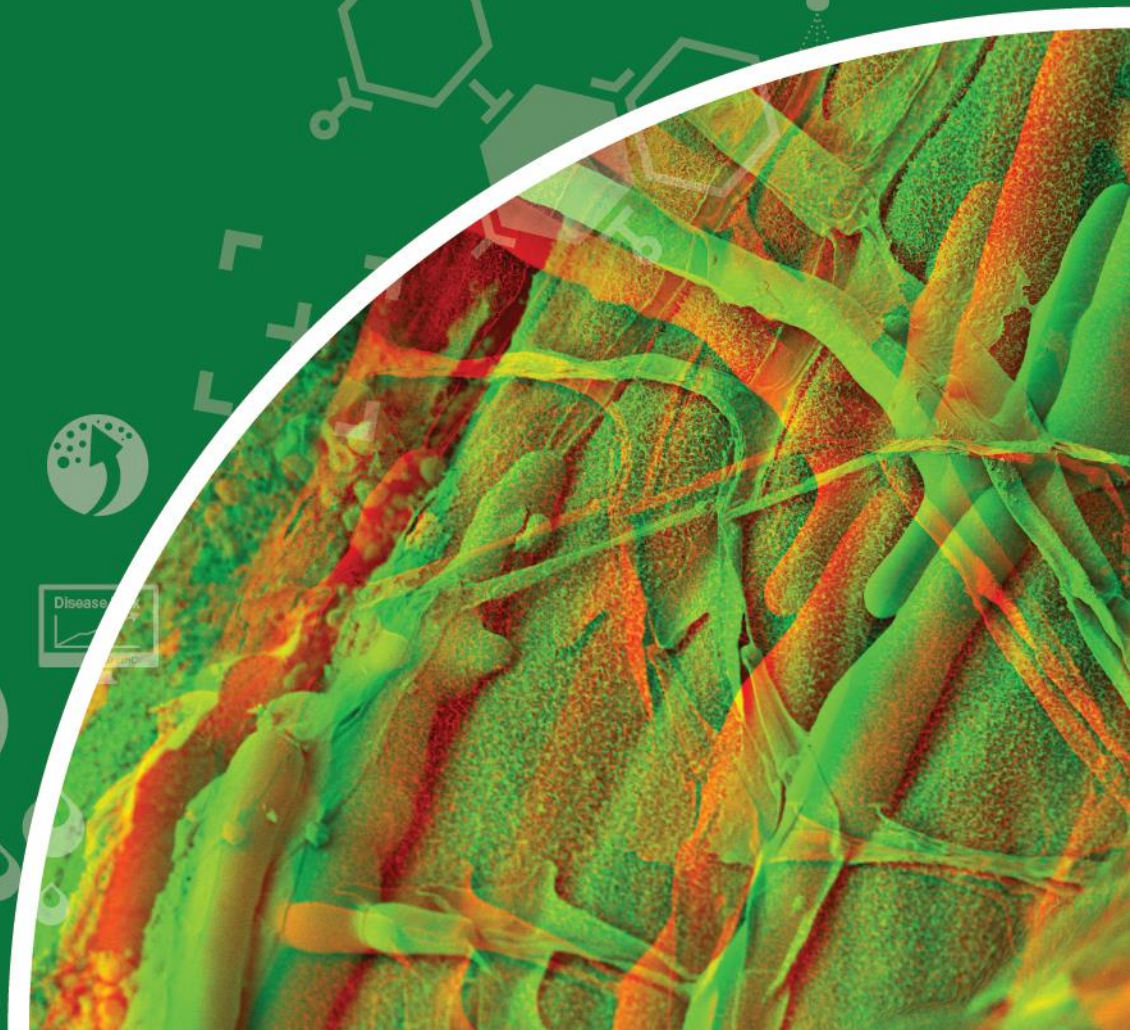


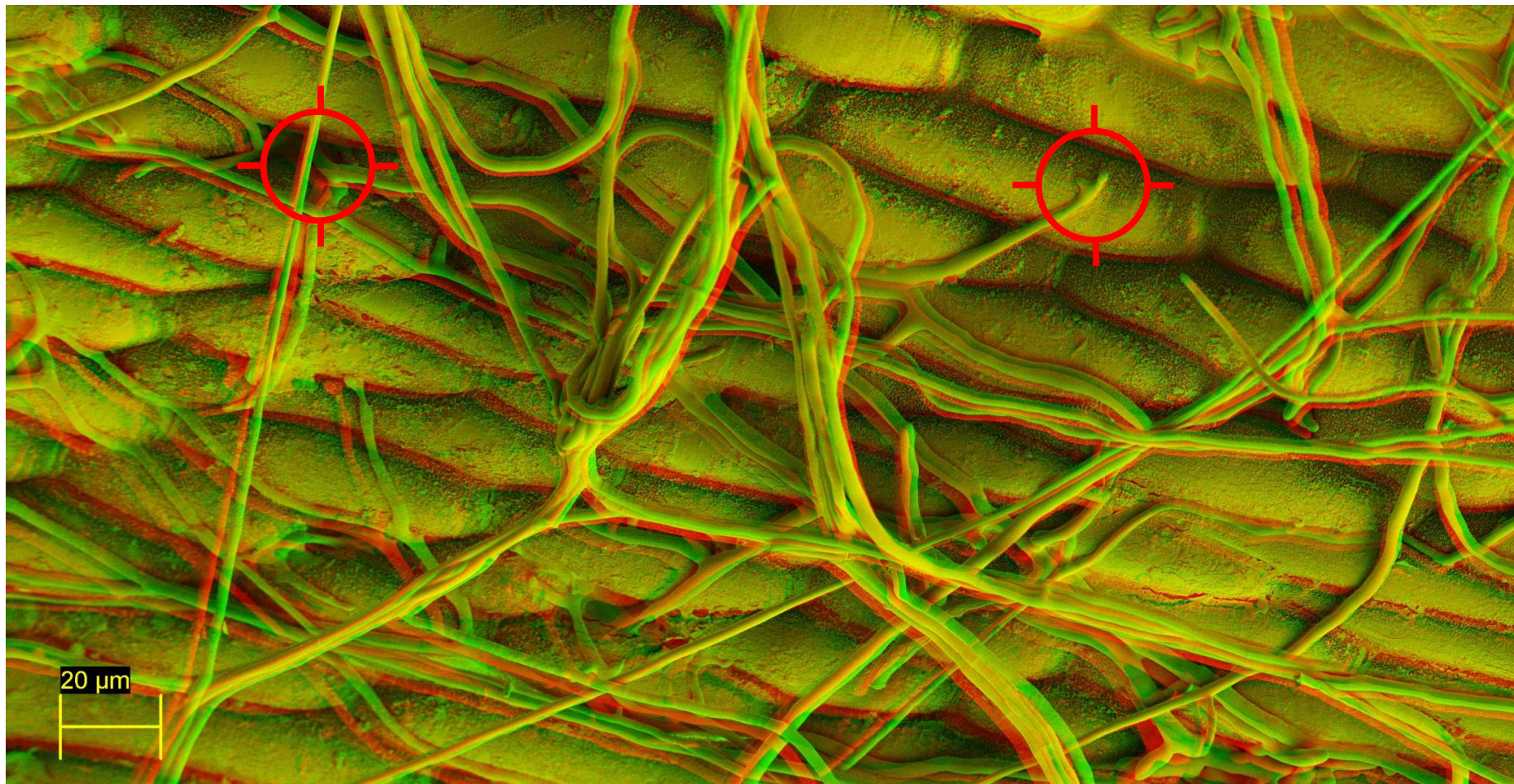
# DISEASE CONTROL INSIDE OUT

A series of 3-D electron microscope images highlight the effects of Microdochium Patch on and in the turf leaf – and how Instrata works to control disease, inside out.

Explanatory notes are provided after each image.

