

A SMALLER VERSION

EarthQuake Turfcare launched a 1m wide version of its Tremor rotary turf decompactor to complement its existing 1.5m and 2.2m Tremor models.

Weighing 300kg, the new Tremor 100 requires a compact tractor of 20hp to 30hp, making it ideal for relieving compaction beneath fine or sensitive areas of turf where excessive tractor or machine weight could diminish the beneficial effects of any decompaction treatment.

The new T100 machine follows the same working principles as its larger stablemates. It has 12 rotating wedge-shaped knives which pass through the soil to a maximum depth of 210mm, moving the soil sideways across the full width.

The subsoil cracks and fissures created by this soil movement maintain and promote the passage of essential air, nutrients and water to encourage good drainage and strong, healthy grass growth.

The progressive entry into the turf of the T100's curved knives with their sharp leading edge ensures fast, reliable, economical operation with minimal stress or strain on the tractor or operator. As the knives exit the turf, a full-width, single-piece depth skid prevents the turf from lifting, leaving the surface ready for almost immediate use.

Price of the T100 is £6,400 and demonstrations will be available through EarthQuake Turfcare and its appointed dealers from early spring 2004 onwards. For further information Tel: 01889 271509.



TAKE-ALL BEWARE!

Scotts announced an additional on-label approval against Take-All disease for their new fungicide Heritage at BTME this week.

Heritage has proved highly popular with turf managers since its launch at BTME 2003, due to the unparalleled control of Fusarium disease that the new active ingredient offers. The additional on-label approval for Heritage against Take-All will be equally welcome to UK greenkeepers and groundsmen as it is the only turf fungicide to carry such approval.

Heritage belongs to a new class of environmentally sound fungicides, which have been developed from naturally occurring chemicals found in saprophytic woodland fungi.

Heritage disrupts the mitochondrial respiration of target fungi and prevents the pathogen from transferring energy, leading to the death of the fungal cells.

Application of Heritage offers a long lasting prevention and early cure of turf disease, and efficacy is further enhanced by the products systemic mobility within the grass plant. It is absorbed through leaf blade, crown, root and stem, and moves throughout the plant, via the xylem vessels, to provide total protection.

Scotts also introduced a new organic turf supplement that enhances sward health and vigour through stimulating soil microbial activity. New Greenmaster Blade is an advanced combination of carbohydrate and seaweed technology.

Greenmaster Blade works indirectly, instead of feeding the turf, the carbohydrate and seaweed spray feeds and stimulates the beneficial micro-organisms in the soil surface.

Modern turf management can result in a near sterile environment in the upper inches of the soil, starving the micro flora and fauna and preventing the natural recycling of organic matter into plant nutrients. This has contributed to the increasing problems turf managers experience with thatch build up and conditions such as black layer.

Greenmaster Blade tackles this issue by providing an energy source to reinvigorate the activity of these organisms. The result is an acceleration of natural composting – breaking down thatch and black layer, improving air and water flow into the soil and continually releasing new plant nutrients to the turf roots.

For further information Tel: 01473 830492.

NEW ZERO TURN ARTICULATED ROTARY

Lastec took the wraps off a new fully articulating three deck zero turn ride-on rotary mower at Harrogate. The new mower has an overall cutting width of 72", and the right and left hand 25" wing decks each have 13" of articulation to achieve the highest quality of cut without 'scalping'. Powered by a 28HP Kubota diesel engine, the new machine incorporates the latest developments in Lastec's patented Articulator technology which, since its introduction in 1990, has been proven on hundreds of championship golf courses around the world.

The new machine is an addition to Lastec's established line-up of Articulator. Four other models from the range – selected to demonstrate the versatility of the Articulator concept for all UK and European golf course requirements – were on display. They were:

Articulator 3696 - 4 deck (96") 36HP zero turn ride-on rotary mower

Articulator 721XR - 7 deck (132") tow behind rotary mower

Articulator 621EF - 3 deck (126") front mounted rotary mower

Articulator 325EF - 3 deck (72") front mounted rotary mower



GROWING PORTFOLIO

Headland increased the company's pesticide portfolio with the launch of two new products.

Snare, aimed at the amenity turf market, is a thiophanate – methyl based systemic fungicide, which is active against common diseases such as fusarium patch and red thread as well as dollar spot. It has the added advantage of activity against earthworms and can be used for the suppression of worm casting.

Where necessary, Snare can also be combined with Headland's 'Cyren', insecticide for control of both casting worms and leatherjackets in one application.

Tangent, Headland's new, non-selective, non-residual herbicide is a 450g/litre glyphosate formulation, which carries no hazard classification.

