

# SYNERGY

THE TERRACOTTEM ADVANTAGE

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## TAKING THE STING FROM THE NEMATODE

If your working day revolves around turf, what's coming next won't surprise you. It's a sobering example of what is being faced everywhere in the ongoing battle to maintain the green sward. As long as the general public expects to be able to run out onto a plush green carpet of grass, so an army of experts must juggle their skills and expertise to make it happen. The following case study, set in Western Australia, is a great story. It involves a trilogy of terror: water budgeting, villainous nematodes, and sports season creep. Facing all these is a heroic team from the City of Melville, led in this instance by the canny Alison Waters. Read on and you'll see how being pressured into thinking out a fresh solution has produced results...



The proof is in the trial's\* conclusion: "TerraCottem treatments improved root establishment, compared with the untreated control, in kikuyu turf laid on sand containing sting nematodes."  
\*TerraCottem Turf Trial, City of Melville, September & October 2013, Peter Ruscoe & Ken Johnston, Sports Turf Technology Pty. Ltd.

Over a hundred parks are dotted across Melville, covering close to 300 hectares - 270 of which are irrigated. The Council's horticultural staff numbers around 70 (broken down into six teams), while an estimated 35,000 sporting individuals make use of the City's reserves year-round. Melville has the usual street tree plantings, passive reserves, roundabouts and playgrounds, not to mention a nine-hole public golf course, all of which are also maintained by Council staff.

On the surface, there is nothing here out of the ordinary, and it takes someone like Alison, who is Melville's Principal Parks Co-ordinator, to describe the factors at play which are making things much more interesting. By her own admission she says, "I think about turf a lot."

"Because we get a Coke can's worth a year in rainfall, we rely on superficial aquifer water from our 80 or more bores. Two artesian bores run 200 metres deep - at a lot more effort and cost. All are monitored as part of our annual licence allocation with the Department of Water to ensure we use only as much water as we're allocated."

Clearly water as a limited resource is Factor Number One. The second relates to the sports fields and a situation most turf keepers face - sports season creep. Everywhere, the demand for access to playing surfaces is increasing. In the rosie-tinted past, an oval may have enjoyed light use followed by a month of respite between the summer and winter sports seasons to allow it to regain condition. But those days are gone, and the seasons have crept perilously close together so that the playing surface - the turf - is stressed and therefore much more complex to manage.

To understand the third factor you have to understand what happens when a natural system becomes stressed. Take us for example. If we work hard and then play hard, we'll eventually fall prey to whatever virus is floating around at the time. Cold viruses exist and we understand they can't be removed from the equation. If we balance our lives a little better, we appreciate we

probably won't fall sick too often. Sting Nematodes - every turf manager's nightmare - have a similar relationship with their host, turf. Stressed turf will feel their negative effects to a greater degree.

Alison and the management team's challenge was to work out how to manage the infestations in a scenario where they are no longer able to use pesticides, water is severely limited, and where many, many sport-shoe clad feet are beating an oblivious tattoo over the affected turf almost without respite. Clearly some creative brain-work was needed.

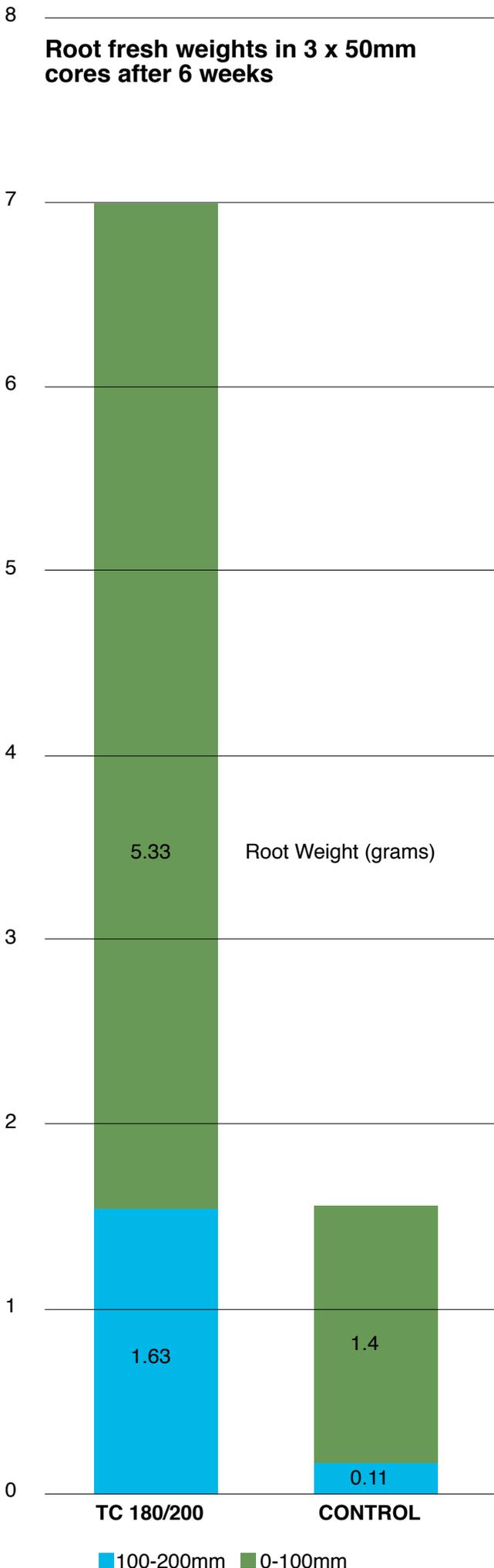
"Symptoms are often hard to pin to a nematode infestation. Yellowing of the turf might be due to lack of water, or lack of nutrients. A bit of mucking around takes place to work out the answer. We may carry out leaf tissue testing. We might also be applying more water either as irrigation or to apply the fertiliser-wetting agent treatment. In time we'll work out that none of these is causing the yellowing, and determine it's nematodes by default. And we can no longer treat them directly."

