

# CLIMATE CHANGE: HOT TIMES AHEAD

A climate change conference at Celtic Manor Golf Resort in South Wales, warned turf managers to prepare for extremes. Mike Beardall reports...

**Warmer, wetter winters and hotter, drier summers will be the norm by 2080, flash floods and unpredictable storms will increase in the UK and average temperatures across the year may rise by up to 5 degrees celsius during the next 70 years – The result? More disease. Hot climate/drought/heat resistant grasses will need to be grown across the UK.**

Professor Al Turgeon, of Pennsylvania State University, showed test results proving it is high night temperatures that cause stress in grass as the roots don't get a chance to cool down. "This is going to be a major problem in future if all the computer predictions are correct," he said.

Dr. Michael Schlosser, a Turf Consultant from Germany, said warmer, humid winters plus hotter drier summers and tropical storms every second year - will give Turf Managers a major problem. "Pythium spec will increase, dollar spot will be attracted to the high temperatures and drought conditions, and there will be new strains of *Leptosphaerulina* and *Myrothecium rostratum*. By 2080 temperatures in the UK will have risen by at least 3.6 degrees celsius. From a turf point of view we will have to change our cultivation practices and types of grass we use."

Professor Turgeon said altering the types of turfgrasses grown may combat the effects of climate stress in the UK. In golf, greens that are predominantly fine fescues and browntop bentgrass will have to become creeping and possibly velvet bentgrasses, while on fairways fine fescues and browntop bentgrass will have to be changed to creeping bentgrass or perennial ryegrass. "The most important aspects during the hotter summers and winters will be in cultural operations," said Professor Turgeon. "We will have to increase the intensity, nature and frequency of cultivation practices to control thatch accumulations and alleviate effects of soil compaction. Topdressing frequency will have to be increased to control thatch accumulation and the nature of the growth medium will have to be changed where it is unsuitable for local conditions."

Arwyn Harris, of the Hadleigh Centre for Climate Research, said climate change, is inevitable and the 1990s in the Northern Hemisphere was the warmest decade in the last 1000 years. "During the last 50 years

night-time temperatures increased by about 0.2 degrees celsius per decade with a 10% reduction in snow and ice cover," he said. "Lake and river ice has reduced in duration by about two weeks with a widespread retreat of mountain glaciers."

Arwyn said it's important to remember that without the natural greenhouse effect the global mean temperature will be -18 celsius, rather than the +14 celsius it is on average. "This means that the natural greenhouse effect is worth around 32 celsius," he said. "Sunlight passes through the atmosphere, warms the earth and infrared radiation is given off – most escapes to outer space but some is trapped by the gasses in the atmosphere thus reducing the cooling effect on the earth's surface."

According to Arwyn, worldwide pollution is resulting in more gasses being trapped in the atmosphere, thus increasing the greenhouse effect and leading to global warming. Computer predictions show the average surface temperature of the earth will rise by up to 5.8 degrees celsius by 2100. "This means we can expect severe storms, especially in the UK, with snow cover and sea-ice decreasing and glaciers and icecaps retreating," said Arwyn. "Sea levels will increase by up to 59cms by 2100, with resulting flood damage in low-lying areas."

Professor Turgeon said Turf Managers need to start thinking about how to deal with changing weather patterns now. "Switch to better-adapted turfgrasses, improve surface/internal drainage and adjust cultural/pest management practices," he said.

According to Dr Schlosser the biggest problem is going to be on golf greens with sandy profiles where damage to the grass roots is likely. He also predicted "dry patch" will be more prevalent and the use of wetting agents will have to be more widespread. "Golf greenkeepers will have to adapt to changing climate," he said. "We will no longer have the cold winters to kill off pests and diseases."

Proceeds from the event will be used to fund research into carbon sequestration in soil profiles.



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# A LIFETIME IN GREENKEEPING

*Scott MacCallum travelled to Bristol to meet Past Chairman, Ivor Scoones, on the eve of his retirement*

**Cast your mind back to 1962. For those old enough to be around it will seem a while ago but for younger readers it might as well be 1066, so far in the deep and distant past it will appear.**

West Side Story won the Best Picture Oscar; Moon River was the Record of the Year; Arnold Palmer won The Open at Troon and Jack Nicklaus the US Open at Oakmont; Harold – no relation to Billy – Macmillan was Prime Minister; Marilyn Monroe was found dead in her bed and three days later your Editor was born.

I mention all of this because that was the year that former National Chairman, Ivor Scoones, started work at Long Ashton Golf Club, in Bristol, moving to the club as Deputy from Filton Golf Club. He retired last month 44 years later.

