

# Event Guide

September 2019

STRI's research facilities – Bingley



## Tomorrow's turf today

supported by:

Airter, Aquatrols, Bayer, Headland Amenity, ICL, Sherriff Amenity and Syngenta

# Welcome to STRI Research 2019

Following the success of previous events, we are delighted to be hosting STRI Research 2019 again. The event has been developed to share with you some of the most innovative products, machinery and techniques that are being trialled and tested by the STRI Research team.

STRI works with a number of companies each year on Research & Development (R&D) projects for the sports turf industry and has invited a selection of these companies to support this event, based on their current focus on research and their investment to help improve the future quality and management of sports turf.

The companies attending and supporting this year's event are Airter, Aquatrols, Bayer, Headland Amenity, ICL, Sherriff Amenity and Syngenta.

There are seven separate demo areas called 'stations', which focus on individual products, techniques and/or machinery that have been developed to support the effective management of sports turf. Each of you will be placed in one of seven groups that will rotate around the seven stations throughout the day. You'll be able to see and hear everything clearly and ask lots of questions.

We hope you enjoy STRI Research 2019 and learn something new. You will see firsthand the focus,

dedication and passion of STRI and all the supporting companies' teams, working together to develop the future of sports turf management.



Mark Godfrey  
Chief Executive, STRI Group

# Timetable

08.15	Registration
09.15	Welcome & Introduction: Ruth Mann, Head of research
09.45	1st Station
10.20	2nd Station
10.55	Break
11.15	3rd Station
11.50	4th Station
12.30	Lunch
13.30	5th Station
14.05	6th Station
14.40	7th Station
15.15	Direcing future research and refreshments
16.00	Depart

# Site Map



## Key:

Station 1: Reception/Marquee

Station A: Airter – airter® light 14160 by NOVOKRAFT Ltd, Switzerland

Station B: ICL & Syngenta – The science of ITM solutions

Station C: Headland Amenity – Non-pesticidal disease management

Station D: Sherriff Amenity – Providing innovative new products, ideas and solutions

Station E: Aquatrols – Strengthening the plant & enhancing soil health through surfactants & micronutrients

Station F: Bayer CropScience – Turf stress a key focus for Bayer in 2019

Station G: STRI – Turf management 4.0

## STATION A

### AIRTER

**airter® light 14160 by NOVOKRAFT Ltd, Switzerland**

Introducing the world's first continuous pneumatic soil loosening machine airter®, which improves soil structure and plant health immediately and sustainably.

## STATION B

### ICL & SYNGENTA

#### The science of ITM solutions

Presenting the results of new Integrated Turf Management (ITM) research and how this is providing practical solutions for greenkeepers and sports turf managers to create consistently better turf surfaces.

## STATION C

### HEADLAND AMENITY

#### Non-pesticidal disease management

Presenting a holistic approach to autumn disease management using targeted applications of preventative fungicide in combination with plant elicitors and hardeners.

## STATION D

### SHERIFF AMENITY

#### Providing innovative new products, ideas and solutions

Demonstrating how growth is achievable using novel methods in the absence of traditional fertiliser products, the influence of pigment and the role of specialised micronutrients when applied with a unique fungicide mix.

## STATION E

### AQUATROLS

**Strengthening the plant and enhancing soil health through the novel combination of next generation soil surfactants and microbial blends**

Showcasing the latest trials on plant health supportive solutions, bio-pesticidal candidates and novel soil surfactants.

## STATION F

### BAYER CROPSCIENCE

#### Turf stress a key focus for Bayer in 2019

Showcasing two trials aimed at informing greenkeepers' decision making, based on the issues they face today. The first trial shows how certain products can help mitigate the negative effects of summer and the second puts preventative and early curative fungicides to the test.

## STATION G

### STRI

#### Turf management 4.0

Exploring some of the ways in which 21st Century turf management can be linked to other aspects of the sports facility.

# A

## Airter

airter® light 14160 by NOVOKRAFT  
Ltd, Switzerland





#### Fact:

Strained sports turf surfaces are particularly stressed by the influence of walking on, playing on or driving on, which can lead to a change in the physical or chemical properties of the soil, due to compaction. Compaction has negative effects on the vital development of a healthy and durable grass population, as well as on the functional safety, due to the sometimes significantly reduced air and water permeability of the soil, too little water and nutrients available to plants, poor regeneration growth and changes in soil organic matter.

