

**Jenny Murphy helps identify the diseases you are likely to find in turf and explains how to maintain turf in good condition**

# Disease-free turf

Turf diseases are disorders which are usually caused by parasitic fungi invading plant tissues and robbing the grass of vital nutrients.

Alternatively, they can be caused by the indirect effects of fungi inhabiting the soil in the root zone and altering the availability of water and nutrients to the grass, as in the case of the fairy ring fungi. In either case they present a problem to the greenkeeper, who needs to take some form of remedial action in order to restore the turf to full health.

Intensively managed turf is often more prone to attacks of turf disease. In many cases, development of disease problems can be attributed to cultural causes, i.e. a failure to provide optimum conditions for plant growth. The long term remedy will usually involve changes in the cultural techniques employed, e.g. by increasing scarification. In the short term however, the use of fungicides may prove necessary to halt the disease and protect the grass from further damage.

This article aims to assist in the correct identification of turf disease and to detail the main factors encouraging their spread. Details of cultural measures and fungicides available for disease control are given.

## **General care of fine turf**

In order to maintain turf in a healthy condition, particular attention needs to be given to the following areas.

## **Correct feeding**

Left to its own devices, grass will survive on soils with widely ranging nutritional value. However, to provide the optimal growing conditions needed for fine turf, feeding needs to be carefully managed. The main nutrients which grasses need are nitrogen, phosphate and potassium. The precise requirements for nutrition depend on the grass species, time of year and the type of soil. Some diseases are encouraged by lack of soil fertility, e.g. Red Thread, while too much nitrogen in the soil can encourage other diseases such as Fusarium Patch.

## **Root systems**

Poor drainage, compaction and the build up of thatch can cut down air supply to the grass roots, reducing plant vigour. This renders the turf more susceptible to disease attack. Turf soils need to be kept aerated by regular spiking or hollow tining, and the thatch controlled by routine scarification.

## **Shade**

Plants need sufficient light to promote healthy growth. Where grass is shaded

by trees, hedges and other obstructions, vigour may be reduced and grass becomes prone to disease attack. Where possible, excessive shade should be controlled by pruning.

## **Soil pH**

The optimum pH for grass growth is between pH 5.5 and 6.5, although grass can survive a much wider range than this. Outside this range, the pH will reduce plant vigour and in some cases, an alkaline pH (greater than 7) can encourage the disease Take-all Patch.

## **Disease resistance**

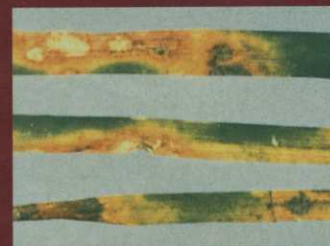
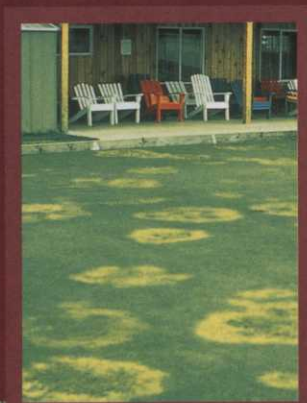
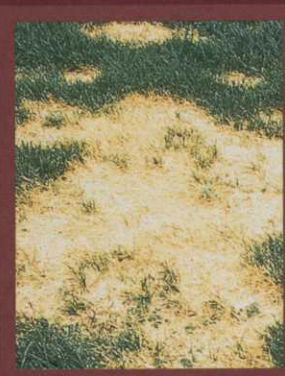
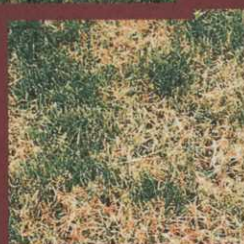
Some cases of fungicide resistance have been observed, associated with fungicide treatments of food crops, where the same chemical has been applied repeatedly over a number of years. To date however, no cases of disease resistance have been identified in association with disease control in UK turf.

Rotation of fungicides will help prevent the problem of resistance occurring. A programmed approach, where a systemic fungicide is used during periods of strong growth, backed up by the use of a contact fungicide during the autumn and winter months, will maintain a balanced treatment.

The main diseases greenkeepers are likely to meet are outlined overleaf.



# Disease-free turf



## Fusarium Patch

### Symptoms

Orange brown patches, 2.5 to 5cm across, increasing in size under suitable conditions. Can coalesce to affect large areas. Disease often very active following periods of snow cover, when it appears as an orange-brown ring surrounding a pale straw-coloured/slightly pink centre.

### Occurrence

Any time of the year when conditions are suitable, but especially spring and autumn and after snow.

### Grass species involved

Annual Meadow-grass (*Poa annua*) is the main species attacked but the fungus also attacks Bent Grass (*Agrostis* Spp) and occasionally other grasses. Host preference is diminished when disease attacks under snow cover.

### Other influencing factors

Shade, humidity, alkaline surface, inefficient drainage, excess nitrogen.

### Control measures

Identification of influencing factors and application of appropriate remedial measures.

## Red Thread/Pink Patch

### Symptoms

Ill defined patches of bleached grass. Pink mycelium often visible in morning dew cover. Red needles present, attached to leaf blades. Needles become brittle on drying and serve to spread disease into new areas. Rarely infected grasses killed out. The disease is now thought to be a 'complex' involving 2 species: *Laetisaria fuciformis*, where red needles are present – Red Thread, and *Limonomyces roseipellis*, where pink mycelium is present – Pink Patch

### Occurrence

Very common. Occurs during summer and autumn and can persist into mild winters

### Grass species involved

Can affect most lawn grasses, particularly Red Fescue (*Festuca rubra*) and Perennial Ryegrass (*Lolium perenne*).

### Other influencing factors

Low fertility – particularly low nitrogen

### Control measures

Improve fertility. Select resistant cultivars.

## Anthracnose

### Symptoms

Leaves of affected plants turn yellow. The youngest leaves often turn red. The plants rot at the base and can be pulled out with greater ease. A black staining at the base of the plant can be seen when the disease is at the advanced stage. This black structure, known as an acervulus, is involved in reproduction.

### Occurrence

Can be fairly common on poorly managed turf in late summer and autumn

### Grass species involved

Annual Meadow-grass is particularly susceptible, especially when the management of turf is tilted towards starving out this grass species.

### Other influencing factors

Poor growing conditions, especially where compacted soil restricts the air supply to the roots. Poor fertility is also likely to encourage this disease.

### Control measures

Measures taken to relieve compaction, eg hollow tining/soil tining, turf conditioning etc. Application of a balanced autumn fertiliser.

## Take-all Patch

### Symptoms

Rings or part rings of orange/brown grass from 0.1 to 1 metre in diameter. The band of drying grass is usually about 0.1 metre across and is predominately the result of a fungal attack on the roots which become grey and discoloured, thereby allowing the affected plants to be easily plucked from the turf. At certain times, a black reproductive structure, known as perithecia, may be seen low down on the stem. This is usually found immediately below the leaf junctions. The perithecia contains many banana shaped asci, each containing 8 long ascospores which serve to spread infection. Infected patches become devoid of bent-grass species and contain only non-susceptible grasses.

### Occurrence

Most common in late summer and autumn.

### Other influencing factors

Waterlogging and surface alkalinity increase the likelihood of this disease

### Grass species involved

Bent grasses (*Agrostis*)

### Control measures

Avoid over application of lime during the summer. Liming is best done in the autumn and, after a suitable interval, should be followed by a dressing of fertiliser to re-acidify the surface. Attention to drainage of wet areas is recommended

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