The clever approach Melville came up with, driven by the need to make the best possible use of their water allocation, was to find ways to live alongside the nematodes. It was a case of, accept what you can't change, but work out what you can, and then do something about it. And that's where TerraCottem came in.

No stranger to TerraCottem - it's well used around the City and Alison has used it in various situations in her past working lives - the hypothesis was that something that could reduce the stress on the infected turf would be able to help it co-exist with the nematodes. Knowing that water and sports-season creep were beyond her scope to alter, Alison commissioned an independent study (see below) to see if TerraCottem could reduce the negative effect of the nematodes on the turf. "Nematodes are a little like the HIV equivalent for turf and we've found a way to live alongside it. The results of the study showed more roots and fewer nematodes. In other words, if we apply TerraCottem into the soil media, the turf has a better chance of survival."

Sports Turf Technology preparing test plots in September 2013.





### THE TRIAL\*

Late last year, the City of Melville commissioned an independent demonstration trial to determine what, if any, effect TerraCottem has alongside sting nematode infestations. The trial evaluated turf establishment in sand, containing sting nematodes, that was amended with TerraCottem (a soil conditioner, designed to increase turf root growth) at different rates and depths. The trial site, at Melville Reserve, was situated in a re-turfed area in the centre of the football ground, where sting nematodes had been detected by laboratory analysis in December 2010.

### METHODOLOGY

The trial was set up in September 2013 under newly-laid kikuyu turf rolls, using a plot size of 0.6m x 0.6m to match the width of the turf rolls. The plots were excavated to the required depths, and the existing sand and organic soil conditioner were replaced with straight sand in the top 100mm of all plots. TerraCottem was thoroughly incorporated as the plots were being filled in. Turf root growth was assessed six weeks after planting, by measuring the fresh weight of roots in 3 x 50mm diameter core samples taken to a depth of 200mm from each plot. Photographs of the root systems were also taken.

### CONCLUSIONS

- 1) All TerraCottem treatments improved root establishment, compared with the untreated control, in kikuyu turf laid on sand containing sting nematodes.
- 2) Based on visual assessment of the root systems, TerraCottem incorporated to a depth of 200mm gave the best root development.

\*TerraCottem Turf Trial, City of Melville, September & October 2013, Peter Ruscoe & Ken Johnston, Sports Turf Technology Pty. Ltd.

# THE TC ADVANTAGE

TC Advantage is a package deal. It's about supplying TerraCottem (more about that in a minute), along with all the training, technical specification and compliance needed to turn a tricky project into a genuine long-term success. So when anyone has a turf, street tree, revegetation or whatever project to tackle, bringing in the TC Advantage expertise means you get: advice on which TerraCottem product to specify; training so that it's applied for maximum benefit; and monitoring to ensure compliance within the project's specs.

As for TerraCottem, it's a brilliant soil conditioning treatment because it works on various fronts at the same time...

To start with, it uses two main mechanisms to encourage substantial root development – polymers and root growth precursors. The polymers are a little like water-holding crystals except that TerraCottem's hydroabsorbent polymers have been carefully selected and well researched. This means that instead of just one polymer with a narrow water-holding and water-releasing ability, there is a group of them providing the same function over a wide range, for years. To put it crudely, more water can be stored and released under a broader variety of conditions. (To put it precisely for specification purposes: TerraCottem has an absorption capacity of a minimum of 4500 g H<sub>2</sub>O/100 g in distilled water using Method of Analysis CEN EN 13041, with a minimum of 90% of the water contained in the polymers being plant available.)

As for the root growth precursors, by definition a precursor is a chemical compound which leads to another. The precursors found in TerraCottem do exactly this, and for a very good reason. If you put growth hormones into soil, they rapidly biodegrade. But if you put precursors into the root zone, the plants get a kick-start by synthesising their own growth hormones. And this conducive environment – for optimum cell division and elongation – stays like this for 12 months.

Then there is a nicely varied collection of plant nutrients – soluble mineral fertilisers, in a format suited to the early growth phase of a plant; slow-release fertilisers, designed to offer a constant source of food over many months; and synthesised organic fertilisers which focus on the soil, stimulating microbiological activity and general soil health.

Add this all together and the result is fast and furious root establishment. This means greater accessibility to water, fewer losses, and, given the reciprocal dynamic between roots and canopy, noticeably vigorous growth. In the longer term, the soil conditioning power of TerraCottem means that plantings are buffered from stress. It's great stuff.



**TERRACOTTEM®**

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