TURF TALK

Summer 2015

SUMMER TURF

HEALTH SPECIAL

IN THIS ISSUE:

syngenta®

Manage Water to Reduce Thatch

New research has identified how the use of Qualibra to manage water in the soil profile can reduce the level of thatch build-up at the surface. Daniel Lightfoot explains how providing conditions good for microbial activity will help – and improve playing surfaces.

The use of a Qualibra wetting agent programme moves water down from the surface to produce a better playing surface and create optimum conditions for microbial organic matter breakdown, whilst retaining moisture at depth to rejuvenate turf health.

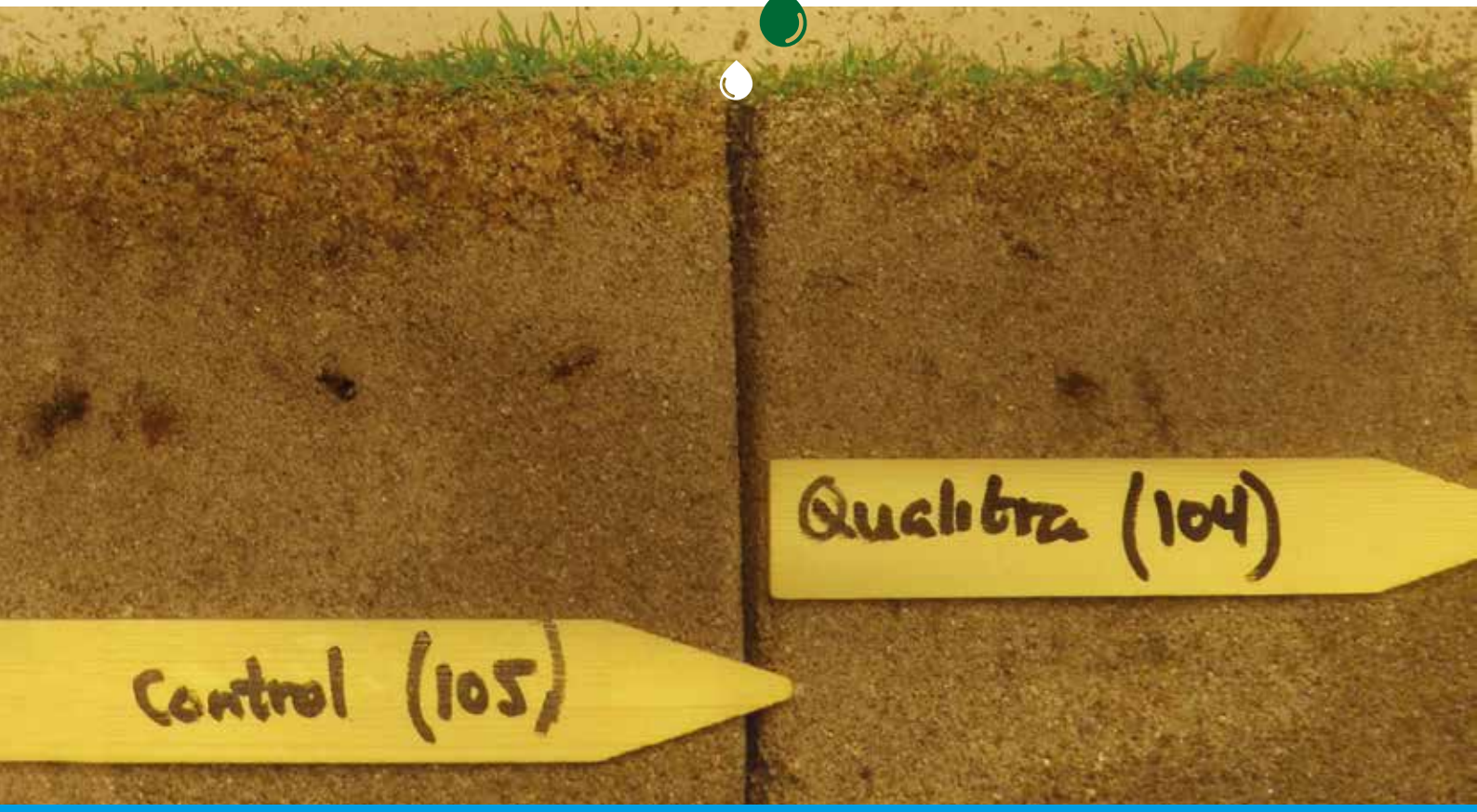
The combination of retained moisture and higher levels of organic matter in the surface layer are the primary factors in soft, inconsistent putting surfaces that disappoint players.

