TURF TALK

Issue 14

LE GOLF NATIONAL SPECIAL

THE VALUE OF VOLUNTEERING

IN THIS ISSUE:

syngenta

MAKING LIGHT WORK

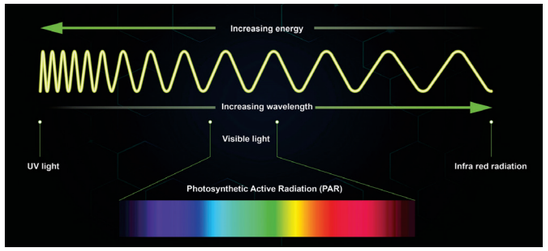
Dr Dominic Petrella, Post-doctoral Associate at the University of Minnesota, discusses why too much light can be physically harmful to turf

Not all energy emitted by the sun is useful for turf grass growth, and some of this energy can actually be harmful. Radiation that is emitted by the sun only contains a small amount of energy that can actually be used by turf grass to promote growth and development.

Ultraviolet light can have damaging effects on photsynthetic proteins and plant DNA

Control Light | UV Light Exposure

Not all light is useful for photosynthesis - some can be harmful



Visible light, or Photosynthetic Active Radiation (PAR), accounts for only 40% of EM radiation, and it's these wavelengths of light that are used for photosynthesis – with blue and red light are both considered the most efficient. However, high levels of sunlight can also be stressful for turf grasses.

Infrared radiation (IR) consists of longer wavelengths (700 - 1,000,000 nm) of light that account for approximately 50% of EM radiation Whilst most IR doesn't directly impact turf grass growth, indirectly it increases leaf temperature.

UV SUNBURN

Shorter wavelength EM radiation - ultra-violet radiation (UV light) - includes x-rays, gamma radiation and even microwaves, has more energy and can cause damage to living tissues. UV light has relativity large amounts of energy that can physically damage or destroy DNA. Essentially, plants can get a sunburn just like people do.

Besides damaging DNA, UV light can also directly damage chlorophyll molecules and proteins involved in photosynthesis - resulting in photo-inhibition. Photo-inhibition is the decrease in photosynthesis due to light itself.

Instead, this absorbed light energy leads to the production of Reactive Oxygen Species (ROS). Large quantities of ROS, such as hydrogen peroxide and superoxide, generated during photo-inhibition can lead to widespread plant stress.

PHOTO-INHIBITION

Chlorophyll and photosynthetic proteins can only handle so much light at a given time, and these excessive amounts of light can lead to photo-inhibition. Furthermore, during times of additional stress, plants will saturate with light at lower light intensities, increasing the odds of problems occurring.

Excessive sunlight can also result in photo-inhibition. High intensity light - greater than 500 µmol m^2 per second can "over-saturate" photosynthesis.

In practice, during a typical summer day light intensities well above 2,000 µmol m^2 per second can be observed for 3-4 hours per day, and even on a cloudy day in the summer more than 1,500 µmol m^2 per second would still be normal. On a sunny winter day light intensities can reach between 500-1000 µmol m^2 per second during peak daylight hours.

NATURAL PIGMENTS

Because light can be stressful overall, plants have developed ways to adapt to these stresses. Plants can produce natural pigments that reflect, scatter, and screen incoming solar radiation to help protect against damage.

Treating turf grasses with synthetic pigments can help to mimic the function of natural plant pigments to decrease light stress. Pigment green 7 – as in Ryder - can reflect and/or absorb harmful UV light, along with screening excessive sunlight.

At Oxfordshire's premier Radley College near Abingdon, Adam King looks to maintain sports fields in top condition throughout the year.

"Given where we were in March and April, the results from the trials of combined Ryder and Stressbuster treatment were stunning," he reported."The colour was fantastic and received so many positive comments, from the school, parents and visitors.

"With slow grass growth at the time, the results were pleasingly long-lasting," he added. The effect was especially welcome with the slow germination and growth of over-sown dwarf ryegrass, which would normally be relied on to add depth to outfield colour.

"If turf is under the intense late-summer drought stress that we have experienced some years, then Ryder may have a role to protect the existing plants and maintain the crucial density of turf cover that's essential for the winter sports," he added.

At Goring & Streatley Golf Club, Matt Aplin, has integrated Ryder into his management and course improvement programme, which has been acclaimed by the club's players.

"We initially used the pigment for colour in April, when the season was slow to get going and looked a bit dull," said Matt. "It achieved a really nice natural colour. It lasted well, until we got a flush of growth - by which time the greens looked great anyway," recalled Matt.

