



TERRACOTTEM[®]
Leading soil conditioning technology

HEALTHIER PLANTS, TREES, CROPS AND GRASS



NATURE JUST GOT BETTER
www.terracottem.com





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Leading soil conditioning technology

**LEADING SOIL CONDITIONING
TECHNOLOGY FOR COST-EFFICIENT
AND SUSTAINABLE PLANT GROWTH**

**Adding TerraCottem®
to the soil when planting**

**allows better use
of nutrients,**

**savings
in water,**

**plant growth
in poor soils &
challenging
climates**

**reduces leaching
of nutrients
& water,**

**increases plant
survival rate,**

**and crop
production.**



AN EXTRAORDINARY STORY

It all started with a team of scientists led by Professor Van Cotthem from the Ghent University, Belgium searching for ways to combat desertification and famine in semi-arid countries. The TerraCottem Company was established in 1993 with the aim of combining this technical know-how with a commercial infrastructure that would enable the soil conditioning technology to be accessible to a global market. Today the TerraCottem® technology is distributed in more than 40 countries worldwide.

TerraCottem carries out its scientific work in conjunction with independent research facilities guaranteeing the most advanced and up-to-date technology, highest levels of quality and efficacy at competitive prices.



TERRACOTTEM®

PRINCIPLE

The TerraCottem® soil conditioning technology is defined as an effective soil conditioner consisting of a proprietary mixture of more than twenty components from different groups all assisting the plant growth processes in a synergetic way:

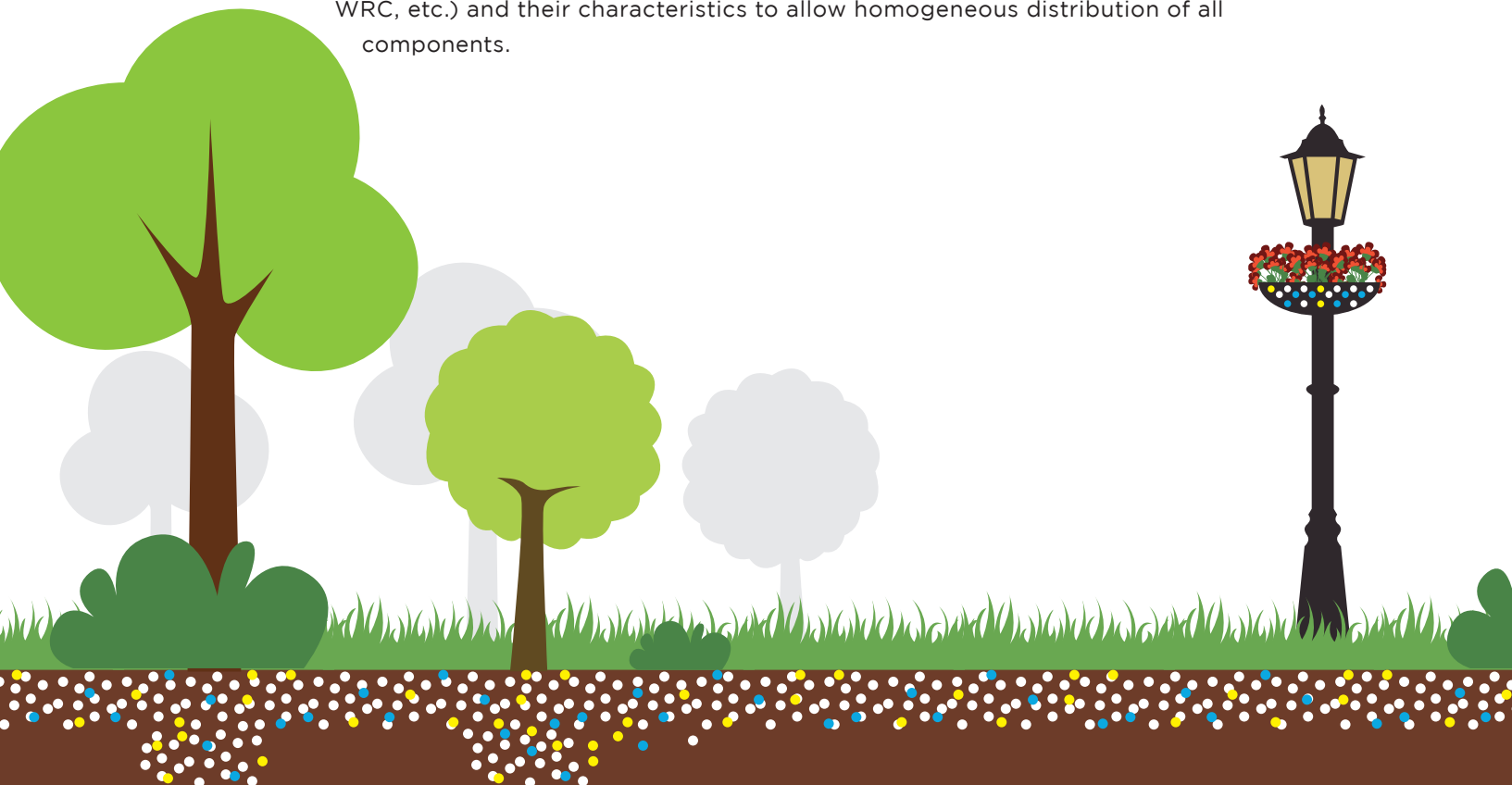
The **growth precursors** play a very important role in the initial growth phase of the plant. They activate root cell elongation and differentiation, promote leaf development and biomass production and encourage roots to grow in depth even in conditions of drought.