“I remember the winter after I started in ‘62/’63 that there was snow on the ground in April and we had terrible damage from snow mould. It took ages to get rid of it and our best friend, would you believe, was annual meadow grass. That was the only thing that got us out of trouble,” said Ivor, as he cast his mind back to when he started at the course as a Deputy.

He is a fund of wonderful stories and opinions and, sitting in the greenkeeper bothy which he brought to the course, he was more than happy to reminisce about greenkeeping then and now.

“We had push mowers when I started and we used to cut the greens twice a week. Takes some thinking about now but there was not much play then.

“In 1966 we got our first powered mower, a Mark 1 Certes, and thought all our Christmases had come at once! I’d cut nine greens a day, a colleague, also called Ivor, would cut the other nine and we’d meet up to mow the putting green together.

“If we saw two golfers out on the course in the morning that would be about average. People would be in the clubhouse, often bank managers for example would turn up to read newspapers and use the club for that,” said Ivor.

He also has fond recollections of his pro, Wally Smithers, in those early days. A close friend of Henry Cotton he would often return from a tournament and, if he’d done well, dip his hand in his pocket and bring out some money and say, “Buy the boys a drink”.

“That was very unusual because the pros used to struggle the same way we did,” said Ivor.

He became Head Greenkeeper 18 months after starting at the club taking over from Mark Ashley, another in the long line of Long Ashton staff who stayed at the club for many many years.

“One assistant who was here during my time was a 2 handicap player, Henry Burge, who worked here for a total of 47 years and that didn’t include the two World Wars. He worked until he was over 70 driving a tractor and gang mowers.

“I’ve always run a happy team and given everyone a reasonable amount of responsibility but tended to shield them for committees. I’ve never been an aggressive sort of person and never asked anyone to do something I wouldn’t or haven’t done myself.”

Ivor has shown his dedication to the task many times over the years but not least in assisting the club when it came to lack of machinery.

“If the club couldn’t afford a piece of machinery I’d often go out and buy it myself just to make sure I could do the job as well as possible. Maybe I’m unusual in that respect. I’d rent it out to other local clubs but it would always be there for Long Ashton.”



Among the pieces of Scoones' kit which he bought are a turf cutter, tractor hedge cutters, rotaries and a hydraulic winch.

"At the end of the day if you live the job you do these things and let's face it it did make my life easier as an individual and helped to provide a service to the members."

Asked which one thing had led to the most fundamental change in greenkeeping over his period the answer was not the vertidrain or the ride-on triple or a new chemical but something you certainly wouldn't have expected. "The One Armed Bandit," came the reply.

"It made a huge difference in our world because all of a sudden golf clubs had money to spend and we were able to buy more machines, fertilisers everything really. One Armed Bandits made an awful lot of money for golf clubs and was certainly a key factor in the development of greenkeeping."

He does have some concerns about the future of the game, however, with regard to expectation levels and demand for play which now exist.

"America led the way with the televising of the Masters and the US Open – we only saw the tournaments at the top end which people don't seem to take on board. What you see on television looks great but you wouldn't want to play the golf course for three to four months afterwards as it very nearly destroys them.

"I've got a horrible feeling that we're going too far when it comes to standards. Golf clubs need to be able to support financially the level of standards they are demanding and clubs can't always cope.

"This course was 100 years old in 1994 and wasn't designed to take the volume of play, especially in the narrow areas. Everyone wants to play 365 days a year and people have a lot more leisure time... except greenkeepers that is. A lot of people retire a lot earlier and there is more and more demand for electric ride-on buggies which all put pressure on a golf course.

"We will either need to lower expectations and make golf more cost effective or make the changes to cope with demand and quality requirements which will cost clubs a lot more money."

Ivor was born and grew up not 50 yards from the boundary of Long Ashton Golf Club and, not only was it where he learnt to play golf, reaching a handicap of 8, it was his playground as a child. The village of Long Ashton holds a very dear place in his heart and, to put something back, he has served on the Parish Council for the last nine years, the last two as Chairman.



Ivor with his successor, James Braithwaite



"It started as a problem over footpaths. They were the club's responsibility and at one stage I cleared them to make them more accessible but was accused by some local people of raping the countryside so the council asked me to stop," explained Ivor, who looks anything but your average rape and pillage merchant.

"I decided I'd had enough of people telling us what to do so I got elected to the Council where the committee skills I'd acquired in BGGGA and BIGGA were very useful.

"I've been Chairman of Highways and the Burial Grounds committees, while just last night at 6 o'clock I was involved in discussions surrounding the music festival which is due here shortly. It's all very interesting."

