**Time for a Trim**

Broadly speaking, there are two types of power scythe to consider: dedicated bank units that have a power unit able to work on steep sidling ground and two-wheel tractors to which a cutter bar can be fitted. The ability of the latter to work on a slope will be determined by the angle at which the power unit can operate before becoming starved of lubricating oil.

For most golf courses, a two-wheel tractor and cutter bar combination will have obvious appeal, the power unit having the ability to drive other equipment that can include a cultivator or rotary brush. Cutter bars do have limitations. Ideally suited to longer grass and upright vegetation, cutter bars are less than ideal when it comes to dealing with matted material, uneven ground and heavier vegetation.

An alternative could be a flail mower attachment for the same power unit. Pro-rata, a flail will take more power to drive than a cutter bar, so its working width may be modest, but it could prove viable to consider both on certain courses.

Pedestrian rotary mowers should not be dismissed for bank work, assuming their power units can operate at the desired angles. It is of course possible to attach a rotary to the front end of a two-wheel tractor. This route may work well where the banks to be mown are firstly not overly steep and secondly limited in height. A heavy mower on the front of any pedestrian machine will always want to head down hill, making their extended operation on a tall and steep slope tiring or possibly hazardous.

A possible rotary alternative is a rotary hover mower. Light, relatively inexpensive and simple, hover mowers were once considered the ideal way to mow a bank; tied to the end of a length of rope, these units were commonly lowered down long steep slopes to cut them. Modern operator control systems, and possible risk assessment issues, may rule this out now, but where a hover mower can be used it could well be a faster alternative to a brushcutter.

There is then the choice of a ride-on brush cutter. There are an ever increasing number of these units on the market, and it is tempting to assume that because of this they are a familiar tool. For those that have not seen one, imagine a ride-on domestic rotary mower with much stronger build, typically hydrostatic drive and a mid-mount rotary brushcutter of up to 0.95m cutting width. Power will come from a petrol engine of at least 12hp plus.

A remote controlled mowing comes of age with the Ransomes Spider. Designed to operate on slopes of up to 40 degrees, the machine has a light footprint as it has no operator and related controls. Remote technology at present is costly, but this type of equipment to may become more affordable if the concept takes off.

The deck of these machines is designed to tackle heavy material, hence the term brushcutter, but they will also cope with grass. Of equal importance, they have a low centre of gravity that enables them to work safely across slopes of up to about 30 degrees. Some courses could well justify one of these units for brush control, but they are not designed as a specific bank mower.

What is purposely designed for this particular job is the Ransomes Spider radio controlled slope mower. Designed to operate on terrain as steep as 40 degrees, the 180kg unit has a 0.8m cutting width and is powered by a 494cc Kawasaki four-stroke V-twin petrol engine pumping out 18hp.

Each of the four steerable wheels is hydrostatically driven, the operator being able to control the machine from up to 50m away. The downside is that the Spider has a £15,500 sticker price. That is a lot of money for what is essentially a small rotary mower, but it is still considerably less expensive than a nasty accident. If your course is blessed with steep banks that need keeping in trim, this machine could well be an answer.

DO YOU HAVE TO MOW YOUR BANKS?

It is a hard enough job to keep roughs, fairways, tees, greens and other areas of turf looking good without the added consideration of looking after hard to access areas. For some clubs, the simple answer is to let these parts of the course look after themselves. With thoughtful use of shrubs, trees and varieties of slow growing grass, a difficult to mow bank can be transformed into a feature.

It is worth remembering that a golf course can be a sterile environment for beneficial wildlife. A sympathetically managed area of un-mown grass, perhaps planted with shrubs, has to be better than a problem bank of difficult to mow grass; assuming that this change of use does not interfere with play. So before getting out the new machinery leaflets, why not think through an alternative way of dealing with the area.
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In the first of a two part series Steve Isaac, Assistant Director - Golf Course Management, The R&A, looks at how the Danish are managing fescue.

A FUTURE FOR FESCUE?

An article in the March 2003 issue of Greenkeeper International intrigued me. According to its author, Chris Haspell, there are courses in Denmark being managed to encourage fescues, not just new courses but older ones where recovery programmes from Poa annua dominated swards were proving successful.

This was music to the ears of our Golf Course Committee, who were looking for exemplar sites to demonstrate the principles of sustainability, as per our definition of the term: "Optimising the playing quality of the golf course in harmony with the conservation of its natural environment under economically sound management".

In our view, there can be no more sustainable a grass species for the northern European climate than fescue. The R&A has a long history of promoting traditional greenkeeping, the very cornerstone of which is species selection and, for temperate climates, the implementation of management that favours the fine leaved fescue and bent grasses. The 1997 R&A publication, "A Course for All Seasons", focussed on this approach, as does much of our best practice website, www.bestcourseforgolf.org. Could this be an opportunity to see the best of best practice being achieved?

