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URING the extraordinary Ryder Cup in Paris, captain Thomas Bjorn and his brilliant European team often referred to the support from the huge crowds as their 13th man. Forgive my bias but I think



there was another very strong contender for that role – the outstanding greenkeeping team at Le Golf National.

Led by Alejandro Reyes, a Spaniard in the Sergio Garcia mould – full of energy and prodigious talent – the 180-strong team (which included over 100 volunteers from around the world) prepared the Albatros course exactly as Bjorn prescribed.

It placed a high premium on course management, ball striking and European-style short game and definitely punished the 'whack it and find it' strategy that works on many PGA Tour courses. Home advantage is a relatively new concept in international team golf, unlike, say, cricket where the difference between English pitches and, say, Indian ones, is enormous. But there is no doubt that over the last couple of matches - Hazeltine in 2016 and now Paris, it has played a big part.

The skill of the greenkeeping team should not be overlooked. Of course the greens were smooth and the fairways immaculate tournament venues produce this routinely – but the consistency of the firmness and speed of the greens, the ever-increasing challenge of the rough as you strayed from the fairway and the perfect presentation of the bunkers were extraordinary.

This has been a very mixed year for greenkeepers; while the long, hot summer was a boon for participation and meant less mowing, the stress the heat put on aging irrigation systems, the turf itself and those charged with lovingly maintaining it was extreme. All this on the back of the wettest spring in living memory – challenging indeed.

This issue of Your Course shows how BIGGA members cope with the vagaries of the seasons and focuses specifically on the autumn and winter periods which are crucial in ensuring the 2019 golfing season starts well. I hope you enjoy the read, and if you do have any questions, please don't hesitate to ask your greenkeeper. They'll be happy to help.

Jim Croxton – chief executive officer, BIGGA



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What happens when you get greenkeepers round a table and ask them to speak freely on some of the big issues in their jobs. We gathered a trio of turf managers to do just that. How did they cope with the summer? What goes on behind the scenes? What is the biggest challenge they face in their jobs?







OLFERS HAVE HAD AN AMAZING SUMMER BUT WHAT CHALLENGES HAS THAT HOT WEATHER BROUGHT FOR YOU AS GREENKEEPERS?

Matthew James: It just highlights how much the weather influences what we do out on the course. One minute we are talking about the course being too wet, then it's too cold and now we are talking about it being too dry.

Tom Freeman: I can only extract 4,500 cubic metres of water in a whole season. At the start of the year I thought that would be fine and then we ran into the summer we had and it was a real struggle. We had to contact the water board and managed to get a deduction if we hand watered. So everything we put on with the hand hose, we could deduct from our main licence. That's a lot more difficult to handle than just flicking on the irrigation system.

Steve Lloyd: It took us from maintaining a nice playing surface to trying to just keep things alive and surviving

because it was so extreme. The priorities were the greens and everything else went to the side a little bit because of how extreme and how long a period it had been. We struggled with tees, because we didn't have a system on them, so they were allowed to go a bit. It has bounced back quite well and wasn't as bad as it could have been.

YOU'RE PREPARING YOUR WINTER PROJECTS NOW. WILL THERE BE ANY LEGACY FROM THIS SUMMER?

MJ: We'll be doing some hollow coring into November. The dry weather has affected it because we will be putting an overseeding operation in place where we lost a small amount of grass on greens. The other side is the project work. We're slightly different. We've got a big site, and two people dedicated to doing projects – chiefly bunker renewals and pathways and irrigation. We try and plan that 12 months ahead so, through the summer, they have been working on bunkers when the weather has been suitable and in the winter they switch more to the paths.

SL: A project can change in the 12 months leading up



Left: High Post's Tom Freeman listens while Cumberwell Park's Matthew James makes a point while, above, Freeman has his say

to that winter. If you've had a wet summer, suddenly drainage becomes a priority. In a dry summer like we've had, I'm sure lots of people will be scratching round looking at irrigation to improve that for next year. We try to do it from November until the end of March, and we are always trying to make improvements. If it's irrigation, can we upgrade it? What can we afford to do?

IF WE HAVE A WINTER LIKE LAST YEAR'S, HOW WILL THAT AFFECT THE WORK YOU DO?

SL: It's dependent on each golf course and what type of ground you are on. The Worcestershire is on heavy clay but the water runs off it quite naturally. We've got quite a lot of pathways that are accessible to equipment so we can still get on in the winter. But it is prioritising – the drainage jobs, digging holes and moving materials around. You want to get those jobs done early in the winter when the ground is still fairly firm. You don't want to be doing that in January and February. Your finishing work tends to follow up after Christmas. For most people

MEET THE PANEL Matthew James, course manager at Cumberwell Park, in Wiltshire Tom Freeman, golf course manager at High Post, in Wiltshire Steve Lloyd, course manager at The Worcestershire, in Worcestershire

the target is the end of March so, if you can get your winter projects tied up by then, you've got a good month to grow before the golf season really kicks off in May. **TF:** We are on chalk and flint so we're lucky we are free draining. We can carry out projects right through the winter unless we are covered in snow. A lot of guys are on clay and struggle to get vehicles round the course. We just keep going.

MJ: The weather hugely influences what projects we do. We've got quite a diverse landscape – 25 acres of mature woodland and huge areas of grassland and newly planted trees – so the attention can switch to that and maintaining those areas. There are things we can work on when the ground is frozen or covered in snow.

WHAT IS YOUR BIGGEST CHALLENGE AS COURSE MANAGERS?

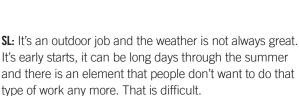
TF: Recruiting good staff.

MJ: I would probably say the same.

SL: It's becoming more and more difficult – the more people you speak to – to try and find staff.

"I think it's a fantastic job. I wouldn't do it if I didn't and, generally, people who get into it, and enjoy it, do it for life." - Steve Lloyd





TF: You've got to want to do it. You've got to want to be a greenkeeper.

SL: When you get a good member of staff it is about keeping them. A good greenkeeper is always going to be in demand and there will be some good opportunities for them. Elsewhere, the communication with members and golfers is always difficult. If I could sit down and spend an hour with every member of the golf club I'd get my message across better.

ARE YOU UNDERSTAFFED? HOW CAN WE GOLFERS BE BETTER **EDUCATED TO SEE THE JOB THE WAY YOU DO?**

MJ: The business supports me to recruit people and I've got enough. We take on six summer people and that's a challenge in itself. Some of those are people who have returned from the year before, so there's a bit of continuity there. Each year we have three or four



new guys and, quite often, they may never have done greenkeeping work before. They may never have been on a golf course before. It is getting golfers to realise there are people out there who might not necessarily know their way round. They may not know where to set the tee markers, where to put the hole. Although they have been trained, it all takes time to bed in. Then you get such a mixture of people. You get the committed ones that you want to look after – the ones you want to keep – and it's always difficult to see where the next group of people are going to come from and where to advertise.

TF: It's a clichéd thing to say but times change and maybe people aren't as hard working as they used to be. Just getting people to commit and work hard seems to be quite a challenge. I don't know how we can change that. It isn't just a greenkeeping industry thing, it goes across different jobs.

SL: At my last two courses I've had guite a few apprentices and they've come out of junior golf. They were keen golfers and realised they were not going to turn into the next tour pro – but they wanted to be involved.



It is difficult. It's a small pool of people. If someone is an hour away they are not necessarily going to come for a summer job because the cost is too much. Personally, I think it is a fantastic job. I wouldn't do it if I didn't and, generally, people that get into it, and enjoy it, do it for life. MJ: You're never really sure, of the people you do employ, how they are they going to be until they've been here for a few weeks.

TF: At least you've got that constant influx of staff coming in every year and every now and again you are going to find a gem. That's how I got into it. I was a seasonal – started raking bunkers – and got a full-time job out of it. **SL:** I think there's still an element who think you are basically driving around on a mower cutting grass. But there's the technical side of the job and there are many avenues you can go down once you get into greenkeeping. I've got a couple of apprentices looking at becoming irrigation or spray technicians. I don't know if they want to be a course manager but they love their job and if they specialise there are areas they can go into.

WHAT GOES ON BEHIND THE SCENES TO MAKING THE JOB A SUCCESS?

MJ: Planning is a huge part of making sure everything runs smoothly on the course. We talk about the weather influencing what we do but we need to plan certain operations. Some of these things might happen months in advance but I also plan a week ahead. So on a Friday, I'll plan out what's on the following week. I'll know what guys I have got in and I also plan jobs day-to-day.

SL: I don't think golfers realise how much a golf course costs to run. We have machines on our fleet that cost more than your BMW.

Most golf courses have got a couple of hundred or £300,000 of equipment. It's expensive to maintain and look after to a good standard.

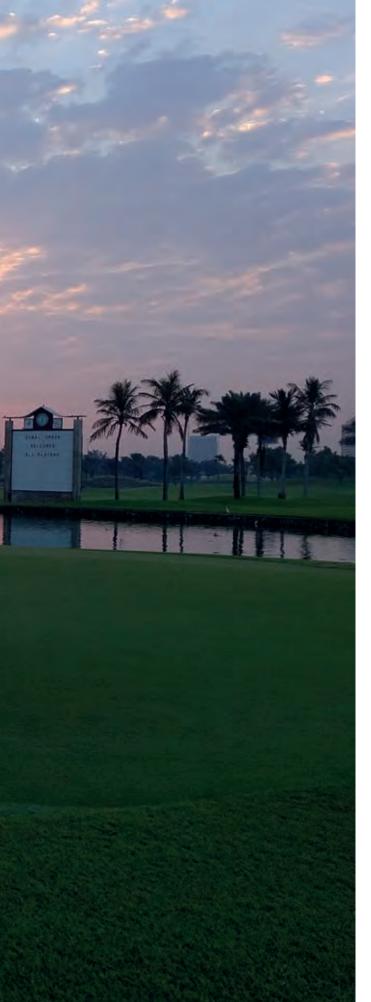
TF: There is so much paperwork. This is my first year as a course manager and you're not really prepared for how much extra there is to do outside of greenkeeping – planning, organising, budgets, costing, communicating with members. It's a massive learning curve.

