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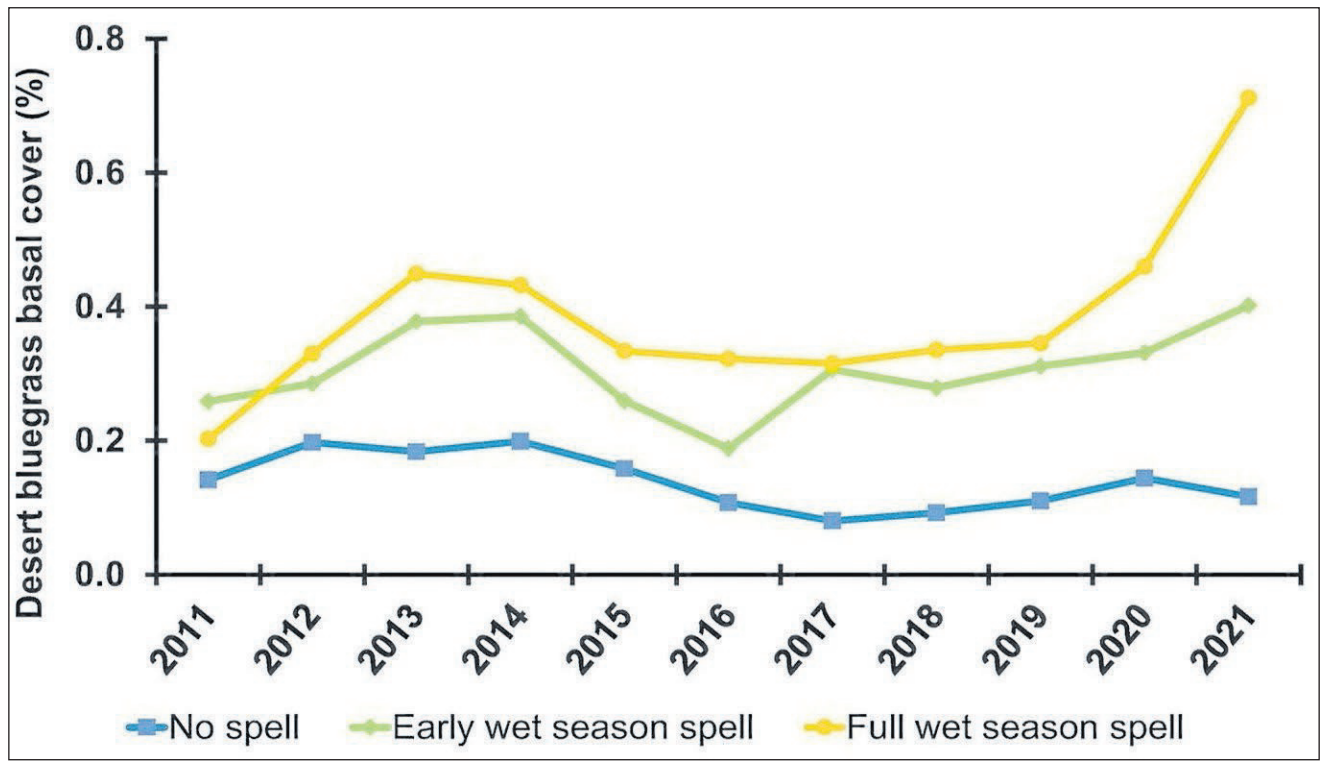
Desert bluegrass is the old warhorse of grazing

DESERT bluegrass (*Bothrichloa ewartiana*) has again proven to be a cornerstone of beef production for northern Australian rangelands.

Its resilience has been convincingly shown during the ongoing drought where weaker species died. While large numbers of desert bluegrass plants also died, many survived.

These surviving plants maintained a good basal cover (area of living material at ground level) through the drought and are now starting to increase in response to slightly better seasons and wet season spelling. This will form the foundation for future pasture recovery.

Desert bluegrass is like an old battle-hardened warhorse that's always there in the worst times - if it is looked after.



Desert bluegrass basal cover is improving with spelling compared to continuous grazing under a moderate stocking rate (8 ha/AE).