#### Solution:

The world's first continuous pneumatic soil loosening machine airter® improves soil structure and plant health immediately and sustainably. This reduces other aeration processes and saves operating costs. Homogeneous

loosening at depths of 3 to 11 inches can be monitored. With regard to water infiltration, an improvement can be measured immediately on the worked areas. Even greens that tend to form waterlogging due to unfavourable structural quality with regard to material selection and grain size distribution, soil properties and substrate selection could be "defused" by processing with the airter® with 2 to 9 bar air pressure.

#### Further advantages:

The most effective measure for the complete degradation of the undesirable black layer is the introduction of a lot of oxygen into the soil. This can be guaranteed with regular REAL AERIFICATION with the airter® every four weeks. The airter® can also be used to combat pests such as grubs efficiently and biologically across the board.

#### Game advantage:

Immediately after machining with the airter®, increased ball speed and improved tracking can be measured. This allows machining with the airter® even on match days without having a negative effect on the playability of the greens.

#### Field of application:

Golf (greens and fairways), football, rugby, cricket, American football, baseball, horse sports and much more.

For more information  
visit [www.airter.com](http://www.airter.com)

**NOVOKRAFT**

**airter**  
Empowering Sports Turf

# B

## ICL and Syngenta

The science of ITM solutions



Results of new Integrated Turf Management (ITM) research by STRI, ICL and Syngenta are providing practical solutions for greenkeepers and sports turf managers to create consistently better turf surfaces.

ITM focuses on using the best products in the most efficient and responsible way.

**Presented by ICL Technical Manager, Henry Bechelet and Syngenta Technical Manager, Glenn Kirby.**

Intensive management of turf, to provide consistently higher quality surfaces demanded by today's players, inevitably puts immense stress on plants. New tools and techniques have been proven to enhance turf health and minimise the effects of stress.

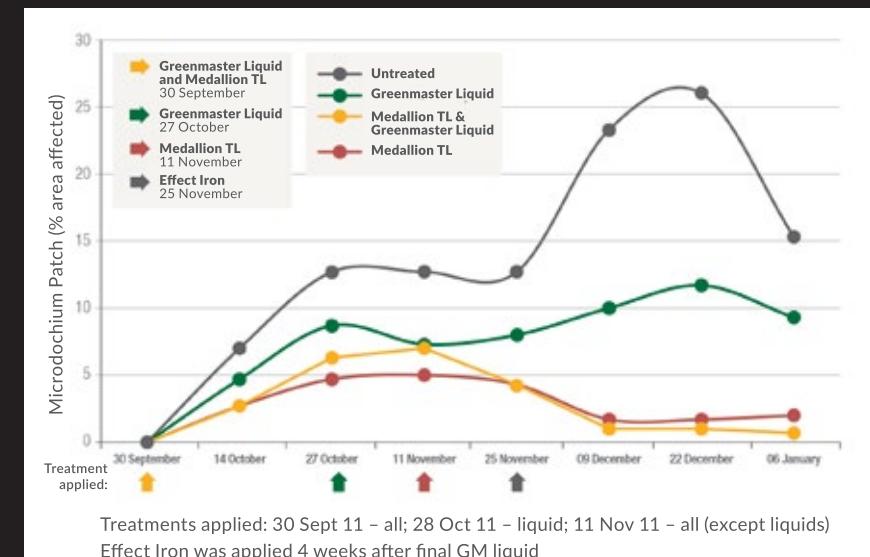
**Key learnings from STRI ITM trials include:**

- The importance of nutrition for maintaining plant health
- Pre-stress conditioning to aid fast recovery
- Managing light for season long growth
- The positive influence of moisture management, including dew dispersants and wetting agents

Both ICL and Syngenta invest heavily in science R&D to fully understand the workings of any new product. Now, ITM research ensures they can be used in the most effective and practical ways, alongside other turf management techniques.

Each component on its own can help slow the rate of development of disease, but when used together as part of good ITM practice, the combined affects achieve a greater

**ICL and Syngenta trials have shown the best results for overwinter Microdochium patch control involved the combination of appropriate nutrition, along with well-timed fungicide applications when conditions for infection were forecast.**



The combination of fertiliser and fungicide was the most effective route to preventing disease effects, as well as maintaining better colour and turf health.