It has been a challenge but a challenge I have enjoyed. *



How did I become a GREENKEEPER?

Steve Carroll finds out from two turf professionals how they got into the industry – and how they've kept developing



was at university, dropped out and was going through life not really knowing what to do and moving from job to job."

Nick Machin was 29 when he saw an advert for an apprentice greenkeeper at Royal Cinque Ports.

He had no experience, aside from having undertaken a turn as a caddie in his youth. He was handed a seasonal job at the prestigious Deal course. It was

the vital foot in the door he needed.

It was small steps at first. He raked bunkers every day. Gradually, he found his way onto machinery – mowing a green here or a tee there.

After six months, he'd done enough to be taken on fulltime. After a year, it was time to go back to school.

"I was put forward for qualifications and I completed my NVQ Level 2 in Golf Greenkeeping a few months ago," he added.

"In the environment I am in, you are always exposed to things that are absolutely mind-blowing.

"Greenkeeping is so much more scientific than I ever imagined it would be.

'I've learned a lot of things I never thought I would – such as the chemistry that goes into the soil.

Nick was eventually nominated for the Toro Student Greenkeeper of the Year award, which he won in September 2017. A part of his prize was a placement on the prestigious Winter Turf School at the University of Massachusetts.

"I went to America to study for six weeks. I've studied a whole array of things: pathology, entomology, soil science, weed science, fertility and irrigation. You never stop learning."

Gemma St John, meanwhile, has been around Brokenhurst Manor most of her life.

Her dad is a member at the Hampshire club and she'd been gardening since she was a child.

"I played golf and I went up to the club, met the course manager at the time, and that was it," she said. "I loved it."

For five years Gemma immersed herself in the life of a greenkeeper and undertook as much training as possible.

Then, in 2005, she took a break to start a family – returning to the profession three years ago.

In her time in the job, she's done everything from chainsaw and spraying courses to industrial first aid.

Now working through her NVQ level 3 in Amenity Horticulture, while trying to juggle the demands of children, she likens the course and practical work to a degree.

"I'm doing the online version, but it takes up a lot of my time," she explained.

"Most time is spent at home, trying to do it while trying

to run a family. So there is quite a lot of pressure.

"Overall, there is a lot involved in greenkeeping and more than you might actually think.

"As an apprentice you're doing the basics – from raking bunkers to cleaning out ditches and then you get a little bit more confident.

"The course manager sees that and you go through different stages and start using the machinery.

"You have to get signed off on a certain machine before you can move to the next one.

"It's a learning process and it takes time to get the confidence to do that.

"Take the chainsaw course that I did. It was held over a week and you start right at the beginning – what it does, how to fix it and how to find faults to learning how to cross-cut.

"At the end of the week you sit an exam, in front of people, and cut and make sure you are doing it the right way and wearing the right protective clothing.

"The spraying course is the hardest of them all. You do a whole week's training and then you go away to your workplace and practise for a while.

"You have a theory test and then an exam on the knapsack sprayer and then an exam on the tractormounted sprayer.

"There's a lot of maths that comes into that, which is not my strong point, so I had to do some maths with the college work so I could learn to do calibrations."

What do these two stories tell us?

It's that if you thought all your greenkeeper did was cut grass it is time to think again.

Nick thinks that that attitude in clubs is changing quickly, with members starting to get more and more curious about what it is the greens team are doing out on their course and how they got into the job.

Both he and Gemma believe that communication is becoming an ever increasing part of the role – giving them the chance to remove some of the mystique that surrounds the profession and some of the barriers that have traditionally existed between greenkeepers and members.

"I'm a member at Brokenhurst and play with the ladies section quite a lot," Gemma said.

"It's interesting to hear the responses, when you discuss something as simple as striping up a fairway. They thought it was just a pretty pattern.

"You say that there is actually a reason why we cut in different directions.

"It's something so simple to me but they didn't understand it. It's quite nice to talk to them.

"They didn't realise we can do qualifications. They just thought grass grew and we cut it."

Nick added: "More and more are interested in what you are doing and how you achieve the results.



"I've only done the NVQ Level 2 so for me to keep furthering my career and potentially step up the ladder I will look to take my Level 3 soon.

"You can constantly keep learning – all the way to masters degree level. That's what I love about the industry. There is always an opportunity to further your knowledge and progress yourself.

"It is there if you want it. I think golfers appreciate those who put the effort in. I will always keep trying to educate myself as much as I can. The more I can learn about the job the better I can do it."

Add in the early starts – Gemma routinely begins work at 4.30am – and the vagaries of the weather and you've got a job that's constantly challenging and demanding.

But you won't hear her, or any other greenkeepers, complaining about the pressures of learning.

"What it does give me is the best job in the world," she exclaimed. "It is worth every minute of those times scratching my head, not knowing what I am doing. "It's great." •





Above: A greenkeeper hard at work moving water off a green

Left: Brokenhurst Manor's Gemma St John

GREENKEEPING – A CAREER PATH

So you want to be a greenkeeper? Here's the path you might take to get to the top...

Trainee: The entry-level position. Trainees work towards greenkeeping qualifications.

Apprentice: An alternative route to trainee is to take an apprenticeship under the guidance of an approved education provider.

Greenkeeper: A fully-qualified greenkeeper carries out an extensive range of course maintenance responsibilities.

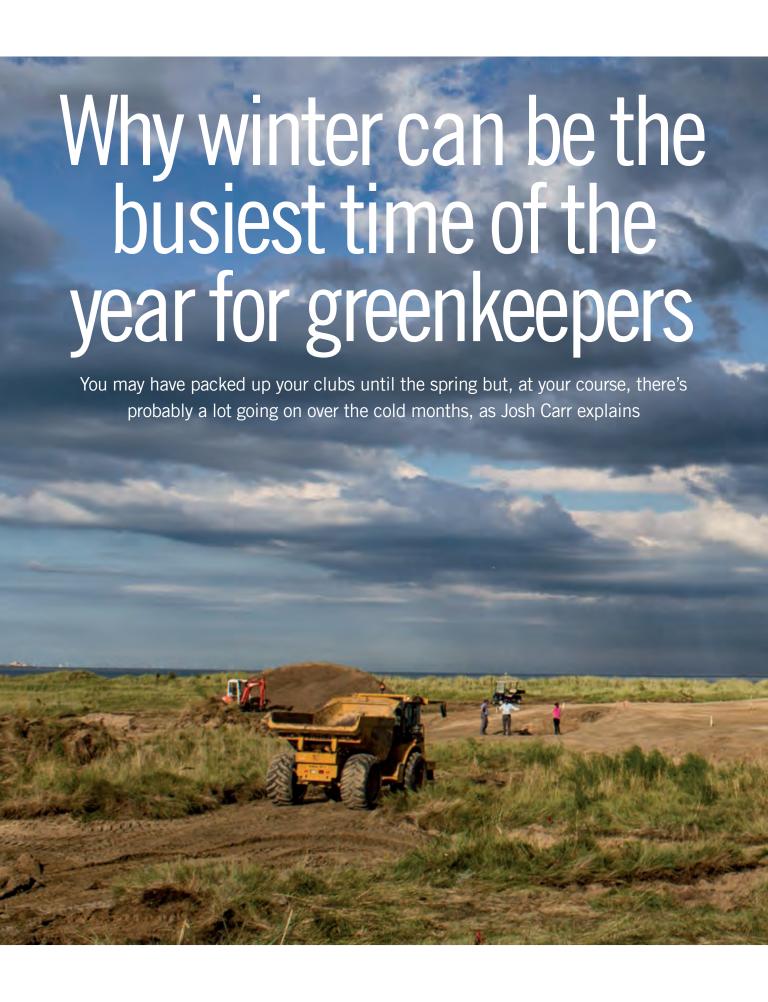
First assistant: Carries out routine course maintenance tasks in addition to supervising the greenkeeping team, as directed by the course manager or their deputy.

Deputy head greenkeeper/deputy course manager: Taking on additional management responsibilities, often including the day-to-day management of the greenkeeping team. Usually assists in planning work and deciding on agronomic programmes. Also assumes full responsibility in the absence of the course manager.

Head greenkeeper/course manager:

Departmental head with overall responsibility for the greenkeeping team. Working with general manager/secretary and club board/ownership to achieve agreed course standards and presentation. Organising staff and their duties. Planning work activities and agronomic programmes. Budgeting costs and controlling expenditure. Communicating with staff, employers and suppliers.

Director of golf, head of estates and courses and beyond: Greenkeepers can go on to fulfil a variety of managerial roles at golf clubs all over the world. A successful greenkeeping career is underpinned by a commitment to continuing professional development. This can take the form of pursuing qualifications all the way up to Masters degrees and/or informal learning taking advantage of the very many opportunities provided by BIGGA and utilising the enormous network of knowledge within the greenkeeping industry.







Left: The team at Carnoustie Golf Links have been hard at work over the winter rebuilding bunkers on the Championship course ahead of the Open's arrival in July

CRAIG BOATH, HEAD GREENKEEPER ON THE CHAMPIONSHIP COURSE AT CARNOUSTIE GOLF LINKS, HAS BEEN REBUILDING BUNKERS AHEAD OF THE CLUB HOSTING THE OPEN IN JULY...

Why choose the winter to do your rebuilding work?

We are very busy with members and, more so, visitors from April until October.

In the winter months, there is little growth of grass on all areas so we have time to do other jobs.

We have a winter improvements programme, which runs from November to March each year. This allows the staff to get on with rebuilding tees, aeration work, returfing areas and, this year especially, bunker rebuilding.

