Despite having been at the club for such a period motivation has never been a problem. “As an active member of the golf club I wouldn’t want to go out on a Saturday, play the course and have people complaining about the quality of the course. I like to do it right even if I know it’s not going to be perfect all the time,” said Jez, who has represented Denbighshire county and North Wales teams. “I was also the Minorcan Amateur Champion in 2005 and my name is on the board at Son Parc golf club over there. I’ve never won the Club Championship here though,” he said ruefully.

He is certainly not one who is going to add a Captain’s Tree or a Captain’s Bunker to the course. “I’ve seen 25 different Captains, many of whom have wanted a tree, bunker or a pond put on the course. After my year I’ll just like everyone to say that I was a good Captain and that I did a good job,” said Jez, who hopes that, at 42, he will be able to encourage a younger feel to the club.

Listening to both Jez and Bob you can’t help but agree that the former’s year in office will do nothing to damage their on-going working relationship. “The Captain is just one of the Board here and not in charge of the club. He has a vote along with another six Board Members so invariably only good decisions, for the benefit of the whole club, will be passed,” said Bob.

“The days of the Captain coming in and saying ‘This is what I’m going to do in my year,’ have well and truly gone,” he added.

That might just have scuppered one of the current Vice Captain’s goals. “Next year’s pay rise might not be as easy as I thought!” joked Jez. “Seriously, I don’t see it being a problem at all. If there are any conflicts of interest which I feel I’d better off not being involved with, as an employee, I’ll step back. It wouldn’t be worth me getting involved.”

The banter between Jez and Bob illustrates just how strong their working relationship is. “He also knows that the year after he’s been Captain he’ll be back to normal,” quipped Bob, before adding a more serious note. “Jez comes not only with the respect of being Captain but also with the respect of knowing more than anyone else about the course. He’s the expert there.”

Jez is looking forward to his “drive in” which will take place on the first Saturday of next January. “I’ll have mixed emotions. I’ll be nervous as I’m not playing as much as I used to and I’ll want to strike a good one but I’ll be quite sentimental as my dad won’t be there to see me drive in and he’s the man who introduced me to the game.”

He may not have part of the club named after him but the continuity and success that Jez has brought Vale of Llangollen Golf Club means just as much to the members as Sir Alex Ferguson means to the Manchester United fans.

That said Jez would like it to be known that despite the references to Man Utd in this article he is a life-long Liverpool supporter!
Green solutions for greenkeepers

Golf clubs are under increasing pressure to save energy and conserve water in the course of their greenkeeping operations. Paul Shute, highlights the role that new technologies can play.

Golf clubs can be conservative institutions, used to technology in their implementing similar golf clubs can be conservative the role that new technologies can play for green solutions.

For instance, some seven kW motor running at a 50 Hz cycle will use seven kW per hour of power. The same motor running at only 40 Hz will use half the kW power, namely 3.5 kW. The same pump running at 30 Hz will use only 1/7th of the power, namely one kW.

If, therefore, the pump is running at 10p per kW hour, the seven kW pump running at full speed costs 70p per hour. The same pump running at 30 Hz will therefore only cost 10p per hour.

Crucially, variable speed control, such as the Hydropump which is manufactured by Lowara, can be mounted or retrofitted to any existing pump manufacturers unit which is equipped with a standard BGC motor.

Experience suggests that the retrofit option can bring pump speed down to circa 40-42 Hz and pump users can experience savings of circa 50 per cent on their normal pump running costs.

Rainwater harvesting

The second sustainable technology that greenkeepers can consider is rainwater harvesting. This is not a new idea, the traditional water butt has been in use to water domestic gardens for many years, but technology and water meters are increasingly bringing this idea into commercial applications and golf clubs are a key target market for manufacturers.

What’s more, the time is right for golf clubs to embrace this technology. Many clubs are increasingly asking themselves the question: why irrigate with clean drinking water when we can use grey water which has been harvested and recycled to save ourselves some money?

