SYNERGY
THE TERRACOTTEM ADVANTAGE

DOING THE JOB WITH LESS WATER

There is a way to not only cope with less water when managing green assets, but to even improve on the results. Following are three people who are comfortably biased in favour of TerraCottem. They've specified it, paid for it, managed its application and watched the results. Let's let *them* sing TerraCottem's praises...

Way out west there's a Scotsman from Dundee with 27 years experience in looking after public open space – John Christie, Manager Parks, Leisure & Environment for the City of Belmont, Western Australia. About the time he took up the role, three and a half years ago, the city's street trees were planted under contract – 1,000 each year. What is remarkable, and for the wrong reason, was the failure rate which John estimates was somewhere between 75 and 80 per cent.

"It was basically due to poor planting practices and insufficient water, so we brought the planting back in-house. We increased the size of the trees from 45 to 100 litre stock – three to four times larger – and then reduced the number we plant to 250. We also adopted better planting practices." From that point on there may have been fewer trees going in, but given their maturity, they had an increased impact on the landscape. And with the revised planting and management protocols, the survival rate now sits comfortably between 85 and 90 percent.

Part of this success is due to TerraCottem, which comes into this story around two years ago. "Being in this job, there are always people out there wanting to sell me almost anything – wetting agents to barbeque cleaning services. I think the reason I stopped to take a closer look at TerraCottem was because the people were genuine. On top of that they were willing to come over and educate the staff at no cost. We've some very switched on parks supervisors who took a close look at the technical information and they were keen to test it out."

A hostile site in WA, yet this three year old tree has reached close to four metres without irrigation.

Applied to TerraCottem's specifications as part of a landscape around the Civic Centre, the results soon showed that it wasn't, as John puts it, "just another product". The plants matured at twice the rate with virtually no losses and with a success rate of 98 per cent, which was quite remarkable given the planted areas are irrigated from scheme water and subject to water restrictions.

The logical step was then to write it, with expert advice from TerraCottem, into the street tree management plan. Each new tree goes into a hole ten times the volume of the root ball with a specific amount of TerraCottem mixed evenly into the backfill. ("We appreciate the value of the advice – one poor fellow was throwing it in by the handful, and the shrubs were being pushed out of the ground.")

Not only has TerraCottem managed to take the sting out of once hostile sites like the asphalt-ringed round-about, but it has the capacity to reduce water consumption. "Currently our street trees are irrigated with part of our annual allocation on 7,500 kilolitres. That could well change, so we're currently trying to determine the minimum needed to establish and maintain these trees - can we get away with irrigating them only once a week?"

As John points out, "If you've seen the results you'd know that this stuff is not the same as everything else. And the advantages clearly outweigh the increased cost in applying it because you don't have to get a crew back to replant new stock. I can't speak highly enough about it – without question it's done everything they've said it would do." And the word's getting around – it's not just Belmont City Council that's using TerraCottem...

In Melbourne's City of Knox, Bushland Management Officer John Erwin is a practiced hand in revegetation which isn't surprising given his five years with the Council, and three more with Save the Bush. Tucked in amongst the Knox's suburban sprawl are 62 sites – "significant conservation areas, which range in size from half a house block up to 10 hectares." From creek sides to roadsides, each site offers it's own challenges. What they all have in common is that since 2003 TerraCottem has been a specified part of the revegetation works. "I've done the sums and it's been demonstrated

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over various sites, that if you put plant loss up against the cost of TerraCottem, it's actually a saver. The higher success rate means it's cost effective because there's no having to go back to replant."

Though some of John's work is done with contractors, there is also a fair amount achieved with willing volunteers – schools, friends and community groups. To achieve the best possible results with a varying range of skills John has developed a 'be-prepared' approach. "Site preparation is crucial and we manage weed control well in advance. This is especially important where we have limited access and can't apply mulch. Before anyone arrives, we dig the holes, add the measure of TerraCottem to the mound of soil beside each, and lay out the plants." Following a detailed induction - what the planting will hopefully achieve, and how-to-plant - the volunteers get stuck in. "One benefit we didn't expect from the TerraCottem was a reduction in the fail rate of those plants which, despite all our efforts to educate, were planted poorly. TerraCottem is a form of insurance against the damage."

