Queensland



## **Field studies** continue into pasture attack

Taking stock of your future

pasture dieback has caused significant productivity losses over recent years. Rain has improved pasture conditions, but dieback is still present where seen previously and in new locations. Due to its impact, Department of Agriculture and Fisheries has a program to help graziers.

Characterisation of the condition across the state, is important. This has been valuable to determine the impacts of dieback, map its location and to better understand factors that might predispose pastures to attack. This work indicates that millions of hectares may be affected, causing significant economic impacts.

Diagnostic research into the causes of dieback contininvestigating whether fungi, bacteria, viruses, insects or a combination of these, are management options to recauses. At this stage it is unlikely dieback is caused by

AS MOST readers will know, fungal organisms. A range of Station, Gayndah and have fungi have been detected in the field but have not caused plant death in multiple investigations. DAF is investigating the potential involvement of viruses, bacteria or phytoplasmas.

The role pasture mealybug may have in dieback is a focus of DAF research. For mealybug to be the direct cause of dieback, infested plants must express the full cycle of symptoms - leaf yellowing and or reddening, stunted growth, early senescence and death. Several grass species infested with mealybugs in controlled glasshouse experiments (in the absence of other pathogenic organisms) showed dieback-like symptoms but failed to die. This indicates ues. The scientific team are mealybugs are not the direct or sole cause of dieback.

Field trials investigating store productivity continue at Brian Pastures Research

demonstrated that sowing legumes (annual or perennial) into affected paddocks can restore forage availability. Annual forages such as sorghum or oats have not been affected by dieback. Results indicate variation in grass species' tolerance to dieback, however, it is uncertain if any are resistant. In February 2020, a new field site was planted near Kalbar, southern Queensland with 26 different grass species.

The DAF pasture dieback project will continue to seek answers to the many unanswered questions. We have close working relationships with organisations undercomplementary taking research, including MLA (and partners), University of Queensland, Central Queensland University, and Fitzroy Basin Association.

Contact Nick Brazier, Pasture agronomist, DAF Rockhampton, 07 4843 2631.



Dead buffel grass due to dieback in the foreground. Note the unaffected broadleaf plants in this area.





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DAF staff undertaking soil and plant sampling during March 2020 for pasture dieback research.

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Type this link into your web browser https://www. surveymonkey.com/r/ CC3LF8H to fill out the short survey to give us your thoughts.

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Taking stock of your future

The Calf Watch project aims to develop a system to remotely monitor calving and study calf loss in northern Australia.

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ALF loss is a major source of lost income for beef producers in northern Australia and reducing calf loss has the potential to improve weaning rates and profitability.

Previously it has been difficult to investigate the causes of calf loss as calving females and calf carcasses are hard to find in large paddocks, therefore few autopsies are able to be conducted to determine the cause of calf deaths.

A system to remotely monitor calving in extensive areas would provide great benefits for research on calf loss in northern Australia. The Calf Watch project aims to meet this need.

NT Department of Primary Industry and Resources researchers are collaborating with the University of Florida to modify an existing 'barn' system of birthing sensors (cowmonitor.com/ technology) to increase the footprint area and enable remote monitoring of calving in locations where mobile phone coverage is limited.

The system uses intra-vaginal birthing sensors that emit a UHF signal when a rapid temperature change is detected (when sensors are expelled during calving).

The signals are received by antennas in a low-power wireless-area network (LPWAN) and are transferred via the internet to servers owned by the sensor manufacturer (JMB). A calving alert is then sent and is immediately viewable on a website.

The cows are fitted with GPS tracking collars that record location every 15 minutes, enabling cows to be located at the time of an expulsion alert and the location data is viewable in real time on a website.

The Calf Watch project is being conducted at Manbulloo Station near Katherine (NT) in a 2215 hectare uncleared paddock of native pasture.

Four gateways with external antennas mounted on 12 metre high towers give adequate coverage of the paddock.

In August 2019, 189 pregnant cows were fitted with birthing sensors and GPS tracking collars, and another 10 cows were fitted with GPS collars only.

It was very dry and hot (mean maximum temperatures of around 40 degrees) during most of the October and December calving period, and the cows congregated around the single water point for most of the day before leaving in the late afternoon to graze.

This allowed daily visual checks to be made.

If calving cows could not be located using GPS data, observations were recorded when they came for water in the days after calving.

Alerts were successfully received from 85 per cent of birth sensors. However, some GPS collars stopped



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A GPS collared cow with a newborn calf.

A system to remotely monitor calving would be a game changer for research into calf loss in northern Australia.

working and if a cow calved without a working GPS collar it was usually not possible to locate the birth site and retrieve the expelled birth sensor.

The issues with the GPS collars have been identified and the company (Smart

Paddock) is producing an improved model to be used over the next calving season.