Absorbed by the foliage and translocated throughout the plant and root systems, Tangent is effective on annual and perennial grasses as well as broad-leaved weeds, but inactivated on contact with the soil and rapidly degraded by micro-organisms.

Tangent's high rate of active ingredient means a 20% lower application rate than other glyphosate formulations. Its use is recommended on non-crop areas such as hard surfaces, paved areas, highways and industrial sites, as well as around trees and shrubs in landscaped areas and forestry situations. Tangent is also recommended for aquatic areas.

For further information Tel: 01223 597834.

NEW FROM RANSOMES JACOBSEN

Ransomes Jacobsen launched a new four-wheel drive utility vehicle at the show.

The E-Z-GO ST4x4 turf utility vehicle is powered by an 18hp, 614cc Honda petrol engine, renowned for its quality, reliability and performance, with a top speed of 25 mph. Load carrying capacity is impressive, as at just shy of 500 kg, it can tow up to 540 kg. The rotomoulded crosslink polyethylene cargo bed has a removable tailgate, and can be divided into sections when carrying different materials.

Robustly constructed to meet every eventuality, the galvanised steel frame is hot-wax dipped throughout for added corrosion protection. The front axle is articulated to ensure that the front wheels stay in contact with the ground, especially in steep approach and exit conditions and the McPherson struts allows 11.5cm of travel.

The rugged truck-style front engine cowl can be raised for easy access to the vibration tolerant, maintenance free battery, brake master cylinder and fuse box.

Locking front and rear differentials, dual rate rear leaf springs, hydraulic shock absorbers together with rack and pinion steering provide superb traction and handling. Standard 63.5cm self cleaning tyres provide 24cm ground clearance and 135cm wide wheel base all contribute to the ST4x4's excellent stability and manoeuvrability.

Another debutant on the Ransomes Jacobsen stand was the Iseki TH 4330 Hydro compact tractor. This new machine is powered by an Iseki E3CD, 3 cylinder clean burn diesel engine with a displacement of 1498cc and developing 32 ps at 2600 rpm.

With a 30 litre fuel tank (23 litre main tank and seven litre reserve) and 1,100kg lifting capacity, it's ideal for heavy work over long hours.

Unique to this new machine is the smooth acceleration from the HST pedal. All control levers are side mounted while the contoured nose provides a clear view to the front of the machine. Hydrostatic transmission allows stepless speed selection in both forward and reverse.

A flip-up bonnet allows easy access to all components for daily maintenance, with servicing points kept to a minimum and all within easy reach. Standard features include a mid-mounted pto, folding ROPS, EC approved lighting and number plate light.

The TH 4330 Hydro is the first in a new range of Iseki tractors and will be followed shortly by a manual transmission derivative and two machines with slightly reduced power ratings, the TH 4260 and the TH 4290.

For further information Tel: 01473 270000.



▲ E-Z-GO ST 4x4 utility vehicle

▼ Iseki TH 4330 Hydro compact tractor



LAG MOWER

Designed primarily for golf and amenity turf applications, the four wheel drive 1905 lag mower features a new Yanmar 43hp four-cylinder diesel engine and hydrostatic transmission. Initial production models will be fitted as standard with John Deere's established ESP (extra strength & precision) cutting reels, which are particularly popular with golf course users.

This new mower will also be available with a luxury Mauser cab, with integrated air conditioning and new armrest controls. It has a total cutting width of 3.45m, and can travel at speeds of up to 15.5mph on the road, or 8mph when mowing.

Tel: 01949 860491.

NEW LAUNCH FROM HAYTER

Hayter chose BTME for the launch of their new small triple, the MT313. Designed to cope with a variety of applications and conditions, the 20hp, 3 wheel drive MT313 is ideally suited maintaining fine turf on golf courses and sportsfields as well as cutting in demanding municipal applications.

Excellent traction is achieved with a unique transmission system which ensures drive to a minimum of two wheels at all times. The three US interchangeable cutting units are also powered hydraulically through direct drive motors. The standard machine is supplied with single lift control for raising and lowering all units simultaneously. Individual lift for each unit is available as an option.

Designed for a variety of applications there are a number of options available including a flashing beacon, working lights, grass catchers and arm rests. The seating position gives the operator maximum comfort and excellent visibility to both the cutting units and drive wheels. The operating platform can be raised for routine maintenance and the centre unit, always the most difficult to maintain and adjust, swings out from under the chassis for easy access. These features are unique to a machine of this type.

For further information Tel: 01279 723444.



