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Dr Kate Entwistle begins a regular series of articles on turf disease by taking a personal look at the most common to strike on UK golf courses. She also offers to examine any problems you might be having on your own courses.

Turf Diseases

So what's new?



Above: Darkly pigmented fungal hyphae on affected plant tissues

It's probably fair to say that during any one year, the majority of turf samples that I receive for disease analysis, are identified as having a disease problem which you would not be too surprised to see at that time of the year. This is because, generally speaking, diseases are seasonal, the reason for this is that the overriding factor that affects disease development, is the prevailing environmental conditions.

Virtually all turf diseases are caused by fungi so it is crucial to remember that it is not the disease that we are trying to control but the fungus which causes the disease. Fungal requirements for growth and development are fairly well understood. However, since it is in the interest of the fungus to remain alive, its ability to survive adverse environmental conditions and to adapt to changes in its environment, make it both interesting and exciting for me to study and a potential nightmare for you to manage and control.

Over recent years I have seen changes in the diseases which are affecting cool-season turfgrasses, both in the type of fungi which are causing damage and the way in which a given fungus shows its effect.

I started studying turf diseases over 11 years ago and I learned quickly that disease identification is not simply a matter of identifying a fungus. The turf is a living system with its inherent and ever-changing microbial population of fungi and bacteria. They will react to our management practices, as does the turf, and our aim has to be to manage the system so that the balance is always in favour of the turf. This is no mean feat given the ever increasing demands which are being made of our greens which result in the turf being kept under severe stress for much of the year. The fungus is always waiting to attack. You may well be able to identify several potential disease causing fungi on any given turf sample at any time during the year, but the skill in accurate disease identification comes with experience and a knowledge of turf management as a whole.

In case you are of the opinion that turf diseases remain the same year after year, I'd like to give you an



Right: Take-all patch. A different symptom expression of the same disease

Below: General Take-all patch

overview of how certain diseases have changed quite noticeably with the

Fusarium patch

The one disease which will be no stranger to any turf manager. I have to admit that I find it mildly frustrating that people tend to call this disease 'fusarium' rather than 'fusarium patch' because 'fusarium' is a genus or group name for fungi and 'fusarium patch' is the common name for a disease. However, fusarium patch is not caused by a fungus from the fusarium group of fungi and fungi from the genus fusarium cause diseases on turf which look nothing like fusarium patch. Confused? - I hope not, but if I appear confused when you say to me that you have fusarium on your greens and I see fusarium patch, maybe now you'll appreciate why.

Anyway, fusarium patch is probably the most common fungal disease to affect cool season turf grasses and, I'd probably be right in saying, will have been seen by all Greenkeepers at some time during their career. It has always been considered a disease which affects turf under cool, wet conditions and one which can cause severe damage if allowed to develop under snow cover. However, this disease has been seen to be active during the autumn months and, indeed, it is possible to see the damage being caused by the pathogen throughout the year. In itself, the fungus which causes this disease is not really a strong pathogen but instead, is content to live saprophytically on dead and decaying plant material until the conditions allow it to actively cause disease. Fusarium patch is caused by a fungus which is always ready to attack.

Red thread

Rather an attractive disease which causes the turf to take on a red/pink appearance. It has generally been considered a disease of the summer months and an indicator of low fertility. However, no more. Recently, this disease has been seen on the turf year-round and the sclerotia, or red needles, which characterise this disease can now be seen throughout the winter and spring months. An indicator of low fertility - not necessarily true any more either. Red thread can now cause significant damage on turf being maintained under adequate nutrition and although this disease is generally only superficial, its detrimental effect on the visual quality of the sward can not be denied.

Take-all patch

I have to admit that this is one of my favourites. It's gone through name changes over the years (not uncommon for turf diseases) but the fungus that causes the problem remains the same. Unlike many of the fungi which cause disease on turf, this one is actively aggressive. It is not too happy trying to survive as a saprophyte, instead, it prefers to live pathogenically causing disease whenever it can. It is one of several so-called ectotrophic root infecting (ERI) fungi which cause disease on turf and others of its kind have been seen recently causing damage in the UK. All of these type of fungi are similar in appearance. They are all characterised by dark runner hyphae on the roots and underground plant material. They produce similar-looking microscopic fruiting structures (although not always in the field) and they produce similar symptoms on the turf. Take-all patch disease has always been regarded as a disease of bent grasses but this is not strictly

true. The fungus is capable of attacking other grasses apart from bents and we have seen several outbreaks of take-all patch on Poa annua over recent years. If you see a patch disease, it's not necessarily take-all patch and if it's not, but you treat it as though it is, you may well not achieve any degree of control.



