



HORT AMERICAS

CATALOG

2019

www.hortamericas.com

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IRRIGATION

ORCHID SUPPLIES

CONTROLLED ENVIRONMENT TECHNOLOGY

EDUCATIONAL RESOURCES

Hort Americas is constantly working on developing and designing products and tools that will help lead and inspire future horticulturalist and farmers. Hort Americas is focused on bringing the newest of technology to growers. Some of the products it offers are vine clips, growing substrates, multilayered vertical farming systems, growth chambers and LED grow lights.

GROWING SUPPLIES

HOOKS & CLIPS

FREE FALL HOOK & TWINE



This twine holder is used to guide tomato, peppers, cucumbers upwards. The 18 cm hook hangs from your overhead support wire. One turn lowers the plants to the correct distance.

ITEM#	DESCRIPTION	QTY.
50010020	Empty hooks (DIY)	1,000/case
50010011	9m plus 3m free fall twine	450/case
50010012	10m plus 2m free fall twine	450/case
50010022	12m white twine	450/case

QLIPR CROP CLAMPING SYSTEM



This easy-to-use clamping system is used for cucumbers and tomatoes. Qlipr consists of a crop hook (120 cm) with two foam-lined clamps. Stock item. Sold in 100pc/pack.

[Watch the video on this product.](#)

ITEM#	DESCRIPTION
50020010	Qlipr Steel Crop Clip
50020011	Qlipr Foam Insert
50020012	Qlipr Assembly
50020013	Qlipr Plant Hook 1.2m

LANKHORST HORTI-TWINE

Lankhorst Horti-Twines are for use with free fall hooks and provide strong support for greenhouse crops. PP life = 1 year. Jute life < 1 year.



ITEM#	DESCRIPTION	LENGTH	BRK POINT
37009900	Tomato - Elite PP White	7,200m	30kg
37009901	Tomato - Elite PP Green	7,200m	30kg
37011500	Pepper - Elite PP Green	9,000m	24kg
37006100	Cucumber - Prima Jute	1,050m	45kg

BATO TRUSS SUPPORTS

Truss Supports strengthen & guide trusses.

ITEM#	DESCRIPTION
30010017	Truss Support 5.5mm (25K/case)
30010018	Truss Support 6.6mm (20K/case)
NIS300101	Truss Support Hook (22K/case) SUPER FLEX

BATO HOOKS

Bato Hooks increase size of fruit and yields.

J-Hooks support the cluster. The top goes over the twine, while the fish-hook end is pulled behind the first tomatoes in the truss.



Side Shoot Hooks are used for attaching side shoots to the stem.



Tophooks are used for cucumbers when vine has reached the top wire.



ITEM#	DESCRIPTION
37203430	Bato J-hook 10cm terracotta (13k/case)
37203430	Stem Hook (8.5K/case)
NIS300100	Side Shoot Hook (5K/case)
37200500	Top Hook (2K/case)

ROLLERHOOK

ITEM# NIS100200

The Rollerhook is a state of the art trellising hooks. The unique design of the rollerhook enables the worker to easily, rapidly and safely lower and lean tomato or cucumber plants.

- Good control of lowering length
- Maximum twine length 36 m
- Will not slip back on the trellising cable



BATO CLIPPERS

Provides non-restrictive plant stem guidance and eliminates turning. Increase in yield & quality. Easy & efficient. Also available in a bio-clip.



ITEM#	DESCRIPTION
30010017	20mm Clippers(9K/case)
37200858	23mm Clippers(10,500/case) NEW!
37200857	25mm Clippers (9K/case)

JOBU CLIP RING

Effective and fast securing of plants to canes using the one-handed pincher principle.