It is thought that GPS tracking collars have not previously been used on this number of cattle anywhere in the world, so the project is playing a valuable role in developing GPS tracking collars for use on cattle in extensive situations.

Data analysis has not been completed and final calf loss figures will be determined at the firstround weaning muster in 2020. However, some initial observations are:

Bottle teats (resulting in calf death through dehydration) are a bigger problem than previously thought. The calving alerts allowed more cows to be observed shortly after birth than normally happens on northern stations. A number of cows were observed to have bottle teats shortly after calving, however their udders looked normal several weeks after losing their calves and so they would not be identified as having bottle teats at a muster several months later. Therefore, it is likely that cows with bottle teats remain undetected in herds and lose multiple calves. These cows can be identified, where only pregnant cows are kept in a paddock or if pregnancy testing records are available to see if they should have raised a calf.

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- Most cows (71pc) commenced calving during daylight hours. This goes against the common perception that calving mostly occurs at night. A high proportion of calves being born during the hottest times of day in northern Australia may contribute to calf loss. This data supports conducting research into providing shade where there is limited natural shade.
- The birth sites that were able to be located were distributed evenly throughout the paddock, although there were some 'hot spots' where multiple cows calved. Heifers calving for the first time tended to calve closer to the water point than older cows. Despite the cows congregating around the water point during the day, most either walked away to calve in more private locations or did not come into the water point on the day that they calved.

Contact Tim Schatz, Principal livestock research officer, NT DPIR Berrimah, 08 899 92332.



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# **Consider early weaning**

Look at weaning your calves early as a dry season management option to save costs and give your herd a boost.

ARLY weaning is a powerful and cost-effective dry season management option for your cows.

Early weaning refers to calves three to four months of age and roughly 100 kilograms.

However, calves can be weaned as light as 60kg in extreme drought conditions where cow health is at risk, provided you feed calves a high protein (18 per cent) diet.

Early weaning is the most effective management tool available to help cows hold or improve body condition and fertility.

Feeding the lactating cow-calf unit does not benefit cow condition as the nutrition is transferred into milk for the calf.

It is more efficient and cost-effective to supplementary feed cows and calves separately, rather than feeding the calf through the cow.

Once a calf is weaned, the cow's feed and water requirements decrease by up to 40pc and 60pc respectively.

Weaning the calf, and therefore removing the need for cows to lactate in the early dry season, is equivalent to giving them up to 2kg of grain or 3kg of fortified molasses every day.

#### WHEN TO WEAN

Cow body condition is the key criterion for deciding when to wean.

Ideally, aim to have calves around three months-of-age or 100kg as by this age their protein requirements aren't as high and they are used to grazing.

Other key factors to consider are the severity and length of dry conditions, time of year relative to expected rainfall, current pasture availability and the price of supplements.

#### FEEDING RATES

Calves' dietary requirements change with different stages of growth and you need to feed them accordingly.

The feeding rates below are a guide to maintain calf weight or get slight weight gains.

Calf performance is the best measure of how much supplement they need and you should adjust their intakes accordingly.

#### FEEDING RATE FOR CALVES TWO TO FOUR 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. In addition, feed one of the following supplements: 0.5 to 1kg/head/day grain mix (three parts crushed grain, one part protein meal, 2pc limestone) 0.25 to 0.5kg/head/day protein meal



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Calves' dietary requirements change with different stages of growth and you need to feed them accordingly.

Calf pellets, crumbles or meals as per

manufacturer's

- recommendations
  Free access to molasses
- plus 12-15pc protein meal (beware of scouring).

#### FEEDING RATES FOR CALVES FOUR TO SIX MONTHS OLD (120-150KG)

Feed unlimited pasture or hay plus one of the following supplements: 1kg/head/day grain mix

- 0.5kg/head/day protein
- meal Calf pellets etc, as per manufacturer's recommendations

- Free access to molasses plus 12-15pc protein meal
   No more than 0.5kg/head/
- day whole cottonseed.

#### FEEDING RATES FOR CALVES OVER 150KG

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

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

Draft calves according to size and weight. Draft calves that reach the threshold for higher weight into a separate group to reduce competition and possibly the cost of feeding.

It is important to reduce stress as much as possible. If practical, train calves to eat supplements before weaning and get them on solid feed as quickly as possible.

Avoid sudden changes in supplements because rumen bacteria need time to adjust.

Ensure calves always have access to an adequate supply of fresh, clean water.

#### CALF HEALTH

Vaccinate all calves at weaning with 5 or 7-in-1

to protect against clostridial diseases such as pulpy kidney and tetanus.

Young calves are very susceptible to parasites so treat all calves for internal and external parasites four to six weeks after weaning.

