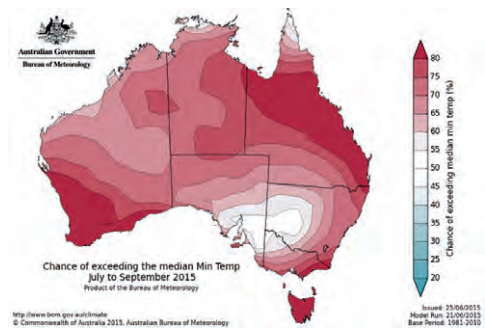

Figure 2.4

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 Nina 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.
- Later wet season start and monsoon onset: rainfall in the northern tropics is typically well-below-average during the early part of the wet season for El Niño years. There is also generally a two to six-week delay on the date of the monsoon onset in tropical Australia compared to La Niña years.
- Reduced tropical cyclone numbers: on average there are fewer tropical cyclones near the Queensland coast during El Niño years. Cyclones are also half as likely to cross the coast compared to neutral years, greatly reducing the likelihood of flooding, strong winds, high seas and heavy rainfall associated with tropical cyclones. Vigilance is required at all times during the cyclone season of course.
- Warmer temperatures: during El Niño years, there is a tendency to see warmer-than-average daytime temperatures across the southern half of Queensland (excluding the coast). Decreased cloud can result in warmer days and the higher temperatures exacerbate the effect of lower rainfall by increasing the evaporative demand. In the northern part of Australia there is a tendency to see an increase in both individual extreme hot days, and multi-day warm spells, during the summer.
- Increased risk of frost: The reduction in cloud cover often leads to cooler-than-average overnight temperatures during winter, with an increase in the number of frost days during El Niño years compared to the historical average.

More information on what El Niño means for Australia at: www.bom.gov.au/climate/updates/articles/a008-el-nino-and-australia.shtml

An infographic can be found at: www.bom.gov.au/climate/enso/images/El-Nino-in-Australia.pdf

FORECASTING EL NIÑO

The Bureau of Meteorology issues monthly seasonal forecasts – climate outlooks – which includes outlooks on the state of ENSO for the upcoming months.

The skill of long-term forecasts varies with the time of year and decreases the further out we look.

The outlooks can provide guidance on when an El Niño (or La Niña) is likely to occur and how long it may go on for.

Forecasts of the likelihood of ENSO events take into account: temperature patterns across the tropical Pacific Ocean at the surface and in the sub-surface; variations in trade wind ('easterlies') strength; atmospheric pressure, and ocean currents.

The Indian Ocean sea surface temperatures are also a significant contributor to the outlook. Information on these indicators is routinely updated and available fortnightly in the ENSO wrap-up (www.bom.gov.au/climate/enso/).

Climate outlooks show the likelihood of the next three months being wetter or drier, or warmer or cooler than usual www.bom.gov/climate/outlooks.

While weather forecasts predict what the rainfall or temperature will be tomorrow, the climate outlooks are not this specific as they look further ahead, and attempt to model a chaotic system.

The SCO'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-OCT UPDATE ON WEB 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 Country and Cape York Peninsula (see picture 2.2 BOM Rain).

The temperature outlook includes a maximum (daytime) and minimum (overnight) outlook.

For July to September, daytime temperatures are likely to be warmer than average across a large part of Queensland except in the south, and far north tropical coast. Historical accuracy for the July to September period for maximum temperature is moderate for most of Queensland (see figure 2.3).

Overnight temperatures are likely to be warmer than normal for most of Queensland, apart from the far northern Cape York Peninsula.

Historical accuracy for the July to September period for minimum temperature is moderate for most of Queensland, except in areas on the inland southeast (see figure 2.4).

Tamika Tihema and Blair Trewin, Bureau of Meteorology
Phone: (07) 3239 8751

Editorial: Welcome to Beeftalk edition 43

WELCOME to Beeftalk 43. In this issue the Bureau of Meteorology (BOM) take a closer look at El Niño, its past impact and current climate forecast.

The BOM has a great range of rainfall and temperature maps well worth investigating.

The Bureau has recently introduced several new maps indicating the chance of an early or late rainfall onset following the start of spring; the median dates across the state when at least 50mm has accumulated after September 1; as well as how these dates change historically due to El Niño or La Niña conditions www.bom.gov.au/climate/rainfall-onset/#tabs=Normal-onset.