ITEM#	DESCRIPTION
58652750	Jobu Clip Ring 16mm (40K/case)
58653050	Jobu Clip Ring 20mm (20K/case)

TRELLIS NETTING SUPPORT NET CARNEA PLUS 1517

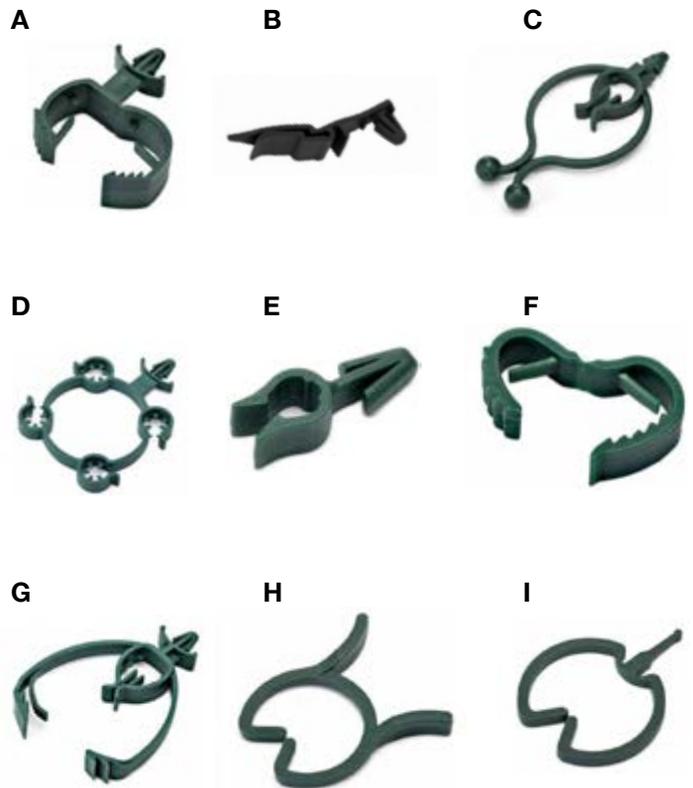
Support mesh, or trellis netting, helps you support your crops when they could bend or break. The Support Net Carnea Plus 1517 is specifically intended as a vertical application. It supports the plants that grow significantly in length and height. Application includes several vegetables, such as beans and peas. In addition, plants with soft fruit, such as raspberries and brambles, also benefit from the functioning of this netting. The rectangular meshes offer an optimal support.



ITEM#	DESCRIPTION
NIS600438	17 x 15cm – 6 meshes (1000 mtr / roll) – 3.5ft wide
NIS600439	17x15cm – 9 meshes (1000 mtr / roll)- 3.5ft wide

BATO RINGS, CLIPS, CLASPS, AND RINGS

KEY	ITEM#	DESCRIPTION
A	NIS300104	Adjustable Label Clip - large photo label
B	NIS300105	Pot Label Clip - large tags on pots
C	NIS300106	Twist Clip - three-stake pyramid
D	NIS300107	Quattro Clip - creepers in square pots 4-stakes
E	NIS300108	Label Clip XS Flex - flexible for one stake
F	NIS300109	Plant Clasp - bundling plant stems or trees
G	NIS300110	Tree Clasp - ratchet closure clasp for trees
H	NIS300111	Bato Clip Ring - fasten plant to stake
I	NIS300112	Mono Clip - fasten plant to stake



CULTO HORTICULTURE WHITE RUBBER BANDS

Used for bunching herbs together. 1kg package.



ITEM#	DESCRIPTION
36800300	40 x 1.5 cm
36801000	60 x 1.5 cm
36801200	80 x 1.5 cm

BATO SILICONE GRAFTING CLIPS

Bato Grafting Clips are for grafting tomatoes, peppers, cucumbers, eggplant for different size stems and with (R) or without stick slots (L) for use with bamboo canes.



ITEM#	DESCRIPTION
58141000	1.5 mm Grafting Clip (10K/bag)
58143500	2 mm Grafting Clip (10K/bag)
58140000	2.5 mm Grafting Clip (
58143550	3 mm Grafting Clip w. slot (10K/bag)

BATO GRAFTING PEGS

Bato Grafting Pegs with an iron ring are used for grafting melons, eggplants and larger tomato plants.



