



South Africa Visit Jan 2018



Estonia, a country steeped in history, beauty and peat moss.

Written by Henry van der Voort – CEO Hygrotech.

I had the opportunity to visit Estonia recently, during their early summer. The purpose of the visit was, for the most part, to learn more about this country situated in Eastern Europe.

Amongst other things, I learnt that Estonia has a population of approximately 1.5 million people with a third of them living in the capital city, Tallinn. This is where I had the honour of meeting the Mikskaar team of Kristel, Marillis, and Ave. This team of dynamic ladies initiated me into the culture of Estonia with excellent food experiences and a grand tour of the old part of Tallinn, which dates as far back as the 13th Century.

Good company and historical beauty, combined with a small town feel in Tallinn, set me up for an exciting visit to the peat bogs and the factory of Mikskaar.

The bogs are situated about 160 km from Tallinn. The drive through the country side is especially beautiful with greenery and forests along the route. The bogs themselves cover huge areas, with only small pockets being uncovered at a time. These areas have been worked fondly for 25 – 30 years, are only 1 -4 hectares in size with depths that vary between 4 -8 meters. A couple of cm are mined each year by an impressive piece of machinery referred to as a vacuum cleaner. These machines suck up many cubes at a

Figure 1. Indicates different grades supplied by Mikskaar



Figure 2. Estonia is situated north of Latvia and is bordered by Russia to the East and the Balkan Sea to the North and West.



time which are then transported to the factory, 40 km away. This whole process is duplicated at many spots around Estonia, giving Mikskaar flexibility, continuity and sustainability in supply for many decades to come. The factory, situated in rural Estonia inside an old dairy which in the past milked more than a thousand cows, contains state of the art equipment to process the raw peat.

The guided tour of the factory was an eye opener for me. Mikskaar is a supplier of peat that in terms of quality and flexibility to supply options, can compete with any such supplier internationally. Mikskaar can supply product which differs in size. They have further options to add fertilizer enrichment and options to add beneficial micro-organisms. They also have options to blend Perlite and Vermiculite into the different peat formulations. This factory includes a laboratory filled with impressive equipment and manned by professional technicians, which puts them in a position to keep quality at extremely high levels. A small growing area also gives Mikskaar the ability to do product development on a small, but accurate scale. The storage area can store up to 48,000 bales at any given time. Every step, from where the raw peat enters the factory until it gets stored, packed and shrink wrapped (24 bales per pallet), is basically fully automated. The word 'impressive' sums up everything around Mikskaar, their people and their facilities!



Special
package
300L



MicroSubstrate

T22 | GROWING MIX WITH BIO-STIMULANTS

WORKING **HARD**?

CHEMICAL ADDITIVES:

- Pest Control
- Mold Control
- Fertiliser
- Root Agents/Chemicals

WORKING **SMART**?

NATURAL BIOAGENTS:

- Natural Pest Control
- Natural Mold Control
- Natural Fertiliser Enhancement
- Root Growth and Synergy

Suggestions for use

- For seedlings of vegetables and ornamental plants
- Trays, small pots

Chemical characteristics

pH	5.2-6.0
N	100-165 mg/l
P205	115-190 mg/l
K20	130-215 mg/l
EC	0.7 mS/cm
Trace elements	included

Physical properties

Structure	0-6 mm
Density	300-320 kg/m³
Absorption	4-6 times its own weight of dry matter
Dry substance	80 g/l
Moisture	40-60%

Botanical characteristics

Species	Sphagnum Sp / Trichoderma harzianum strain T-22
Decomposition	H2-H4
Organic matter content	Min 85%
Ash content	Max 15%

Logistical details

Litres	kg	Bags/pallet	Bags/40HC	Bags/truck
275	50	24	504	480

MicroSubstrate

A growing mix with bio-stimulants

- **Contains bioagents that promote plant growth**
- **Stimulates the development of the plant root system and improves nutrient uptake**
- **Increases plant resilience against pathogens and abiotic stress factors**

MicroSubstrate creates a living eco-system where plants and micro-organisms enjoy a symbiotic beneficial relationship.

