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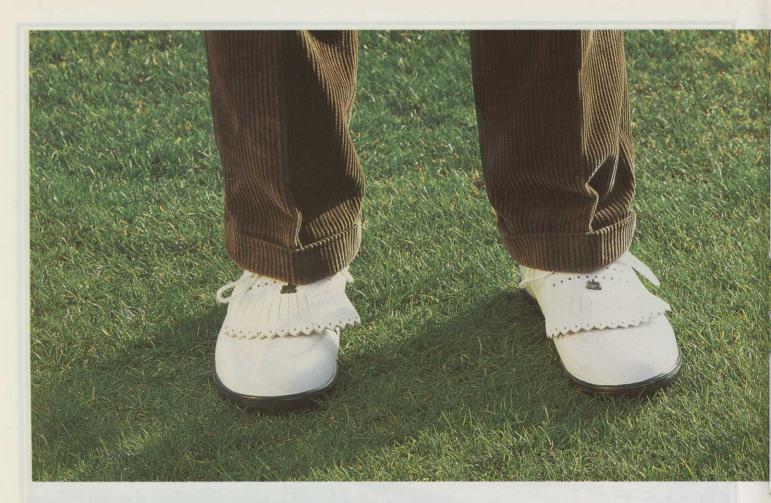
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• From Page 30

using the higher features and margins in winter has a dramatic effect on spreading wear, not only over the whole putting surface but also influencing entrance and exit routes.

Where space allows, the provision of alternative tees off line and in front of existing areas has distinct advantages, proving invaluable for resting and renovating the well worn summer routes from green to tee and tee to fairway. In a similar way, skillful siting of winter tees With the obvious pathway re-turfed, a simple roped detour offers no great hardship can bring alternative fairway landing zones into play. Where space for alternative teeing ground is not available, look to be extending and re-levelling existing tees which will help to spread wear by providing extra area and, when associated with an increase in width, allow for additional lateral movement of tee markers. Where a path is mown out from the tee through the carry to the fairway, it is good policy to change the line during the winter months and thereby, alternate traffic flow.

With increasing levels of play during the winter period and little frost and snow over the last three years, there is an increasing chance of a significant degree of damage occurring through the autumn to spring period. With limited grass growth recovery capacity due to the weather and ground conditions and the curtailing of routing maintenance work, it is important that winter play is strictly controlled, especially on the greens. During adverse weather conditions, primarily frost, there can be a requirement for temporary greens, even taking into account the aim of playing on the putting surfaces for as long as possible throughout the year. However, temporary greens are never popular with members, but if golfers accept that as winter golf is normally less competitive and there is only slight inconvenience caused when playing to temporary greens of a satisfactory standard, then putting surfaces on the main greens can be preserved for the competition season, when they are expected to be at their best. The key to winning over golfers is to prepare separate, good quality, temporary greens (say 100-200 square metres) well in advance and some distance away from the main putting surfaces.

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precision cutting by allowing the operator to select a consistent ground speed while maintaining a constant, even clip.

This another course of action which be instrumental in changing the pattern of wear.

One bone of contention that comes up every winter is the question of trolley use. The change from narrow to wide-wheel trolleys did help to relieve the extent of turf damage to a degree, although with the increase in volume of traffic and the proliferation of heavier, powered trolleys, the problems of wear are now increasing again, notably under wet surface conditions in the late autumn and through the winter months. The main drawback to trolleys is that they are usually confined to the same traffic routes. Re-routing can overcome some of the difficulty, yet golfers should be encouraged to carry their clubs during the winter months. Using a reduced number of clubs in a 'pencil' golf bag without the attendant suitcase of accessories that the larger bag affords should be practicable for the vast majority of golfers without significantly diminishing the enjoyment of the game. By this means, members and visitors will be able to circumvent obstacles with less difficulty and traverse the putting surfaces and adopt a much wider range of traffic routes. Indeed, a ban on trolleys would prove most effective through the winter months, say December to March, when the surfaces are most vulnerable.