Trials results

Trials by the Nordic turf research specialists, Bioforsk, showed over 25% assessed reduction in the thatch depth after a single season of a Qualibra wetting and water conservation agent programme (below). There was also a significant reduction in potential hydrophobicity at 5, 15, 30 and 50 mm depth with Qualibra treatment, as indicated by water droplet penetration tests.

In addition to the noted tendency for reduced thatch and organic matter content, it was reported that, with Qualibra, the surface was harder on the USGA-spec creeping bentgrass green.

Soil water management clearly has an important role in mitigating the build-up of thatch. A Qualibra programme has been shown to help to maintain the right environment for healthy turf and a high quality playing surface.



A recent STRI report identified golf greens currently contain surface thatch levels on average 60% higher than is desirable for optimal turf health and playability. Some parkland courses were recorded with organic matter in the top 20mm of more than

25% COMPARED TO A TARGET OF 4-6%

Even links courses were found to have organic matter extending down to 40mm from the surface of up to

12% WITH AN AVERAGE 7% IN THE TOP 20MM THAT IS STILL 40% ABOVE THE TARGET LEVEL

Irrigation Efficiency

Water use for irrigation on golf courses and sports pitches becomes a hot topic whenever there is a drought or water scarcity.

Whilst the volumes involved are relatively small, compared to agriculture or even loss through pipes, it creates poor publicity for the industry for what is an increasingly scarce and expensive resource.

It clearly makes economic and environmental sense to make the best possible use of the available resources.

Qualibra can help to optimise the use of irrigation on a number of levels. The initial penetrant activity ensures surfaces quickly remain firm and dry when using higher, but less frequent, irrigation application – which is more efficient with less wasteful evapotranspiration compared to frequent low volumes.

Secondly, the combined polymer action helps to retain applied moisture deeper in the soil profile, where it can be better utilised by turf. Furthermore, the consistent soil moisture at depth encourages root growth that will further improve utilisation of applied water – along with a better uptake of nutrients.

Greater Rewards

Greenkeepers and turf managers can also receive double reward points on Qualibra for the 2015 season.

For more details register or log-on to **www.turfrewards.com**

Summer Root Retention

When summer temperatures hot up, the root structures of cool season turf plants can suffer and decline dramatically. Marcela Munoz highlights the issues, and the measures to reduce the impact on plant health.

Root growth is a constantly ongoing cycle in healthy turf. New root material is created, as old root dies and degrades. It is an essential process, since the enhanced ability of new root growth to absorb water and nutrients reduces as it gets older and woody. The rate of decline and replacement is influenced by climatic and soil conditions.

Summer root dieback in cool season grasses - those grown on most UK turf sports surfaces - occurs when a plant's photosynthetic activity is restricted by the hotter temperatures, but it is still actively respiring. The plant's growth demands more carbohydrate than the leaves can physically produce during the hot weather, which leads to root mass reduction.

Agronomy measures to minimise root loss can help to maintain better summer surface quality - and year round turf health. Primo Maxx trials, for example, have shown that stimulating greater root mass and carbohydrate reserves in the late summer, can be extremely effective in reducing the incidence and impact of Microdochium (Fusarium) Patch turf disease over the winter.

Providing sufficient moisture to support the root development is absolutely critical. Greater root mass develops where moisture is available retained in the root zone. Trials have repeatedly shown that less frequent irrigation to depth is more effective for root retention than frequent light application *(see Irrigation efficiency, page x).*

Mowing height clearly has a major impact on root mass. Whilst the practicality will always be dictated by player demand and need for speed, where putting surface quality can be achieved from Primo Maxx growth regulation and the use of turf iron, in conjunction with mowing height, for example, there is potential to significantly enhance root retention through the summer.

Other aspects include appropriate nutrition timing. Trials have shown that applying nitrogen in the spring and early autumn - when root growth is at its peak - can be beneficial for root development of cool season grasses, but during summer to much N can stimulate leaf growth at further expense of roots and could make the issue worse.

Understanding why turf plants lose root mass in the summer, and employing a range of integrated turf agronomy inputs, could help ensure stronger, healthier plants and consistently better playing surfaces through the year.

