

Melting Out

Causal Agent: Drechslera sp., Bipolaris sp., Curvularia sp.

INTRODUCTION

Melting-out or more correctly “the leaf spot diseases” appear to be occurring more frequently and across a range of turf disciplines, particularly on golf, cricket and sportsfields.

CAUSE

There are several fungi associated with Melting-out and the dominance of any one fungal species, will reflect the environmental (particularly temperature) conditions occurring at the time. The situation can be further complicated, as these fungi often form complexes (e.g. *Bipolaris/Curvularia sp* or *Curvularia* and *Rhizoctonia*). The main fungi involved are:

Drechslera species – active in autumn/spring under lower temperatures 15-20°C

Bipolaris species – active in late spring-autumn 15-30°C

Curvularia species – active in summer >25°C

SYMPTOMS

The symptoms of melting-out take many forms and depends on:

- fungal species involved
- grass species grown
- environmental conditions

LEAF SPOTTING PHASE

Typically; at lower temperatures (<20°C approx) the leaf spotting phase predominates. Field observations indicate this phase is more common and damaging on browntop (particularly the improved cultivars) and to a lesser extent ryegrass.

This phase proceeds slowly and while occurring in autumn and spring, it is generally more damaging in autumn. On browntop, leaves turn purple-red before dying and typically give rise to small (approx <75mm) circular patches. Purple leaf spots may be visible on the leaf blade.

MELTING-OUT PHASE

At the higher temperatures (>25°C – approx) the crowns are infected and the melting-out phase predominates, affecting *Poa annua*, browntop or ryegrass.

Characteristically the leaf dies back from the tip back into the crown with:

Poa annua /ryegrass: turning a mixed green/light yellow colour then brown as the leaf shrivels and dies.

Browntop: the yellow (tan-yellow colour) is more pronounced before the leaf dies.

Generally melting-out starts as small irregular patches or a general thinning and in warm, humid conditions will proceed quickly, killing large areas of turf.

MANAGEMENT

Environmentally leaf spot diseases are favoured by:

- High humidity (70-80%+) or rain whereby the leaf and/or crown remains wet for at least 10 hours.
- Warm temperatures above 15-18°C, but which will depend on the fungal species involved.

There are a number of management practices that turf managers can consider to reduce their susceptibility to melting-out.

THATCH/LAYERING

The impact of excessive thatch and/or layer in favouring diseases such as melting-out is often under-estimated and is generally more severe in the golf sector on greens, collars and approaches. Thatch favours disease by:

- Creating or encouraging moisture extremes (saturation, dry patch).
- Acting as a food sources for fungi.

Management programmes (fertility levels, renovation, topdressing) which minimise, remove or dilute thatch can reduce susceptibility to diseases such as melting-out.

IRRIGATION

The objective is to both avoid over-watering which favours infection/spread and/or the combination of drying/wetting of the surface, which encourages spores to germinate. The latter scenario helps explain whilst dry patch areas can be a hot bed for disease or why cricket pitches can be susceptible to disease when they are re-wetted up following play.

Where your turf is susceptible to melting-out consider:

- In dry summers, irrigating daily (30-50% Et) to keep the surface moist.
- Deep watering as required, to maintain moisture at depth.
- Ideally irrigate in the early morning (1.00 – 5.00am) to reduce the period that the leaf remains wet.

DRAINAGE

Poor drainage due to impermeable soils, excessive thatch, poor contouring etc, is over summer a potential disaster waiting to happen. Pondered water/saturated soils and summer temperatures are a perfect combination for disease to thrive.

With “global warming”, warmer temperatures, erratic and heavier rainfall events, will place a greater premium on providing good drainage.

FERTILITY

During late spring-early autumn, avoiding growth extremes by regularly applying small quantities of nitrogen and potash, can reduce disease by:

- Encouraging recovery (new tillers) from the leaf spotting phase.
- Avoiding infection/spread of melting-out phase.

Anecdotal evidence suggests that on browntop, low potassium levels (<2% approx) coupled with a low pH (<5-5.1 approx) may contribute or increase susceptibility to the leaf spotting phase.

OTHER

Some herbicides (MSMA, Dicamba, 2, 4-D etc) have been linked to encouraging melting-out. Avoid using such herbicides when environmental conditions are favourable for the disease, or couple their use with a preventative fungicide programme.

Take care with topdressing, particularly on ryegrass and *Poa annua* surfaces. Sanding can encourage disease due to abrasion injury or where the crown is buried with heavy sand (topdressing) applications due to the increased period of wetness that results.

CHEMICAL

Correct fungicide selection and water-rate are important, as some fungicides are ineffective or are reported to aggravate melting-out. Best results are achieved with Dicarboximides (Rovral, Sumisclex) Strobilurins (Amistar, Flint) contacts (Thiram, Manzate, Chlorothalonil) and Sportak (*Note 1*).

Leaf spot diseases are prolific spore producers and follow-up application(s) of a contact fungicide are important particularly following severe disease outbreaks, to prevent reinfection.

Note 1: The DMI group (Tilt, Alto, Rubigan) generally provide poor control or are ineffective against the leaf spots. Sportak (Prochloraz) is an exception and provides good preventative and curative control

For more information or to talk with one of our Agronomists, please contact:

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