MicroSubstrate - Natural additives instead of chemical - for natural pest control, natural mould control, natural fertilizer enhancement, root growth and synergy.

Benefits - Less use of fungicides and pesticides, increased plant growth effect, Reduction of fertilizer input (up to 50%), Protection against stress. Use of bio-stimulants increases the nutritional value of fruits (Fe, Cu, Zn).

Products

MicroSubstrate T22 is a peat based substrate that contains *Trichoderma*. It creates protective microflora against most common pathogenic fungus while increasing the rate of plant growth and development. Improves nutrients, especially Nitrogen and water intake.

Exposure of *Trichoderma* to plant roots at the early stage dramatically enhances plant growth. MicroSubstrate T22 is ready to use fine structure mix for germination.

**Tomato 14 days
treated with Trianum**



MICROsubstrate

Micro-organisms & bio-agents

MICROsubstrate is a natural growing medium that contains plant growth promoting micro-organisms like *Mycorrhiza* and *Trichoderma*, that stimulate development of the plant root system in early growth stadium and improve nutrient uptake, forming a mutually beneficial relationship between the plant and micro-organisms.



✓ Main beneficial bioagents

Mortierella, *Penicillium*, *Trichoderma*

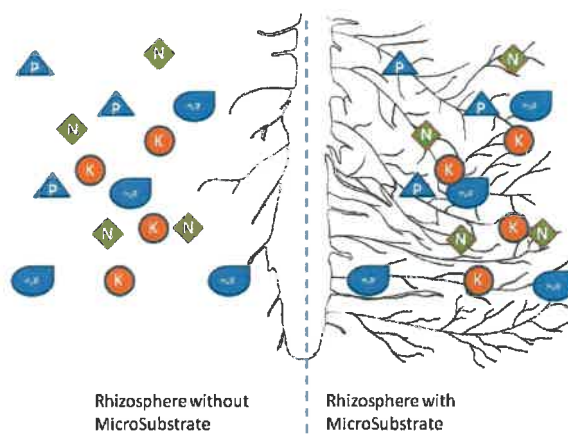


✗ Deter key pathogens

Fusarium, *Phytophthora*, *Rhizoctonia*, *Sclerotinia*

Advantages of *Trichoderma* and *Mycorrhiza* in MICROsubstrate

- Biofungicide + plant booster
- Control of pathogenic fungi
- Increases plant growth and development rate
- 40% decrease in nitrogen fertilizer requirement for roots colonized by *Trichoderma*
- Increases yield
- Mycelium increases the root area 100-1000x
- More effective use of chemical fertilizers
- Fungal filaments extending far into the soil are truly extensions of root systems and are more effective in nutrient and water absorption than the roots themselves
- Fungi release powerful enzymes into the soil that dissolve hard-to-capture nutrients, such as organic nitrogen, phosphorus, iron and other "tightly bound" soil nutrients
- Increases plant resistance against stress



Mikskaar has more than 20 years experience producing high quality peat moss substrates for clients in more than 60 countries, using it's own peat resources in Estonia, 9 peat bogs in 1000 hectares, production in two modern factories.

BIOsubstrate

Bio-components

BioSubstrate is natural growing medium composed of **sphagnum peat moss** and **wood fiber** and it is extremely well aerated and has high drainage capacity. This helps with rapid rooting and stronger roots, which results in rapid vegetative growth of plants.

Peat Moss

Peat moss is the most forgiving medium with the highest buffering of fertilizer and the best water holding ability.



Wood Fibre

Wood fibre is lightweight, fluffy and completely organic – it provides optimum oxygen diffusion rates in the root zone.