Read more ITM advice for summer turf health on GreenCast.

Disease Control Inside

A fascinating new insight into turf diseases, and how they impact on plant health, has now given turf managers and agronomists the chance to make more informed agronomy decisions, that can stop damage earlier and better protect playing surface quality.

1 Hyphae growing on the leaf surface

2 Dead mycelium on the leaf

3 Mycelium growing through the leaf

4

1 When Microdochium Patch spores germinate leaf without the protection of a contact fungicide, the hyphae grow across the leaf surface. The mat of hyphae seen under the microscope is referred to as mycelium.

The disease pathogen can enter the leaf through stomata or any physical damage, such as cut leaf ends.

Left uncontrolled disease will quickly infect the leaf and attack internal plant cells.

2 Contact or Contact+ fungicide protection on the leaf surface can stop mycelial growth before hyphae enter the leaf.

Here, hyphae can be seen desiccating and collapsing under the effects of fludioxonil on the surface.

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.

3 The hyphae of disease infection that has been able to enter an unprotected leaf can grow through the leaf structure, causing damage to cells and stop their functioning.

Systemic fungicide activity can move around inside the leaf to seek out disease and stop its development. The systemic movement is most effective when the plant is actively growing. The fast moving systemic activity of propiconazole is more mobile at lower temperatures.

Where disease infection has caused damage to the surface cells of the leaf, resulting in their collapse, the systemic activity of propiconazole can be seen to have stopped disease development, protecting the inner leaf structure.

4 Contact activity on the leaf surface will have no effect on the disease inside the leaf – although it will help by preventing further infection.

With the aid of this curative activity at the early stages of Microdochium Patch infection, the leaf will be able to recover. Only a fungicide active on disease inside the leaf and on sporulation can be truly eradicant.

At the same time, Instrata multi-active disease protection on the leaf surface also prevents further infection.

View a video of how it was achieved on the GreenCast website.

This new investigation into turf disease and fungicide activity has only been possible with the electron microscopy capability of Syngenta Jealott's Hill International Research Station. It is 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

Under the Scope

Syngenta Turf Science Microscopes give a new insight into turf health and management.

Designed to take 60x magnification images and video on your mobile phone and tablet, it gives the chance to see problems earlier and in greater detail.

An in-depth understanding of the science of turf management will help to make better decisions – not just with turf protection inputs, but every agronomy and ITM practice.

Now greenkeepers and agronomists are encouraged to share their images and experiences, to help everyone to target the right options at the right time.

There is a whole new library of images on GreenCast, and you can follow the latest discussions on Twitter with: **#turfunderthescope**

There are still a few microscopes left, so if you would like one send an email with your details to **golf.syngenta@syngenta.com**

To get the best results with your microscope there is a tutorial on the **GreenCast website.**

Disease in Focus - Anthracnose

In the first of series of focus studies in identifying turf diseases, Syngenta Technical Manager, Marcela Munoz, looks at Anthracnose (Colletotrichum Cereale) and risks for the summer.

Foliar Blight - Symptoms

Older leaves becoming infected first. The pathogen progresses up the stem. Individual blades fade from dark green, to light green to yellow. Patches progressively become dark brown in color. Plants are killed in irregularly shaped patches.

Typically occurs at cooler temperatures, of 15°C to 25°C, from late summer through to the autumn and even into winter.

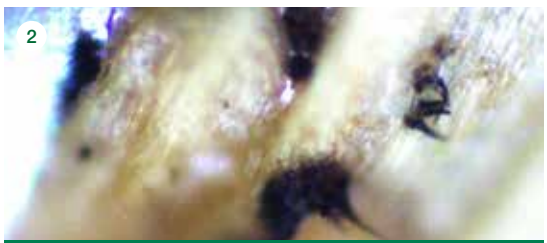
Foliar blight is most prevalent when turf is under stress, with symptoms exacerbated by high temperature, drought, low mowing height, soil compaction or low fertility.

Basal Rot – Symptoms

The base of the plant appears water-soaked, rotting, with blackening of the lower stem in an advanced stage. Orange or yellow speckles or spots of affected turf.

ACERVULI 10X | ACERVULI ON A LEAF

Images: Doc. Ed Nangle and Chicago District Golf Association



ACERVULI GROWING ON THE CROWN OF THE PLANT

1 Use your microscope to look for small black spots, known as acervuli, that can be seen on blades of grass killed by anthracnose.

