

Managing Blast in Ryegrass

In tropical and sub-tropical regions there are often reports of blast affecting ryegrass forages. Blast is hosted by many cool season and tropical species and is spread by the wind. It affects all ryegrass varieties.

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What is Ryegrass Blast?

Ryegrass blast, also known as Grey Leaf Spot is a serious fungal leaf disease caused by *Magnaporthe oryzae* (syn. *Pyricularia oryzae*) that thrives in warm, moist conditions (25–27°C). It causes significant damage to all ryegrass types, leading to oval-shaped lesions, leaf yellowing, production loss, and in many cases, plant death. It is spread by spores that are carried on the wind. It is inevitable that all ryegrass paddocks in sub-tropical regions will get exposed to the pathogen.

Unfortunately the pathogen does not only affect ryegrass. It can infect many popular C4 grasses, such as setaria and kikuyu that may already be present in paddocks oversown to annual ryegrass. Blast is not known to cause notable damage or loss to these C4 species, however it creates a 'green bridge' for the disease to survive year to-year in the local environment.



Figure 1 Regions that may be affected by ryegrass blast



The occurrence of blast is most usually associated with several factors, which can worsen the incidence of the disease:

- Pastures/crops declining below certain soil fertility thresholds, especially N, P and K.
- Moist, humid conditions (especially overnight)
- Leaf litter, residues and thatch at planting
- Canopy closure and grazing management
- Cultivar susceptibility and tolerance

A combination of these factors could easily lead to severe disease infections and crop damage.



Canopy and Irrigation

Irrigation should be scheduled early after grazing before the canopy has closed.



How to Manage Ryegrass Blast?

Grazing & Canopy Management

Quick early feed is always desirable, however the conditions that often drive the best autumn growth (warm-mild moist conditions) are also the best conditions for the disease and early plant infection.

Seedlings and juvenile plants are much more susceptible, and this is often coupled with the perfect conditions for the disease: temperatures around 26°C, warmer night time temperatures (around 20°C+) and wet leaf for extended periods.

Why Canopy Management matters

If walking through a paddock of ryegrass leaves your lower legs or pants wet, then conditions are perfect for blast and the paddock should be grazed before widespread infection occurs and the sward is lost.

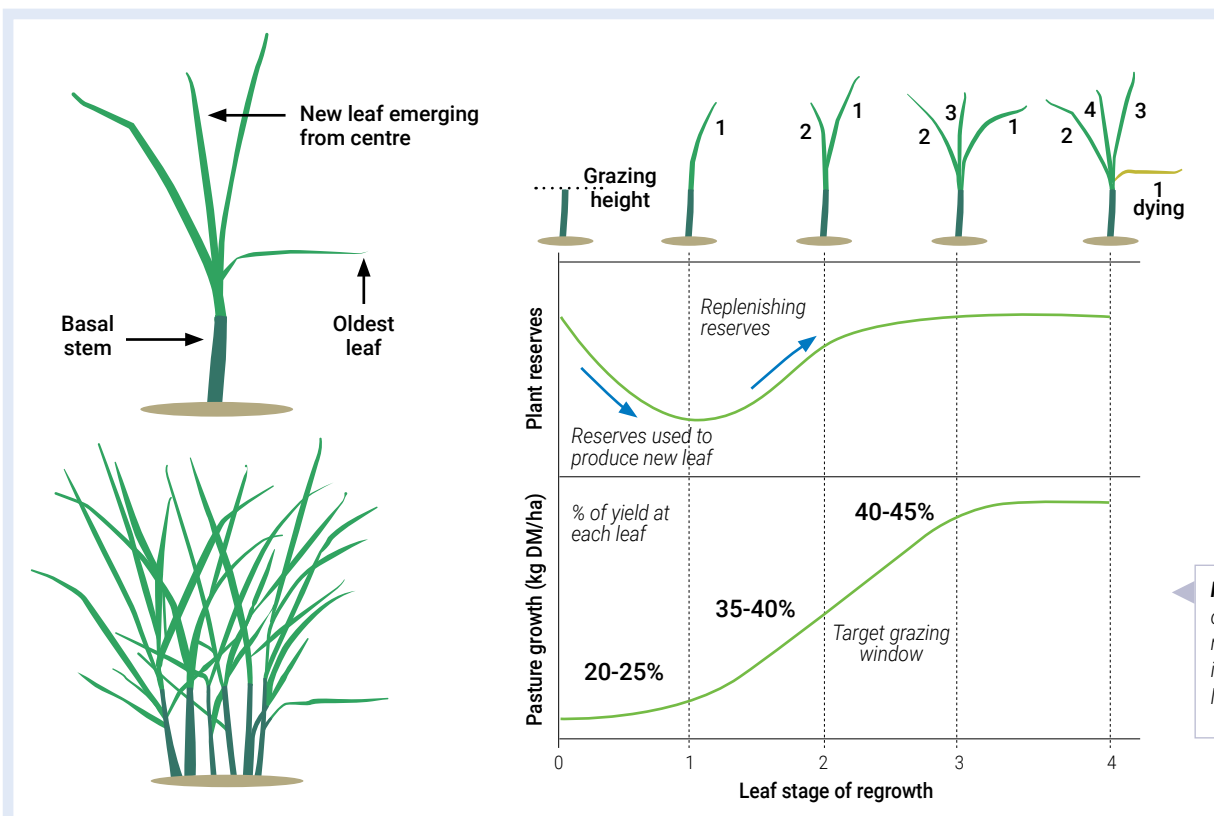
As the season progresses, if canopies have closed or there are large amounts of little or remnant leaf material present, the infection may worsen. All cultivars seem to eventually succumb to infection.

