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Figure 2. Superficial fairy rings on a golf green

by Kate York, STRI, Bingley

**T**he development of turfgrass diseases is affected by numerous factors such as turf vigour, turf composition and environmental conditions; the greenkeeper may sometimes have an almost insurmountable job on his/her hands to prevent severe disease problems from affecting the playing quality of the turf. As with controlling any problem, the control of the symptoms and development of turfgrass diseases can be made easier by fully understanding the conditions likely to favour their occurrence. During the summer months, the main diseases that are likely to occur on golf courses in the UK are red thread, superficial fairy rings (thatch fungi) and take-all patch. The areas on which each of these diseases occur may differ and the factors effecting their expression will vary widely.

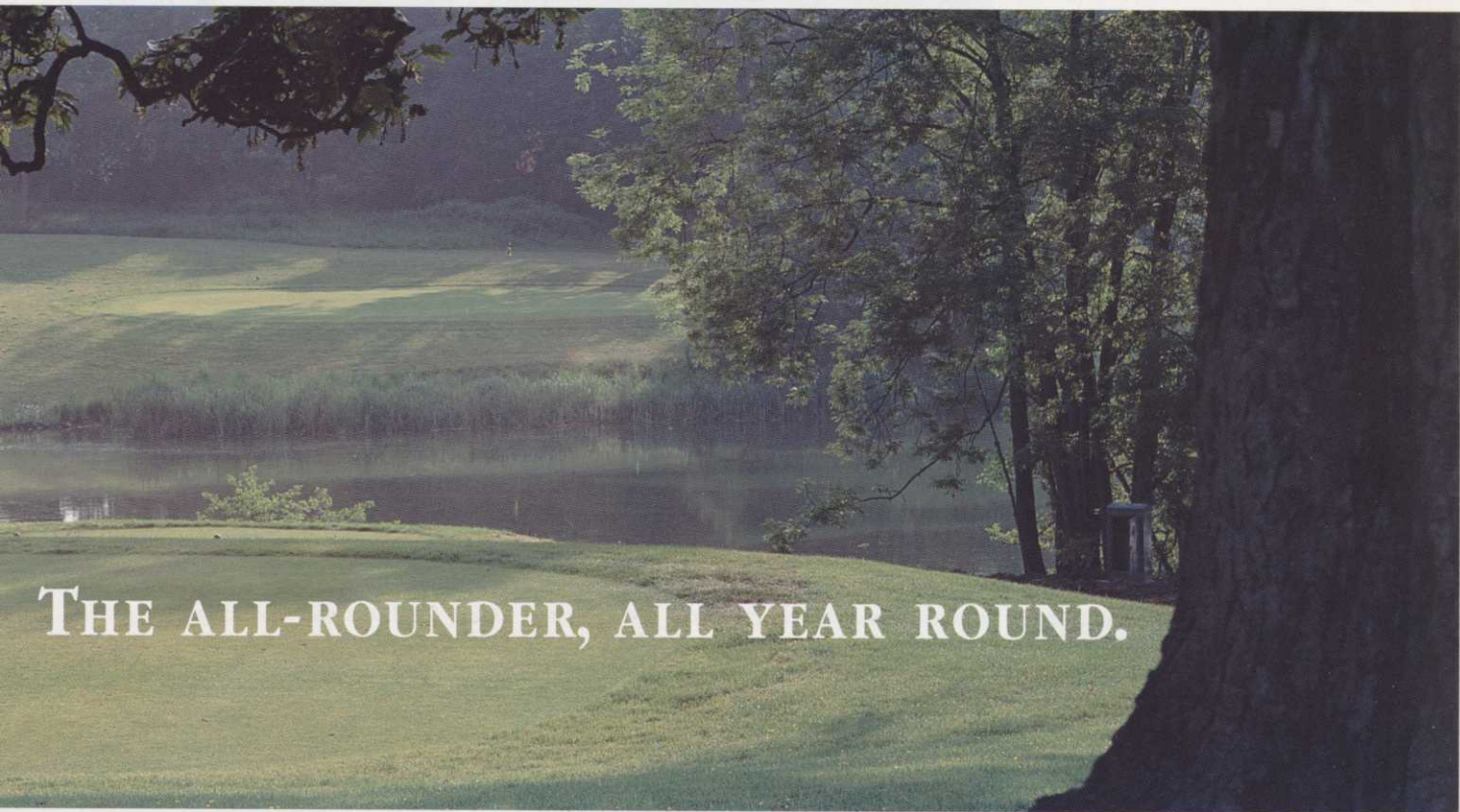
Red thread disease (Figure 1) can affect both coarse and fine turfgrasses equally by decreasing the visual quality of the turf surface. It can be found on golf greens but its

