

To keep Dormant Turf Green in Colour throughout the Dormancy period and to Enhance and Maintain Turf Colour, Turf Health and Appearance of Turf, including greens and surrounds.

Carbon Trader

TURF
culture

Introduction

Carbon Trader is a water dispersible granule of activated carbon and other nutrients. The source of carbon in Carbon Trader is activated carbon (activated charcoal).

There are many theories on the effects of activated carbon on turf, seed and soil. These include:

- Increases/enhances photosynthesis in the plant
- Increases cellular strength in the plant
- Allows the plant to store more carbohydrates
- Provides a food source for microbes
- Attracts heat and lifts the turf canopy temperature **
- Deactivates naturally occurring toxins in the soil

There is no definitive evidence on the effects of activated carbon on turf as none of the above mentioned theories have been proven with multiple replicated trials.

** However one replicated trial was conducted by J.J. Gilbert and D.M. Kopec at the University of Arizona, USA in 2001, titled 'Spring Greenup of Dormant Non-Overseeded Bermudagrass. The focus of this trial was on products that may help increase the soil or canopy temperature and/or induce a growth response. The data that was collected and collated contained canopy temperatures, clipping weights, air temperatures, visual turf colour and turf quality. All treatments were applied on dormant, straw-coloured Bermudagrass (couch grass).

A summary of the results are:

- Activated charcoal treated-turf produced the largest quantities of clippings, nearly 6 times more than the non-treated turf.
- Turf treated with activated charcoal showed canopy temperatures warmer than all other treatments. The warmer canopy temperatures were a result of decreased albedo (lower reflectance), increasing potential solar heat gain.

One Golf Course Superintendent in Australia has been using activated carbon on his turf since 1998, with great results. He has been able to keep his Santa anna couch surface green all year round and other areas of his golf course dark green in colour, even in the cold Melbourne winter when most other couch surfaces are whitening off. He also uses it on cool season areas of his course, including greens.

What is known in terms of the effects of Carbon Trader to turf, seed and soil is:

- Allows warm season grasses to hold good colour during dormancy if applied before dormancy colour loss and applied again 10 weeks after the first application
- Lifts the turf health of all turf varieties, such as Couch, Kikuyu, Ryegrass, Fescues and Bent grass, whilst increasing root growth
- Gives a deep and consistent colour to all turf varieties
- Allows 'more than normal' growth of turf during the cooler months in warm season grasses, but also in cool season turf, such as Ryegrass, Fescues and Bentgrass, which is ideal for golf greens and Ryegrass sports fields in winter that attract heavy turf wear
- Quicker response/growth coming out of dormancy
- Recovery from disease, such as Spring Dead Spot & Helmo
- Enhances seed germination and establishment
- Improves the grow-in and establishment of warm season instant turf in late Autumn and Winter

Many clients are experiencing fantastic results with turf health, turf establishment and seed germination/establishment.

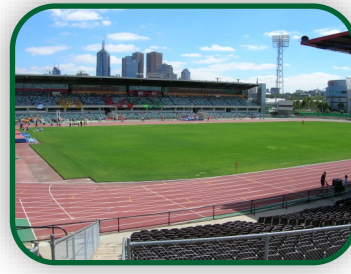


Sports Fields / Golf Fairways

Many councils, private schools and sporting arenas use Carbon Trader to keep their warm season grasses green in colour during dormancy as well as to lift the growth of warm season grasses and/or ryegrass in winter when the damage from wear is at its highest, due to the football/soccer season and the cooler weather during the winter period (helping turf wear on wet grounds during constant rain). They also use Carbon Trader to keep the turf growing for a longer period before going into dormancy, and also to lift it out of dormancy earlier than normal.

The rate of application of Carbon Trader is dependent on what the turf manager is trying to achieve, whilst managing their budget.

- If they have a warm season grass (i.e. couch) oval and wish to maintain colour throughout dormancy then the rate will be between 45 – 65 kg/ha just before the warm season grass starts to lose its colour, with a second application 8-10 weeks later.
- If they want to lift the health of their ryegrass in winter then the rate will be between 30 – 60 kg/ha. The higher the rate the more growth and recovery achieved.
- If they want to lengthen the growing period either side of dormancy (i.e. shorten the period of dormancy), to assist with recovery and wear, the rate will be between 50 –60 kg/ha.