TerraCottem®'s **crosslinked hydroabsorbent polymers** absorb and store water at root level that is normally lost to evaporation and leaching, optimising water resources and reducing the volume and frequency of necessary irrigation up to 50%. The stored water is then kept at the disposal of the plant that accesses the water on demand through its root hairs, keeping the water in the root zone for a longer period of time.

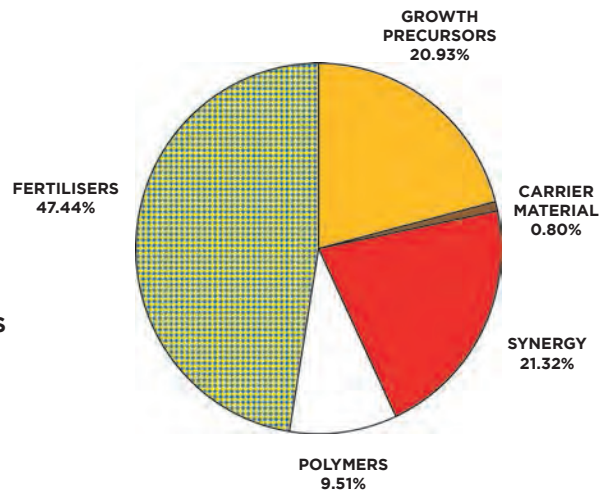
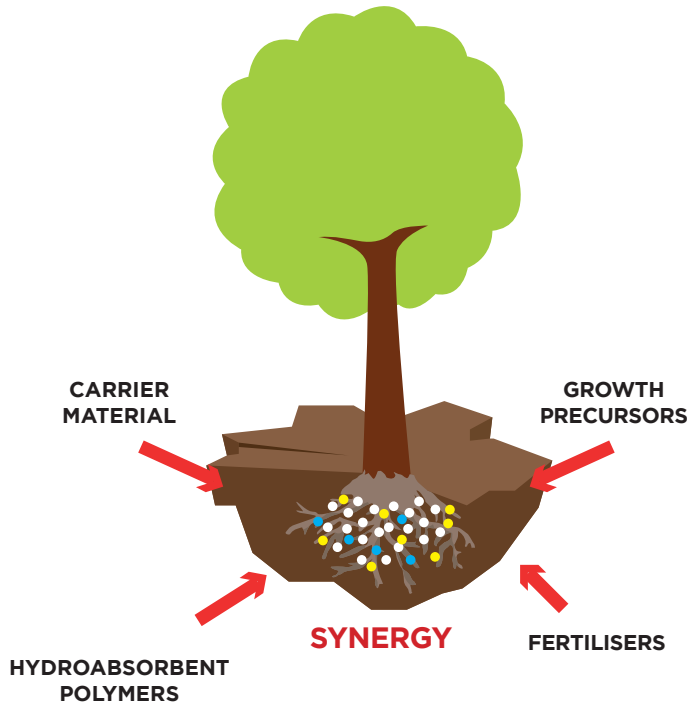
In dry form, the polymers are white, crystalline granules. Upon contact with water, the granules swell quickly, absorbing water and expanding into a gel-like substance. Each polymer is capable of storing many times its own weight in water. The TerraCottem® polymers have a low sensitivity to electrolytes, yielding numerous wet/dry cycles.

The **specially selected fertilisers** provide balanced nutrition to the plants based upon macro and microelements.

TerraCottem®'s **carrier materials** are selected for their chemo-physical properties (CEC, WRC, etc.) and their characteristics to allow homogeneous distribution of all components.

