

Beware of the OPM

on the golf course

Cast larval skins from an early instar stage of OPM and skeletonised oak leaves (Picture copyright RBG Kew)

Dr Terry Mabbett looks at the impact the oak processionary moth has had on Richmond Golf Club

2006 saw Britain enter a new dimension in insect pest infestation with the discovery of oak processionary moth (*Thaumetopoea processionea*) on newly planted imported oak trees in the London Boroughs of Richmond and Ealing.

For the first time the United Kingdom faced a dual-dimension insect pest (amenity and public health) affecting people as well as trees and with the capacity to kill either, as well as domestic pets and farm animals.

Oak processionary moth (OPM) had been spreading northwards in Europe for some years and was already endemic in Germany and the Benelux Countries.

The insect sneaked into England as plaques of eggs on semi-mature cypress (*fastigiata*) oak trees (*Quercus robur* f. *fastigiata*) imported from a nursery in southern Holland and subsequently planted on landscape projects in Richmond and Ealing.

At first the Forestry Commission (FC) claimed it could eradicate the pest but soon realised it 'had bitten off more than it could chew'. By 2011 OPM was well established in five contiguous London Boroughs (Richmond, Ealing, Hammersmith and Fulham, Hounslow and Brent) in what became known as the 'core outbreak zone'.

In March 2011 FC stopped serving statutory enforcement notices for OPM nest removal and pest control in this 'core zone', leaving local authorities, private landowners and householders to take the initiative and to continue to pay for any control. FC said it would now serve notices within a 'buffer zone' of 10km radius around the 'core zone'. This 'buffer zone' was subsequently breached by OPM during the spring and summer of 2011 including eastwards onto Wimbledon Common.

Additional outbreaks almost certainly originating from new introductions on oak trees imported from the Netherlands subsequently occurred during 2010. At least one post-dated the necessity for oak trees imported into the UK from the Netherlands and other EU countries to be accompanied by an 'EU Plant Passport'. This became effective on March 31 2008. The outbreaks were found in North Surrey, Pangbourne in Berkshire and Sheffield in late summer 2010.

OPM is a poisonous pest

OPM attacks oaks of all ages and stages, and appears to favour trees growing in an open well-lit situation. In this context OPM could not

have chosen a better place to invade than the London Borough of Richmond which is exceptionally well blessed with large open spaces and places. Kew Gardens, Richmond Park (Royal Parks), land belonging to Richmond Borough Council and several high-prestige internationally acclaimed golf courses are all affected and now operating programmes of pest containment, control and eradication.

They employ specialist arboriculture companies with the equipment and expertise to deal with this now well-established pest carrying serious implications for public health and safety. Each third instar (growth stage) larva carries over 60,000 stinging hairs 'barbed' with an urticating (irritating) and allergic reaction histamine-releasing protein with potential lethal risk to people, pets and livestock.

One of the golf courses affected is The Richmond Golf Club at Sudbrook Park which is using Bartlett Tree Experts, headquartered at Beaconsfield in Buckinghamshire. Bartlett Tree Experts has country-wide coverage through a series of regional offices and depots from where it carries out pest management programmes. I spent a day in May 2011 with a highly experienced two-man specialist spray application team (Adam Clarke and Chris Gill) from Bartlett Tree Experts on The Richmond golf course to learn first-hand how they are managing this dynamic pest problem. I later spoke at length with Course Manager Les Howkins MG to get his views on OPM, its control and the implications for golf courses in the UK.

A spray day in May

Adam Clarke and Chris Gill, two highly skilled arborists, had started to spray and were well on their way to treating all 700+ oak trees on the course, including saplings and newly planted trees.

"Most are native English oak (*Quercus robur*) with significant numbers of Turkey oak (*Quercus cerris*) and a few red oaks (*Quercus rubra*), all of which will be sprayed," said Chris Gill.