Emma Hegarty and runners up, Luke Wright and Athol New.

The article on establishing pasture legumes certainly mentions the importance of climate and seasonal forecasts and storing soil moisture if thinking about planting pastures.

The Grazing Best Management Practice program continues to gain momentum and we introduce two new staff, Andrew Taylor and Megan Gurnett, helping deliver the program.

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 farm manager from Christchurch, New Zealand, and Luke Wright, a deer and beef farm manager from Te Anau, NZ.

Platinum Primary Producers chairman and CEO of Allflex Australasia, 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/s/beeftalk43 or give us a call on 13 25 23 or email roger.sneath@daf.qld.gov.au.

HAPPY READING!

THE BEEFTALK TEAM

Getting the most from forages for production

Graziers have a new guide to assist in forage production decisions

Summary of key performance figures averaged across all forage sites
Maximum value in each row highlighted yellow and bold

	Annual forages			Perennial forages		
	Oats	Forage sorghum	Lablab	Leucaena-grass	Butterfly pea-grass	Perennial grass
Forage biomass measurements in the grazed paddocks (kg DM/ha)[A]	4,555 (2,280-5,430)	**12,150** (2,070-30,200)	6,014 (5,480-6,540)	*Leucaena*: 417 (200-740) *Grass*: 3,809 (2,700-5,620)	*Butterfly pea*: 528 (140-1,140) *Grass*: 4,591 (3,480-5,520)	3,702 (2,190-4,550)
Total grazing days per annum or total period	116 (91-158)	107 (52-139)	107 (103-111)	**284** (140-476)	181 (139-223)	224 (0-476)
Total LWG (kg/ha per annum or total grazing period) per total grazing area	93 (38-144)	108 (41-253)	99 (41-156)	**198** (129-306)	125 (50-245)	76 (0-169)
Forage costs ($/ha per annum) per forage area only; owner rates[B]	**136** (93-193)	96 (16-169)	99 (85-113)	34 (17-47)	21 (21-21)	2 (0-5)
Gross margin ($/ha per annum or total grazing period) per total grazing area; owner rates	131 (54-197)	54 (-48-243)	44 (38-50)	**184** (90-304)	143 (34-379)	98 (-5-285)

LWG: liveweight gain.
[A]For annuals these figures are the peak biomass measured in the paddock. For perennials it is the average biomass measured in the grazed paddock over the duration of monitoring. They do not indicate the total biomass grown during that period due to being the net result of what was grown and what was consumed by grazing livestock. Figures for leucaena biomass represent only edible material (i.e. leaves and stems up to 5 mm diameter).
[B]Annual forage costs for perennials were calculated by amortising establishment and maintenance costs (an average annual cost over the life of the forage).

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. Forage and beef production and gross margins were documented at each site.

Overall, forages substantially increased beef output compared with perennial grass-only pastures, but this did not always translate to greater profit. Forage establishment and management costs, and cattle price margin, were other critical factors affecting profitability.

There was a wide range in animal and economic performance (see table). Animal production: Leucaena-grass pastures produced the most beef averaged across all sites and years (198 kg/ha/annum). This was 2.6 times greater than beef produced on perennial grass pastures (76 kg/ha/annum). Forage sorghum produced the most pasture biomass but not the most beef due to it often being poorly utilised.

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).

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 (HGPs) for increased productivity if not restricted by the target market.
- Not regularly monitoring weight gain. Weighing can improve timing of sales and market compliance. Data is also needed to do the sums.
- Returning stock to grass pastures after grazing the crop, especially from oats to grass pastures over summer as compensatory gain can erode much of the liveweight and financial advantage.

Case studies examined the value of the sown forage systems 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 feasible. 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

- *Download the new guide 'Feeding forages in the Fitzroy' and forage gross margin spread sheets from the FutureBeef website: www.futurebeef.com.au/resources/projects/high-output-forage-systems-for-meeting-beef-markets/.*
- *Download the final report with all results: www.mla.com.au/Research-and-development/Search-RD-reports/RD-report-details/Productivity-On-Farm/High-output-forage-systems-for-meeting-beef-markets-Phase-2/2910.*

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

Want to know when the rains are coming?

THE Bureau 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 northern rainfall onset, around mid-January.

