

# Changing face

Dr Terry Mabbett speaks to various industry experts to analyse how anthracnose has changed, how to deal with it and how it can be one of the downsides of good summers

**Lengthening shadows and falling leaves were the traditional signals for anthracnose as a dark coloured basal rot on *Poa annua* caused by a thatch-residing *Colletotrichum fungus*.**

Anthracnose on turf was originally assigned to *Colletotrichum graminicola* but scientists more recently named *Colletotrichum cereale* as the main culprit on turf. The change is minor compared to the overall changing face of anthracnose on UK turf since the 1990's. Radical new dimensions encompass a wider range of turf grasses, different disease symptoms and a new time frame.

## **New disease dimension**

Anthracnose now appears as a foliar blight in summer on a much wider range of species. North America has a long history of foliar blight during spells of high humidity with temperatures over 22°C, especially on seasonally stressed turf struggling to grow over a dry root zone. Annual meadow grass (*Poa annua*) and creeping bentgrass (*Agrostis stolonifera*) are the prime targets, but smooth stalked meadow grass (*Poa pratensis*) and creeping red fescue (*Festuca rubra*) are also affected.

Summer showers and irrigation is repelled by the dry compacted surface of the root zone. Accumulating surface moisture has nowhere to go but into the thatch. Moistened within an envelope of high humidity the conditions are now set for fungal growth, spore production, infection and the rapid onset of foliar blight.

A remarkably similar pattern has evolved in the UK with anthracnose appearing as foliar blight on turf stressed out by high traffic and lack of moisture to cause dry compacted root zones and visibly stressed out grass plants.

Overall, annual meadow grass is the most susceptible species but as Dr Simon Watson of Syngenta told Greenkeeper International, "the foliar form of the disease affects

most turf grass species, including bentgrass and fescue."

Foliar blight is the downside of good summers. "Anthracnose appears to have been quite a widespread problem this year", says Joe Kinder, Technical Manager at Sherriff Amenity. "It's likely this reflects the harsher growing conditions associated with good summer weather."

Traditional autumn anthracnose only posed problems for greens with a high proportion of *Poa*. As a thatch residing fungus responding to classical autumn conditions of cool temperatures, morning mists and dew, basal rot anthracnose tended to occur alongside *Fusarium* Patch.

*Fusarium* was easily the number one disease of UK turf so fungicide sprays were almost entirely targeted at the causal fungus *Microdochium nivale*.

Rarely did anthracnose appear on fungicide labels for managed turf although everybody from chemical companies to greenkeepers knew most products with *Fusarium* on the label would 'do for' anthracnose at the same time.

According to Peter Corbett, Chemical Specialist at Rigby Taylor, the absence of anthracnose on labels was due to a combination of factors related to logistics and economics. The sporadic, localised nature of anthracnose meant it was difficult to find suitable trials sites and for the same reasons essentially uneconomic to conduct them, for anthracnose as a 'stand-alone' disease.

Greenkeepers striving for *Poa*-free greens actually welcomed a disease that would selectively clear out annual meadow grass. They saw basal rot not as a destructive disease, but as a useful biological control agent, a naturally occurring and operating mycoherbicide helping to maintain *Poa*-free swards.

"When I started in the industry over twenty years ago it was generally called 'annual meadow grass dieback' and was regarded by some as the greenkeeper's friend" says Henry Bechelet, Technical Sales

Close up on basal rot anthracnose in a *Poa* sward (Picture courtesy Syngenta)





# of anthracnose







Manager at Everris.

“These days anthracnose is an altogether different proposition and can cause significant damage if left unchecked. It seems that the increased pressure of ever more intensive management, coupled with greater demands for play and combined with ever more extremes of weather are creating conditions for the disease to flourish and strike harder and harder.”

### New order management

A new disease dimension calls for a new order of disease management with a more integrated consideration of the causes and the control of anthracnose. More emphasis is given to summer stress facilitating easier and quicker leaf infection and disease development, and environmental conditions that push a sedentary saprophytic thatch residing fungus into full parasitic mode.

Rising temperatures over compacted turf with dry patch symptoms is a ‘flag up’ for anthracnose. Moisture from summer showers or irrigation with nowhere to go except into the thatch will create and maintain surface wetness and high humidity, the ideal conditions for pathogen activity and anthracnose

disease.

Wetting agents to improve soil permeability and water holding capacity, to avoid dry patch and maintain stress-free turf in summer, clearly have an important part to play in anthracnose management. Discussing the advantages of their Tricure range of wetting agents in last month’s Greenkeeper International, Headland Amenity specifically cited the need “to get water into the root zone and keep it there to reduce the stress associated with turf diseases such as anthracnose.”