Use feeding racks for hay and troughs for meals, pellets and grain to avoid contamination with dust and dung.

Minimise stress wherever possible, particularly when handling the calves and make sure they have adequate food, water and shelter.

Closely observe weaned calves for any signs of stress or illness such as scours.

In summary, for successful early weaning:

- segregate calves according to age and weight to reduce competition
- start calves on a highquality ration the day they are weaned to reduce stress

always vaccinate and monitor calves for disease. If you are trialling early

weaning for the first time, one option is to start with just a portion of your herd.

Consider weaning just your first calf heifers early, as they are one of the most valuable mobs in terms of potential future breeding years and genetics.

They can also be the most challenging group to get back in calf, particularly after an extended dry period.

The other priority mob for early weaning are your oldest breeders.

For more information visit futurebeef.com.au.

Megan Gurnett, Beef extension officer DAF, Toowoomba megan. gurnett@daf.qld.gov.au

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tional requirements, wethers

can be run on country which

might be unproductive for

Traditionally wethers are

shorn once every 12 months,

shortening this period can

Producers are reminded

to consider the market, in-

creased shearing costs and

labour availability associated

with more frequent shear-

ings, if unsure seek advice

Several years of very

challenging seasonal condi-

tions have had a significant

impact on Australian sheep numbers and wool produc-

tion, but sheep numbers in

Queensland are now slowly

"Adapting your enterprise

to become drought resilient

is essential to long-term sus-

tainability and profitability,"

and selling Merino wethers

can be easier to manage and

provide high returns and

shearing

Mr Sommerfield said.

"Purchasing,

business flexibility."

ewes and lambs."

boost cash flow.

from your broker.

starting to rise.

# Wethers offer more flexibility

TRADITIONALLY, Merino wethers were seen as a sideline addition to wool growing enterprises, which are predominantly focused on ewes and lambs.

Today, wool and sheepmeat prices combined with improved exclusion fencing make wethers an attractive prospect in their own right.

Extension officer with the Queensland Department of Agriculture and Fisheries, Jed Sommerfield, said benefits of purchasing and retaining wethers include income from a wool clip at least once a year and flexibility in dry times.

"They provide an easy back door option if the season turns dry. High wool and stable mutton prices offer flexibility to your business, providing an easy sell option and allowing you to reduce total grazing pressure and maintain ground cover. Ground which will have an improved response from your country when the rain returns," he said.

The lower maintenance aspect of a wether flock is also appealing, and an ap- tive prospect, the profitabili-



Several years of very challenging seasonal conditions have had a significant impact on Australian sheep numbers and wool production.

shearings before selling into the mutton market can provide a low input, high return tained strength in previous investment.

While currently an attracproach including multiple ty of trading wethers is close- in the form of coronavirus,

ly linked to wool returns.

"Wool prices have mainyears, and continue to provide high yields, despite global economic headwinds

Brexit and the US-China trade dispute," Mr Sommerfield said.

"At present, 20-micron wool is fetching roughly 1500 cents a kilogram clean.

mand for sheepmeat, driven largely by a drought reduced flock, buying, shearing and selling wethers can be an

attractive enterprise. "Add to this the high de- plain of energy and nutri- www.leadingsheep.com.au.

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### DEVELOP A DEEP UNDERSTANDING OF YOUR BUSINESS' GROSS MARGINS



WITH national flock numbers greatly reduced by prolonged drought, widespread recent rainfall has resulted in high demand and high prices for sheep

On top of this, data from the NSW Department of **Primary Industries indicates** standard sheep enterprise gross margins increased on average by about \$5.50 in 2018, to roughly \$50/ DSE, or \$500/hectare, at a stocking rate of 10 DSE/ha.

While average stocking rates in western Queensland are slightly lower, sheep are still a very appealing option for producers looking to restock.

Extension officer with the Queensland Department of Agriculture and Fisheries, Jed Sommerfield, said producers considering purchasing sheep are encouraged to calculate achievable gross margins for their enterprise. "Current price and sea-

sonal conditions, combined with the increased implementation of exclusion fencing across sheep production regions in western Queensland, means sheep are an attractive option for producers at the moment," Mr Sommerfield said.

"Despite this, it's important people are thorough in their planning before deciding to buy. Factors like available feed and associated stocking rates, lambing percentages, growth rates,

wool and sheepmeat prices all need to be considered.

"On top of this, costs like purchase price, animal husbandry and shearing costs should be factored into any calculation.

"To be accurate, gross margin calculations need to be specific to each individual property and business."

To assist you in calculating your gross margins, contact leadingsheep@daf. gld.gov.au for confidential help.

#### **LEAP INTO SHEEP**

Webinar launched for industry newcomers

- Producers looking to get into sheep can learn from Australia's leading industry experts, via a new webinar series.
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