The approach John has developed is systematic - from the dousing of water the plants get prior to planting through to topping up planting holes with sterile potting mix. "This watering is the last one the plant gets apart from natural rainfall, and the mix helps keep the soil open and is weed free." Only by using TerraCottem, does this brutal irrigation practice get great results.

"At the Egan Lea site, we planted 8,000 plants with TerraCottem and a further 7,500 without. Apart from the TerraCottem, everything else was consistent – same site, holes, species, planting method, same contractors. What was once a mown reserve with a few remnant Eucalyptus radiata is now a diverse open woodland. "I've botanical experts coming along to take a look because they said it couldn't be achieved – to plant at a density of eight plants per square metre. And you can tell where we used the TerraCottem because those plants are healthier and have a faster growth rate."

Then there's a fellow by the name of Vince Cusumano, Manager of Parks and Streetscapes for Leichhardt Municipal Council, Sydney. For ten years he's worked in public open space for Leichhardt, for the ten years before that at Fairfield, and for seven before that with Drommoyne Council.

Vince describes himself as a bit of a trend monger. "I'm not one of those who says but we've always done it that way. I like to give things a go, like using steam to deal with the weeds." So when Russell James came in to his office on day literally saying, "Have I got a product for you!", Vince listened.

"We've eight playing fields and what seems like 800 teams making use of them. And by the time we get to the end of a season we have eight dust bowls. When Russell walked in, we were about to reconstruct a couple of them using the usual - fertiliser and organic matter."

A deal was struck and within a short time, what little was left of the old turf was poisoned, the surface ripped to shreds, TerraCottem rotary hoed in and all the levelling, irrigation and returfing done. "We're not a wealthy council, but with the results we've seen, we're using TerraCottem as we progressively work our way through the scheduled reconstructions." Typically, those fields that have had the treatment haven't needed serious rejuvenation at the end of the season. "The turf growing on these fields is very quick to establish - we've only needed to re-turf the middle third which means that we've saved on two thirds of the area."

And that's not all. There's been a reduction in the amount of water used; with fewer big bare patches there's less weed colonisation and Vince feels there's less of an issue with Helminthosporum. "I can't say TerraCottem is the reason why we don't seem to see it on the treated sites, but it definitely isn't a problem like the others."

And if Vince is open to new approaches, he's also quick to pull the plug when things don't live up to the promises. "I'd give it the boot, and give the people who gave the spin a fan spray, but in this case it does. In a few years we'll have all eight ovals treated and they'll be holding on to their grass cover for longer, and with less water."

Having been given the TerraCottem treatment, the same oval at the end of its first season.