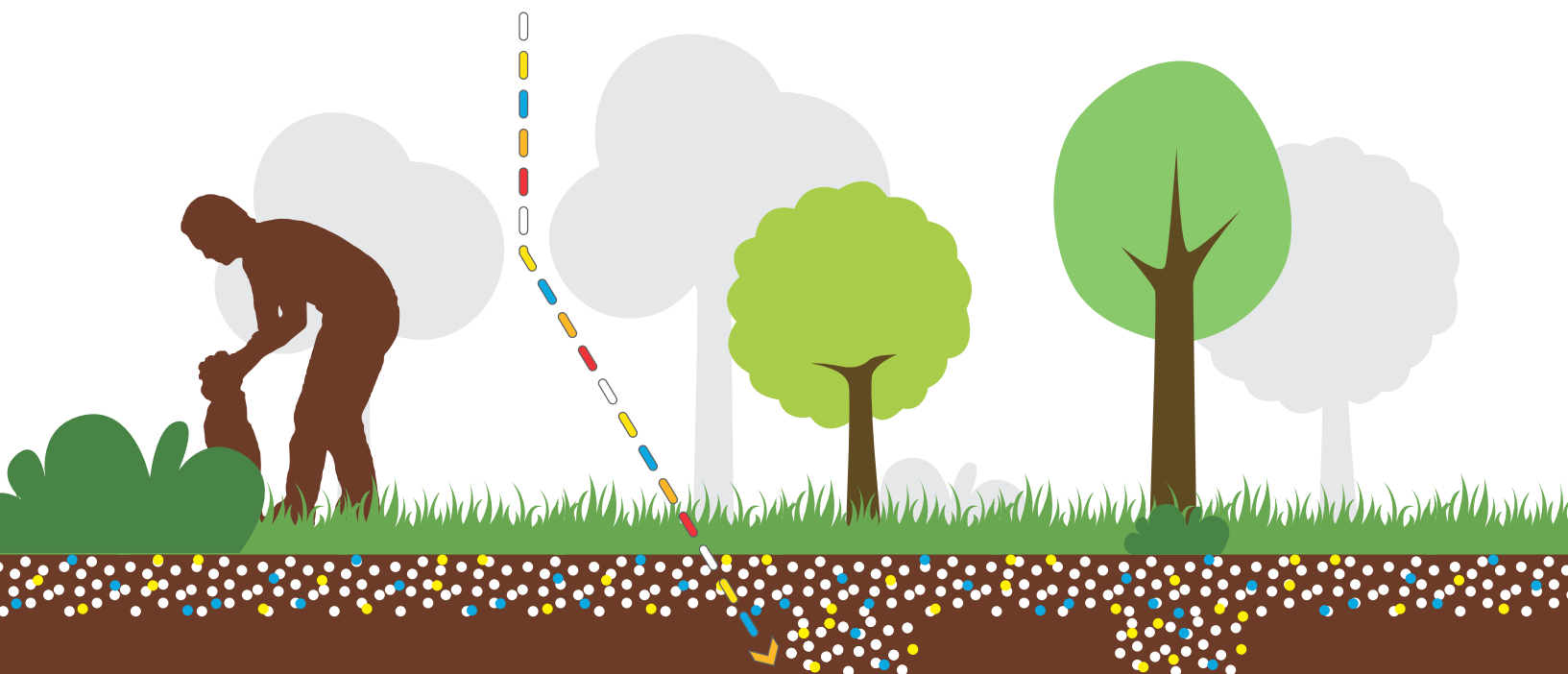


Each TerraCottem® component has its positive impact on plant growth but it is above all the synergy of all the product's scientific balanced components which makes the TerraCottem® soil conditioning technology so unique and successful



The graph shows the impact of the 4 groups of TerraCottem® components on plant growth. Scientific tests demonstrate that a fifth of biomass production is generated by the synergy of all the components and almost the same quantity by just 0.25% of the total formula: the growth precursors, TerraCottem®'s trade secret.

What really matters is what happens in the soil. Use TerraCottem® and discover how your plants, crops, grass and trees will be healthier, more resistant and productive and will allow you to save inputs.



PRODUCTS

PHYSICAL SOIL CONDITIONING PRODUCTS

The TerraCottem® soil conditioners increase the water and nutrient holding capacity of soils and growing media, increase plants' root development, growth and survival rate and reduce the need for watering by up to 50%. They are dry, free flowing, powdery-to-granular mixtures of more than twenty components. The soil conditioners have to be mixed homogeneously into the root zone or growing medium.



TerraCottem® Universal

TerraCottem® Universal is the “original” TerraCottem® soil conditioner. Since it was launched in 1993, the product has constantly evolved with better performing polymers, fertilisers and carrier material to further enhance root and plant growth and reduce inputs. This is still the TerraCottem® to use in most applications such as trees, shrubs, revegetation, annuals, perennials, roof gardens, agriculture, horticulture and potting soils.



TerraCottem® Turf

TerraCottem® Turf, also based on the TerraCottem® principle, contains zeolite a 100 percent natural volcanic mineral that helps increase soil fertility and water retention. The product's benefits are further boosted by the inclusion of turf specific fertilisers and humic acids which have a positive effect on water retention capacity, soil structure and microbiological activity. All this, to get quicker grass establishment, enhanced root and plant growth and improve the quality of turf, seeded grass and sprigs.



Soil conditioners are products that are added to the soil to improve its physical and/or chemical features and to compensate for the soil's deficient properties that can limit plant development. Therefore, soil conditioning is linked to one of the most important laws of nature - the law of the limiting factor: "Plant growth is controlled not by the total amount of resources available, but by the scarcest resource". The TerraCottem® soil conditioners amend soil properties to strengthen the weakest link in the long chain of plant development: from improving the soil's growing conditions and boosting root development to better plant growth and increased survival rate.