He also put on an application after a spring greens' top-dressing, when the pigment effectively masked the 10 t/ha of sand put down. "As you approached the green, you couldn't see that it had been top-dressed. That could really help with our programme for 'little-and-often' monthly aeration and top-dressing, without affecting players.

In terms of playability we know that greens are back to normal almost as soon as we've finished, so if we can instantly restore the visual appearance too it keeps everyone happy.

At Huntercombe Golf Club, near Henley in Berkshire, Grant Stewart is investigating the potential for Ryder to protect leaves from damage by excessive sunlight over the summer.

With the completely natural design and set up of the course, the members don't want anything too artificial and vibrant. "We are looking at regular application of Ryder at a low rate, to give the leaf some prolonged protection over the summer, at a colour that fits in with the course.

"In summer grass growth does drop right off, particularly in combination with the PGR programme. That means we should get longer out of the Ryder application on the leaf," he believed.

CLEAN START STRATEGY

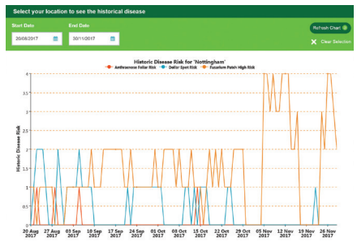
Front end loading fungicide treatments in the autumn can deliver better season long disease control from programmes

The first application in any autumn fungicide programme could set the tone for the rest the season's success. Results of new trials at the STRI, reviewed by Syngenta Technical Manager, Glenn Kirby, have highlighted the importance of initial treatments to reduce disease pressure right from the start.

Remember it's more important to stay clean in this early period to keep fungal populations low, than to try to stretch a fungicide out to four weeks because the calendar says so. Get it right now, and there will be opportunities to extend spray windows later on in the winter. However go into deep winter with high fungal populations and the winter could be spent chasing your tail.

Results from the independent Yorkshire trials site showed that when an initial autumn treatment was made at first indications of disease and as the risk of infection was developing, the rest of the season's three-spray programme was able to maintain very low levels of disease scarring.

Use GreenCast to foresee disease risks and tailor spray timings



However, where the initial application was delayed and disease had become clearly evident, subsequent infection remained at a higher level right through to the spring, despite further treatments. Crucially the well-timed early fungicide application ensured Microdochium Patch (fusarium) infection never got above 6% in the trial, despite the very high pressure that saw untreated plots reach over 35% coverage of disease scars.

Where the initial treatment was delayed until infection was evident on 15% of the surface, the curative action did prevent conditions worsening and there was some recovery, however disease scars remained higher through to March, even with the same subsequent treatments. The results were remarkably consistent for the fungicide treatments, including a range of those commercially available now and new Syngenta fungicide actives in development – which further reinforced the importance of timing.

It's important to recognise that the trial results did not dictate an actual date to commence any fungicide prgramme, or the need for any additional treatments.

However, it does highlight the vital importance of timing and being prepared to make the first treatment when necessary; have the sprayer ready and the selected fungicide in-stock to spray at the optimum time.

The STRI work has reinforced how important it is to plan your program prior to Christmas – and stick to it. Later in the winter when temperatures historically drop, it should give the chance to extend windows, if you have a clean surface to start.

Decision support

In practice the start date is going to vary for every course and every season. Using forecasting tools such as Greencast will highlight when specific disease risks are risk in your local area. You can also review historic records of previous disease risks for your course, which can help guide likely infection timings.

But you need to use the decision support tools in conjunction with experience and knowledge of the course. No one knows your site better than the greenkeeping team, if they have suffered with disease outbreaks in late summer or early autumn in the past, and similar conditions where it will occur again. Use these tools to indicate the risk timing, and enable a proactive approach to keep on the front foot for the rest of the season.

Previous STRI trials have demonstrated it is possible to maintain better turf playing surface quality from fewer fungicide applications timed to coincide with high disease risk, but before symptoms are physically visible, compared to treatments at the signs of infection or as routine prophylactic sprays.

Cultural controls

Alongside the planned fungicide programme, good cultural controls and strong turf health could effectively hold back the onset of disease outbreaks and potentially delay the timing for the initial treatment.

An integrated approach, including keeping surfaces dry, improving airflow, reducing thatch and adequate nutrition, along with raising cutting heights where practical, could all help reduce disease risk and enhance the performance of fungicide treatments where required.