The Richmond has a management plan comprising preventative spray application to all oak trees that were infested in the previous year with accompanying treatment of all adjacent susceptible oaks. However, it faces constant threats from adjacent infested sites not able to spray insecticide due to SSSI (Site of Special Scientific Interest) status or not willing to implement



adequate control, or indeed any control, for financial or other reasons.

This presents the risk of re-infestation on a yearly basis from sites doing nothing or having inadequate programs in place. Golf courses in particular are in no position to 'mess around' with OPM (for safety reasons). The Richmond has opted for deltamethrin, a highly potent synthetic pyrethroid insecticide to provide a quick, efficient and cost effective kill of OPM larvae.

"There are no water courses on this site so the toxicity of deltamethrin to fish and other aquatic life does not arise," said Chris.

No risk

The Richmond is clearly not prepared to take any chances from using less quick and complete-kill products like the insect growth regulator diflubenzuron or the bio-insecticide *Bacillus thuringiensis* (BT). Bottom line for The Richmond



MAIN ABOVE: With a height reach of 30m, covering the tops of the tallest English oak trees is no problem

INSET ABOVE: Successful end to another 'Spray Day'. Adam Clarke (left) and Chris Gill (right)

Photos courtesy Dr Terry Mabbett



“We take all precautions when spraying. Bee hives are shut down and extra care is taken to ensure no spray droplet drift occurs across the course and onto adjacent land and properties”

Adam Clarke

is protecting the health and safety of members and players from urticating (irritating) hairs on OPM larvae from the L3 (third instar) stage onwards.

“We take all precautions when spraying. Bee hives are shut down and extra care is taken to ensure no spray droplet drift occurs across the course and onto adjacent land and properties,” said Adam.

The situation and conditions prevailing on May 17 last year illustrated the problems posed and accompanying care which has to be taken during OPM spraying. Adam

and Chris had started at 6am when the wind was just right to avoid any drift onto adjacent sites. The Richmond and its adjacent sites had active OPM infestation among the hundreds of oak trees scattered across the respective areas.

The initial infestation at The Richmond was discovered in June/July 2010 during a routine FC inspection and the club was duly served with a ‘statutory notice’ for OPM control. But this was after the time period for effective control by spraying had passed leaving a programme of nest removal as the only option for that year.

Nest removal is potentially dangerous for operators who run the risk of sustaining allergic reactions from contact with the urticating hairs and is proving ineffective because some nests are invariably missed. It is also very labour-intensive and therefore costly and in the case of The Richmond proved to more than twice as expensive as the following year’s (2011) spray programme.

Ideal spray timing is when OPM larvae are in L1 to L3 prior to the development of urticating hairs and when they are most susceptible to insecticides. When larvae reach L4 they are covered in toxic irritating hairs and the fall out of dead larvae from trees after spraying creates whole new management and safety problems.

Adam and Chris were on the lookout for clusters of early instar larvae.

“It is too early to see any results of feeding activity or damage although we would have started to find skeletonised leaves very soon,” said Adam.

Maintaining OPM populations as low as possible is the only realistic policy as far as this golf course is concerned.

“Unfortunately they can only approach and achieve it on an annual basis despite the near 100% control we will have achieved by spraying with deltamethrin. Re-infestation is likely to occur



ABOVE: The sprayed larvae were clearly dead, dislodged and hanging upside down from their webbing (Picture courtesy Dr Terry Mabbett)

BELOW: OPM pupae and nest; **RIGHT:** Plaques of OPM eggs laid on a small branch of an English oak tree (Courtesy Bartlett Tree Experts)



RIGHT: Cast larval skins from an early instar stage of OPM and skeletonised oak leaves (Picture copyright RBG Kew)

BELOW: (Courtesy Bartlett Tree Experts)



annually so long term eradication is not going to happen.”

Tony Bartram, Assistant at The Richmond and a qualified tree surgeon, monitored the course throughout summer 2011 and did not see any OPM nests following the spraying.