The rainfall onset as defined here is different from the Australian monsoon (www.bom.gov.au/climate/about/?bookmark=monsoon) onset, which is characterised by a reversal of the prevailing winds and widespread heavy rainfall.

The north Australian monsoon usually begins in late December.

The northern rainfall outlook 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.

Check the northern rainfall onset outlook at www.bom.gov.au/climate/rainfall-onset.

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

Dr Jeff Sabburg, Bureau of Meteorology
Phone: (07) 3239 8660
Email: j.sabburg@bom.gov.au

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.

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

Perennial pasture legumes: plan ahead

Start planning for them now

WINTER is generally not thought of as the ideal time to consider perennial pasture legumes, however it is the time to start planning to ensure you have the best chance at successful establishment.

Options for controlling competition, storing moisture and seed bed preparation all need careful consideration. Two key factors that can limit our summer growing pasture legumes becoming established in existing grass pastures over the summer growing season are competition for moisture and unreliable rainfall.

Despite good establishment being recognised as critical to the long-term productivity and persistence of perennial pasture legumes, commercially they have not established reliably into grass pastures as most producers opt for low-cost and low-reliability establishment techniques.

These practices include broadcasting seeds after either no or minimal pasture disturbance (e.g. after burning or pulling), or planting after severe soil disturbance into a very rough seed bed such as that created by a blade plough.

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 'sown' this way and expected to establish, survive and thrive.

Experience and research tell us that the reality is these 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 fallowing 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 plough 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 disks at planting, or spraying out existing grasses at planting.

Short fallows of one to two months are better than no seedbed preparation at all, but by far the best results are achieved with longer fallows of four or more months combined with post sowing weed control.

Blade ploughs and cutter bars are typically designed for sucker control, however they are also often seen as an opportunity to sow improved pastures.

Unfortunately, the resulting seedbed from a blade plough or cutter bar is not adequate for sowing small seeded legumes, such as Desmanthus or Caatinga stylo, as the surface is left very rough and uneven. Establishment is often unreliable because the seed is buried too deep, there is poor soil-seed contact and lack of moisture.

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.

Ideally, 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 ute, 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 5m 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 aerially sprayed 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. ley 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 BSES (acid) and phosphorus buffer index (PBI)), sulphur.
- 30-60cm: Sulphur (and chloride if budget permits).
- 60-90cm: Sulphur (and chloride if budget permits).

If 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.

Gina Mace, Joe O'Regain and Stuart Buck, DAF St George, Toowoomba and Rockhampton.
Phone: (07) 4620 8122
gina.mace@daf.qld.gov.au

Introducing Grazing BMP project officers

Pair to collaborate with regional environment groups

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 program (Grazing BMP).

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.

Increased adoption of Grazing BMP will support graziers to identify opportunities for increased production efficiencies, provide improved environmental outcomes for the land, and improved credibility 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 TAYLOR

Andrew has a 'grass roots' background in the grazing industry, starting as a jackaroo in the Gulf, moving to managing grazing properties in northern NSW and back to servicing north Queensland as a rural loans officer for Rabo Bank.

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

Andrew Taylor.

Andrew has been responsible for designing and implementing agriculture programs in Afghanistan, Kosovo, Serbia, and Sudan. He has also facilitated agriculture extension programs in the Philippines, Serbia, East Timor and Western Samoa.

More recently Andrew worked with graziers in the northern Gulf catchment region with sustainable grazing extension and regional Landcare activities.

Ultimately, Andrew has been passionately involved in implementing sustainable grazing systems for many years and is relishing the opportunity to work with a like-minded team to support the industry with Grazing BMP.

Andrew's role is based in Brisbane with regular travel throughout the north Queensland Dry Tropics, Fitzroy Basin, Burnett Mary, and South East Queensland to support the Grazing BMP team.

Megan Gurnett is the newest member of the DAF FutureBeef team based in Toowoomba.

You can contact Andrew on 0488 002 092 or email taylora@agforceqld.org.au.

MEGAN GURNETT

Megan Gurnett is the newest member of the DAF FutureBeef team based in Toowoomba.

Megan grew up on her family's beef property 70 km west of Charleville and following her passion for the beef industry recently completed a dual bachelor degree in agribusiness and applied science majoring in animal production science from the University of Queensland, Gatton.

Megan will be delivering extension activities for Grazing BMP in the Burnett Mary and south east Queensland river catchments and is looking forward to working with and supporting graziers through Grazing BMP. You can contact Megan on 0475 973 221 or email megan.gurnett@daf.qld.gov.au.

