

# Turf Science in action

## DISEASE CONTROL INSIDE OUT – PART 1

# Protection on the Outside

New electron microscopy has given a fascinating insight into turf disease development and a better understanding of how fungicide activity can tackle pathogens before they cause visible damage. Undertaken at the Syngenta Jealott's Hill International Research Station, it highlights the best way to prevent infection and protect turf quality – Disease Control Inside Out.



- When disease spores germinate - in this case Microdochium (Fusarium) Patch on untreated fine-leaved turf ryegrass - the mycelia grow across the leaf surface
- The pathogen can be seen entering the leaf through stomata. Any damage, such as cut leaf ends, also create a potential entry point
- Left uncontrolled disease will quickly infect the leaf and attack internal plant cells

- Contact fungicide protection on the leaf surface can stop mycelial growth before it enters the leaf
- Here the mycelia can be seen desiccating and collapsing
- Note the complete coverage of the fungicide formulation to protect the surface, compared to the untreated image above
- Both the contact chlorothalonil and Contact<sup>+</sup> fludioxonil in INSTRATA are active at this stage. They also work in different ways on the disease pathogen, to minimise the risk of any resistance developing



### Seasonal selection for fungicide choice

The Contact<sup>+</sup> activity of fludioxonil is extremely effective on disease pathogens on the leaf all year around. And it is always effective against spores in the thatch. However, contact and Contact<sup>+</sup> activity is primarily recommended for periods with slow or no turf growth.

Because the active binds onto the leaf wax surface of the leaf, as the turf grows and is cut, some of that protection is removed each time. Whilst there is some redistribution in the leaf wax, during periods of rapid growth - typically over the spring and summer - new leaf area will have a lesser degree of protection.

When turf is actively growing, systemic activity is more appropriate to get protection into the plant and to move around, such as BANNER MAXX, HERITAGE MAXX or HEADWAY.

For use at any time of the year, INSTRATA contains contact, Contact<sup>+</sup> and systemic actives.



Medallion TL 375g ai



Iprodione 5000g ai

- Contact and Contact<sup>+</sup> activity depends on good coverage of the leaf surface to target pathogen development before it gets into the plant
- Effective product formulation assures a good spread of active on the surface
- This picture (above, left) shows the excellent leaf coverage with MEDALLION TL, where the spray has locked onto the waxy leaf surface to give effective rainfastness

### Application advice for foliar applications

Application at high water volume does not necessarily achieve better results with foliar fungicide application – in fact, high water volume can lead to excessive run off and reduced product retention on the leaf.

A water volume of 200 l/ha, applied through an 0.25 Syngenta XC Nozzle, provides ample water droplets and sufficient penetration to achieve good coverage and retention on the leaf surface of greens' turf.

Click below for the Syngenta Turf Tank Calc app for iPhone and Android to quickly and simply help you target more accurate application.



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Visit the GreenCast website to see the full Disease Control Inside Out story in 3-D

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Look out for future Turf Science In Action E-Tech News to bring you complete Disease Control Inside Out:

**Part 2 – Activity inside the leaf**

**Part 3 – Reducing risk**

**Part 4 – Cutting stress for healthy turf**

**Part 5 – Revealing images** – meet the experts that delve inside the leaf, and how they captured the incredible 3-D pictures that show Disease Control Inside Out