Testimonials

Over the past 2 years Wesley College has been undergoing 5 hectares of couch transition on its sports fields. The scope of work involved this transition taking place without interruption to any traditional summer school sport. Good couch grow-in took place over summer but as the days grew shorter we needed something to help push the couch to the limit leading into footy and soccer seasons.

Carbon Trader was the product chosen for its multiple advantages. It was applied to the grounds at rates from 15 to 60 kg/ha. We have witnessed a distinct difference in leaf growth where Carbon Trader was applied in autumn leading into winter. Last winter the grounds were at field capacity for almost 3 months, with the soil temperature very low the couch colour remained stable and did not require over-sowing to maintain desirable turf colour for our sports participants. Whilst ryegrass over-sowing would give the college a green playing field Carbon Trader has assisted us resisting this avenue and helping to retain the couch mono-stand annually.

There is no doubt that Carbon Trader has been a useful tool for our situation and I will continue to use it beyond the grow-in phase.

Robert Savedra, Ground Supervisor, Wesley College, Glen Waverley Campus, Victoria

Maribyrnong Council has converted a number of grounds to warm season grasses over the past 5 years. Changing of grass types has meant different management practices.

Most soccer and football clubs are not used to or understand dormant couch, and the appearance during the winter months. I first applied Carbon Trader to our premier sports ground Whitten Oval, to maintain colour, as the ground is not over-sown with Ryegrass during the winter.

An application in early May @ 35 kg/ha and a follow up application in mid July @ 60 kg/ha enabled me to retain some colour all through winter. I also noticed the couch kicked out of dormancy a lot quicker in Spring than my other grounds that were not treated with Carbon Trader during the winter.

I found this very important when trying to grow in bare areas from the football season. Carbon Trader was applied to our wicket tables in late August / early September, to promote couch growth in conjunction with the use of turf covers. This proved very successful and I will continue with this practice next season.

Carbon Trader is now an integral part of my sports-ground management program.

Mark Scholes, Sportsfield Coordinator, Maribyrnong Council, Victoria

Golf & Bowling Greens

Bentgrass

High-value areas such as Golf and Bowling greens have been sprayed with Carbon Trader in winter with great success.

There are two main reasons turf managers are using Carbon Trader on Bentgrass greens:

- In winter when the bentgrass is slowing in growth and starts to gain patches purple in colour, Carbon Trader will give consistent growth and colour during this period.
- When greens need recovery growth due to wear and traffic (i.e. par 3's). Carbon Trader will give the turf a deep green colour and healthy growth, unlike straight nitrogen applications in winter which can give a sickly, un-natural looking growth.

Couch

Turf managers with couch greens use Carbon Trader all year round for multiple reasons.

From helping the couch come out of dormancy, to helping the couch recover from spring dead spot and renovation. For general health and growth during the growing season (low rates). To keeping the couch green during dormancy.

Rates vary depending on the time of season. Low rates are used during the peak growing season. Higher rates are used during periods the turf is going in or coming out of dormancy and whilst in the dormancy period.



Testimonials

Golf

I originally trialled Carbon Trader last winter mainly on some greens that were thinning and not faring too well in the cooler months. The initial result was a greener more healthy turf after 2 - 3 weeks, which carried over into spring. I was suitably impressed with the product, that this season I applied it to all 36 greens in late autumn. I have to say, the greens have never looked better, much of which I can attribute to Carbon Trader.

Charlie Giffard, Superintendent, Indooroopilly Golf Club, Queensland

I first used Carbon Trader on my greens to try and grow out some damaged areas from some Glyphosate tracking in the middle of winter. I had tried to grow out the damage with soluble fertilizer but struggled to get any re-growth in the affected areas. I then applied Carbon Trader @ 25 kg/ha and the recovery and colour response was exceptional. The growth was not soft or elongated and recovery was extremely quick. The color amazed me with a natural looking color response. The other surprising benefit was disease suppression, our 9th green was the only green sprayed with Carbon Trader at the time and was the only green not to suffer from a disease outbreak. Carbon Trader is now a regular part of our winter fertilizing program.