Better understanding

An ongoing research project within the Wambiana Grazing Trial near Charters Towers is testing different wet season spelling strategies under moderate (eight hectares/adult equivalent) and heavy (4ha/AE) stocking rates. The study has been running since 2012, with the last eight years one of the driest periods on record.

With the severe drought, only about 40 per cent of the mature desert bluegrass plants survived under a moderate stocking rate. While some seedling recruitments occurred in most years, only those that germinated in the last three years have survived - about one every 10 square metres. Under heavy stocking, desert bluegrass was almost eliminated with only 5pc of tussocks surviving through the drought. There has also been negligible seedling survival, with only about one every 50m2 surviving under heavy stocking.

Conditions have improved slightly in the last two years, but it is currently very dry. Despite this, a very encouraging increase in desert bluegrass basal cover has occurred with spelling under moderate stocking rates. Basal cover gives a good indication of the health and vigour of perennial grasses. In contrast, despite spelling, there has been no recovery in desert bluegrass under heavy stocking.

The other grasses studied included wiregrasses (*Aristida spp*), golden beard grass (*Chrysopogon fallax*) and hairy panic (*Panicum effusum*). Of these, wiregrass and hairy panic were almost eliminated by the drought with only very limited recovery since then. However, golden beard has been able to survive under moderate stocking and to a certain extent under heavy stocking.

Summary

The responses of the above grasses can be explained partly by their growth strategies. Golden beard is very long-lived (30 years) with underground stems enabling it to survive drought and heavy grazing. Although it's a strong perennial, golden beard never produces anywhere near as much forage as desert bluegrass. Desert bluegrass is also long-lived but its growing points on the base and stems make it susceptible to heavy grazing. It has maintained its basal cover under moderate stocking due to a better survival of original plants and greater recruitment.

Hairy panic and wiregrasses are short-lived perennials very susceptible to drought. However, their big seedbanks allow quick recovery in good years. Desert bluegrass is a cornerstone grass due to its high productivity and ability to survive and provide ground cover during a drought. It is the foundation not only for recovery when better seasons return, but indeed for the whole production system.

Recommendations

- Improve land condition with regular wet season spelling and moderate stocking rates.
- Match stocking rates to pasture available and land condition.
- In dry years the area of country spelled and the length of spelling must be managed to avoid applying excessive grazing pressure on the grazed country.
- Set stocking rates so there is 800 to 1000kg dry matter per hectare at the end of the dry season.

Paul Jones, senior pasture agronomist, DAF Emerald, 0428 103 923.

Expos to showcase benefits of GRASS program

Are you wondering what the Grazing Resilience and Sustainable Solutions (GRASS) program can do for your business?

The GRASS team is holding expos in Teebar, Thangool and Charters Towers in May and June, offering graziers an opportunity to see how they can benefit from the program.

Designed to help beef producers in the Burdekin, Fitzroy and Burnett-Mary reef catchments, GRASS delivers one-on-one support and tailored management plans to improve land that is in poor condition.

Graziers who participate in GRASS can access a wide range of resources and work with Department of Agriculture and Fisheries and local natural resource management agency staff to develop projects to improve land condition. They can also apply for incentive funding to undertake projects to improve areas of land in poor condition.

The upcoming GRASS expos will showcase landholder involvement, land condition improvement and the program's achievements since 2019.

Flyers will be posted soon. For more information or to register, contact:

- Teebar - May 17 - kate.brown@daf.qld.gov.au
- Thangool - May 19 - ryan.honor@daf.qld.gov.au
- Charters Towers - June 2 - alexandra.thomson@daf.qld.gov.au

The GRASS program is funded through the Queensland Government's Queensland Reef Water Quality Program and delivered by the Department of Agriculture and Fisheries, Burnett Mary Regional Group, Fitzroy Basin Association and NQ Dry Tropics.

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Currant bush needs torching

CURRANT bush or conker berry (*Carissa ovata*) is a prickly native shrub seldom grazed by cattle that can form dense, almost impenetrable thickets.