The advantages of BIOsubstrate

- Trustworthy sources for raw material
- Light-weight and well-compressible – decrease in transportation costs
- Free of pollution, diseases, weed seeds
- Made from biodegradable materials, no disposal problems
- Good drainage for roots
- Good rewettability
- Decrease in shrinkage value
- Avoidance of accumulation of fine particles at the bottom of containers
- Low fluctuation in salt and chloride levels
- Produced in Europe



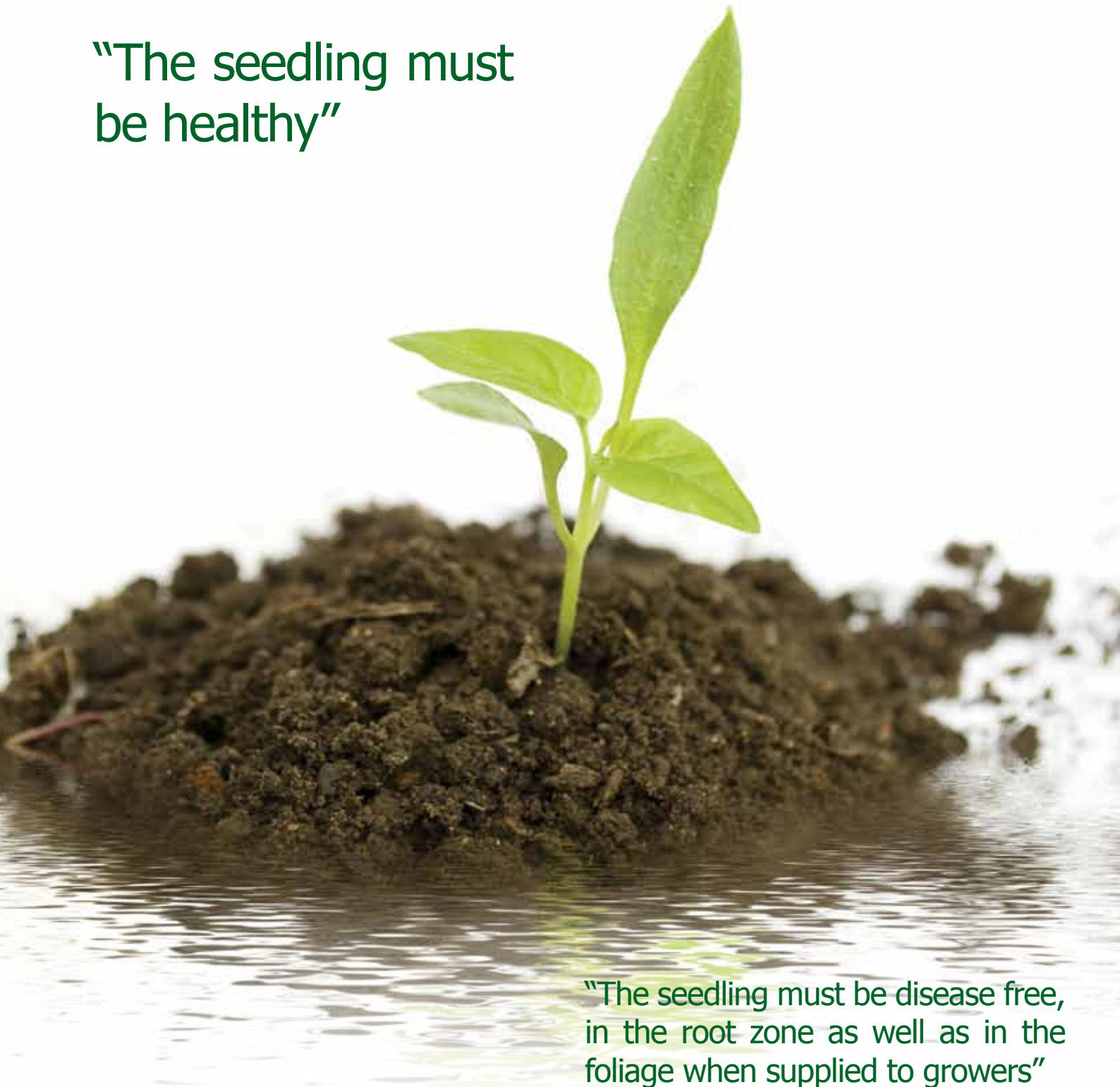
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QUALITY SEEDLINGS

Written by: Henry van der Voort - CEO

HYGROTECH has recognized the importance of farmers transplanting a quality seedling for more than thirty years! Many terms are used by farmers and nursery personnel alike when discussing the ideal seedling:

“The seedling must be healthy”



“The seedling must be disease free, in the root zone as well as in the foliage when supplied to growers”

"The seedling should have the ability to immediately "take" which in technical terms mean the inherent vigour in the seedling should initiate new root growth as soon as the seedling is transplanted"

The question can now be posed—what has HYGROTECH got in it's arsenal of products and what else is HYGROTECH doing to optimize it's contribution towards the nursery vegetable seedling industry to realise the ideal seedling?

