



Graziers to keep an eye out for pasture dieback

AFTER recent good rainfall across large areas of Queensland, graziers need to be to be on the lookout for pasture dieback.

How to identify pasture dieback

Dieback causes pasture death, typically in patches. Water and temperature stress, nutrient deficiency and herbicide damage can present similar symptoms. Pathogens such as fungal infections (e.g. buffel grass blight) can be misdiagnosed as dieback. It is important to exclude these to definitively diagnose dieback. The four stages of dieback are:

- 1. Yellowing and/or reddening of individual leaves, starting from older leaves.
- 2. Stunted, unthrifty plants in patches and in severe cases across whole paddocks - with yellowing and/or reddening of multiple leaves or the whole plant.
- **3.** Plant death, in patches or whole paddocks.
- 4. Broadleaf plants colonising areas of dead pasture. Dead pasture plants are grey and easily uprooted.

A new pasture dieback identification guide is available at futurebeef.com.au.

What is the cause?

The Department of Agriculture and Fisheries (DAF) is undertaking research into potential causal agents. These include the plant microbiome (fungi, bacteria, viruses, and protozoa) insects pasture and where weeds are such as pasture mealybug, nematodes and soil nutrient levels. At this stage the likely



cause of pasture dieback is a or competition for moisture break crop for one to two pathogenic organism.

Potentially a number of agents are interacting, for example, a virus transmitted by a sap sucking insect.

What options do I have to manage pasture dieback?

DAF is undertaking field research to identify effective management options. Options are grouped into four categories:

Manage for recovery

Some paddocks are recovering with pastures re-establishing from the soil-seedbank. Recovery is fastest when stock numbers are matched to the available controlled. This allows seedlings to establish without being restricted by grazing

from weeds.

Improve the pasture

Pasture improvement can be undertaken by sowing legumes and tolerant grasses, fertilising, renovating, or a combination. Pasture renovation through cultivation can break a pathogen cycle and accelerate nutrient cycling. Likewise, appropriate fertilising will maximise pasture productivity. Grazier experience and DAF trials demonstrate that legumes are unaffected by dieback.

Sow a break crop

A break crop, such as a grain or forage crop, can be used in suitable country to break a pathogen cycle and generate short-term feed supply. The aim is to sow a

years then return the paddock to perennial pasture.

Treat a pathogen This option is the least favourable of the management options. It includes spraying an insecticide or using fire to control a pathogen. Spring burning and insecticides have produced limited, or no, benefits in DAF trials. However, several graziers have reported late wet-season mosaic burns provided temporary benefits. Insecticide trial results demonstrate the importance of beneficial insects in the pasture. Based on these outcomes, and uncertainties about the practicality and effectiveness of insecticide application in commercial situations, most

graziers are better off choosing another option. If insecticide spraying is considered necessary, products are available for pasture mealybug control under emergency use permits issued by the Australian Pesticides and Veterinary Medicine Authority. The application requirements on the permit must be adhered to for legal use of the products.

For more information contact the DAF customer call centre on 13 25 23 or visit futurebeef.com.au/pasture-dieback.

Kylie Hopkins, beef extension officer and Stuart Buck, principal agronomist (sown pastures) DAF Rockhampton.

Pasture dieback project raising awareness

Pasture dieback is continuing to affect graziers across central, southern and northern Queensland. Dieback is also spreading into new locations - early last year dieback was reported in tropical pastures in northern NSW. The Department of Agriculture and Fisheries (DAF) is continuing to work with graziers to identify the causes of dieback and develop insights into the effectiveness of management options to restore pasture productivity.

Since September 2020, DAF staff have delivered an MLA co-funded project that has conducted four field days and 10 pasture dieback workshops for graziers and industry personnel across the dieback-affected areas of Queensland. A total of 317 graziers who manage more than 1.5 million hectares attended these events which delivered key learnings from DAF research about potential causal agents and management options.

Participants learnt how to identify pasture dieback in the field as opposed to other conditions that can cause similar symptoms. Participants who attended the workshops were guided to develop management action plans.

DAF has developed the Pasture Dieback Industry Network (PDIN) which is free to join. Newsletters keep members up-to-date on DAF research and upcoming dieback events.

To join PDIN, search for Pasture Dieback Industry Network' at FutureBeef. com.au

Katie Thomas and Nick Brazier, pasture agronomists (sown pastures) DAF Rockhampton.

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Value of stocking rates

La Nina, land condition and long-term carrying capacity - bringing back the desert

VEN when it is pouring with rain, many producers are planning for the next dry year. When the landscape and the herd are in good condition, it is easier to ride out the dry spells.

But how do you improve land condition on pastoral land while still carrying cattle? Not surprisingly, locking up country isn't a very palatable option.

A long-term grazing trial in central Australia has demonstrated it is possible to improve land condition while maintaining a stable breeder herd and producing high-value steers for the premium beef market.

The key to success seems to be maintaining the stocking rate at close to the recommended long-term safe carrying capacity.