What does rebuilding a bunker entail?

We revet our bunkers here at Carnoustie and let the grass grow on the face.

A bunker is revetted by layering sods of turf on top of each other and using sand as backfill to keep the turf in place.

A general rule is to keep two fingers width from the first row to the next row until you reach the required height.

All bunkers on the course are built to the same height each time. Some bunkers also have cameras added in for filming during the Open.

If anything, we are dropping the bunkers slightly in height due to build up caused by sand splash from golfers playing shots.

The bunkers at Carnoustie are pretty demanding if you land in one - there is no need to make them deeper.

Did you decide to do that work, or are the R&A involved?

All work on the course is done in collaboration with the R&A whether we are in an Open year or not.

We always like to tell them what we are doing on the course. We work with the R&A, and vice versa, to make sure any changes that are made are in keeping with the course.

What else has been going on over the winter?

We have added a few more spectator vantage points, in the way of mounding, and we have taken out a lot of gorse for grandstands, spectator movement and to save some of the heather from being trampled by spectators.

We are also rebuilding our Golf Centre this year so we will have to be on hand for re-turfing around it – not to mention helping out with new roads and fibre optics work around the course. It's a busy time!

Does the planning for the grandstands begin during the winter or closer to the event?

Grandstand positions are planned for well in advance by the R&A and construction of them will begin around the middle of April.

We roughly know from the last Open where they are situated so we like to keep the area clean of gorse. This is mainly to ensure there are no tripping hazards.

How much would the winter weather affect what kind of maintenance is carried out during the off-season?

It's the same as through the summer months. You just have to plan your day, week, and month, around the conditions – whether it is solid with frost or glorious sunshine.

You always have to keep an eye on the weather and take advantage when you can.

What is the most frustrating thing about winter

maintenance?

The lack of daylight and the change in staff hours. We go down to a 35-hour week from the end of November to the end of January. It's a short day but you have to try and get as much out of everyone as possible.

Carnoustie is busy throughout the year. How does this affect the changes you can make in the winter?

We are a good bit quieter in the winter period with fewer visitors. This, I would say, is our busy time - bunker building, tee alterations, cutting back of roughs, mounding and so on. We don't do a lot of drastic changes, just little bits here and there if needed.

Carnoustie is one of the driest places in the UK. Does it affect your work at this time?

It's not too bad. We can get on with work in most conditions. There is not too much growth through the winter, so that takes care of itself.

You just have to plan your work around the weather as you would in the summer.

I always make sure I have a secondary job in mind for the guys just in case conditions change during the day with rain or snow or during the week, with frozen ground, and so on.

You will be very proud when the Open arrives and the course is shown all over the world. Is getting it ready nerve-wracking or exciting?

I'm not too excited yet, but that will probably change nearer the event. I am very proud of the work the guys have achieved this winter.

A lot of the staff here have been involved in working at an Open and we have had a lot of other events through the years. Keeping everyone calm will be key.

We just need to focus on giving the best players in the world the best conditions and try not to get too distracted.

UNDERSTANDING THE ELEMENTS, AND YOUR LIMITATIONS, ARE KEY TO THE WORK NAIRN DUNBAR COURSE MANAGER RICHARD JOHNSTONE DOES DURING THE WINTER...

You're based in the North of Scotland, what are the biggest factors you have to take into account when looking at winter maintenance?

We will experience temperatures of around five degrees and below from November right through until April. This means there is very little growth to aid recovery.

Through these months, we experience cold north winds, freezing temperatures and snow, which affects the amount of work we can get completed.

We aim to start our construction work – such as bunkers, tees and re-turfing worn areas – in October to give these the best possible chance to knit together before the season starts at the end of March.

Historically, the worst months for inclement weather are January and February so, during these months, we have a gorse and tree management plan in place to focus on.

What have you been doing this winter?

This year's winter projects include adding five new revetted bunkers to the 60 we already have on the course.

They will improve strategy on our weaker holes, help engage golfers more and improve aesthetics throughout the course.

We aim to reconstruct another eight, which we normally do on a rotational basis, with the most used lasting only five years.

Our biggest project is new tees at the 10th hole with a new championship and men's tee being constructed among newly uncovered dune systems with views over the Moray Firth.

We are reconstructing the 3rd and 16th teeing grounds to give a level-playing surface.

Out of season rough management and tree and gorse management will all help restore Nairn Dunbar to unveil its original links-like characteristics.

What is the most frustrating thing about winter maintenance?

The inclement weather - which can change your plans from day-to-day - and staffing levels, which play a big part in what we can achieve.

With only five staff looking after our Championship course it can sometimes be difficult to carry out as much as we would like.

With holidays usually being taken out of season, we are understaffed most of the winter months.

Why does this work take place during the winter?

There is less competitive golf and visitors playing the course, meaning there is less disruption to play and it allows us to leave projects as ground under repair until the season starts in the spring.



The low temperatures during winter also mean there is less cutting to be done and more time to focus on winter projects.

What can golfers do to help you get the course into top condition in time for the season?

It is essential golfers respect the course throughout the year by repairing pitch marks and replacing divots but, during the winter period, we also ask if they follow appropriate signage used throughout the course to spare wear and tear.

We have forward winter tees in use from November until March, with artificial mats placed on the four par 3s and a fairway mat system used where golfers have the option to play the ball from a mat on the fairway or lift and drop in the rough without a mat.

This system has been in place for a number of years and has been essential to the condition of our fairways and tees going into spring.

During construction we also have various forms of ground under repair in place where we ask members to respect these areas by lifting and dropping outside the roped off areas.

How would what you do compare with a course in the south of England? Do you have to do more?

I think most courses go through a similar process with winter maintenance where weather allows.

The South of England will have a higher average temperature than we receive in the North of Scotland throughout the winter months, which will allow more



construction work to be carried out.

Other maintenance such as over-seeding and thatch removal/dilution works can be carried out later or earlier in the season where the higher temperatures will aid recovery. 💠





SOMETIMES ANOTHER WAY OF LOOKING AT THINGS CAN MAKE ALL THE DIFFERENCE, AS THIS GERMAN CLUB HAS DEMONSTRATED...

CCTV is often called the eye in the sky but, for more and more golf clubs, it's a camera of a different kind that's changing the way winter work is carried out. We're all aware of drones being used to show off a layout at its best – there's videos all over social media. But at St Leon-Rot, which hosted the Solheim Cup in 2015, Craig Cameron, superintendent at the German course, has utilised the technology for a very different means. He uses them to digitally record work happening around the course, such as drainage installations and bunker renovations, as well as surveying.

He began using drones while at Aldeburgh, in Suffolk.

"I started using my drone to take photographs of the course and then moved up to using it for behind the scenes – what we do on the course - in short videos," he said. "I did a behind-the-scenes greenkeepers' video at the BMW PGA Championship and one for the Solheim Cup. From there, it progressed to drone surveying. That is surveying the whole area so you can measure any part of the course - bunkers, fairways, tees, and greens. "That helps us when we're doing construction because, if we have work to do, and we need to order turf, then I can take the drone out and do a quick survey and know exactly how much turf to order. It's great if you're working with external firms because you can let them fire on ahead, and you can be sitting behind them measuring as you're going along and order turf as and when you require it. And it's fairly accurate, so there's no wastage." Providing videos for customers and members has been one of the major benefits. Cameron added: "You fly all the sites in one video and then edit it together. You get one video saying exactly what you did over the winter, which helps a lot because we've done loads of work and people come back from the winter holiday and don't realise."





DON'T WORRY, GRASS **ISN'T** DEAD!

We've just experienced the hottest summer since 1976 and it may be we experience this far more often in the future. But what does the heat do to our courses? Steve Carroll found out

F you like your course to be as deep a shade of green as possible then this summer sent you into torment.

It's not unusual to see a links course a little browned off when the mercury rises but the high temperatures in the middle of the year scorched courses whether they were inland or by the sea.

For lovers of parklands, used to lush fairways and tangly rough, the sight of balls bouncing down barren grass with nothing to stop them was probably something of a shock.

But what's actually happening to our courses when temperatures get so high? What happens when it finally rains? How does the turf recover?

"Grass is quite resilient," said Gaudet Luce course manager Andy Laing. "It's not going to die.

"It will turn brown, wilt and become dormant, which to an untrained eye could be mistaken for being dead.



"But it's not. It's just dormant and using its energy to protect its root systems so that it can recover once the weather breaks.

"It's aesthetic more than anything as courses actually play quite well in these conditions.

"Links courses tend to have this look during most summers.

"But for an inland parkland course like us, it's something to which our members aren't particularly used."

Laing admitted he has never experienced such severe temperatures in his career, and reckoned that at one point in the summer he was using 50 per cent more water than the previous year.

With mains water becoming ever more expensive to utilise, it's a balancing act between watching the amounts extracted from the pipes – to keep the bills down – while ensuring the greens stay healthy.





"We certainly had areas on and around our greens that weren't getting as much water as they perhaps should.

"That's something that only really highlights itself in these extreme temperatures and it becomes a juggling act then between system repairs and improvements, hand watering and water conservation."

When the rain finally fell the fescue fairways at Gaudet Luce began to recover quickly with minimal grass loss.

With that the case, there is no appetite to look at fairway irrigation. That's partly because of the soil, with the Worcestershire-based layout being a heavy clay-based course that takes a long time to dry out. But there is also the cost.

Laing estimated the club would need to shell out anywhere from £750,000 to more than £1 million for the kind of systems that keep fairways routinely green on courses on the continent.

So as forecasters predict we are all likely to be sweltering in the summer far more often in the future - as the effects of climate change really start to bite - golfers are probably going to have to accept that their courses may look a little different in the hottest months from now on.