LIFE-CYCLE BREAK

The key aspect of the initial autumn treatment, typically around late Sept to early Oct, is to break the disease life-cycle and prevent the build-up of pathogen populations that would increase pressure as the season progresses. Including fludioxonil – Instrata Elite or Medallion TL - as an active in the application is a real advantage at this stage, to target disease spores in the thatch and further reduce the potential for on-going infection.

After the summer when fungicide treatments may have been limited, or not required at all, we are also looking for curative activity with the first autumn season treatment to clear up infection already in the plant, and to deliver strong protection onto the leaf. That makes a multi-active fungicide an ideal option for the timing.

Where conditions remain such that growth potential is still high and you need to have a preventative fungicide in place, then repeated cutting will shorten the longevity of the product on the leaf surface. The pure on-leaf contact active will be gradually depleted, although systemic fungicides will continue to work.

GOOD NEWS FOR POLLINATORS

Around 120 golf courses across the UK have now signed up to Operation Pollinator - showcasing the positive actions of the greenkeeping community, and their clubs, to make courses more attractive to pollinators and players alike

Paul Worster, Golf Courses Manager at the three 18-hole courses of Minchinhampton Golf Club in the Gloucestershire Cotswolds, believes the initiative should get support from the top of the industry down, and that more clubs should get involved.

"Operation Pollinator demonstrates to players, public and regulators that the golf industry is an outstanding beneficial environmental asset - and that it is voluntarily contributing a huge amount to the protection and enhancement of biodiversity across the UK," said Paul.

It is a fantastic good news story that, collectively, creates a powerful message to shout about the good golf courses do for the environment.

Glenn Kirby, Syngenta Turf Technical Manager, highlights that most courses are already undertaking practices that far exceed Operation Pollinator objectives. "We simply ask that you manage rough and out of play areas in a way that encourages wildflower food resources and habitat for pollinators to breed and over winter.

"There is no prescriptive management practices; Operation Pollinator recognises that every course and situation is different – but has the common objective to enhance the ecological resources."

You can now sign up to join the Operation Pollinator initiative quickly and easily on the GreenCast website, with an **instant on-line form.**

"Sign up today, to be proud of what you have already achieved and how you can further enhance the ecological value of your course in the future," urges Glenn.

HELP TO GET STARTED

Join Operation Pollinator now and you'll be supplied with a starter pack to help with ideas and techniques for habitat creation, as well as tools to help communicate what you are doing with your members.

Operation Pollinator support for greenkeepers:

• Technical guides and advice notes	• Powerpoint presentation to personalise for your club
• Press release template	• How-To Top Tips newsletter
• Bee Identification Guide poster	• Free Bee ID cards
• Case study best-practice examples	• STRI support

Proven benefits

Independent ecologist and Operation Pollinator champion, Mike Edwards (left), has been monitoring insect species on clubs' ecological areas over the summer. His reports reveal the healthy populations of pollinators on habitats created – including many rarities that are benefitting from the positive action of greenkeeping teams and the protected environments provided by golf courses. Look out for details of the reports to be published on GreenCast this autumn.

SYNGENTA SUPPORT

Alejandro Reyes, heading up the whole greenkeeping and course management team at Le Golf National, has been vocal in his gratitude for help in the Club's Tournament preparation. **"Syngenta have been giving us great support since day One,"** he reported.

Lucas Pierre at Le Golf National


Alejandro Reyes talks turf with Syngenta's Daniel Lightfoot

"Syngenta have helped a lot. They are key for keeping these surfaces in top quality and at the top level. We are very, very, pleased," he added.

For Lucas Pierre, Alejandro's right-hand man and Head Greenkeeper for the Albatros Course, the relationship he has developed with Syngenta has been very important. "For us, this could be one of the successes of the Tournament," he said.

Alejandro detailed how he had been using Primo Maxx II for Tournament preparation. The key factor for him was the opportunity to improve turf density, smoothness and consistency for players. "The first thing players are going to notice is that we have the same playing conditions in the morning as the last players out in the afternoon. We will be keeping the same pace.

He pointed out that they have also been using Primo Maxx II on approaches and fairways too, primarily for reducing the mowing frequency.

For Lucas Pierre, he reported the difference with the fairways this year using Primo Maxx II, compared to last year without: "When you were cutting the fairway every day, you had to empty the box every five minutes; this year, it's like the guys are saying 'you never empty the boxes' it's perfect for us.

"You save on time; the quality of cut is better; turf looks better; you have better roll. We have more consistency. It really helps."