1. SEEDLING HEALTH:

HYGROTECH supplies a seedling mix to the nursery industry which has the following attributes that contribute to plant health:

A) The basis for Hygromix is Mikskaar peat which is extremely uniform and consistent.

B) **HYGROTECH** has for years advocated the use of vermiculite in Hygromix. Vermiculite is expanded mica-this expansion happens when the mica is heated to a temperature of over 700 degrees, thus sterilising one of the ingredients of Hygromix.

C) Another innovation in hygromix is the use of chipped polystyrene-as with the vermiculite the polystyrene also undergoes a heat process which sterilizes the product, before being added as a raw material to Hygromix.

These chips ensure that there is even spacing in the Hygromix with the obvious result that roots have enough oxygen for optimum development.

D) **HYGROTECH** adds macro and micro elements when manufacturing Hygromix. These elements are dissolved in water before being added to the mix. This water has been sterilized by SPOREKILL®, once again minimizing the risk of introducing detrimental pathogens to Hygromix.

FURTHERMORE

HYGROTECH adressess disease free rootzones and plant foliage with the following products and strategies:

A) **HYGROTECH** has introduced many innovations to it's formulation of hygromix of which the introduction of Trichoderma is one. It is common knowledge that water is one of the main channels through which pathogens can enter into a nursery or any other enclosed growing unit.

One way of counteracting soil born pathogens like fusarium, phytophtra, and pythium, is to have trichoderma colonized in the root zone, ready to kill these pathogens. HYGROTECH has selected a spesific very aggressive strain of Trichoderma that is to incorporate into Hygromix during the manufacturing process.

Recently HYGROTECH has added another biological weapon to it's arsenal to counteract another typical nursery problem. *Beauveria Bassiana* is added as a raw material to fight the fungi gnat problem which is very common in nurseries. Fungal gnats can cause huge damage to seedlings by fungusgnat larvae feeding on the roots causing plants to wilt.

B) SPOREKILL® has been mentioned as a water sterilent in the manufacturing process of Hygromix. The versatility of this product is immense and many nurseries are already using it to

treat all their irrigation water.

The old saying: "prevention is better than cure" supports the decision to use SPOREKILL®. Added to this, SPOREKILL® can be used to "boost" a fungicidal spray programme to ensure the healthy foliage of a seedling.

3. "TAKE"-ABILITY OF SEEDLINGS:

Once again HYGROTECH realizes the importance of a seedling having a good start, very much like an athlete in the 100 metres final!!

A) As you have now seen/read, Hygrotech manufactures and supplies a seedling mix that is pathogen free. But this is not the only potential problem HYGROTECH has adressed during the manufacturing and formulation process of Hygromix.

As mentioned, HYGROTECH adds the necessary macro and micro nutrients in the correct ratios that emerging and growing vegetable seedlings require.

B) **HYGROTECH** also formulated Hygrofert for use as fertigation for vegetable seedlings, in the nursery specifically compatible with all Hygromix formulations

"In short,
HYGROTECH does
all it can to supply a
mix that is pathogen
free"

C) **HYGROTECH** acknowledges the importance of certain growth regulators. Kic-start, which contains the hormone

auxin, was specially formulated by HYGROTECH'S technical personnel for use to alleviate transplant shock.

The product is aptly named and does exactly as stated. The micro nutrients are in the correct ratio for young plants. The auxin promote root initiation, promote lateral and adventitious roots and is responsible to regulate cell elongation and plant growth.

IN CONCLUSION:

A) The raw materials used in Hygromix have undergone sterilization before being blended into Hygromix

B) Hygromix with Trichoderma mixed in, has the capability of supressing soil-and waterborne pathogens due to the adding of beneficial micro organisms. Adding BB will supply the added benefit of counteracting fungal gnats.