However, the accumulated experience of working with UK courses available to our Committee brought a few sceptical thoughts as well! Our links and heathland courses should be the home for fescues, as they are indigenous to such landscapes, yet how many of them support fescue dominated swards today?

Depressingly few. Think of all those new course constructions that have sprung up over the last 20 years, the vast majority sown out with fescue/bent. How many of their greens have been converted to Poa annua? Depressingly many!

We seem to have lost the ability to manage this grass species, with many in the industry claiming it to have as much relevance to modern golf as Latin has to language. The demand for colour and pace has seen off most of the fescue on golf greens within our shores, so why believe that a country such as Denmark should be at the forefront of a fescue revival? It was with some caution that we contacted Chris and arranged a few days in Denmark to see the results of their labours.

DENMARK BOUND

In May 2004, Nick Park, Vice Chairman of our Committee, and I flew to Copenhagen and spent two days touring Danish courses. Our first port of call was the Smarum Golf Centre and this proved to be the jewel in the crown. The course opened in 1993 on a pay and play basis. Some may argue that having decent greens only 11 years on from opening is no great achievement. Nonsense!

How many greens to 11 year old courses in the UK still retain the grass species they were sown out with? The majority will be, at best, a mix of bent and Poa annua. What about being sustainable? In our view, if you can retain the same species, which fulfil our definition, for five years or more then we believe it is justifiable to hang this tag on the sward - and only inappropriate management is then likely to cause a radical change in composition.

If God ever built a putting surface, then it would surely not be too far removed from what we saw at Smarum! The dense, fescue dominated swards had just been top dressed so were not looking at their very best, but even so they were superb. With a putter in his hand, Nick rolled the ball towards the hole... and it just kept running. The surfaces to all 54 greens on the complex were consistently good from one to another; they were true and they were fast, and all this at a 6mm height of cut.

This was music to the ears of our Golf Course Committee, who were looking for exemplar sites to demonstrate the principles of sustainability, as per our definition of the term: "Optimising the playing quality of the golf course in harmony with the conservation of its natural environment under economically sound management".
Fertiliser input to the greens is exceptionally low, hovering around 35 kg/ha per year, and no pesticides are used. The main 18 hole course takes 40,000 rounds a year, which is more than most private member clubs in the UK. What a great start to our trip! Here is the epitome of the sustainable golf green. A top quality playing surface being produced with minimal environmental impact and at an extremely affordable cost.

Visits to Fureso Golf Club, Harsholm Golf Club and Rungsted Golf Club followed, where we saw fescue introduction into creeping bent and Poa swards to varying degrees of development and success. The message from all the greenkeepers we met, though, was the same - fescue is the future of sustainable greens management, and this is why...

THE MAINTENANCE AND ENVIRONMENTAL LEGISLATION FACTORS

The key maintenance requirements to promote fescue rather than other species, including browntop bent, are:

- A height of cut no lower than 5mm.
- Fertiliser rates at 50 kg/ha of nitrogen per annum or lower.
- Dry surfaces, with irrigation at an absolute minimum, merely to keep the grass alive.
- Regular, light top dressing to dilute organic matter accumulation.
- Overseeding with fescue at least twice a year to maintain density and purity of the sward.
- As open an environment as possible for free air movement across the green.

This programme can be handled by the seven staff at Smorum over the 54 holes, working with a range of machines commonly found at UK clubs. The results are a well presented and tidy looking course, and superb playing quality to green and fairway.

Smorum also provides evidence to disprove the contention that fescue cannot take wear. The main 18 hole course takes over 40,000 rounds a year, through a nine month playing season. The natural disease resistance and winter hardiness of the species also extends the playing season compared to other courses in the vicinity, where winter kill and fusarium damage to Poa and creeping bent swards takes weeks off the potential season.

The driving force behind this approach is a group of Danish greenkeepers, ably led by Chris Haspell and Bente Mortensen, respectively former course and environmental consultants with the Danish Golf Union. Their focus on fescues stems from a desire to produce the best for their clients/employers in terms of quality at a realistic cost, and a wish to manage golf courses in an environmentally friendly way, in so far as this is practically possible. The latter has added significance in Denmark where there are, currently, severe restrictions on pesticide use, controls on water use and a tax on fertiliser.

The management inputs for those promoting fescue meet the environmental demands in Denmark. This is true of much of northern Europe - indeed, the former exceed the latter in many EU Member States.

PARTING THOUGHTS

Nick and I flew out of Copenhagen following our courses tour in a state of disbelief. Had we actually seen what we had been close to thinking was impossible under the constraints of the modern game? Was this a significant movement or just a few maverick greenkeepers living in the past? Could the Danish experience be transported to other countries in northern Europe facing similar environmental regulations which make Poa annua wholly unsustainable?