Currant bush is a widespread problem in north and central Queensland. A 1999 survey described it as the most important weed in the Dalrymple shire with 47 per cent of sites surveyed affected.

The seed is spread by birds when they eat its small edible fruit. Once established, currant bushspreads outwards with the stems laying down and rooting to the ground to form new daughter plants.

It competes strongly with grass for water and nutrients, significantly reducing pasture production if it gets out of control.

Steers grazing in dense currant bush at Wambiana Grazing Trial near Charters Towers.

Observations from the Department of Agriculture and Fisheries' long-term Wambiana Grazing Trial near Charters Towers show that this can happen quickly if currant bush is not managed.

Observations on currant bush began at the Meat and Livestock Australia funded trial in 1998. While currant bush prefers the box land type (*Eucalyptus brownii*), it also impacts the brigalow (*Acacia harpophylla*) landtypes on heavier clays. However, it is far less common on the lighter soils dominated by silver leaf ironbark (*Eucalyptus melanophloia*).

Despite burning in 1999 and 2011 and two extended drought periods, currant bush canopy cover has more than doubled on the box country, from 13pc in 1999 to more than 30pc in 2020. Currant bush cover has also nearly doubled on the brigalow landtype.

This increase has reduced the area of pasture available and consequently increased the grazing pressure on the remaining pasture. While the increase in currant bush has occurred across all grazing strategies in the trial, the increase is slightly greater in the heavily stocked paddocks.

Findings from the Wambiana trial suggest that the best way to manage currant bush is to stop it from becoming a problem in the first place. This can be done by maintaining a healthy, competitive grass cover and regular burning.

Where it has become a problem, fire is possibly the only economic tool to manage it. However, currant bush recovers relatively quickly after fire so regular burning is needed to keep it in check.

Good grazing management, in particular having the right stocking rate, will maintain a healthy competitive pasture cover and provide the fuel needed for a more regular fire regime. Incorporating wet season spelling, especially after fire, will ensure pasture recovery and help maintain a desirable woody plant/grass balance.

For more information, contact Brad Hough, technical officer, DAF Charters Towers, on 0436 863 380.

BARFIELD ROAD PRODUCER GROUP RAISES THE BAR ON GOOD STEWARDSHIP

THE Barfield Road Producer Group was recently awarded a Landcare Farming Program grant to demonstrate good stewardship of their natural resources.

For Melanie Shannon, a producer from Wirra, Banana, it was an opportunity for the group to gain a better understanding of environmental market opportunities and risks in the region.

Committed to finding evidence-based pathways to demonstrate their stewardship, the Barfield Road Producer Group will assess the feasibility of a soil carbon project with assistance from the Land Restoration Fund.

It will also undertake accreditation under Accounting for Nature - an internationally recognised framework.

"There's a wealth of information out there about environmental markets, however we didn't know where to start," Ms Shannon said.

"This grant has allowed our group to find opportunities in a daunting and complex field with minimal risk to individual businesses."

The group will collaborate with DAF, Cibo Labs, Integrity Ag and Farmlab, as well as other organisations.

"A changing climate is the new normal for landholders," Ms Shannon said.

"How we care for our landscape in this changing climate has become a significant part of new learnings for our producer group."

The Barfield Road Producer Group began in 2019 and evolved out of a passion to connect and share information with like-minded producers.

In response, the group builds extension and adoption networks to strengthen their local knowledge.

- The Barfield Road Producer Group has received a Landcare grant to demonstrate good stewardship of their natural resources.
- The group is investigating soil carbon opportunities and environmental markets.
- Networks have been developed with R,D&E organisations to develop knowledge and improve management.

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Time to pasture budget

What do five out of five beef extension officers recommend? (Clue: it has something to do with your grass!)


How much will they eat? Will the pasture reserves match their appetite?

WHAT do five out of five beef extension officers say is the best thing a land manager can do? Pasture budgeting! Ok, so I made that statistic up, but I think it would be about right, and here's why.

We beef extension officers are often called at crisis time, when there is little feed in the paddock, breeders are in poor condition and supplements are expensive and hard to get. We would rather be called in at pasture budgeting time. It is much easier to make good decisions for your grass and financial budgets when the pressure is off.