Crucially, golf clubs are a key target market for rainwater harvesting systems. Clubhouses have big roofspaces which has been harvested and recycled to save ourselves some money.

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So what can be done? In recent years the rise in running costs in particular has begun to lead many golf clubs into embracing two new technologies which together can begin to turn back the clock of rising costs.

Variable Speed Drive Pumps

One way of mitigating against the rising cost of electricity is for greenkeepers to incorporate the use of various speed drives into their pumping systems.

Typically, most golf clubs are equipped with a large vessel, circa 500 litres, to keep the water and a fixed speed booster set which starts the pumps at a lower pressure, cutting in at approximately 3.5 bar and cutting out at approximately 4.5 bar. Most clubs will be equipped with up to four pumps within this type of system.

There are two key issues. Firstly, all pumps are usually 15-20% oversized in terms of the application.

System designers will always choose the next size pump in the range to ensure there is enough capacity, but then the distributor often compounds the problem by going up a further pump size again.

The second problem with this sort of system is that the large pumps have to run flat out when the sprinkler system is turned on regardless of demand. This is clearly not energy efficient.

In particular, starting and stopping a pump consumes a lot of energy. Most pumps require five times the full load current to begin rotating. For example, a 10 amp pump will take 50 amps to get it turning. The answer may lie in the use of variable speed drives (VSDs) which ensure that the pump never has to run faster than it needs to. Crucially, this type of equipment can now be retrofitted onto existing centrifugal pumps.

VSDs work by monitoring output pressure. If a golf course requires three bar pressure on a pump's output, the unit will run the pump at a speed to maintain three bar pressure and no more.

In other words, it never runs the pump faster than it needs to.

For example, a seven kW motor running at 50 Hz cycle will use seven kW per hour of power. The same motor running at only 40 Hz will use half the kW power, namely 3.5 kW. The same pump running at 30 Hz will use only 1/7th of the power, namely one kW.

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Golf clubs can be conservative in their greenkeeping operations year after year. The procurement process often mirrors this conservatism. Traditionally, the Course Manager puts in a request for a new piece of equipment, such as a pump, and the Green Committee signs it off without any real discussion, due to the fact that the Committee is, naturally, made up of golfers not agronomists.

However, there are increasing signs that times are changing as a number of different pressures come to bear on golf clubs across the UK.

These pressures are interlinked, pushing clubs and greenkeepers to embrace new ways of working and forcing many to consider the issue of sustainability for the first time.

The first pressure is operational costs. As golf club memberships fall, committees are coming under increasing pressure to keep running costs down.

A major contributor to those running costs is the myriad of pumps and pipes which feed sprinkler systems alongside fairways and greens.

Each pump is electrically driven and during summer months can be in operation for many hours every day. All of this contributes to a considerable running cost, particularly when rising electricity prices are factored into the equation.

The second pressure is the threat of water bans, which after a dry summer and exceptionally dry winter can leave many water companies already fearful of perilously low reservoirs and underground aquifers.

What’s more, commercial organisations with water meters, which are now the majority, and that includes golf clubs, are faced with paying for every drop of irrigated water poured onto the course. A dry summer, which cannot be ruled out, could leave many golf clubs with the double whammy of paying high prices for a scarce resource.

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Crucially, golf club premises provide the perfect environment for rainwater harvesting systems. Clubhouses have big roofspaces capable of collecting large amounts of rainwater as have Maintenance facilities.

With a rainwater harvesting system, rain is collected via the normal rooftop collection system which would normally then go straight into the drains. Instead, the downpipe is diverted to carry the water through a Vortex filter to guarantee a quality output.

Around 95% of the water collected is then stored in a collection tank. As water enters the collection tank it passes through a calmed inlet which calms the inlet flow of water and prevents disturbing any sediment that may build up on the bottom of the tank.