TerraCottem® Arbor

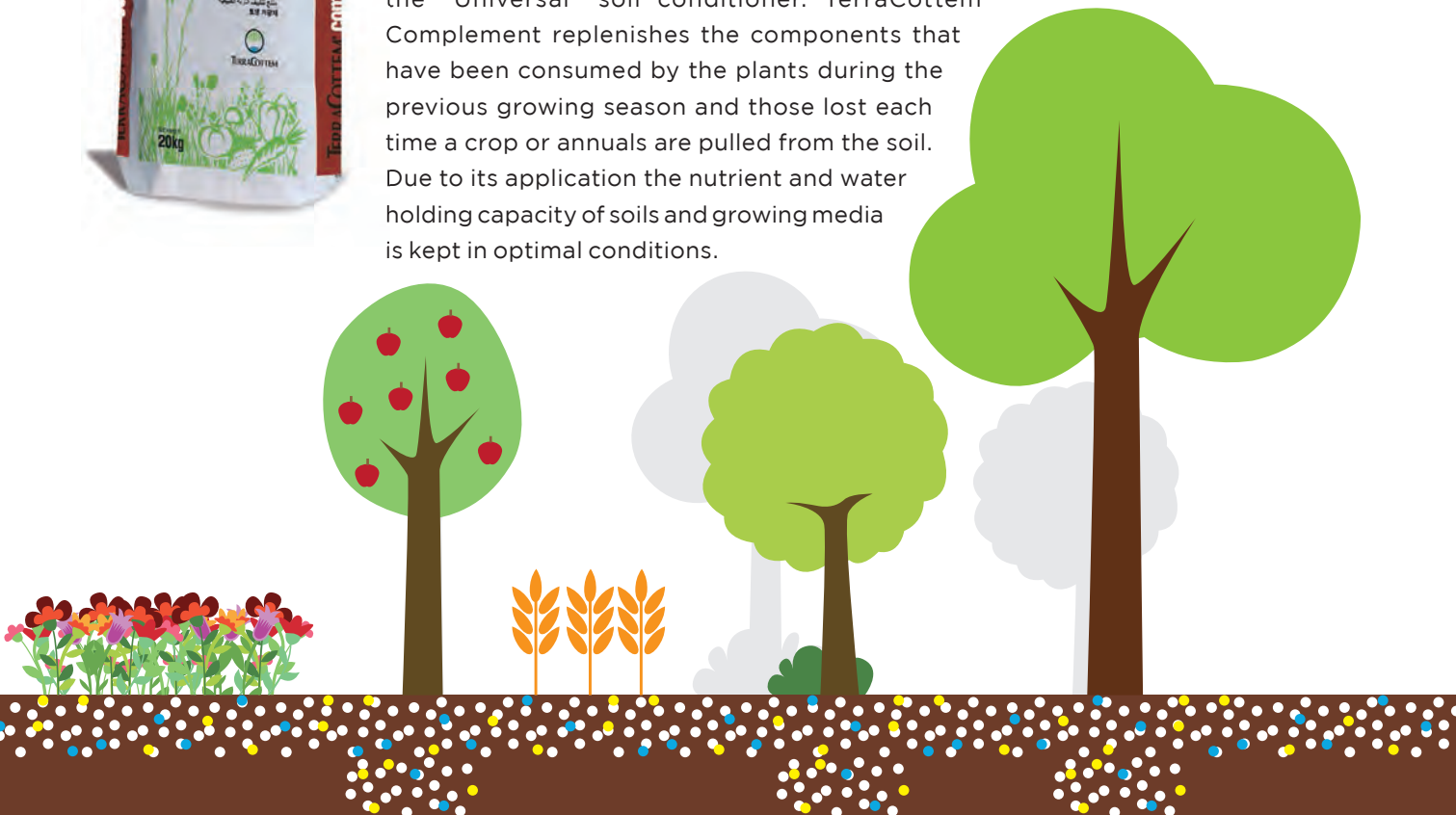


TerraCottem® Arbor has been developed specially for woody plants. Central to this latest formulation are the new generation polymers, the inclusion of humic acids to further enhance water retention capacity, soil structure and microbiological activity and tree specific fertilisers (with a lifespan up to 12 months). All this, to ease early tree acclimation to the planting area, enhance root and plant growth and increase tree survival rate whilst reducing inputs and replacement costs.



TerraCottem® Complement

TerraCottem® Complement has been specially formulated for applications in flower beds and horticulture previously treated with the "Universal" soil conditioner. TerraCottem® Complement replenishes the components that have been consumed by the plants during the previous growing season and those lost each time a crop or annuals are pulled from the soil. Due to its application the nutrient and water holding capacity of soils and growing media is kept in optimal conditions.



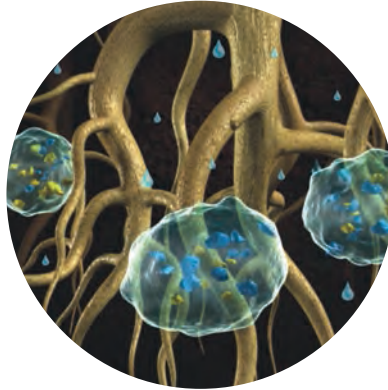
HOW DOES IT WORK?

TerraCottem® is applied when planting, seeding, laying turf or sprigging.

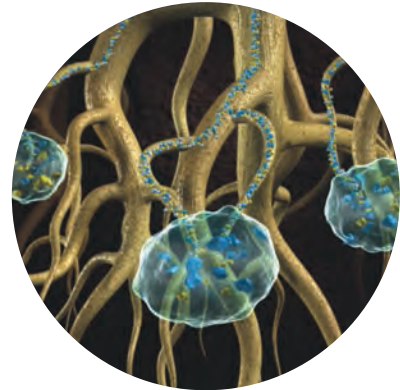
AT ROOT LEVEL



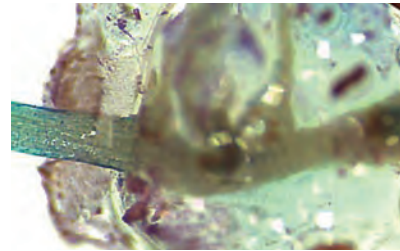
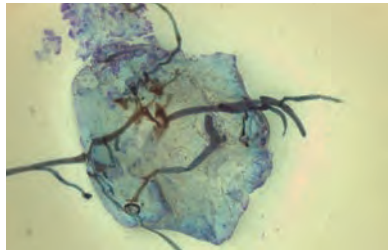
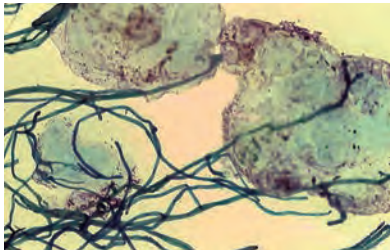
1 TerraCottem® works at root level. It has to be mixed with the soil.



2 TerraCottem® is activated by watering the plant. The polymers absorb the water and fertilisers during many years.

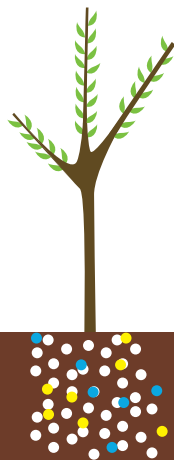


3 The growth precursors encourage root hair growth. These root hairs grow inside the polymers and absorb the required amount of water and nutrients.



Microscopic view of tomato roots penetrating TerraCottem®'s hydroabsorbant polymers.