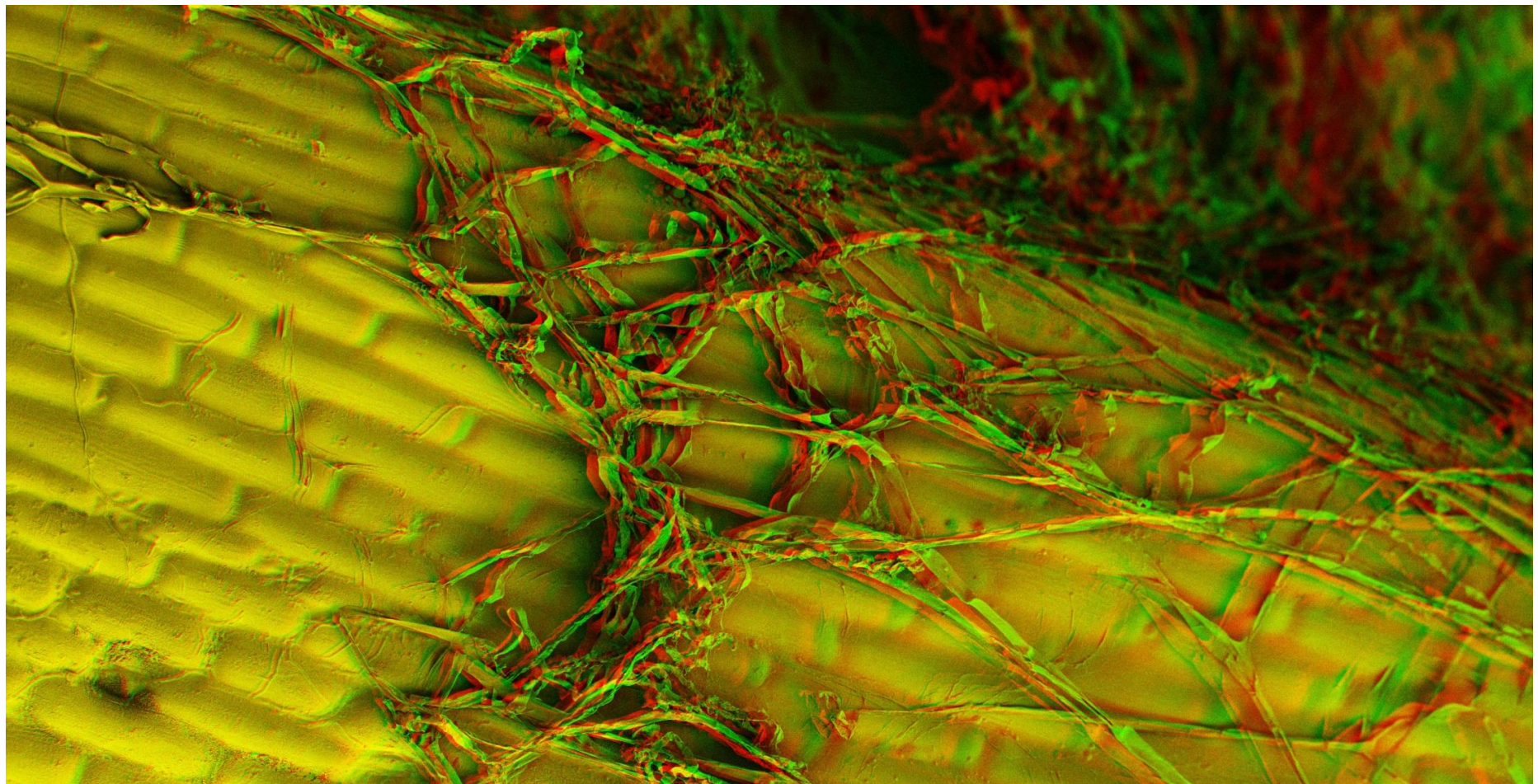


# DISEASE ENTERING THE LEAF



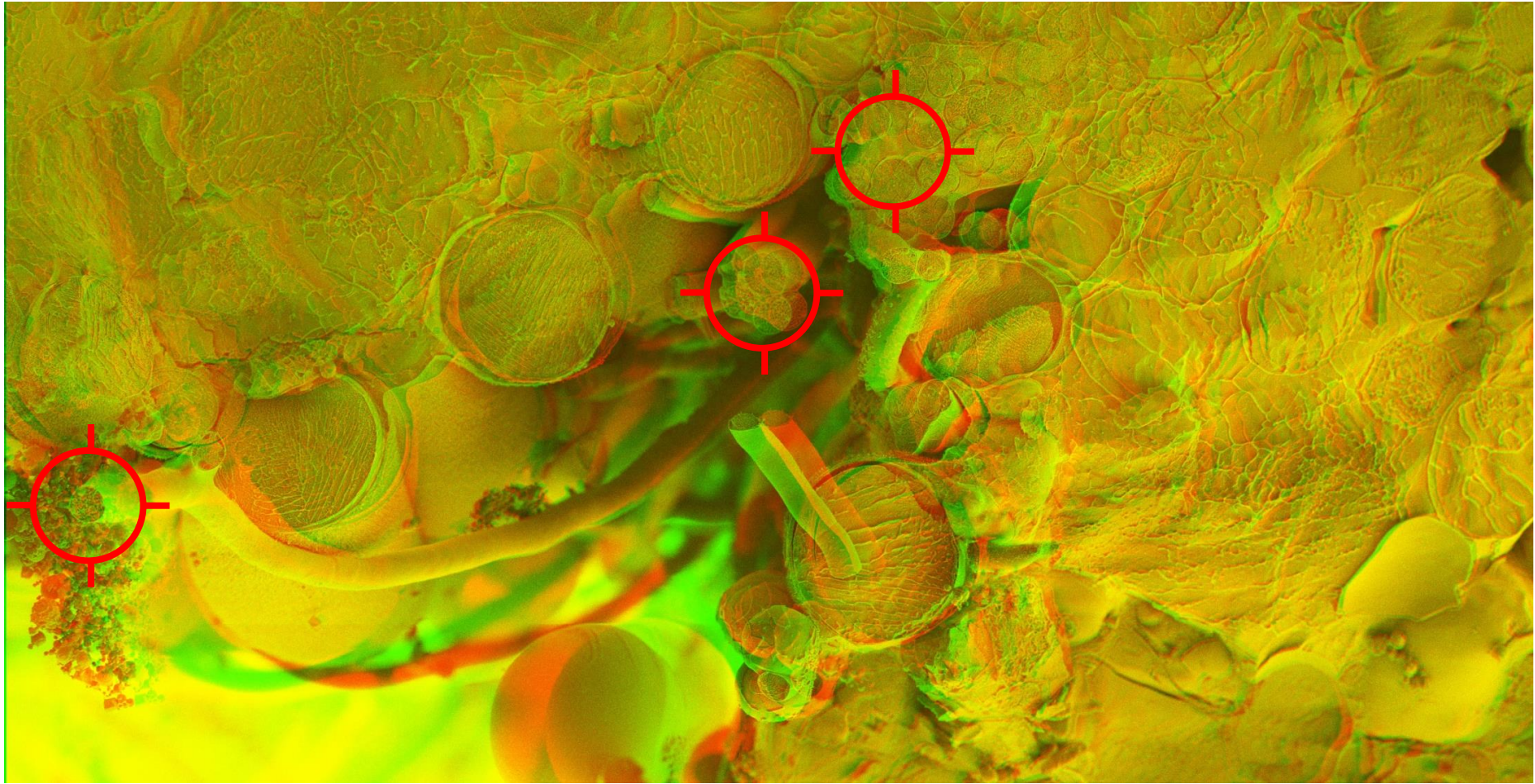
- When Microdochium Patch spores germinate the mycelia grow across the leaf surface
- It can enter the leaf through stomata or any damage, such as cut leaf ends
- Note the structure of the leaf surface
- Left uncontrolled disease will quickly infect the leaf and attack internal plant cells

# CONTROL ON LEAF SURFACE



- Contact fungicide protection on the leaf surface can stop mycelial growth before it enters the leaf
- Mycelia can be seen desiccating and collapsing
- Note how the leaf cuticle differs from the first image, showing the complete coverage of fungicide protection on the surface
- Both the contact chlorothalonil and Contact+ fludioxonil in Instrata are active at this stage