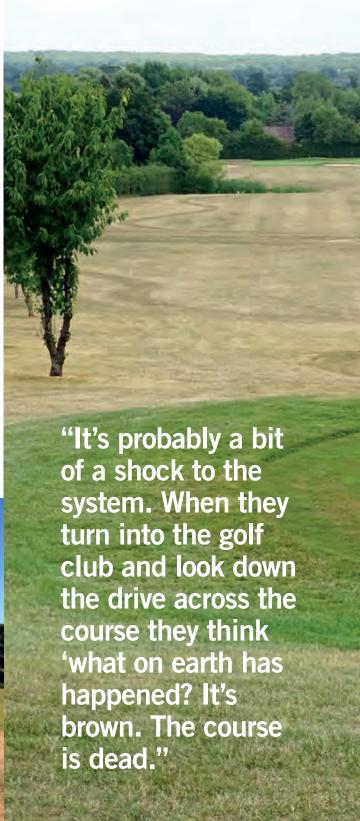
"There is the perception that green is good," Laing declared. "I don't necessarily agree with that, but for a parkland golf course, that's kind of what it relies on.

"For a course where people are used to seeing it striped up, lush and green, it is probably a bit of a shock to the system.

"When they turn into the golf club and look down the drive across the course they think 'what on earth has happened? It's brown. The course is dead'.

"It's dormant and dry but with the first bit of rainfall it will recover quite quickly." *









Think greenkeepers take it easy when the leaves come off the trees?

Some of the most crucial months for a course come during the autumn, as Steve Carroll finds out







HE white tees are gone. The nights are getting darker and the mornings colder. For most golfers, the pressures of the competition season are now a world away. The autumn is here and it will soon be time for the base layers and the thermal hats and gloves, with winter on the horizon. But while the autumn might be a season of downtime for us, it's actually a very important time for our golf courses.

TO EXPLAIN WHY, WE ASKED LEYLAND **COURSE MANAGER SCOTT REEVES TO PUT US IN THE PICTURE...**

Why is autumn such an important time for you?



During autumn in the UK, you usually tend to get favourable conditions for working on getting the grass to grow and germinating seed.

The temperature tends to be a little bit kinder and there is some rain around. These are what you'd call classic growth conditions.

It's a great time if you've got areas you need to overseed, or if you need to introduce new species.

It's also good if you need to carry out work that might be stressful to your greens or tees.

Take scarifying, which you wouldn't want to do in the early summer, for instance, because it is a very stressful process.

If you can do it at a time when there is less traffic, such as the autumn when the conditions are in your favour, then that is a great opportunity.



AUTUMN: THE GREENKEEPER'S MOST CHALLENGING SEASON

As tree leaves and weather begin to turn, the greenkeeper's work becomes



more difficult, especially when daylight hours are cut short with the changing of the clocks. Dr Colin Mumford, Bayer technical manager, says autumn is the prime season for course maintenance, which is challenging enough, without the pressure of the loss of a key disease management resource and the dry summer we have experienced this year. "The drought, heat and increased pest activity around the country this year has weakened the state of the turf, which means it's more

"This greatly increases the chances of seeing patches of discoloured and damaged turf, especially as many greenkeepers are in the process of transitioning to a new management approach, as a key disease control product (iprodione) was removed from the market earlier this year.

susceptible to a disease outbreak.

"For this reason, you may see increased green-staff activity on the course, as they work hard to maintain quality playing surfaces."

What happens when you get an autumn where you don't get those conditions – if it is really wet or cold, for example?

In that case, you might not be able to carry out any work at all.

When you want to carry out deeply invasive maintenance work you have to book it far in advance and so the golf club schedule may mean you're unable to rearrange the work.

Anything that disrupts that schedule causes a big problem.

If it's bad weather and breakdowns – then you might miss that opportunity to do something very important altogether.

So if you get that disruption it's very difficult to catch up?

That's right, the opportunity has gone.

I'm not an expert on climate change but I would say

that, over the last 20 years, our autumns tend to have been very mild. You've got a bigger window than you might possibly think.

The knock on effect of that is clubs have extended their seasons.

Quite naturally people think 'I've paid a lot of money, let's keep competitions going right the way into October and possibly into November'.

Everybody is fighting for the same period of time.

What work then would you be undertaking during the autumn?

You are carrying out tasks that are stressful operations for the turf, such as hollow coring, scarifying and topdressing – work that might disrupt the surface. You have got your main playing season out of the way so surfaces don't have to be absolutely perfect.

A lot of people tend to leave what they might class as

greens renovations to the end of the season.

Also, people are getting into construction, drainage installations, building tees and bunkers. The theory is that we are not quite into the wettest period where you are going to do damage to your golf course by travelling across it.

You're moving heavy loads of material, or big machines, before it gets too wet or frozen.

How stressful is this time of year?

It's as stressful as you make it. I don't get too stressed because I can only do so much.

With the resources we have, we set a target that is hopefully realistic but but as greenkeepers and course managers there are always things that are out of our control.

If something does go wrong, I don't lie awake at night worrying about it. But if you are in a position where you are really trying to get something absolutely crucial done, it's very important because we all care passionately about what we do.

When things go wrong, or you have got ongoing issues, it is a struggle.

What happens when you have a good autumn? What can vou get done?

You get the opportunity to go out and do some good aeration work, which creates lots of nice pore spaces in your fairways.

That means when the rain does arrive they drain that bit better and you'll have a drier golf course.

You'll have a better golf course through the winter, happier golfers and your tills will keep ringing.

A good winter also means the spring will be better because your course will recover quicker from the stresses of winter.

It's a cycle.

Each season feeds into each other. So a good autumn, because we play 52 weeks of the year now, means you can get through the winter in good shape and with the course not too badly damaged.

NEED TO KNOW MORE? STUART GREEN, **BIGGA'S HEAD OF MEMBER LEARNING, GETS INTO THE NITTY GRITTY OF WHAT GREENKEEPING TEAMS ARE DOING DURING THESE CRUCIAL AUTUMN** MONTHS...



So why is the autumn so important?

It's really crucial for not only repairing any damage that's been caused during the growing season, but also preparing the golf course so it is ready for the winter.





How is that damage fixed?

You need to do some topdressing, maybe some deep aeration work, relieving some of the compaction in the top surface and removing some thatch.

You want to get your work done before the grass stops growing.

If you don't do that early enough, you are left with aeration scars going into the winter, which exposes the plant to more disease.

It's quite fundamental.

People don't think that autumn is particularly important but it is certainly among the most important times of the year for greenkeepers.

It's the changeover.

Spring is a changeover into summer and spring renovation work is really important to get the course ready for the growing season.

The autumn is also really important because you need to get the course ready for the winter. You've got different stresses that come in that period.

If the summer has seen a lot of traffic, is the autumn a chance for greens and grass to recover?

Absolutely. What we do to a grass plant is unnatural. Grass wants to grow up really tall, wispy, and put seed heads on.

To get courses into top playing condition during summer, what we do is shave it down to below 5mm and we're putting it under a great deal of stress.

Autumn is a chance to alleviate some of that stress and give it a little bit of a breather.

We think about the winter as a time when construction work takes place on courses. But should we actually think about autumn as the most important time for these?

Yes. When I worked in Scotland we had to get our bunkers turfed before Christmas because, as soon as you hit that time, the really heavy penetrating frost came in and you couldn't do anything.

If you do a lot of that renovation work early enough, you still have warm soil temperatures and that's particularly the case on clay.

If you've ever eaten a pizza, the cheese is soft and can be stretched or pulled apart easier and clay soil is like that. It retains its heat and you can do a little bit more renovation work going into the autumn.

If it's a sandy soil, it tends to cool down a lot quicker. But if you've got warmth in the soil, the turf and the grass seed will establish faster.

You get your roots down and the plant can settle itself in and be really ready to go in the spring.



117 holes make up the courses of St Andrews Links. But what goes into



Looking after OF GOLF

keeping the layouts in stunning condition? Steve Carroll finds out



T'S staged the farewell for legends and is an 'I was there moment' for countless golfers – and anyone who happens to visit St Andrews.

The Swilcan Bridge, a stone structure just 30 feet long and eight feet wide, has proudly guarded the final hole of the Old Course for 600 years.

But it provides the greenkeepers who tend to the hallowed links with a unique problem – it's a photo opportunity for every tourist.

"I estimate there are at least 150,000 people on that bridge every year," says Gordon Moir, director of greenkeeping at the St Andrews Links Trust, which manages the courses at the Home of Golf.

"They all walk up to that bridge on the fairway, in all weathers, and the wear and tear is just incredible. We find it impossible to keep grass growing just beside it. This may be St Andrews, but it's a living fairway and suffers damage just like any other course.

It's just one of the things that makes tending to golf's

most famous piece of grass a job apart.

In fact, you learn to expect anything if you work on one of the courses that make up the famed piece of linksland.

There are divots to repair, bunkers to rake and greens to cut, of course, but what about pram marks, the scuff of rugby balls and the incessant pounding from feet that have never come close to paying a green fee? The Old Course is common land, owned by the town of St Andrews, and each Sunday is closed to golf, instead allowing residents access to its fairways.

Welcome to a greenkeeping job at the sport's Mecca. Seven courses make up this region perched on the Fife coast. They range from the tiny Balgove to the magnificent Castle that rides the clifftops on the other side of town.

More than 230,000 rounds are played here every year – with over 50,000 on the Old Course alone.

That requires 55 full-time greenkeepers, and a team that approaches 100 in summer.

They're equipped with 20 ride-on greens mowers, 15



fairway mowers, more than 20 pedestrian greens mowers and upwards of 30 utility vehicles.

They're spread out across three different maintenance facilities and work in separate self-contained units.

"We've a team that looks after the Old Course, a team that looks after the Castle and another that looks after the 36 holes of the New and Jubilee," adds Moir.

