

PREVENTING DISEASE – IT'S A LIFESTYLE CHOICE!



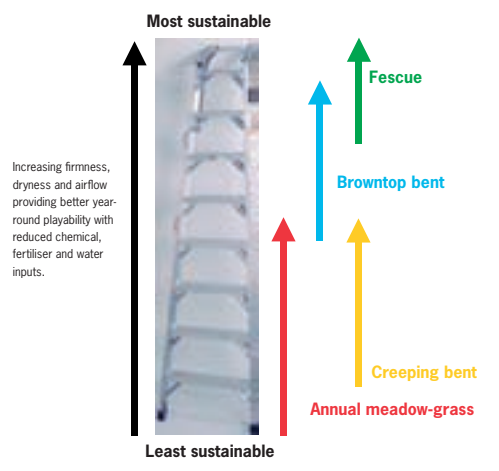
By Steve Isaac, Assistant Director of Golf Course Management, The R&A

Your initial reaction?

"How much disease could be prevented through better management of our environment?" A quote from The R&A Golf Course Committee? No, it is actually taken from the World Health Organisation's website but it is an excellent way to introduce the subject of preventing turfgrass diseases because it focuses attention on the key issue. If you were asked how to prevent disease on your greens, what would your immediate response be? Hopefully, it would not be straight to the fungicide bottle. With so much information and education available to turf managers these days, including our best practice website www.bestcourseforgolf.org, everyone should be aware of the many approaches that should be considered before considering the chemical one. The thought process to preventing disease should begin by looking at the environment in which the turf, and its potential nemesis, is growing.

Dry, firm and airy

The Sustainability Ladder



Remember the sustainability ladder - see the August 2006 issue of Greenkeeper International - This describes the route to increasing sustainability through improvement of the growing environment. Climbing away from thatchy, soft, wet, shaded and disease-ridden turf at the foot of the ladder is dependent on improving drainage, firmness and air movement. The range of growing conditions represented by the rungs of the ladder can be related directly to the requirements of grass species.

No matter what grass you are growing, as you climb the rungs and promote a better environment you will see less disease. When you reach a rung beyond the comfort zone for a species, it will either become less common or be prone to an increasing array of fungal attacks. Of the grasses commonly seen to northern European greens, annual meadow-grass is the one that will be most prone to disease within and, even more so, at both ends of its range. To soft, wet and thatchy greens you will see more microdochium (that's fusarium to our more mature readers) and anthracnose. Above its comfort zone, you will have created such a dry and lean environment that meadow-grass will be under stress and prone to the same diseases, plus others such as dollar spot. However, if you have worked on improving the environment to this degree you will probably be seeing the quantity of less susceptible grasses increasing on the greens, either through natural re-colonisation or via overseeding. So, grass species and where your greens are on the sustainability ladder will reflect the number and severity of disease outbreaks you will witness.

Reduce the risk of disease by:

- Developing a healthier growing environment.
- Good thatch management – think firm and dry.
- Minimising shade – turf prefers consistent growing conditions and heavily shaded greens become cookers in summer, freezers in winter, which promotes weak turf.
- Climbing the sustainability ladder.

Less susceptible grasses

As already noted, the ladder concept can be related to the main grass species we use on our greens, with fescue being the most sustainable and annual meadow-grass the least. This is reflected in the inputs of chemicals, fertiliser and water required to manage these grasses and in their relative resistance to our most common and disfiguring diseases.

Also consider where your grasses come from. The days of European colonialism are rife with tales of indigenous peoples dying in their thousands from diseases imported by the new arrivals who were relatively immune to the effects of what they considered to be common ailments. The reverse also occurred (and still does) as travelers fall foul of diseases their immune system has never encountered before. Could the same happen to grasses? I make the point after seeing a grass trial in Norway in May 2005. Most of the imported varieties were decimated by fusarium coming out of the winter. The grasses that were the healthiest and completely free of disease scars were those browntop bents bred in Norway (see image below and Jorvik sign).

Even within a single grass species there can be tremendous variability in the disease resistance of cultivars. When choosing grasses for overseeding it is worth checking on this as part of the selection process. However, there is little information available on this matter with the "Turfgrass Seed 2007" publication only listing resistance to red thread for all the species under evaluation – hardly the disease likely to cause you the most sleepless nights.

Possibly the best way to assess which cultivars will be most resistant to disease attack on your course is to have a small trial area where you can plant those out which match your requirements, grow them on for a year or two and see for yourself. One course manager I know who does this is Per Rasmussen at Smørum in Denmark, and he has been able to select fescues for overseeding which exhibit the minimum of disease incidence, saving him time and money (above right).





Reduce the risk of disease by:

- Promoting less susceptible grasses.
- Selecting cultivars for overseeding that show greater resilience to common diseases.
- Testing grasses at your site before using them on the golf course.
- Climbing the sustainability ladder.



Cultural management practices

These should be the focus of any integrated disease management programme. Again, they can be related to the sustainability ladder and the premise that drier, firmer turf with decent access to light and air movement is going to be more resistant to disease. So, to minimise disease, implement a maintenance programme that controls thatch, improves drainage and avoids lush turf growth. Excessive application of fertiliser and water will encourage disease.

Over the last few summers, there have been

reports of a greater incidence of dollar spot, notably in southeast England (see the article on the main 2006 disease problems in the January 2007 issue of STRI's International Turfgrass Bulletin). There has been speculation that the desirable trend for reducing nitrogen input has contributed to this and that dollar spot is a real threat to those wishing to turn to fescue. Dollar spot attacks all grasses – it is a significant disease of fine turf in the USA and they are not blessed with fescue-dominated golf courses. Perhaps those witnessing this phenomenon have been cutting back on the nitrogen too quickly for the type of turf they are managing? It could be that the combination of stressful summer weather, notably last year's drought, and a significant reduction in nitrogen was the cause but the disease affected those grasses the worst that require higher levels of nitrogen to see off attacks.

Also be wary of too much cultural management, especially when the climate imparts significant stress. STRI's promotion of the principle of "Disturbance" can be used to explain why different grasses require alternative approaches to cultural practices and when they are likely to be under greater disease pressure.

Reduce the risk of disease by:

- Implementing cultural practices that will positively help control disease incidence.
- Avoiding practices which may encourage diseases.
- Climbing the sustainability ladder.

Prediction models

Web-based services, which predict when disease pressure is high enough to warrant fungicide application, may be useful in maximising the efficacy of plant protection products but we need to question what their advice is based on? If the red alert for applying a fungicide is triggered by

the most susceptible scenario, and the cynic in me suggests it is, then users of these systems must be aware of this and interpret the warning according to their situation. If you happen to be managing the most susceptible scenario (probably one towards the bottom of the sustainable ladder) then sign up to such a service now! More effective in the long run would be to start planning to climb the ladder. For those not in this situation, don't reach for the fungicide just because the website tells you to. You will have to take this information and interpret the threat in relation to the turf environment you are managing. A red alert for fusarium is unlikely to worry those managing fescue too much.

Returning to the subject of cultural practices, prediction models may be of value in helping to plan maintenance to avoid work that could encourage disease.

Be honest with yourself

There are plenty of tricks that can be used to mask disease risk and actual outbreaks. I prefer to follow the sage advice of an old Ethiopian proverb: "He who conceals his disease cannot expect to be cured". If you get regular damaging outbreaks of disease it is because you are managing a high-risk situation. Only by accepting this and trying to address it will you find a cure. Better management of the environment to develop healthier turf will significantly reduce the risk of disease, so make your preparations to climb the sustainability ladder and improve your chances of preventing disease.