ITEM#	DESCRIPTION
NIS300113	Bato Grafting Peg (R)
NIS300114	Bato Grafting Peg biodegradable (L)

BATO CLIPS FOR ORCHIDS

Bato Clips for Orchids quickly and gently bundle orchid spike/inflorescence to bamboo cane. Bato clips connect the plant and the stake to support and protect during shipping and handling.



Butterfly Clip

Orchidclip

Orchidpeg

ITEM#	DESCRIPTION
58654000	Bato Butterfly Clip, 50K per case
NIS586100	Bato Orchidclip, 20K per case, 4.5-7 mm
NIS586101	Bato Orchidpeg, 20K per case, 6 mm

CONTAINERS & TRAYS

BATO SQUARE POTS



1.8 L Bato Square Pot

- Soft fruits such as raspberries
- Four feet keep roots inside
- Drain holes on bottom & sides.



3.2 L Bato Square Pot

- Great for many plants
- Up to 49 pots/m²
- 2 drain holes for optimum air & drainage



4.7 L Bato Square Pot

- Strawberries & citrus
- 4, 8, or 12 drain holes
- Grid bottom option



6.5 L Bato Square Pot

- Medium sized plants
- With bottom and/or side outlets
- Up to 25 pots/m².



10 L Bato Square Pot

- Economical and long-lasting
- Great for raspberries & berries
- Comes with our without side outlets



12 L Bato Square Pot

- Ornamentals
- Up to 16 pots/m²
- Eight holes (4 side & 4 bottom)



18 L Bato Square Pot

- All kinds of plants
- Sixteen holes for great drainage



25 L Bato Square Pot

- All kinds of plants, including blueberries
- Available with a flat base and cross-bottom or with a grid base



	ITEM#	TOP x BOTTOM x HEIGHT	QTY	
	1.8	50600748	11.9 x 9 x 20.2 cm	6,400
	3.2L	NIS506113	14 x 11.2 x 21.8 cm	3,640
	4.7L	NIS506114	19.9 x 16.1 x 17.5 cm	3,000
	6.5L	NIS506115	19.4 x 15.4 x 25.2 cm	1,380
	10L	NIS506116	24.7 x 19.8 x 25.6 cm	
	12	50600745	24.8 x 17.1 x 29.7 cm	1,360
	18L	50600753	30.2 x 2.17 x 30.7 cm	1,200
	25L		34.5 x 34.5 x 30.0 cm	



POPPELMANN ROUND POTS

Net Pots

- G4.6-0175 1 3/4 in x 2 in
- G5-0200 2 in x 2 in
- Used in most hydroponic systems
- Great for orchids Standard Round Pots



Pöppelmann Mum Pots

- VCD21D 8 1/4 in x 5 in (3 qt)



Round Pots

- VCC16FUS-0625 6 1/4 in x 6 7/8 in (2.5 qt)



Azalea Pots

- VCG19-0750 7 1/2 in x 5 7/8 in (3 qt)



ITEM#	DESCRIPTION	QTY
60020011	2 inch Net Pot G5-200	4,250
60020014	3 inch Net Pot G8R	1,400
NIS600200	2.5 qt Round Pot	360
NIS600201	Mum Pot	288
NIS600202	VCG Round Pot	392

SUBSTRATE BAGS

Ready to be filled with your own special substrate.



ITEM#	DESCRIPTION	DIMENSIONS
50080150	Substrate Bags	9.25" x 4'1"
50080160	Substrate Bags	11.2" x 4'1"

BATO HL TRAYS

Item# NIS500801

For flood floor systems.

Private labeling available.

23.5" x 15.7" x 1"



MESH TRAY

10" x 20"

Ideal for watering and draining cuttings and new plants.