Quality Graze is a 15-year grazing trial at the Northern Territory government's Old Man Plains Research Station (OMP), south-west of Alice Springs. During this period, which included the wettest and driest threeyear periods on record, production has remained consistent. This stability has helped reduce stress on the property's human, cattle and natural resources.

The Department of Industry, Tourism and Trade (DITT) is trialling six grazing strategies at OMP - all based around the long-term safe carrying capacity. The strategies cover set stocking rates, annual adjustment of stocking rates in response to seasonal conditions and rotational grazing to achieve spelling.

Before 2002, OMP was part of the Owen Springs pastoral lease, with a long grazing history and ground cover levels similar to the surrounding pastoral land.

The grazing trial started in 2006, but ground cover recovery didn't really occur until the double La Nina event from 2009 to 2011. Since then, ground cover at OMP has been equal to or higher than that of neighbouring properties.

There's little doubt that the double La Nina event was critical in accelerating land condition improvement from predominantly C condition to B condition for much of OMP. Getting the grazing pressure right has allowed native pastures to recover and buffel grass has become more established, contributing to cover and yield increases, especially in the drainage lines.

Improvement in land condition has been the same in both the rotational strategies and the continuously grazed strategies. One of the rotational strategies is a simple 12-month rotation between two paddocks.

The other is a four paddock rotation providing an annual summer spell for the more productive pastures and spelling every second summer for the remaining two paddocks. Because all strategies are stocked



Mustering Quality Graze project cattle on Old Man Plains Research Station, south-west of Alice Springs.

Grazing land management is a numbers game and the most important number is the long-term carrying capacity. Getting that right allowed a big improvement in land condition in the double La Nina event of 2009-2011.

in line with the long-term carrying capacity, pasture utilisation is only what can be safely consumed without causing long-term decline in land condition.

Stock numbers are not increased in wet years when feed is more abundant, so grazing pressure is effectively reduced and pastures can recover from the heavier pressure that occurs in the dry years.

In 2015, a new grazing strategy was added, with the stocking rate increased by 50 per cent in that paddock. The ground cover in this paddock has declined and is now the lowest of all the strategies. After only two years, this paddock had significantly lower cover than the others. Pasture composition tends to be dominated by early successional species, typical of country after drought but also a feature of land in poor condition.

The land condition improvement at OMP has reduced runoff and since 2012 most of the dams have rarely been full. Increased ground cover and perennial grass density have resulted in higher rain infiltration and reduced runoff. This has improved the land's ability to respond to rain. On some highly productive land types, the pasture yield per millimetre of rain has more than doubled.

A valuable characteristic of central Australian pastures is their ability to retain nutritional quality after haying off. Improved land condition has resulted in more pasture growth and because it retains its value, there is more useful forage available well into the inevitable dry years.

The improved rainfall use efficiency also means pastures can respond better to isolated storms. Even through the driest three-year period experienced in central Australia (2017 to 2020), the Quality Graze project turned off the same number of high-quality steers as in wetter years.

Over the 15 years that OMP has been stocked at recommended rates, there has been an improvement in land condition, the density of preferred grass species, ground cover and rainfall use efficiency.

Cattle growth and beef production are now consistently high, and cattle numbers stay pretty much the same even through very dry years.

For more information contact Alison Kain, pastoral production officer, NT DITT Alice Springs, (08) 8951 8101.



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Taking steps to fix soil erosion at Glenmaggie

GRAZIERS Anthony and Helen Webb have taken a progressive step towards improved soil conservation on their fattening property Glenmaggie at Thangool in central Queensland.

Extreme weather events over the past decade have caused significant soil erosion and gullying on Glenmaggie. Passionate about remediating areas of erosion on their property, the Webbs joined the Grazing Resilience and Sustainable Solutions (GRASS) program.

By completing an Action Plan for Land Management (APLM), Anthony and Helen were able to examine areas of concern with Department of Agriculture and Fisheries (DAF) soil conservation officer Bob Shepherd and soil conservation consultant John Day. The topography surrounding an actively eroding gully with a catchment of 109 hectares was assessed, and a hydrological design developed to identify practical remediation options.

The most effective method to remediate the gully (image 1) was to construct a rock chute. Despite the land surrounding the gully being in good condition with heavy grass cover, recent heavy rainfall had caused large volumes of soil to separate from the gully head and wash down the adjacent creek. The flow of water from the gully had the potential to cause destructive erosion of the allowed the paddock to be natural water course it flows utilised in a grazing rotation. into.

Remediation of the site involved reshaping the head of ing wet season to assess



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Image 1. Initial gully assessment with Bob Shepherd, of DAF Charters Towers.

the gully with a gradient that could handle a peak flow of approximately 20m3/sec expected in a one in 50-year rainfall event. Trenches were then excavated at the top and bottom of the gully to key in a layer of geo-textile fabric sitting on a layer of compacted gravel (image 2).

