Pasture Dieback — is this an issue for the North West?

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Abstract: *Pasture dieback is causing the death of productive sown grass pastures and is continuing to spread across new areas of Queensland (Qld) and New South Wales (NSW). The primary causal factor is the pasture mealybug* Heliococcus summervillei. *This insect moves over large distances to new areas on the wind. The recent spread of dieback into the sub 500 mm rainfall zone of SW Qld in 2024 demonstrates the condition can spread into sown pasture communities in low rainfall zones. In the very short time that dieback has been present in drier regions of Southern Qld, infection patterns suggest the presence of dieback is not constrained by geography but the presence of a susceptible grass and suitable seasonal conditions to support a mealybug population increase. Should these conditions be met, it's likely that dieback could continue to spread into new areas of NW NSW in future seasons. Based on experience from southern Qld, each growing season has produced varying degrees of dieback prevalence and severity. Ongoing monitoring of early symptoms each growing season is critical for early identification and to guide future management decisions.*

Key words: risk, susceptibility

Introduction

Pasture dieback is a disorder that causes production loss and the death of sown tropical and sub-tropical grass pastures across Qld and NSW. Research has shown that the pasture mealybug, *Heliococcus summervillei*, is the primary cause of the disorder (Hauxwell 2022). This pasture mealybug was first collected on paspalum in SE Qld in 1928 (Summerville 1928). Since then, there have been multiple isolated outbreaks of pasture dieback across the higher rainfall zones of Qld with a rapid increase in reports in Central Qld (CQ) between 2014–18. Dieback was then confirmed in SE Qld and Northern NSW in 2018, the Darling Downs in 2022, near Charleville in SW Qld in 2024 and as far south as the Hunter Valley in NSW in 2025 (Fig. 1). This area covers a diverse range of land types, pasture communities and rainfall zones between 500–3000 mm average annual rainfall (AAR).

Background

Pasture dieback affects all sown tropical and sub-tropical pasture grasses to some extent whilst legumes and broad-leaved plants are not affected. No significant impacts from dieback have been recorded on temperate grasses. Limited damage has been observed on native grasses with no large areas of plant death currently identified in Qld. The establishment of more tolerant grasses and legumes provides a management opportunity to reduce the repeated impact of dieback on grazed pastures.

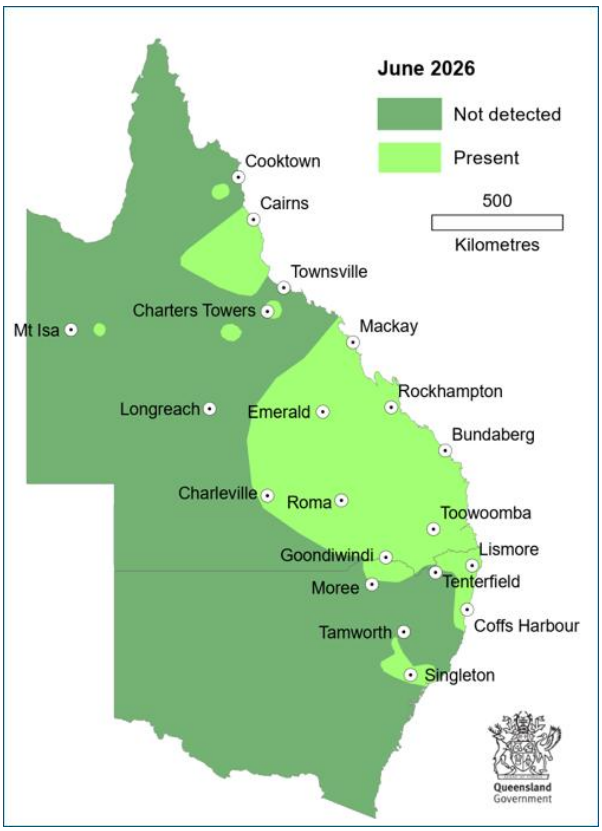

Figure 1: Pasture dieback presence. July 2026. Source: QDPI

There is currently no method of directly controlling the pasture mealybug and indications are that this disorder will remain a management consideration into the future. There are recommended management practices that can assist in limiting the severity of damage and production loss from dieback. Whilst broad recommendations are provided in extension materials, the effective implementation of the most appropriate strategy for a particular property can be complex and best developed in consultation with an experienced advisor.

Symptoms of pasture dieback

Early signs of dieback are a common stress response from the plant. This stress response can come from climatic factors such as cold and/or dry conditions or spray drift, so this early sign is not conclusive, but a warning sign to keep monitoring these plants. The leaves will change colour as the plant becomes sick, with death in patches and then potentially combine into larger areas. The more noticeable signs become apparent as plants enter a period of high growth such as in spring. Affected plants will appear sick and discoloured whilst other areas will be unaffected. Under favourable conditions, symptoms and damage can progress quickly with pasture collapse possible in a single growing season. The prevalence and severity of dieback symptoms in a location can vary from season to season.