"The biggest team look after the Eden, Strathclyde, Balgove and all the practice facilities and academy."

Just nine people have kept the greens as course manager for the Old, the first being Old Tom Morris himself. The present incumbent is Gordon McKie, who said: "We start at 5.15am in summer, giving ourselves an hour's grace to get ahead of the golf.

"The first tee time is 6.30am but, even then, by the time we get to 7 or 8, we are starting to be caught up.

"The thing with the Old Course is that because you have got double greens, you are effectively cutting two – not one. If you look round and say 'I'll catch that green on the

FACTS

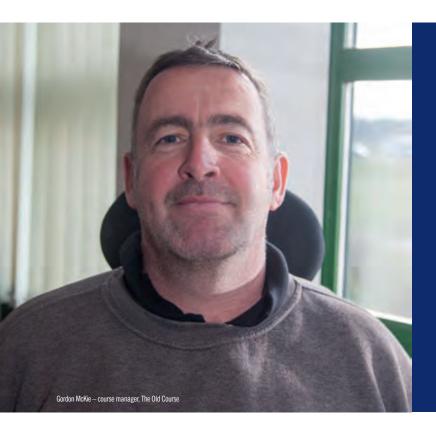
The seven courses at St Andrews are the Old, New, Jubilee, Eden, Castle, Strathtyrum and the Balgove.

Golf has been played at St Andrews for more than 600 years. The right of the people of St Andrews to play on the links was recognised in a 1552 charter.

The fairways and surrounds on the Old Course measure a massive 12 hectares – or 120,000 square metres.

The 1st and 18th fairway covers a total of 7.2 acres and is 129 yards wide at Grannie Clark's Wynd.





THE FATHER OF GREENKEEPING

You might know Old Tom Morris for his four Open victories, and for designing the likes of Carnoustie, Prestwick and Muirfield, but he is also considered the father of modern greenkeeping.

The 'keeper of the greens at St Andrews', he served from 1865 until his death in 1908 and pioneered many techniques that are still common practice.

He introduced the idea of topdressing greens with sand to improve growth and he also was the first to cut greens using push mowers. Old Tom also widened fairways and pushed tee boxes away from putting surfaces to protect them. Previously, you would just drop your ball next to the green and play on.

way in' you are going to be swamped with golfers. And with so many rounds happening through the day, you won't get another opportunity to get on the green.

"The area of our greens is probably three times the size of a normal golf club."

The Old Course's greens are three hectares - or 30,000 square metres - in size and, where possible, are hand cut.

"It's all about numbers and resources," he added. "We can't hand cut the greens without having at least six people on it. With that, we can do the course in about two and a half hours, with the guys doubling up on some of the big double greens. You've got one of those big large greens that might be 100 yards across, but you've got to try and keep mowing in a straight line. That's not easy!

"You cut the green when you are heading into the sunlight and you'll get found out. There's a lot of thinking to do to try and do a good job."

Everything about St Andrews is bigger. The average course measures about 150 acres. Here the greenkeeping team deals with 675 acres on the links. The Castle adds a further 220. The largest double green on the Old is that of the 5th and 13th holes. It's more than 90 metres long and 39 metres wide. That's almost the size of a football pitch.

But whether it is topdressing, or watering bunkers to hold the sand in when the wind whips up, the ambition is to present year-round courses that are as close to tournament condition as possible. It's a task that's exacerbated when – one day a week – the Old effectively turns into a public park. Each Sunday, the fairways are opened to the public. Dog walkers, ball throwers and pram pushers alike have access to the hallowed turf thanks to the centuries-old decree that grants the public access to the links.

Moir chuckles: "Everyone and their dog in town seems to walk the golf course and particularly the 1st, 17th and 18th.

"We have some signs up to ask people to keep off those greens and have a flag cut on the fairway so people can still go and take their pictures with the R&A clubhouse in the background. The students will come down with a rugby ball, you'll get people with prams, occasionally bicycles, and you just live with it – it's public land."

However, such access does come at a cost. To help protect the fairways, mats are used throughout the winter, while the Castle shuts from November until March.

If there is a frost, you might struggle to get your early tee time and, if it persists, the courses will be closed all day. Traffic is moved around with roped areas and the bulk of the winter work is completed by the end of the year. It's all aimed at ensuring the courses stay in great shape.

"You know the world's eyes are always watching you," said McKie. "You are very conscious of what you are doing, when and how you are doing it. It's a challenge to look after but it's a good privilege. For a greenkeeper, and particularly a links greenkeeper, it is the ultimate." *

HOW DOES MY COURSE COME OUT OF THE WINTER IN GOOD SHAPE?

Protecting a course from the ravages of the cold, wet, snow and ice is no easy task, as Steve Carroll finds out







think of as an extreme measure.

But the West, which each year I

But the West, which each year hosts the BMW PGA Championship, has required such special treatment with the European Tour's flagship event traditionally having been held in May. For Wentworth's director of estates Kenny Mackay, the reason to shut the doors on the West was all about preventing damage to a layout that's only

"We closed in December and January and then extended into February," he explained. "We just felt it was the first year of the golf course and bent grass doesn't like low levels of light. So we definitely wanted to make sure we didn't put a lot of traffic on there while it was at its weakest. That's still the case and we'll want to do that going forward – to protect the course when it's at its weakest.



more wear and tear in the winter."

With the West course being a memorable experience for members and guests, Kenny has no doubt that to open the course in the worst of the winter would result in it receiving considerable play.

Even with the SubAir system, which can aerate and control moisture as well as temperature to produce a more consistent and smoother green, installed under all the putting surfaces, it's a risk he's not prepared to take.

He added: "Let me say that if the West course was open it would get played. We play the other two courses and it just balances the traffic out a little bit more on the East and Edinburgh."

Getting the West ready for a multi-million pound

So the shift of the USPGA Championship to May and the tinkering in the European Tour's calendar that will see Wentworth's top tournament move later into the year, should finally lift the winter pressures somewhat from Kenny's shoulders. It might also end the nervous watching that framed his thoughts each time the thaw finally arrived. Take this year, for instance, which saw one of the wettest winters on record followed by a dry spring.

"I wouldn't say we weren't worried up until it dried out and everything came together," he said. "We got a bit of rain, moisture, high temperatures and everything grew."

He continued: "The hardest thing is it's usually cold in the spring and you don't get any growth. This year, it went totally the other way."



HEN some of our parklands are suffering under the weight of the wet winter weather, it's a different story on a heathland.

At Coxmoor, in Nottinghamshire, course manager Ben Cumberland benefits from sand based soil that's fairly free draining. You might think that would

make life easy for Ben and his team. But it means golfers who don't want to hang up their clubs while the ice rules flock to his course.

Traffic management, particularly around tees and greens, becomes absolutely paramount if those key areas are not to be ruined at a time when there is no real grass growth. So Ben, recognising the need to cash in on their popularity while still maintaining the integrity of the course, introduced rubber paths to take the strain.

"It goes over the turf to protect it," he said. "We are trying to get rid a lot of man made paths to incorporate more of a natural look to the course and to keep people playing all year.

"It's like the old-fashioned rubber crumb in a way. The mats are a lot stronger, and robust, and the grass is allowed to grow through them. It's a very soft, forgiving path, but very unobtrusive on the eye."

That comes at a cost. Ben reasons that, in the long term, though, Coxmoor will reap the benefit as they are no longer spending money on topping materials to shore up the old paths.

Removing that issue also allows his team to spend the time saved on carrying out some of the regular maintenance and construction projects that this time of year would naturally see.

"We go through a maintenance programme on the golf course through the winter like everyone else but we aim to verti-drain the fairways in the first week of October every year – and that more or less sees us through with aeration.

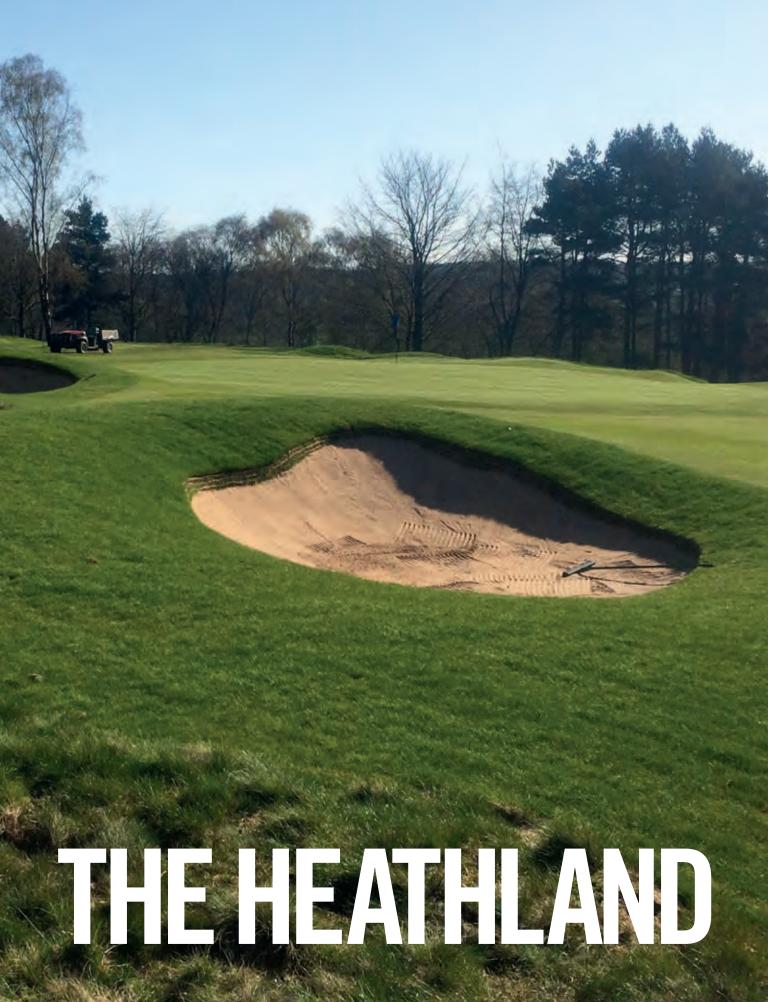
"We do a lot more slitting, probably every three or four weeks in the rough, to try and aid water management through there."