Amenity Update

TIME TO APPLY TIME TO APPLY

Simply purchase any of the Amtec Fertilizer Spreaders featured and receive a Casio **G-SHOCK** watch



Offer ends 30th March 2004

New organic fertilizer from



Sustane 8-2-4 is the new 100% natural organic fertilizer with the highest nitrogen of all the natural organic range.

Sustane all natural 8-2-4 is supplied in 22.7kg bags and is applied at a rate of 20-45g per square metre.

All organic fertilizers are not alike

In fact all organic fertilizers are not always all organic

In recent years natural fertilizers have become more sophisticated in their capacity to deliver benefits to soils and turf that straight synthetic or conventional fertilizers cannot. Application of certain organic fertilizers affords a more gentle feeding mechanism to the plant, more resistance to plant fungal diseases, an increase in soil cation exchange capacity and water holding capacity and a potentially reduced negative impact on the surrounding environment. Recently, the popularity of organic and natural fertilizer use has increased so significantly that the cultural (or economic) phenomena have led to a plethora of types and brands to select from. Are the many different so-called organic fertilizers all really the same thing and indistinguishable from each other? No. They are most definitely not.

In the USA, for a fertilizer to be labelled as "all natural" 100% of the N-P-K parent material and 100% of the product mass must be derived solely from plant, animal or naturally occurring - and unadulterated mineral materials. The truth is therefore that very few "organic" products are organic. By comparison, in order for a fertilizer to be labelled as "natural base", then greater than 50% of the N-P-K parent material and greater than 50% of the mass must be derived solely from plant, animal or naturally occurring - and

unadulterated mineral materials. Even with this more relaxed definition, very few "natural" fertilizers are truly natural based. Consequently, if you are presented with a label or product that claims to be an organic fertilizer, first check out the nutrient concentration. If the combined value for the total N-P-K much exceeds 15% or 16%, it is highly unlikely that you are looking at an all-natural material. Concentrations much higher in combination N-P-K natural products just do not exist (mined naturally occurring Sulphate of Potash, 0-0-50 being an exception). If your nose can detect ammonia in the product, the material is still in a volatile state and much of what you apply will be lost to the atmosphere. Is the product dusty? Fine particulate has the tendency to blow away and miss the target. It also lends itself to generating complaints from neighbours who are always wondering what kind of concoction you are applying.

To save time in identifying 'real' organic product just look for the name Sustane - the product will be exactly what is says on the bag, IN BIG LETTERS!

	2003 Price	2004 Price
Sustane 10-2-10 Fine with Nutralene	£31.35	Now £25.25
Sustane 10-1-4	£27.50	Now £21.25
Sustane 18-1-18 Medium	£28.00	Now £22.50
Sustane 16-2-6 Medium with Nutralene	£32.10	Now £24.50
Sustane 4-6-4 Medium (OMRI)	£20.85	Now £17.95
Sustane 5-2-4 Fine (OMRI)	£22.20	Now £18.75
Sustane 5-2-10 Fine	£25.20	Now £20.75
Bio Grounds Keeper (BGK) Fine	£34.50	Now £23.75

Price per 22.7kg bag.

* ADVERTISING FEATURE *

Sandtrapper bucking bunker break-ups

Hi-Tech materials are finding their way onto the golf course, MARK WHEELBARROW discusses their relevance to bunkers.

'It's a competitive world out there', 'We must make playing our golf course a memorable experience.' This probably sounds all too familiar to most greenkeepers and it's probably not news to him that things could sometimes look better on his course. Traditionally greens have been the major focus when considering the standard and appearance of the course and the focus of attention directed accordingly.

Other things have been overlooked or at best been of a lower priority - one of these being the upgrade of shoddy and



ragged bunkers. A new product from Amenity Technology is set to change all that - 'Sandtrapper' will revolutionise bunker renovation and construction across Europe. Problems often associated with bunker construction and maintenance are sand contamination, washouts and sand migration from steep faces. Many geotextile products currently on the market aren't really up to the job and often cause more problems than they solve. Even the old traditional method of upturned turfs can cause problems with weeds, sand contamination and drainage. Keeping sand on steep bunker faces can prove particularly problematic and consume valuable time constantly having to push sand back up the face.

Sandtrapper is a new geotextile designed especially for bunker construction. Its unique advanced polymer weave traps the sand within the matrix of the fabric giving superior sand retention, virtually sticking the sand to the bunker face. Once installed, Sandtrapper forms a barrier between the sand and sub-surface stabilising the bunker sand giving improved water flow and eliminating washouts and contamination.

Sandtrapper One is designed to line the base of the bunker and Sandtrapper Two with it's coarser polymer material it will hold the sand in place on steep bunker faces and reducing the risk of washouts.



