



SmartCUBE

A Smart Control Product by Waterman Irrigation

Today, meeting expectations while making the most of limited resources is a pressure faced by turf managers across the state. A dedication to innovation and efficiency has inspired Waterman Irrigation and Baileys Fertilisers to combine their technical expertise and develop the SmartCUBE, an automated Wetting Agent and Liquid Fertiliser application tool that provides a turn key solution to reducing water use, while maintaining and improving turf response.

The Challenge

Southern and Western Australia is experiencing a significant decrease in water resources due to the changing climate. Turfgrass managers are under continued pressure to restrict water use, while also maintaining high-quality turf surfaces. Currently 6,750 to 7,500 kL/ha per year is allocated to turfgrass managers irrigating public open spaces with groundwater in the Perth metropolitan area. Utilising technology to improve management of turfgrass on current, and possibly lower future water allocations is critical to ensure the continued community benefits of public open spaces.

The Known Benefits of Grosorb™

The benefits of using a quality wetting agent, such as Baileys Grosorb™ are trialled and proven. Grosorb™ improves the effectiveness of water allocation to give better turfgrass colour and health by decreasing water repellence, increasing soil moisture content and re-wettability. Trialling has also shown that increasing the application frequency of Grosorb™ improves water use efficiency and turf response. Applying much smaller rates on a weekly basis, instead of 2,3 or 4 larger applications per year can reduce the total requirement of wetting products, while improving water efficiency and turf grass response.

Meadow Springs Trial

The effects of injecting and dosing Grosorb Wetting Agent via a Waterman Irrigation system was trialled over a period of 5 months, from Dec - April 2016 at Meadow Springs Sports Facility in the City of Mandurah.

Soil moisture at 10cm and 20cm was measured by in ground sensors and compared to a control area of the same size and irrigation schedule. The application and control sites were both 2 hectares, irrigated active sporting ovals and were irrigated for 30min per station 5 x per week, with 10mm per irrigation event.



Trial Site - Meadow Springs Sports Facility, City of Mandurah

Baileys Grosorb™ was injected for 2 min of the normal irrigation cycle at 3lt per hectare per week. Injection was in the middle of the irrigation cycle per station to allow for pre-wetting of the soil and watering in after the injection period. 100 litres of Grosorb™ was applied in total over the period of 21 weeks.

Results and Observations

At an early stage in the trial, as summer conditions set in, there were clear visible differences in the treated and untreated areas.

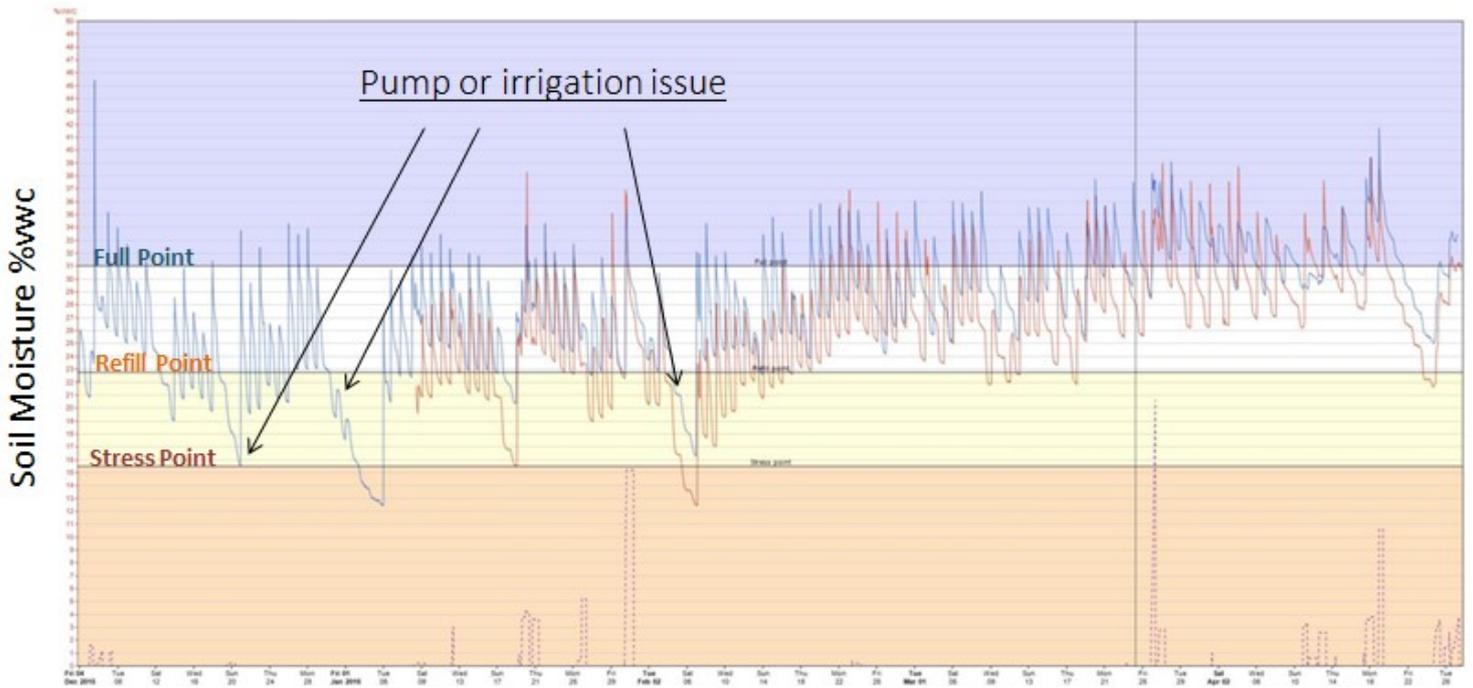
“On the 17th December I observed an obvious difference in the non-treated area vs the treated area. With the onset of the warmer weather the non-treated area was showing signs of stress with 5 days watering. The treated area was still showing condition uniformity whereas the non-treated was patchy. By the week of the 21st the non-treated had deteriorated further and watering increased to 7 days. The treated area held condition till the week of the 28th.”

