

Landscape Brochure

Water is a most precious resource and the MENA region utilises the highest amount of water per hectare in the world.

Countries within the MENA region are facing unprecedented challenges with freshwater scarcity and growing costs in managing desalinated and grey water along with the energy costs for pumping water to irrigation sites.

Irrigation levels in the MENA region are 100% higher than other regions due to the higher temperatures, low humidity and predominately sand based soils. Much of the water which is applied is lost to plants due to evaporation, run-off and leaching through the open soils.

Integrate technology from Engage is designed to exactly meet the needs of these high stress conditions, promoting optimal growth whilst reducing irrigation requirement by **up to 65%**.



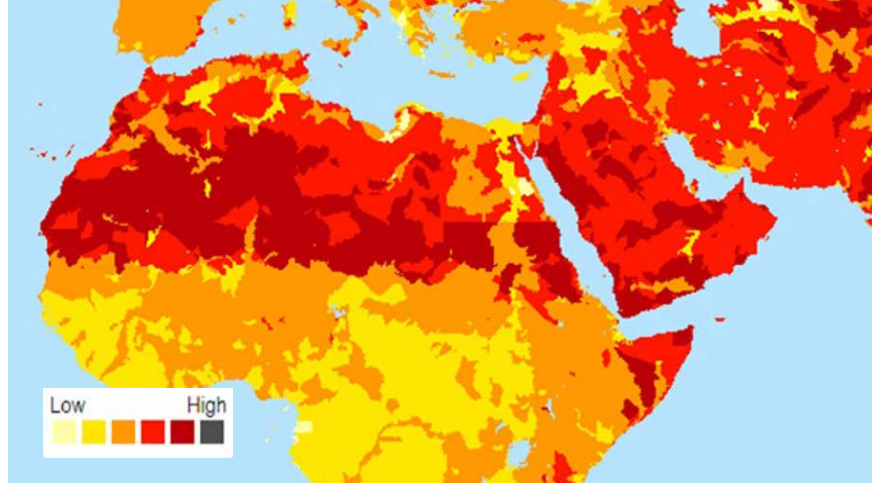
Integrate®

Sustainable Water Management for the MENA region

The MENA region is now in the most water stressed region of the world and water scarcity is now a major consideration for all planting and landscaping schemes.

As demand for water increases year on year for increased population growth, crop production and landscape projects, regions such as MENA face the necessity to reduce irrigation levels or face loss of freshwater sources and mounting costs for desalination and transport of water.

Integrate technology was specifically created to meet these challenges.



In 2012, Engage saw a necessity for innovation in water saving and began development on a new water saving technology for use in all soils. This technology is Integrate.

Now Integrate's advanced liquid soil applied technology is the leading water saving technology across the world. Integrate is fully proven in over 300 independent trials to reduce water loss from evaporation, surface run off and leaching, even in the most arid conditions by over 50% and will hold accessible moisture in the rootzone of plants.

It is unsurpassed in initial wetting and long-term rewetting of soils and substrates and is providing growers and landscapers across the MENA region with water security, and importantly, in doing so, is saving them significant cost in water, fertilisers and energy use.

Importantly, even with reducing water by up to 65%, Integrate stimulates greater growth in roots and shoots due to greater retention of water and nutrients around roots and the optimisation of water to air balance.
So, how does it do this?

Integrate Technology

Integrate is a blend of four liquid technologies working together to save water. Three are micellar technologies which are attracted to soil particles and to each other.

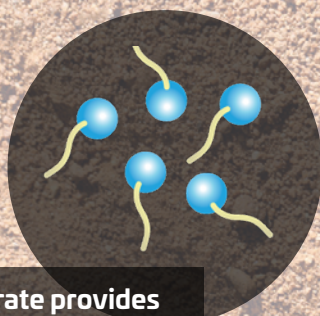
The fourth is an organic glucose wetter used to break the surface tension of water to deliver the micelles into the soil.

What are Micelles?

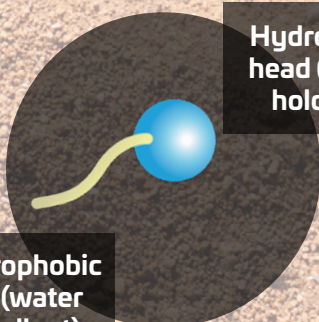
The micelles in Integrate are microscopic carbon structures about 3-10nm in size and have hydrophilic head and a hydrophobic tail.

The micelles act as microscopic bridges to increase the adherence between the soil particles and water. Once the micelles have attached themselves to soil particles, they begin to form a micellular web through the soil/rootzone.

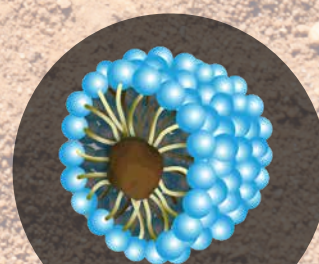
This eradicates surface run-off, dramatically reduces surface evaporation and slows the vertical movement of applied water allowing greater lateral movement which helps to optimise root available water.