The primary cause: the pasture mealybug (*Heliococcus summervillei*)

The pasture mealybug, *Heliococcus summervillei*, causes pasture dieback in susceptible grass species. This species of mealybug is a sap sucking insect that only feeds on grasses. There is currently no evidence that this mealybug transfers a secondary virus or infection (Buck *et al*. 2022). Plant death is likely caused by increased stress and a weakening of the plant immune system because of the mealybug feeding activity (Hauxwell 2022).

This species of mealybug has been found in other countries around the world and on sugar cane in Qld. Most recently, this species has been affecting grasses in the southern United States of America (USA) in Texas and Florida. Recent discussions between researchers suggest that the mealybugs causing the majority of the damage in Australia and the USA could be a different biotype or even species to the sample collected near Cooroy in SQ in 1928 (M Shutze, pers comm, 12 June 2026). Whilst this doesn't change the impact the mealybug is having on pastures, it does help explain why mealybug numbers have exploded and spread across such a large area so quickly. This is an area of ongoing research. The pasture mealybug can spread large distances quickly on the wind and be physically transferred on livestock and machinery.

During the colder months, the mealybug retreats into the thatch layer and under the soil, with mealybugs having been found up to one metre below ground in cracking clay soils. The ability to survive cold winters reduces low temperature as a factor directly limiting population spread.

The spread of dieback into the sub 550 mm AAR zone of SW Qld in recent good seasons has demonstrated the condition has the potential to spread into marginal rainfall sown pasture communities. The extent to which this occurs would seem to be dependent on favourable seasonal conditions to produce sufficient grass growth and a long enough growing season(s) to support an increase and expansion in the mealybug population.

Risk factors

Dieback prevalence and severity in each location will be different each season.

Risk factors that influence the prevalence (if and how often) and severity (degree of damage) of dieback (Fig. 2) in a particular location include:

1. Presence of a susceptible grass
2. Presence of the pasture mealybug
3. Environmental conditions to support a high biomass of actively growing grass

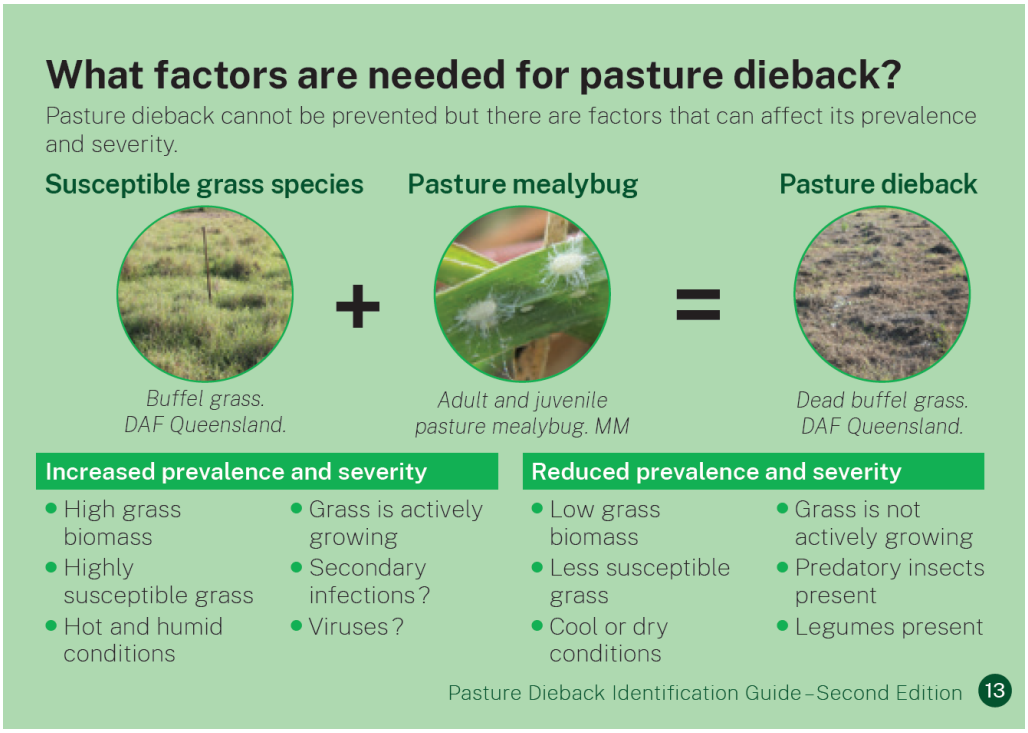

Figure 2: Factors needed for pasture dieback. Source: Pasture Dieback ID Guide. 2nd Edition 2025