A former Chairman of BGGGA, Ivor was one of those involved in the amalgamation talks instigated by the R&A and involving themselves EIGGA and SIGGA.

"A lot of people, some of them still involved in BIGGA, put an awful lot of time and effort into forming BIGGA and at the end of the day I think we've really benefited from what we did," said Ivor, who became the fourth National Chairman in 1990.

"I was the first Englishman," he added, proudly.

In both BGGGA and BIGGA there is barely a position he has not held within either Association at Section, Region or National level, while he was responsible with others for launching Westurf, the Regional Show, which used the extensive Long Ashton practice area as its permanent home and raised money for the South West and South Wales Region.

"I'm very pleased with the way BIGGA has developed. In the early days we worried where the money would come from and if we'd ever get anywhere but with R&A support and the support from the trade things have gone better and better, far better in fact than I ever envisaged."

Ivor is being succeeded as Course Manager by his long time Deputy, and former Toro Student Greenkeeper of the Year, James Braithwaite.

"He had a very good education before he came here and he has done very well over the last 11 years," said Ivor, as his successor returned to the bothy from the course.

The first question to James was an obvious one. What have you learnt from Ivor?

"Patience," was the one word answer.

"We are returning to the older ways now. For example we hardly fertiliser the fairways at all now but we have to be on the ball all the time now to be aware of potential fusarium. I don't believe in preventative spraying but we must be aware of when we are likely to get it. I do feel that the Sustainable golf debate is not relevant to parkland or heathland courses and where here is so much competition for golfers."

James is also aware of the changes to the Course Managers role in recent years.

"There has been a change in priorities with a lot of paperwork, which I try to do out of hours, while a Course Manager has to be much more of a public relations officer now."

So would Ivor like to be in James's position now – taking over a high quality members' club and moving it forward.



"There are good things and bad things. It is very much a Rat Race in many ways, especially with the new health and safety and environmental legislation. That is a nightmare to deal with in itself, but if you look at my hands and the arthritis I've got and you do appreciate that our health is looked after a lot better now than before," said Ivor, who had just returned to work having had a knee replaced.

"One of the things that still stands out for me is having to go on a Thursday to get our wages. We'd go up, take off our caps and stand outside the Secretary's Office, knock and wait for him to bring the wages out. Or I'd have to go and ask if I could have money for something to spray the greens. That's another thing which has improved so much."

Ivor is not liable to become a pipe and slippers man and will keep working during his retirement.

"I'm going to set up a little grinding business and do some machinery maintenance to keep myself busy and compensate for the fact that Mr Brown has damaged our pensions," he said.

"I'll certainly still come to Harrogate and be one of the old miseries," he said chuckling at the prospect.



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# DRAINING HEAVY LAND COURSES

**Golf courses built on land which contains a high proportion of clay usually have drainage problems in the wetter times of the year. Unfortunately, it is the periods when the 'course closed' notices go up that the members recall with disgust and for which the management is reprimanded. But heavy-land courses have some good points!**

Clay, by its very nature, holds moisture considerably longer than a sandy soil. When irrigation has to be applied to the sandy fairway to keep it green, the heavy land fairway will often go for weeks before it shows signs of stress due to water shortage. This fact will be increasingly important as the price of water soars, and its availability becomes limited particularly in southern areas.

So, how can one best 'manage' the heavy land golf course? If the sward remains very wet or waterlogged for periods of several days then the roots drown and cease functioning. When active growth restarts in the spring the shallow root system struggles to cope with more frequent mowing and more player activity on the course. Where water logging has not occurred and the grass root system is considerably deeper the sward grows away with vigour.

Instead of thinking negatively about the heavy clay soil let's think positively! When one inch of rain falls on an acre it amounts to 22,625 gallons of water. That's money! In the spring, summer and autumn much of this moisture is lost through evaporation, hence the course remains playable. But when the winter comes losses through evaporation virtually cease and the water content of the soil builds up.

It is widely accepted that a good land drainage system is a requisite on heavy land golf courses. This drainage system must allow play to continue in all but the heaviest periods of rain, but of equal importance it must stop the grass roots from drowning.

In compiling drainage plans thought must be given to where this drainage water is to go. Can it be used for irrigation of the course in the summer months? Can the course be enhanced by significant water features? Can it be sold? It must be appreciated that even when well drained a heavy land course is not going to have the same characteristics as a

sandy one, but as climate change accelerates the heavy land course may have distinct advantages over the sandy course.