Integrate provides billions of micelles to the irrigation water



Hydrophobic tail (water repellent)

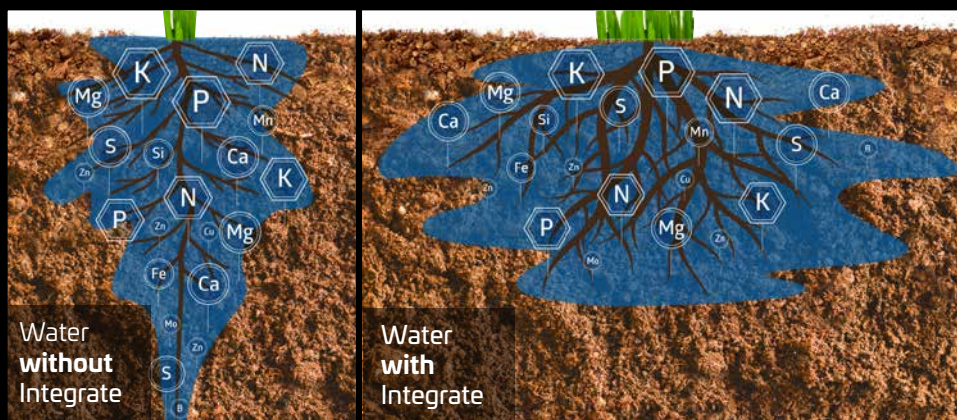


The micelles adhere to soil/rootzone particles retaining both air and water.

Smarter Water Use, Stronger Roots

When Integrate is added to the rootzone of tree, shrubs, bushes and turf it changes the way water is available. The increased moisture is vitally important and as gravitational flow slows, the micellular web moves the water laterally to increase the rootzone moisture area resulting in greater root activity.

Also, as Integrate manages anything dissolved in the water, such as nutrients, these are held for longer around the roots so plants can make greater use of them which will also reduce overall requirement.



Use and Benefits of Integrate Applications

Use

To actively manage the movement and retention of soil & rootzone moisture to significantly reduce water loss.

Create an equilibrium of air to water in all rootzones to optimise root growth and activity and prevent waterlogging.

Reaggregate soil/rootzone structure from fine silts and clays to open sands to maintain optimal conditions for plant development.

To reduce overall irrigation requirement by 40-65%.

Benefits

Excellent initial wetting of soils and rootzone substrates.

Provides long term residual re-wetting of roots zones in any growing situation.

Maintains healthy rootzone oxygen levels to stimulate greater root and shoot growth.

Optimises the penetration, lateral movement and distribution of water and root applied nutrients.

Maximises irrigation efficiency to reduce overall water requirement.

In regular use will reaggregate soils/ rootzones to support plant growth and reduce capping and compaction.

Can be applied to all soils and rootzone substrates.

Can be mixed with any nutrient regime within feed stock tanks.

Does not interact with other nutrients and chemistries.

Is safe for use over all plant types.

Chemistry of Integrate has no hazard in use or transport.

Is proven to have zero environmental fate short or long term.

Trials overview

Integrate has been trialled and commercially used in largescale MENA landscaping projects since 2020 with both measurable and visible differences.

Integrate trials have lead to the technology now being adopted for use in landscaped areas by many municipalities, large governmental and private developers and large landscaping contractors and private customer across the region.

In use, Integrate does not only saving vast amounts of water but also saving fertiliser and energy in reduced pumping and desalination of water by up to 65% within the projects the technology has been used.

Many customers now see the technology as an essential part of any new landscaping project.

Integrate in Action – before and after photos



Ongoing Trials photos courtesy of DAMAC

Increased efficacy of nutrients and soil applied products and the effect on growth

When using Integrate the thing we hear most about the application along with the 50-65% saving in water and energy is the effect it has on the growth of plants and the speed that it does it.

With regular use of Integrate, the slowing of gravitational movement of water, naturally promotes increased lateral water movement as the micelles in Integrate coat more soil particles. The coating of more soil particles begins to bring uniformity to the rhizosphere and allows anything dissolved in the irrigation such as nutrients, biostimulants, soil conditioners or agrochemicals to be spread more uniformly across the rhizosphere and in doing so efficacy, due to distribution and retention and root activity, is increased.

Our Regional Manger, Rula Al Atiyat has seen these effects many times and has received many testimonials from customers amazed at the visible effects.



Integrate Business case

Application of Integrate is very easy as, due to its unique formula and environmental safety, it can be added to any irrigation systems by injecting into the water or mixed with water holding tanks, with no added cost.

Application is just 2-4 litres/ha once per month depending upon soil type and soil/air temperature.

This means cost of application is relatively low when compared to the savings that can be made in:

- Saving in water by 40-65% irrigation
- Saving in fertilisers
- Saving in energy in pumping or desalinating water
- Reduced carbon footprint
- Reduced wear on pumps and
- Reduced irrigation piping layout
- Increased plant growth and retention

In practice, Integrate has proven to provide a return on investment from 5-10:1. As the pressure on water, fertiliser and energy costs, technologies such as Integrate, once seen as luxury application are now becoming essential tools to maintain water security, plant quality and financial return.

The question of whether landscapers should afford to use a technology such as Integrate is fast being replaced by can they afford not to!

Before



After



Ongoing Trials photos courtesy of DAMAC



If you want to save and manage your valuable water resource and enhance the growth of your landscape projects contact us at **00971505734300**
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or visit integratewatersaving.com
for more information on how Integrate technology can help can help.