Coxmoor has engaged Ken Moodie and Ken Brown, of Creative Golf Design, in a construction programme that is seeing 96 bunkers built, altered or renovated.

But even that project is being carried out in a way that is sympathetic to the course.

"When we carry out construction on the golf course, it is planned the previous summer," Ben explained. "What we try and achieve is to keep restricted to one hole at a time, where possible. We are looking at doing bunker work this year on the 11th, and so there is only tree work going to be done around that hole. There are 17 holes on the course that will be kept as clean and as maintenance free as possible, other than the usual aeration programme."





IMES are changing in East Lothian. Where once the grass would stop growing at the end of September, Gullane course manager Stewart Duff now finds his team can be cutting right up until December.

With three courses, and in an area of Scotland that is renowned for benefiting from mild winters, there can be an awful lot of footfall across the renowned links.

"We're such a catchment area for Edinburgh and Glasgow," said Duff. "When all these courses are closed, people are flocking here at the weekend. "It's almost pay and play on the No. 2 and 3

courses and there are usually a few slots on No. 1 as well.

'We don't play off temporary greens and we don't close the greens when it is frosty.

"Other courses are closed - either waterlogged or with heavy frost - so winter play does take its toll."

That damage can be most clearly seen on the tees on Gullane's No. 3 course - "they can get quite a battering during the winter" – and there's only a limited number of measures Duff and his team can draw upon.

He explained: "It's just a case of putting up with it and putting an early fertiliser application down in March.

"We do have winter tees and can push them forward during the week and be on the back tees at



the weekend – so we can limit play that way - but that's about the only defence we have for wear and tear.

"We rope off areas, which every course does, and start directing just before things start to get a bit worn. We'll make people walk round just to protect these areas.

"In terms of the greens, there's very little protection but we use a lot of soil products, sprays, and seaweed to feed the soil and keep the grass nice and healthy."

Gullane routinely play on frosty greens – with the surfaces neither suffering from bruising or scorching.

That also brings the players to the club but Duff is relaxed about the impact and he'll only consider

coming off the main surfaces – and protecting them – in extreme circumstances.

"If we have three, four or five days of continual frost without any thawing I might think 'let's put them on temporary greens on the course'," he declared.

"But we generally never get that. We might have two days of frost and then it clears up.

"I don't really see any adverse effect if it is just two or three mornings of frost.

"The only concern I get is when you've got frost but no thaw over three or four days.

"In general, though, we are quite lucky and that's probably down to having a lower percentage of meadow grass in the greens."





ATER and winter isn't usually a good mix. It normally means wet playing conditions.

That isn't a worry for the team at Harleyford.

Courses don't come much drier than the chalk downland, which is European Tour star Tyrrell Hatton's home course.

For Craig Earnshaw, course manager at the Buckinghamshire layout, that brings a different kind of challenge during the winter months.

"We're looking at trying to protect as much as we can so we have got grass cover for the winter," he said.

"We know we are going to be in play all winter round so it is about trying to get everything as strong as we can.

"We are trying to keep our feed levels up and keep growth.

"We do a lot of roping off and traffic control and, even

though we don't get wet, if we didn't do that we would get 'goat tracks' where people walk all the time. We need to control our traffic as much as we can."

Harleyford's dry conditions, though, come with big benefits. While many courses work to a tight window to get their winter construction projects finished before the worst of the weather, they often don't begin at Harleyford until January and even February.

"At least then we know we are going to be dry enough to carry on with those projects, where a lot of the wetter courses will struggle and have to get their projects done earlier," Earnshaw added.

And with predominantly fescue grasses on the fairways and semi-rough, they aren't concerned either about getting early season growth.

"Usually we have enough moisture to keep us going through those times. The areas that have been moved around a bit more during construction probably have a bit more of the ryegrass which we need to keep on top of.



"But that's just nutrition, being selective with where and when we feed is massively important on this site.

"Being a downland we also like the yellow tinge (in the grass) coming out of winter that some courses probably wouldn't like. It's quite nice having that effect.

"We do apply some feed and some iron to green the fairways up but generally we do come out of winter with a slight yellow tinge."

In fact, where many of their peers worry about the colder weather, it's actually when the sun is at its hottest that Earnshaw and his team can suffer a headache.

He added: "Where we probably struggle more is through the summer. We are so dry. This year, after the heatwave we have had, we will lose grass cover in certain areas.

"So we will be sowing fescue back into our fairway areas. We also have ryegrass and, if we've lost any of that, we will be sowing fescues back in so we can get to that point where they will look after themselves going through the winter again."

WENTWORTH

One of the country's premier private clubs, Wentworth's history is long and prestigious. The Surrey club hosted the Ryder Cup in 1953 and, for many years, the World Matchplay. It has held the European Tour's flagship tournament – the BMW PGA Championship – on a permanent basis since 1984.

COXMOOR

This heathland course has been an Open qualifying venue, held the British Boys' Championship and the club have engaged Ken Moodie and Ken Brown in an ambitious development programme. Found on one of the highest points in Nottinghamshire, the course looks out over the Vale of Belvoir and the Leicestershire Wolds.

GULLANE

Golf has been played over Gullane links for more than 350 years but the club was established in 1882. Gullane No. 1 is the oldest course with Willie Park Jnr establishing No. 2 and No. 3 in 1898 and 1910 respectively. This year, the East Lothian club hosted the men's and women's Scottish Open.

HARLEYFORD

Designed by Donald Steel in the early 90s and set in a private estate in Buckinghamshire, Harleyford never play from mats and there are no winter greens. The USGA specification putting surfaces help, as do the very large teeing areas. At a shade under 7,000 yards, the course has nurtured the talents of youngsters including the European Tour's Tyrell Hatton.



Should we be playing on frosty greens? Why do some clubs use temporary greens, while others don't? We've gathered together a collection of course managers to answer these questions and learn there isn't a one size fits all answer...





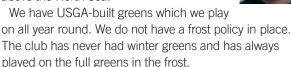


OTHING causes more gloom for golfers in winter than the sight of frost on the ground. Will we be playing on the main greens, or will it be the dreaded temporaries that mark our winter round? Why is it that some clubs choose to protect their greens when it's icy but others don't? We've asked four course managers to take us through their frost policies

before asking a further duo why they do, and don't, use temporary greens. Their answers might surprise you.

KEITH BURGON, HEAD GREENKEEPER, EYEMOUTH GC

Eyemouth is located on the south east coast of Scotland and is positioned on the cliffs above the North Sea.



The club gains a lot of income from playing a full course through the winter, which is important as we are a small club and we get a lot of golfers who travel over an hour to come and play.

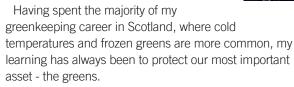
This year we are putting posters up around the clubhouse to try and encourage golfers to clean the frost from their shoes before they walk onto the green.

This is because sometimes the frost gathers on the studs and makes golf shoes more like football boots.

My only real problem is when the frost starts to come out and golfers start to make pitchmarks that they can't repair. Unfortunately, this is something I just have to live with. It isn't worth changing because the golfers have done it for so long and the greens still perform well after a cut and roll when the frost has come out of the ground.

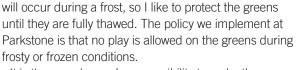
GRANT PETERS, COURSE MANAGER, PARKSTONE GC

Play on frosty or frozen greens is an issue that has split greenkeepers and clubs for some time.



This is especially important at times when they are under extreme environmental pressure.

We have irrigation to protect for extreme heat, drainage and aeration to protect against excessive moisture and, in my view, protection from frost and freezing in the form of temporary greens. It is very hard to predict when damage



It is the greenkeeper's responsibility to make the decision when play can return to the main greens. At the weekends we make the last inspection at 1pm.

If the greens have not thawed then they will remain off for the rest of the day.

It's not the most popular policy, but through the right communication and plenty of updates during frosty mornings, the majority of the members accept the inconvenience of playing to temporary greens.

ROB HAY, COURSE MANAGER, NORTHAMPTONSHIRE COUNTY GC

When it is frosty the course remains open for play and, depending upon the severity of the frost, the flags are taken off the greens and put onto our frost holes.



The club has a frost policy that is circulated to our membership each year, which explains our reasons for using frost greens and the differences between a light frost that doesn't cause long-term leaf damage and a heavy frost that can cause root shear and serious leaf damage.

Over the past few years we have extended our greens maintenance out in front of the green to incorporate the frost hole positions. This not only improves the playing surface for summer golf but also improves the condition and playability of the frost holes during the winter.

We are fortunate to have separate winter tees in different locations to the summer tees, so any yellowing of the grass from playing on frost is confined to these areas.

Depending upon any competitions being played, the course will remain on the frost greens until the risk of damage to the plant has passed or, if present, the ground has completely thawed, removing any possibility of root shear.

