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Budgeting your pasture

Determine green dates for managing and budgeting pasture on your property.

IN NORTHERN Australia, the distinctive dry and wet seasons makes it possible to estimate how many days of pasture feed is needed from the end of the growing season until good pasture growing rainfall is expected the following summer.

A pasture budget based on the probable length of the dry season enables a safe stocking rate to be calculated.

Keeping a safe stocking rate for available pasture has the potential to reduce the extent of supplementary feeding and reduces stress on pastures, stock, finances and stock owners.

The concept of a green date, key date, green season, green week or break of season, and other similar terms, has been around for many years to help determine when a break in the dry season may occur.

Knowing a green date can also be used for calculating the optimum time for calving at a particular location.

With the recent run of dry years and late seasonal breaks, some producers have opted to calve later to ensure a better chance of good feed for cows and calves.

A generalised estimate for the start of effective pasture growth is 50 millimetres of rain over three days.

Most tropical pastures need a temperature of 20 degrees to grow, but moisture is usually the main

limiting factor in northern grazing areas.

In some districts there may not be a point where 50mm over three days can be expected, so a property owner will identify a green date based on the amount of rainfall they need to start the growing season in their district.

Calculating a green date

CliMate is a user-friendly tool for looking at climate data to estimate a green date.

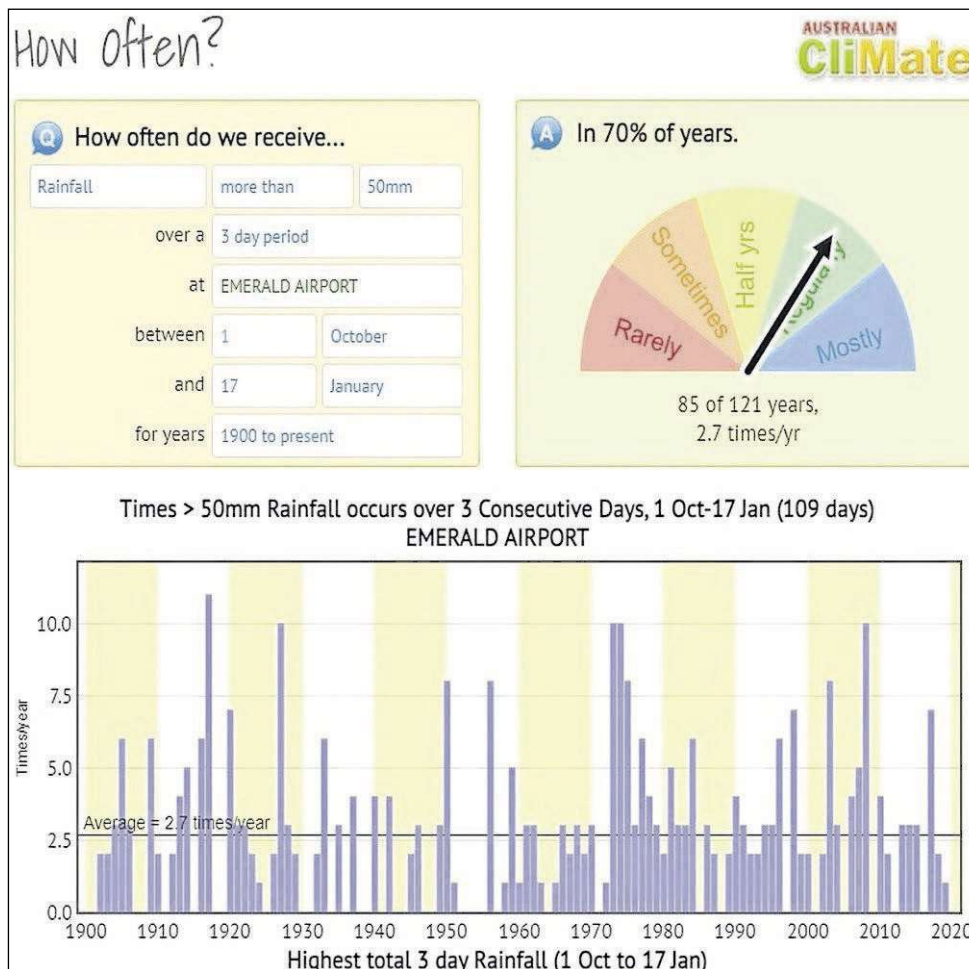
It is available online at <https://climateapp.net.au> or as an app for iPhone.

Climate records indicate that for most locations in Northern Australia, the end of March is the end of the major growing season as rainfall, temperature and day length all decrease.

A pasture budget can be safely calculated from April 1 in most circumstances.