# COMBATING SUMMER TURFGRASS DISEASES

effect on these highly maintained areas is usually minimal and will not generally warrant severe control measures. As a disease, red thread will only, in extreme situations, cause death of the sward. It will almost invariably cause a relatively superficial problem that can be controlled quite readily.

This disease is generally regarded as one which occurs on turf that is being maintained

under low levels of nutrition. This is not always the case as red thread disease can be seen on turf which has been highly fertilised. Although all turfgrasses can be affected by this disease, fescues and rye grasses are the most susceptible. The development of the simple or branched antler-like stromata or needles is a characteristic symptom of this disease which gives the turf its easily identifiable red



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# COMBATING SUMMER TURFGRASS DISEASES

colouration. Since red thread usually only affects the leaf blades of the turf, addition of nitrogen will encourage grass growth allowing the affected grass to be mown and removed from the area. Boxing off clippings will reduce the amount of the fungus present within the sward and will therefore help to limit both the spread of the disease during the present year and the occurrence of the problem in subsequent years. Boxing off the clippings is usually impracticable on fairways where the disease is often most apparent but if a severe disease outbreak occurs, the problem can be readily controlled using any one of the approved fungicides currently available. Seed companies are also working on developing resistance to red thread disease in some cultivars of the most readily attacked turfgrass species.

Although red thread can seriously affect the visual quality of the turf, it has negligible effect on the playing quality of the sward. Other turfgrass diseases that occur during the summer months are noted more for their effect on the surface levels rather than on the appearance of the turf. This problem is due to superficial fairy rings or thatch fungi (Figure 2). The fungi that cause this problem live within the thatch. They decompose the organic matter present in this layer thereby releasing nutrients which they take up and use for their growth and development. As they develop, the physical presence of their white mycelium reduces the amount of water that is available to the roots of the grass due to its naturally water repellent nature. In effect, the growth of the fungi act as a barrier to water penetration and cause stress to the infected sward. This stress is often expressed as a slight yellowing of the turfgrasses which is often accompanied by the presence of surface depressions in affected areas. These depressions are simply due to the localised reduction in thatch caused by the activity of the fungi and will inevitably become more apparent during the summer months if the surface of the turf is allowed to become dry. Such symptoms can severely affect the surface levels of an affected golf green, particularly on greens that hold an excessive thatch layer.

The levels can be restored with careful applications of topdressing and severe outbreaks of superficial fairy rings can be controlled by applications of fungicide. It is recommended that if fungicides are to be applied as a control measure, the affected area should be opened up through spiking, slitting, hollowtining, etc. and treated with a wetting agent to ensure complete wetting of the affected turf prior to the fungicide appli-