Alejandro added: "Plant growth regulators are key for high level turf management. I wouldn't like to find myself without that tool now." He highlighted how Le Golf National has been one of the pioneer on-course trial sites for a new Syngenta fungicide, Ascernity, now registered and launched in France. "It works, it works really well," reported Alejandro. "Now we have it in store. We use it as a preventative, applying before the Tournaments."

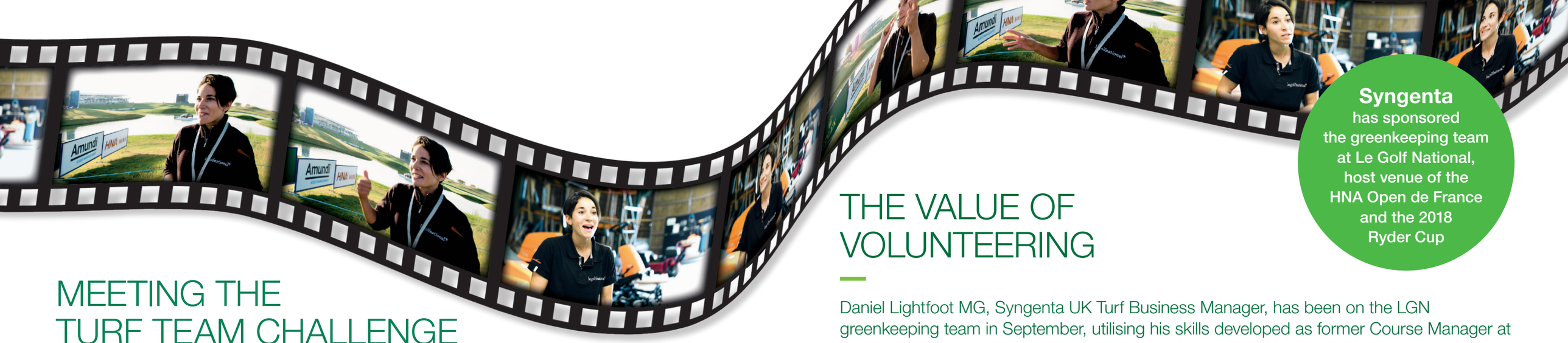
His plan was to make an application between to 10 and 15 September, to ensure greens remained clean for The Ryder Cup.

Another new tool being used at Le Golf National for the first time in Tournament preparation this year has been Ryder pigment.

"It's something we have never used before on the big finals," commented Lucas. "But with this one the colour is more natural. It's keeping the leaves protected and healthy, which is a good thing."

Alejandro added that in preparation they had been using repeated applications at fortnightly intervals, but at a relatively low rate of 200 to 350 ml/ha. "It's giving a perfect colour. We feel with the amount of light and the hot weather (over the summer) it has been helping us. The greens are in perfect, perfect conditions."

Hear more of Alejandro's comments at www.turfteamchallenge.com



MEETING THE TURF TEAM CHALLENGE

Volunteering at events gives the chance to experience ideas and practices on other courses, meet new people and learn from some of the best in the business. And it doesn't get any bigger or better than Le Golf National in France as it prepares for the greatest golf competition ever, when Europe took on the US

Le Golf National has been the showcase for European greenkeeping skills, with a great team of over 160 people, including the courses own greenkeepers and volunteers from around the world.

And it's proven a pioneering opening of the opportunities for women in greenkeeping. At least 10 women were working directly on the greenkeeping roster to meet Turf Team Challenge in September.

WOMEN ROLE MODELS

One of those was the LGN's own greenkeeper, Lara Arias. Originally from Spain, she only started working on a golf course four years ago. "I knew, right away, that 'this will be my future'. I love every aspect of the work," she enthused.

An intern of the Ohio State University Turf Programme, she started working in the Le Golf National team in preparation for the French Open in June. "This has been a great opportunity for me to be part of the team at Le Golf National, at one of Europe's great golf courses," she reported, "and the possibility to work with a huge team for a great tournament."

Having met Le Golf National Courses & Estates Manager, Alejandro Reyes, through the Ohio network, Lara says working at LGN has given the chance to meet new people from across Europe; from Spain, Portugal, France and England - all working on the team. "It's an opportunity to network and to share experiences with everyone.

"Everyone working on this course, right now, have the passion for the business," she highlighted." And that's what makes it so exciting to be a part of.

"It doesn't matter if you are female or male, the most important thing is to have the desire to be in the business. We are all working here together, as a team, because we share that passion."