Known as basal rot by some and anthrax by others. Again this is an increasingly common disease of turf which is most well known for its part in the demise of Poa annua in areas subjected to heavy traffic. The fungus which causes this disease actively enters the intact plant cells by means of specialised structures which aid penetration. However, the fungus which causes anthracnose basal rot is also capable of causing foliar infections on all grasses. Over recent years, I have frequently seen a general decline in the overall quality of a sward during the summer months, which is caused by the presence of this fungus on the leaf tissues. When expressed in this way, the disease is referred to as anthracnose foliar blight. Anthracnose basal rot is not restricted to Poa annua but has also been seen to cause dramatic decline of creeping bent. Now there's something to think about.

Dollar Spot

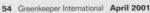
At one time, I thought I'd never see this disease away from trial plots! Dollar Spot was one of the more important turf diseases in the UK about 40 years ago and it is still regarded here as a disease which most commonly affects red fescues. The disease has not generally been seen over the last decade but the pathogen which causes it is still quite active in turf and there have been recent reports of the fungus causing damage on Poa annua in the UK. In the USA and in other parts of Europe, Dollar Spot is the major disease affecting bent grasses and in my opinion, it is only a matter of time before we start to see more of this 'old' disease prob-

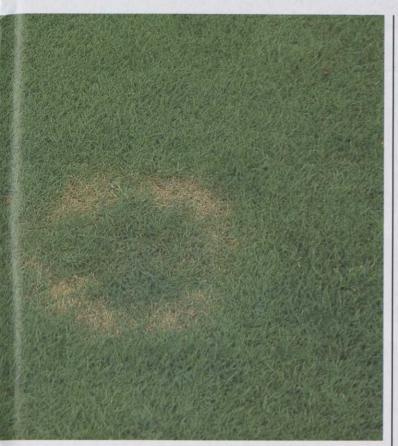
The list goes on with increases in the incidence of leaf spot diseases (Drechslera spp., Bipolaris spp. and even Curvularia spp. being identified over the last few years), the prevalence of yellow tuft, the increase in the severity of rust diseases and so on.

Why do turf diseases continue to plague us year after year and why do we seem unable to eradicate them? The answer is unfortunately quite simple. Diseases are (almost invariably) caused by fungi and it is in the interest of the fungus to survive and to cause disease. Many of the fungi which cause disease on turf are 'attacking' the turf most of the time, but their effects generally go unnoticed. It is only when the balance of favour weighs heavily on the side of the fungus that the disease development is so dramatic as to cause observable effects. If your aim is to eradicate fungal diseases for ever, think again. The fungus is capable of rapid adaptation to changes in prevailing conditions and any 'barriers' that you place in the way of its progress, will eventually be overcome. Your best approach is to work with them and to maintain the turf in such a way that even if it is attacked, it has the ability to recover rapidly. Know what to look for in the early stages of diseases and how to manage them so that their symptoms don't reach unacceptable levels. It's worth bearing in mind that many physiological disorders can produce









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symptoms which resemble certain turf diseases. This has been found to be the case on many occasions over the last couple of years and it has shown that if you wrongly assume the cause of the problem, you could waste much time, effort and money in applying control measures which at best, will have no effect. If you are in any doubt, get the problem analysed and put your mind at rest.

On a final note, for now anyway, I attended an interesting seminar recently where the speaker mentioned that with the advent of genetic engineering, turf diseases would be a thing of the past. I have to say that I totally disagree with this theory, but that's another article.

What turf disease issues would you like to read about?

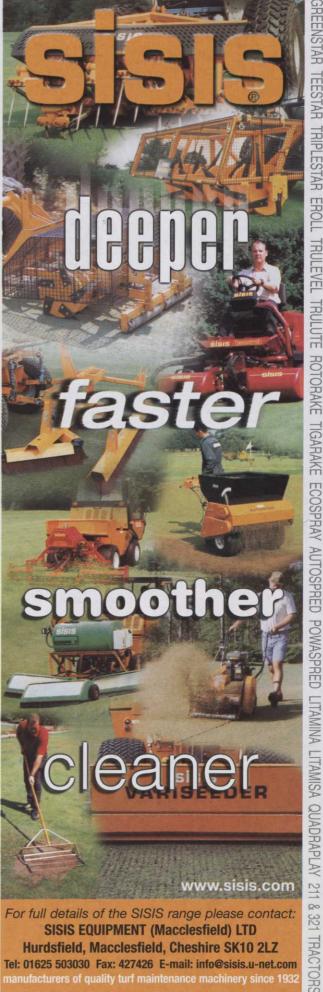
Although I try to put together articles which are of topical interest and which hopefully make you think a little more about turf diseases and also stimulate some discussions, it is only through feedback that I can be sure that what I'm providing is what you need. I could write article after article on subjects that interest me, but that would be somewhat missing the point. If you have any comments on what you've read or heard about with regard to disease issues, or indeed if you would like to offer topics which you think should be covered in an article, please let either Scott at Greenkeeper International or myself know about it. If you think it's important you can be sure that others will too, so please get in touch.