Hydroseed when YOU want!

'Hydroseeding', the much heralded and greatly anticipated seeding solution comes to the UK. Hydroseeding has become second nature across the United States in most market sectors, unfortunately the equipment is largely designed for the massive scale projects such as motorway verge sowing and prairie agriculture thus making it unviable for smaller operations such as golf courses and amenity contractors. HYDROMULCH LTD is a new company. What HydroMulch does is bring a smaller, more economical machines to the market that every golf course can afford and every contractor should afford.

The HydroMulch Series 200S and the larger Series 400T make hydroseeding of:

- Tees
- Bunker Faces
- Goal Mouths
- Pathways
- Heavy Wear Areas
- Renovation
- Drainage Lines



economical and at price you can afford, with a range of products to help you achieve the perfect result.

HydroMulch Series 200S



HydroMulch Series 400T





NEW



New to our range of litter bins for 2004 is the **Green Mounted Litter Bin with Lid** £42.50

Mounting bracket for litter bin £34.95



The Rustic Wedge Tee Marker is made from recycled plastic and has approximate dimensions of 100mm diameter x 105mm tall and comes with a 40mm spike. These can also have your club logo or sponsors details added or plain in blue, red, white and yellow.

Tee Marker Plain £7.25
with Logo £9.25

The Measured Multipin will help you when it comes to your nearest the pin competitions. No more need to use tape measures the distance is on the pin.

2 mtr Measured Multipin £33.50
Available with UK or USA ferrule



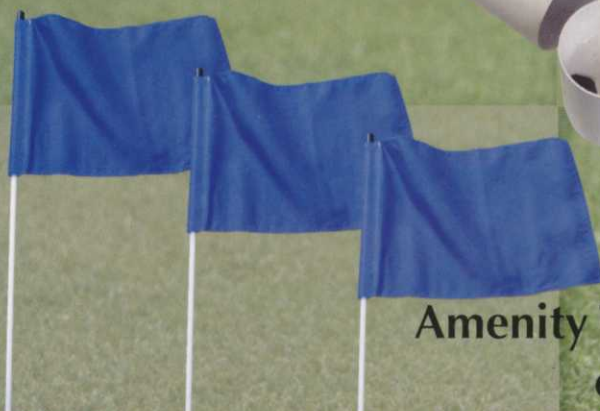
First Impressions Count

BETH MCGUIRE takes a look at golf course furniture.

It doesn't take a genius to work out that first impressions do, indeed, count. That is true in all walks of life, whether it be shiny shoes or a golf course. It's such a shame to spend a few million building a golf course only to spoil it with a bad paint job. And that in essence is what golf course furniture is - a paint job. If your golf course is a classic MacKenzie design from the last century or a 1990's pay and play, there is at least one inalienable truth; you are in competition with other golf facilities and any advantage you can take will be important. A ball-washer will not improve the strategy of the golf course or the standard of maintenance but it will improve the overall experience that golfers (your customers) will enjoy. If the litterbins are handily placed and numerous then the litter will not become a 'moveable obstruction' in the rough. There is a new breed of golfer out there; this 'smart golfer' has a greater choice of courses than ever before. He is looking for quality, value for money and an all-round experience that will guarantee a return visit. Certainly doing all the standard things (maintenance of the course and courtesy of the staff) will be the major effort. The smaller things though will be, perhaps, even more remembered - maybe even subliminally - customised flags give the impression of pride in the course, a feeling of being part of something very special. Tee markers of quality and visible distance markers make a golfer feel that they are the important person in the set-up, that they are valued. Finally, consider what every golfer will, eventually, make contact with - the hole cup. An undying memory for anyone that has played an awful golf course is the hole cup coming out of the hole with the flag - this will not bring people back to your course, a bright white, snug fitting and unworn hole cup will go unnoticed - and that is exactly what it is supposed to do.

SPECIAL OFFER

Simply buy any 18 flagpins
18 flags & 18 holecups...



from the
new 2004
Amenity Technology
catalogue...

and receive
**60 Silver Streak
rakes free of charge
(worth £477.00)**



Offer ends 30th March 2004

Top agent on 'wasting water' case

The unprecedented heatwave of 2003 brought the problem of hydrophobic soils to the fore once again. STUART ASHWORTH reports on the history and the future of that most invaluable turfcare tool, wetting agents.



The summer of 2003 was a prudent reminder of the problems associated with long periods of hot dry weather. Dry patch and heat-stressed turf were a problem for a number of turf managers throughout the UK. This problem is magnified where there is a significant amount of thatch and the soil has become hydrophobic (water repellent). Wetting agents work by lowering the adhesive and cohesive forces of water, a property known as 'surface tension'. Lowering the surface tension of water allows it to penetrate into hydrophobic areas where normally it would be repelled.