Dry compacted soil also impacts on fertility because applied nutrients can only enter the root zone and be accessed by roots when in solution. Other fertility concerns related to anthracnose revolve around contemporary trends in overall fertiliser use.

### Abrasive aspects of anthracnose

Aeration and scarification employed to avoid and alleviate stress can actually aggravate anthracnose especially when used during high risk periods. Anthracnose is also aggravated by traditional summer practices such

**ABOVE:** Anthracnose is now a disease ‘in its own right’ requiring targeted control in summer to manage the foliar blight form on a range of turf grass species

**RIGHT:** Close up on dark coloured basal rot damage on *Poa annua* plants (Picture courtesy Everris)

**ABOVE RIGHT:** Aeration should be carried out during low risk periods for anthracnose (Picture courtesy Syngenta)

**RIGHT:** Anthracnose can cause considerable scarring across the greens (Picture courtesy Syngenta)







as low cutting heights and frequent application of top dressings to reduce stress, as well as occasional rolling for tournaments.

The key and common factor is damage to grass leaves and stems however subtle that may be. I'm reminded of a comment made by David Senior at Vitax describing anthracnose "as tiny discrete yellow patches of infection corresponding to pitch marks left by golf balls and causing sufficient abrasion for fungal entry."

The abrasive effect of tiny silica (sand) particles in top dressings on grass plant surfaces is sufficient to open up grass foliage for anthracnose infection, especially if the dressings are well worked in.

Measures to alleviate stress should be carried out when anthracnose risk is low says Dr Watson, adding how greenkeepers can consult Syngenta's Greencast Website where anthracnose risk is plotted throughout the season on easy to read graphs.

Greenkeepers can use risk forecasts to time proactive fungicide applications more effectively to get the best results, and for tailoring fertiliser applications and synchronising other turf management







operations, which may impose stress on plants, to periods when anthracnose risk is low.

Access to historical data allows greenkeepers to review what was done and why, thereby providing a full justification of inputs and cost used to tackle those threats.

### Changing face of fungicides

Gone are the days when anthracnose was a side issue in autumn turf management and dispatched by fungicide sprays targeted at Fusarium Patch. Anthracnose is now a disease its own right requiring specifically targeted summer sprays when Fusarium is unlikely to be on the greenkeeper's radar.

Contemporary anthracnose is more difficult to manage but the parallel changing face of fungicides has gone a long way to keep the odds in the greenkeeper's favour. Twenty years ago it was unusual to find anthracnose on the fungicide label whereas today it is unusual not to.

Prevention is better than cure. "As it is not possible to treat the advanced stages of anthracnose disease, it remains important to treat at the earliest opportunity," says Joe Kinder.

Dr Watson reminds greenkeep-

ers to remain alert for conditions conducive to the disease, such as high wear areas dominated by annual meadow grass and where outbreaks have been experienced in the past.

Nutrition is recognised as having a central role in grass resilience to anthracnose with tank mixing of fungicides and nutrients increasingly at the forefront of current thinking.

"It is important we take an integrated approach and focus on preparing surfaces without stressing the turf," says Henry Bechelet, "and making sure we get the nutritional inputs right. We also need to use properly targeted fungicides to prevent significant damage taking hold."

Sherriff Amenity is closely focused on tank mixing strategies. "Having pioneered the fungicide and nutrient tank mixing concept, under an extensive trials programme at STRI, we are able to recommend both traditional and novel management options for anthracnose and other commonly occurring turf diseases", says Joe.

There is considerably more depth in the fungicide market for anthracnose management than two decades ago, in appropriate products, more two-and three-way

mixes of different actives and versatilities in potency, activity and mode of action.

Rigby Taylor has a six-product fungicide portfolio for anthracnose management.

"We offer a broad spectrum of control options for anthracnose made even more versatile through opportunities to tank mix our products. By adjusting rates greenkeepers can obtain a wide range of fungicide chemistry in a single spray without exceeding the maximum dose rate for an individual product as stipulated on the label," concludes Peter Corbett.

### Continuity of disease

Anthracnose clearly appears in two distinct forms at different times of the year. That said both phases are caused by the same fungus living on thatch in saprophytic or weak parasitic mode.

Under combined conditions of high surface wetness/relative humidity and low host 'resistance', the anthracnose fungus moves through the gears into full parasitic mode. Inadequate management of either form of anthracnose, foliar blight or basal rot, will leave than much more inoculum to act as a springboard for the following period of high disease pressure and risk.

The foliar blight form of anthracnose appearing in summer has overtaken the basal rot form of anthracnose historically occurring in autumn

### about the author



### Dr Terry Mabbett

Dr Terry Mabbett is a disease, pest and weed control specialist with forty years international experience covering research, advisory and journalism. His current fields of focus are professional turf and alien insect pests and pathogens of Britain's native and naturalised trees.