Will you help?

This is a request for help from all Greenkeepers. As part of the work of The Turf Disease Centre, I am look-

ing to collect information on as many turf disease outbreaks across the UK, this year, as possible. The aim of the work is to prepare a 'map' of disease development throughout the year to see which parts of the UK get hit by each individual disease, which regions are most prone to disease development and which areas of the UK are showing new diseases or diseases which are now significant problems but may have been only minor inconveniences in the past. Obviously, I can't do this without your help and I appreciate that there are already many demands on your time. For this reason, I have set out a form on a single side of A4 which will take only a couple of minutes to fill in. The information that I am looking for is (i) which disease has developed on your course, (ii) when did it first show, (iii) when did the symptoms subside and (iv) what cultural or chemical measures, if any, did you take to control the disease. I will pool together all of the information that I receive and present it (as regularly as possible) in Greenkeeper International so that you can see how the disease on your course fits in with that across the UK as a whole. To send in disease data from your course, please contact either Scott or myself and we will send you a form which you can photocopy as often as you get disease and return the forms to me once completed. Your help with this is very much appreciated. Thank

Dr Kate Entwistle The Turf Disease Centre, Waverley Cottage, Sherfield Road, Bramley, Hampshire RG26 5AG Tel: 01256 880246 Fax: 01256 880178 Email: Kate@theturfdiseasecentre.co.uk Web: www.theturfdiseasecentre.co.uk





Scott MacCallum travelled to Coventry to visit Agco's European Headquarters and home of the famous Massey Ferguson machines ...

Going back to their COOLS



Above: Edmund Hillary used this very tractor on one of his expeditions to the South Pole. It now has pride of place in the Massey Ferguson museum at Coventry

Right: The huge production operation at Coventry

Below: A Massey Ferguson 1250 fitted with mid-mounted deck and spray tank

Bottom: One of the new quad bike breed which can be used for a variety of tasks Rumour has it, and I am in no position to deny the fact, that the first of the many words I have subsequently uttered was "tractor"... or rather it was "tacta", but I'm assured everyone knew what I meant.

Now, and again I'm in no position to prove it, I'm pretty sure that the vehicle which so enthralled me that it induced the power of speech was a Massey Ferguson "tacta."

It was, therefore, a huge nostalgic moment for me, some 38 years later, to visit Coventry's European Headquarters of Agco, BIGGA's latest Golden Key Supporter and see the famous machines coming off the production line.

Massey Ferguson has been a name synonymous with tractors for almost 70 years and the union between Canadian, Daniel Massey, and Ulsterman, Harry Ferguson, is as significant in its sector of the industry as the famous coupling of Mr Royce and Mr Rolls.

Incidentally there was a Mr Harris, a manufacturer of harvesting equipment, who gave the company the initial name of Massey Harris Ferguson but the Harris name was dropped in the 50s to give us the name known the world over.

"You can trace the company back to about 1847 when Daniel Massey started to build agricultural machinery in a farm workshop in Ontario," said Tim Lawrence, Agco's Sales Manager -Grounds Care.

"He joined with Allinson Harris, who was doing a similar job with harvesting equipment and between them they built the bulk of their business on exports. The story moves forward to the 1930s when a link was forged with Harry Ferguson, whose three point linkage went on to transform modern agriculture." explained Tim.

agriculture," explained Tim.

Harry Ferguson was a remarkable man known for his inventions and his pioneering spirit. He was the first man in the British Isles to build and fly his own plane and a replica of the plane hangs in a Belfast museum. He also designed the suspension systems on the Lotus racing car as well as work on the

famous Jenson sports car.

In the 50s Massey Ferguson was the true giant in agricultural machinery and with a 50%-60% share of a market, which in the UK at the time represented 55-60 000 tractors a year.

"Every farm has virtually had a Massey Ferguson tractor on it at some point," said Philip Evans, Product Marketing Manager - Specialist Products The tractors have been built at the Coventry plant since 1946 when Harry Ferguson formed an agreement with the Standard Motor Company after the war. Such was the success of the tractor production that it squeezed out the car production and Harry Ferguson eventually bought the site and continued to develop it to the stage that it covers 45 acres and boasts full manufacturing facilities and a 15 storey office block which can be seen for miles. The plant employs around 1500 people with the figure varying depending upon production

I must admit I'd always associated Massey Ferguson with big red machines but, looking round the factory, I was interested, not to say a tad disappointed, to learn, and see, that they have other colours in their portfolio. They'll always be red to me, though.

