

Spring Dead Spot – planning for effective management

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Spring Dead Spot (SDS) of couch grass is a member of the Ectotrophic Root Infecting (ERI) group of fungi. The ERI group covers a number of other disease conditions that may affect intensively managed turf, e.g. couch grass decline and Take-all patch, but symptom expression and host specificity allow separation to discrete diseases.

The ERI complex has certain diagnostic features highly typical for the family which can be used for preliminary identification purposes. They can be identified by runner hyphae that travel along root structures that then peg into the root at intervals. For Spring Dead Spot, the roots of affected plants turn dark brown to black and regrowth of grass into affected patches is slow with patches potentially remaining barren and vulnerable to colonisation with weeds.

This is a disease for which visible symptom development occurs well after an infection has occurred and it is the 'infection window' that must be understood for effective treatment and prevention.



Infection window and symptom expression

In late summer, there is a point where soil temperature and the related root activity of warm season grasses progressively decline and the activity (read: infecting potential) of the SDS fungi rises. As we switch seasons into autumn, the competitive edge shifts in favour of the pathogen and the crossover point is our infection

target period that a treatment needs to address. If we tried to graph it, we would draw an extended area around this point and call it our window of vulnerability and plan to have a treatment available through this window. There is a reasonable consensus that this target is around the 20-degree Celsius average soil temperature point. This is coming from quite recent work not 30 years ago. Targeting this crossover is critical but knowing in advance where this occurs, exactly how long the vulnerability remains, and ensuring an appropriate dose of a suitable treatment in the right place at the right time, is the challenge.

The outcome of an autumn infection is clearly visible with symptoms approximately 5-6 months later. Circular patches of bleached, straw coloured dead grass appear as the dormant grass resumes its growth in spring. Often, when adjacent grass attempts to recolonise an affected area, it remains stunted and unwell. The affected 'spots' cannot be retrospectively treated. It often has to be plugged, have patches fully replaced or nursed considerably through summer, looking to gain coverage – often a frustrating and sometimes unsuccessful exercise.

Tools and timings

To avoid the dreaded dead spots, our late summer into autumn period needs good planning and execution of a solid prevention strategy. A number of products are registered for use against SDS. This isn't normally the limiting factor for success – it's usually a timing issue with a secondary issue of proper product placement. If we knew in advance the exact infection point and could predict our climate accurately then, theoretically, we could have a single attack strategy. But we can't and don't, so the timing issue means this cannot be a strictly calendarised activity. We need to extend our assumed infection window to ultimately cover the critical point. In different geographies the critical crossover point will be different and, year to year, on any given site the prevailing environmental conditions can shift the point earlier or later. Therefore, as directed by our product labels, we plan for multiple applications that cover a broader window of time.

In northern states, e.g. Southeast Queensland, the autumn transition can be much longer. Review of long term average temperature trends in this area shows a far more shallow trajectory for the declining temperatures through autumn, often extending the duration within and around the 'sweet spot' for infection. In such areas, stepping up to a three application strategy can make sense. Victoria tends to have autumns that are more predictably earlier with a transition that is shorter in duration, making a two application strategy quite reasonable to plan for. Mapping temperature trends here reveals a steeper angle of decline for autumn temperatures meaning the period within the 'window' is often shorter and more defined. For areas like Sydney, in looking at long term averages the trend in autumn temperature decline appears more Melbourne-like – but in saying that, the autumns of very recent years have been quite extended – and rather nice for the locals. For this reason, keeping open the option of an extra fungicide application can be something to consider around Sydney. The point being, knowing the basics of the disease biology is good but isn't quite enough – localising this to your situation and season matters a lot.

For Queensland, three applications where the first is nominally around last week of February / first week of March is a reasonable starting assumption. This can move to the first couple of weeks of March if extreme heat is continuing. From there, applications are performed at 21-28 day intervals (refer to product label guidance). Sydney will often have the last week of February start point with the same caveat on day and night time temperatures and same application interval. Victoria adopts the same interval but will usually be more disciplined on the start point and may even come forward a week if the season appears to be ending prematurely.

The tools to employ usually fall to either our traditional benchmark triazoles, the strobilurin / triazole mixes or some of our newer generation SDHI options labelled for SDS. The SDHIs have been a very welcome addition to the tool kit. Historically, and speaking from personal experience, we had managed this disease off a narrow chemistry base. Good application still invariably saw us achieve good results but good practice would see us move between some chemistry alternatives in an effort to preserve all options for as long as possible. If you have been solidly with one chemistry for some time now, consider a labelled alternative even if it is just for this year.

A final practical tip – it is vital to always consider what is happening before and immediately after an SDS application. It's quite normal to be avoiding applications when major rain events are forecast as its impact on product placement is fairly clear. Product labels will often provide this type of guidance. Logically, we should extend that consideration to other activities that may have similar impacts. An example may be where the target area for SDS management is a fairway, and that fairway is also subject to a pre-emergent herbicide program, and deployment of treatments run very close in time due to seasonal commonalities. For these, we should seek to ensure there is clear separation between the tasks. Putting the pre-emergent out this afternoon with a wash in, then programming the SDS applications with wash in for tomorrow morning could possibly compromise the pre-emergent placement by moving it before it had full opportunity to bind and position properly. A more generous timeframe would allow the pre-emergent to adsorb with soils as they experience a normal drying cycle, making them less vulnerable to displacement or subtle movement. The same vulnerability would exist if the sequence were reversed. Looking at the big picture can help ensure we don't miss these nuances.

Application essentials for SDS

The disease being treated here is a root infecting pathogen, therefore, placement of treatments in the actual rootzone is essential for success. This generally means high application volumes (800L + / ha) ideally delivered through 08 nozzles or, better still, flood jets that deliver big droplets that roll off foliage to place on the soil surface. A post application wash in is required to get the treatment into the rootzone where the pathogen lurks. Note that labels may vary slightly in their application guidance details – read them carefully to pick up any product specific tips.

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