#### **Key trial findings**

- **Synergy shown between Greenmaster Liquids and Medallion TL**
- **Inappropriate potassium nitrate nutrition exacerbated disease**
- **Greenmaster Liquids (NK) and Medallion TL are tank mix compatible**
- **Beneficial role of Effect Iron**

significant overall reduction in disease activity, and ensure the best possible results from every fungicide application.

ITM provides a better way of meeting environmental responsibilities and complying with increasing rules and regulations regarding chemical application. It also helps to maintain healthy turf through long-term sustainable management.

**STRI ITM research has also been fundamental in underpinning the components of new Turf Rewards initiatives. The Fortnightly Mix, for example, utilises the proven performance of Vitanova Stressbuster nutrition, alongside Qualibra wetting agent, Primo Maxx II PGR and Ryder pigment.**

# C

## Headland Amenity

Non-pesticidal disease management



A strategy to manage *Microdochium nivale* should not be based on fungicide alone, as the severity and impact of this disease is also affected by the health of the grass plant, its level of nutrition, cultural practices and the presence of plant leaf moisture (Dew and Guttation Fluid). In addition, legislation has resulted in fewer and fewer choices of fungicide active ingredients following the recent loss of Iprodione, Propiconazole and Chlorothalonil. It therefore makes sense to look at a holistic approach to autumn disease management.

Headland Amenity has pioneered a multi-layered, straightforward and, above all, cost-effective approach to *Microdochium nivale* management using targeted applications of preventative fungicide in combination with plant elicitors and hardeners. This approach is constantly evolving, improving its efficiency based on successful end-user feedback and backed up by independent data from trials conducted at STRI since 2007.

### **Changing autumn and winter weather patterns**

Over the last 10 years, undulating patterns in the flow of the jet stream have allowed extreme weather conditions to develop and persist, sometimes over months at a time. From October 2018 to March 2019, there were 12 separate warm air peaks across Central and Southern England associated with air temperatures in double figures, high humidity and therefore high disease pressure from *Microdochium nivale*.

During three of these incidences of high overnight air temperature, humidity and extended periods of leaf wetness, *Microdochium nivale* was extremely aggressive and end-users saw new patches of disease develop rapidly across turfgrass surfaces. Once established, these patches became reactive later on during the winter – see Fig 1.

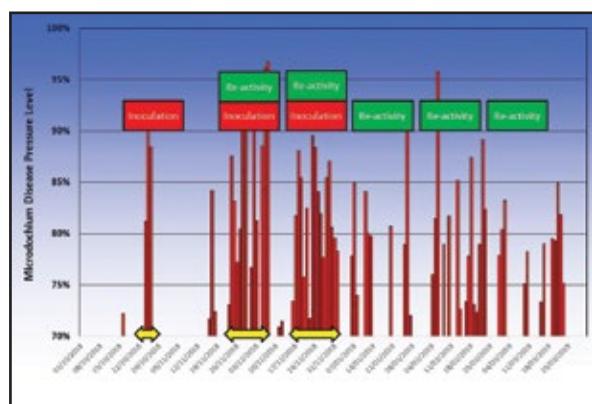


Figure 1

### **Two-tier approach**

Headland Amenity's strategy relies on a two-tiered approach to autumn disease management. Firstly, a preventative fungicide programme is put in place. The aim is to prevent a high fungal population from establishing during October, November and December. End-user experience and STRI trials have confirmed that if this does occur, the outbreak is very difficult to control for the remainder of the winter and scarring will still be evident the following spring, affecting playability and surface integrity.

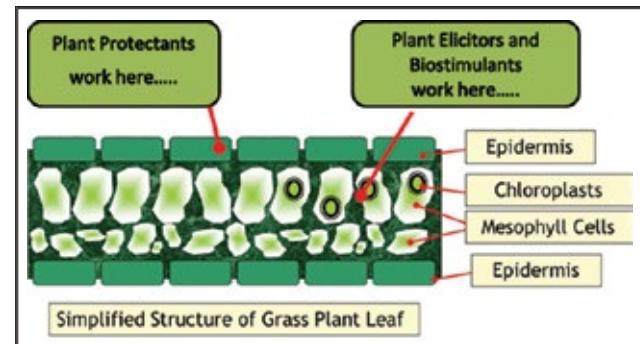
The second tier of the approach is based on non-fungicidal product technologies, namely plant protectants, elicitors and biostimulants.