Could this be the spur needed to rekindle the fortunes of fescue turf to its natural home on the links and heathland courses of the UK? So many questions, so much excitement and such a need to find out more about the Danish experience.
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For a free demonstration, please call 01480 226800 today.
Too Wet, Too Dry
- Soil Moisture and Your Greens

Peter Winter, STRI Agronomist for the South West and South Wales, highlights the importance of total soil moisture management in the preparation of excellent putting surfaces.

The demands of golf and periods of extreme weather together make management of soil moisture an underestimated element in producing a dominance of bentgrass and/or fescue grasses in greens that will then support the consistency and quality required in putting surfaces.

I believe a change seems to be occurring and the periods of wet or dry are more severe. This places greater demands on the quality of the turf and the rootzone apart from the expertise of the greenkeeper. This change in weather pattern and demands from golfers for consistent conditions over the full 12 months makes it worthwhile to look at each green from a soil moisture perspective - many older greens were constructed for a spring to autumn golfing season.

THE IDEAL

Much could be written on the theory of soil moisture relations. The often stated ideal is the 50:50 balance of air: water in the soil pore space. In controlled glasshouse conditions it can be difficult to achieve consistently over a crop, even with sophisticated environmental controls. Small wonder it is difficult to achieve within an undulating green in the open, let alone across 18 greens in different environments, possibly with differing rooting environments.

I would suggest the effort needed to achieve this uniform condition is more often than not underestimated and the demands of it are unlikely to be understood by many golfers. Of course, not only is the soil moisture important for optimal growth but it is also critical in producing the desired putting surface characteristics.

CLIMATE CHANGE?

Whether this is occurring or not seems to remain under debate. Various elements of the weather records continue to be broken and most greenkeepers comment on ‘un-seasonal’ weather in recent years. This is supported by national weather records, but we would recommend all clubs keep their own weather records to be able to make comparisons. Importantly, it is then possible to identify how often and under what rainfall conditions a green may become inundated and out of play but in addition it is possible to monitor irrigation needs.

INfiltration Rates

These will probably vary across individual green surfaces as well as between individual greens, as a result of variation in rootzone depth, compaction and thatch accumulation as examples. The amount of moisture that penetrates the surface will depend on elevation within the green and the gradient or slope of the surface. Thus in heavy or persistent rainfall, surface moisture, which does not readily penetrate the surface, will gather, migrate and collect into the lowest area. If sub-surface drainage is inadequate this water may persist for a long time. In some circumstances evaporation alone will remove it and dry the surface, hence the importance of good air movement across the green and freedom from shading.
Too Wet, Too Dry - Soil Moisture and Your Greens

DRYING OUT
Water falling on the surface will accumulate in the soil/rootzone to the point of 'field capacity', after which excess moisture should be lost into the subsoil or drainage. The microclimate of the green will affect how much moisture can be lost by evaporation from the grass surface and transpiration from the plant. Thus, aspect, slope, exposure, shading and elevation are the types of factors that will influence the loss of moisture and possibly the amount of water which naturally lands on the surface.

The effect is invariably different in winter and summer. Factors such as exposure and a south or southwest facing slope would be advantageous on a poorly drained site with high rainfall, whereas such attributes might present problems of excessive drying in summer on a well-drained site. Thus the features which can be helpful in winter may lead to a reduced tolerance to lower soil moisture in summer and a greater need for irrigation water.

SOIL MOISTURE DEFICIT
As a measure of the 'dryness' of the soil, this will vary at a particular time of year according to soil type and pore size distribution, apart from locality and elevation. We can expect differing soil moisture conditions across individual greens, and between greens, as the soil dries within the rooting depth as well as at the surface. These differences potentially become exaggerated as the growing season progresses unless skillfully corrected. Depending on the locality and the soil or rootzone, this soil deficit may start to develop as early as April and persist until late summer if the losses of moisture through evapo-transpiration exceed that which falls as rain or from irrigation.

WATERING
Over the last couple of years, and especially this year, according to the locality, dry soil moisture deficit has appeared earlier in terms of its effect on the surface and early growth. In preparing a good surface this cannot be ignored. Two points become paramount if problems are not to develop in the summer when higher soil temperatures are expected:

When standard wetting agents are applied to turf they infiltrate the ground through the force of gravity. Inevitably dry spots are left within the rootzone that will continue to be water repellent.

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1. Elevated and sloping areas, especially on south facing or exposed areas need to be watered as soon as the turf layer, i.e. the top 30-50mm, loses its moisture or the grass shows the first signs of stress. A dry soil will not be cooled by evapo-transpiration and on a hot day the grass can be damaged through heat stress.

2. The soil moisture needs to be monitored regularly throughout the growing season to ensure moisture is maintained to a depth of 100-150mm minimum. Check the moisture on elevated or sloping areas with a soil auger.