Lara highlighted that, regrettably, it is fact that you don't find too many women working in this business. "But I have met great women working as assistants and as superintendents, which gives me the inspiration to continue.

"People have to change their mindset that this business is only for men, because we can do it" urged Lara. "Give us opportunities to work on the golf course, and you will see that it will be fine. We have shown that there isn't any problem to have women working on a golf course; we can do everything."

What is abundantly clear from the women working at Le Golf National is their passion and commitment for greenkeeping, and their desire to encourage more women to pursue the career. "When you really love your job it makes every day easier," said Lara. "I hope to be working on a golf course for all of my life."

Syngenta
has sponsored the greenkeeping team at Le Golf National, host venue of the HNA Open de France and the 2018 Ryder Cup

THE VALUE OF VOLUNTEERING

Daniel Lightfoot MG, Syngenta UK Turf Business Manager, has been on the LGN greenkeeping team in September, utilising his skills developed as former Course Manager at Bearwood Lakes, along with experience of tournament preparation across the UK and US.

He believes volunteering at golf events, both locally and internationally, is an extremely valuable experience for greenkeepers' personal and career development. "You get to learn new skills and techniques from the best in the business – both the resident teams on the host course and from the other volunteer greenkeepers involved.

"But equally valuable is learning to work as a team and the greatcomradery and friendships that develop from meeting the challenges of preparing and delivering a great tournament venue."

Ross Owens of Roxburghe Golf Club said he got involved with volunteering at LGN to get a better understanding of the sort of standard the European Tour expects of its selected courses, compared to what they do on their own course.

"How they raise the bar and the extra detail they go into to present a golf course for a main tour event. The layout of the Albatros course, particularly the last four holes around the islands, has been phenomenal. You see so much. You learn so much from other guys in all aspects of the course management."

Reinforcing the international flavour of the LGN volunteer team, **Jeremy Goffette** is Course Superintendent at Golf de Joyenval in France. He believes that LGN is in fabulous condition.

"The good turf quality is really the result of the precision of all the mechanical works," he reported.

"I've learned here that the more you take your time to do precise cuts; precise rolling; precise bunkers; precise everything you need to make it look as good as you want. That's what makes this place so great."

Troon greenkeeper, **Gary Sharman,** has previously done seasonal work at LGN, along with taking part in the Ohio Programme and working at Trump Turnberry.

"I've learned so much in the space of two weeks" he claimed. **"You're learning new skills every day and the best ways to do things. Every day you are pushed and moved on. It's the best team I've ever worked on, and the best Head Greenkeeper I've worked for. You're learning from the best. I feel passionate about it. It's the people that make it. As soon as you walk into the shed it's full of inspirational people. It opens up so many doors for the CV, it's absolutely perfect,"** he added.

And you never stop learning. **James Cleaver**, Senior Greenkeeper at The Belfry, still sees the value in working at what he considers is: "probably one of the best golf courses in the world right now.

"It's just a great experience to work here and to meet some of the guys from around the world that are following the same career as you. At events like this you get a decent amount of downtime between shifts and most of the time it is talking greenkeeping."

James welcomed the opportunity to see how they do things differently to at home, and discuss with others howthey approach challenges.

Digital download fungicide calendar

Make plans for your season's disease programme

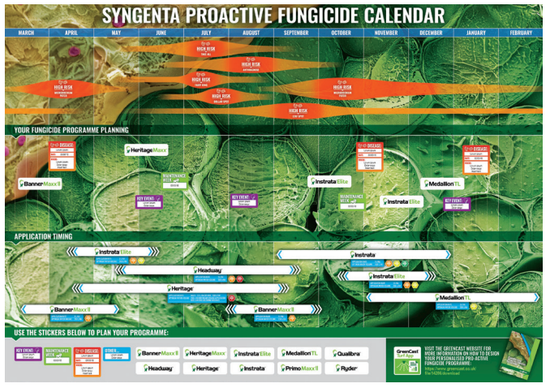
You can now download a digital version of the highly popular Proactive Fungicide Calendar - to plan a bespoke fungicide programme for your course and to stay ahead of disease damage to turf.

Available for superintendents, course managers and agronomists, the **digital download PowerPoint version** of the poster, can identify periods of high risk on your course, and pre-empt expected disease outbreaks with an appropriate fungicide and Integrated Turf Management programme.

"The beauty is that it can be tailored for every individual course and specific situation," reports Syngenta Turf Technical Manager, Glenn Kirby. "You can update, move and adapt the programme as the season progresses, according to changes in risks and challenges."