### **Plant protectants**

Formulated to 'modify' the surface leaf environment and thereby make it more difficult for pathogenic fungi to colonise and enter the grass plant. Headland products in this category, trialled at STRI, include Seamac Proturf Fe, Liquid Turf Hardener, the high potassium liquid fertiliser – Protec K and our recently introduced Mantle formulation. In the 2019 trials we will also be evaluating a new formulation code-named PPT114 that has shown promising results on *in vitro* disease populations and in last year's STRI trials.

### **Plant elicitors**

Formulated to trigger the natural defence mechanism of the plant, (SAR – Systemic Acquired Resistance) and thereby encourage the plant to grow better in the presence of a pathogen.



For autumn 2019, Headland will be introducing a well-recognised plant elicitor, salicylic acid, into its new Turfite formulation and in addition utilise Harpin plant elicitor within the Mantle and PPT114 formulations.

### **Biostimulants**

Lastly, to stimulate the plant to grow away from the disease and thereby enhance recovery, Headland Amenity use a unique phosphite formulation called Turfite Elite. Recent research has identified a plant physiological process linked to the application of phosphite which could enhance the ability of a plant to grow under the effects of abiotic and biotic stress. As mentioned above, Headland Amenity are introducing a new Turfite formulation – Turfite Elite in these trials utilising potassium phosphite, salicylic acid and a nano-uptake enhancer to optimise plant uptake.

The above approach is combined in the successful 20-20-30 tankmix of Turfite Elite, Liquid Turf Hardener and Seamac Proturf Fe to help reduce disease populations with 2018/19 trial results presented on our station.



**headland**  
AMENITY PRODUCTS

# D

## Sherriff Amenity

Providing innovative new products,  
ideas and solutions



Sherriff Amenity has established a reputation as one of the industry's leading suppliers of professional products and specialist advice. Sherriff Amenity is a wholly owned division of Agrovista UK Ltd, the premier supplier of agronomy advice and crop protection products to the UK arable market. The business is part of the global Marubeni Corporation, which was founded in 1858 and employs almost 30,000 people across the world.

Sherriff Amenity has a clear vision – to continue to provide innovative new products, ideas and solutions to our customers.

All the resulting products put forward by the Product Development Team are always independently backed by trials at sites such as STRI. Nothing is ever put to market without proof of it being effective and that it is ultimately safe to use. The Product Development Team consistently demonstrates the core values of Agrovista – innovation, access to the best technologies and the best people. In fact, the team is fortunate to have the backing of its parent company whose technical expertise and phenomenal outreach only benefits the cause in providing the products, services and opportunities that their customers need, both now and in the future.

We are always working towards the future, this enables us to be confident in what we do and what

we want to be able to offer our customers. Our goal is to save our customers time, money and help them get better results from the products we are recommending.

Our trials programmes at STRI provide us with the data and technical information that enables us to deliver innovations such as our preventative disease control strategies and integrated turf management programmes that can provide cost-effective, improved results. We want to be clear in what we are selling, we want to give customers as much information as possible on our products and not hide anything. Through carrying out independent trials such as these it enables us to be confident when putting our name behind a product.

This year we have adopted a different approach by seeking to evaluate a series of products with potential positive environmental effects, along with benefits to turf growth, health and performance.

We primarily aim to demonstrate growth is achievable using novel methods in the absence of traditional fertiliser products, the influence of pigment and the role of specialised micronutrients when applied with a unique fungicide mix.