- John Nilson, Irrigation Supervisor, City of Mandurah



- Treated Moisture 10cm
- Non Treated Moisture 10cm
- - - Rainfall (mm)

Soil Moisture Content at 10cm



Date 3rd Dec 2015 – 27th April 2016

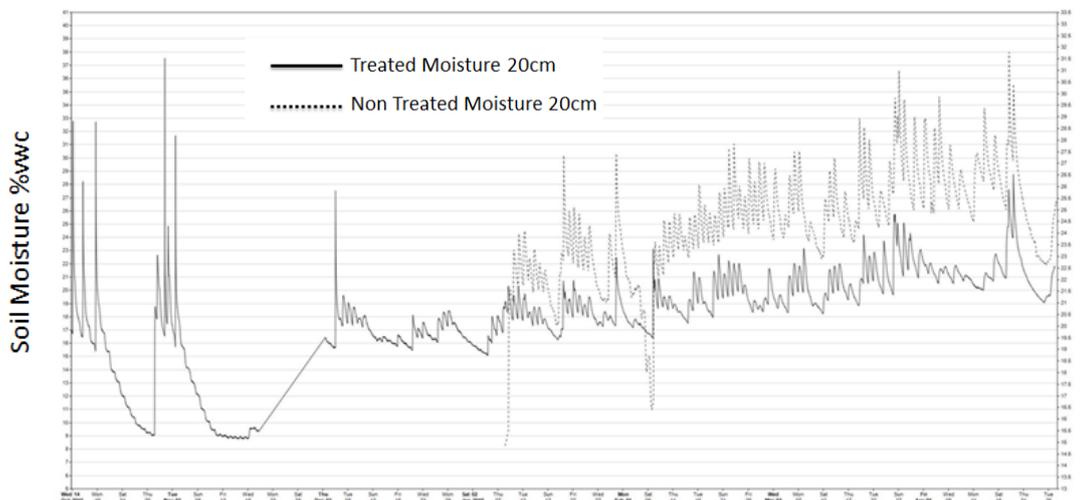
In the early stages of the trial the treated area maintained a vibrant green, while the non-treated area showed early signs of stress. The treated areas also clearly recovered quicker after stress than the non-treated areas.

Unfortunately pump breakdowns and sensor issues effected the trial and collection of data on three separate events and these are clearly visible on the results chart.

Excluding these breakdowns, in the treated area, over the period shown, there were consistently higher moisture levels and only two occasions when the moisture levels dropped below the refill point. In the same period, in the untreated area, there were twenty four occasions when the moisture dropped below the refill point.

Consistent higher soil moisture in the 10cm area also resulted in lower soil moisture in the 20cm area, indicating more water uptake and less moisture travelling past the root zone.

Soil Moisture Content at 20cm



“My feeling is this regime of treatment will take out the low moisture troughs and stress periods to some degree. With possible integration of our weather stations and modest changes in run times we believe we will have more uniform presentation of the site and water saving in the region of 5-10%.

This has given us valuable experience for this type of application at other sites.” - John Nilson

Associated Benefits

- Measurable water saving and monitoring;
- Actively working to improve water use efficiency, acting upon water wise standards;
- Convenience and streamline operations;
- Ability to inject fertilisers and stimulants such as liquid Kelp or Fulvic through the system;
- Reduced labor component and cost;
- Reduced administrative co-ordination, scheduling, closing ovals;
- Advantage for the general public, no trucks on ovals or visible application of wetting agent.

The Smarter Solution

The **SmartCUBE** delivers repetitive, controlled application of Baileys Grosorb™ through a fully integrated dosing system that forms part of the Waterman Irrigation controller.

Provided as a compact enclosure that nevertheless holds 100 litre of Grosorb™, the controller allows for the injection of wetting agent as part of the normal irrigation cycle. Recommended rates of 1-3lt/Ha/week are injected in the middle of the irrigation period per station, conveniently allowing for pre-wetting of the soil and watering in after the injection period.

Each controller is fully enclosed, to protect against weathering and vandalism. A colour touch screen inside the unit allows for ease of operation and provides immediate access to the system. Control of the system is also available via remote **Smart Control cloud software**, accessible on PC or smart devices such as tablet and smart phone.

Integrated low level product monitoring within the **SmartCUBE** ensures the system is never out of Grosorb™. Automated SMS and email messages are sent to Baileys head office and your nominated contact once replenishment is required.

Delivery and installation of replenishment product is then provided free of charge as part of this turn key solution.



The SmartCUBE package consists of:

- Free standing powder coated aluminium enclosure (800 x800 x1200mm)
- 32 station Waterman Controller (multi-wire or 2-wire)
- Pump start equipment or master valve operation
- Power distribution section
- Injection pump for Grosorb™ dosing
- Wireless Ethernet connection for remote control of the dosing system
- Login access to the Smart Control cloud Software, controlling the system and collecting data
- 4 x 25 litre Grosorb™ containers with spill free connections
- Free delivery and instalment of Grosorb™ once replenishment is required

The **SmartCUBE** can also be utilised in conjunction with your existing irrigation controllers by using the remote controller option, allowing solenoid activation signals to control the dosing.



For more information contact your local representative or P: 9439 1688 E: info@baileysfertiliser.com.au

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