BEEKENKAMP BLUEBERRIES GROWING POTS



ITEM#	DESCRIPTION
6164	28 liter, square
6165	38 liter, round
6166	45 liter, round

BEEKENKAMP RASPBERRY GROWING POTS



ITEM#	DESCRIPTION
6152	2.4 liter for long cane
7300/LW	4.7 liter light weight
6159	7 liter low
6160	7 liter. Grid bottom or 8 drain holes options.
6161	10 liter. Grid bottom or 8 drain holes options.
7296	11 liter
7297	16 liter

BEEKENKAMP STRAWBERRY SUBSTRATE GROWING POTS



ITEM#	DESCRIPTION
7300	4.7 liter
7300HP	4.7 liter high feet

BEEKENKAMP DUTCH LEACH TRAYS

ITEM# NIS609908

A heavy duty plastic tray with two drain holes on one end for either elbows or endcaps. It can be used for all loose media but is primarily used for 6" rockwool slabs.



BEEKENKAMP 7 LITER SQUARE POT

ITEM# NIS40147



BEEKENKAMP CONTRAPACK STORAGE CRATE

ITEM# NIS8240

600 x 400 x 190 cm

Food-safe certificate available

Stocked as standard in colour black



AMHYDRO PROPAGATION TRAYS

ITEM# NIS609909

AmHydro Propagation Tray (also known as Multi-Purpose-Tray or cMPT), is made from 1/8-in white ABS plastic and is designed to fit (2) standard 10-in x 20-in flats. The AmHydro Propagation Tray has (2) 1-in tap-outs that can be drilled. The AmHydro Propagation Tray Fitting Kit comes with two fittings, one for filling/draining the tray and one as an overflow.



TROUGHS

BEEKENKAMP STRAWBERRY SUBSTRATE TROUGHS



ITEM#	DESCRIPTION
7303	8 liter
7293	9 liter
7305	Fragola 11 liter with truss support
7299	12.5 liter
7304	14 liter
7294	15 liter

BEEKENKAMP SUBSTRATE TROUGH "FRAGOLA" WITH TRUSS SUPPORT, 18 LITER

ITEM# NIS40145

This innovative, extra-long strawberry substrate trough had been developed for use on low ridges or on gutters. With or without truss support possible.



BEEKENKAMP SUBSTRATE TROUGH "FRAGOLA" 11 LITER WITH TRUSS SUPPORT

ITEM# NIS40146



BEEKENKAMP SUBSTRATE TROUGH

15 LITRE

ITEM# NIS40141



HYDRO TROUGH

This Bato trough is also known as the Bato Bucket or Dutch Bucket and is suitable for hydro cultivation with constant water reservoirs. A highly efficient internal drain discharges to a central drain pipe. Each trough comes with two knees that drain excess water from reservoir.

Cultivation: decorative and pot plants.



ITEM#	DESCRIPTION	
30010014	Hydro Trough - Beige 11 L with two knees 608 per pallet	30 x 25 cm top 21.3 x 20.3 cm bottom 23.3 cm height
30010015	Hydro Trough Knees	1,220 per case
NIS300100	Drain water Pipe 50mm	5.5 meters

UNI TROUGH

ITEM# NIS506100

Cultivation: Tomato, bell pepper, cucumber

17 L | 175 per pallet

74.9 x 22.6 cm top | 71.7 x 19.2 cm bottom | 17.5 cm height



VARIO TROUGH

ITEM# NIS506101

Cultivation: Cucumber

11 L | 442 per pallet

38 x 26.5 cm top | 30.7 x 20.7 cm bottom | 16.4 cm height



BATO TROUGH

ITEM# NIS506114

Cultivation: Tomato, bell pepper, cucumber

19 L | 256 per pallet

45 x 30.8 cm top | 40.3 x 27.6 cm bottom | 19 cm height



ALLROUND TROUGH

ITEM# NIS506113

The Bato Allround Trough is suitable for all substrates. The Allround Trough can be installed stable on the ground because of the two ridged legs. It has a unique drainage system for moisture control in the substrate. Use with drain water pipe 50mm or the Bato Ugutter (45x50x45 mm). In this trough there are several drainage possibilities.