# E

## Aquatrols

**Strengthening the plant and enhancing soil health through the novel combination of next generation soil surfactants and microbial blends**



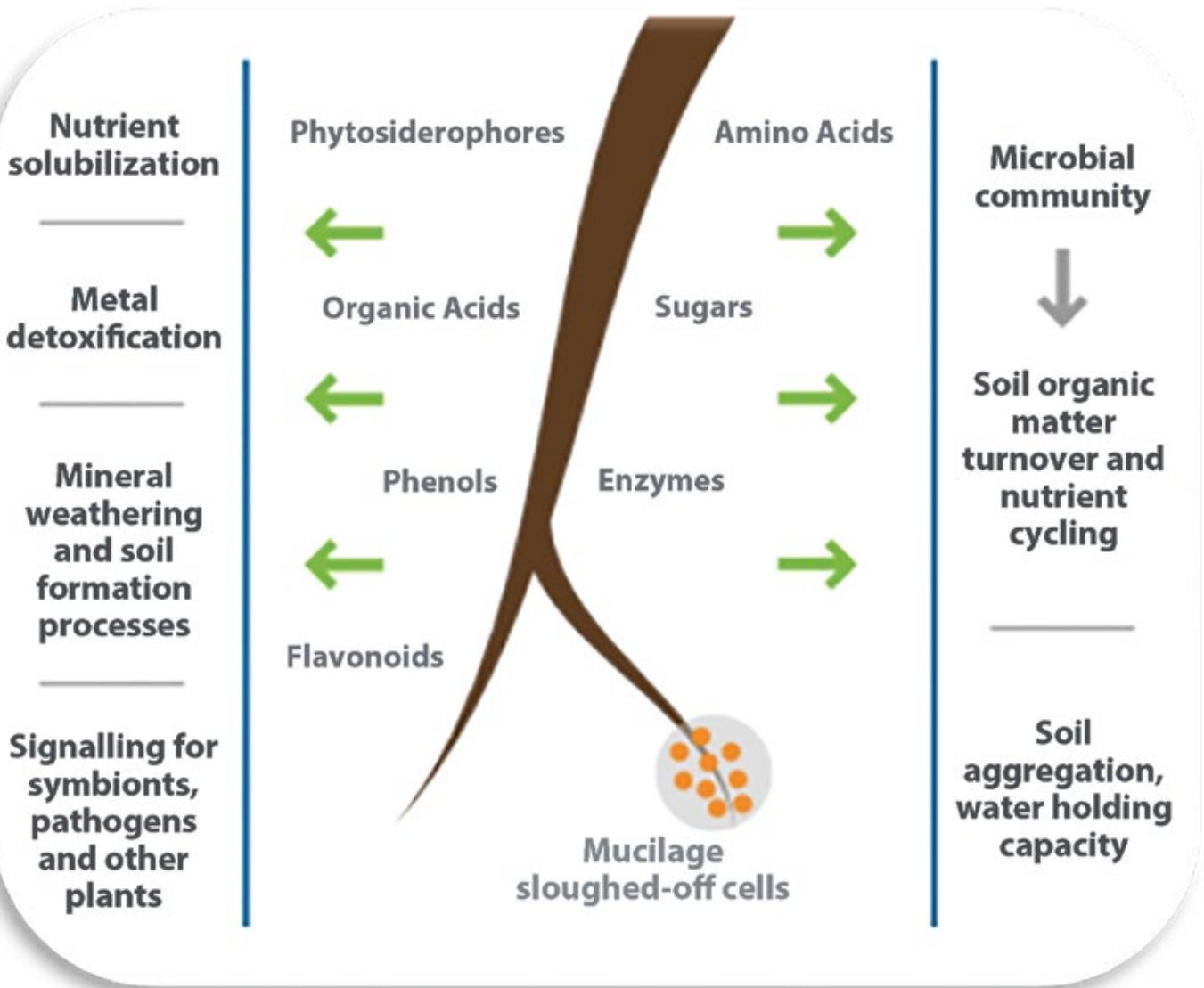


Figure 1. Soil rhizosphere dynamics (Courtesy of Envera)

**The concept:** Turf managers are under escalating pressure to sustainably maintain high quality turf year-round; an undertaking that is further complicated by a rigid regulatory environment, in which pesticidal inputs have been rationalised and will continue to be progressively restricted. To cope with these issues, it is imperative to adopt an integrated approach to modern turf management, one that considers prevention, stress reduction, water/nutrient use efficiency and plant health enhancement. This scenario requires that groundsmen and greenkeepers employ a full spectrum

of plant growth technologies, both biological and conventional.