Kikuyu - keeping it productive

KIKUYU (Pennisetum clandestinum) is a very productive grass for wetter coastal areas with deep soils and good fertility. Kikuyu is originally from high altitudes in Kenya close to the equator so it can grow from the tropics down to southern areas of Australia.

It is a very productive and aggressive rhizomatous grass suitable for pasture and lawns on fertile soils. It is hardy in the correct environment and tolerates heavy grazing due to its rhizomatous underground root system. A productive kikuyu pasture needs rainfall in the vicinity of 900 mm/year but once established it can persist with less rainfall. It does best in higher areas with deep volcanic soils.

Kikuyu can remain green for a long period of the year and responds quickly to rain in warmer months. It is frost hardy with all but the heaviest frosts knocking it back. Old stands of kikuyu can lose vigour as they tie up nitrogen and as a result renovation of the pasture with ripping and fertiliser may be necessary.

Kikuyu responds well to fertiliser and depending on soil tests up to 50 kg/ha of urea or sulphate of ammonia can be spread before rain to increase productivity. Feedlot or other manures are another option. This grass is often seen around dairies and piggeries where there is plenty of moisture and fertility. Be aware that nitrate levels can be very high on new growth after fertilisation.

Kikuyu can be planted from seed or runners, though is a shy seeder with its very small white flowers seldom seen. There are a number of varieties and the turf industry has developed lines suited to lawns.

Cattle growth rates on kikuyu can be up to 0.9 kg/day compared to ryegrass at 1 to 1.2 kilograms/day.

Kikuyu has been used in dairies for many years and work in New South Wales indicates that best production can be obtained by grazing at the 4½ leaf stage.

When kikuyu is grazed it can make a big difference to production. Sugars, calcium and magnesium are higher at the 4½ leaf stage. Grazing too early can lead to health problems and grazing at late stages leads to lower production.

As every gardener knows kikuyu is an aggressive invader of fertile soils and it can be difficult to get other plants, especially legumes, to compete with it.

White clover is a good companion but is easily grazed out. To stay in the pasture white clover needs late winter/spring rainfall for early growth before the kikuyu becomes too dominant.

Another legume for higher rainfall tropical areas that can be used with kikuyu is Shaw creeping vigna. You can also over sow kikuyu pastures with oats, brassicas or ryegrass for winter feed, but this is best done in irrigated situations.

Kikuyu is a valuable pasture plant that is more productive if managed correctly with targeted rotations and proper nutrition.

References: Lowe, KF, et al. 2010, Phenotypic and genotypic variation within populations of kikuyu (Pennisetum clandestinum) in Australia, Tropical Grasslands, vol. 44, pp. 84–94.

Fulkerson B, et al. 2010, Milk production from kikuyu based pastures, PRIMEFACT 1068, Department of Industry & Investment, New South Wales.

Damien O'Sullivan, DAF, Kingaroy
Phone: (07) 4160 0717
Email: damien.o'sullivan@daf.qld.gov.au

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 sheets – a smartphone and a new Stocktake Plus app are all a grazier needs to determine stocking rates and carrying capacity in any paddock.

The Stocktake Plus app was developed by DAF's FutureBeef team after extensive industry consultation, and is designed to be a practical, work-anywhere (including outside telephone range), decision support tool. Supported through FutureBeef and Meat & Livestock Australia, the app is now available for use for all northern Australia beef producers.

The new Android update makes the app more user-friendly and accurate, and brings it in line with the updated Apple version. It includes:

1. add 'Available Pasture' to the reports section.
2. create a home screen on start-up instead of defaulting to properties tab.
3. export data to a .zip file of a CSV, email or transfer file.

It is also timely to remind all users to routinely back-up your data and here is how to do this…

1. once logged in navigate to "Secure Backup" via 'More' on the navigation bar (at the bottom), or
2. You can view the video tutorial www.stocktakeplus.com.au/support/help-tutorials/#tutorial15.

Greg Bath, DAF, Toowoomba
Phone: (07) 4688 1212
Email: greg.bath@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 markets, as well as cull heifers.

The herd has a Santa Gertrudis base, with Angus and Droughtmaster bulls. Approximately 4000 cattle are grazed across the three properties and 1600 of these are breeders. The breeders are joined at three bulls per 100 females. The Angus bulls were introduced to help meet MSA grading standards. They are selected on sheath structure, testicle size and structural soundness.