## ENGLISH GOLF UNION (EGU) SPLASH OUT ON DRAINAGE

The EGU at Woodhall Spa built the Bracken Course on heavy land in the early 1990's. Last year they invested in land drainage in several areas of the course. So what has been their approach and what has been the outcome?

Land drainage works on established golf courses conjure up scenes of rutted turf, big tractors digging big trenches, gravel spillages and fairways out of use for weeks on end.

So why last year did the EGU start draining fairways on the Bracken Course at Woodhall Spa just four days before the Golf Medal Competition in August? We went to talk with Richard Latham, Director of Golf, and the Courses Manager, Sam Rhodes, to find out.

Richard Latham set the scene. The Bracken Course was built in 1995-96. Its construction entailed the removal of many trees and moving considerable quantities of soil. A land drainage system was installed at this stage but the spacing of the lateral drains has been such that on the heavy clay soil excess soil water has been slow to clear.

Furthermore, visitor numbers to the Hotchkin and Bracken courses have grown considerably in recent times and it had become imperative to improve the speed of drainage on the Bracken course to prevent damage to the sward.

So for the big question - when should it be done? The EGU hosts numerous tournaments during the spring, summer and autumn. Many corporate days are held also and they must be given consideration for they bring in substantial income. So it would seem that at this time of year drainage activities cannot be contemplated.

But the Course Manager points out that spring, summer, and autumn are the best times for drainage works. Undertake this work in the wetter winter months and the nightmare scenario with which this article opened can be expected.

The grounds staff were charged with getting the drainage improved on four fairways with minimum disruption to the tournament schedule. It was decided to do it in mid August.

It was explained that the very latest drainage equipment in the hands of experienced operators is speedy, clean and causes little damage to the playing surface. They believe it preferable to have equipment on tyres as opposed to tracks for wide low-ground-pressure grassland tyres leave virtually no impression on the ground.

A flag layout was used - as opposed to a herringbone layout - running the main drains at the side of the fairway, possibly just in the rough, and running the lateral drains across the fairway at ten metre spacings. The main disfigurement of the turf occurs where the lateral join the main drain. With the flag layout this is of little consequence, but with the herringbone layout this disfigurement occurs in the most prominent part of the fairway.

In practice this turns out to be easier said than done for one has to transverse irrigation pipes, irrigation control wires and electric cables many of which seem to have moved since plans were drawn up!

The EGU engaged the Contracting Division of Shelton Sportsturf Drainage Solutions to implement the plans for they have the most advanced equipment suited to the specific needs. The First fairway was drained in its entirety in four days and such was the finished job the Gold Medal Competition was played on the following days.

The next week part-drainage of fairways six, ten and 12 was undertaken. In each case the fairway being drained was closed for play for one day only.

For the technicalities. LYTAG was used as the permeable fill over the pipes and this was brought to within 50-75mm of the surface, topping-off with Aitkens Sportsturf Pro sport Rootzone. The drain runs were

then lightly rolled and a matching grass seed mixture spread by hand. No debris whatsoever was left on the grass for fear of damage to the precision mowing equipment.

LYTAG is a manufactured product originating from the pulverised fuel ash from selected power stations. Being spherical it flows readily and almost eliminates entirely the possibility of voids occurring when backfilling narrow trenches. Using 4-8mm Lytag provides a hydraulic conductivity of 2323mm per hour.

It weighs around 800kgs per cu metre and has the advantage of absorbing water hence improving the micro climate. It is available in 2 grades, 4-8mm and 4-14mm. Its relatively light weight has appeal when transporting the material over fine turf surfaces. Furthermore it is not subject to the Government's Aggregate Levy.

Richard Latham stresses the importance of working closely with the contractor to minimise disruption to the playing schedule. Speed is all important and this is best achieved by team working and co-operation as opposed to adopting a we/they attitude.

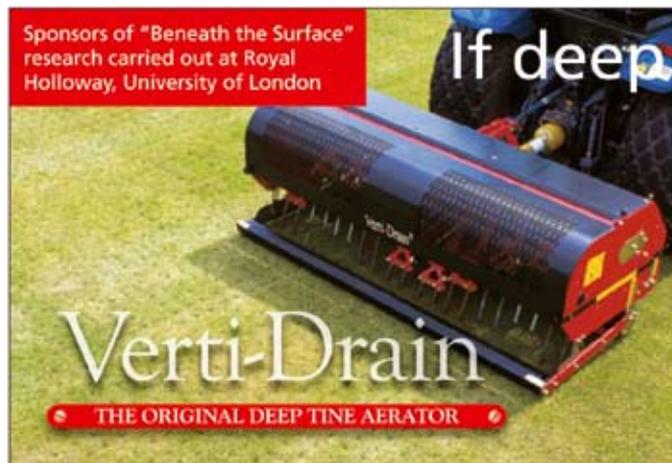
The EGU had already installed secondary drainage on the fairways in question with their Shelton Gravel Band Drainer and these bands have linked into the new scheme.