Mark Findlay, Superintendent, Sunshine Golf Club, Victoria

Bowls

I have been using Carbon Trader for two years now with great results. The first year I used Carbon Trader to bring my couch green out of dormancy producing growth and colour in the green within 3 to 4 days providing a great boost going into renovation. The second year I had an outbreak of disease late in the growing season and used Carbon Trader throughout the cooler months with the green retaining colour and growth when it would usually be dormant, it was able to greatly improve the weakened areas and the green is now flourishing during renovation.

Wesley Cukier, Greenkeeper, Windale Gateshead Bowling Club, New South Wales

For the last 2 seasons I have been using Carbon Trader for a number of reasons. Firstly on my couch greens to keep the turf growing for a longer period before going into dormancy, and also to lift it out of dormancy earlier than normal.

The use of Carbon Trader also lengthens the growing period both sides of dormancy, which is a great help for wear and recovery. Not only does it provide great growth but the colour it gives the greens during winter is fantastic.

I also use it on my bentgrass greens for winter growth; if my bentgrass greens have come out of renovation still needing more growth in the cooler months, Carbon Trader is a great tool to give the turf that extra growth whilst maintaining excellent turf health.

Darren Martin, Greenkeeper, Yallourn Bowling Club, Victoria

Racecourses

Racecourses have been using Carbon Trader with great success for some time now. They have been applying the product and experiencing extra winter growth over the cooler months.

Ryegrass tracks: The ryegrass has responded extremely well, with increased growth and root development which has helped manage turf wear. It also helps with seed germination/establishment when seeding (patching) after race meetings (activated carbon has been known for several decades to improve seed germination and establishment). They use it for winter growth, as the ryegrass slows dramatically in the cold months and with race meets through winter the recovery can be poor.

Not only do they get good plant growth during this period using Carbon Trader, they have also observed good root growth which is vital to racecourses as it helps the course by reducing 'chopping' from the horses. This Carbon Trader root growth has also been observed by several turf farms when harvesting.

Kikuyu tracks: The kikuyu has responded extremely well with, increased growth and root development which has helped manage turf wear. It also helps with stopping frost damage. They use it for winter growth, as the kikuyu goes into dormancy in the cold months and with race meets through winter the recovery can be poor. Not only do they get some plant growth during this period using Carbon Trader, they have also observed better dormancy root health which is vital to racecourses as it helps the course by reducing 'chopping' from the horses. This Carbon Trader root growth has also been observed by several turf farms when harvesting.

Below is a guide to some of the programs racecourses have adopted.



Typical Program

1st application applied in early May

35 kg/ha (Ryegrass tracks): this is usually after renovation and over-seeding. This application improves seed germination and dramatically increases the growth and root growth (treated ryegrass can be 20-30mm higher and have better root development than an untreated area within 10-12 days).

45 kg/ha (Kikuyu tracks): this is ideal timing to carry some colour through dormancy and limit frost damage. Will give improved vigour and wear.

2nd application applied in late June / early July

35 kg/ha (Ryegrass tracks): to maintain good winter vigour. Good winter growth will be observed again as well as improved root growth and wear.

45 kg/ha (Kikuyu tracks): to limit frost damage and to maintain good winter vigour and colour. Good winter growth will be observed again as well as improved root growth and wear.

3rd application applied in mid-August, leading up to Spring

35 kg/ha (Ryegrass tracks): this application maintains growth and root development leading into spring. The turf continues to thrive through to spring and hence gets stronger entering the spring period.

Testimonial

The amount of growth, and the healthy appearance of both roots and leaf on our course proper, have probably been the best I have seen during the winter period for a long time. I would have to say that Carbon Trader would be a key contributor to these great results.

Tony Salisbury, Track Foreman, Moonee Valley Race Club, Victoria

Limiting Frost Damage

Carbon Trader only sprayed on the left hand side of the photo.