Steps for calculating a green date:

1. Select the 'How Often' section in CliMate
2. Select the following: 'Rainfall', then 'more than', then '50mm', then 'over a three-day period'
3. At 'Your location', then starting date either 'September 1' or 'October 1', and enter a date that you think there is 70 per cent chance of getting 50mm of rain eg.: 'February 9', then for years '1900 to present'.
4. You then adjust the



CliMate screen shot showing green date calculation for Emerald.

“The concept of a green date, key date, green season, green week or break of season, and other similar terms, has been around for many years to help determine when a break in the dry season may occur.

second date earlier or later until 70pc of years appears in the answer section. In this example, the green date for Emerald is January 17.

Once the green date is calculated, the number of days from April 1 to January 17 can be determined, which in this case is 292 days. This is the number of days grazing that must be bud-

eted for to ensure there is adequate feed for stock and to maintain groundcover.

The calculation of 292 days for a green date in 70pc of years indicates there is a probable growing season of 74 days (365-292) for Emerald.

This demonstrates the importance of being able to spell as much pasture as possible during the growing season and maximise long-term pasture production.

The calculation of a likely green date may also prompt a review of calving dates.

Other factors to consider when

determining and using green dates

- Soil type: a property with heavy black clay soils will need more rain to wet up the soil for pasture to grow. In contrast a light soil will respond to much less rainfall.
 - Previous weather conditions: if the property has had prolonged drought conditions, it will need more rain to get a pasture started than if the property has had some winter rainfall.
 - Prevailing weather conditions: high temperature, winds and low humidity can reduce the effectiveness of rainfall.
 - Location: some of the more arid regions of Northern Australia rarely get 50mm over three days, so the rainfall amount or number of days may need to be changed to get an indication of when there is a possibility of a seasonal break.
 - Seasonal outlook: in an El Nino year the seasonal break may be later and in a La Nina year there may be an earlier start to the season.
- Another useful tool is the Northern Rainfall Onset Forecast produced by the Bureau of Meteorology, which looks at the chance of accumulating 50mm of rain from September 1 each year.
- A green date is a sound starting point for forage budgeting, preparing for the dry season, and setting an optimum calving date.
- Damien O'Sullivan, Senior Extension Officer, DAF Kingaroy and Northern Australian Climate Program, 0459 812 261.



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* Based on NLIS market share data, 2020.





Have a yarn with DAF at Beef 2021

Beef experts on-hand to chat

THE countdown is on for Beef Australia 2021 in Rockhampton from 2-8 May and the Queensland government is proud to be a principal partner.

Make sure you come and have a yarn with the DAF team. Our beef experts will be on-hand in the Sidney Kidman pavilion and the Ken Coombe Tech Yards.

We'll be discussing contemporary issues, including how to build drought resilience and adapt to climate change to remain profitable, strategies to manage degraded land, new legume varieties for grass-fed beef and our latest research in pasture dieback.

For the first time, Beef 2021 will include an ag tech area in the Ken Coombe Tech Yards, featuring market-ready and emerging technology for the beef industry.

This will be a first look at technological advances currently in development to help with long-term agri-business planning.

There will be trade fair booths, demonstration spaces and producer-led discussions.

The DAF display located



At the DAF display in the Sidney Kidman pavilion, pop-up talks will be running on the hour each day, giving you the opportunity to meet staff and ask questions on a range of topics.

next to Microsoft in the Ken Coombe Tech Yards will showcase innovative research and technology such as multi-spectral imagery to assess pasture health, and apps to assist with grazing

land management. Staff will be holding workshops every two hours to help you start your journey into innovative ag tech and research.

At the DAF display in the

Sidney Kidman pavilion, pop-up talks will be running on the hour each day, giving you the opportunity to meet staff and ask questions on a range of topics. A full list of speakers, topics and times

will be available at the event so make sure you grab a copy.

If you have questions around farm biosecurity including traceability or property registration, biosecurity

“Our beef experts will be on hand in the Sidney Kidman pavilion and the Ken Coombe Tech Yards.

officers will be doing a Q&A session.

The comprehensive Beef 2021 seminar program includes four DAF seminars:

- Drought and disaster management for northern operations (Monday, May 3)
- Advancing beef leaders (Tuesday, May 4)
- New legumes for grass fed beef production in northern Australia (Wednesday, May 5)
- Latest research findings into dieback across Queensland (Friday, May 7).

To purchase tickets to Beef 2021, head to beefaustralia.com.au.

Access the latest research for better results

HAVE you ever wondered "What if" at your place?

As we turn the corner on another 'wet' season and pasture growth slows, now is the time to assess how things are looking inside your front gate. What you have now is as good as it's going to get until the next seasonal break - not reliably expected until

after Christmas.

