

FUSARIUM

Early diagnosis is essential for fusarium patch control, says the STRI's Kate York

Don't let THIS happen to you

Fusarium patch is the most damaging and disfiguring fungal disease to attack fine turf in the UK.

Good management techniques can go a long way towards minimising the effect of this disease but no system can guarantee fusarium-free greens, according to Kate York, plant pathologist at the Sports Turf Research Institute, Bingley.

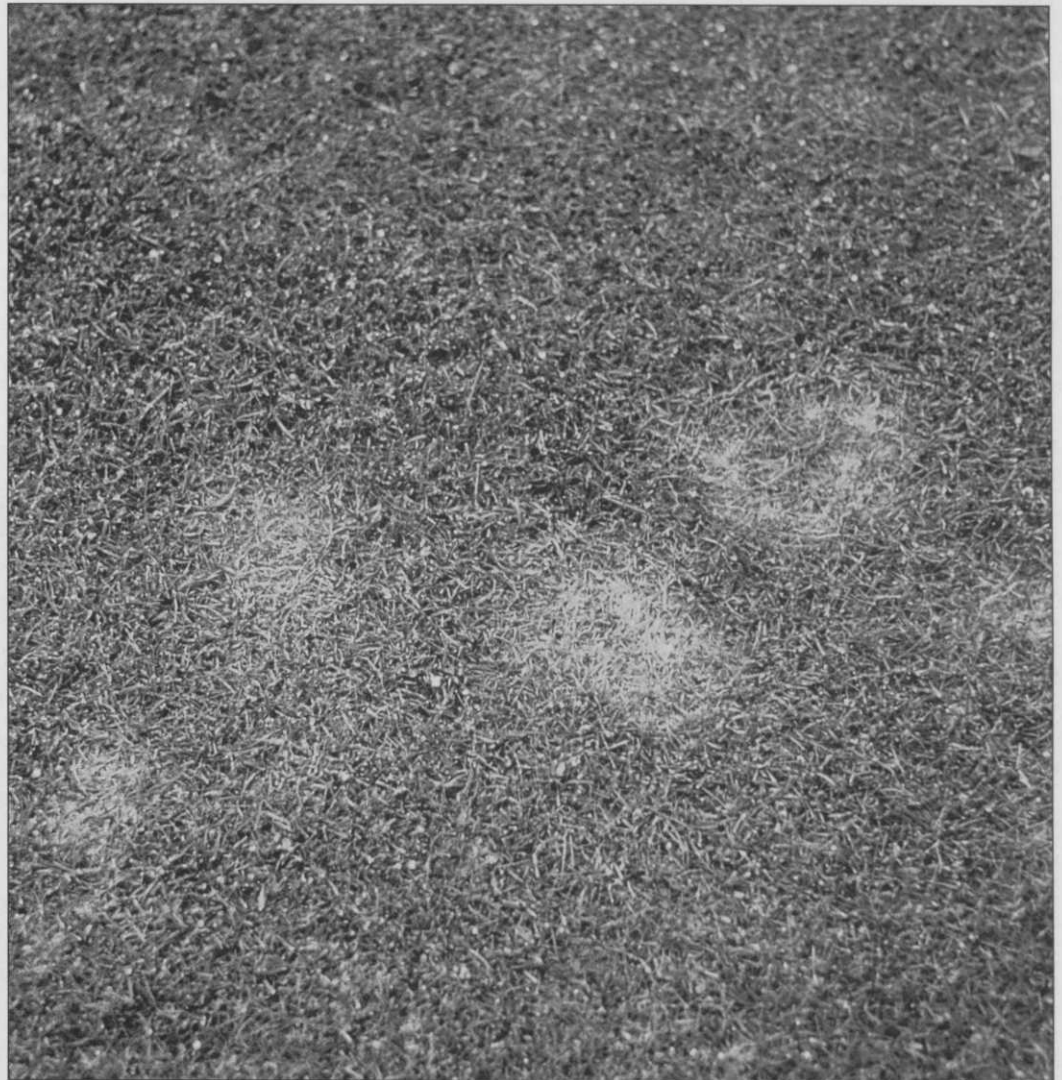
"The key to minimising fusarium patch damage is accurate diagnosis of the first symptoms of the disease. Almost all Britain's golf courses have a fusarium patch problem to some extent, so every greenkeeper should be on the lookout for early signs, especially between October and March when the fungus is most active," she says.

"Fusarium patch starts off as small orangey-brown circles of about 5cm in diameter. If left untreated once observed, the disease can rapidly spread in a very short period of time.

"These small patches increase in size and coalesce, eventually growing into larger dark-edged circles with straw-coloured centres which, when the disease is active, are slimy to the touch. This is the face of fusarium that all greenkeepers will recognise.

"Once the disease has become so firmly established that grass at the centre of each patch is dead, new spores are being released. These spores can be spread across the affected area causing a rapid rise in disease levels. Immediate fungicide treatment at this stage is imperative."

The fungus causing these problems is called *Microdochium nivale*. It is present in turf all year round, thriving particularly in cool, humid conditions. Although fusarium patch is generally considered to be a winter disease, it can occur throughout the year if



environmental conditions are suitable.

"Wet greens with a high level of *Poa annua* and a history of fusarium patch are most at risk every year," says Kate.

"To minimise the spread of fusarium patch greenkeepers should nominate one or two more susceptible greens and use them as 'indicator' greens. Shaded or sheltered areas, where the turf surface stays wetter for

longer, are ideal for this purpose.

"As a general rule, if fusarium symptoms are spotted on the 'indicator' greens, the disease is likely to appear on others within two weeks if there is no significant change in weather conditions. Using these greens as a guide will allow fungicide applications to be correctly timed, containing the problem and minimising turf damage.