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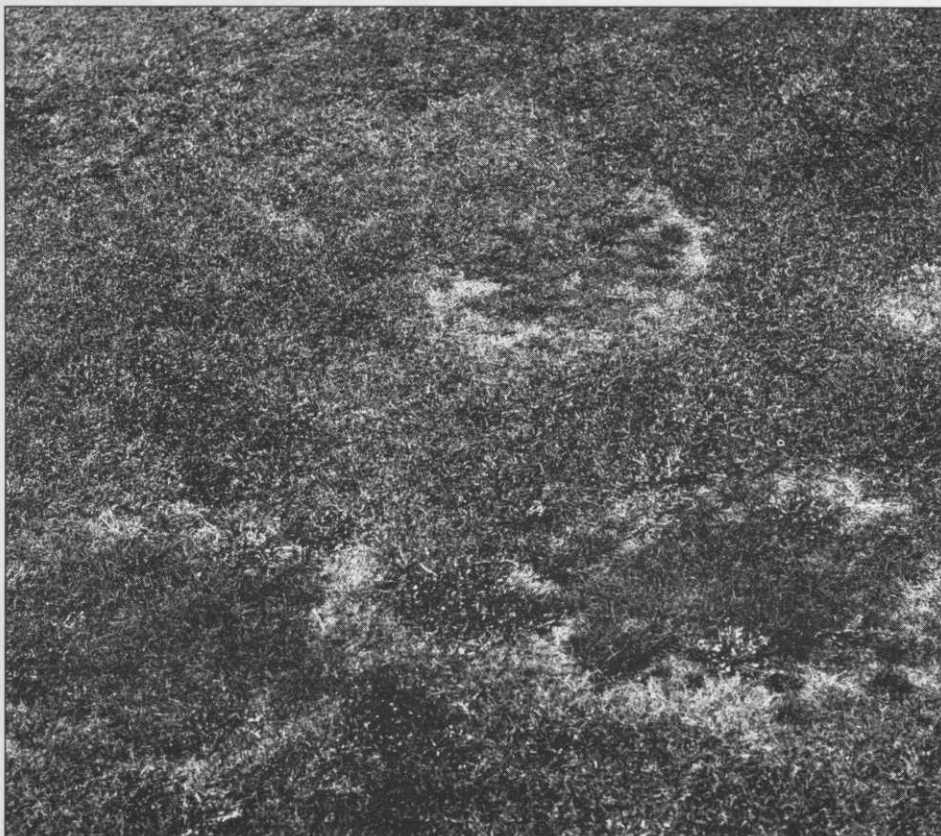


Figure 3. Symptoms of take-all patch disease

cation. It may be necessary to complete a second application of the fungicide to ensure product efficacy against the disease.

Certain turfgrass diseases can cause a reduction in both the visual and playing quality of the turf surface and perhaps the most problematical of all is take-all patch disease (Figure 3). The fungus responsible for this disease is a soil-borne pathogen that only affects the roots of bent grasses. The areas of turf affected by take-all patch can be quite extensive and the effects of the disease can remain evident on the turf surface for several years. There are currently no fungicides available that have approval for use against take-all patch disease in the UK. It is important to understand the factors that can lead to the development of this disease in order to minimise the possibility of its occurrence.

The pathogen that causes this disease is more suited to growing under conditions of higher pH than are the antagonistic soil micro-organisms which normally keep the levels of the pathogen below that required for disease outbreak. If the pH rises rapidly, even by a small degree, the pathogen will grow

more rapidly through the soil and initiate disease development before the antagonists have a chance to grow and limit the pathogen's effect. Free surface moisture will encourage the spread of the disease and therefore to limit the disease progression, the turf surface should be kept as dry as possible. Resistant turfgrasses, such as fescues, should be used to overseed the affected areas before the thinned sward is colonised by weed grasses and broad leaved weeds. Applications of acidifying fertilisers will encourage the growth and development of the antagonists and speed up the recovery of the sward from the disease attack.

As with all turfgrass diseases, early and accurate identification of the problem is imperative if the correct control measures are to be employed at a time when they can limit the extent and severity of the outbreak. Turfgrass diseases will almost certainly develop at some time on all areas of amenity turf but their impact on the quality of the surface will vary considerably depending on the specific pathogen and how early the disease development was recognised.