Many producers say they are aware of how long their feed will last, but if you've run out of feed in previous years it may be time to formalise the activity. Here's how.

Step 1: Estimate pasture yield

The easiest way to estimate pasture yield is to use the FutureBeef photo standards, which can be found online at futurebeef.com.au. We estimate pasture yield in kilograms per hectare (kg/ha) of dry matter (DM). Alternatively, you can cut and measure pasture using a 50cm by 50cm quadrant, drying and weighing the sample to calculate dry matter per hectare. If you need some guidance, search for the article 'Dry season pasture budget: a guide for stocking rates' on the FutureBeef website.

Step 2: Consider how much of the pasture is useful for stock

For example, if 80 per cent of the pasture is palatable species and we have 3000kg DM/ha, 2400kg DM/ha is available.

Step 3: Estimate a utilisation figure

A large amount of the available pasture cannot be consumed if the grass tussocks are to remain healthy and provide ground cover at the end of the dry season. Grazing by other animals and loss due to trampling and pasture breakdown has to be allowed for.

The Queensland Landtype Sheets (see FutureBeef website) provide utilisation rates for native pasture and these are in the 10 to 30pc range. Sown pastures can support higher utilisation rates (40 to 50pc). If the pastures with 2400kg of palatable dry matter have a 30pc utilisation rate, 720kg DM/ha is available for stock.

Step 4: Set the budget period

The budget period is from the end of effective rainfall in autumn to the likely date of the seasonal break (green date). Rainman or CliMate App can be used to investigate these dates. Your local beef extension officer can help you do this, and it's worthwhile because useful rainfall usually comes later than we think. For this exercise let's work from the end of May to the start of January, which is 241 days.

> Those who undertake pasture budgeting at the end of the "wet season" set themselves up for less stress, and their animals up for better body condition, better conception rates and more marketable animals.
>
> **Byrony Daniels, beef extension officer, DAF Emerald**

Step 5: Estimate pasture intakes

Pasture intake depends on pasture quality, animal size and status (growing, pregnant or lactating). For consistency when dealing with different sizes and classes of animals, animals are converted to Adult Equivalents (AE) to calculate pasture intakes with 1AE being a 450kg animal maintaining weight.

Let's assume for this exercise that we are running steers that over the budgeting period grow from 300kg to 400kg. Their average weight is 350kg, so their AE rating is 0.78AE (350kg/450kg = 0.78AE). If the dry matter intake is 2pc of liveweight, a 1AE (450kg animal) will consume 9kg dry matter/day. The 0.78AE steers will consume 7kg dry matter/day. For the 241-day budget period, we need 1687kg of DM (7kg DM/hd x 241 days) to run one steer.

Step 6: The budget!

We estimated one hectare of land has grown 720kg of available dry matter and that to run one steer for the budget period we need 1687kg of dry matter. Therefore, to run one steer for the budget period we need 2.3ha (1687kg/ha/720kg/ha). If we have a 100ha paddock, we can run 43 steers (100ha/2.3ha) until the budgeted break in the season.

Those who undertake pasture budgeting at the end of the "wet season" set themselves up for less stress, and their animals up for better body condition, better conception rates and more marketable animals.

Grass is our cheapest feed resource - it is rarely economical to substitute hay, grain, and molasses for grass. Supplement? Maybe. Substitute? No!

It makes sense to be aware of how much feed is in the paddock and how long it should last. It is better to be making decisions about which stock to offload now, rather than how to keep them alive later.

It's come to the time of year when we can no longer expect substantial pasture growth, so if you haven't done yours already, get pasture budgeting! If you need a hand, contact your local beef extension officer.

Repeated overgrazing leads to reduced ground cover, soil loss, less desirable pasture species, lower animal productivity and reduced business profitability.

Byrony Daniels, beef extension officer, DAF Emerald, 0427 746 434.

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Tool helps pastoralists manage grazing in WA

THE Pastoral Remote Sensing (PRS) tool can help Western Australian pastoralists make decisions and develop strategies to manage stock and land through seasonal variability.

