

ENGAGE
The Power of Nutrition

**Soil and Substrate
Conditioning** for
optimal growth
and quality of
Vegetables

Cypher

Initiate

Sion

Aqualatus

Engage the Power of Nutrition

For many years Engage has been at the forefront of soil and substrate management as across the world and we have seen that over time, biodiversity in soils is steadily dropping at an alarming rate. Reduced biodiversity drop, we know, is due to lower levels of organic matter, humates and organic acids. This leads to lower available silicates and organic compounds for crops and soil microflora/fauna to interact with, to create a dynamic soil ecosystem.

- ✓ Reduced soil biodiversity is resulting in less productive soils and substrates which yield lower crop potential, poorer quality and less nutritious produce which in turn can result in health consequences for humans and animals. Add to this increased input costs from required supplementary nutrition and higher pesticide requirement for stressed crops and we see a system in need of help.
- ✓ With a steadily increasing world population and greater demand for cereals, vegetable and fruits as diets change across the world, Engage are focused on a soil and substrate development programme designed to replenish soils by redressing what has been lost over time to support increase crop strength, quality, yielding more nutritious produce.

This brochure highlights the products within the programme for vegetables and their benefits within the system along with an application guide for best practice.



Cypher



Initiate

UNLOCK NUTRIENT POTENTIAL FOR INCREASED CROP GROWTH AND YIELD

Cypher is a modified organic acid blend derived from plant active portions of lignin and leonardite ore. It is designed to condition soils and substrates which have lost momentum become compacted or overloaded in bonded salts.

Cypher enhances nutrient uptake by combining nutrients with humic substances to aid well-balanced nutrition. Cypher improves the structure of soil by promoting fungi to create a crumb structure for better water and oxygen intake and improved root penetration. This increases the buffering power of the soil, and optimises N. P. K absorption by plants.

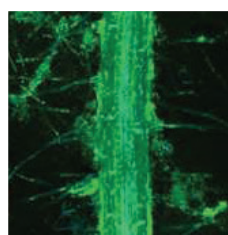
Cypher can neutralise both acid and alkaline soils and substrates by regulating the PH value and will reduce nitrate leaching into groundwater. This effect dramatically extends the performance of urea in the soil by up to 60-80 days.

The buffering effects of Cypher helps to reduce the build-up of excessive elements (particularly sodium), toxic chemicals and heavy metals. All, these effects will long term enhance the resilience of crops, to stress factors such as cold, drought, pest, disease and toppling, promoting healthier, stronger plants.

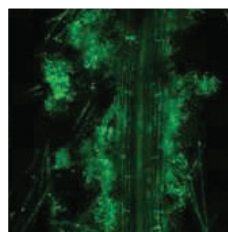
THE NATURAL CHOICE FOR IMPROVING GROWTH AND QUALITY

Initiate is a multi-function liquid lignin complex, providing a new source of organic biostimulant to aid the establishment of plants and crops in both soils and substrate by generating a healthy and energetic rootzone.

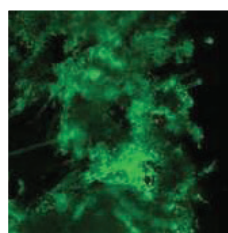
In the rhizosphere, or root zone of a plant, complex interactions are constantly occurring between plant roots and soil microbes. The microbes live in the soil and gain needed energy sources from plants while aiding in nutrient transfer to plants and creating an



CONTROL



100 UG ML⁻¹ INITIATE



200 UG ML⁻¹ INITIATE

environment more conducive to good root growth. The addition of Initiate as part of a soil conditioning programme increases micro-organism population of six different functional groups which aid root uptake and soil substrate biodiversity. These groups include the beneficial bacteria (*Bacillus Subtilis*). The picture (left) illustrates the level of bacteria on roots under the support of Initiate.

Initiate is a blend of modified lignin which binds plant growth promoting rhizobacteria to roots. This binding promotes the auxin response for enhanced root growth and activity. Initiate works as a complexing agent for root applied nutrients and maintains them in forms that are available to the plant. Initiate is also a source of metabolisable energy for the soil microbes present in the rhizosphere and provides a natural organic source of available calcium, a necessary requirement for healthy crops growth. Regular use of Initiate improves fertiliser efficiency and decreases rootzone salinity.