BELOW THE SURFACE

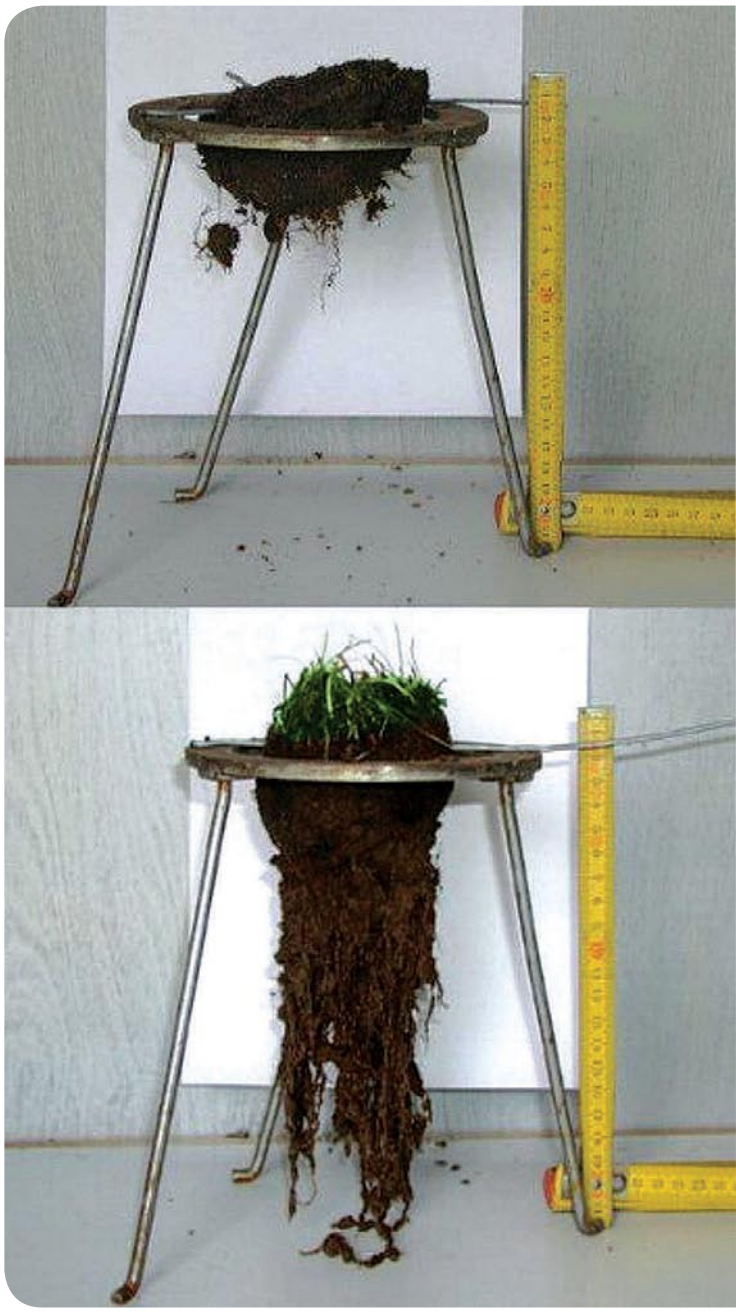
TerraCottem is a tough one to understand, probably because it works on various fronts at the same time. So to keep things simple, we'll just take a look at one aspect - how it gets plant roots romping along...

TerraCottem uses two main mechanisms to encourage substantial root development – polymers and root growth precursors. Working together, they produce phenomenal results.

Let's start with the polymers. Somewhat like water-holding crystals, TerraCottem's hydroabsorbent copolymers are a carefully selected and well researched collection of polymers. What this means is 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. To put it crudely, more water can be stored and released under a broader variety of conditions. (And for those who question toxicity, TerraCottem's co-polymers are potassium-based and non-toxic unlike sodium-based water crystal products which are most often used in nappies.)

Now, let's talk about 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.

So what's the big fuss about fast and furious root establishment? Think greater accessibility to water, fewer losses, and, given the reciprocal dynamic between roots and canopy, noticeably vigorous growth.



The pictures say it all - spot the TerraCottem advantage.

and for the serious boffins... Here's proof that TerraCottem boosts even sandy soils' ability to hold water. Sydney Environmental & Soil Lab recently ran various lab tests on some sand material for TerraCottem. Director Simon Leake's report, stated - "At all tensions the Terracottem treated sand showed improved water holding ability. This improvement is highly significant at all tensions measured, about 56% increase at 50mm of suction and 78% increase in water holding capacity at 350mm of suction. This will make a very significant difference to the intervals between waterings, the water storage capacity of a sand profile and the ability of a sand to rapidly store incident rainfall or irrigation and hold it for plant use"

news

If you weren't at the recent Parks and Leisure Australia (PLA) conference (Sydney, September) then you missed hearing Russell James spell out a few interesting statistics – that of the 650 or so councils in Australia, just 200 of them represent around 80 per cent of Australia's population; that over the past 12 years, 145 councils have started using TerraCottem; in the last eight years TerraCottem has run workshops for 65 of those councils and trained close to 2000 people on how to best make use of it.

PLA's Gary Henshall explains why people like Russell James are encouraged to get up and speak. "It's important for us to be able to offer professionals in our industry exposure to cutting edge technology, and we see TerraCottem as an example of a leading development on a world stage."