Cultivation: tomato, bell pepper, cucumber

11 L | 442 per pallet

40.2 x 22.3 cm top | 37.3 x 19.7 cm bottom | 21.3 cm height



BATO STRAWBERRY TROUGH

Cultivation: Strawberries



ITEM#	DESCRIPTION	DIMENSIONS
50600707	11 L 306 per pallet	40.2 x 32.2 cm top! 37.7 x 19.7 cm bottom 22.6 cm height
50600711	8 L	

BATO MULTI TROUGH

ITEM# 50600700

Cultivation: Strawberries

11 L | 700 per pallet

48.7 x 23.1 cm top | 43.7 x 19.4 cm bottom | 13.5 cm height



BATO HALF METER TROUGH

ITEM# NIS506102

Cultivation: Strawberries

8 L | 1,000 per pallet

48.4 x 17.3 cm top | 40.9 x 11 cm bottom | 16.3 cm height



BATO METER TROUGH

ITEM# NIS506103

Cultivation: Strawberries

16 L | 595 per pallet

99 x 17.7 cm top | 91.5 x 10.2 cm bottom | 16.3 cm height



GUTTERS

BATO RECTANGULAR GUTTER

ITEM# 50600709

Cultivation: tomato, strawberry, cucumber, bell pepper, decorative, and pot plants

50 x 250 x 250 mm | 1.2 mm thick | 61 m long (200ft)



BATO V-GUTTER

ITEM# NIS506104

Cultivation: Tomato, strawberry, cucumber, bell pepper, decorative, and pot plants

150-900mm wide



BATO MEGA-GUTTER

ITEM# NIS506105

Cultivation: tomato, strawberry, cucumber, bell pepper, decorative, and pot plants

150-900 mm



BATO GUTTER BRIDGES

Cultivation: tomato, strawberry, cucumber, bell pepper, decorative, and pot plants



ITEM#	DESCRIPTION
NIS506106	15 cm
NIS506107	20 cm
NIS506108	25 cm

METEOR SYSTEMS

GM04-H



This type of gutter is frequently used on crops grown on racks and is suitable for use with all pots and tubs. By installing a drainage hose and a strip of anti-root cap sheet in the gutter, it can be used in

loose substrates and peat bags.

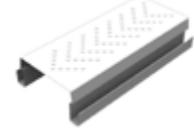
GM18



This gutter growing system has a deeper drainage channel measuring 40 mm. However, the gutter itself is not very high, measuring only 65 mm. The width of the drainage channel and the other bottom surfaces can be varied, meaning it can be

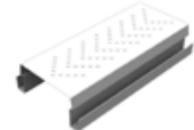
adjusted to the preferred cultivation technique such as in tubs, peat bags, or on mats. For the peat bags, it is possible to construct a roof in the middle bottom surface.

GM07HD



Thanks to its height and unique shape, this gutter is the most robust of its kind. It can be supplied in lengths varying between 120 mm and 300 mm.

GM07XHD



This gutter is extremely robust thanks to its 55-mm-deep draining channel. This means that it can better withstand overflows at longer bay lengths. It can be supplied in lengths varying between 120 mm and 280 mm.

ITEM#	DESCRIPTION
NIS506120	GM04-H
NIS506121	GM18
NIS506122	GM07HD
NIS506123	GM07XHD

STRAWBERRY TRAYS

BEEKENKAMP STRAWBERRY PROPAGATION TRAYS



ITEM#	DESCRIPTION
7309	9-hole tray
7311	10-hole tray
7308	16-holes mini tray
7310	16-hole tray
7313/7314	18-holes tray
7315	40-holes tray