2 Use your microscope to look for acervuli that can be seen easily seen the crown of the plant.

Visit the **GreenCast website** for more of Marcela's in-depth disease action notes and advice.

Instrata Approved in Ireland

Greenkeepers in Ireland now have full approval for the innovative multi-active Syngenta turf fungicide, Instrata.

The official launch of Instrata in Ireland took place in Dublin at the prestigious Aviva Stadium, organised by Everris Country Manager, Colman Warde, and hosted by the stadium's Head Groundsman, Majella Smyth.

Colman highlighted greenkeepers and superintendents in Ireland have been eagerly awaiting the approval of Instrata. "Its unique multi-active properties will be especially valuable to protect turf playing quality from disease risk challenges as a result of the typically changeable weather conditions.

> "The instant contact protection of the leaf, plus hitting pathogens in the thatch and on the plant to reduce infection risk, can provide extended protection for exceptional long-lasting results," he added. "No other turf fungicide could provide all these attributes and flexibility in one easy to use option."

Daniel Lightfoot, Syngenta Turf Business Manager for UK and Ireland, reported that Instrata provides a powerful combination of contact+ and systemic activity for turf disease control inside and out.

"The combination of three actives, all working in different ways and at different points in the disease life cycle, ensures Instrata provides effective protectant and fast acting curative activity – making it a genuine all-round option at any time of the year," he advised.

The Instrata launch was held at the prestigious Aviva Stadium in Dublin, home to the National football and rugby teams, as well as a host of additional games, training and other events for near continuous use throughout the year. Around 80 greenkeepers, agronomists, researchers and turf trade professionals attended the Instrata launch, which included a tour of the stadium, facilities and details of the impressive Desso pitch management of Head Groundsman, Majella Smyth and his team.

> "With its fast-acting combination of actives, Instrata has become an integral part of most UK greenkeepers' disease control strategies, and will be a very welcome addition for Ireland."

DANIEL LIGHTFOOT, SYNGENTA TURF BUSINESS MANAGER FOR UK AND IRELAND

Turf TankCalc Assures Accuracy

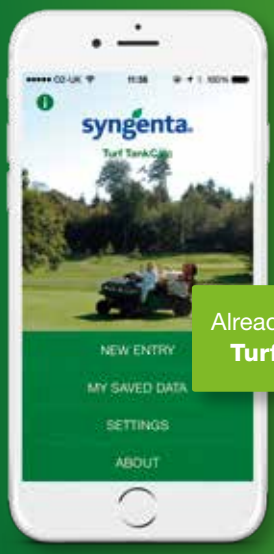
The free Syngenta Turf TankCalc App for smart phones and tablets gives turf and amenity sprayer operators an instant calculator for precise product inclusion rates in spray tank mixes.

Turf TankCalc calculates for the amount of any product required to be added to the tank for a given water volume, along with the rate being applied per hectare.

- ☑ Simple to use
- ☑ Calculates complex mixes
- ☑ Save time
- ☑ Improve accuracy
- ☑ Record and report

Turf TankCalc includes a quick link for Syngenta products and a direct route to the GreenCast website for detailed information and labels - along with weather forecasts, agronomic information and other application advice.

It also records details for each spray application, along with relevant information on nozzle selection and water volume, for example. The data can be exported by email for record keeping.



Turf TankCalc is available now for android and Apple operating systems. It can be downloaded from quick links on the GreenCast website Application Zone **www.greencast.co.uk**

Already downloaded **Turf TankCalc?**

Make sure you update with the latest version with new features and developments – go to the iTunes AppStore or Google Play.

History Helps to Predict the Future

How often does the benefit of hindsight remind that, in most instances, weather related issues with turf health have invariably occurred at least once before.

The GreenCast weather and disease records database holds over a decade of detailed information that can be invaluable in looking at patterns of turf problems, or helping to decide what actions you may need to take in different scenarios explains GreenCast UK Manager, Caroline Carroll.

With the increasingly changeable seasonal weather patterns we are now experiencing, it is more important than ever to look at what has happened in the past, and what the implications were for your turf health.

To access the historic data you do need to be logged in to the GreenCast website, so you will need to do the quick registration if you have not already done so.

Once on the site, go to 'Historic Weather Charts' by clicking on the 'Weather & Disease Forecast' tab on the homepage, or from the associated drop down menu (Fig 1).

