

FUNGICIDES

What they are and what they do...

The management of golf greens is a difficult enough task at the best of times, but just when you think you have things under control (and that includes the golfers!), along comes a funny-looking patch of discolouration right in the middle of the green – an attack of disease! But which one and how should you treat it? Sounds familiar perhaps, but it happens to even the most organised and professional of greenkeepers.

Thankfully, frequent articles and literature from manufacturers and other technical sources, largely with excellent graphic illustrations, have prepared most greenkeepers and they quickly recognise the disease characteristics and apply the appropriate treatment. Even if the disease is not identified there is excellent help at hand in the guise of Neil Baldwin at the STRI, together with various highly competent manufacturers representatives.

But why do we get the attack in the first place? Dr Beard from the USA once said that within the turf sward there lived in perfect harmony every organism known to man. Suddenly one of them multiplies and the balance is upset and a disease attack occurs. This can be caused by several different factors ranging from soil pH, plant health and fertility through to weather, the overall environment on the

surface of the green – even the type of bunker sand used.

Every day our management influences the balance of these microbes, but we cannot control them. Balanced use of the correct quantity and type of fertiliser will influence growth and inner health, whilst mechanical treatments will reduce surface moisture concentrations and increase root activity – though along with the marching army of golfers this can create wear or physical damage by bruising the plant, all of which may make it more vulnerable.

Fungicides help us to limit the damaging effects which an explosion of one or other microbe might cause, doing this by effectively killing them, either singly or in groups, and achieving this by 'contact' or 'systemic' action. Different chemical components attack the microbes, reducing their numbers and altering the balance – and thus bringing about a balance that is more stable. A potential problem exists with the use of these fungicides in that over-use of single chemical groups can produce resistance in the disease. We have all heard of Warferin resistant super-rats and of rabbits that can survive myxomatosis – well now Mother Nature has fought back on the turfgrass disease front as well and indeed there is even *poa annua* that is resistant to paraquat!

The most effective fungal control is one that will ➔ 18

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Fungicides

16 → reduce those conditions that may encourage an attack. Alkaline surface conditions may encourage fusarium, for example who has fusarium around bunkers (which are filled with high pH sand)? In addition, take-all patch is predominantly a problem on high pH greens.

Each and every disease has its own set of preferred conditions which aid its rapid development. Unfortunately conditions to reduce one disease may assist the development of another, for example autumn nitrogen of the wrong type and out of balance with other nutrients can encourage fusarium, whilst the presence of nitrogen in winter can suppress anthracnose.

Careful selection and application of materials can help: the use of iron to toughen the plant from the outside is well known and widely used, but what of potassium for cell wall thickening and therefore protection from the inside?

Work in Australia has concentrated on selecting the appropriate 'antagonistic' organism from the soil, multiplying it and re-applying it in a top dressing to effectively attack the disease biologically. At present there are no known top dressings commercially available incorporating this system but such introduction must only be a matter of time.

Work in the USA has developed along the route of organic fertilisers, which are thought to encourage the development of micro-organisms antagonistic to turfgrass disease causing factors. These may also be an aid in disease control by providing additional nitrogen to the plant (a point mentioned earlier), but as yet the actual mode of action is unknown. Current work on this front has shown some suppression of dollar spot and brown patch on bent-grasses, but there is still some way to go in producing effective recommendations.

Do not write off chemicals. All manufacturers are actively looking at new actives (and at new uses for old ones), with undoubtedly one of the more interesting developments being the use of microbes to manufacture actives. This has the advantage of reducing harmful wastes and producing purer actives which can truthfully be said to have been 'naturally made'!

The first herbicidal product to be made in this way is already marketed and in use in agriculture and is proving very effective.

In summary, may I suggest that greenkeepers should be vigilant in avoiding conditions that favour disease whilst encouraging those conditions that hinder such diseases, and avoiding the possibility of chemical resistance; perhaps by varying the chemical groups that are used.

Finally it must be a case of 'watch this space', for it will only be a matter of time before alternative treatments and methods are here to help us.

● The author, A John Hinton, is the amenity specialist for Kings Horticulture Ltd.

Something to say? Share your thoughts on any greenkeeping matter with readers of the industry's most respected magazine. Send your letter to The Editor, Greenkeeper International, 13 Firle Close, Seaford, East Sussex BN25 2HL. We reserve the right to edit submissions.

■ Chlordane demise 'fraught with problems'

■ I refer to the article 'The Worm Keeps Turning', which appeared in December, and to the manufacturers reply on availability of 'Castaway Plus'. Despite protestations of the product being as 'readily available today as it has been for some years', the real truth is that the product is not available. A recent letter received from the manufacturers states "due to tremendous demand for this product during the latter months of 1991 we have, temporarily, sold out of this product". It does not take too much intelligence to realise that they have either been caught with their marketing pants down - or they are trying to pull a fast-one! Only a fool could fail to realise that demand was bound to be higher, since the option of a wettable powder is, by me anyway, backward and unacceptable.

Jon Allbutt is right in his assertions, the demise of Chlordane is fraught with problems, and the options that are available, eg. Controlled Droplet Applicator (CDA) Castaway Plus and wettable powder Twister are, in my opinion, lesser attractive alternatives. It was interesting to also note in their letter that they suggested changing the order to one of these alternatives. I am of a generation that has grown up with the ability to see straight through such transparent ruses and I am not amused!

A CONCERNED GREENKEEPER
Name and address supplied

■ I write to extend my thanks to the Scottish North Section for their excellent idea of provid-

ing funds toward expenses for two regional members to attend either a major BIGGA conference or seminar. Being positioned remotely on the map, attending something of this nature would not normally be considered by a great many in our area. The idea of a section competition, answering greenkeeping questions, is quite an ingenious way of providing a prize, one that enabled the winners to broaden their greenkeeping knowledge.

Needless to say, my trip to Harrogate for the BTME was both very enjoyable and worthwhile. I obtained new information from various seminar speakers, kept my ears open for invaluable tips from proven greenkeepers and other members of the trade and made many more friends. I look forward to returning to such an event in the near future.

GEORGE PATERSON
Fortrose and Rosemarkie GC
Ross-shire

■ May I take this opportunity through the magazine to say a few thank-yous. First, to the committee of the North Section (Scottish Region) for giving me the opportunity to attend BTME in Harrogate in January. I had a most enjoyable week and gained valuable knowledge which, no doubt, will prove beneficial to me in the future.

I must also pay tribute to some of my colleagues who made it such an enjoyable week, especially my room-mate, Dougal Duguid.

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