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

Bulls 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 diagnosis are spayed. Females 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 animal production module. During the 2014 dry season, they decided to separate their heifers from the main breeding herd until their second calf.

Historically, the heifers were dispersed throughout the breeding paddocks once they were pregnant. After completing the animal production module, the Roberts family saw the benefits in keeping the heifers separate until their second calving.

Segregating the heifers until their second calf lets the Roberts closely monitor their performance.

"Since we have kept them separate, we have been able to look after them more. We have been able to feed them lick without feeding all the other breeders and wean the calves earlier to maintain the mother's body condition. Although we haven't completed a pregnancy diagnosis yet, we are hoping that there is an increased conception rate in the heifers as a result of these changes in management," Mrs 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 breeder mobs, all the breeders received lick. Because the heifers are now segregated, if they start losing condition, feeding lick can be targeted to the heifers to ensure they maintain body condition.

The Roberts' have also started using EBVs to select bulls. In addition to selecting bulls for sheath structure, 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 rib fat, rump fat, retail 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 lot of 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 and use the information.

Mr Roberts believes the program has merit with banks and lending institutions, as it demonstrates that producers are trying to improve their profitability and sustainability. "Grazing BMP is a great opportunity for graziers to strategically assess their business," Mr Roberts said.

Matt Brown, DAF, Rockhampton
Phone: (07) 4923 6211
Email: matt.brown@daf.qld.gov.au

Making the most of a dam water supply

DAMS are an important water source for the grazing industry across the state. The recent, extended dry weather has stretched water resources to the limit on many properties.

As dam water has dried up many properties have tried to drill bores for emergency water supplies. In some cases this has been successful but on other properties extensive drilling programs have resulted in dry bores or low-quality water not suitable for stock.

WHAT OPTIONS ARE THERE TO IMPROVE DAM WATER SUPPLY?

Water quality deteriorates more quickly if stock have direct access to a dam. If stock can be excluded from the dam there is far less contamination of the water from manure and urine.

It is often the addition of these nutrients that causes algal blooms and decreased water quality. Excluding stock from dams will necessitate infrastructure to supply water. Piped systems allow more of the water to remain usable in dry times.

1. Pumps and tanks: windmills, engine powered pumps and solar can be used to supply water from a dam. With the advent of more efficient solar pumps there are now reliable systems that require far less labour than an engine-driven pump that needs to be regularly started or a windmill that may not pump enough water in hot, dry weather. Solar pumps can be set-up to pump into a tank and turn-off automatically when the tank is full. This reduces water waste and is a time saver compared to continually monitoring other types of pumps.

2. Siphon: if the dam is high in the landscape or troughs can be placed lower than the low water level in the dam, a number of troughs can be supplied easily by siphoning from the dam. Generally, the cleanest and best water is 30cm below the surface and a float needs to be set up to siphon from this depth. A float also allows for the rise and fall of the water level. The main problem with this system is a faulty trough that allows large quantities of water to be lost.

3. 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 needing to be checked 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 fencing and the prospect of digging post holes over dam banks is not appealing. A single or double wire electric fence can be a simpler solution when used with a portable solar powered electric fence and steel posts.

It is also a better option than the myriad of steel posts and barb wire that we see around some dams. A well maintained, fenced dam also alleviates the problem of stock bogging as water quickly recedes in dry times.

REDUCING SILT LOADS

Dry weather and bare soil are the enemies of dams. There needs to be a balance between getting water to run and not having a dam regularly filled with silt.

Silt traps in dams can be worthwhile. In some cases this may be a small depression that slows the water flow and allows heavier silt to fall out before the water enters the main dam. Another option for any dam is to have the inlet area permanently fenced to exclude stock for most of the time.

The grass and vegetation in the area can then act as a silt trap and can also reduce the amount of organic matter that may end up in dams after a storm.

Organic matter breaking down in dam water can cause a lack of oxygen causing off smells and deaths of aquatic organisms in the water further reducing 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 quantity 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.