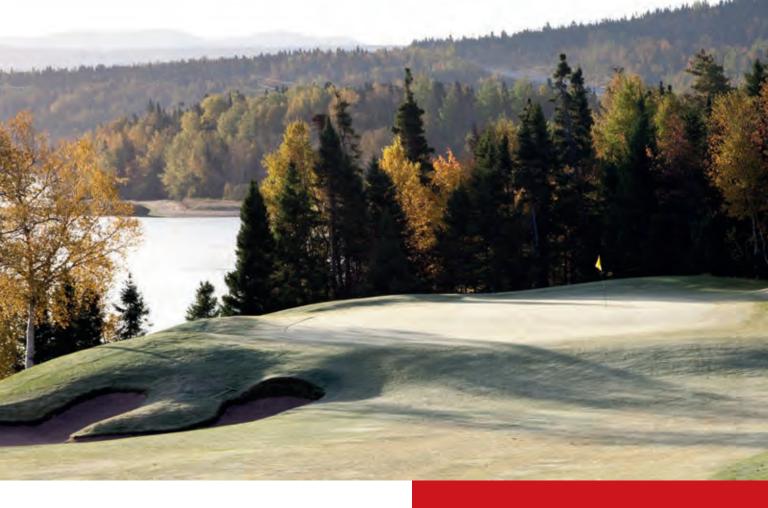
SAM BETHELL, COURSE MANAGER, CHIPSTEAD

Our first response to frost is to ban buggies until it lifts. Having bruised the turf, the tyre marks leave an unsightly black mark which can take a week or two to disappear.



The work vehicles are included in the ban and so the greenkeepers will walk the course to make sure all is well.

My opinion on 'greens in play' for Chipstead has changed. When I started in 2015, the greens were on temporaries for frost and when they were thawing following a deep freeze. But our 3rd and 4th greens had to remain open as there is no room on the holes for a temporary. We noticed no difference on these two greens



in comparison to all the others and strangely there was no bruising or footprints, which is something I was fully expecting. Last winter we went with main greens all the time, and again there was no damage done.

I do believe it's horses for courses, but at Chipstead this has worked fine and has kept much needed money coming in through winter.

If I was to move to another club, I would certainly reassess this method to make sure it suits.



DOES FROST DAMAGE GREENS?

Frost is formed when cool air causes water vapour to condense and form droplets that freeze on the ground. There are a number of different types of frost, including air and hoar, but we are principally concerned here with ground frost.

Greens are fragile and, when there is a visible frost, the grass plant can become brittle and then crushed when golfers or machinery come into contact with it. But even when a frost isn't visible, and the top-soil has thawed, the sub-soil may still be frozen.

That can cause a root break where the underlying roots are severed and cause the plant to die.

However, whether to play on frosty greens or not is a subject of much conjecture within the turf community and the issue of frost should be considered on a course-by-course basis after examining all the impacts.

WHY WE USE TEMPORARY GREENS

Dale Housden, course manager at Hollywood, in Birmingham, uses temporary greens throughout the winter



Why does Hollywood use temporary greens?

We do it to protect our main greens from any additional wear during periods of poor weather conditions, such as frost or rainfall. It is to ensure our greens are ready to go as soon as possible in the spring.

Have you ever thought about just running on those main greens all year round?

Yes and we have done so previously. I can see the pros and cons on both sides of the debate.

So what happens to your greens if you don't use temporaries in the winter?

If we do not rest our greens during periods of frost, they begin the season in a much poorer state.

This then requires an increase in dressings, to smooth imperfections and so on, to make them ready for the main playing season.

If we didn't use temporary greens, the main greens would be around three to four weeks behind and that's prior to the additional turn around work.

What sort of damage can be caused?

From previous experience, I have noted slight bruising on the turf leaf - causing some obvious black burn marks initially. In delicate cases it causes some root shearing when the greens are played on during the vital thaw period. Long term, this gives the roots a hard time when we exit the colder period and slows down the recovery in the spring.

When we have played on frozen greens this forced us to topdress more during the winter months and at the start of the spring to avoid the greens coming on later than we wish.

When would you take the decision to use temporary greens?

They are used during periods of morning frosts or after heavy rainfall if they are flooded. Regarding our frost policy, if the greens are that hard and there is no possibility that the frost would come out that day – usually after regular minus temperatures – then the greens would remain on mains as there is no potential for root shearing.

The issue for me is that I want to restrict the play on main greens during that crucial period when the top layer is beginning to thaw.

When, and how, do you decide to put them back onto the main greens?

When I am confident that the frost has fully cleared, the flags are returned to the main greens. This is determined by using an eight-inch metal probe that goes into the top

layer of the green and needs to penetrate fully into the soil. During the winter, if this is later than 1pm then the greens will remain on temporaries for the rest of the day.

WHY WE DON'T USE TEMPORARY GREENS

James Bonfield, course manager at The Hertfordshire Golf and Country Club, doesn't resort to using temporary greens during the winter



What's the thinking behind not using temporary greens?

We have a lot of play through the winter. We still have a lot of societies. We want to present the best course possible and so we leave them on mains as much as we can.

Over a period of time, we realised that we didn't really have to go back to temporaries. We could present the main greens as well all the way through the year without having to rely on them.

What challenges does that decision bring?

I was at Trent Park and we didn't use temporaries there because we didn't have space. So I learned a lot about how



to keep greens going without having to go on temporaries.

We carry out a lot of traffic control to restrict footfall around the greens. We rope off around every green so players can't take trolleys and buggies near them.

For the green, it is about remembering the basics. That's aeration and getting enough dressing down during the year to keep them nice and firm.

We have USGA greens and they drain a lot quicker than clay. They don't go as spongy on the top, which can potentially happen if you have got a lot of rain.

There seem to be a number of different views on whether to play on frozen greens?

It depends on what type of greens you have got.

If you've got links grass with the fescues and bents you need to protect those grasses because they don't like people walking over them in the frost. They won't deal with it very well.

My greens are very high in Poa (meadow grass) and, as long as we are remembering to carry out the tining work, I've never had an issue.

What are the keys in making this policy a success?

It's about talking to the membership and letting them know that if we are going to play on main greens all year, we are going to need to get out there – sometimes at the drop of a hat – to be able to tine the greens. It might only be a two-day window.

For instance, last December we knew it was going to snow on a Wednesday so we tined on Monday and Tuesday before it came in. When they were under the snow, they came out a lot quicker and a lot firmer because the water from the snow had somewhere to go.

I'm very fortunate with our membership. They are very happy that they are going to be on mains so they put up with me going out with the aerator. It wouldn't be like that if I didn't communicate with them.

Presumably members and visitors love being on main greens all year round?

I've got one opportunity to give a first impression. If we are on mains and running well, even in the middle of winter, that's a decent first impression and hopefully people will come back and spend money with us again.



SO WHAT EXACTLY HAPPENS TO GRASS DURING A FROST?

In general terms, the less stress a plant is put under during the winter months, the healthier it should be when the weather warms up.

When grass freezes, water within its cells expands and this can put the membranes under a huge amount of pressure.

With the grass largely dormant during the winter, this is a time when it is at its most vulnerable.

When golfers tread across a frozen green, the compaction can cause bruising underfoot. The barriers between the cells break and the plant is killed from the inside.

As the temperature then rises and the green thaws, the dead grass turns brown and wastes away. This damage can last well into the spring.





00 may have noticed strange areas of your golf course that have been torn up, as though by a wild animal.

These areas can be anywhere around the course. They're unsightly and you may have asked yourself why the greenkeepers haven't done something about it. What you may not realise is that you're face to face with one of the most distressing problems

greenkeepers have faced over recent years.

At Brough, in the East Riding of Yorkshire, Rob Clare and his team have found themselves at the centre of that innovation, with leading industry bodies using the golf course and Rob's expertise as they explore possible solutions.

WHAT IS CAUSING THE PROBLEM?

While the damage may be huge, the cause is surprisingly small. Chafer grubs are about 15mm in length and are the larvae of several species of chafer beetles. Each female beetle can lay up to 50 eggs, which hatch below the surface of the turf and feed on the roots, killing the grass and resulting in slow growth and yellow patches. The lack of a root structure also causes the grass to become unstable.

Wildlife, such as badgers and crows, will create the damage you may have seen on your course by digging to search for grubs. Whereas straight-beaked birds such as starlings can stab straight into the turf and cause little damage, crows and badgers will pull up large swathes of turf as they search for the foodsource.

Damage to the UK golf course industry has been estimated at £85 million a year from lost income and damage repair, so the search is on for an effective solution. There are five main species of chafers causing problems on courses around the country and identification of the exact species and their lifecycle analysis is critical if an effective management programme is to be introduced. Some chafers have a one-year lifecycle from larvae to adult, others live up to three years.

At Brough, Rob and the team have spent the last couple of years trialling a number of different methods of chafer grub control. Here's a closer look at some of them:

PATHOGENIC NEMATODES

These microscopic animals are sprayed on to the turf, where they burrow downwards and attack the chafer larvae by infecting them with a fatal bacterial disease.

A major university, together with Rainbow Professional of Hull, together with a company called Rainbow Professional of Hull, got in touch with Brough as they were developing new strains of parasitic nematodes. They placed a number of trial plots at the golf club.



Rob Clare: So far, the tests have been inconclusive. In a laboratory situation they are very effective, but getting them to work in the field requires training and precise application methods. Using nematodes is not a one-application-treats-all method of management. It is both a proactive and a preventative measure and if used in collaboration with monitoring traps using special attractants, success rates can be increased.

While our tests proved inconclusive, others have had better results, such as at The Grove, where they had more success at lowering the below ground population of larvae. They had access to a machine that injected nematodes directly into the soil, but this machine isn't readily available in this country. The secret relies on getting the nematodes to where they need to work, as quickly as possible, and developments are under way to address this problem.

NEW CHEMICALS

Each of the chemicals previously used to control chafer grubs have been removed from the market over the past few years.

In response, the agrochemical company Syngenta developed a new product, named Acelepryn, which is still awaiting formal approval – a process that takes years.

However, the need to find a solution on golf courses was seen as of particular urgency, due to the economic damage and loss of jobs that could have been caused.



In response, emergency permission was granted for the product to be used on tees and greens from June until September 2018. Brough was one of the test sites for the new product, with trials being conducted by the STRI, the world's leading sports turf consultancy.

Rob Clare: We used Acelepryn and we saw control, which was fantastic and this could become a really useful tool for us in future.