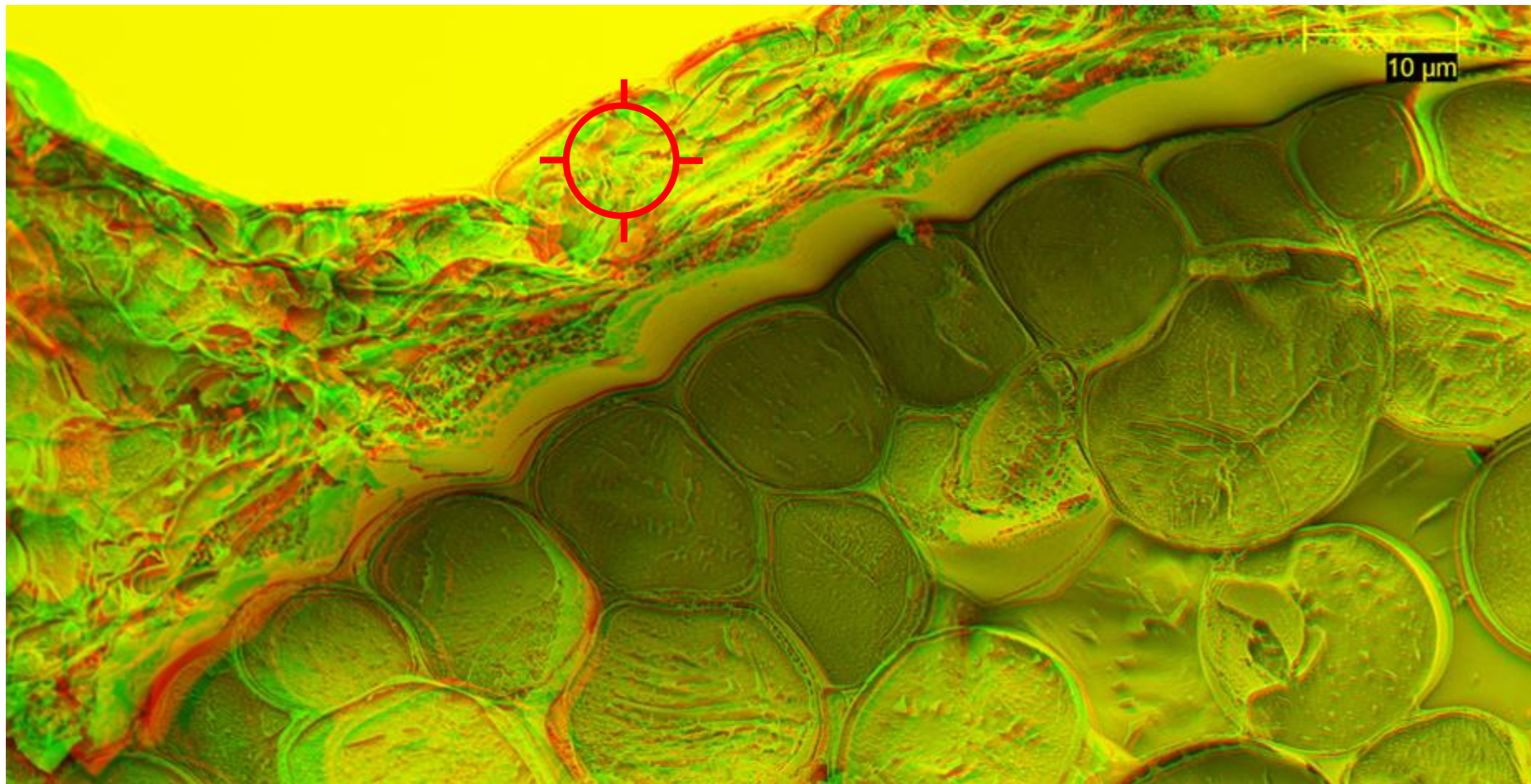
# DISEASE GROWING THROUGH LEAF



## DISEASE GROWING THROUGH LEAF

- This image shows Microdochium Patch infection growing through the leaf and attacking cells, where a fungicide has not been used
- Mycelial growth through the leaf causes damage to cells and stops their functioning
- Contact activity on the surface will have no effect
- Systemic fungicide movement can seek out disease and stop its development
- The fast systemic activity of propiconazole in Instrata is effective in all season conditions