Are you confident you have sufficient pasture to support your herd? If you are unsure, or find that by September you are often looking to the heavens because pasture is running out, what could you do differently to make the end of this year less stressful?

If you keep doing the same thing, you will keep getting the same result. Is there something different you would like to try, or source more information about what might relieve some of the pressure towards the end of the year at your place?

Examples include pasture budgeting, early weaning,

pregnancy testing and segregating breeders on pregnancy and lactation status. Other things to consider are decision support tools to determine whether to feed or sell certain classes of stock, or whether the supplement you are considering is the most cost effective.

These and other enquiries

are handled by local beef extension officers. They have access to specialist knowledge and the latest research which they can tailor to your situation and help you implement at your place.

They are also keen to collect local evidence of productivity and profitability advantages of alternative

strategies to share with others.

If there is something you are interested in finding out more about, chances are others will be too, so give your local beef extension officer a call and discuss. Contacts for beef extension officers can be found at futurebeef.com.au/contact-us.



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Shade benefits in review

Research gives calf survival insights

RESearch into the benefits of artificial shade near water points to increase calf survival has commenced on open Mitchell grass country at Avon Downs Station on the Barkly Tableland.

The Northern Territory Department of Industry, Tourism and Trade (NT DITT) trial, led by Dr Kieren McCosker, is a foundation project in the research pillar of the Northern Breeding Business (NB2) initiative developed by Meat and Livestock Australia, which aims to improve the long-term productivity of northern breeding herds.

This article presents results from the first year (2019-20) of the three year study (2019-22).

In September 2019, 150 pregnant No. 7 Wagyu heifers due to have their first calf between October and December 2019, stratified for BCS and estimated month of calving were randomly allocated to either a shade or no shade paddock.

The shade paddock had one feedlot-grade shade structure (50 x 25 metres) installed within 500m of each water point.

Heifers observed as lactating at the weaning muster on May 22, 2020 were considered to have successfully weaned a calf.



Shade structures used at Avon Downs Station in the Northern Territory for shade trials.

Calves were trucked back to the homestead where they were weighed on the same day as weaning.

In each paddock, five heifers were fitted with GPS tracking collars, with two of the five collars having the capability to record ambient air temperature.

GPS location data for each collar were summarised for two time periods (daily and between 10am to 3pm) by generating counts for the total number of GPS locations and number of GPS locations within 500m of water.

There was no significant difference in foetal and calf loss (pregnancy test to weaning) between the shade mob (28.4 per cent) and no shade mob (29.2pc).

These losses highlight the importance of research to

RESEARCH

- NT DITT is undertaking a three year trial (2019-22) on the Barkly Tableland to evaluate the benefits of providing artificial shade near watering points.
- Reproductive wastage from pregnancy test to weaning is being assessed.
- The trial is using innovative technology to monitor environmental conditions, animal behaviour, and calving events to better understand factors that may affect reproductive wastage.

identify causes of reproductive loss.

The average weaning weight of calves in the

shade mob was 8 kilograms heavier than those in the no shade mob. However, this result needs to be viewed cautiously as it could be due to paddock differences.

The preliminary GPS data suggested an interaction between average daily ambient temperature and GPS counts close to water.

There appeared to be no difference between mobs for the number of GPS counts within 500m of water on hotter days. However, on cooler days, cows appeared to prefer areas near water when artificial shade was also available.

One potential explanation is that on hot days regardless of shade availability, cows spend increased amounts of time near water.

In summary, early results from this study suggest that

the provision of artificial shade near watering points does not improve calf survival, but there is some evidence that average liveweight at weaning is increased.

2020-21

On August 27, 2020, 150 No. 8 pregnant first-calf Wagyu heifers were allocated to each of the shade and non shade paddocks. Their calves will be weaned in May 2021.

Scientific-grade weather stations were installed in each paddock to measure environmental conditions both under and outside shaded areas.

This will more accurately measure the heat loads cattle face.

The monitoring program has been expanded with 110

animals in each paddock fitted with GPS collars.

Within each paddock, approximately 35 GPS units are scheduled to capture locations every 5-, 10- or 15-minute intervals.

These data are expected to provide detailed information on cow behaviour.

2021-22

In August 2021, the third draft of pregnant heifers will be allocated to the paddocks. Two different monitoring systems will be trialled to detect calving events. This technology will provide the time and location of calving events and allow their impact on calf survival to be estimated.

The technology will assist technicians with in-field observation around calving and provide information on cows that fail to calve (lost pregnancy), have stillborn or weak calves, and those which have a normal calf.

More advanced GPS tags and collars, which have the capability of describing behaviours (grazing, walking and ruminating) will be fitted to at least 100 cows in each paddock.

It is planned to use the range of different data to develop a monitoring system that can better detect a calving event from either a tag or collar attached to the cow.