BATO STRAWBERRY TRAYS



9-hole



10-hole



12-hole



16-hole



18-hole



24-hole

ITEM#	DESCRIPTION
NIS506109	9-hole "light" or "heavy" 60 x 20 x 11.1 cm
NIS506110	10-hole "DD" and "CD" 60 x 20 x 10.4 cm
NIS506112	12-hole 69 x 16.8 x 11 cm
NIS506111	16-hole "straight" or "staggered" 96 x 18.6 x 10.4 cm
NIS506113	18-hole 60 x 14 x 10 cm
NIS506114	24-hole 60 x 14 x 10 cm

TOOLS

BLUELAB pH PROBE

ITEM# 47730607

A replacement probe for Bluelab Combo and pH Meters, and Guardian Monitors. The Bluelab pH Probe has a double junction reference which provides a longer life than many other pH probes and is a gel filled non-refillable probe.



BLUELAB pH CONTROLLER CONNECT

ITEM# 47730606

The Bluelab pH Controller Connect constantly monitors and fine-tunes the pH levels for you. But more than that, it wirelessly data logs to your computer too, putting continuous information at your fingertips in real time. Use the data to make system changes faster for the ultimate crop. You can also change the settings from your PC. Clever stuff...24 hour a day monitoring and control of your pH so you know your plants are able to get the most nutrient uptake.



BLUELAB GUARDIAN MONITOR CONNECT

ITEM# 47730605

The Bluelab Guardian Monitor Connect is not only a constant indicator of the desired levels of pH, conductivity, and temperature of your nutrient solution, it also data logs these critical parameters to your computer for you.

Just one Bluelab Connect Stick is required to receive wireless data from one or more Guardian Monitor connects.



BLUELAB COMBO METER

ITEM# 47730600

The Bluelab Combo Meter is a portable pH, conductivity and temperature meter all in one. The Bluelab Combo Meter has two probes, a Bluelab pH Probe and a Bluelab Conductivity/Temperature Probe.



BLUELAB CONDUCTIVITY PEN (EC OR PPM)

ITEM# 47730604

The Bluelab Conductivity Pen simply tells you that your plants have the right amount of nutrient in your solution and lets you know if adjustments are needed.

The Bluelab Conductivity Pen also measures the temperature of the solution, as root health is vital to the success of a crop. Temperature affects the growth rate and structure of a plant so a solution temperature of 18 - 22°C or 65 - 72°F is recommended.



BLUELAB pH PEN

ITEM# 47730603

The Bluelab pH Pen measures the pH and also measures the temperature of the solution, as root health is vital to the success of a crop. Temperature affects the growth rate and structure of a plant so a solution temperature of 18 - 22°C or 65 - 72°F is recommended.

The hand held pH pen provides a compact quick and handy way to manage the success of your crop to ensure maximum uptake of nutrients.



BLUELAB TRUNCHEON NUTRIENT METER

ITEM# 47730601

It is essential when growing with a hydroponic solution to KNOW what the strength of the solution is before feeding your plants AND while they are growing. If the conductivity reading is too low, your plants may not be getting enough nutrients. If the conductivity reading is too high, plants can dehydrate.

Using the Bluelab Truncheon® Nutrient Meter is the fastest and easiest way to measure the conductivity of the nutrient solution.

Measurement range:

EC (0.2 - 3.6), CF (2 - 36),

ppm 500 (100 - 1800), ppm 700 (140 - 2520).



HANNA INSTRUMENTS EDGE pH, EC, & DO METER

Hanna Instruments edge pH, EC, & DO meter is a single meter that can measure pH, electrical conductivity, and dissolved oxygen.



ITEM#	DESCRIPTION
HI2020	pH kit - probe & solution
HI70004P	4.01 pH calibration solution sachets
HI70010P	10.01 pH calibration solution sachets
HI70007P	7.01 pH calibration solution sachets
HI2030	EC kit - probe & standards
HI77100P	1413 uS/cm & pH 7.01 solution sachets
HI2040	DO kit - probe, solution

HANNA INSTRUMENTS PORTABLE pH/EC/TDS METER HI-9813-6 WITH CAL CHECK

HI 9813-6 portable pH/EC/TDS/Temperature meter is easy to use and has the CAL CHECK feature that indicates calibration status. Easily with parameter with the push of a button.