SEE IN ACTION



ABOVE GROUND

Arbole, Burkina Faso



1988

Native trees planted with TerraCottem® just before the rainy season. The untreated soil lacks water and nutrient retention. Scarce rain is lost to the subsoil.



1990

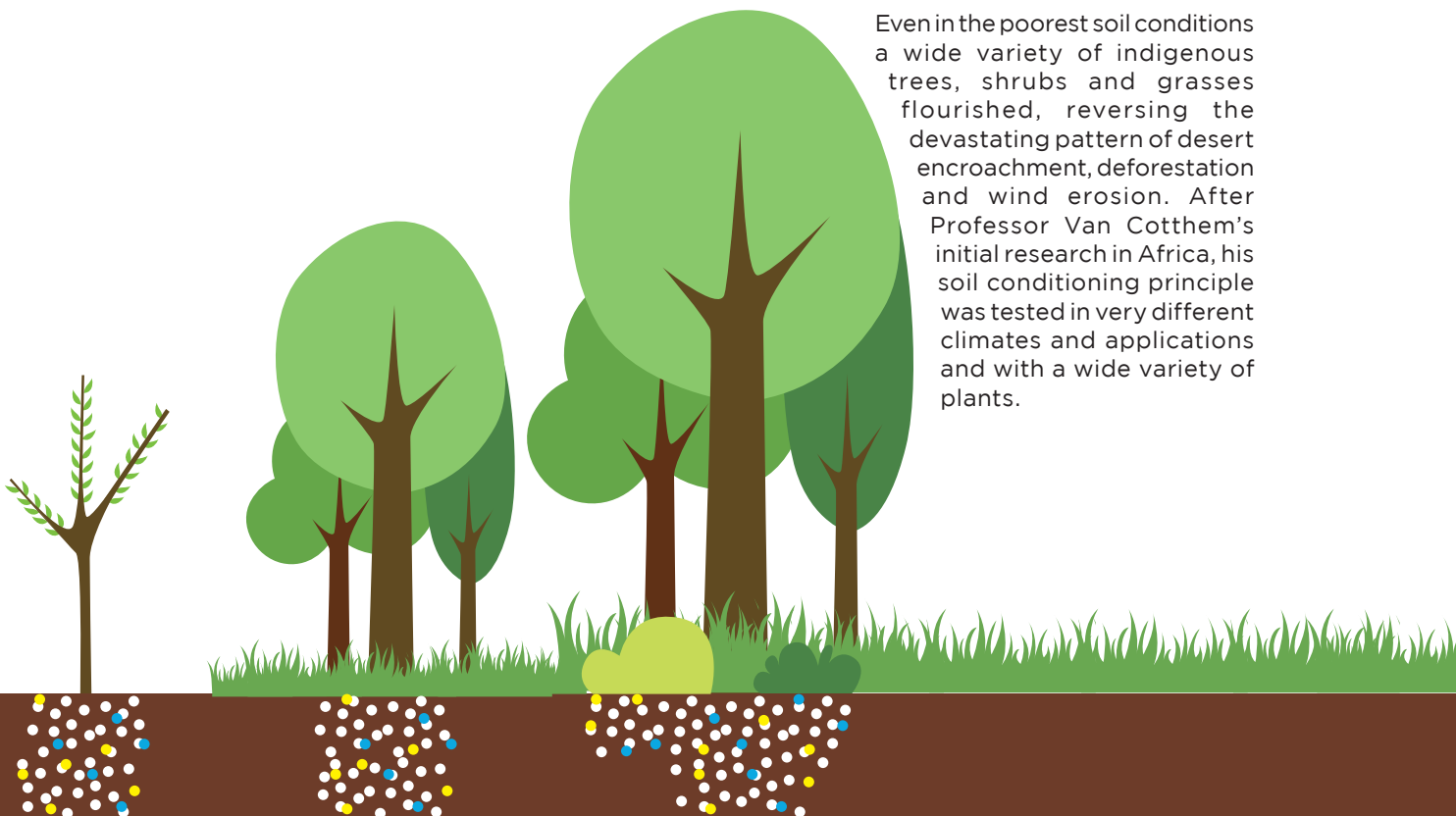
The same trees 2 years later. The improved growing conditions in the treated plant pits have stimulated root growth and plant development, resulting in good plant establishment and increased survival rate in the first critical years after transplant.



1992

Four years later. The trees have further matured and are now “self-supporting”. They’ve developed sufficiently long (and more secondary) roots, which allow them to survive in very adverse circumstances. Furthermore, the overall growing conditions have improved: the trees canopies provide shade and organic matter for the underlying vegetation layers. They also collect the scarce rain and delay the water infiltration, making more water available in the soil for a longer period of time.

Even in the poorest soil conditions a wide variety of indigenous trees, shrubs and grasses flourished, reversing the devastating pattern of desert encroachment, deforestation and wind erosion. After Professor Van Cotthem’s initial research in Africa, his soil conditioning principle was tested in very different climates and applications and with a wide variety of plants.



WHY USE TERRACOTTEM®?

TREE AND SHRUB PLANTING



Bremen, Germany

• HIGHER RESISTANCE TO DROUGHT STRESS AND DISEASES

Two years after the planting was completed, a first evaluation was done and of the 218 planted trees, only five had died which gave a survival rate of almost 98 per cent. The client continued to monitor the trees for several years and each time appreciated the benefits of TerraCottem®. This is especially noticeable during the dry spells when the entire environment is bone dry and brown while the treated oaks and lime trees are lush and green.