“However, residual OPM infestations from surrounding sites will migrate straight back onto the golf course every year which means the golf course management will be forced to review their control program and decide whether to spray every year from now on,” said Chris.

The spray operation

The Richmond is a busy golf course and the 700+ oak trees are spread across the 18-hole course, some singularly, others in groups with many already at full grown size. You could gauge just how tricky it was for these guys to spray effectively and safely as Adam ‘tooled up’ to treat a group of 18 English oak trees. There was a fairway with players on both sides of the grove but Adam wasted no time in kiting up in full safety gear and protective clothing. This was the bigger of the two spray rigs used by Bartlett Tree Experts at this location and with a maximum spray reach of 30m would easily cover the very tops of

these trees.

I stood well back and upwind as the powerful spray stream shot into the canopy. It took Adam just three minutes to deliver the 300 litres of spray required to adequately cover these trees.

“This is the only option for fast effective control of OPM and safe spray delivery to tall oak trees that we have at the moment” said Adam. “Attempts to spray using portable knapsack sprayers from MEWP’s and the use of mistblowers is ineffective, time consuming and not cost effective,” he said.

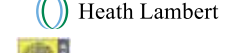
We walked across the fairway to another hole where oak trees with a sighting of 10+ nests were sprayed the day before. Looking up into the canopy of a 30-40 year old *Quercus robur* we saw how deltamethrin had done the job and quickly too. OPM larvae were hanging upside down in their webbing clearly dead and dislodged from a previously secure position on the underside of a scaffold branch some 10m up the tree.

OPM nest collection is not an economically viable control option. The process is time consuming and ineffective as nests are bound to be missed despite best efforts. And there is the strain and fatigue of working in full PPE (Personal Protective Equipment) in the

summer’s heat combined with the increased risk of exposure to OPM’s toxin. “We cleared this site last year through nest collection as the infestation was discovered too late in the season for effective control by spraying. This included one mature oak with 80+ nests.” said Chris.

“OPM larvae have hatched earlier than expected this year due to the early spring which means we have been spraying at different sites since the beginning of May and are faced with a much more dynamic and fast moving situation,” said Adam,

Some private parks, estates and local authorities opt for diflubenzuron, either straight away or after hitting OPM hard with deltamethrin in previous years. The selectivity of diflubenzuron means it is non-toxic to honey bees, lady bird beetles and other beneficial beetles, spiders and sucking insects. The disadvantage of diflubenzuron is that it is not as fast acting as deltamethrin ie. OPM takes 7-10 days to die following spraying, says Bartlett Tree Experts. Given their highly competitive commercial nature, golf clubs and courses are clearly not in a position to sacrifice fast and complete kill of OPM with deltamethrin in favour of environmental considerations, however laudable that may be.



This article comes to you courtesy of the BIGGA Learning and Development Fund.
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LEFT: Les Howkins with one of more than 700 oak trees across the course at The Richmond

ABOVE: Typical small nest on the underside of an oak branch (Picture copyright RBG Kew)

RIGHT: Newly emerged adult moth exiting the nest (Courtesy Bartlett Tree Experts)



“We’ve already budgeted for next year’s OPM control operations. We’ll spray with Deltamethrin next Spring, with the arrival of warmer weather and its influence on the timing of hatching of OPM larvae from the egg stage”

Les Howkins



Richmond resigned to spraying

Les is resigned to spraying every year against OPM even though the cost represents a 25% increase on his existing budget for pest, disease and weed control across the course.

“We have already budgeted for next year’s OPM control operations. We will spray with deltamethrin next spring, the exact timing left to Bartlett and related to the arrival of warmer spring weather and its influence on the timing of hatching of OPM larvae from the egg stage,” said Les, in early December 2011

“We essentially have no choice but to use deltamethrin because it is the most potent and fast acting product available, If OPM ‘skeletonises’ oak canopies or even kills the

odd tree then it is not the end of the world, but harming and perhaps killing a club member is an entirely different matter, and we have many active members some of whom are well into their 80s.

