Tyre care

This is an aspect that is often overlooked. It should be part of the general maintenance programme, as tyres need to be thoroughly inspected at least once a fortnight.

1. From the above it is clear that the correct inflation pressure is the number one priority and this needs to be done on a regular basis. The recommended psi can be found in the machine’s instruction manual. If this is not available contact either the supplier or a specialist tyre company. Use a gauge to check - guessing the pressure will not solve the problem.

2. Valve caps should always be fitted. Dust or dirt can find its way under the seating and cause a leakage.

3. Always be on the look out for signs of damage to the tread and side walls. A bulge indicates that things are not right. If a stone or other foreign body has lodged in the tread it needs removing. Any deep cuts will also require attention.

4. Where equipment is laid up for a longish period the tyres will have to be rested. The whole unit should be raised on jacks or blocks to take the load off the wheels.

5. Correct storage is important. The tyres (or wheels with them fitted) should be kept in a dark place, away from petrol, oil and other chemicals. Electric motors give off ozone, which over a period of time will break down the rubber content of a tyre, so they should be stored well away from these.

If a puncture does occur there are tyre sealants and plug kits now available to carry out an on site repair. Having a stock of these readily available will save a lot of time. Your local specialist will be able to give details on these products and advise which are the best.

If equipment is going to be used on the public highway the tyres and any repairs must conform to the regulations.

After the engine the tyres are some of the most important components in a piece of equipment is to work satisfactorily. In the event of a flat due to neglect, wear or a puncture the machine is inoperable. A lot of time can be wasted getting it repaired or obtaining a new one, so it makes sense to look after them correctly and thus reduce unnecessary hassle in 2001.

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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.
**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.

**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: Laetia ria fuciformis, where red needles are present - Red Thread, and Limononomyces roseopilosus, where pink mycelium is present - Pink Patch

**Occurrence**
Very common. Occurs during summer and autumn.

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

---

**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.

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**Take-all Patch**

**Symptoms**
Rings or part rings of orange/brown grass from 0.1 to 1 metre in diameter. The band of dying grass is usually about 0.1 metre across and is predominantly the result of a fungal attack on the roots which become grey and discoloured, thereby allowing the affected plants to be easily pulled 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 ascii, each containing 8 long acospores 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 spp).

**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.

Jenny Murphy is the Technical and Registration Manager of Aventis Environmental Science
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Six of the country's top men give their views on pests (Leatherjackets, chafers, worms, rabbits and moles) and how they combat them

Pests  (Leatherjackets, chafers, worms, rabbits and moles)
Compiled by Malcolm Huntington MBE

Name: Iain MacLeod
Course: Tain GC, Rossshire
Region: Scotland
Course Type: Links
Staff: Head Greenkeeper plus four

Which pests give you the most problem?
Leatherjackets and moles. It used to be rabbits, but we employ someone to shoot them now and whereas we used to get as many as 30-40 in one night now we only see the odd one.

Name: Pat Murphy
Course: Shipley GC
Region: Northern
Course Type: Parkland/heathland
Staff: Course Manager, plus six, plus two gardeners

Moles are the main problem, but I also get damage from rabbits, badgers and deer.

Name: Neil Whitaker
Course: Arkley GC, Herts
Region: Midland
Course Type: Mixture of parkland and heathland
Staff: Course Manager, plus two (nine holes)

Rabbits, closely followed by moles. We also have worms and a few leatherjackets in addition to quite a few foxes.

Name: Billy Mitchell
Course: Perranporth Golf Club, Newquay, Cornwall
Course Type: Duneland, links type
Region: South West and South Wales
Staff: Head greenkeeper plus three (365 acres)

Rabbits and moles are the biggest problems and we get more moles if we have worms about.

Name: Billy McMillan
Course: Mannings Heath, Horsham, Sussex
Region: Parkland (36 holes)
Staff: Course Manager, plus two Head Greenkeepers, eight greenkeepers plus mechanic (winter), plus three more staff (summer)

Worms are by far the most debilitating problem on our courses and I see them as a major concern for many people in years to come if, as seems possible, winters get wetter. We don't get a lot of leatherjackets here.

Name: Joe Findlay
Course: Royal Portrush Golf Club, Co Antrim
Region: Northern Ireland
Course Type: Links
Staff: Head Greenkeeper plus 13, plus five part-timers in summer (36 holes, nine-hole pitch and putt course)

Leatherjackets are the only real problem. There are no sign of worms because of our sandy soil.
How do you identify them early? How do they affect play? What measures can you take to prevent them? What measures do you take to tackle them if they have hit?

We see the cranefly on the wing and also laying on fairways and greens and the presence of various birds, including the hooded crow soon let us know they are about.

Not really at all. We try to nip things in the bud when possible. We didn't aerate in August, September and October this year so that there wouldn't be ready-made holes for craneflies to lay eggs. Instead we tine and verticut in November.