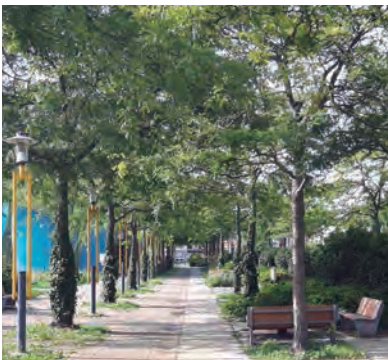


Cidade Administrativa, Belo Horizonte, Brazil

• INCREASED SURVIVAL RATE

TerraCottem® acts as a life insurance policy for the plants. It not only saves replacement work and costs caused by plant mortality but helps achieve a mature garden faster.

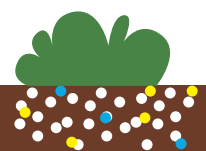
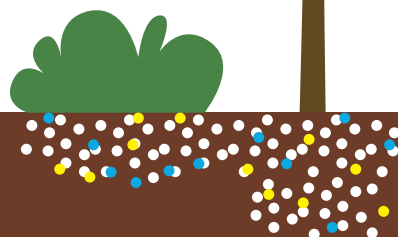
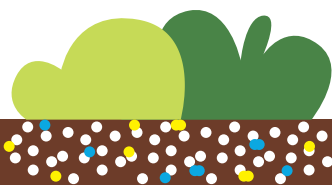
GREEN BELTS



Grande Synthe, France

• ENABLE PLANT GROWTH IN DEGRADED, SALINE OR OTHERWISE MARGINAL SOILS

In order to be able to plant as efficiently as possible especially on marginal soils, the use of TerraCottem® is decisive for the city on the edge of the harbour area of Dunkirk.



ENVIRONMENTAL RESTORATION



Cuturú, Antioquia, Colombia

- HEALTHIER PLANTS
- BETTER USE OF FERTILISERS

TerraCottem® plays an important role in the composition of the growing medium as it helps to keep moisture, crucial in a sandy soil such as in Cuturú. It also acts as a nutritional guarantee due to its macro and micronutrients and, above all, it activates root growth, essential for plant establishment and survival.



Thermal Power Plants and Mines Kostalec, Serbia

- INCREASED SURVIVAL RATE

The overall survival rate of the entire project is above 70 per cent, in a very inhospitable environment for plant growth topped up with extremely high summer temperatures.

EMBANKMENT AND HILLSIDE PLANTING



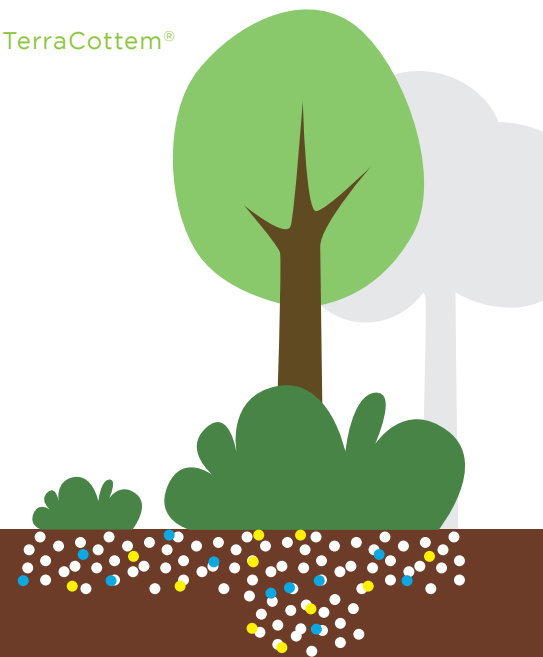
BAB A3 Motorway between Goldbach and Hösbach, Germany

- INCREASED WATER AND NUTRIENT HOLDING CAPACITY OF THE SOIL
- FASTER & BETTER PLANT ESTABLISHMENT

TerraCottem® was used to achieve good growth of the trees and climbers planted along the wall of the motorway where thick underlying concrete foundations means there is little soil. Additionally the soil was lacking in nutrients and had a high evaporation rate.

Other applications where the use of TerraCottem® is beneficial:

- Rain and bio-filtration gardens
- Dune restoration
- Brownfield sites



WINDOW BOXES, HANGING BASKETS AND CONTAINERS



Oudenaarde, Belgium

- INCREASED WATER RETENTION CAPACITY
- WATER SAVINGS
- REDUCTION IN MAINTENANCE COSTS

Stefaan De Smet, Horticultural Officer at the city of Oudenaarde: "The renowned trade fair Flanders Technology International brought TerraCottem® to our city, which was during the early stages of the company. We were keen to try this new technology to improve our work. Very early on we saw our maintenance costs drop and since then we continuously use TerraCottem® in our annual planting."

FLOWER AND SHRUB BEDS



Calais, France

- HEALTHIER PLANTS & MORE FLOWERS
- INCREASED SURVIVAL RATE

Eric Bouton, head of Calais' Green Spaces department : "We work with very short lead times to achieve good plant development and high quality flowering. This soil amendment gives us a near total survival guarantee. We obtained the *4th Flower** this year (2017) partly thanks to the Ephemeral Garden boosted with TerraCottem®. For gardens exposed to wind and sandy soil TerraCottem® is a real asset for success."