To meet these needs, Aquatrols, which has a proven track record of developing turf management products, is developing the next generation of sustainable inputs. At STRI's research days the latest trials on plant health supportive solutions, bio-pesticidal candidates, and novel soil surfactants will be showcased. Investigating these technologies is important because the need for superior playing surfaces, whilst reducing environmental impact, is ever increasing.

**Objective:** To determine the efficacy of **EXPERIMENTAL** concentrated blends of bacterial and fungal spores, combined with specially selected micronutrients and soil surfactants, on plant health. Experimental assessments will include turf colour and density, soil moisture, root biomass, rootzone microbial composition, and disease incidence over a 60-90 day period under field conditions.

# F

## Bayer CropScience

Turf stress a key focus for Bayer  
in 2019

Bayer turf solutions team





**Anthracnose development on an annual meadowgrass putting green**

For the first time, Bayer will be showcasing two trials at the STRI research day in September. With both aimed at informing greenkeepers' decision making, based on the issues they face today.

Dr Colin Mumford, Bayer technical manager, explains the first trial aims to show how certain products can help mitigate the negative effects of summer stresses such as heat, drought, wear and diseases such as anthracnose.

"A variety of different fungicides and plant health beneficials will be put to the test, including Bayer's Stressgard® formulated products, growth regulators, wetting agents and a pigment.

"It will be a like-for-like comparison and turf quality, colour and disease prevalence will all be measured throughout the season. At the end of the trial there will also be destructive analysis of the turf including evaluations of root mass and length, along with physiological changes in the grass plant," says Colin.

"The results of this trial will help turf managers make more informed decisions around summer turf stress factors, which are becoming more of a problem as summers become hotter and drier."

The second trial puts preventative and early curative fungicides to the test.

"This trial aims to establish the effects of these fungicides on anthracnose," he says.

"We will be trialling two of our preventative fungicide products alongside a number of other early curative products."

Colin adds that they will also be testing different intervals of treatment and application rates to identify the optimum timing and application rate for effective control of anthracnose.

"We'll be looking at application intervals of 14, 21 and 28 days and trying to understand which is more effective.

"Application rate will also come into this. The trial will test if it's possible to reduce applications to half rates and increase the number of applications. For example, half rate applications at 14-day intervals compared to a full rate at 28-day intervals.

"This will enable us to provide turf managers with accurate information on how to get the most out of disease programmes," he says.

"We've done a lot of this research in the USA but as they can use slightly different management techniques, we felt it was important to invest in trials that provide a UK data set which can be readily applied to the UK climate and management practices."

The Turf Solutions Team will present on each of the combinations being applied to the plots, their regularity and the expected outcomes and will also be on hand to answer any questions delegates may have.

**For more information, please visit [www.environmentalscience.bayer.co.uk](http://www.environmentalscience.bayer.co.uk)**



# G

# STRI

Turf management 4.0





Groundsmen now have a wealth of tools in which to manage high end turf surfaces. This has led to an increase in the quality of turf surfaces across the industry as well as increased user expectations. In this station, STRI's technology manager, Dr Tom Young, will explore some of the ways in which 21st Century turf management can be linked to other aspects of the sports facility.

Turf surfaces have historically been seen as the 'bit of green' in the middle of a sports facility, generally with no questions asked, unless something goes wrong or the home team doesn't perform! With a significant increase in turf quality over the last 20 years more attention is now being paid to how turf surfaces can be linked into the management of the sporting facility, and no longer being seen as just the bit of grass to play on.

Key to any sporting facility is the management of water onsite. Historically, the turf surface was managed to remove water away from the area as quickly as possible. Now with current legislation, planning requirements and resource availability,

water use in most industries is being carefully examined and standard management and construction practices altered. This is now starting to affect sports turf, with the water management strategy of many stadia redevelopments now coming under much more scrutiny.

STRI will demonstrate a number of novel ways of managing water on turf surfaces, with water re-use a top priority. Key to managing large amounts of water across large sites is automatic sensing and data collection, something which turf managers are increasingly doing in order to monitor turf surface quality. The theme of data management will also be discussed and a few warnings given

on the common mistakes people can make when using large data sets.

Finally, the future use of turf surface data to inform player performance will be explored and a few STRI predictions made on the future role of groundsmen in improving team performance.





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