



NORTHERN MUSTER
Information for rural business in North Queensland

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Boost pasture recovery

Managing pastures to beat drought

DROUGHTS are unavoidable and can devastate pastures.

However, new research shows that drought impacts can be minimised and pasture recovery boosted, provided the right management is applied.

Department of Agriculture and Fisheries (DAF) Senior Pasture Scientist Paul Jones has studied the effects of wet-season spelling on pasture recovery in the long-term Wambiana Grazing Trial near Charters Towers.

In 2011, part of a heavily stocked paddock (4 hectares per animal equivalent), which was in poor condition was fenced into the neighbouring, moderately stocked paddock (8ha/AE).

Wet season spelling was then applied to small plots (30x30 metres) in both paddocks with plots opened after spelling and grazed at the same stocking rate as the rest of the paddock.

Permanently marked quadrants in every plot were used to follow the survival of individual plants from year to year.

Measurements began in 2012 a year of average rainfall (750 millimetres).

The following years were much drier with 2014/15 (246mm) the fourth driest on record.

Thereafter, rainfall slowly



Pasture researchers at the Wambiana trial, Paul Jones, Carly Johnstone and Richard Silcock

improved, but was still below the long-term average.

Over the drier years (2014-18), stocking rates in the heavy treatment had to be sharply cut to 7ha/AE, with almost complete destocking in 2015/16 (30ha/AE).

No stocking rate reductions were required under moderate stocking.

DROUGHT EFFECTS ON PASTURE

Desert bluegrass (*Bothriochloa ewartiana*), the most important perennial grass at the site, suffered major mortality over the driest years (2014-16) under both stocking rates.

However, far more tussocks died under heavy (75 per cent) than under moderate stocking (35pc).

Tussocks also started dying much earlier in

STOCKING RATES

- Heavy stocking rates amplify drought effects by reducing plant survival and minimising post-drought pasture recovery.
- Moderate stocking buffers drought impacts by reducing plant mortality and maximising recovery rates.
- Wet season spelling is of lesser importance than stocking rate, but improves recovery rates under moderate stocking.

the drought under heavy stocking.

Heavy stocking resulted in smaller plants with shallower roots that were far more vulnerable to drought.

The available evidence

also suggests that a good part of the damage was caused by heavy stocking before the drought actually commenced.

Heavy stocking rates amplify the negative impact of droughts while moderate stocking rates tend to reduce its impact.

As a result, total basal or crown cover i.e. the total area of rooted plant bases which determines pasture production, declined the most under heavy stocking.

Wet season spelling did little to buffer drought effects, with similar levels of tussock death in both spelled and unspelled plots.

This indicates that wet season spelling is of limited value in buffering drought effects unless coupled with moderate stocking rates.

PASTURE RECOVERY

Recovery in the later, slightly better years was also strongly determined by stocking rate. While some recovery occurred under moderate stocking, very little recovery occurred in the heavy treatment.

This was despite the much reduced stocking rate in heavy treatment over the four driest years.

Wet season spelling with moderate stocking increased post-drought recovery, but little or no recovery occurred with spelling and heavy stocking.

Again, unless stocking rates are at an appropriate level, there will be little if any post-drought recovery with wet season spelling.

Although the effect of wet season spelling under moderate stocking was relatively

small, this was possibly due to the initial, relatively poor land condition of the site.

Nevertheless, this positive effect on recovery should increase over time as tussocks expand and produce more seed and plant recruitment accelerates.

The slow post-drought recovery measured here was largely because long-lived species like desert bluegrass, which may live for more than 30 years, seldom recruit new plants.

Therefore, looking after existing tussocks is critical as it is very difficult to recruit new tussocks to replace those that die.

In summary, these results show that drought impacts can be minimised by moderate stocking around long-term carrying capacity.

Post-drought pasture recovery will also only occur under moderate stocking.

While recovery is slow, it can be accelerated with wet season spelling, which is likely to be faster, the better the starting land condition.

However, the benefits of wet season spelling will not occur unless stocking rates are appropriate.

The Wambiana trial is the only long-term, intensive work of its kind in northern Australia, studying the effects of spelling and stocking rates on plant dynamics.

We look forward to sharing future results to help develop better management systems for our valuable pastures.

For more information, contact Paul Jones on email via paul.jones@daf.qld.gov.au (Emerald) or Peter O'Reagain on email via peter.o'reagain@daf.qld.gov.au (Charters Towers).

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Start with a list ahead of your next purchase

Buying a top bull made easy

THERE'S no doubt that a high-performing bull must be structurally sound and reproductively fit, but what you can't see about that bull is just as important.

Looking 'under his hood' helps you build up a fuller picture of all the traits that a bull can pass on to his progeny; traits like fertility, carcass weight and eating quality.

When it's time to pick your next high-performing bull, use this handy list.

BEFORE THE SALE

1. Identify or reassess your breeding objective.
2. Identify the relevant indexes and breeding values that align with your breeding objective.
3. Search sale catalogues and online BREEDPLAN databases to find sires that match your desired indexes and breeding values.
4. Contact the stud to gain more information about their bulls and breeding program.
5. Develop a primary and secondary list of potential bulls to purchase.
6. Determine your budget and keep to it.

MLA's new genetics hub contains resources, including a step-by-step video, on shopping for a high-performing bull.

DURING THE SALE

7. Visually appraise your shortlisted sires.
8. Evaluate the remaining bulls on your list and make a purchasing plan.
9. Bid on bulls on your

shortlist that you've assessed as suitable and are within budget.