There are two main groups of surfactants used in the turf industry and these can loosely be termed preventative and curative. Preventative surfactants are applied to the soil before the onset of dry patch and have a long term residual action. Monsoon wetting agent contains a plant based surfactant which gives up to six weeks control when applied at 20lts per hectare and up to 12 weeks control when applied at 40lts per hectare. Where applications of liquids may be a problem, Monsoon is also available in granular form and is easily spread through a conventional spreader. Monsoon Granular uses a unique paper carrier which is also biodegradable. The paper carrier absorbs the Monsoon wetting



NEW IMPROVED
Drencher Drop & Go Gun, ideal for applying the Drencher Drop & Go Pellets to localised dry spot, hydrophobic and hard to reach areas.

agent giving low scorch application as well as longer residual activity. Monsoon Granular should be applied at 10g per m² for up to 6 weeks control.

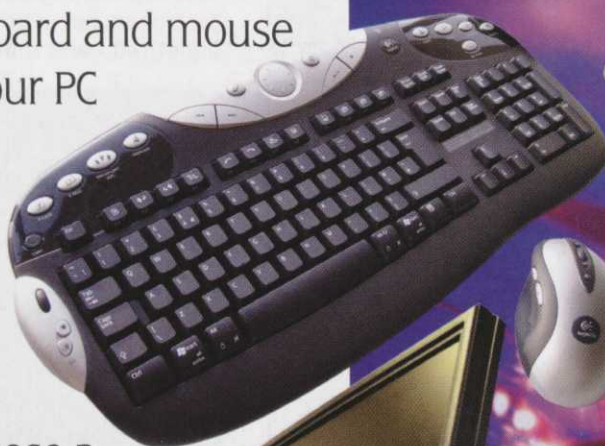
Curative wetting agents are a different type of chemistry altogether and are generally non-residual. Once soil and organic matter has become hydrophobic it can be very difficult to re-wet. Curative surfactants are extremely effective at reducing surface tension of the water they are mixed with but have very little long-term effect.

Drencher GXL is a new generation silicone based surfactant which gives rapid penetration of hydrophobic areas. Drencher GXL can be applied at 1ltr per hectare on fairways, surrounds and outfields. If used on greens it can be applied directly with a Pro-Ap gun.

Once applied, Drencher GXL should be followed by an application of Monsoon to help prevent reoccurrence.

You have a hands free phone, now receive a cordless keyboard and mouse for your PC

Purchase 2 x 10lts of Monsoon Liquid to receive a Logitech Cordless Keyboard, Mouse and Recharger Mouse Holder Free of Charge



or choose a 17" Flat Screen Monitor when you purchase the new Drencher GXL Super Surfactant & Soil Penetrant.



Simply purchase 10 x 1lt of the New Drencher GXL to receive a 17" Flat Screen Monitor

Offer ends 30th March 04



For further information on any products please contact Amenity Technology Ltd.

ALL PRICES QUOTED ARE SUBJECT TO VAT

5 Arkwright Road
Reading
Berkshire
RG2 0LU

Tel: 0118 931 1111
Fax: 0118 975 0344
Email: info@amenitytechnology.com
Web: www.amenitytechnology.com

* ADVERTISING FEATURE *

Fusarium patch, Microdochium patch or Pink snow mould?

TORO Count on it.

Dr Kate Entwistle looks at a problem which has been afflicting a number of golf courses in recent months

Fusarium patch still remains the most common and widespread fungal disease problem of cool-season amenity turf grasses.

The past few months have seen severe and prolonged outbreaks of this disease developing extensively, even on swards that have received several prior fungicide applications.

WHY SHOULD THIS DISEASE BE SO PERSISTENT?

To try and understand the reasons for the development of fusarium patch, and its apparent disregard for our management efforts aimed at preventing it, we need to look more closely at the fungus that causes the disease.

WHAT IS ITS CORRECT NAME?

The fungus *Microdochium nivale* causes fusarium patch disease. This same fungus used to be called *Fusarium nivale* and it is this 'old' Latin name that gives the disease its generally accepted common name of fusarium patch.

There are many different species of fungi within the genus (or group) *Fusarium* and several of them are able to cause disease on turf grasses.

Fusarium nivale was, however, found to differ sufficiently from all other *Fusarium* species that it was eventually renamed *Microdochium nivale*.

Some people now refer to the disease as *Microdochium* patch but, in general, the old name for the diseases has been retained.