The next step involved placing 600 millimetre diameter quarry rock on top of the geo-textile fabric to break the velocity of catchment water moving over the head of the gully. The work did not need to be excluded from stock due to its design, which The rock chute will be

monitored during the com-



Image 2. Halfway through the earth works. Geo-textile fabric has been laid down and keyed in by a trench filled with 600 millimetre quarry rock.

DAF will hold a field day on Glenmaggie with John Day in 2022 to demonstrate the design and construction of rock chutes.

The Grazing Resilience and Sustainable Solutions

sediment loss reductions. (GRASS) program is funded through the Queensland Government's Reef Water Quality Program and delivered by the Department of Agriculture and Fisheries, Burnett Mary Regional Group, Fitzroy Basin Associ-

ation and NQ Dry Tropics. Graziers participating in

the GRASS program have access to a range of targeted decision support tools and strategies to manage their degraded land and re-establish ground cover, demonstrating their part in a sustainable grazing industry. The GRASS program is dedicated to improving and maintaining the value of grazing land as an asset for its owners.

For more information about support for graziers to improve land condition please visit www.qld.gov.au and search 'grazing support programs'.

Ryan Honor, beef extension officer, DAF Rockhampton, 0436 802 069



New and improved book

The well-known Dry season management of a beef business book has been revised by Department of Agriculture and Fisheries (DAF) beef extension staff, to provide producers with the latest information for managing dry seasons.

"Whether you are running 10 head or 10,000 head, there are fundamental nutrition, grazing management and herd structure principles that apply to all beef operations," DAF principal extension officer and co-author Joe Rolfe said.

"The book includes a step-by-step guide for graziers to review the status of their business, considering climate, pastures, cattle and finances so proactive decisions can be made before and during dry seasons.

"As well as supplementary feeding, the book describes options such as early weaning and culling strategies that will reduce grazing pressure, and alternative enterprise structures to reduce drought risk."

Dry season management of a beef business includes templates, worked examples, supplement recipes and links to additional information. The guide also includes practical tips and tools for feeding horses, calculating feed costs, reading product labels and comparing the nutritional value of feeds.

To obtain a copy, contact your local beef extension officer or download it from bit.ly/3FLHAMv.



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Sheep and sheepdogs: an iconic duo

THOUGH often not cheap or a quick fix, sheepdogs continue to drive extensive return on investment for Queensland sheep producers, proving to be a valuable resource amid prolonged need for an employee and labour shortages.

Department of Agriculture and Fisheries (DAF) Leading ing on, you still need to tend Sheep extension officer Jed Sommerfield said with staff being hard to find, it was little wonder sheepdog prices were setting records.

"Faced with significant challenges stemming from COVID-19 and drought, farmers have had to think more and more about quality over quantity when it comes to working dogs," Mr Sommerfield said.

"We often hear that 'a good dog is worth two men in the sheepdog can depend on a yards', which I think people have realised and had to put to the test over the past 18 a part, as does the kind of months to get essential jobs done effectively and efficiently.

"Sheep work and sheep work, while training and handling are highly labour-intensive tasks, but producers are increasingly realising that a good sheepdog can supplement the still get the job done well.

"Regardless of what's goto your mobs and property, move flocks, push them through the yards and moreand skilled sheepdogs will always have the capabilities to do this."

Mr Sommerfield said there would always be disputes over which breed of sheepdog was best, though kelpies, coolies and border collies continued to be preferred by most producers.

"What makes a good number of factors.

work you're wanting the dog to do. Some breeds are better suited to yard or paddock ported by AgForce.

practice requirements also differ from breed to breed.

"Though it's not a cheap or easy process to train sheepdogs, studies have shown the returns can pay dividends as results from the Farm Dog Project at the University of Sydney confirm.

"The average price of a working dog typically sits between \$300 and \$700, with a kelpie called Hoover setting the world record price of a whopping \$35,200 at an auction in Casterton, Victoria, earlier this year.

"Though these prices can seem exorbitant, many producers say a good dog is worth every dollar considering the amount of work they do and the potential for them to reduce staff costs."

Leading Sheep is a partner-"Personal preference plays ship between the Queensland Department of Agriculture and Fisheries and Australian Wool Innovation and is sup-



Good dogs can come in all shapes and sizes. A dog that works well with you and your other dogs and does the job you want makes your day more productive.



Numerous trainers and online resources are available to help producers learn more about the fundamentals of handling sheep.

Effective flock handling tips

LIVESTOCK handling meth- handler safety, profitability, ods heavily influence the effectiveness and efficiency of sheep producers' flock management.

Department of Agriculture and Fisheries (DAF) Leading Sheep extension officer Jed Sommerfield said educating livestock producers about various sheep handling methods could increase

animal welfare and staff retention.

"It's important that producers have access to information on how to best handle and herd sheep, with and without sheepdogs," Mr Sommerfield said.

"The benefits of having well-trained and responsive sheepdogs are evident.

"While certain trainers suit particular dogs and producers, the key in upskilling producers to use dogs in sheep handling is bringing together lessons from a range of places and people."

Webinar recordings about herding foundations and how working dogs can move sheep efficiently are available at leadingsheep.com.au.

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