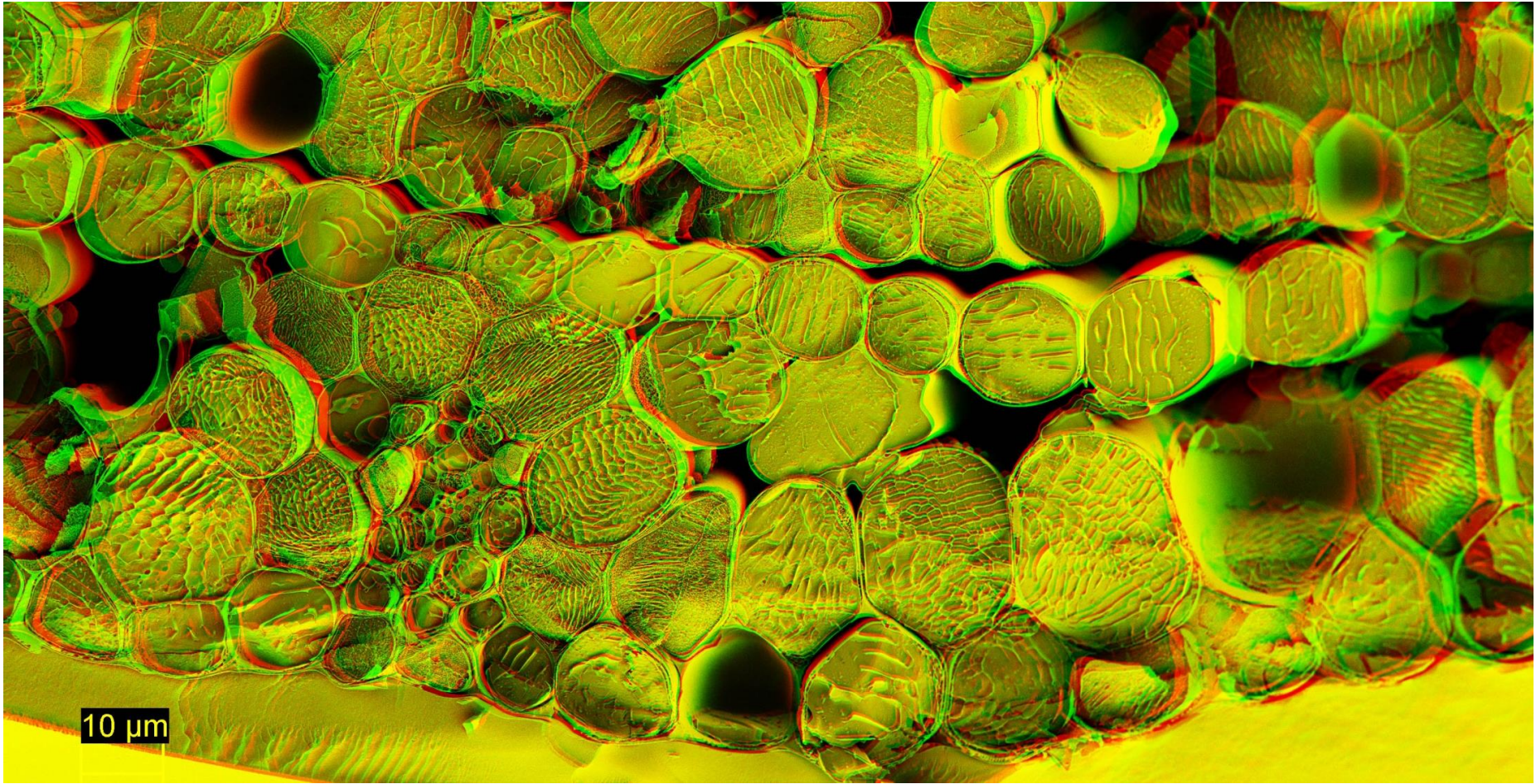
# INSTRATA CURATIVE EFFECT



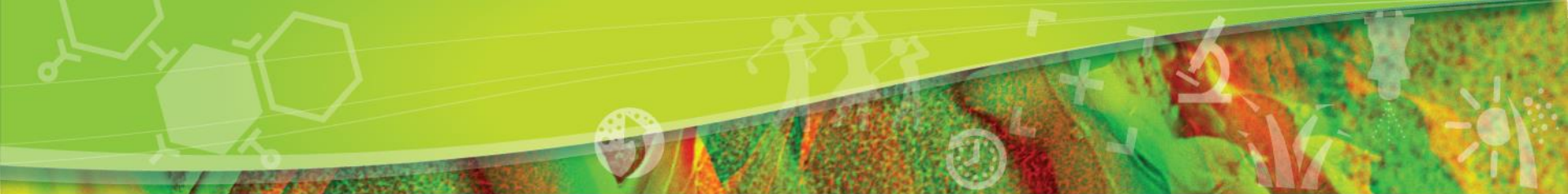


- Instrata applied curatively onto a turf leaf with early stages of Microdochium Patch infection
- Infection has caused damage to the surface cells of the leaf, causing them to collapse
- Instrata has stopped disease development, protecting the inner leaf structure
- The leaf will be able to recover
- Instrata multi-active disease protection on the leaf surface also prevents further infection

# HEALTHY LEAF



- Healthy leaf structure protected from disease infection
- Clean cell structures are able to photosynthesise efficiently
- Water, air and nutrients can move around freely
- Strong turf creates its own buffer against stress and damage
- Healthy turf provides the optimum playing surfaces



This fascinating 3-D insight into turf diseases, and how they impact on plant health, gives you the chance to make better and more informed agronomy decisions, that will minimise damage and protect playing surface quality.

It has only been possible with the electron microscopy capability of Syngenta Jealott's Hill International Research Station - part of the company's \$1.4bn annual R&D spend that enables a greater in-depth understanding in plant health and in developing effective solutions.

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