Russell James.

SAND AND SALT

"We couldn't afford to apply it over the whole site, but it wasn't long before we could all tell where it'd been used – there was absolutely no doubting it's performance." If you put aside for the moment the savings in water, replacement plants and even fertilisers, this comment from Steve MacRae says it all. He led the team that decided to use TerraCottem on a 73 hectare development site half an hour north of Byron Bay. He's also more than happy to explain why he agreed to spend half a million on a soil additive. But first, let's go back to the beginning, when all around lay sand, sand and more sand...

The site chosen by the Ray Group, developers of the Salt project in South Kingscliff Northern NSW, had been sand mined for thirty years up until the eighties. Mostly flat land, the site was about eighty per cent covered in bitu bush - a noxious weed known for its swift growth and the ability to overpower native plants. Oh, and there wasn't any soil – "There was soft pure sand, north, south, east and west and as far down as you can dig". But the site did have assets – not that they wouldn't at times make their demands – a natural creek, sand dunes and the sea.

Salt, "a village by the sea" was planned as a "worlds best practice" master planned village community containing some 1,500 titles made up of high quality residential precincts and two major Outrigger and Peppers resorts - see www.saltvillage.com.au. Steve was the senior developer for the project. Together with the landscape architect, contractor and environmental consultant, it was his job to turn a weedy, windy, salty and sandy site into an oasis of green wrapped around two deluxe resorts and a master-planned sea-side village.

"We started on the weeds, working on the main body of the site with machinery, but when we came to the dunes and the riparian section along the creek – both over a kilometre long – we had to work by hand."

All along Steve was very conscious of the sand. "Having been a mineral sand mining site, the remaining sand was loose with little capacity to stabilise or support growth. On top of that we'd carried out major earthworks moving 1.5 million cubic metres of sand, plus 700,000 cubic metres of sand brought in from further inland along an eight kilometre-long pump pipeline. We'd raised the level of the site to ensure views over the natural dunes to the ocean, but also to give the profile of the site some character, and then we were facing the further cost of importing large volumes of topsoil."

With a landscape budget of 20 million, Steve and the team had to take steps to ensure, not only that the investment in plants would be protected, but that the green spaces would be resilient and sustainable. "Sitting at the centre of the project is a major park which doubles as an outdoor amphitheatre and it had to have quick recovery capabilities built in."

Where there was once sand, there's now green life thanks to TerraCottem.

Russell James of TerraCottem was called in and asked to put together a proposal for the project. "I asked him to prove to me that the TerraCottem would work, both economically and environmentally."

Russell met with the team members, spent time on site and presented not only proof of how effective the product had been in other similar situations, but also how it could be best put to use on the Salt development. "He covered everything, from the savings on water during establishment irrigation to the products ability to reduce leaching of nutrients into the creek in the long term. He claimed we could turn the sand into a growing medium and he convinced an initially sceptical landscape architect and contractor – the ones who would be guaranteeing the works. He was given the go-ahead, "and we were all convinced in a very short space of time."

While the now-completed buildings offer a buffer from the wind, which can be extreme because of the direct exposure to the ocean, when the site was initially planted, conditions were tough. "It was extremely harsh, with little cover from the salt and wind, and yet our plant loss rate was cut in half. It also halved the time it took for the landscape to mature which is critical when you are opening new four and five star resorts. The amount of water needed for establishment was significantly reduced, and what we did apply was retained instead of passing straight through sand to the aquifer."

the stats

- based on a 50% water saving through using TerraCottem, over the first two years of the project, projected savings are $283,500*
- typically plant failure rates on hostile sites is 30 to 40% - here the rate was reduced to 10 to 20%
- given Terracottem's growth stimulants and fertilisers, half the usual rate of fertiliser was needed on the turfed areas, and none on all other areas for the first 12months post planting

* stats supplied by John Nosworthy of Boyd Bay Garden World based on a a typical watering schedule over ten years based on similar conditions at Salt (sand, coastal, different species).