

additional factor to bear in mind with shaded situations, especially where bentgrasses and annual meadow-grass are growing.

In coarser turf, the effects of grandstand shade on football pitches can often be conspicuous: exclusion of sunlight, perhaps combined with shelter from wind, causes moister soil and therefore perhaps greater soil compaction. All these factors tend to favour annual meadow-grass at the expense of perennial ryegrass. Observations on English league soccer pitches in 1970, reported by Bryan and Adams at Aberystwyth, and observations on pitches at Basle in Switzerland, by Skirde, have borne this out.

DRY PATCH

Dry Patch as a "disease" of fine turf on golf and bowling greens is a problem feature which has been well-known for at least 50 years, but it has never been more troublesome countrywide than it is now. It is an apparently increasing problem too.

Dry Patch is where local areas of greens, ranging from small, isolated patches to a general effect, dry out completely and the soil becomes water-repellent. Good quality bent and fescue turf can survive these conditions, but the surface it provides tends to be thin and hard throughout the year. However, where annual meadow-grass dominates, a situation develops of a cycle of complete die-back in dry weather and a slight recovery with more persistent rain.

Small, individual dry patches are usually tolerable in a situation where they are not central to a green, but where there is a more of a central or general effect, the dryness can cause considerable upset to surface smoothness through the summer

months (even in a wet summer) as thatch beneath the grasses is shrunken where conditions are dry, and is swollen when wet. This gives a visual effect of either local thin/blue/dead patches, or a reticulant pattern of ribbons of blue/brown/dead turf surrounding green cushions.

Beneath the turf in Dry Patch areas the soil is snuff-dry, and without action to encourage re-moistening, it remains in this condition throughout the year, summer and winter. These dry areas have a distinct boundary, and the soil only an inch away can be moist in comparison.

Why this water-repellent characteristic develops is often something of a mystery. It can be associated with both active and dead fairy rings, but not necessarily so. It can be there in conjunction with a very low pH in the turf base, but again this is not necessarily the case. Neither is Dry Patch always confined to water-shedding mounds and ridges, nor with excessively thatchy greens, nor with one particular soil type. But all these factors can have some influence over its development.

Once Dry Patch gets a hold, re-wetting the soil is very difficult to achieve, particularly in summer. Water beads off these patches, just as it does off a waxy surface. So, to re-moisten the soil it is essential to make what water is applied wetter, and to help it into the ground.

In the 1930s, the surface tension of water (i.e. the physical factor which gives it a tendency to form beads) was broken up using soft soap solutions, but over the years since then commercial wetting agents have been used with success too. In recent times wetting agents have been specially formulated for the turfgrass industry, and these materials are of particular benefit. (That it has been worthwhile for manufacturers to develop and test special products for treatment of Dry Patch will give some indication of how widespread this problem is.)

The choice of wetting agent for treatment of Dry Patch is all important. Obviously, a product containing bleach cannot be used, but it is essential to avoid a detergent containing a high concentration of sodium too, as this would cause structural damage to the soil crumbs with repeated use. So, it is generally safest to stick with tested products.

When applying these wetting agents, as with all treatments, prevention is better than cure, and if a green or greens have features such as those listed above which can be associated with a Dry Patch condition, then there is much to be gained from routine use of a wetting agent through the April to October period, applying the chemical at four to six week intervals. This should be tied in with routine or local aeration using slit or (preferably) chisel tines.

In situations where Dry Patch is a major problem, treatment has to be more intense. The turf surface has to be opened up, e.g. by piercing or chisel tining; the wetting agent has to be applied every two to four weeks; and the treatment has to be tied in with spot watering, even if some rain is falling. Also, in the worst cases, this treatment programme has to go on through the whole year, including autumn and winter applications of the wetting agent. Whilst there may be some superficial recovery of Dry Patch through the autumn, unless the water-repellent character of the soil is completely broken, then the turf will deteriorate again the following summer.

Where turf is killed by Dry patch, repairs are best effected by "plugging", taking good turf from the surround to the green and plugging with a hole cutter into the affected area on the green, if the damage is fairly localised.

The reason why Dry Patch is an apparently increasing problem in the 1980s seems to be that the symptoms are far more obvious now that irrigation is

commonly used to promote a consistency of surface characteristics during drier summers, and the expectation of players in terms of what should be provided is progressively rising. During the period 1930 to 1960, greens in general would go brown in dry weather as a matter of course, so there would not be much differentiation between Dry Patch affected and non-affected areas. Moving into the late 1960s and the 1970s, irrigation tended to be over-used which masked the effects of Dry Patch, but caused a number of other difficulties, most of which are more acute than the Dry Patch itself. Now that the need for minimal irrigation on fine turf in summer is quite well established, the Dry Patch shows through.

But even minimal irrigation, sensibly applied, can inhibit the development of Dry Patch, it all depends on what is regarded as minimal irrigation. There is no merit in under-watering, nor allowing whole greens, or local areas of greens, to dry out completely before general or spot watering, if the green is in a basically good condition. This excessive drying is something to be wary of in the control of Dry Patch. So, irrigate sensibly.

To sum up: Dry Patch is a "disease" which will occur on most greens in summer to a degree at some stage. However, its frequency of occurrence and severity can be minimised by careful treatment with this problem in mind. When it does get a hold it can be cured, but only with difficulty and only with persistence.

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