The tool provides current and historical estimates of total green biomass, vegetation cover and rainfall for every pastoral lease in WA. Pastoralists can use this to monitor, compare and measure pasture condition and observe seasonal trends. Management decisions can be made based on this data such as matching stocking rates and feed budgets to total ground cover.

The PRS tool is a free online resource developed by Landgate in partnership with the Department of Primary Industries and Regional Development (DPIRD). It is based on satellite imagery sourced from NASA and the Copernicus Australasia Regional Data Hub.

The PRS tool was developed in response to demand for a readily available planning tool after recent years of dry seasonal conditions across large parts of the WA rangelands.

DPIRD Northern Beef Development Project manager Trevor Price sees the tool as invaluable for optimising rangeland pastures, employing sustainable practices and contributing to ease of management decisions.

"The PRS tool hosts crucial information for pastoralists - including cumulative rainfall, total green biomass, total dry matter and normalised difference vegetation index (NDVI) for all WA pastoral leases - which can then be compared across previous years," Mr Price said.

"This new resource will be particularly useful when making stock and land management decisions in preparation for and in response to current seasonal conditions."

WA agricultural consultancy business AgKnowledge uses the PRS tool to help their clients plan for the season ahead. AgKnowledge director Peter Cooke sees March and April as the perfect time to review the PRS data to understand the feed base available for the season as rainfall decreases.

"The data helps inform our clients' planning decisions such as stocking rates, mustering dates, when to rest pastures and which animals require deployment of supplementation to provide adequate stock nutrition," Mr Cooke said.

"The tool can be used to check multiple seasons and compare previous pasture levels - particularly as the north's rainfall is reduced significantly from mid-April. Pasture condition can be assessed again later in the season to compare dry matter and whether to grow out stock or take them off pastures earlier.

"There are lots of advantages to using the PRS tool such as the total green biomass feature, which individuals need to be able to interpret to adequately understand pasture condition. The high- and low-resolution satellite imagery is also an advantage for pastoralists who have reduced bandwidth."

Mr Cooke sees new remote technology as a positive contribution to land and stock management which can be used by a diverse range of people.

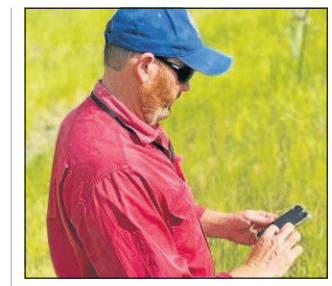
"The PRS tool complements an individual's good understanding of land sustainability and acts as an eye-in-the-sky to oversee and track whole-of-property pasture and land condition," he said. "Remote sensing technology can be used hand-in-hand with an on-ground knowledge of the property and can easily be incorporated into management strategies used by new and old property managers."

DPIRD has incorporated several resources to help first-time users take advantage of the full capability of the program.

"A series of tutorial videos are provided to help pastoralists understand and use all features in the system. DPIRD staff are also on hand to help pastoralists use the tool efficiently," Mr Price said. "The PRS tool is accessible to any pastoral manager with varying technological skills, including those with reduced internet access."

The PRS tool can be accessed at www.agric.wa.gov.au/pastoral-remote-sensing-tool.

Pastoralists evaluating their pasture condition in the Western Australian rangelands.



New app makes it easy to record pasture dieback in the paddock

The Department of Agriculture and Fisheries (DAF) has created an app that allows graziers to record pasture dieback from the paddock.

Landholders are encouraged to keep an eye out for pasture dieback, which has been reported in parts of southern, central and northern Queensland in recent months.

By taking a few minutes to upload information and photos to the Pasture Dieback Survey app, landholders can help researchers learn more about the spread of pasture dieback. In areas with poor reception, data can be saved and uploaded later.

Pasture dieback is a condition that stunts growth and kills productive pastures. Once affected, pastures can die within one season.

Research indicates the pasture mealy bug is a primary factor in pasture dieback, but a range of pathogenic organisms and environmental factors are likely to be involved.