ITEM#	DESCRIPTION
HI9813-6	Portable pH/EC/TDS meter
HI7061L	Cleaning solution 500ml
HI70300L	Storage solution 500ml
HI7031L	1413 uScm EC solution 500ml
HI7004L	4.01 pH buffer solution 500ml
HI7007L	7.01 pH buffer solution 500ml

WATCHDOG PLANT GROWTH STATION

Measures PAR light intensity, Daily Light Integral (DLI), day/night average temperatures, degree days, and much more. SpecWare software required.



ITEM#	DESCRIPTION
NIS400100	Watchdog 2475 Plant Growth Station
NIS400101	SpecWare 9 Pro
NIS400102	External soil temperature sensor 6ft cable

FIELD SCOUT QUANTUM LIGHT METER

ITEM# NIS400103

Measures photosynthetically active radiation (PAR) from 400 to 700nm in units from 0 to 2,000 mol/m²/s



LAQUA NITRATE AND CALCIUM METERS

Measure nutrient solutions, soils, greenhouse horticultural substrates, water samples and tissue sap.



ITEM#	DESCRIPTION
NIS400104	LAQUA Twin Nitrate Meter 2305GL
NIS400105	34 ppm NO ₃ -N Standard 2312
NIS400106	450 ppm NO ₃ -N Standard 2311
NIS400107	Soil Nitrate kit with 30 samples
NIS400108	LAQUA Twin Calcium Meter 2450L
NIS400109	150 ppm Ca ²⁺ Standard 2460L
NIS400110	2000 ppm Ca ²⁺ Standard 2461L

HANDHELD PLANT SAP PRESS

ITEM# NIS400111

Use this with the LAQUA meters to test tissue for nutrient levels.



DIGITAL REFRACTROMETER

ITEM# NIS400112

Easy and convenient way to measure Brix. Measures from 0 to 53%.



MILWAUKEE WATERPROOF pH METER

ITEM# 47739100

Pocket-size waterproof pH meter with large dual level LCD that displays pH and temperature. Calibrate at one or two points. Auto off with a stability indicator and hold function.



NIEUWKOOP BV EC METER

ITEM# 47730650



This durable and accurate meter from Nieuwkoop BV can be used to measure, track and control the electrical conductivity (EC) or soluble salts level of growing substrates. Download the information sheet for product specifications.

NIEUWKOOP BV pH METER

ITEM# 47730660



This pH Meter from Nieuwkoop BV is designed to be simple and easy to operate without sacrificing accuracy. To find out more about this pH meter, download the product specification sheet.

NIEUWKOOP BV EC & PH METER KIT

ITEM# 477301100



This EC/pH/°C meter has automatic temperature compensation and automatic calibration. Kit is supplied complete in a rugged carrying case. Includes sample cup, syringe, cleaning bottle, distilled water, calibration liquids, and manual.

ARS 310 HARVESTING SHEAR WITH BENT JAW

ARS 310 Harvesting shear is the ideal tool to use when harvesting fruit, vegetables and flowers. It features an anti-skid handle that fits comfortably in user's hand. The bent jaw allows for accurate cutting and protection of the stem. The shears measure 16 cm long. Case prices available also.



ITEM#	DESCRIPTION
31117931	Individual
31117931	Case of 20

GERMO-SCISSORS DISINFECTANT SHEAR

ITEM# 32220299



The Germo-Scissors work along with liquid disinfectant to prevent cross contamination by viruses and/or bacteria during harvesting of various crops.

GERMO-KNIFE WITH RESERVOIR



A water gauge with a scale division per 50 liters and a drain tap are assembled. A pressure relief tap is assembled on the pump of the round-tip blade.