Selective and thoughtful watering allows the pop-up irrigation input to be kept to the minimum. This in turn allows for the overall preparation of more consistent putting surfaces, especially after summer rainfall. Such practice will support better root development and allow the greenkeeper to present drier surfaces over the growing season. Hand watering is time consuming but essential in achieving these aims, even more so if the pop-up irrigation is inefficient or affected adversely by wind.

SOIL MOISTURE UNIFORMITY

This in essence is another way of looking at the soil moisture in the greens, in that the aim is to balance this out by aeration and drainage techniques in low-lying parts of the green in the autumn and winter to remove excess moisture; and through selective watering of elevated and sloping areas in spring and summer. Take account of day length and average temperatures, holding back on overall irrigation in late summer, i.e. from August, to leave some soil moisture deficit to ‘mop up’ increased rainfall in the autumn.

Keeping a soil moisture surplus and deficit chart for each green, backed up by observations noted as to when stress symptoms in relation to deficit occurs, is a useful, simple start point when considering soil moisture levels and their repercussions. Your soil moisture surplus/deficit chart will record precise ‘moisture inputs’ from rainfall and irrigation and the ‘moisture outputs’ from evapo-transpiration - the latter can be obtained from local agricultural centres.

KILL OR CURE

Horticulturists and gardeners recognise the problems of over or under use of water, as must golfers and greenkeepers. It has been said before, but it will not hurt to repeat the sequence, that poor surface drainage and over irrigation will lead to thatch ridden turf, dominated by annual meadow grass, and this turf will present a poor, slow putting surface but also will demand more irrigation due to poor root development. This starts the greens on a slippery slope to major problems.

Given the extremes of weather and demands of the golfer, balancing moisture levels near to the ideal across each green, over the 18 greens and through the year will place a large demand on expertise in maintenance on all courses, a need to improve drainage where this is inadequate, and to achieve critically effective watering practice - it is total ‘soil moisture management’ which has the greatest potential to facilitate the preparation of the best putting surfaces.
A Tribute to John Moffatt

John Moffatt passed away recently, aged 66, after a short illness and he will be sadly missed by all who knew him.

Born in Edinburgh, John moved to St. Andrews as a boy in 1947. Naturally, John took up the games of golf and rugby while at school and this is where his love for the outdoors and wildlife blossomed. After leaving school John headed back to Edinburgh to study Veterinary Science at the Royal (Dick) School before joining the Black Watch Regiment for the duration of his National Service. Again he was at times stationed in Edinburgh and one of his duties was to guard the main gates at Edinburgh Castle where on one day no one got through John without a proper pass!

Eventually his love for the outdoors took him back to St. Andrews, working for the town council and this is where the foundations were laid for a career in greenkeeping. Further moves to Stoke Poges, Lanark and Arbroath followed, all as Head Greenkeeper and since 1979 to Scotscraig in North Fife, where John had prepared and presented four Final Open Qualifying events for St. Andrews. John served on the committee for the North Section of the then SIGGA also.

John’s retirement from greenkeeping came about in early 2002 and he had spent much of his time walking the links courses with his dog, Mac, and playing golf with his companions. John’s knowledge of wildlife, especially birds, butterflies and flowers, was always evident. He was also a long-time member of the St. Andrews Golf Club and last year, after 50 years, he was presented with a gold medal from the Club to commemorate this.

His late claims to fame were that he won the family foursomes with three different family members. In 1998 he won the local and hotly contested Bing Crosby Tournament, the JK Wilson Trophy, his wife was St. Regulus Ladies Captain and his daughter won the Scottish Ladies Amateur in that same year.

We pass on our condolences and best wishes to his wife, Ann, and his daughter, Elaine.

George Paterson, Course Manager, Scotscraig Golf Club

What makes a Consultant a Consultant?

I would like to offer a response to the recent letter in February’s GKI, name and Club withheld, in answer to the above question.

“There is no doubt that the level of professionalism and qualification within the greenkeeping industry has never been higher, suggesting that: “We do not have specific standards for Consultants”.

In January 2002, a Register of Independent Turfgrass Agronomists (RPTA) was compiled to clarify the position of those Consultants in the industry able to supply independent advice and who meet the Registers’ criteria. The criteria were carefully considered to ensure the client would receive advice from an appropriately qualified and experienced advisor in the field.

They include the need for applicants to hold a recognised plant or earth sciences first degree; recent experience must include at least four years’ post qualification, acting as an Independent Consultant in the Turfgrass industry and have no association with any commercial organisation. Consultants, or their employer, must also have and maintain insurance, including Professional Indemnity insurance that satisfies the requirements of the Register Administrator.

There are many other Consultants in the field, including some associated with particular suppliers and manufacturers and the omission from the Register of any consultancy is no indication that it does not provide an excellent service.”

Andy Cole BSc (Hons), MBPP, Keeper of the Register