Location: Perth, Western Australia



Turf Farms

Turf farms use Carbon Trader:

- to help their warm season grasses (i.e. couch) come out of dormancy quicker and stronger. This can speed up the possibility of turf being available for harvest, hence improving productivity
- to help stop frost damage
- to help the warm season grasses (i.e. couch) recover from spring dead spot
- to keep the couch green during dormancy for domestic sales
- to promote strong fibrous root growth to help harvesting young turf

Testimonial

Green Acres Instant Lawn has been using Carbon Trader for 2 years and we are very happy with the product. We use it on our Santa Ana Couch and Kings Pride Soft Leaf Buffalo at a rate of 35 kg/ha. We get around 90 days out of the Carbon Trader adding colour, disease resistance and root strengthening. Green Acres would recommend using this product on any turf service and we will be using it in the future.

Anthony Gallenti, Turf Manager, Green Acres Instant Lawn, Kinglake, Victoria



Deactivating Herbicide Tracking

Golf Course Superintendents have used Carbon Trader when dealing with herbicide tracking from fairways. By applying Carbon Trader to greens and leaving it on the leaf the morning of spraying herbicides on fairways helps deactivate the herbicide once tracked onto the greens. An added benefit is the turf health, colour and growth achieved on the greens by the Carbon Trader application.



Testimonial

I had previously encountered herbicide tracking onto greens when spraying SU herbicides on fairways; this was a seasonal concern when spraying. I have since started applying Carbon Trader on my greens and surrounds during winter, prior to applying any SU herbicides, and have found that it works extremely well in absorbing and deactivating any tracking that occurs during day. Not only do I eliminate tracking but the Carbon Trader also promotes colour and growth and also improves the general health of the turf. I have been very impressed with the product and will continue to use it during the cooler months and to prevent tracking when required.

Andrew Casey

Superintendent, Northern Golf Club, Glenroy, Victoria

Turf Establishment

Many clients are experiencing fantastic results with Carbon Trader for turf health and establishment, for both seed germination and growing-in warm season instant turf.

Clients are reporting that Carbon Trader is greatly improving:

- the growing-in and establishment of warm season instant turf. Most effective when trying to establish warm season instant turf during late Autumn and Winter periods.
- seed germination and establishment. This can be used with great effect on high value areas such as greens.

Clients spraying seeded greens have obtained a quicker germination and stronger health during establishment. Some clients pre-germinate their seed, mixing Carbon Trader into the water mix for a quicker germination/establishment result.



Technical Brief

Active Ingredients:	75% Carbon
	2.2% Nitrogen
	3.4% Phosphorus

Formulation: Water Dispersible Granule (WDG)



Carbon Trader

Situation	Purpose	Rate	Critical Comments
<p>Established Turf, Newly seeded Turf and Newly laid instant sod Turf as listed:</p> <p>For Golf & Bowling Greens, General Turf areas & Lawns, containing turf-grasses as named:</p> <p>Buffalo (<i>Stenotaphrum secundatum</i>),</p> <p>Common couch (<i>Cynodon dactylon</i>),</p> <p>Hybrid couch (<i>Cynodon dactylon</i> x <i>Cynodon transvaalensis</i>),</p> <p>Kikuyu (<i>Pennisetum clandestinum</i>),</p> <p>Paspalum (<i>Paspalum vaginatum</i>),</p> <p>Qld Blue Couch (<i>Digitaria didactyla</i>),</p> <p>Ryegrass (<i>Lolium spp.</i>),</p> <p>Zoysia (<i>Zoysia japonica</i>)</p>	<p>To keep Dormant Turf Green in Colour throughout the Dormancy period.</p>	<p>35 – 65 kg per ha</p> <p>(350 – 650 grams per 100 m²)</p>	<p>Apply before colour loss occurs due to dormancy.</p> <p>Repeat applications are required as needed, once the colour of the turf starts to fade. This is usually 8 - 10 weeks after the initial application.</p> <p>Apply in 800 – 1600 L of water per ha. (8 – 16 L of water per 100 m²).</p> <p>Even spray coverage is essential for optimal performance.</p> <p>See SPRAY PREPARATION & MIXING instructions below for further important details.</p> <p>Newly seeded cool season turf should have a minimum of 6 cuts (mowing's) before a Carbon Trader application.</p>
<p>Bent grass (<i>Agrostis tenuis</i>),</p> <p>Fine Fescue (<i>Festuca spp.</i>),</p> <p>Winter Grass (<i>Poa annua</i>)</p>	<p>To Enhance the Turf colour, Turf health and appearance of Turf on greens and surrounds</p>	<p>20 – 30 # kg per ha</p> <p>(200 – 300 # grams per 100 m²)</p>	<p>DO NOT use on cool season turf varieties when temperature is above 28°C.</p> <p># Use only the low rate during warm, summer-like conditions. Irrigate with 6mm of irrigation within 24 hours.</p>