*French competition 'Villes et Villages Fleuris'

ROOF GARDENS



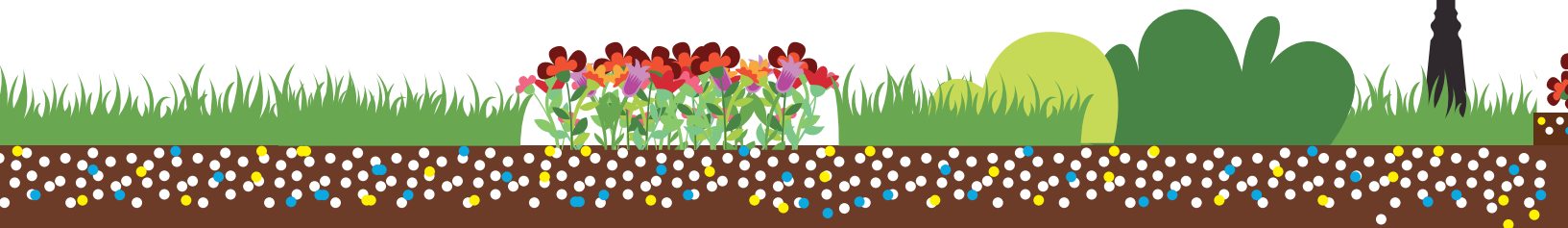
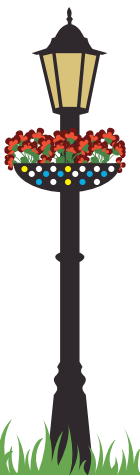
Darling Park, Sydney, Australia

- INCREASED WATER RETENTION CAPACITY
- WATER SAVINGS OF UP TO 50%
- BETTER USE OF FERTILISERS

This stunning roof garden has a substrate that includes a high inert quotient (volcanic ash), pine bark nuggets and TerraCottem®, not only because of the hydrogel content and additional boost to cation exchange, but because of the slow-release fertilisers.

TerraCottem® is also used in:

- vertical walls
- podium landscapes
- wildflower meadows
- interior landscaping



RETAIL



Ready-mixed TerraCottem® potting soils

- EASY TO USE
- INCREASED WATER RETENTION CAPACITY
- WATER SAVINGS OF UP TO 50%

HORTICULTURE



Tree nursery, Slovak Republic

- FASTER & BETTER GERMINATION
- STRONGER & DEEPER ROOT DEVELOPMENT
- HEALTHIER PLANTS & INCREASED YIELDS

TerraCottem® is used in the seedbeds of the beech and Sessile oak nursery to increase the quality and quantity of the seedlings and to save in water, labour and energy costs. All treated plants are healthier, stronger and have a better developed root system compared to the control plants.

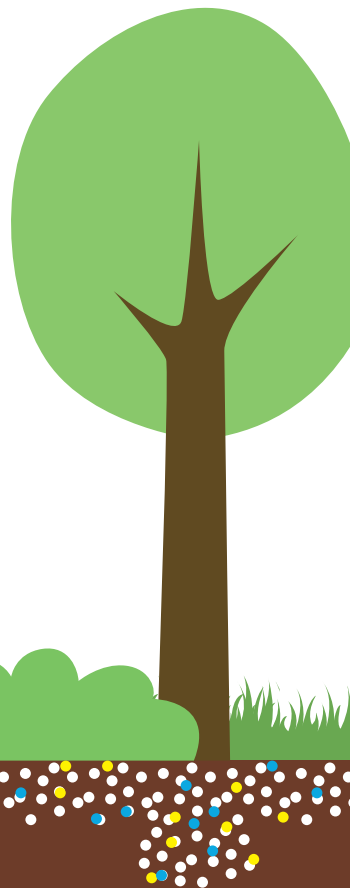
AGRICULTURE



El Cadoso, Seville, Spain

- INCREASED SURVIVAL RATE -> REDUCTION IN REPLACEMENT COST
- WATER SAVINGS -> SAVINGS IN MAINTENANCE

A spokesperson for El Cadoso estate: "During August 2017 when temperatures were above 40°C, we couldn't irrigate for five days because of a breakdown in the irrigation system. Thanks to the application of TerraCottem®, the plants did not suffer excessively and perfectly withstood the water stress, avoiding a great loss of plant material and investment."



COLD AND WARM SEASON GRASSES SEEDS, SPRIGS AND TURF

ORNAMENTAL LAWNS



Commonwealth Park, Gibraltar

- FAST ESTABLISHMENT OF TURF
- INCREASED WATER HOLDING CAPACITY
- INCREASED CEC VALUE

To help the turf establish in the site's challenging conditions TerraCottem® was incorporated into the substrate to improve water retention and the accessibility of nutrients in the soil.