Microdochium nivale is a cold-loving fungus that is able to grow between 1C and 10C. It is possible for the fungus to grow at temperatures above this range but as the temperature increases, its rate of growth will decline.

Some strains of this fungus have been found to grow at temperatures below freezing and it is therefore clearly well adapted at causing damage under cold, wet conditions.

The fungus needs the presence of a water film in which to grow and infection of the turf grass plant takes place only after a prolonged period of leaf wetness.

Cool, wet weather will promote the onset and development of this disease but it has been found that periods of frost interspersed with cold, wet weather, offer the ideal conditions for fusarium patch disease to flourish.

All turf grasses are susceptible to infection but annual meadow grass is known to be the most susceptible of all cool-season grasses.

*Continue
to learn*

Pink snow mould, as the name suggests, is the name given to the symptoms of disease caused by this same fungus, *Microdochium nivale*, as revealed following snow melt.

Over recent months, I have seen many cases of fusarium patch disease in which the fungal mycelium has developed on the surface of the affected turf, generally around the perimeter of the affected patches (Figure 1), encouraging many turf managers to assume that they have pink snow mould developing without snow cover.

The fungal mycelium is extremely pale pink in colour but when it masses together on the surface of the sward, it can appear distinctly pink in colour (Figure 2).

High relative humidity will encourage the growth of the fungus on the surface of the sward but strictly speaking, the disease is still fusarium patch and not pink snow mould.



Photo: Peter Jones Associates Limited

▲ Figure 1: Recently seen symptoms of fusarium patch



▲ Figure 2: Pink mycelium of *Microdochium nivale*

At the end of the day, the common name that we give to the symptoms of disease is far less important than the correct identification of the fungus that causes it.

Microdochium nivale is a fungus that lives predominantly as a saprophyte, living off the decaying organic matter at the base of the sward and in the root zone.

It is not a very specialised fungal pathogen and despite the potential extent and severity of disease outbreaks, the fungus needs to be given the opportunity to infect the turf rather than being able to forcibly enter a healthy plant.

By understanding the conditions that favour infection and disease development, we can adjust our management of the sward such that these conditions are minimised.

The most effective way to manage fusarium patch is to try and limit the onset of the disease. What is imperative is that the disease is spotted in the early stages and not when you see the textbook symptoms appearing on the sward.

If the disease has advanced to this stage, it will be much more difficult to manage and disfiguring scars become more likely.

In the early stages of infection, the plants may become very slightly paler in colour but the first sign you are likely to see are small (2cm diameter) patches of dark brown leaves that will also be noticeably water-soaked (appear wet and somewhat translucent) (Figure 3).

If the disease is not controlled at this stage, the infection can rapidly intensify and the crowns can become infected. Once this has occurred, the turf will take much longer to recover since new plants will need to grow in or establish from seed, to replace those that have been killed.

Therefore, it may not be until the spring that swards show significant recovery from severe winter infections.

PREVENTATIVE MEASURES THAT SHOULD BE EMPLOYED

The maintenance that is required to limit disease on individual courses will vary considerably depending on factors such as the specific root zone conditions, local environmental conditions, the sward composition and nutrient input, to name but a few.

Since the fungus grows most actively in cool, wet conditions and is more aggressive on weakened swards, maintenance practices should be aimed at reducing surface moisture and encouraging a strong, less susceptible sward, especially going in to the winter months.

Any moisture on the sward will encourage the growth of this fungus and so removing dew whenever it forms will be of benefit in reducing the onset of infection.

It is possible to move fungal spores across a sward by the practices involved in removing dew but it is not the presence of the fungus that is the limiting factor in disease development but the presence of conditions in which the fungus can grow. Therefore, moving the fungus about will not in itself encourage greater disease development. Keeping the dew on the sward certainly will.

It is also important to check the root zone for any problem with surface drainage. Many of the turf samples that I have received over the past year have shown root zone problems that have resulted in the base of the sward and the thatch remaining wet.

These include thatch build-up and layering of the surface profile or deeper root zone problems that prevent effective movement of water away from the base of the sward. Not only careful maintenance of the root zone but also increased surface air movement will reduce the period of leaf wetness and therefore reduce disease development.

Weakened turf and especially plants that have received excess nitrogen, are much more susceptible to attack by *Microdochium nivale*.

This is due to the fact that their cell walls are much thinner and are much more easily penetrated or damaged and therefore allow more rapid disease progression. Careful monitoring of nutrient input is one of the key factors in promoting a strong and healthy sward that will be less susceptible to infection.