Perfect Canopy Management

Ryegrass, especially annual ryegrass, is designed to be grazed so don't be afraid to make the most of it.

Ideally, we want to graze our annual pastures as soon as we can, and re-graze ASAP.

- Graze immediately at canopy closure (or if plant is anchored)
- Look to graze at the two and a half leaf stage. This will be optimal for canopy management, quality and yield
- Utilise heavy stocking rates in a rotational grazing strategy to increase utilisation and remove as much canopy cover as possible.
- Never let the sward exceed three and a half leaf or a closed canopy as this will exacerbate the disease.





Manage Fertility

Fertility can be a double-edged sword. On one hand we need adequate nutrients to ensure we have good production and a healthy plant. On the other, we don't want to have excess nutrients as this can be expensive and also impact our blast management.

Having adequate fertility is essential for a healthy plant, and a healthy plant is a productive plant. If we don't have adequate nutrition, especially N, P and K, we ultimately stress the plant, and it struggles to perform its normal functions. Unfortunately, if a plant is stressed by inadequate nutrition, it has a lower immune responses to pathogens and more susceptible to disease.

Different Varieties, Differing nutritional management

All varieties require different management. New, higher yielding cultivars should have different fertiliser strategies compared to older lower yielding varieties. If a new pasture is producing say 25% more than other paddocks, extra nutrients may be needed to maximise productivity.

Nitrogen Timing

Although nutrition is good for the plant, we need to be careful with our nitrogen management. A strategy of adequate and often should be followed. If we load the plant up with excessive N, we get great production early, but we need to sustain the plant for the rest of the season. We also run the risk of quick canopy closure, which if not managed adds another risk to the management of blast.

Ultimately, we need to set the plant and crop up for success, and an agronomist/advisor with the help of a soil test can do this.

Cultivar susceptibility

There is a strong association with blast and cultivars with poorer disease tolerance. Blast may often be seen first in paddocks planted with more susceptible varieties. However, this can be misleading as other factors may lead to higher rates of infection such as closed canopies, poor soil fertility or warm moist weather conditions. So often, it's the paddocks that have the right conditions and right timing for disease that will be infected first.

Not all new varieties are screened for acceptable levels of blast tolerance. In a seasonal blast outbreak, susceptible cultivars will be affected and have limited ability to recover.

Cultivars with good blast tolerance will help to mitigate the disease and assist with management timeframes for response.



Figure 3 Difference in susceptibility to blast between cultivars, Northern Plateau Left & USA Tetila Right

Alternate Strategies

At times we may need to think outside our normal approach to fill feed gaps or deal with the situation at hand. Some alternate strategies include:

Stagger Planting

Staggering planting times can reduce the risk if the wrong conditions come along and a mass infection event occurs. It may also help you budget your feed throughout the winter season.

Use alternate species

The addition of **Commander Chicory** and **Persian Clover** to ryegrass not only offers vast improvements in feed quality and potential milk yield but both species are not affected by blast.

For early planting, species like **Forage Oats** are unaffected by blast. It's important to consider newer varieties like **Sorcerer Forage Oats** for improved disease resistance, especially in warm, moist environments.

Forage Brassicas can add considerable feed quality to either a forage oat or ryegrass planting and are unaffected by blast. It is important to consider what animal safety issues can arise from inclusion of brassicas. **Falcon leafy turnip** is a safe option, that suits the early planting window very well with it being one of the quickest brassicas to graze safely at 6-8 weeks.

Summary

Utilising more tolerant varieties, grazing and soil fertility will help to minimise the impact of blast.

To mitigate blast, look to use a combination of:

- Plant more tolerant cultivars such as Northern Plateau Annual Ryegrass over more susceptible cultivars such as USA Tetila
- Avoid planting early (conditions drive infection levels)
- Ensure the crop has adequate nutrition and fertility
- Ensure canopy is managed
- Stagger plantings to spread risk and manage feed peaks
- Use alternate species for early planting, such as oats, brassica, chicory or clovers ■