Extremes in weather patterns, mild winters and increased levels of play as well as the introduction of heavier trolleys have all contributed to the increase of traffic on the vast majority of golf courses. This has led to worn turf surfaces and compacted soils and so it is vital that all head greenkeepers adopt an ongoing pol'The change from narrow to widewheel trolleys did help to relieve the extent of turf damage to a degree, although with the increase in volume of traffic and the proliferation of heavier, powered trolleys, the problems of wear are now increasing again...'



icy of spreading wear and maintaining good soil conditions and grass composition. Preventative aspects are also very important, eg. initial design. Establishing cooperation and channels of communication between committees, golfers and green staff is also vital, so that the objectives behind decisions taken and work completed are appreciated by the general membership and hence, increase the chances of co-operation. This aspect will be particularly important in the immediate future as the implication of increased usage is greater wear and tear.

Stuart Ormondroyd is an Advisory Agronomist with the Sports Turf Research Institute.





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Spring Turf Maintenance

he two courses of The Berkshire were built on 460 acres of open heathland in 1928, the architectural creation of W H Fowler, Harry Colt and Tom Simpson. Since that time there have been few alterations save those made by nature, with this shown as an abundance of trees lining the fairways and surrounding the majority of tees and greens. These are mostly Pine, Silver Birch and Sweet Chestnut, 90% of which are nature's own planting.

These may make the courses look attractive but bring problems such as loss of heather, lack of air-flow around greens and tees and the creation of shade. In addition there are many roots which have encroached upon the course.

In this part of the county the season for visiting parties begins in March and lasts until mid November. We are still mowing greens three times a week in November and cut greens, tees and surrounds weekly until January.

Air-flow restriction around greens means that with mild weather we suffer from fusarium patch. This makes me very careful about top dressing, for if they are smothered and a disease attack occurs the scars may still be visible well into May.

It is worth remembering that soil temperatures begin dropping in September and can remain low, certainly until February or even March. Grass is no different from other plant life and has its dormant period. This period comes – yes, you've guessed it – right at the start of spring.

Golfers have no consideration for soil temperatures and think that as spring begins the grass should begin to grow. They do not understand the thinking behind our programme and often a visitor, when confronted by a working party, will ask 'do you have to do that today, can't it wait until tomorrow'? How nice it would be if golfers had a dormant period to coincide with nature!

Having made my excuses, how do we tackle our spring programme? My answer is with great care. It could be disastrous to



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Spring: in the air and on the greens

force growth and patience must be the watchword, together with gentle assistance given to nature's own development .

Greens aeration is still the most important task, but only if ground and weather conditions permit. Deep slitting $6^{"} - 8^{"}$ until March and light verti–cutting instead of mowing is important, as is sweeping by hand with birch brooms.

We still have thatch, some greens worse than others, with this attributed mainly to poor drainage. Our main tasks are to scarify, hollow tine and brush a top dressing of 80% sand 20% soil before overseeding with fescue and bent, brushing at this time of year by hand. No further deep aeration is done until a further month has passed other than occasional 3" slits.

Our programme starts early in March with the hope that our greens will be in good order by May first when the Berkshire Trophy, a prestigious 72 hole amateur event over two days, takes place. My heart goes out to any greenkeeper who stages a professional tournament at this time of the year.

March also sees the start of priming the automatic watering system. I like to be fully operational by mid March so that any faults can be put right, for I have found that it can take two months for major faults to be rectified, indeed before someone even comes to take a look!

By April the greens need just a little reminder that they should be waking up and over the past years I have treated mine with 2 oz per sq yard of lawn sand. Confident that the

watering system is O.K. I will at no time let my greens dry out for the last thing they need is stress. I am of the opinion that a little moisture now can save a lot of heartache and I water by hand, avoiding flooding.