Again, the amount and type of nutrient that needs to be applied will differ from course to course but it is worth keeping in mind that adequate potassium availability has also been shown to help reduce disease severity.

Keeping pH levels constant and at a suitable level for the sward composition, can also reduce the likelihood of this disease. When included in a fertiliser programme, acidifying fertilisers can be used to maintain or adjust the root zone pH.

WHY FUNGICIDES APPARENTLY DON'T WORK

If an approved amenity fungicide is applied as per the label instructions and at the correct time with regard to disease development, the fungicide should provide the extent and duration of protection or control expected.

Over the recent few months, I have received numerous telephone calls asking why fusarium patch disease is still active on the course even after several fungicide applications have been made.

There are many reasons why efficacy may appear to be lower than expected. Timing of the fungicide application is crucial. If a product is applied too far in advance of the environmental conditions that would encourage the disease to become active, as much of the product may have been lost and the relative amount available to control the eventual disease outbreak, is actually much lower than that needed.

In addition, applications of systemic products that may have shown lower than expected results, have invariably been found to have been applied at low water volumes.



If systemic products are to be taken up via the roots, the product needs to get to the roots and so, although reducing the water volume in the tank may mean a reduction in the time required to treat the course, it may also mean efficacy is being compromised.

Tank mixing of products to reduce overall application times can also affect efficacy and should only be considered if label recommendations allow it.

If systemic products are being considered for application, the growth rate of the plant must be borne in mind. If there is little growth in the sward there will be little movement of the product around the plant and therefore efficacy may again be reduced.

Quite often, however, a fungicide application may have appeared to be less effective than anticipated because, after several weeks following the treatment, the disease is still visible.

Fusarium patch scars can take a long time to grow out, especially if they have developed to the stage shown in Figure 1. Since there is little growth of the plants during the winter, recovery will naturally be slow.

If the scars are still apparent but the patches are not getting larger and no further patches are developing, the fungicide has worked as well as any product can under winter conditions.

The fungicide will have stopped the present infection and also offered some protection to the rest of the sward to prevent new outbreaks from developing.

There are no reports in the UK that fungicide resistance has developed to this disease although, in theory, it is possible to find resistant strains of the fungi if fungicides are used inappropriately.

Over use of certain groups of fungicides could lead to short term resistance developing in the fungal population.

By stopping applications of these active ingredients, the fungal population would eventually return to being susceptible and these actives could again be used effectively.

Other fungicide groups could, however, lead to a lasting resistance not only to the specific product applied, but also to all fungicides with active ingredients in the same chemical group.

Should this occur, these fungicides could never be used effectively in that location again. Fungicides must be used carefully and wisely and as stated on the label, if resistance is to be avoided and efficacy is to be maximised.

ENCOURAGE A HEALTHY ROOT ZONE

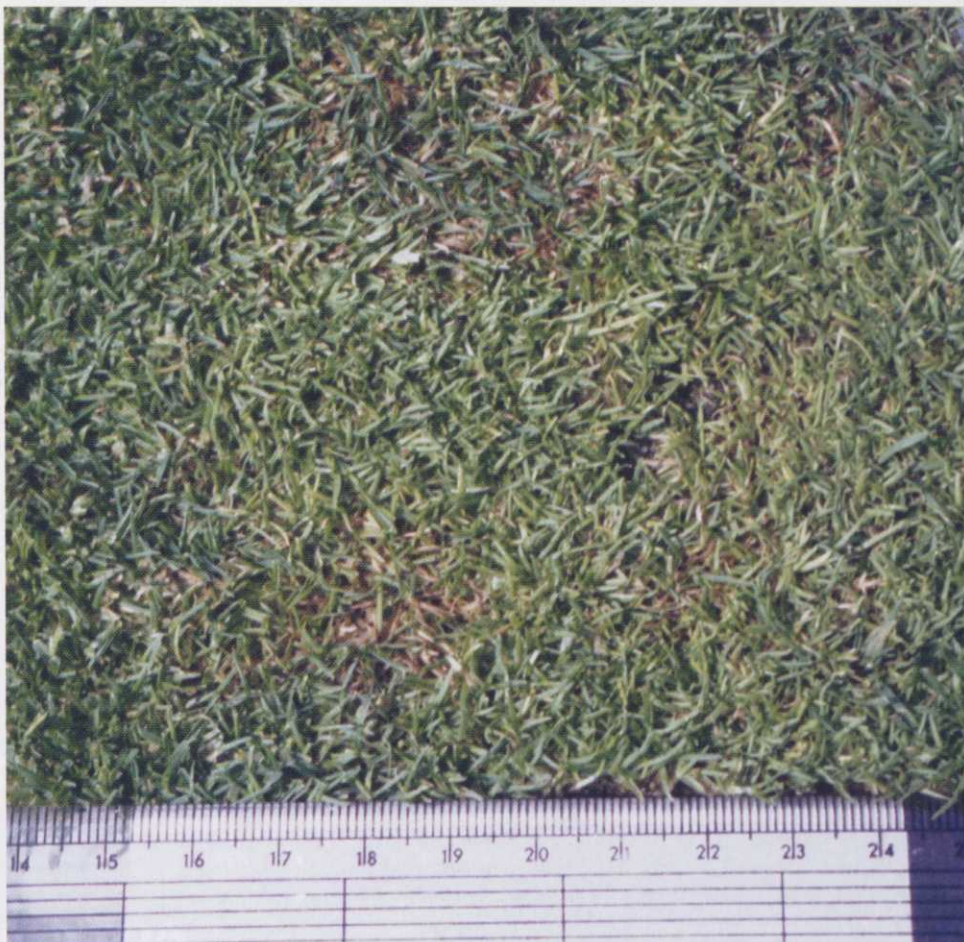
Microdochium nivale is, as I mentioned earlier, primarily a saprophytic fungus. It lives in the root zone and in plant debris until the conditions allow it to cause disease.