However, the emergency authorisation that was granted only allowed it for use on greens and tees, while we were seeing a lot of damage on the fairways, so until we get wider authorisation, its impact will be limited.

MECHANICAL

Rotary knives are tools that crush the larvae during the months when they are closest to the surface. The grubs don't like disturbance – which is why you won't find them on well-kept greens – and the combination of weight and sharp blades of the machine has the effect of killing the bugs just below the surface.

Rob Clare: This seemed like a really effective method so we gave it a go. But we found that the crows would just use the slits in the turf as leverage to help turn the turf over to get at the grubs, leading to even more damage, so we had to abandon it.

ORGANICS

Anecdotal evidence has suggested that there may be

ways of controlling chafer grubs using organic products such as limonene, produced from citrus oil, or garlic. If these were to work, they would be a cheap and safe alternative to other methods. The sports turf service provider Rigby Taylor has explored these possibilities at Brough, organising a series of trials.

Rob Clare: So far, the organic stuff hasn't worked, so Rigby Taylor's agronomists have gone away and they're going to look at some other options.

MICRO-CLOVER

Clover gives off an enzyme that grubs don't like, so they don't attack clover roots and are deterred from the area, leaving the grass alone.

Micro-clover has smaller leaves but the same benefits and is seen as a useful tool in public gardens.

Rob Clare: Unfortunately, clover doesn't fit well on a golf course as it impacts play negatively so we consider it a weed. Clover is low-growing and stands out from the rest of the grass, while it also slows play as any balls that go into areas of clover are easily lost due to the canopy of broad leaves.

NATURAL POPULATION CONTROL

Rob Clare: Once they're in the beetle stage and still mating, terns from the estuary come to the course and eat them. The problem is we don't know at what point in the process they're eating them.

One of the things we've started doing is, whenever we see an emergence of grubs, we strip the topsoil off the area. We then leave it fallow for a while to allow the birds to come down and eat the rest of the grubs. The turf is usually damaged beyond repair so once the grubs have been eaten, we returf the area.

COMMUNICATION

Rob Clare: We've found that our best tool for relieving the pressure placed upon us is by communicating with our golfers. We've produced a lot of newsletters and we take the time to speak to golfers about what's taking place out on the course and the challenges we're facing.

SO, WHAT CAN WE DO?

Unfortunately, no method will offer complete eradication of chafer grubs. However, there is the opportunity to control what there is, to keep them manageable and at an acceptable level. In communicating with golfers, the team at Brough have been able to get them on board and become part of the solution. If you have any questions, don't hesitate to ask a member of your greenkeeping team.

But the important thing to remember is that golf courses are still open for business, for you to enjoy throughout the year. •





Inside the ropes at TTLE OPEN

Following every match at the world's oldest major is a volunteer greenkeeper ensuring play runs smoothly. Steve Carroll finds out more about BIGGA's Open Support Team



T'S 4am and a night-time rescue is under way at Royal Lytham & St Annes.

The first players will start their second rounds at the 2012 Open in just a couple of hours but right now the course looks more like a lake than a major layout.

It's been lashing down at the Lancashire links for seven hours and the spectator walkways have turned to quagmires.

Those crowds will be urged to delay their arrivals to let the deluge subside, but what's going on off the fairways is not the main concern.

Royal Lytham's known for its bunkers. There are 174 of them dotted around the course and many of them are now flooded.

The host greenkeeping team are performing miracles but there are too many hazards and not enough time to drain them all before play begins.

It's time to bring in the Open's unsung heroes.

"We got the call from the course manager saying the place was flooded and could we get down there," said BIGGA chief executive Jim Croxton.

"We sent two buses of guys, having knocked them out of bed, and they came and emptied the bunkers."

He's talking about the association's Open Support Team – a team of volunteer greenkeepers from clubs up and down the United Kingdom and beyond that come together at the championship each year to assist the host greenkeeping team. The team has been invited by the R&A for more than two decades and, for many, it's the experience of a lifetime.

There are 52 greenkeepers that go in total, and one follows every game over the duration of the championship. Their primary job is to rake bunkers – to make sure



"It's an amazing thrill. They are inside the ropes, chatting to the pros and the caddies, and seeing the world's greatest tournament from the inside. It's fantastic."

Left: Graham Ives, Josh Dunn, Blair Shearer, Ash Smith and Mark Bettell in front of the BIGGA marquee at the Open Above: A member of the Open Support Team strives to catch a glimpse of play

the sand is of a consistent standard for each player that competes. But, depending on the size of the host team and the unforeseen events that can overtake any sport held in the full gaze of Mother Nature, that role can change.

"I think this is still the only major that does it this way – with a greenkeeper walking with every match," added Jim.

"At some of the smaller venues where they only have 18 holes, the team is not big, so the support team we supply are able to help the on-site team with some of their duties.

"At Royal St George's, for example, they were cutting greens and cutting tees. Their predominant role, though, is to support each match and to put some greenkeeping eyes and ears on the course.

"Raking the bunkers is the obvious part of it but they

are also out there keeping an eye on things if the on-site team need them.

"It's an amazing thrill. They are inside the ropes, chatting to the pros and the caddies up close, and seeing the world's greatest golf tournament from the inside. It's fantastic."

Raking bunkers. Sounds easy, right? But there is a lot of pride at stake for these turf professionals and with the gaze of millions on their work – with cameras all over the tournament – it has got to be right.

"There's a fine line between getting out the way and getting it done," reveals Meltham's Ash Smith, who was on the team at Carnoustie this summer.

"You don't want to leave it a bit of a mess. I had to ignore that there were players behind me – if we were on a par 3 for example and they were stood there waiting.

"I had a couple of bunkers to do so I did the job right



and moved on."

Being within touching distance of the globe's best golfers is a massive buzz for the team and provides them with memories, pictures and stories that will last for a lifetime.

"Matt Kuchar on the 1st shakes my hand and he says to me 'we'll keep your work to a minimum today'," laughed Louth head greenkeeper Graham Ives, who worked his third Open at Carnoustie. "Where did he go? Straight in the bunker. He played out, looked at me and said 'I lied'."

Ives had previously been on the Open Support Team at St Andrews and Royal Birkdale.

And aside from the obvious thrill of walking in the footsteps of the greats of the game, what actually stands out for him is what he learns from the experience – the little snippets of information that can improve his own course and make it even better for members and visitors. He explained: "It's good learning how people do

different things and what they do differently to us."

Just as important for the team is the networking. With 50-odd greenkeepers all together, spending a week talking about their craft, it's an ideal chance to learn new practices.

"We're bussing up together and you get different points of views and opinions. Each one of us can take something from someone else's experience and utilise it," said Rayleigh's Mark Bettell.

"It's all about contacts," agreed Bramcote Waters' Josh Dunn. "If I wanted to borrow something and I'm in a bit of a predicament with a broken machine I can always ask a local course or someone I have met on one of these events."

"They make friendships for life and, increasingly in recent years, it has become an opportunity for some of our younger members to learn to network," added Jim.



Left: A member of the Open Support Team gets to work in a bunker at Carnoustie Below: The whole team are gathered together in front of the 18th green



"Networking is hugely important in greenkeeping because it is such a solitary profession. If you build a network of people - and they could be at local clubs or from all over the country and the world - it gives the guys that support. It's really important for them on a personal level and also looks pretty good on the CV as well.

"They are all volunteers. They have all, generally speaking, taken holiday in order to attend. They make their own way here and we've had guys over the years come from America. Australia and Vietnam."

It's a team that is often over-subscribed, with a ballot system sometimes pulling out the lucky applicants.

All of those selected know how fortuitous they have been. All hope their name might soon be chosen once again. For as Bettell rightly said: "To be part of the biggest golf experience on the planet, if you are not excited by that there's got to be something wrong." *

What is the Open Support Team?

Each year a team of BIGGA members, drawn from across the UK and further afield, supports the greenkeeping team at the Open. The R&A, which organises the Open, requests the assistance of the BIGGA Open Support Team, as they are collectively known, for duties throughout the tournament. Their primary responsibility is raking bunkers after players have used them. In 2017 at Royal Birkdale, they were called into action 1,220 times across the four days of the tournament. They will support the host team in the case of emergencies and a place on the team is also about experience - gaining knowledge and building bonds of friendship.



THE GREENKEEPER'S GLOSSARY

Greenkeeping is full of technical jargon. Here are some key terms explained

AERATION

The greenkeepers' dictionary definition of aeration is: to replace anaerobic air in the soil with aerobic atmospheric air.

It is essential that golfers understand that the roots of grass don't grow in soil.

They grow in the air spaces between the soil particles. Other benefits include increasing shoot growth, compaction relief and fertiliser and nutrients delivered into the root zone.

Some of the methods to achieve this include hollow tining, air-injection and solid tining.

On greens, the aim is also to move water away from the surface as quickly as possible. The requirement is to keep the surface in contact with the sub surface. That means aerating at all different depths. Keeping the surface dry means better quality grass, reduction in

disease and better all year round playability.

TOPDRESSING

Topdressing sees a layer of sand, or a mixture of sand and other materials, spread across the turf.

There are many different ways of applying it and, depending on the course, greens teams could apply it little and relatively often or choose to do one or two heavy applications a couple of times each year.

The aim is to dilute the thatch that sits between the surface and the soil, improve the quality of the soil and drainage and maintain a smooth and true putting surface.

All of this promotes a better grass plant and means a better playing surface.

We talk about topdressing alongside aeration because they can take place at the same time.

If the greens have been hollow tined then whatever is in the topdress mix can be integrated into the soil, through the holes in the surface.





BIGGA

British and International Golf Greenkeepers Association

An association committed to the continual professional development of its members, working with the leading bodies in golf for the good of the game

Serving the needs of BIGGA's Members

Supporting the health and growth of the game and industry of golf Providing leadership and direction in greenkeeping to the golf industry

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