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What’s most surprising about animal pests of professional turf is why any predator of green plants would bother with close-cut grass with so little above ground to feed off. Indeed this is why the two major insect pests of turf in the UK are essentially subterranean problems. Chafer grubs and leatherjackets—the larval stages of chafer beetles and craneflies, respectively, feed on and damage turf grass roots.

The first thing to say about the pests of professional sports turf, in the UK, is that golf courses here get off relatively lightly in comparison to those elsewhere and especially courses in North America. But that’s not much comfort to UK greenkeepers waking up to find their greens and tees torn to shreds as an indirect consequence of chafer grub or leatherjacket infestation.

Direct damage to sports turf by these two insect pests is significant and serious in its own right but the real problems arise as collateral damage from the activities of much bigger beasts of the feathered and furry kind. Birds, especially corvids (mainly rooks, crows and jackdaws but also magpies and jays) will peck at and tear up turf in a frenzied attempt to get at these tasty and nutritious grubs and particularly the creamy white, plump and juicy chafer grubs.

Much bigger beasts, in the form of badgers and foxes, are also major culprits in this connection and the bigger the beast the greater the damage to turf. Indeed the foraging activities of badgers or foxes in securing an evening meal of chafer grubs or leatherjackets can easily put greens and tees completely out of play for long periods of time and require considerable work and many thousands of pounds to repair and re-lay torn up turf.

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Unlike in North America there are not many dedicated insect pests of turf in the UK – chafer grubs and leatherjackets are the main ones, although frit fly can go up a gear to become an economic pest. Until recently these were the only invertebrates (animals without backbones) recognised and registered as pests of turf in the UK. However, recent years have seen some frenzied interest in even smaller animal pests with root feeding nematodes (microscopic roundworms) very much under the microscope.

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to tobacco. Their smallness of size has always hampered identification and recognition as pests and is clearly one reason why they have only recently come to the fore in professional turf.

Nematodes as turf pests are a bit of a conundrum for two reasons. Firstly, the leaf symptoms of nematode presence on the roots of turf grasses is rather diffuse and, in many cases, not a lot different from the symptoms caused by microbial pathogens and in some instances plant nutrient deficiencies.

For this reason, and because early scientists could not see the actual animal pest eating away at the plant (nematodes are too small to see with the naked eye and are underground on the roots), they would assume a microbial pathogen was responsible. For this reason nematode invasions of plant roots were traditionally called infections but, as animal pests of turf grass, nematodes are an infestation of the fibrous root system.

Secondly, not all species of roundworms are ‘nasty nematodes’. Many are exceptionally useful like the species currently used in commercial biological control products to control chafer grubs and baterjackets.

**Surface feeding earthworms**

The other invertebrate pest not yet mentioned, and like the nematode a worm though much bigger and technically called an annelid (ridged worm), is the earthworm.

The other characteristic that earthworms have in common with nematodes is that not all are damaging as far as the golf course is concerned. Indeed, the vast majority are not only useful but downright essential for improving and maintaining the physical structure and fertility of the soil.

As far as the greenskeeper is concerned it is only the surface feeding species of earthworms which are a problem and specifically when they inhabit the soil underneath the pristine playing surface of golf greens and to a lesser extent tees. Unlike most earthworm species, which deposit their casts in the burrow, these surface feeding species deposit their casts on top of the turf when they come up to feed on dead and decaying plant material in thatch, debris such as grass clippings and fallen leaves on top of the turf.

Worm casts on sports turf are not only unsightly but clearly interfere with the run of play across the surface of the golf green. There is also a safety angle because contents of the cast have passed through the worm’s gut picking up copious quantities of slimy secretions along the way. This not only makes worm casts difficult to remove without smearing the close-mown turf but may also create hazards for players who may slip on the slimy surface. What’s worse worm casts act as ideal germination sites for weed seeds and seedlings like the dock seedlings shown here having passed intact through the worm’s gut and therefore smear having passed through the worm’s gut and therefore smear.

