

RESEARCH UPDATE

by Neil Baldwin, plant pathologist at the Sports Turf Research Institute

BROWN PATCH *Rhizoctonia Solani*

BROWN patch is widespread in the USA but, until recently, it has caused relatively few problems on British golf courses. However, the disease has been seen more frequently over the last two or three years and during the summer of 1987 several severe outbreaks were seen by STRI advisory agronomists.

Brown patch, regarded previously as causing few problems, is now recognised as a serious disease of turf during the summer months.

The symptoms of brown patch are largely dependent on the weather and consequently vary greatly.

Watch out for light brown, circular or irregularly shaped

patches of blighted grass, up to 15 cm in diameter which may develop quite rapidly (Figure 1). At first sight brown patch may be confused with fusarium patch disease. The diseases can be distinguished as, in the case of fusarium patch, an orange-brown colouration to the patches may be seen together with white or pink mycelium around the patch periphery.

In general brown patch seems to affect all species of turfgrass equally, although sometimes the bentgrasses (*Agrostis* spp) can appear more susceptible.

Following a change in the weather, or after fungicide application, surviving plant crowns, stolons and rhizomes in affected areas produce new leaves and the bare patches gradually fill in.

Extensive observations of brown patch in the USA have

REGULAR readers will have seen, in previous issues of the *Golf Course*, articles describing the major turf diseases - fusarium patch, fairy rings, take-all and dry patch. To conclude this series, attention is focused on some of the less common disease problems of golf courses. Although these diseases at present rarely cause significant damage, they are recognised in other parts of the world as major problems and may, in time, become serious here. Consequently, the potential threat posed by these diseases must be recognised so that control measures can be speedily implemented.

indicated that the disease most often occurs during warm (above 22 degrees), humid weather. Also, it is known that extensive damage can only occur during prolonged periods of leaf wetness caused by poor drainage, cloudy weather and a heavy dew. Furthermore, dense lightly fertilized turf is most susceptible to infection.

The persistent showery but warm weather during the summer of 1987 (in which the disease was seen extensively) would have provided ideal



Figure 1: Brown Patch disease (courtesy of May & Baker Environmental Products)



Figure 2: Anthracnose Note the black rotted base.

SLIME MOULDS AND SQUIDGE

conditions for brown patch development.

Any management practice that promotes a dry turf surface, e.g. a good drainage system and regular scarification to remove water holding thatch, will discourage brown patch. It is particularly important to switch greens every morning to remove dew as prolonged leaf wetness favours the disease. Summer applications of nitrogenous fertilizers should be light and frequent rather than single heavy applications being made, particularly when weather conditions favour the disease.

Fortunately, brown patch can be easily controlled with fungicides. Both iprodione (Rovral Green) and chlorothalonil (Daconil Turf) have a manufacturer's recommendation for control of brown patch. These fungicides will give best disease control when applied at the first signs of the disease.

ANTHRACNOSE *Colletotrichum graminicola*

BACK in 1953, diseased annual meadow-grass plants from a cricket square in Birmingham were examined at the STRI and the first case of anthracnose was recorded in the UK.

At the time it was described as a rare and unimportant disease. Now, it may be found in many golf greens and, in swards consisting largely of annual meadow-grass, may cause significant damage.

The first symptoms of attack by anthracnose to watch out for are leaves of infected plants turning yellow or even red. Similar symptoms can also be seen in annual meadow-grass when it is under stress. However, diseased plants, which can occur individually or in patches, are blackened and matted at the base and are consequently easily removed from the turf surface (Figure 2).



Figure 3: Globules of 'squidge' on fine turf

If the outer leaf sheaths of infected plants are peeled back then the black reproductive structures (acervuli) of *C. graminicola* can be seen - a diagnostic character used to positively identify the disease.

Anthrachnose is considered to be a 'biological indicator', i.e. its presence actually indicates that turf conditions, in certain respects, are poor. The disease usually only appears where turf fertility is inadequate and where compaction restricts the supply of air to the grass roots.

Long lasting control of anthracnose can be achieved only by rectifying these predisposing conditions. If the disease is present, the turf fertility, particularly in regard to nitrogen, should be increased during the summer months. Compaction, a problem at many golf clubs due to the ever increasing rounds of golf being played, can be alleviated by Verti-draining and slitting operations. If these control measures are deployed, the anthracnose will be contained.

In situations where anthracnose is causing serious problems, fungicides may be considered and, if used correctly, will give some control. However, the disease will soon return if the predisposing conditions are not rectified.

ALTHOUGH not strictly speaking diseases, as they do not harm plant tissues directly, the activities of certain fungi and algae (tiny one-celled plants with no true stems or leaves in turf may cause problems by rendering the surface very slippery which, especially on sloping ground, can present a dangerous hazard to golfers.

Despite slime moulds and squidge having a very similar end result, they differ in the way they actually cause the problem.

Slime mould fungi, e.g. *Mucilago spongiosa*, colonise grass leaves and produce masses of spore capsules surrounded by slime.

In contrast, algae, e.g. *Nostoc* spp prefer to colonise bare areas in the turf that may have been originally caused by disease or excessive wear, such as on approaches to greens. These algae can multiply rapidly, resulting in a dense algal slime within the turf (Figure 3). If these areas are walked on then the algae rise to the surface, stick to one's shoes and are exceedingly 'squelchy' - hence the common name for this problem - squidge.

Both slime moulds and squidge develop in shaded, damp, poorly drained turf. Where infection is heavy the slime produced can be brushed into heaps and taken away. Areas can then be treated with calcined sulphate of iron, dichlorophen (Super Mosstox) or cresylic acid (Brays Emulsion) which will suppress the slime moulds or algae for a time. The problem can only be prevented in the long term by attention to drainage and sand top dressings to keep the turf

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YELLOW TUFT *Sclerophthora macrospora*

surface as dry as possible. YELLOW tuft is widespread in the USA and New Zealand, but is as yet very rare here, and consequently not familiar even to experienced greenkeepers. The term yellow tuft has been used for more than 50 years to describe certain symptoms in bentgrasses (Figure 4) for which many possible causes, such as parasite nematodes, a viral infection or a physiological disorder have been suggested. However, research in the 1970's confirmed it to be a disease caused by *Sclerophthora macrospora*, a member of the downy mildew group of fungi.



Figure 4: Yellow tuft disease

The symptoms of yellow tuft to watch out for are small yellow patches, approximately 3 cm in diameter, consisting of a dense cluster of excessively tillered bentgrass shoots with few roots, which are consequently easily pulled from the turf. These symptoms are most prominent during late spring or autumn and as the spores

produced by *Sclerophthora macrospora* can actively swim in water and infect new plants, the disease is usually found in poorly drained areas. At present, yellow tuft is considered a novelty and not serious enough to warrant any specific control measures. If you see this disease on your greens we would be most interested to hear from you.

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