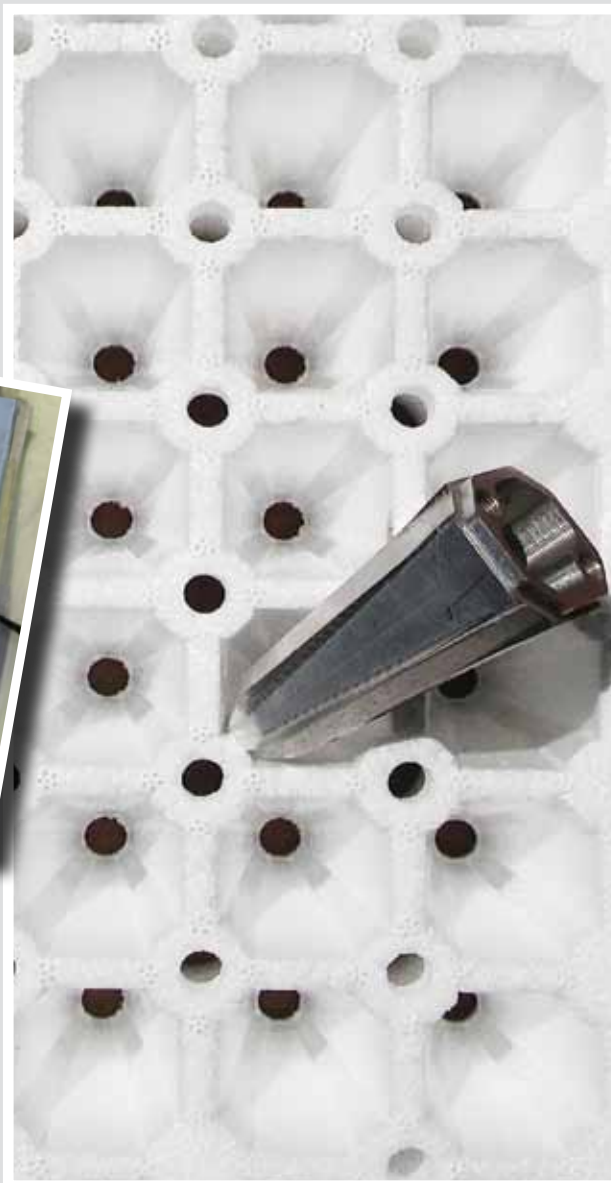
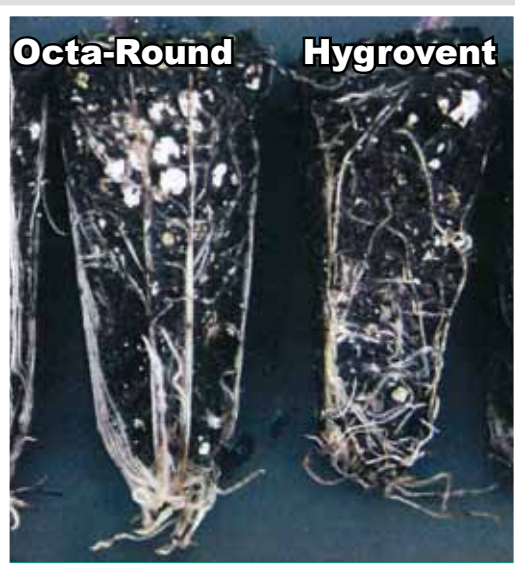
C) Hygromix contains macro and micro minerals for optimum growth.

D) HYGROTECH has an arsenal of products to compliment its Hygromix to ensure the ideal seedling for nurseries and growers alike.

HY-TEC SEED TRAYS

A REFRESHER COURSE

After the demise of the official marketing channels of the **SPEEDLING TRAYS** that were introduced by Habé Roode in 1978, Hygrotech started developing their own **HYGROVENT SEED TRAYS** in the late eighties with its unique characteristics of being ventilated on each corner of the seedling cavity as well as the Drainguard concept.