SPORTS TURF



The Estadio Ciudad de La Plata, Argentina

- STRONGER & DEEPER ROOT DEVELOPMENT
- INCREASED MICROBIOLOGICAL ACTIVITY

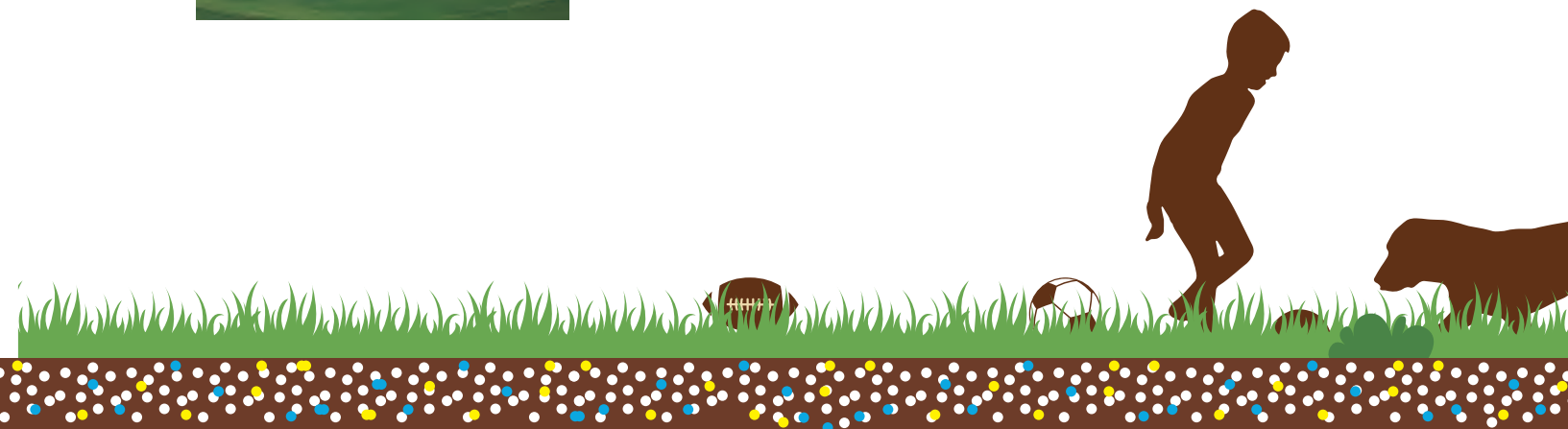
Alfredo Schappi, responsible for Estadio Único's pitch in La Plata: "We used a tray system that needs months without play in order to establish itself properly. Based on my 15 years of experience with TerraCottem®, I used the product to get faster and deeper root development. We managed to get the pitch ready in record time! The first match was played just 40 days after the modules were turfed and shortly afterwards the stadium hosted six matches of the Copa America 2011."



Benalup Golf, Cadiz, Spain

- WATER SAVINGS UP TO 50%
- FERTILISER SAVINGS UP TO 40%
- HIGHER RESISTANCE TO DISEASES & DROUGHT STRESS

TerraCottem® was incorporated into the top 20 cm of the entire golf course. A mixture of cold season grasses was used as opposed to Bermuda grass, which is commonly used in this Mediterranean climate. In 2006 the golf course formed part of a study "Golf and its environment in Andalucia". Benalup Golf was the golf course with the lowest water consumption in the province of Cadiz.



IS TERRACOTTEM®

A MATCH FOR YOU?

Do you work with products with a proven track record?

The TerraCottem® benefits are accredited or certified by independent laboratories and research institutes. TerraCottem does scientific, commercial and humanitarian work with reputable organisations and companies in over 40 countries worldwide since 1993.

How much do you value "peace of mind"?

TerraCottem®'s mix of components all work together to produce fast and furious root and plant growth. The growth precursors play a crucial role in the initial growth phase of the plants and help them adjust faster to their new environment. TerraCottem® also reduces stress factors by providing a continuous supply of water and nutrients aimed at ensuring plant survival.

What can you expect from TerraCottem's technical support?

At TerraCottem® it's about getting it right from the start. We look at the overall picture: the conditions on site, your challenges and what you want to achieve. We will assist you on how to get there.

What level of training can TerraCottem offer you?

TerraCottem offers tailor-made training programmes from seminars to short on-site trainings when planting. Their objective is to explain to the ground staff how TerraCottem® is going to help them achieve better and long-term results in their work. TerraCottem puts a lot of emphasis on the correct application depth and for tree planting on digging the appropriate plant pit. TerraCottem has developed a tree hole calculator: with just a few of clicks and adding the size of the root ball it'll give you the dimensions of the ideal plant hole and the TerraCottem® rate.

Value for money or a cheap deal?

Quality comes at a price. Twenty five years on, they - that's Universal, Complement, Turf and Arbor - are still the best performing all-in-one soil conditioners. There are studies about that prove their superiority compared to other soil conditioners or copies of TerraCottem®. The latter are created to look and feel similar but do not perform well. The TerraCottem® price per application is also very competitive. The TerraCottem® soil conditioners just need a single application and are so potent that only a small quantity is required. Additionally, the water saving action lasts for many years which means that TerraCottem® is a long-term investment for the success of your planting schemes. And remember, technical support is also included in the price.



PROVEN TRACK
RECORD



PEACE
OF MIND



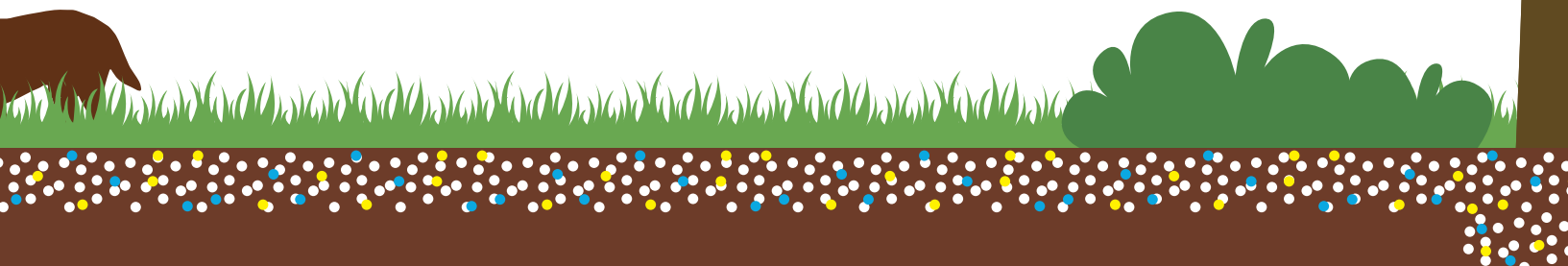
TRAINING
PROGRAMME



TECHNICAL
ADVICE



VALUE FOR
MONEY





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