Some of the more susceptible grasses that have recorded extensive areas of damage and death include:

- Kikuyu (*Cenchrus clandestinus*)
- Paspalum (*Paspalum* sp.)
- Bisset creeping bluegrass (*Bothriochloa insculpta* cv. Bisset)
- American and Gayndah buffel (*Cenchrus ciliaris* cvv. American and Gayndah)

Some of the more commonly available tolerant grasses that have shown ability to either withstand high mealybug pressure or recover quickly and maintain a productive population include:

- Rhodes grass varieties (*Chloris gayana*)
- Gatton panic (*Megathyrsus maximus* cv. Gatton)
- Biloela buffel (*Cenchrus ciliaris* cv. Biloela)
- MekongTM brizantha (*Brachiaria brizantha*)
- Setaria Narok, Splenda, Nandi, Solander including Purple Pigeon (*Setaria incrassata, Setaria sphacelata*)

When selecting a tolerant grass variety for establishment, it is recommended to consider the suitability of the variety to your soil and climate first and then other factors such as dieback tolerance. Many of the known more tolerant varieties of grasses are best suited to rainfall zones above 700 mm.

Other commonly sown grasses in southern Qld and northern NSW such as Digit (*Digitaria eriantha*) and Bambatsi panic (*Panicum coloratum*) have more varied tolerance to dieback. Awareness of dieback tolerance is required for assessing risk and planning pasture management changes or replacement in certain circumstances.

Broadleaf plants are unaffected by dieback. Broadleaf weeds often dominate severely affected pastures due to reduced competition and suppression from the grass. Pasture legumes are unaffected by dieback and therefore are useful for reducing the impact from pasture dieback while also improving productivity of a pasture in the long-term.

Is pasture dieback likely to continue to spread in North-West NSW and other areas?

As shown in Figure 2, the spread of dieback is related to presence of the mealybug and the availability of the mealybug's primary food source (susceptible grasses) and not temperature, rainfall or soil type directly. This means that the mealybug population increases in response to food

availability and food availability is directly related to suitable conditions for susceptible grass establishment and growth. As an example, it is unlikely that dieback will spread into an alpine region; not because the mealybugs don't survive in cold conditions or because it is too dry, but because their food source is not suited to that climate and soil and there is no food source for the mealybugs to persist.

The severity of damage each season is then related to the amount and quality of food available for the mealybug population. Good conditions for grass growth equals good conditions for mealybug population increase and damage severity. The drier than average conditions across southern Qld and northern NSW this summer have seen a corresponding marked reduction in dieback presence and severity as their food source has also reduced and been stressed by other factors.

Management guidelines

Due to the variable nature of dieback prevalence and severity at the paddock scale, consultation with an experienced advisor is recommended prior to investing in significant management practice change to maximise effectiveness.

The effects of dieback can be reduced by managing the key risk factors involved.

- Where dieback is present in a pasture, reducing excess biomass through early grazing can make use of available feed before further damage can occur.
- Self-seeding grasses, such as buffel or Rhodes grass, can re-establish from their own seed in the soil in good seasons and fully recover under the right conditions, however there is always the risk of ongoing reinfection in coming seasons.
- In situations where a susceptible grass is repeatedly or severely affected, replacement with a more tolerant grass variety and legume can reduce the risk of reinfection and provide an opportunity to improve productivity. Unfortunately, in drier regions (<650 mm), there are limited options of well adapted, tolerant summer growing perennial grass and legume varieties.
- Establishing legumes in a pasture provides valuable feed in dieback affected paddocks whilst also providing increased animal weight gains and pasture resilience.

Ongoing research

Research into pasture dieback is continuing, however there is no current effective control for the pasture mealybug. Long-term management of the condition presents new challenges but also opportunities for improved productivity. Close and regular monitoring of susceptible pastures for early symptoms is recommended. Should dieback infect a pasture, it is useful to review the potential productivity gains and land condition improvements from renovating the affected paddock that will also reduce ongoing risk to dieback.

Information and resources

Advice, information and support is available from experienced advisors within the QDPI, NSW DPI and NSW LLS. Comprehensive information on the identification and management of pasture dieback is available from:

- NSW agencies: https://www.nsw.gov.au/regional-and-primary-industries/biosecurity/plant-biosecurity/plant-diseases/pasture-dieback
- QDPI and Future Beef: https://futurebeef.com.au/resources/pasture-dieback/
- MLA: https://www.mla.com.au/research-and-development/Grazing-pasture-management/pasture-dieback/
- NSW Local Land Services: 1300 795 299

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