Conditioning Application

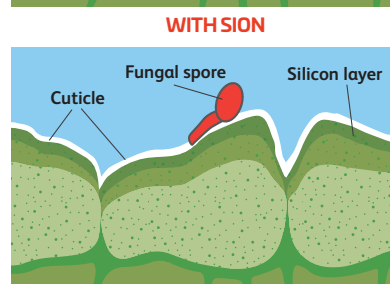
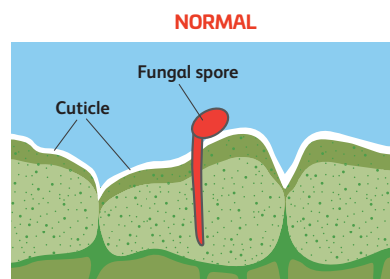
	Cypher	Initate	Sion	Aqualatus
Leafy Salads and Herbs	Apply 1.0 – 2.0 L/Ha, dividing the dose into 2-3 applications during the crop cycle via irrigation	Apply 5-10 L/Ha per crop for best results. Application may be done at planting or split into 2-3 application across the cropping cycle	Apply 1.0 L per Ha, every crop split into two applications. Apply via irrigation or soil spray application	Apply 1.2 L of Integrate per Ha at the planting of each crop via irrigation or by soil spray application
Field Vegetables	5 L pre planting, applied to soil and 2-3 applications across the season at 2-3 L per ha depending upon requirements of soil	Apply 1st application at planting/sowing at 10.0 L/Ha through spray application and every 6-8 weeks through to harvest	Apply 1-2 applications at 1.0 L per Ha per crop applied via soil spray at planting and during early herbicide application	Apply 1st application at planting/sowing at 2.0 L/Ha through spray tanks and then apply 2.0 L again, 6-8 weeks later



LIMITING STRESS SUSCEPTIBILITY TO PROTECT AND STRENGTHEN VEGETABLE CROPS

Sion is an advanced silicon nutrient for foliar and irrigated application proven to increase the strength, growth and health of crops. This fertiliser contains a unique form of silicon which provides a source 100% available silicon to the plant.

Sion boosts the strength of cells and increases the speed at which growth can be created thereby increasing overall growth potential of the plant.



Sion offers improved plant cell development as well as maintaining cell integrity and plant strength. It can also increase nutrient activity, susceptibility to crop damage from stress, and increase the resistance of plants to pathogenic pressure.

Silicon, in leaves, acts as armour for the plant. To enter into a plant, fungal spores or insects have to puncture and penetrate

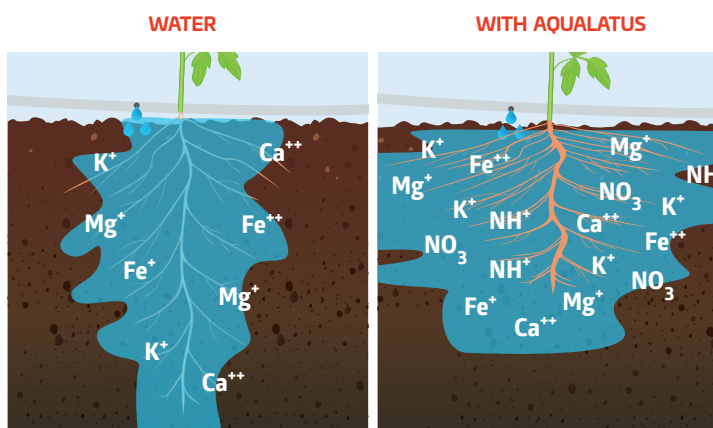
the plant surface or cuticle first. When the leaf cuticle is silicon-reinforced the physical tissue resistance to the puncture dramatically increases and the progress of pest or disease entry drops. The stronger cells wear off the mandibles of insect larva when they chew plant tissue, thereby limiting susceptibility to damage by insects.



A REVOLUTION IN WATER AND NUTRIENT MANAGEMENT

Aqualatus is a unique rootzone surfactant with outstanding qualities to benefit crop nutrition. Its formula, unique to Engage, makes it essential for the maximum distribution of root applied nutrients to aid root functions and nutrient uptake.

Most importantly, regular use of Aqualatus will slow the natural gravitational movement of water and so will reduce the overall water requirement for soil or container grown crops; this has been proven to be up to 50% without any loss of crop development and quality. Treating crops with Aqualatus will improve water and nutrient distribution and utilisation by expanding the root zone wetted area where larger and healthier root systems can develop.



Aqualatus optimises uniformity of moisture across the rootzone which is vitally important for optimising efficacy of beneficial nematode applications for root pest control. It aids the movement of the nematodes to allow damaging pests such as vine weevil to be more effectively managed.

Contact us and see why we are
leading the way in future crop
nutrition and enhancement.



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