**Bigger beasts**

And where there are worms there are moles. Anyone who has seen a mole can tell you that these creatures are moles. Anyone who has seen them at all is likely to arise from their burrows.

Moles are particular birds, in certain situations and activity alongside an increasing pest population. As such they work much more slowly than do chemical insecticides and will only reduce pest numbers to below economic levels rather than wiping them out.

In addition, these are living organisms with much more stringent environmental requirements (eg temperature, soil moisture and relative humidity and soil pH) for their activity compared to chemical insecticides.

Timing of control is clearly important with greenkeepers needing to catch chafer grub and leatherjacket infestations as early as possible. Biological control

Chemical insecticides are not the only option because there are now biocontrol products based on entomopathogenic nematodes which invade the chafer grub or leatherjacket and introduce a pathogenic bacterium that kills these insect larvae.

However, those wanting a quick and complete kill and at any time of the year may be disappointed by biological control agents. By definition, density dependent pest management factors, rising in number and activity alongside an increasing pest population. As such they work much more slowly than do chemical insecticides and will only reduce pest numbers to below economic levels rather than wiping them out.

**Worm control**

Control of leatherjackets and frit fly was never a big problem once chlorpyriphos hit the market many years ago. Chlorpyriphos is one of the most useful and valuable insecticides on the market. And not only the turf market having been one of the mainstays of pest control in agriculture, horticulture and forestry, and even public health, for many a year. Despite its excellent control of leatherjackets it was never recommended for the control of chafer grubs, although not a few people automatically thought it controlled this pest too. It probably would if it could get down to the chafer grubs but chlorpyriphos does not reach, in the topmost layer and unable to reach chafer grubs lower down. Several insecticides were traditionally used to control chafer grubs, but they were withdrawn when true extent of their ‘poisonous nature’ became apparent. Several years followed with a gaping hole in the turf insecticide market and even bigger holes on greens and tees because greenkeepers had nothing to control chafer grubs. Despite came with imidacloprid and revolutionising chafer grub control in a short space of time. Imidacloprid is doing the job and excellently too but there is probably room for at least one more insecticide to help control chafer grubs and deprive the birds and the badgers of their ‘free lunch’. Biological control

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In my ways the mole is the terrestrial equivalent of this marine predator because all it does is burrow to find tasty soil animals to eat, almost entirely worms but sometimes slugs and other animals and, of course takes time off to make more moles.

Like the badger or the fox on the hunt for grubs this mammal, though much smaller and virtually blind, can do just as much damage to professional turf through its burrowing and inevitable and accompanying mole hills.

The more fertile the soil the more worms it will support and the bigger its attraction to the mole. Turf damage by birds is usually collateral to chafer grubs and leatherjacket infestations but there are particular birds, in certain situations, which can become pests of turf in their own right. These are wild waterfowl such as the Canada goose and the pink footed goose which may see the first sign of new grass growth in March and April as an inviting early spring ‘bite’ and subsequently crop the turf even lower than the mower manages to do. At the same time they will inevitably deposit their characteristic loose and slimy faeces across the turf.

Lastly but not least, rabbits are also capable of cropping close-mown turf grass to cause significant damage in large numbers but leave something nasty behind, although in this case small, round and hard droppings which can easily be swept from the surface of the green or tee.

That said, most serious damage from rabbits on the golf course is most likely to arise from their burrowing activities and bask grazing on young newly planted tees. Rabbits are particularly fond of sandy soils in which to excavate their burrows.

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Several insecticides were traditionally used to control chafer grubs, but they were withdrawn when true extent of their ‘poisonous nature’ became apparent.

Several years followed with a gaping hole in the turf insecticide market and even bigger holes on greens and tees because greenkeepers had nothing to control chafer grubs.

Despite came with imidacloprid and revolutionising chafer grub control in a short space of time. Imidacloprid is doing the job and excellently too but there is probably room for at least one more insecticide to clobber chafer grubs and deprive the birds and the badgers of their ‘free lunch’.