"The digital version is really easy to use and gives an instant visual picture of what may be needed to protect your turf."

It's also been made better by adding other elements of the turf management programme, including Primo Maxx II, Qualibra and



Ryder, so you can build up a comprehensive programme that meets all your needs for the coming season.

Using the Planner as a record of what happened and actions taken, you can save that as a base for next year's programme. Over time, you'll build a picture of a precise programme that works best for your course.

With the digital version the plan can be shared among the course management team and with agronomists and advisors.

Precision spray on target

New precision technology for turf spraying can achieve better performance from every application

The Amenity Sprayer Operator of the Year has highlighted the skills and attention to detail of in industry's top operators, reports Chris Phillips.

However, it's still down to the skills of the operator to ensure works efficiently, consistently and above all safely – experience that has won Chris Phillips, Director of CWC Central & South Wales, the prestigious **Amenity Sprayer Operator of the Year 2017** category winner for fine turf spraying.

"With latest spraying techniques and machinery we can be far more precise about targeting the areas we actually want to control. That means getting better value from the product applied, and avoiding impact on the surrounding environment, especially water courses," he reported.

Chris highlighted the company's recent investment in the latest spraying equipment technology has transformed its precision and chance to improve results with every application. His new Jacobsen sprayer has been fitted with a Raven GPS system and Capstan Sharpshooter nozzle control.

With the courses GPS mapped, the sprayer knows precisely where it is, and where has already been sprayed. It automatically starts and stops individual nozzles to avoid any overlap and double-spraying. "On irregular shaped greens it can avoid over-lapping fertiliser or iron that could lead to variability in turf colour, for example. On fairways, you can stop to let golfers play through, and then the sprayer automatically switches back on where it stopped," he added.

But Chris pointed out that it remains essential to understand the basics of spray dynamics and the way the equipment works, in order to harness its real potential.

"Even with all the automation it's the operator that remains key," he advised. "We see the real benefit of the new sprayer technology is more around the ability to achieve more consistent and effective results."

Chris Phillips' Top Tips to get the best from every application:

- Put everything ready and prepare the sprayer the night before
- Start early in the morning, before players clutter the course
- Fit drift reducing nozzles
- Experiment to optimise application for different targets and products
- Don't rush – accuracy is more important for good results

GreenCast Turf App

GreenCast Turf App Tutorial

The GreenCast Turf App is a great way to make spray applications easier and more accurate, as well as to manage all your spray agronomy records in one place.

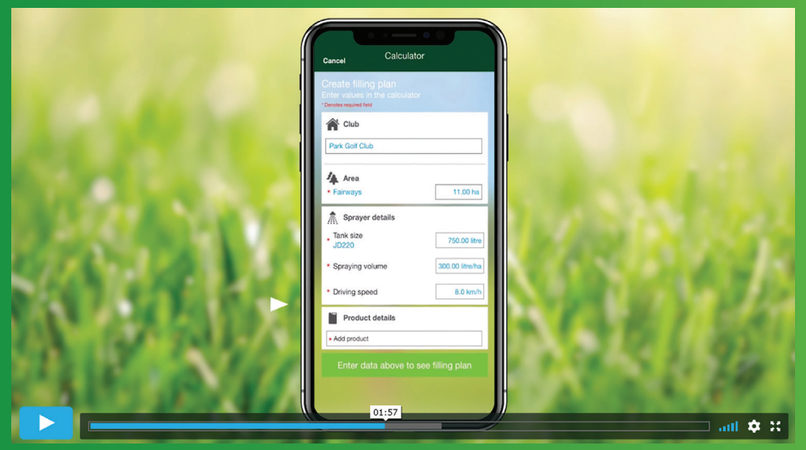
The easy-to-use app is available for both Apple and android smartphpones and tablets. And to help get you started Glenn Kirby has produced a short video with the key steps, and a few little tricks to get the best from it.

Once set up with your club and course details, which he says will take no more than 10 minutes, it will save huge amountsof time in calculating spray tank loads and fill programmes, along with recommended nozzle selection and sprayer calibration and settings.

And it will compile all the spray records you are required to keep.

You, or your agronomist, can use the App to make up spray recommendations for fungicides, fertilisers and other inputs – then simply email the spray sheet direct to the operator.

Watch the new **GreenCast Turf App Tutorial** on GreenCast and download the App from the iStore or GooglePlay.



Available on the App Store

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