Harry Ferguson died in the late '70s and just over 10 years ago Agco was formed.

"Agco was the result of a management buy-out of the Deutz Allis tractor brand in the States and took over the North American distribution of Massey Ferguson, effectively running the North American business for us. This relationship flourished to the extent that Agco eventually said that if we ever wanted to sell Massey Ferguson they'd be interested. A figure was set and the deal done," explained Phil.

Now worldwide dealerships number between 8-10,000 and there's no part of the world untouched. In fact they've been spotted in jungles, deserts, even on the South Pole where Edmund Hillary had use of one during an expedition.

There were doubts whether an agricultural machine would even work in such cold conditions but, in the eight years it was there it never failed... not until it arrived back in the UK, someone drained the antifreeze and the black cracked "smiled Phil

block cracked," smiled Phil.

That very machine now has pride of place in the wonderful Massey







on the site.

The pioneering spirit also extends to tractor manufacture and the company has helped other companies develop factories in far flung places on a licensee

"We've done this in places like Turkey, the old Yugoslavia, Libya, India and Mexico and we send out partially built tractors for them to assemble and as they develop their skills they move towards making and supplying their

own," said Phil.

The company re-emerged as a force in ground care about two years ago having initially dipped its toe in the market about 15 years ago.

"We had an association with Iseki where we'd build around 500 tractors for them and export them back to Japan," explained Phil, who said that both companies had benefited from the other's experience - Iseki from Massey Ferguson's expertise in bigger tractors and Massey from Iseki's exper-

tise in 15-40 horsepower tractors. Having said that, we felt many of the dealers we were using in the ground care sector were non-Massey Ferguson specialists and we wanted to take time to consolidate - step back and ask ourselves where we were going and what we were doing," said Phil.

In the intervening period the dealer network for the sector was strengthened considerably to the extent that they can now look to the future with confidence.

"We targeted more of the big Massey Ferguson dealers who were interested in grounds care and spreading their overheads over both the agriculture and grounds care sectors and we involved and developed these people," added Phil.

With the reestablishment now complete they are now looking for steady growth within the market.
"Golf courses need lightweight and

them," said Tim.

The current range of products

includes compact tractors from 15-38 horsepower; a diesel ride-on 24.5 ed decks. There is also the 2200 range of specialist turf tractors and quad bikes which are becoming increasing popular especially when the ground is

They are also finding a lot of 75-80 horsepower tractors going out of the factory with turf tyres on them and they know full well that they are going onto a golf course or into a local

cut rotary being a good machine for us as it fills two markets, local authority and golf. It is a long term project for us," explained Tim.

The company sees Saltex and BTME as the two key shows in the where the size of stands gives them the opportunity of showing the com-plete range, in '99 that the assault of the grounds care market was rejoined.

"Customer reaction to Massey Ferguson is always very positive and this goes back to the days of the TE20," said Phil.

The name is one that most people would know anywhere in the country and if they buy a Massey Ferguson to travel a few miles in either direc-tion to find a dealer. The products are well engineered, well developed and have a good support package in terms of parts.



Above: Cab interiors have functional switchgear and familiar control layout

"Also the products are easy to use. Whether you jump on a tractor with 20 horsepower or one with 80 horsepower you find the controls laid out ing to learn a totally different package each time. It's the same with the 15 to 38 horsepower compact tractors,'

The decision to become a Golden Key Supporter of BIGGA was came as a result of the first impressions of

"I liked the approach and organisa-tion of BIGGA itself. They are well organised and produce good quality publications aimed at the market we want to get to," explained Tim.

It is good that we ally ourselves to we looked at BIGGA we were impressed by what we saw and what they were doing for the industry around it. There is so much more to Golden Key than us just paying money to you and it all goes towards helping to give BIGGA members a

very good package," added Phil.
Training was always at the forefront
of Harry Ferguson's mind and he was centre at nearby Stoneleigh -when you're buying a £200,000 combine harvester the two day training course that goes with it must be welcomed!

is a vital part of the whole package and that extends to our dealerships as well," said Phil.

Well, many years on from my initial brush with the company I can, on behalf ufacturer of Massey Ferguson "tactas", to the family of BIGGA's Golden Key





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Last month, Mr T Moore, from Bungay and Waverey Valley GC, certainly knew his numbers when he correctly identified all three telephone

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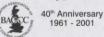
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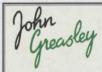
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