Biological control

Chemical insecticides are not the only option because there are now biocontrol products based on entomopathogenic nematodes which invade the chafer grub or leatherjacket and introduce a pathogenic bacterium that kills these insect larvae.

However, those wanting a quick and complete kill and at any time of the year may be disappointed by biological control. Biological control agents are, by definition, density dependent pest management factors, rising in number and activity alongside an increasing pest population. As such they work much more slowly than do chemical insecticides and will only reduce pest numbers to below economic levels rather than wiping them out.

In addition, these are living organisms with much more stringent environmental requirements (eg temperature, soil moisture and relative humidity and soil pH) for their activity compared to chemical insecticides.

Timing of control is clearly important with greenkeepers needing to catch chafer grub and leatherjacket infestations as early as possible, but
and in this context they can put the activities of predatory animals to good use. Not badgers and foxes because these are nocturnal ani-
mals which will tear up your turf to get at the larvae without warning, and under the cover of darkness, but the birds are a different matter.

If you notice that birds, espe-
cially crows but also starlings, are taking an unhealthy interest in your turf, like something out of the iconic Hitchcock movie, The Birds, then there is almost certainly something for the birds’ under your turf and it is time for you to move in, lift a sample of turf to identify the pest and to apply the appropriate insecticide.

Managing surface worm casts

While curdbaum remains on the market greenkeepers will have little to worry about in managing surface casting earthworms. How-
ever, there are other things which can be done to help the situation and minimise their activity. First and foremost don’t encourage surface feeding by leaving debris including grass clippings and fallen leaves on the green. Always box off clippings and keep the greens and tees well swept especially in autumn when the leaves of deciduous trees fall fast and furiously. Creating an acid reaction in the surface layers of soil using approved soil conditioning products, including those based on sulphur and ferrous (iron) sulphate, will deter surface feeding earthworms. Turf grasses perform best in slightly acid soil conditions but will react negatively if the pH gets too low. It is all a question of balance.

Mole control in hole

Dealing with moles is a ‘prickly’ problem, not least due to inherent difficulty, but also because the remaining methods, though legal, are not too pleasant for moles which are protected species in other European countries.

Traditional use of worms laced with strychnine and used as mole bait was banned five years ago. Remaining methods are strictly for professional mole catchers and pest control operators.

Surprisingly gassing is still allowed but this is strictly for the trained and certificated pest control operator. What’s more, the chemi-
cals used are essentially nerve poisin-
gs in mode of action and hardly the sort of thing you want walking around the golf course.

Old timers used all manner of traditional deterrents including moth balls (napthalene) placed in the mole hole but that is illegal now because napthalene containing mothballs are banned within the EU. Others would place sprigs of holly down the mole hole attributing to the fact that mole control is a ‘prickly problem’.

Perhaps the most innovative old
time method was sinking bottles into the turf with their necks pro-
truding marginally above the soil surface. Musical notes thus gener-
ated by wind blowing across the open tops of the bottles was claimed to deter the moles but this is clearly a definite ‘no-go’ from the health and safety point of view.

The Americans claim that playing
music down the holes will clear
an area of moles.

The only problem is if the moles decide they like the music and stay around to listen.

For bunnies and birds

Similar caution goes out for rabbit control with the clutch of claimed options such as gassing, ‘blowing up burrows’ and shooting strictly for the trained expert, although as for moles these are not the sort of activities suitable for intensively used golf courses many of which are also public rights of way. All newly planted trees should be fitted with rabbit proof tree guards or tree shelters.

As for wild fowl tucking in to an early spring ’bite’ on your greens, most if not all of these are protected species. All you can do is wave your arms and make loud noises and hope they will not come back. Seriously though if this becomes a persistent problem there are a number of innovative bird scaring devices mainly targeted at the agri-
cultural market but equally ideal for the amenity sector.