"To maintain good control after the initial treatment, greens should be regularly monitored and repeat fungicide treatments should be applied as and when necessary."

If early action is not taken, the price can be high. The disease is extremely vigorous and spreads rapidly. If fusarium patch is allowed to establish itself, scars will be left on the turf surface and will cause further problems

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even after the disease itself has been controlled.

"Although turf will grow back into the bare areas, weed grasses like *Poa annua* will recolonise the scar more quickly and increase the overall weed burden of the affected green," adds Kate.

Here are some management techniques she says could help tip the odds in the greenkeeper's favour:

"Keep the green surface as dry as possible by 'switching' to remove dew and rain. If greens are continually retaining excessive amounts of water, reconstruction of these areas should be considered.

"Avoid late fertiliser applications. Nitrogen applied late in the year will stimulate grass when growth rates should be decreasing. A quick, weak burst of growth will create a plant that is much more susceptible to the fungus.

"Keep an eye on the thatch. If the thatch layer gets more than half an inch deep it will retain moisture and provide an ideal environment for fungal growth and over-wintering. If the thatch is reduced, the inoculum which has the potential to cause problems the following year will also be reduced.

"Topdressing applied at too high a rate or left on the surface of the turf will also cause problems, smothering the turf and incubating the fungus.

"Finally, always be alert to the danger signs. When out mowing take a few moments to carefully examine the most susceptible greens.

"Both the STRI booklet and the recently published BIGGA guide on disease identification could prove to be invaluable tools in the early diagnosis of fusarium patch. Once the disease has been spotted, act immediately by spraying all greens to avoid further problems.

"Every greenkeeper knows his own greens and can best judge the problems he is likely to face," she concludes. "The key to successful control of fusarium patch is to take action as soon as it is seen. Applying fungicide sprays on a calendar basis, whether or not the fungus is active, will only waste time and money."

Treated seed is an effective way of keeping fungal attacks at bay

Greenkeepers using perennial ryegrasses are being advised to buy treated seed to ward off fungal attack.

Geoff Taylor, technical officer at Johnsons Seeds, warns that the arrival of the autumn with its warm moist soils, ideal for speedy germination, can often be interspersed with cold nights and heavy dews – predisposing factors for attacks by fungal disease on emerging grass seedlings. The seedbed if poorly prepared, especially when lying too wet (or even too dry), is the cradle for numerous fungal pathogens.

Renovation of thin turf is a prime case for treated seed. Serious losses can occur from

the earliest stages – with attacks on ungerminated seeds through the phases of pre- and post-seedling emergence.

Whilst recommended seed rates are designed to allow for these and other causes of seedling mortality, treatments such as Apron T treatment with its potent duo of thiabendazole and metalaxyl provide a relatively economical extra measure of protection against severe seedling losses. New sowings can be devastated by the well known 'damping-off' disease which involves a complex of fungi – the two main culprits being fusarium and pythium, respectively associated with excessive dryness

and wetness.

"Rapid and even seed development is a prime requirement in autumn to ensure that a new or renovated sward is well established before conditions deteriorate and growth ceases," says Mr Taylor. "Delayed sowings, therefore, are another obvious instance where seed treatment is an essential precaution.

"Faced with the risk of fungal disease, we believe treated seed is a prudent assurance policy that avoids the significant losses of time and money associated with sub-optimal sowing conditions."

For further details call Geoff Taylor on 0205 365051.

Fungicide dressing helps grass germinate quicker, saves money

A trial at Writtle College has shown that many amenity grass species will germinate quicker if treated with a certain fungicide dressing or polymer coating. The trial was set up in conjunction with Rhône-Poulenc to investigate the effects of non-mercurial cereal dressings on the germination and establishment of a range of five amenity grass species: creeping red fescue, browntop bent, smooth stalked meadow grass, chewings fescue and perennial ryegrass.

The seeds were dressed with a fungicide seed treatment containing guazatine plus imazalil, with and without a polymer film coat developed by Rhône-Poulenc. Guazatine plus imazalil is supposed to be particularly effective against seed and soil borne pathogens such as fusarium. The polymer coating, which is water insoluble, controls uptake of water into the seed, resulting in improved syn-

chronisation of seedling emergence.

"By retaining the active ingredient within the polymer and reducing leaching into the soil, it maintains a level of disease protection well into the early stages of seedling development," says KB Seal, senior lecturer in crop protection at Writtle College. "The polymer also allows the seeds to be more evenly dressed, which reduces the danger of overloading active ingredient on to the treated seed and its subsequent possible phytotoxic effect on either the seed or the emerging seedling. In addition, the polymer film coating increases the seeds' resistance to abrasion during handling and sowing and reduces dust."

After the trial, Mr Seal said: "All the amenity grass species except perennial ryegrass, which failed to respond to any of the treatments, showed both an increased rate and percentage germination with either fungi-

cide seed dressings, polymer or combinations of fungicides plus polymer 13, 14 and 19 days after sowing."

He concluded: "While the individual grass species showed varying responses to the different seed treatments, there was an overall trend of an initial boost to both the rate and increase in germination 13 days after sowing. The majority of the seed treatments commenced germination 2-3 days ahead of the untreated controls with this difference in growth also being reflected up to the two leaf stage. These differences were achieved with no apparent turf diseases evident on the emerging seedlings of either the treated or untreated controls. Neither was there any evidence of phytotoxicity on any of the seedlings from the seed treatments. The increased rate of germination, even by 2-3 days, could be of considerable economic benefit to golf courses."