Damien O'Sullivan, DAF, Kingaroy
Phone: (07) 4160 0717
Email: damien.o'sullivan@daf.qld.gov.au

Timely tips for winter 2015

BREEDERS

- Pregnancy test two months after bull removal. Do annual breeder vaccinations.
- Cull breeders (pregnancy tested empty, temperament, age and defects). Truck to saleyards or fattening paddock.
- Maintain breeder condition. Will maiden heifers be heavy enough to mate? Are first-calf cows in good enough condition to get back in calf?
- Order NLIS tags.
- Check calving heifers for calving difficulties. Identify those needing assistance to later sell. Checking the first calf cows is good husbandry and gets them used to you moving around their paddock and they keep that quietness.

BULLS

- Check bulls for soundness; most importantly semen test each breeding bull, and determine numbers needed for next breeding season.
- Consider type/breed of bull that will produce the type of calves best suited for your potential markets. Source and evaluate potential bull suppliers.
- Check young home-grown bulls as potential sires.
- Annual vibrio and three-day booster for bulls at least four weeks before joining.
- Obtain advice on breeder vaccination programs e.g. pestivirus.

NUTRITION

Re-evaluate dry season management:

- Re-assess pasture quantity and quality
  – If insufficient quantity/quality for desired performance consider why.
  – If quantity is below requirements implement your selling strategy.
  – If quality will not sustain desired animal performance, explore how you can improve your pasture quality.
- Draft cattle according to nutritional requirements.

PASTURES

- If appropriate, consider burning native pastures every two to three years in late winter or early spring after 50mm of rain to maintain good pasture condition and control woody weed growth.
- If pasture condition needs to improve, remove stock from paddocks that have been burnt until pasture is at least 15cm high.
- Watch SOI and other long range forecasts for suitable time to plant pasture.
- To maintain or improve pasture composition, ensure paddocks get at least one late spring or summer spell every fourth year.

PARASITES AND DISEASES

- Plan tick control for summer. 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.

PROPERTY MAINTENANCE

- Check fences and water facilities in breeding paddocks.
- Check river and creek crossings before next wet season.
- Make sure you have adequate amounts of wire, steel posts, etc on hand for maintenance. If you get a flood/fire and have wrecked fences, chances are the supplies you want will be in short supply.
- Maintain fire fighting equipment, extinguishers, etc. and ensure that fire breaks are maintained and serviceable. Slash or mow around buildings and wooden cattle yards as well as inside paddocks that adjoin roads where most fires start.
- Clean around buildings and check that gutters are free of leaves.
- Ensure all staff know what to do in case of fire. Do they know who to call in case of fire? Have a property evacuation plan.
- Join your rural fire brigade for useful training and equipment advice.
- Do workplace health and safety audit of property.
- Has everybody been trained to use and maintain the farm equipment in a safe, correct and competent manner? Legal liability.
- Do your annual electrical safety check on all household and farm equipment.

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.

Carli McConnel, Mt Brisbane, Esk
Phone: (07) 5426 0169
Email: carlimcconnel@westnet.com.au

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 cows to put on weight so they can be culled.

Calves under six months old can be weaned successfully provided they are fed and managed well. Whatever the reason 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 feeding 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.

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

At birth a calf's rumen cannot digest grass. Milk bypasses the rumen via the oesophageal groove and 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, 121 to 150kg and over 150kg.

Put calves in poor condition with a younger group. This will give all calves a better chance of doing well and competing with others in the group. Allow 15-20 cm of trough space per weaner. Feed hay in racks and supply 10-20 litres of high quality water per day per weaner. Clean troughs regularly, especially when feeding meals or grain in the yards.

Calves 60kg or less need a milk replacer and a meal or pellets. For details see 'calf rearing' on the FutureBeef web site. 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 grassy lucerne hay, good quality grass or forage hay. Beware of scouring, particularly on lucerne hay.

Plus feed one of the following supplements:

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

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 cottonseed.

FEEDING RATES FOR CALVES OVER 150 KG

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

- 0.5 kg/head/day protein meal
- 1 kg/head/day of molasses plus 3pc urea and 8 to 10pc protein meal
- 0.5 kg/head/day whole cottonseed.

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 intakes should be varied accordingly. Weather conditions will also affect the calves. Avoid sudden changes in feed supplements. A transition period is needed for the rumen bacteria to change.

Reference: Tyler, R, et al. 2010, Weaner management in northern beef herds, Meat & Livestock Australia.

Damien O'Sullivan, DAF, Kingaroy
Phone: (07) 4160 0717
Email: damien.o'sullivan@daf.qld.gov.au