

RESEARCH UPDATE...

Neil Baldwin, plant pathologist at the Sports Turf Research Institute has been researching the causes of and solutions to the dry patch problem. In this article he describes in detail one of the main causes of dry patch and describes control measures available.

MOST greenkeepers will have come across the condition known as "dry patch" at some time during their working life. The typical dry patches which affect both sward uniformity and the playing quality of the turf occur as frequently on less intensively maintained areas like fairways as they do on the finer turf of golf greens. Causes of dry patch are many and varied.

Dry patch may be caused simply by the physical characteristics of the area, such as mounds or undulations which, being higher than surrounding turf, are the first to dry out.

Localised dry spots can also be created by compaction due to foot traffic or extra mowing around the green perimeter. The formation of a surface mat of fibre can also be a factor in dry patch development. Where such fibre is allowed to dry out, it is extremely difficult to re-wet, and consequently these areas show up as very dry patches.

In most cases, special hand work (aeration and watering with a wetting agent) should be effective in dealing with cases of dry patch.

Of increasing concern is the type of dry patch caused by certain soil-inhabiting fungi, to which sand-based greens are particularly prone. The classic example is, of course, the dry bare patch or ring created by the fairy ring fungus *Marasmius oreades*.

FIGURE 1. Sand grains (A) covered with fungal mycellium (B). (approx. x 400 magnification).

FIGURE 2. Extensive colonisation by fungi (D) covering sand grain with a waxy, water repellent substance (C). (Approx. x 1000 magnification).

Recent research at the STRI has examined closely dry patch areas and, in many cases, dense fungal mycellium has been found in affected areas. It has been found that the zone of maximum non-wettability in such patches is immediately below the thatch layer, i.e. in the top 1-2 cm of soil, which confirms similar studies on dry patch undertaken in New Zealand.

In collaboration with Leeds University, sand grains from this water-repellent zone have been examined using a scanning electron microscope (SEM). Whereas an ordinary optical microscope works by focussing light rays of a magnified image using glass lenses, a SEM relies on beams of electrons focussed using magnets, which are then viewed on a television screen. As can be seen in the photographs (left) superb quality images at high magnification can be obtained.

These photographs give us indication of how the fungus makes the affected area so water-repellent. When observed at low magnification, (Fig.1 approx. x 400) sand particles covered with wispy fungal mycellium can be seen. At higher magnification (Fig. 2 approx. x 1000), the fungal mycellium seems to be embedded in a substance coating the sand grains. Workers in New Zealand have analysed these substances and they have been characterised as waxy materials which, by their very nature, are hydrophobic.

Now the exact cause of this dry patch condition has been elucidated, strategies to alleviate the problem can be developed. To date, extensive use of wetting agents such as Aqua-Gro, Pene-Turf or Synperonic on a routine basis have been met with some success.

DATES FOR YOUR DIARY

THE dates and venues of this year's Turf Care Workshops, a national series of regional conference, are now available.

Such notable industry personalities as Dr Peter Hayes (STRI), James Kidd (Gleneagles) and senior representatives of such leading companies as ICI, SISIS, TORO, SAI, LELY and FARMURA, are all coming together under the chairmanship of Howard Swan, Chairman of the National Turfgrass Council.

Write to Turf Care Workshops, Freepost, Basildon, Essex. SS16 6BR for more details.

THE British and International Golf Greenkeepers Association, Northern Area, are holding a one-day seminar on Thursday, 19th November on 'Greenkeeper, Golf Course and Conservation'.

The seminar is being held at Askham Bryan College of Agriculture and Horticulture, York, and its objective is to highlight and bring into perspective the golf course environment, its ecology and the way it is manipulated, used and abused.

Speakers will include Dr Andrew Deadman from the Nature Conservancy Council, Bob Rust from the Leeds Weather Centre, Dr Kenneth Mellanby from the Institute of Terrestrial Ecology, Fred Hawtree, a golf course architect, Martyn Jones, a Consultant agronomist, and David Hannam, a head greenkeeper.

If you would like to take part, contact David Hannam on Menston 72008. The fee for the day, which will include lunch, is £15

COURSES IN TURF MANAGEMENT

THE STRI will hold three courses at Bingley in the Autumn on the theory and practice of turf construction and management.

The courses last five days (Monday to Friday) and will cover soils, grasses, turf diseases and pests, drainage, watering, fertilizers and machinery.

The commencing dates are 19th and 26th October and 2nd November. The fee is £94 for members and £115 for non-members plus VAT (exclusive of accommodation and meals).

For further details from the Secretary, Sports Turf Research Institute, Bingley, West Yorkshire. BD16 1AU Telephone Bradford (0274) 565131