“The Richmond has been entirely up front about OPM with its members who have reacted with interest and inquisitiveness, rather than anger or fear. They are pleased we dealt with the situation promptly as soon as the pest was identified,” said Les.

I asked Les how OPM, which is spreading rapidly and now beyond eradication from the UK, would affect golf courses in general.

“The amount of money involved will clearly present a ‘big hit’ and drain on those clubs which are not in such a stable and fortunate financial position as The Richmond.

“But in practice golf clubs have no option but to contain and control OPM with its serious public health and safety dimension.

“Golf clubs which fail to take precautions to protect the health and safety of their members could easily find themselves facing a lawsuit for damages if a player gets ‘stung’ by OPM,” he added.

The upside is that only oaks are affected and of course there are many other trees that golf courses can plant. And even though it would

be a drastic measure they could fell existing oaks where legislation allows. But as Les says “oaks, and especially English oaks, are ideal for golf courses because they live so long and the fallen leaves are easy to get rid of.”

Poor prognosis for overall control

“Prognosis for the eradication of OPM from the UK is not good and is unlikely to be achieved,” say Adam and Chris. Bartlett Tree Experts along with other reputable tree contractors are looking at all the tools in their arsenal for the management of OPM, whether spraying with deltamethrin, insect growth regulators and BT or nest removal or a combination of any of the above.

“Further research projects both in the UK and in Europe are looking at other options for OPM control and continued cooperation with all involved parties is essential. Looking at experience with OPM in continental Europe the problem is only going to get worse.

We are all going to have to learn to live with OPM over the coming years,” said Richard Trippett Area Manager and Arborist for Bartlett Tree Experts based at the Beaconsfield Office.



Your R&A services

Hopefully, by now, you will all have visited the new course management section of The R&A website at www.randa.org/thegolcourse

The look, feel and content of the site have been designed to appeal to the decision makers in golf facilities with the executive power to initiate and drive change – and that probably includes you! The site is all about how golf can make a positive contribution to the economy, the environment and communities; and how golf can benefit from being proactive. Today's world of financial troubles, environmental regulation and public scrutiny poses real challenges for golf. Many think that it takes significant additional costs to address these challenges. The reality can be very different and the website is intended to provide ideas, guidance and evidence as to how this can be achieved and how golf facilities can thrive by confronting these issues head on.

Over time, a library of news items, features and case studies will be built up on the site with the intention of providing you with a resource of real value as you work your way down the path towards greater sustainability. You and your course could be featured on the site, getting you on its 'Global Bulletin Map'. Get in touch with us at The R&A if you think your course should be featured.

Course Health Check and Course Health Tracker

The R&A will be demonstrating the website during Harrogate Week, at the Showfloor Theatre from 12 noon to 12.30 pm. In addition to the features mentioned above, we

will also be previewing two new services which are under development; the Course Health Check and the Course Health Tracker. These services are the subject of ongoing refinement, informed by market research. An Edinburgh-based company has been working with us to find out what web-based tools will interest, excite, inspire and be of real value to those involved in "managing the business of sustainability" at golf facilities.

The Course Health Check is a simple, six question, two minute tick box teaser to raise awareness of sustainability. Our market research suggests that users get much more out of it:

"The CHC will remind the superintendent of places where they can improve, which usually could have been overlooked."

"Good spot check as to how the club was performing and a good argument for underpinning future policies."

The Course Health Tracker provides an annual audit by which the net balance of revenue brought into the club by its primary asset, the golf course, is offset by what is spent on the course. It also offers the possibility to show where the greenkeeping teams' time is spent on the course over the year and what efforts are being made to enhance biodiversity. The service will enable sensible in-country comparisons, with pooled data that shows average percentage income, spend and time so that you are able to see where your programme sits in relation to others.

