

# Turf Tip: Assisting with *Pythium* management during the upcoming Summer of 2023/24

As we return to a hot and dry summer, it is important to understand the best ways of minimizing *Pythium* in irrigated turf, where *Pythium* spp can become devastating throughout the season, and when it's worth noting its prevalent presence. Attention should be paid to deepening roots, hardening of the plant, and avoiding excess water when irrigating. Despite the best efforts of turf managers from Australia and New Zealand, *Pythium* spp remains a major threat, emphasizing the importance of prevention in the turf surfaces over a curative approach.

Nematodes can also contribute to *Pythium* infection, hence a nematode management plan should also be implemented to minimize the negative effects. AGADOR® Turf nematicide and miticide is recommended for a nematodes' control program in turf, thus assisting in reducing the spread of *Pythium* spp.

## About *Pythium*

Selectivity of fungicides are driven by its mode of action and those modes of action target 6 major cellular sites of the fungal pathogen. Multiple target sites of activity include energy production sites, cell membranes and general cell constituents, hence rotating groups to target these cellular sites reduces the risk of resistance.

By rotating HEADWAY® MAXX and VELISTA® this summer you can cover more than a dozen various pathogens from Leaf Spot to ERI to Fairy Ring, thanks to the research and formulation of the products.

## Pathogenic fungi and oomycetes

The three main groups of pathogenic fungi affecting turf stands are: Ascomycetes (most common), Basidiomycetes (causing Fairy Ring) and Oomycetes (*Pythium*). Oomycetes are also known as water molds, as the oospores and zoospores, which produce the germination tube infecting the plant, move freely in soil moisture – hence why we often see streaking and infected turf in low areas when the pathogen takes hold within the plant.

## How *Pythium* infects the plant

When an oospore or zoospore germinates, the germination tube enters the plant by direct penetration. Enzymes are then secreted, dissolving pectin, one of the major components of cell walls. The spore then grows in and between the plant cells where the enzyme secretion and the host cells' dissolution continues. The result is Root Rot – the germination of seedlings and roots which are killed and proceed to rot. In recent years, *Pythium* Root Dysfunction (PRD) has emerged as another form of the pathogen with visual symptoms, similar to Take All Patch in creeping bent grass. PRD affects the root hairs in cooler soil temperatures in autumn and spring seasons, impacting moisture and nutrient uptake. As the soil warms up and the summer's stress starts, the bent struggles with drought-like symptoms.

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## Control of *Pythium* with SUBDUE MAXX<sup>®</sup> Turf fungicide

As the *Pythium* pathogen infects the root with Root Rot and the leaf with Leaf Blight, then control is best via systemic means. SUBDUE MAXX<sup>®</sup> is a proven performer for control of *Pythium* in turf and consists of 240 g/L Metalaxyl-M as a micro-emulsion (ME) which ensures fast uptake into the plant. SUBDUE MAXX<sup>®</sup> is acropetal (upwardly mobile) in nature and also has contact control abilities: when applied to the soil, any spores of *Pythium* that may be present outside of the plant, are controlled. Its mode of action controls *Pythium*, once the spore germinates and starts to grow within the cell, meaning it will control *Pythium* outbreaks before the pathogen is visualized on the surface. It is also a great rotation partner with either HEADWAY<sup>®</sup> MAXX or HERITAGE MAXX<sup>®</sup> for *Pythium* management this summer.

### Tips for Managing *Pythium* Leaf Blight

- Apply when conditions are favorable for disease development.
- Apply in a water volume as high as possible up to 1000 L/ha.
- Apply to wet or dew-covered turf.
- Position into the rootzone with 6 – 10 mm of irrigation within 1 hour of application.
- Rotate with either HEADWAY<sup>®</sup> MAXX or HERITAGE MAXX<sup>®</sup> for a complete preventative program.
- Rotate with either HEADWAY<sup>®</sup> MAXX or HERITAGE MAXX<sup>®</sup> for a complete preventative or curative program.



### Tips for Managing *Pythium* Root Rot

- Apply when conditions are favorable for disease development.
- Apply in a water volume as high as possible up to 1000 L/ha.
- Apply to wet or dew-covered turf.
- Position into the rootzone with 6 – 10 mm of irrigation within 1 hour of application.
- Rotate with either HEADWAY<sup>®</sup> MAXX or HERITAGE MAXX<sup>®</sup> for a complete preventative program.
- Rotate with either HEADWAY<sup>®</sup> MAXX or HERITAGE MAXX<sup>®</sup> for a complete preventative or curative program.



### Key Features of SUBDUE MAXX<sup>®</sup>

- Proven control of *Pythium* Leaf Blight and Root Rot in turf, along with Seedling Damping Off.
- Micro-emulsion (ME) formulation ensuring fast uptake into the plant.
- Ability to tank mix with other products such as chemicals and fertility.
- Excellent rotation partner with HEADWAY<sup>®</sup> MAXX and HERITAGE MAXX<sup>®</sup> for powerful performance.
- Research driven recommendations, with SUBDUE MAXX<sup>®</sup> the first-choice recommendation for *Pythium* management as per the [Turf Fungicide Guide](#).

For more information on SUBDUE MAXX<sup>®</sup> contact your local Syngenta Turf & Landscape Manager, or visit [www.syngentaturf.com.au](http://www.syngentaturf.com.au).