May is the time I think of applying fertiliser – 8%n organic – and just before application I like to spike to make sure some of it reaches the soil. A fortnight later, just like magic, the sward starts to grow and fill in. Thereafter it's a cut every day, verticutting and grooming. I ask myself, 'is it the fertiliser'? but am sure that although the rising temperature is making the fertiliser react as it should, the real secret lies in the work carried out in autumn and early spring.

I treat my tees in a similar fashion to greens but fairways demand different treatment. Two dry summers has left them far from their best and being heathland we have the problem of an overlay of organic matter, due mainly to lack of aeration over the years. My order of the day is aerate, aerate and, when I think I've done it enough, aerate again. At the moment we are spooning, which is a form of hollow tine. This year we plan to overseed and apply a pre-seed fertiliser. The task order is aerate, light harrow, light scarify, sweep, fertilise, seed after two weeks, spray with seaweed, sit back and watch it growl. Weather permitting these tasks will be complete before March ends.

Another problem we have suffered is that of chafer grubs and leatherjackets. Some areas are soft as the grubs have disturbed the soil below the surface. We plan to put a Cambridge roller over them for, believe it or not, we stand a better chance of killing chafer grubs by the roller weight than by use of pesticides. Of course, this cannot start until the grubs surface from hibernation. Whatever the spring programme you may use I wish you all perfect weather conditions and good greenkeeping.



When

Greenkeeper International[®] asked Bob Moreton, (pictured), Head **Greenkeeper at** The Berkshire, to write about his **individual Spring Turf Maintenance** Programme, we were surprised to learn that in Bob's eight vear reign. despite the luxury of having 36 holes, both Red and Blue courses have remained in constant year round play, Never closed (save for snow) and never having temporary greens imposed on its members, The Berkshire, it seems, thrives on hard work. Bob **Moreton's spring** programme is therefore one where, given good fortune. the ravages of winter and voracious play may once again be restored

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58 produces a firmer surface producing smaller divots.
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DIVOTS

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BIGGA TURF MANAGEMENT EXHIBITION 1991 THE PICTURES

The BIGGA Turf Management Exhibition and Educational Seminar Porgramme is now history, leaving behind it a warm glow of happy memories. Just as history has a habit of repeating itself, so also did this latest event repeat and visibly improve upon previous shows with the luxury of warm, carpeted exhibition halls packed with displays of all that is new and important within the industry. With a positive plethora of workshops, seminars and lectures, those who attended left with a genuine feeling that the British Greenkeeping Industry is alive and well, and seen to be thriving in Yorkshire. If you were there, you'll know what we mean, and if you missed it... be sure you make it next year!

Pictured are members of the industry, who were presented with special awards in recognition of their continued support for the Association





Richard Bishop, Ransomes Ltd, (right) receives congratulations from BIGGA Chairman Ivor Scoones

Taking pleasure from the moment, the ICI Professional team, wreathed in smiles. BIGGA Vice-Chairman George Malcolm is pictured right.



Peter Jefford (right), the powerhouse behind Rufford Top Dress Suplies, is one of BIGGA's most loyal supporters



Lindum Turf have enjoyed long and happy links with BIGGA. Pictured with Ivor Scoones are Stephen Fell and Geoff Hodson



Colin Gregory (right), Iseki's ebullient Sales Director, was in fine form throughout the exhibition



The Kubota sales team look especially pleased to receive their award



Joint Managing Director of SISIS, Roger Hargreaves, was delighted to receive the award from BIGGA chairman Ivor Scoones



Favourably impressed with the Show, Gary Smith and Carl Crome of Maxwell Hart were equally impressed with their award



GREENKEEPER INTERNATIONAL March 1991 39

Note large contact angle Water repellent turf surface Water and wetting agent Note small contact angle **Neil Baldwin, Plant Pathologist at** the Sports Turf Research Institute has been evaluating wetting agents over the last 3 years in both laboratory tests and field trials at STRI. **Catherine York is currently** researching the biology and control of dry patch of UK golf greens, financed by the Royal and Ancient Golf Club of St Andrews. In this article they describe some of their research findings and explain what wetting agents are, how they work and how to make the most effective use of them in greenkeeping practice.