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Two newly emerging turf diseases have recently been confirmed in samples received from golf courses in the UK and Ireland and it is suspected that they are more prevalent in areas of fine turf than are currently recorded.

During 2012, The Turf Disease Centre will be collating information on turf samples received for analysis that are positively identified with either of these two diseases and a summary will be published later this year to show their recorded regional occurrence.

The most important step in effective turf disease management is the identification of the cause and with the apparent emergence of these new disease problems, this fact has never been more important.

Rapid Blight - A non-fungal disease

In 2004, turf samples were received from a golf course in the UK where the greens were showing a progressive decline in turf quality. Patches of affected turf up to 30cm across were becoming red/brown in colour, water-soaked in appearance and thinning out due to the loss of Poa annua and Agrostis spp from the sward. Analysis of the turf identified the presence of a non-fungal organism called Labyrinthuloid within the plant tissues and a disease known as Rapid Blight recorded for the first time in Europe. Subsequent collaboration between The Turf Disease Centre and Dr Mary Olsen at the University of Arizona, confirmed the identity of the organism as L. terrestris, a novel species of Labyrinthuloid that Mary had initially identified in 2002 as the cause of this increasingly important turf disease.

Over the past three years, The Turf Disease Centre has received a small number of turf samples affected by Rapid Blight that have originated from Ireland, Spain and Portugal but it is believed that the incidence of this disease is much higher than has currently been recorded.

In Spain, the disease showed dramatic development of symptoms on creeping bentgrass greens (with patches up to 2m diameter) and extensive discolouration and turf loss on fairways (Fig. 1 & 2). The severity of the problem is correlated with not only the grass type that is present but also ambient temperature and the level of salinity in the rootzone or applied irrigation. Poa species are very heavily affected by this pathogen, as too are Lolium perenne and Agrostis spp. Warm-season turf grasses can harbour Labyrinthuloid within the plant tissues but they don’t show evidence of any disease.

If these grasses are over-sown with cool-season turf, the young seedlings inevitably become infected and disease symptoms will develop.

Symptoms can develop when temperatures rise above 15°C and salinity levels are >2.0dS/m (although Labyrinthuloid has been isolated from turf growing in much lower salinity conditions). Because the causal organism is not a fungus, most fungicides will have no effect on the organism or the development of symptoms. However, research conducted by Dr Olsen and others researchers across the USA has shown that the active ingredients pyraclostrobin, trifloxystrobin and mancozeb can provide effective control but that results are much better if products are applied prior to the onset of disease, rather than curatively.

In order for the correct product to be applied effectively, the presence of this Labyrinthuloid sp. must be accurately identified but because it is not a fungus, L. terrestris can’t be cultured in the laboratory in the same way that fungi can.

In 2011, turf samples in which Labyrinthuloid was again detected, were received from golf courses in Ireland and the UK. In the UK, the symptoms on the affected course had been considered as being Anthracnose disease and managed accordingly (Fig. 3 & 4), but lack of recovery prompted an analysis that eventually identified the real problem.

Due to the way in which Labyrinthuloid affects the plant, the sward initially becomes yellow, then becomes red in colour before the tissues eventually ‘rot’ and the sward thins. The symptoms can appear very much like Anthracnose or Take-all Patch disease in Agrostis-dominated turf but there will be no distinct blackening of the crown tissues, symptoms that are typical of Anthracnose Basal Rot.

Rapid Blight is considered to be a unique example of an emergent plant disease potentially induced by human activity (Douhan et al, 2009) and I am sure that in the future it will be confirmed on more amenity areas where water with high salt content is used for irrigation.

Now that we have learned how to identify this disease, sample analysis can confirm its presence and potentially save significant management time and costs by allowing implementation of effective control options. Detailed information on Rapid Blight disease can be found in the article Rapid Blight: A New Plant Disease, by Showell, et al, 2005.

Further information


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