Comments from market research suggest that we are on the right track with the Tracker!

"The tracker is simple to use and will be of great benefit to Course Managers at any type of club."

"It gives me a tool that will help me make green committee members understand what it takes to run a golf course."

Data entry will be 100% confidential and totally anonymous when pooled. To ensure anonymity, pooling will only be available in a given country once an adequate number of facilities are using the service.

Downloadable charts and reports will provide the course manager with a great tool to help you:

- track performance year on year
- establish trends and changes
- produce a better course for customers, at less expense
- achieve a lighter environmental footprint
- keep a record for future continuity
- provide evidence of your success in becoming more sustainable.

Recommended evidence fields

The Course Health Tracker will be the means by which you can monitor and manage The R&A recommended evidence fields for the assessment of ongoing sustainability. These are outlined on our website and can be sourced through the 'Downloads and publications' area.

The R&A is working with the professionals who make the important, strategic decisions at golf facilities to provide tools that will make their life easier! Come and see your R&A services at Harrogate Week. We look forward to seeing you and, more importantly, to hearing your ideas as to how we might be of help to you.



Volunteers wanted



to work at The Open

The Open Championship, Lytham and St Anne's, July 19-22, 2012

This is your opportunity to work at The Open Championship and assist the Lytham and St Anne's team with the preparation of the course and be a part of the on-course team which accompanies each match ensuring bunkers are raked in a correct and professional manner.

It will be your responsibility to make your way to the team's base for the week – a hotel in the centre of Blackpool, - but after that transport

to and from the golf course, accommodation and meals will be provided for the duration of the Championship. Accommodation will be on a shared twin-room basis.

You will be expected to report for duty by 5pm on Wednesday, July 18, and be available until the close of play on Sunday – a meal and bed and breakfast will be supplied for the Sunday evening and Monday morning if required.

This opportunity is open to full BIGGA members only.

Younger members, relatively

new to the Association, will also be actively considered, as will a number of first-time applicants.

To apply please complete this application form and send to: Scott MacCallum, BIGGA HOUSE, Aldwark, Alne, York, YO61 1UF.

For further information contact Scott on: 01347 833800 or email: scott@bigga.co.uk

Closing Date for applications for The Open Support Team is February 1, 2011, and you will be notified later in the month.



Name		Yes	No
Golf Club			
Position			
Age			
BIGGA Mem Number			
Email Address			
Mobile Number			
I have applied for/appeared on the team at:	Applied Successful		
Royal St George's, 2011	<input type="checkbox"/>	<input type="checkbox"/>	
St Andrews, 2010	<input type="checkbox"/>	<input type="checkbox"/>	
Turnberry, 2009	<input type="checkbox"/>	<input type="checkbox"/>	
Royal Birkdale 2008	<input type="checkbox"/>	<input type="checkbox"/>	
Carnoustie 2007	<input type="checkbox"/>	<input type="checkbox"/>	
			I have been a BIGGA member for more than three years.... <input type="checkbox"/> <input type="checkbox"/>
			I serve, or have served in the last three years, on a Section/Region Committee..... <input type="checkbox"/> <input type="checkbox"/>
			I am enrolled on BIGGA's CPD Scheme..... <input type="checkbox"/> <input type="checkbox"/>
			I have attended three of the last five Harrogate Weeks..... <input type="checkbox"/> <input type="checkbox"/>
			I am/have been a member of the PGA Championship Support Team..... <input type="checkbox"/> <input type="checkbox"/>
			I am willing to be a mini bus driver (You must have held a full driving license for three years and be over 25 years of age.)..... <input type="checkbox"/> <input type="checkbox"/>
			I am an overseas Member..... <input type="checkbox"/> <input type="checkbox"/>

Note: A place on the team is open to all full BIGGA members but priority will be given to the more active members. Subject to the availability of sufficient numbers of experienced team members no regular team member will be selected for more than three teams in succession. A limited number of places will be made available to younger members and overseas members. Please ensure that you have spoken to your golf club or Course Manager prior to applying and have arranged the time off.