A few years back Hygrotech raised the bar by designing, developing and manufacturing a brand new concept of an off-set eight sided cavity suitably named OCTA ROUND which some nurseries have already incorporated in their use of seed trays.

This advertorial will focus on Hygrotech's flagship seed trays, namely HYGROVENT square model 242 and OCTA ROUND square model 200.

The HYGROVENT 242 is replacing most of the old fashioned 200 cavity type seed trays with the emphasis on economics of scale. Since most standard size seed trays have the same size - 67.75cm x 34.5cm – and depth 6.0cm, the model 242 has the following "savings".

- HYGROVENT 242 slightly cheaper than the HYGROVENT 200 but with 42 or 21% more cavities per seed tray therefore saving R3.15 per seed tray.
- Practically saving close to 20% growing medium per cavity because of almost similar cavity size than other model 200 seed trays.
- When converting to HYGROVENT 242 seed trays a nursery can produce 21% more plants in its nursery without expanding or enlarging the nursery.

In another equation 1040 plants per m² can be produced in HYGROVENT 242 compared to 859 plants per m² in other model 200 seed trays.

The OCTA ROUND concept provides a unique eight sided cavity, compared to the "old" SPEEDLINGS and HYGROVENTS with four sides and even older round cavities where the roots can "play" in circles. The 8 sides are off-set with 4 of the 8 sides curved out to incorporate the "Drainguard" concept that prevents growing medium from sifting out with watering and handling.

The OCTA ROUND cavity is 5mm deeper to allow slightly longer root development down the eight off-centred sides. It is WORTHWHILE to try this unique OCTA ROUND concept !

Please contact your local Hygrotech branch or sales representative for a sample of the OCTA ROUND seed tray.

ROOT STIMULANTS

KIC – START

- ROOT STIMULANT
- FULL MICRO NUTRIENT MIXTURE
- CONTAINS AUKSINES
- USE ON SEEDLINGS AND YOUNG OR MATURE PLANTS
- DRENCH OR THROUGH IRRIGATION
- 25 ml/10L, 1L/100L water or 5L/ha
- ALL CROPS

ASCO GRO

- ROOT / PLANT STIMULANT
- Fe, Mn, Ca Mo CHELATED MICRO NUTRIENT MIXTURE
- CONTAINS SEEWEEED EXTRACTION
- AUKSINES, (6) CITOKININS, (17) AMINO-ACIDS, (8) PROTEINES AND (9) VITAMINS
- USE ON SEEDLINGS AND YOUNG OR ADULT PLANTS
- DRENCH, TROUGH IRRIGATION OR FOLIAR SPRAYING
- 25 ml/10L, 700 ml/100L water or 2L/ha
- ALL CROPS

HYPERFEED (Reproductive Stage)

Nitrogen (N)	164 g/kg
Phosphorus (P)	55 g/kg
Potassium (K)	274 g/kg
Magnesium (Mg)	0.9 g/kg
Iron (Fe)	1.0 g/kg
Manganese (Mn)	0.5 g/kg
Zinc (Zn)	0.5 g/kg
Copper (Cu)	0.5 g/kg
Boron (B)	1.2 g/kg
Molybdenum (Mo)	0.07 g/kg

HYGROFERT B (Seedlings)

Nitrogen (N)	153 g/kg
Phosphorus (P)	69 g/kg
Potassium (K)	183 g/kg
Magnesium (Mg)	11 g/kg
Iron (Fe)	1885 mg/kg
Manganese (Mn)	449 mg/kg
Zinc (Zn)	224 mg/kg
Copper (Cu)	34 mg/kg
Boron (B)	561 mg/kg
Molybdenum (Mo)	56 mg/kg

HYGROPONIC

Nitrogen (N)	68 g/kg
Phosphorus (P)	42 g/kg
Potassium (K)	208 g/kg
Magnesium (Mg)	30 g/kg
Sulphur (S)	64 g/kg
Iron (Fe)	1254 mg/kg
Manganese (Mn)	299 mg/kg
Zinc (Zn)	149 mg/kg
Copper (Cu)	22 mg/kg
Boron (B)	373 mg/kg
Molybdenum (Mo)	37 mg/kg