This research would not be possible without the ongoing support provided by staff from Avon Downs Station and Australian Agricultural Company; it is gratefully acknowledged.

■ Kieren McCosker, senior livestock scientist, NT DITT Katherine Research Station, 0447 828 315.

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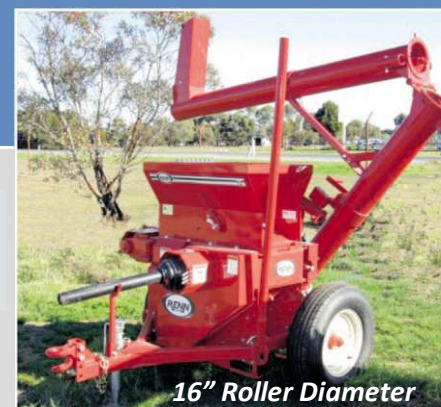
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Drought planning is key

Considerations around short-term and long-term drought management strategies have become central to annual planning for producers.

TO MITIGATE risk and ensure the sustainability of the sheep industry, a new drought planning tool is now available to help Queensland sheep producers effectively forward plan for dry seasonal conditions.

The new drought planning resource template developed by the Department of Agriculture and Fisheries' (DAF) Leading Sheep project helps producers break down the drought planning process into manageable steps to facilitate the implementation of effective business practices.

It brings together a range of tools to help producers assess their current situation and map out key decisions.

DAF extension officer, Andrea McKenzie, said drought strategy planning is becoming an increasingly critical step of the annual business planning process for the sheep industry.

"Drought planning is notoriously difficult due to the extremely varied and complex nature of droughts," Ms McKenzie said.

"Each drought brings its own individual set of challenges, but forward planning enables producers to have strategies up their sleeve that are ready to implement quickly when the situation arises.

"It's important that producers have a clear understanding of their strategies. These are the tools that they can use to adapt to a specific

set of circumstances in a drought. They might include early weaning, pregnancy scanning, supplementary feeding, agistment, financial and stock records to inform destocking decisions or feed storage infrastructure.

"A drought plan doesn't need to be onerous. In the short-term, the focus is on supporting good decision making through the setting of triggers which could be dates, management times or pasture availability, and ensuring there are strategies ready to implement.

"Having it written down helps plan ahead in good seasons when it might not be front of mind, keeps you accountable in the dry times, and is a useful tool to look back and evaluate what worked and what didn't.

"In Queensland, April is an opportune time in the planning process for producers. It is a good point to do forage budgets to ensure there is enough feed to last until the expected season break. It is also a useful time to jot down a plan for the year and review how you managed the most recent dry period."

Close management and forward planning will support producers in effectively managing their business, livestock, animal welfare and land throughout dry times.

"Our message is to plan early to assess your current position, set trigger decision dates or events to implement



In Queensland, April is an opportune time to do forage budgets to ensure there is enough feed to last until the expected season break.

“Planning early can save us from having to destock heavily later in the season. Destocking by 20 per cent early in a dry time has the same effect as destocking by 50pc later in a dry time.

specific strategies, identify key barriers and evaluate the effectiveness of your plan," Ms McKenzie said.

Producers can access the new drought planning template at leadingsheep.com.au/resources under 'Factsheets and Technical Media Releases'.

com.au/resources under 'Factsheets and Technical Media Releases'.

From the paddock

Duncan Banks, grazier from Dirranbandi, Queens-

land, said that not monitoring key trigger points and making decisions to implement drought management strategies significantly impacts business profitability, livestock, and environmental sustainability.

"Since the mid-1990s, we have assessed our grazing management more closely to better adapt to the dry conditions and periods of prolonged drought. We utilised the RCS grazing chart during this time, which helped us implement plans to better prepare, manage and recover after drought," Mr Banks said.

"Producers in our region

have experienced prolonged periods of dry since 2012, and business longevity has relied on having planning systems and strategies in place to implement early.

"It's important to set and understand how to implement both short-term and long-term strategies.

"For our business, these have evolved over time. We have varied our stocking numbers and made the decision to cease dryland cropping in 2003 and implement rotational grazing with Old Man Saltbush, which has allowed us to always have feed available and allows us to grow more grass from rain in the long-term.

"Having a plan and strategies in place allows us to make more informed, smart business decisions.

"For example, planning early can save us from having to destock heavily later in the season. Destocking by 20 per cent early in a dry time has the same effect as destocking by 50pc later in a dry time.

"Though each producer's plan may differ slightly in the key decision dates and strategies they intend to use, they're important for farmers to have in place to make the best decisions over periods of time."

For the sustainability and longevity of the Queensland sheep industry, considerations around short-term and long-term drought management strategies have become central to annual planning for producers.

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