Should you be chosen you must send a passport picture of yourself to BIGGA HQ.

The rise of digital technologies in greenkeeping

Jim Cook looks at how the greenkeeping industry has embraced new technology

In most areas of modern life, digital technology does seem to be king. Be it at home with the internet and also the recent digitising of television, travelling with the aid of satellite navigation systems or communicating with Smartphones, it is nigh on impossible to spend a day without coming into contact with digital technologies in some form or another.

The same must be said for greenkeeping.

We have all kinds of digital devices from small digital timers which make sticking to machinery maintenance schedules easier, through digital thermometers, to the big one: digitised irrigation systems.

Another common one is greenkeepers using Smartphones to make certain tasks less arduous. Some take pictures of broken machinery parts while out on the course and send an email off the phone to the manufacturer and have a replacement part despatched as soon as possible. Some use them to work out such things as fertiliser application calculations and some to just have a glance at the weather forecast.

It would be hard to deny that using such methods can be a real time-saver and the benefits with regards communication are obvious.

So then, the question could be asked: is digital technology on the golf course another useful, even vital, part of the modern day greenkeeper's armoury or is it, in the grand scheme of things, a fad or luxury likely to fade away more quickly than some new phones' batteries?

One greenkeeper who makes full use of digital technologies is Karl

Parry, Course Manager at Denbigh Golf Club, in North Wales.

He said: "I love my technology and gadgets and I try to incorporate this into my job as much as possible. It makes my life easier and helps everything run efficiently on the golf course. I use a tablet so that when I'm out of the office, in seminars or at home I can do such things as updating the daily diary, upload pictures onto our Facebook page or communicate with our Chairman," said Karl.

"One of the best uses I have for the tablet is giving Green Committee meetings. I can have captions and graphics on the wide-screen television, in our clubhouse, by plugging in the tablet via a HDMI cable. It brings a bit more life to the meetings and can make things clear to people who may be unsure. We can show things like verti draining on screen in pictures; when we did it where we did it and how long it took us," he added.

Karl has developed a Microsoft Excel spreadsheet which allows him, among other things, to calculate his total NPK input.

"It's a simple tool which I developed so I could determine what NPK rate was coming out on the greens after using various products from different companies. It makes sure I never overdose with fertiliser and it just makes the application process easier, with no mess-ups."

Alongside this article is a QR code, to scan with your Smartphone, which will take you to a link to download Karl's handy application calculator for free. If you haven't got a Smartphone email Karl at karlpaulparry@gmail.com and he will send you a free copy.

Karl also had the forward thinking idea of installing QR codes in his workshop where the machinery is stored. Instead of the current

laborious method of writing down what machine was used and when, the code would be scanned each time a machine is used. This would send a message to an online database and Karl would know everything he needed to know about that machine. The idea of fitting brushes onto fairway mowers was one which Karl has developed and made into a reality and did so with the aid of digital technology.

On the golf course, Karl and his team use Smartphones to keep in touch and also send pictures if there is a problem around the course.

It helps things run efficiently on the golf course. When I'm out of the office, in seminars or at home, I can update the diary, upload pics onto Facebook or talk with our Chairman

Karl Parry, Denbigh Golf Club

Another digital tool utilised at Denbigh is the online tee-time booking system by BRS Golf.

"I'm set up as an administrator on the system so that every Monday morning I can check my phone to see what times are booked in and if there are any competitions, then we can set our work schedule around that. It really helps me manage myself and my staff and there has never been a moment where we can't deal with a job," said Karl.

Syngenta's GreenCast phone application was favoured by Karl.

"It gives you the weather, spraying windows of opportunities and other helpful things to give you the best timing possible for spraying fungicides. Because fungicides are so expensive, this helps us to save money as well as effort."