Diagnosis of pasture dieback is complicated due to similarities with other conditions. If you suspect you have pasture dieback, please report it by using the app or calling DAF on 13 25 23. Meat & Livestock Australia contracted DAF to create the app, which can be downloaded for free from the App Store or Google Play.

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Decisions based on data

Micron testing and electronic identification technology can help boost the productivity and profitability of your flock.

AN INCREASING number of Queensland sheep producers are using micron testing with Electronic Identification (eID) to make better selection decisions and improve productivity and profitability.

While it's possible to record fleece data using visual ID tags, more accurate technology-based solutions can improve efficiency and accuracy.

Department of Agriculture and Fisheries' Leading Sheep extension officer Pip Gilmore says eID tags enable producers to refine selection decisions and optimise flock performance and profitability.

Combining micron testing with eID technology gives wool producers much greater certainty about animal and herd fleece characteristics, she says.

"Wool producers are always looking for animals that suit their environment and meet market specifications," Ms Gilmore said.

"Visual appraisal is not always a reliable way of understanding an individual animal's contribution to the wool clip.

"Growers can use eID with micron testing to gain an accurate and objective measure of the individual characteristics of each animal.

"Collection and analysis of a sample of wool can give growers direct insight into each animal's wool characteristics and how they contribute to the overall flock average.

"Producers can use this information, along with visual assessments, to make better-informed selection and marketing decisions and influence a range of profit-driving factors, such as the selection of breeding animals and the uniformity of their wool lines."

How does it work?

A small side sample is taken from the animal and sent away for testing. The laboratory measures the micron - among other things - and links these measurements to an eID tag number.

This allows producers to use an indicator or wand to identify animals with the desired fleece characteristics.

"Sheep producers can manage and analyse the data to inform and implement selection decisions across the flock," Ms Gilmore said.

"Over time, a producer may add further data points - for example, fleece weights and pregnancy scanning results - and upgrade infrastructure such as auto-drafters to streamline drafting.

"This will provide an accurate picture of the micron range, which can be combined with fleece weight and other selection indices to identify the most productive animals in their enterprise."

Ms Gilmore said growers could use the data collected to generate reports and analyse flock performance.

Technology-based decisions, such as using electronic identification, can help producers boost the productivity and profitability of their flock.

> Technologies like eIDs can be used across numerous production areas in a simple, practical and cost-effective way.
>
> **Department of Agriculture and Fisheries' Leading Sheep extension officer Pip Gilmore**

With the right technology, software and services, this data can be accessed on devices in the office, shed and paddock - even without mobile coverage.

"Adopting technology such as eID eliminates transcription errors and, once implemented, will save time in the yards, allowing a streamlined drafting process that isn't solely reliant on visual assessments - all while increasing the precision of the information," she said.

"For this reason, technologies like eIDs can be used across numerous production areas in a simple, practical and cost-effective way."

Getting started

Producers can start by sampling and tagging their youngest breeding group - often the largest section of the flock - and build the database of recorded animals from there.

"Tagging young makes the initial cost of eID tags negligible over that breeding group's lifetime and helps make the process less daunting by giving producers time to familiarise themselves with the technology," Ms Gilmore said.

Refining herd performance

Culling decisions can be somewhat constrained in flock-rebuilding scenarios, however, growers can use data in conjunction with visual considerations to remove less profitable and productive animals when required.

This provides significant ability to refine herd performance and improve profitability on a per-head basis.

The ability to segregate animals according to wool quality enables sheep producers to extract additional value from their lower-micron animals. It can also inform management decisions later in the animals' lives when selection pressure comes back into play.

Over time, sheep producers can build a unique and customised information dataset for each animal that best serves their management decisions, goals and selection criteria. Having this data on hand also enables sheep producers to understand flock trends and plan for upcoming seasons.

"Overall, eID technology makes micron testing more accessible, faster and accurate," Ms Gilmore said.

More information

Leading Sheep's booklet 'Practical use of Electronic Identification (eID)' is available online at www.leadingsheep.com.au.

Producers considering using eIDs and micron testing should assess the value of implementation in their operation. They should also speak to their wool broker or agent about wool marketing options.