Water repellent turf surface

Water only

Most greenkeepers are familiar with dry patch, a water-repellent turf condition which may develop on golf greens throughout the UK. Research work being conducted at the STRI has been aimed initially at defining the nature of dry patch and investigating the previously implicated causes of this turf condition. A recent survey of over 90 golf courses across the UK has shown the problem to be equally prominent on heathland, links and parkland courses. This appears to conflict with reports obtained from America and Australia, which have shown that water-repellency occurs most commonly on coarse textured sandy soils, as opposed to the fine textured loam or clay soils. Laboratory studies on soil taken from areas of golf greens showing symptoms of dry patch and adjacent unaffected areas have shown that the severity of dry patch in the UK is at least equal to if not greater than that recorded elsewhere in the world to date. Chemical and physical analyses have been completed on soils taken from both dry patch and unaffected areas of golf greens. However, the results obtained have shown no significant differences between the two samples with regard to macro or micronutrient levels, or particle size distribution.

In conjunction with the STRI, recent work at Liverpool Polytechnic using the electron microscope has identified a greater presence of sand grain/organic matter aggregates and fungal hyphae in soil taken from areas of golf greens affected by dry patch, compared with adjacent unaffected areas. The well documented presence of an organic coating on sand grains taken from dry patch soils needs further research to be confirmed in samples from the UK.

The separation and identification of compounds extracted from dry patch and unaffected areas, including humic and fulvic acids, is also being undertaken at Liverpool. Preliminary studies have shown distinct differences between the two soil types but the interaction is to further identify both the native and origin of these compounds.

Other work has indicated that although factors such as thatch, compaction and surface hardness may contribute to the severity of dry patch, they are not important enough problems on the greens studied with the project, for any one to be implicated as the sole underlying cause.

The primary aim of research during 1991 and 1992 is to elucidate the role of fungi in the development of dry patch in UK golf greens. It is envisaged that this work would involve a detailed microbiological investigation into the fungal flora of golf greens.

When combined with results from direct observation and analytical biochemical techniques, the role of fungi in dry patch may be determined. Once the cause (s) of the phenomenon have been elucidated a structural control programme can be developed. Until then alleviation of the symptoms shown in dry patch affected turf can be effected by several methods, including the application of wetting agents, which has almost become standard greenkeeping practice in recent years. However, despite their widespread acceptance in greenkeeping management, their potential benefits when used to their maximum effect are often poorly understood.

What are wetting agents?

Wetting agents, or sufactants as they are sometimes known, are chemicals which improve the wetting properties of water when it is applied to the turf. Golf greens affected by dry patch are extremely water-repellent, i.e. difficult to wet, as can be seen by the turf plugs in Figure 1. If a running hose is placed on the turf surface (Figure 2) plain water is not able to penetrate into the turf surface (i.e. it "beads" up), due to the water-repellent (hydrophobic) nature of the dry patch condition. The application of a wetting agent will assist the penetration of water into turf affected by dry patch.

What wetting agents are available in the UK?

Currently, the greenkeeper is presented with a range of wetting agents which have manufacturers recommendations for use on fine turf. Synperonic NDB, a mild industrial detergent, has been used for many years. Several wetting agents such as Aqua-Gro and Hydro-wet were developed in the USA and have seen widespread usage in the UK. Wetta-soil, recently marketed in the UK, was developed in Australia and New Zealand, where dry patch is a major problem. Turfex is an all-British product specifically developed for use in the UK fine turf situations. Last year saw the introduction of several new wetting agents such as Organiflo, Zorbit and Agriland soil wetter. Thus, there are many different products to choose from when considering a wetting agent application.

How do wetting agents work?

They work in two ways; by reducing surface tension and direct effects on water repellent substances in the soil. The first commonly used