Social media sites like Facebook, Twitter and LinkedIn continue to alter the way we interact with each other in everyday situations and for professionals they can be an important method of communication.

"We have just set up a Denbigh Golf Club maintenance page on Facebook and all the jobs we do around the course will have pictures taken and will be uploaded straight onto it. It's like a news bulletin page, so members know what we are doing," Karl added.

He ended by saying that he was looking into getting a new irrigation system that can be controlled from a phone.

This deserves a closer look.

Irrigation systems have come a long way. The beginning of the road to digital can be traced back to the 1960s. The first electrical control systems appeared on the market in the 1960's and allowed greenkeepers to control watering schedules electronically with an on-course housing. Basic though how they now may seem, it was revolutionary in the industry at the time and paved the way for more sophisticated inventions through the following decades.

During the 70s Rain Bird developed a system that could control up to several hundred sprinklers from a central base. What followed next was the shining light in irrigation technology and what is still, in a modernised form, the standard on many courses around the world: computer controlled irrigation systems.

Now, a Mobile Internet (MI) controller by Rain Bird allows the instant, on-the-fly ability to control and monitor your sprinklers from anywhere, as long as you own a Smartphone and there is mobile phone or wireless signal. It can be set up so you can monitor your





pump station and adjust parameters if need be, so traditionally you had to go and visit these locations which sometimes can be very remote and make any adjustments and now these can then be dealt with from the phone. Not only that, but the pump station and control can have a virtual 'talk' together. If the pump station has more capacity it can tell control to turn on more sprinklers and conversely if it is struggling with low pressure, can tell it to turn some off.

Kneale Diamond, of Rain Bird, spoke about what has just been released with regard to digital technology in greenkeeping:

"Integrated Soil Sensors which take moisture, temperature and salinity readings from any soil types and feed them back to a central control through wireless communication and this is proving to be very popular. We are always looking at different ways to becoming as efficient and responsible as possible and these systems help with reducing water and especially power usage."

Kneale mentioned the advantages of digital technology: "One of the biggest benefit is the internet; being able to remotely access control systems. Whereas before if somebody rang with a problem

with a new control system, you'd jump in your car and drive to where the problem was and fix it in 10 minutes perhaps. Nowadays most manufacturers will have call centres with technicians who can access systems and computers, download and upload files, perform diagnostic tests and complete modifications."

"Digital technology saves time and is good for communication, learning and finding knowledge. It is so easy to find answers now with forums and sites dedicated to sharing knowledge"

Stewart Brown, Myerscough College

Kneale went on to explain how Rain Bird's MI controller had been available on the market for just over two years, but in the last six to nine months sales of the product had dramatically increased. This can be attributed to the dramatic rise in popularity of Smartphones and especially, the iPhone becoming a household name.

Stewart Brown, Sportsturf Team Leader at Myerscough College, was enthusiastic about new digital technologies and said that as well

as being important for education and knowledge, were also a useful, if sometimes limited, tool to be used by greenkeepers out on the course.

"I think digital technology around the golf course is great. It helps save time and has been really good for enhancing communication, learning and finding knowledge. It is so easy to find answers now with forums and sites dedicated to sharing knowledge," he explained.

"Basically digital technology is another tool available to use to help you do your job from a diagnostic point of view, working with irrigation and various other things. I would say use the tools, but the tools are there to help you do your job and you've still got to know what the tool is telling you. That intuition and knowledge only comes from experience," added Stewart.

"There are occasions when you don't need the gizmo or gadget though. It wouldn't be clever to solely rely on a moisture sensor on the furthest part of the course without getting out there and seeing for yourself. It is the subtle things which can tell the most, such as slight colour changes in grass or a weed just emerging and these things need a person to see them with their own eyes. The day a greenkeeper doesn't walk out



Stewart Brown, of Myerscough College.