AFTER THE SALE

10. Treat your bull according to your biosecurity plan.
11. Record the bull tag number and secure animal movement records.
12. Allow six to eight weeks for your new bull to de-stress before

joining. Check his health frequently.

13. Feed your bull a high-protein diet prior to joining to ensure he is in body condition score 3.5 at time of joining.

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There's no doubt that a high-performing bull must be structurally sound and reproductively fit. But what you can't see about that bull is just as important.

14. Once joining commences confirm your sire is working by observing him service in the paddock.

15. Conduct annual animal health treatments and run a BULLCHECK on your bull herd prior to annual joining time.

MLA's new genetics hub contains resources, including a step-by-step video on shopping for a high-performing bull.

Please visit genetics.mla.com.au/tropical/bull-shopping.

Benefits of new leucaena variety revealed

MORE than 70 beef producers and industry representatives attended the Pinnarendi Field Day in North Queensland on 28 May in conjunction with Meat & Livestock Australia's launch of the new Redlands leucaena variety.

Department of Agriculture and Fisheries research

officer Craig Lemin said the day gave producers an opportunity to discover how cattle are performing on the psyllid resistant leucaena in the grazing trial.

"There are promising results for northern beef producers with a doubling of annual liveweight and a reduced age of turnoff for cattle

grazed on Redlands variety," Mr Lemin said.

"The liveweight gain of steers grazing the psyllid resistant Redlands variety is comparable with the performance of steers grazing the psyllid prone Wondergraze leucaena variety at the site."

There was detailed discussion about leucaena's

production benefits, establishment costs, overall economic costs and benefits on both red earth and northern frontage country, and the leucaena code of practice.

A highlight of the field day was inspecting the trial steers that have been grazing the leucaena pasture system for 10-months, and walking

around the 60 hectare grazing trial to see the growth of Redlands and Wondergraze on the red earth at Pinnarendi.

The Pinnarendi leucaena live weight gain trial complements a wider DAF - MLA feedbase evaluation program of promising grass and legume species across central

and northern Queensland.

For more information contact Craig Lemin on 0467 804 870 or craig.lemine@daf.qld.gov.au.

Or visit www.leucaena.net.

You can download a copy of 'Leucaena: A guide to establishment and management' from mla.com.au.



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Take the guesswork out of paddock development

THE sheer scale of northern Australian cattle stations has posed a challenge for many cattle producers and researchers seeking to improve beef profitability in the country's north.

The distances that cattle walk to find feed and water has direct impacts on live weight gain, body condition and reproductive performance.

Some producers speculate that newborn calves in large, poorly-watered paddocks are at greater risk of mortality because breeders have to leave them to return several kilometres to water.

When considering the development of infrastructure on stations, cattle producers tend to ask three big questions. What sort of infrastructure suits my needs? Where should I put it? How much can I afford to invest?

The Paddock Power project, is a partnership between Meat & Livestock Australia and the Northern Territory Department of Primary Industry and Resources (DPIR).

Paddock Power is being driven by two of DPIR's senior rangeland and cattle researchers, Dionne Walsh and Kieren McCosker.

"Many breeder paddocks in northern Australia are too big and under-watered to achieve optimum productivity," Dr Walsh said.

"However, fencing and water development is very expensive and producers have told us they need stronger evidence of productivity increases to better support their business cases to finan-



Paddock Power aims to measure the impact of paddock size and watered area on reproductive efficiency.

Paddock Power has been designed to answer three critical questions

- How much impact does paddock size and distance to water have on calf loss and re-conception rates?
- Where should producers place new infrastructure?
- What development will deliver the best return?

ciers."

Development of under-watered areas to increase carrying capacity is well understood.

What is less clear is how changes in per head productivity could contribute to the



Dionne Walsh, DPIR rangeland program manager

number of kilograms a given paddock can produce.

"Part of this project will see the development of a calculator tool," Dr Walsh said.

"This will allow producers and investors to easily work out the return on investment

and payback period using their own cost base, land types and productivity."

The research, expected to be completed by April 2021, could prove a game changer for the northern Australian cattle industry.

"One of the key objectives of Paddock Power is to increase producer confidence to invest in paddock development.

"We want to empower producers to make the best decisions for their individual circumstances," Dr Walsh said.

Producers, businesses and other interested industry participants across northern Australia can join the discussion on The Paddock Power Facebook group and at futurebeef.com.au/projects/paddockpower.

Contact DPIR rangeland program manager Dionne Walsh at dionne.walsh@nt.gov.au or DPIR senior livestock scientist Kieren McCosker at kieren.mccosker@nt.gov.au.

Put on-farm technology to the test

AN EXCITING opportunity exists for graziers to work alongside Central Queensland (CQ) University and the Department of Agriculture and Fisheries (DAF) to use auto-drafting technology.

It is a great opportunity to test targeted supplementation of individual animals, compare the efficacy of different dry season supplements, or compare supplemented cattle to non-supplemented cattle grazing the same paddock.

The project is part of the CQ Livestock Centre of Excellence, a partnership between CQUniversity, DAF and AgForce.

For details, email byrony.daniels@daf.qld.gov.au.

Subsidies to get you back on your feet

RESTOCKING, freight and agistment subsidies of up to \$50,000 a year are available to Queensland producers impacted by floods and drought.

The Flood Freight Subsidy Restocking and Agistment Scheme provides subsidies for producers in Burke, Carpentaria, Cloncurry, Flinders, McKinlay, Richmond and Winton shires.

The scheme also provides freight subsidies for drought-declared Queensland producers for the transport of livestock to agistment in the above shires.

For more information visit daf.qld.gov.au or call 13 25 23.

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