If we can encourage and increase the microbial diversity in the root zone and thatch, the relative amount of organic matter on which this fungus can grow as a saprophyte, will be reduced.

Natural competition between this fungus and other micro-organisms can play a huge role in controlling the severity and incidence of fusarium patch.

To achieve this requires careful day to day management and hopefully the rewards for hard work on aeration, balanced nutrient input, scarification, improvement of surface drainage and so on will be seen through the winter with much reduced levels of fusarium patch disease.

Dr Kate Entwistle, The Turf Disease Centre, Waverley Cottage, Sherfield Road, Bramley, Hampshire RG26 5AG. UK
Tel: 01256 880246



◀ Figure 3: Early symptoms of fusarium patch disease

On yer Bike!

Roland Taylor looks at the range of utility vehicles which you ride on rather than in

On average courses the amount of time travelling from A to B, over a 12-month period, can be considerable. When looking at ways of making an operation more cost-effective, any machine that can reduce this unproductive time is worth consideration. ATVs fall into this category. Their benefit lies in the fact that they can virtually transverse any terrain. This makes it possible to reduce the distance between sites thus increasing the time spent on the job.

A wide range of attachments is available and these increase the machine's versatility. One example is a sprayer attachment. An ATV fitted with this particular unit is fast and lightweight; therefore it can be of considerable benefit to any course.

Unfortunately, these little workhorses often get a bad press and are considered by many to be more for leisure than as a worthwhile addition to a fleet. Amenity contractors and those who operate them on golf courses and farms tell a different story.



▲ Kawasaki KVF700

KAWASAKI

The line up for 2004 includes five models with horsepower from 16hp to 47hp. Top of the range is the KVF 7000-A, which has a liquid cooled 4-stroke engine. The transmission is through the Kawasaki's own automatic power drive system, which they claim enables the operator to choose easily between high and low, or reverse gears. Two or four-wheel drive includes a variable front differential lock, which is selected through an electrical system. The braking system incorporates, engine brake control with speed sensor, twin front discs and rear enclosed multi-plate units.

Loading capacity is rated at 40kg for the front rack and 80kg on the rear one, plus the KVF700 has a towing capacity of 567kg.

At the other end of the Kawasaki range is the 19.2hp KLF 300B-A. This machine is said to be highly manoeuvrable with the tightest turning circle in its class. One of the reasons for this, is a dual-mode lockable rear differential. It is also claimed that because of the machine's light steering, low speed turns can be executed on soft surfaces with minimal damage to turf. A lever under the seat operates the differential. The transmission is semi-automatic with five speeds plus reverse. When it comes to towing, this ATV has a capacity of up to 317kg and is capable of carrying a total of 95kg on front and rear racks.

YAMAHA

The big ATV from Yamaha is the Grizzly 600FWA with a 660cc five-valve engine. This machine has automatic transmission and a button on the handlebars engages either 2WD or 4WD. An on-command differential lock provides extra traction when needed. The unit has an independent suspension system and hydraulic disc brakes are fitted to both front and rear wheels. The Grizzly has a ground clearance of 275mm and the capacity to carry up to 130kg and tow 550kg.

A newcomer to the range is the Kodiak 450F WAN, which will pull loads of up to 500kg. Its transmission and braking system is similar to the Grizzly's. Other features include an LCD instrument panel and a 12-volt-power outlet.