Reflecting on the busy two weeks of drainage activity both Richard Latham and Sam Rhodes have no doubt in their minds that the drier summer months are the best time to undertake drainage on golf courses. The Shelton claim to be able to 'drain today and play tomorrow' is no idle boast for with the advanced equipment now available, and with a contractor employing skilled operators, it boils down to 'short term inconvenience for long term benefit'.

And for other clubs contemplating land drainage in the summer months perhaps that is best way to sell it to the Club members.



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Manual Handling at work is subject to H&S regulations. The Regulations require employers to assess the risks and put procedures in place to minimise risk of injury. Employees have a duty to follow procedures, make proper use of equipment provided and generally co-operate with the employer on H&S matters.

Important steps to be considered when carrying out a Manual Handling task:

**STOP AND THINK** Can I lift the load? Plan the lift/move by checking the weight of the load and the route. Is the route free from obstruction? Can the load be split up into smaller parts?

**DO I NEED HELP?** Can you lift the load on your own? If not, who/what is available to assist.

**STAND CLOSE TO THE LOAD** Wear appropriate footwear. Feet apart, unlock the knees creating a stable base for lifting.

**LOWER YOUR BODY TO THE LOAD, TAKE A FIRM GRIP** Move the load close to your body. Your waist should be close to the height of the load before commencing lifting.

**LOOK UP** You always see a weightlifter's face.

**STAND UP** Using all the relevant muscles naturally, keep the load as close to the body as possible, do not twist, avoid jerky movements.

**LIFTING ABOVE SHOULDER/HEAD HEIGHT** When lifting above shoulder height, break the lift into two parts, resting load on a suitable weight-bearing surface to change your stance and grip.

**PLACING THE LOAD DOWN** The reverse procedure should be used i.e. bend the knees, not the back, to place the load down.

**STAIRS** When carrying loads up/down stairs it's essential the load doesn't block your vision. Loads should be broken down into smaller amounts - Loads that cannot be broken down/are too heavy to lift with one hand should be moved using an approved stairs trolley.

**TRAVEL DISTANCES** Wherever possible mechanical aides should be used to move loads distances.

# UTILITY VEHICLES: SIDE BY SIDE VEHICLES FOR USE OVER THE ROUGH STUFF

By James de Havilland

**Ransomes Jacobsen, John Deere and Toro are key suppliers of utility vehicles to golf courses, with the companies' respective Cushman/E-Z-GO, Gator and Workman ranges listing among the most popular models currently in use. Here we look at models that are designed to carry two people and a load over rougher terrain.**

Golf courses adopted what are generally described as light utility vehicles back in the 1970s, the once ubiquitous tractor and trailer soon making way to buggies that included three, four and even five wheel designs. As these vehicles have evolved, models that can suit a wider range of applications have been developed that enable machines to tackle 'rougher' terrain. Four-wheel drive, greater ground clearance and improved suspension systems now means there is a choice of side-by-side utility vehicles that can include units that will rival an ATV for off-road ability.

Take a look at the E-Z-GO ST 4x4 from Ransomes Jacobsen. Powered by a twin-cylinder Honda 614cc power unit developing a healthy 13.5kW (18hp), this machine boasts a generous 240mm ground clearance, locking front and rear differentials and a rear load platform capacity of 500kg. It has a top speed of 25mph and will tow up to 680kg.

John Deere also offers its Gator HPX 4x4. Offered with a choice of Kawasaki 617cc twin cylinder petrol 20hp or torquey 21hp Yanmar 854cc triple diesel, this small vehicle will carry 454kg and tow 635kg over pretty difficult ground, its 152mm of ground clearance proving its only disability in really rough going.

Toro do not offer a Workman model that is designed to compete in the tough terrain sector, but that is not to say models like the 4300 are



Although it does not boast as much ground clearance as some, the John Deere HPX Gator will negotiate some tricky terrain. Full and part cab options offered on this and other makes and models.



Rough terrain capable utility vehicles come in a wide range of shapes and sizes. Pictured front to back are the Kawasaki 610 (petrol), Yamaha Rhino (petrol), Polaris Ranger (petrol), Arctic Cat Prowler (petrol), Massey-Ferguson MF20D, Kubota RTV 900, John Deere Gator HPX and Kawasaki Mule Trans.