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Guide to

Rhizoctonia (Brown Patch)

Pythium

**ERI & Take All Patch
complex**

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Rhizoctonia spp

There are two types of Rhizoctonia we see in Australia so far. They are the *solani* and *cerealis* strains.

Rhizoctonia solani:

Most common type of Rhizoctonia seen and affects all types of turf species. Very common on bent and tiff greens. *R.solani* can tend to occur all year round with the right conditions. On couch greens *Rhizoctonia* tends to occur when turf is coming out of dormancy whilst with bent grass *R.solani* tends to occur with warm humid weather.

This disease has always been troublesome on warm season grasses throughout the years even becoming more of an issue recently.

If the disease is troublesome before dormancy, scarring can be visible throughout the winter and these areas will take a longer time to recover and are more prone to reinfection when conditions become favourable again.

Rhizoctonia cerealis (known as Yellow Patch):

Yellow Patch is associated more with cool season turf (very rare on couch) and can be quite difficult to control once it is established. It tends to appear in the spring and autumn when turf is starting to grow quickly and temperatures are low. It is commonly seen with prolonged wet humid periods. However this strain does tend to disappear when temperatures are greater than 25°C. Time fungicide sprays before the onset of wet weather to prevent the disease from developing.

Cultural Controls of Rhizoctonia:

- Increase air movement and sunlight
- Reduce leaf wetness
- Increase cutting heights
- Reduce thatch
- Improve drainage
- Avoid N fertiliser during heat stress periods

Registered Campbell Fungicides for control rhizoctonia:

Product	Rate per 100m ²	Resistance Group
Dacogreen [®] "WeatherShield"	130mL-200mL	M5
Ippon [®]	60mL-90mL	2
250 GT [®]	120mL-180mL	2
Flowable TMTD [®]	160mL	M3
Dek DF [®]	200g-250g	M3



R.solanii bent



R.solanii bent



R.cerealis bent



R.solani on tiff

Pythium spp

All turf species are affected but predominately fine cut turf of bent and couch grass. *Pythium* appears as circular spots during warm to hot humid weather. Spots appear as brown to bronze in colour. *Pythium* causes a wide range of damage including root and leaf blight. Outbreaks are most severe following warm nights coupled with humid days. *Pythium* is also very active during the seeding process as frequent watering is taking place, creating a humid and wet environment. *Pythium* can spread a number of ways including:

- mowers
- traffic
- water- especially if water is from a dam or effluent as spores can be present.
- poor drainage
- low soil pH is ideal environment for *Pythium* along with high pH can lead to other disease issues
- high soil nitrogen levels.

Pythium is always living in the soil and needs the right conditions to cause problems. Water logged greens are a perfect environment for *Pythium*. You can see *Pythium* as patterns in greens that follow the drainage lines. Equipment use also spreads the disease.

If you have a short root system with compacted soil and poor drainage, your turf will need extra light watering to keep it alive. This will increase *Pythium* pressure, due to plant wetness. On the other hand, deep infrequent watering can increase *Pythium* pressure as well as the roots and the soil are being completely soaked which is conducive to *Pythium* outbreaks. Very hard to win in this situation. That is why it is important to maintain healthy turf and to use specific *Pythium* fungicides on a preventative basis.

If you do have an outbreak with any disease, not just *Pythium* reduce the use of PGR's until you get recovery. Also look at at tank mixing your fungicide as other diseases maybe present. An Ippon & Proplant tank mix is very effective here.

A hot summer can lead to an increase in *Pythium* as well - from over watering and a constant need to water

Cultural Controls of *Pythium*:

- Avoid too much N
- Keep plants healthy as possible with using root stimulants.
- Avoid mowing in moist hot weather
- Raise mowing heights
- Avoid verti cutting, top dressing if greens are infected as it puts more stress on the plant
- Reduce leaf wetness
- Increase air flow and sunlight to *Pythium* prone areas



Registered Campbell Fungicides for control of *pythium*:

Product	Rate per 100m ²	Resistance Group
Proplant® (preventative & curative)	45mL-65mL	28

ERI including Take All Patch

Take All Patches are circular or ring shaped. The centre of the ring is bare and allows for weed and competition grasses to inhabit. This disease is prone to soils with a high pH level.

ERI is not a single fungus but a collection of different fungal species. Common fungal species of ERI found in couch include:

- *Gaeumannomyces graminis* var. *graminis*- Couch grass decline
- *Gaeumannomyces graminis* var. *avenae* - Take-all patch
- *Ophiosphaerella korrae* and *O. narmari* (previously *Leptosphaeria*)- Spring dead spot

Make sure you either apply sufficient water with chemical applications or water straight after application to wash the fungicide down to the crown area of the turf. DO NOT wait until the next watering cycle.

Cultural Controls for both diseases:

- Lower pH avoid fertilisers that increase pH such as nitrates of urea and potassium. Use acidifying fertilisers. A desirable pH is between 5.5 and 6
- Balance N amounts with N:K ratio of 1:1 or 1:2
- Raise mowing heights
- Reduce thatch
- Try to reduce dormancy period
- Reduce compaction
- Use root stimulants to maintain healthy roots and vigour

ERI likes high pH, so do not apply calcium which can increase pH, and consider using ammonium sulphate or iron sulphate to lower pH. Avoid urea or nitrate sources of fertiliser, including potassium nitrate. But, apply a 1:1 N:K with all fertilisers that are applied. Raise the height, stop verticutting and be very careful when topdressing to not bruise the leaf blades.

Registered ERI fungicides (preventative only)

- Propiconazole
- Premix product containing Azoxystrobin/Propiconazole
- Premix product containing Trifloxystrobin/Tebuconazole

Note propiconazole can have a PGR effect on couch turf

Apply chemicals with high volume water or drench all fungicides in for best results. Look to apply chemicals as a preventative measure at least monthly aiming to commence 2 months before symptoms generally appear. Make sure you mix up your resistance groupings as well.

Note that even though *Pythium* is not in the ERI complex it is common to find it in disease samples. Hence make sure when treating ERI that you are taking measures for *Pythium* control with Proplant or other registered fungicides.



Registered Campbell Fungicides for control of Take All Patch:

Product	Rate per 100m ²	Resistance Group
Tridim [®]	60mL	3