We spray for leatherjackets in November and, if there is a major infestation, in March as well. Because we are on sandy soil we get few problems with worms but greens are sprayed to deal with what few we have.

We trap moles, net rabbits but don't touch badgers, which are protected, or deer. I am a nature lover so I don't like to see shooting on the course. I am a bit worried that we may struggle to find something to deal with worms one of these days. There hasn't been anything as good as chlordane, which is now banned of course.

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28 Grekeeper International January 2001
Walter Woods reveals the trials and tribulations which went into producing the acclaimed new Kingsbarns course just outside St Andrews

Making of a masterpiece

Kingsbarns Golf Links is just six miles south of St Andrews on the east coast of Scotland. The village itself is picturesque containing a small church with a large steeple which dominates the skyline.

Being close to St Andrews it is not surprising that golf was a favourite pastime among the locals and this dictated that there should be a golf course of their own to allow them to improve their skills. To achieve this a compact but delightful nine hole golf course was created and founded in 1793 on a flat piece of land adjacent to the sea and protected by a large grassy sea bank. This allowed golf to be played and enjoyed for many years but to their disappointment it would be closed down to allow war exercises to be practised.

The remaining Kingsbarns golfers then joined other local golf clubs but still to this day play annually for the original trophies at nearby Crail Golf Club. Since 1939 the golfing ground had been allowed to grow for cattle grazing purposes.

The new Kingsbarns was resurrected when a local businessman spotted its golfing potential. He contacted two American investors who soon realised that an outstanding traditional Links embraced with coastal sea views could be constructed which would eventually reflect the heritage of Scottish traditional golf

Following initial introductions, the first few months were occupied by meetings and planning. Kyle Philips who originally worked with Robert Trent Jones Jnr was contacted then selected as the Architect to work in coordination with Mark Parsinen. Kyle Philips designed the routing from one to 18 with Mark following up by designing the mounding, slopes and hollows which are the features which
add character to rugged sea-side Links.
The design of the new course was split into two levels, the upper and lower, with the objective of having as many playing areas as close to the sea as possible. The upper level because of its more agricultural type soil required to have the heavy texture balanced by exchanging and mixing a plentiful supply of sand taken from the lower level. This was time consuming but would be beneficial in the long term.

When I was contacted by Mark Parsinen it was mainly to give advice and also to contribute my Links experience gained by working at St Andrews for over 20 years. I was also given the authority of promoting many projects which are required in the forming of a golf course.

Large bulldozer earth moving equipment operated with skilful trained shapers can grade any mound or contour specified to the plan or drawing. This can be applied to any golf course whether it be Links or inland - with the added benefit that sand can be easier to move than clay. Kingsbarns because of its location would be split into two levels, the upper and lower.

Maintenance buildings were sourced and investigated with the view that this building would be the nerve centre of the project, large enough to contain all necessary machines to serve a high standard well-maintained golf course. Over the next few months frequent rain showers inflicted many delays which were frustrating. Every day, or each dry spell, had to be taken advantage of. Motivation and organisation were the key words required to drive forward every inch of progress.

Once a fairway green or tee was completed they were assessed by the Architects then passed onto the contractors for cultivation, preparing, then seeding. Large areas were seeded by machine drilling lines of seed at varying angles. The mounds or slopes were hydroseeded which is a machine containing a large tank which water seed and a paste-like substance is mixed then high pressure powered sprayed onto the surface at equal thickness allowing the seed to stick and germinate much quicker.

Owing to the traditional aspect fine blends of grasses were selected capable of blending to form a uniform sward. These were mainly consisting of fescue and bent grass which provide the seaside appearance but are also capable of withstanding the vagaries of our ever changing weather.

Seed selected for fairways would be 20% slender creeping red fescue, 30% chewings fescue, 50% strong creeping red fescue, 10% Brownlee Bent with 10% Poa Pratensis for quick healing purpose.

For greens the seed selected would be 30% slender creeping red fescue, 40% chewings with 30% Brownlee Bent grass.

Tees were almost similar to greens but had a percentage of Poa-Pratensis added with a slight reduction to the creeping red and chewings. Roughs on a Links, particularly the peripheral mounds and dunes, is where the whole visual aspect can be highlighted like a beautiful lady all dressed up. We chose sheeps fescue as the main variety mainly because of its upright slender graceful stance which changes to a delightful pinkish hue towards the late summer.

During 1998 seeding continued to all areas. While achieving this, two out-of-play locations were selected for heather planting by plugging small potted heathers into the ground but before doing so the selected ground was made acid by spreading aluminium sulphate. Gorse bushes which are common to links were also planted at chosen points mainly to provide strategic playing issues. Broom which has a similar appearance to gorse but is not so hardy, was attempted by adding the broom seed into the hydroseeder tank when seeding the outer perimeter mounds. This became surprisingly successful. 1998 progressed slowly often with unexpected difficulties experienced mainly by heavy rainfalls creating flooding then gathering force washing out many of the newly cultivated slopes finishing up with depositing large heaps of soil and seed. Patience