Note: The above table represents only a modified extract from the full product label instructions. Always read the full product label before use.

How to get the most out of your application

Application

Apply with a calibrated garden backpack or tank via hose and fish-mouth nozzle, with mechanical agitation (not jet and or bypass agitation). Boom Sprayer application with jet and or bypass agitation is not recommended. Whilst some boom sprays with jet / bypass agitation have been found to cope with Carbon Trader's physical agitation requirements in the past, many boom sprays have not. Furthermore, new boom sprayers (post 2015) that are deemed to have good agitation usually are not aggressive enough in their agitation to keep Carbon Trader in suspension throughout the spraying process. Carbon Trader is a heavy product hence difficult to keep in suspension, the main active constituent 'activated charcoal' is non-soluble. Hence mechanical agitation (not jet and or bypass agitation) is recommended for Carbon Trader applications.

Good mechanical tank agitation is required AT ALL TIMES.

Apply in a minimum of 800 L water per hectare (8 L water per 100 m²).

Carbon Trader may deactivate any systemic post-emergent herbicides sprayed in the 3 days prior to a Carbon Trader application.

Carbon Trader may deactivate any pre-emergent herbicides working in the soil.

Even spray coverage is essential for optimal performance.

Continuous mechanical agitation is required AT ALL TIMES.

Spray Preparation

If Screens / Inline Filters are being used, then use of 50-MESH or coarser screens placed after the tank and before the nozzles / fish mouth nozzle (in-line filter) are required for this product. MESH screen (filter) sizes of 100 – 200 may cause blockages.

Nozzle filters need to be removed prior to spraying to avoid blockages.

Good mechanical tank agitation is required AT ALL TIMES.

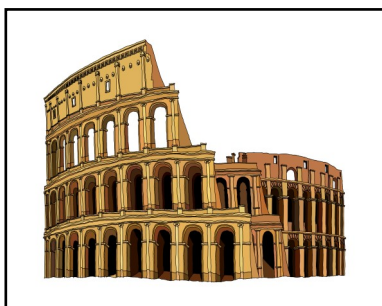
Apply in 800 – 1600 L of water per ha (8 - 16 L of water per 100 m²).

Mixing

Carbon Trader is a water-dispersible granule which disperses in water.

1. Half fill the spray tank with the required water for the application.
2. Engage mechanical agitation system.
3. Fill a mixing bucket with approx. 10 - 15 L of water and add 5 kg of Carbon Trader, mix well using a paddle of some sort. Once the 5 kg in 10 - 15 L of water is thoroughly mixed pour through the basket filter into the tank. Any residue left behind on the basket filter can be easily washed through into the tank with water. If the tank does not have a basket filter incorporate Carbon Trader slowly into the tank.
4. Repeat Step 3 (above) until you have reached the amount of Carbon Trader required in the tank for your application.
5. Maintain good spray tank mechanical agitation AT ALL TIMES – from mixing to spraying (including throughout the spraying process).

Turf Culture has many more products, such as:



Coliseum

Herbicide

For the control of Winter grass (*Poa annua*) and Ryegrass in Common & Hybrid Couch Turf



Silverado

Herbicide

For the control of Moss and Broadleaf Weeds in Golf and Bowling Greens and Turf Farms



Thumper

Insecticide

For the control of Couch Mite and Nematodes in Turf

For a full product listing go to our website: www.turfculture.com.au



All of Turf Culture's products come with a formulation guarantee, ensuring turf managers can be extremely confident they are applying a quality product.

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