On the page you can select the dates that want to look at over any period, and from the full range of parameters temperature high and low, rainfall and soil temperature.

Switching to 'Historic Disease Charts' you can then review local disease risks over the same periods, with options for the key diseases including Microdochium (Fusarium) Patch; Anthracnose; Dollar Spot and Take All.

Comparing the weather data with the disease risks will give a good indication of how the two are interrelated, and a guide to what may happen in the future under a repeat of the conditions.

Putting the Habitat Back

Elsham Golf Club in Lincolnshire has won the prestigious Operation Pollinator Award for its outstanding habitat creation and ecological work around the course. First Assistant Greenkeeper, Anthony Darker (right), highlights how they successfully established the wildflower areas that have made the club such an attraction for wildlife and for players.

Read more of Anthony's experience and practical solutions on the GreenCast website

Our journey to bring the golf course to life and make it more environmentally attractive was inspired by a Syngenta Operation Pollinator seminar back in 2011.

We saw the potential of what we could achieve, and welcomed the practical advice to help set us on the way.

The first year we selected areas of the course that were out of play. Typically these were unsightly scrub with thick broad-leaved grasses. In the first instance we cut the areas back to 50mm height, cleared the debris and sprayed with Rescue to kill off the rough grasses.

Within three weeks the grasses had died back, so we went in with the scarifier, operated in two directions, to remove about 60% of the sward. It did appear quite brutal, but was necessary to create sufficient bare earth to sow the wildflower mix on the surface.

The seed was broadcast and pressed onto the surface, whilst trying to ensure it was not buried. We used a heathland mix that was felt would look most natural for the course and with a selection of perennial wildflower species that we would expect to find in the area.

It's fair to say, that for the first 18-months, we didn't see any revolutionary change, with just some areas of Birds-Foot Trefoil and Red Clover flowering. It could have been disappointing, but we remained patient and the results over the spring and summer 2013 were certainly worth the wait.

What were once bland, colourless areas were awash with colour and crawling with bees, butterflies, moths and no end of insects that we had never seen prior to the Operation Pollinator habitats being created. It was incredibly exciting for me, and generated a wave of enthusiasm within the greenkeeping team and the club to do more.

To keep the members informed of what we are doing and get them involved we had signs made out of a fallen tree, including the Operation Pollinator sign painted on.

With the increase in insect life and winter seed heads we have also seen a greater number of birds and diversity of species attracted to the course – or at least we are more conscious of them and actively looking to attract them. We've put up various sizes of bird box and shelters to provide for them too, and now with owls on the course we have effectively completed the food chain.

Now, management of the wildflower areas involves waiting until the end of September for bees and butterflies to move off and take refuge in the over winter log piles, and then cutting back and removing the vegetation. The aim is to reduce the fertility and keep the sward open that will allow wildflowers to set seed and regenerate. The perennial wildflowers appear well established and self-sustaining.

Elsham Golf Club, situated 15 miles south of Hull, was established in 1900 as a parkland/heathland course. Covering 45 hectares (115 acres), the 18-hole par 71 course measures 6426 yards. With 600 members it features in Today's Golfer list of 'Hidden gems in the UK'.

The Operation Pollinator heathland wildflower seed mix seed includes:

Birds-Foot Trefoil | Common Knapweed | Lady's Bedstraw | Devil's Bit Scabious
Wild Red Clover | Wild Carrot | Self-Heal

STRI Top Tips for Pollinators

STRI ecology specialist, Bob Taylor, offers some topical tips for enhancing golf course habitats for pollinating insects.

1 Early start

Bees emerging after the long winter are desperate for food and pollen. Think about what early food plants are available for them, and close to where they have been hibernating.

2 Variety

Look for a mix providing a continuous supply of food from different plants flowering over a protracted period. A glut of flowers for a brief period will produce a flurry of breeding activity, but if there is little succeeding this the pollinator's larvae could die.

3 Physical attraction

If you provide a variety of different food plants, you will attract a variety of pollinators. A good example of this is the classic wild flower meadow; the variety of flowering plants is beneficial to a wide range of pollinating insects including bees, butterflies, moths and flies.

4 Nectar flow

The production of nectar and pollen for plants is very often dependent upon the temperature. Make sure that your pollinating insects have other food plants to feed upon during our typical British summers!

5 The club house garden

Don't forget ornamental species can be a very valuable resource for pollinators, but ideally choose single, rather than double, flowering varieties.

Women's demands to make golf attractive

Female participation is an important strategic opportunity for golf as a sport and a business.

Syngenta investigative market research aims to help golf clubs better understand the wants and needs of existing female golfers as well as prospective players. Furthermore, showcasing golf courses that are successfully growing their operations through encouraging female participation will enable more to grow the game and develop sustainable businesses.

The latest survey looked specifically at women's demands and what aspects might attract more to play golf, either to return to the game or to take up the sport.

Most comments orientated around the club and clubhouse facilities, along with lessons and accessibility.

But some elements would also involve some new demands and adaptation for greenkeepers and turf management, for example...

Shorter courses

Many women highlighted a demand for more accessibility for six or nine-hole course layouts that could facilitate quicker rounds. In many instance 1½ to two hours was the maximum time available or required. Whilst all courses tend to have shorter women's tees, alternative tee placements may make holes more attractive to the women's game.

Flexible access

For a significant proportion of women the most convenient time for golf is during the school day; from 10.00am and finished by 3.00pm. Ensuring they can readily gain access during these times is crucial to give value for money and create loyalty to the club. Their play may increase overall rounds on the course, with implication for wear and tear and maintenance.

Floodlight golf

Many women questioned believed access to floodlight golf – for driving range or practice holes – would give them increased accessibility for golf at more convenient times, after work or when childcare was available.

Environmental attraction

Playing in a relaxing, outdoor environment is one of the primary attractions of golf over many other sports. Women golfers are typically far more aware and appreciative of environmental features, including Operation Pollinator wildflower habitats, bird boxes and experiencing other wildlife.

Alternative forms of golf

The female panellists discussed a range of alternative golf formats, with Topgolf – combining a social and friendly-competitive experience – being the favourite solution.

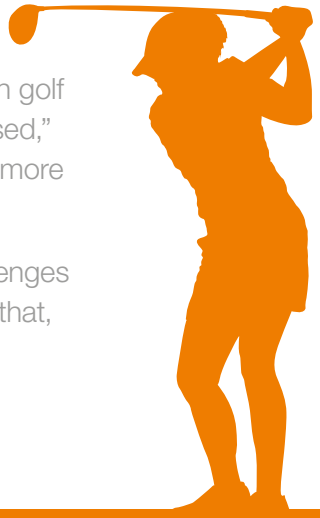
Topgolf appeals as it overcomes some perceived barriers to conventional golf. It's fun, casual and more social, as well as offering a competitive format that develops skills. Topgolf is highly appealing to lapsed players and non-golfers, but it is perceived to be expensive.

Growing Women's Golf

Mike Round, Ladies European Tour Director of Development & Membership, acknowledged the appreciation of Syngenta's efforts and commitment to the long-term sustainability of the sport.

"The reality is that there is a gender imbalance in golf and this is something that needs to be addressed," he said. "While progress is being made, much more needs to be done.

This survey highlights that while there are challenges to overcome, there are also practical solutions that, if applied, will enable the sport to grow."



GreenCast®

National Golf Month in May had a big focus on getting more women into golf, with its initiative to grow the game and generate the players necessary for economically sustainable golf clubs.

Watch what has been done on the GreenCast website.

Golf Ambassador for Syngenta

Solheim Cup Captain and leading Ladies European Tour (LET) professional, Carin Koch, has become Syngenta's first Golf Ambassador.

Her role will work closely with the company in its ongoing support of golf clubs and courses, and its industry-wide initiatives aimed at 'Unlocking Golf's True Potential'.

Carin highlighted Syngenta's golf market research report into female participation not only showed what a significant opportunity there is for the industry, but how courses can take simple, practical steps to make their venue more female and family friendly.

"I have two children and we play golf as a family. The solutions in the report and the approach Syngenta is taking concur with my own thinking and I wanted to lend my support to a cause I wholeheartedly believe in."

Simon Elsworth, Syngenta Head of Turf & Landscape EAME, said she would play an important role in Syngenta's activities. "Carin has a genuine, deeply-held desire to see more women and girls playing golf, which resonates with the opportunities highlighted by our market research.

"She speaks with passion on issues relating to participation and is a great ambassador for golf. Carin will be joining Syngenta when we present and discuss the results of our reports, and will be an active member of our team by contributing to initiatives and representing the brand."

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