ITEM#	DESCRIPTION
31002291	Pointed-tip blade
31002287	Round-tip blade

ROUND TIP DE-LEAFING KNIFE

These round tip knives provide an excellent way to prune or deleaf plants. The rounded tip offers protection to the main plant stem, helping to avoid accidental cuts that could lead to disease. The knife has a 3.5 cm blade that is made of high-quality C60 steel. Also commonly known as a pepper knife, this cropping tool is specifically designed for working with vegetable, fruit and flowering plants.



ITEM#	DESCRIPTION
31056134	Blue handle
31056136	Blue handle - Case of 40

METALLO FLOWER KNIFE 6.5CM

ITEM# 31002406

The Metal Flower Knife is a lightweight and durable knife used for pruning flowers or vegetables. It's razor sharp and duplexed sharpened stainless steel blade is the industry standard in pruning excellence.



GREENHOUSE PICKING CART

ITEM# 60010024

- Perfect for hauling or storing harvest lugs
- Pneumatic tires provide smooth ride for the harvested produce
- Each cart has a sturdy expanded metal deck and easy grip handles



WILMOD SULFUR EVAPORATOR (WSE75)

ITEM# 34100204



The most important part of the Wilmod Sulfur Evaporator (WSE75) is the patented IR-heating element type SSV. When the IR heating element is working, the temperature stays below the inflammability of sulfur. This makes it safe to evaporate sulfur.

The WSE75 is easy to clean with the supplied SSV scraper. It is also possible to use a standard aluminum disposable scraper. This makes dosing of sulfur easier and the cleaning of the SSV.

DISPOSABLE BLUE POLYPROPYLENE SHOE COVERS

ITEM# 38881000



- High quality 100% blue polypropylene
- Meets FDA standards
- Elastic opening for snug fit
- Blue with non-slip white treads for better traction

MSAFE LATEX GLOVES

ITEM# 38019112

- Elasticity provides exceptional glove dexterity
- General-purpose latex gloves are great for handling produce in the greenhouse
- Glove surface is textured for a more secure grip
- Beaded cuff
- Disposable and ambidextrous

COATINGS

SUDLAC ECLIPSE LD

ITEM# 28010100



Protection from light and heat. Wear resistant. Removable.

Eclipse LD is a versatile white shading compound that offers protection for an entire season due to its high wear resistance.

Eclipse LD offers a higher level of protection due to its chosen chalk pigment. The desired level of shading is adjustable by regulating

the amount of buckets used. After diluting it is easy to apply Eclipse LD manually or by machine on any greenhouse surface.

At the end of the season easily removable with SUDLAC Topclear.

SUDLAC OPTIFUSE

ITEM# NIS89217



Optifuse offers a very high level of diffusion and almost no light loss. The incoming light is scattered by the diffuse coating layer, reaching the leaves from all sides from top to bottom of the crop. This will improve the photosynthesis and transpiration of all plant leaves, resulting in a better humidity,

temperature and CO2 level inside the greenhouse. It is proven by research that diffuse light has a positive effect on production, quality and growth of your crop. Optifuse is advised in the areas with a moderate temperature. For warmer areas we advise to use Optifuse IR.

SUDLAC OPTIFUSE IR

ITEM# NIS89215



Diffuse coating with heat protection. Wear resistant. Removable.

Optifuse IR is a diffuse coating that scatters the light to a high degree in combination with effective heat protection.

The high light levels offer light loving floral and vegetable crops the ideal base for healthy growth.

After diluting it is easy to apply manually or by machine to any type of glass greenhouse.

At the end of the season easily removable with SUDLAC Topclear.

SUDLAC SOMBRERO

ITEM# NIS89219



Sombrero liquid is a cost effective liquid shading product that is used for applying a temporary, even shade layer on greenhouses. Sombrero protects your crop against too much heat and sunlight and can be applied in different dilutions. Sombrero has a good wear resistance up to 3-4 months. The shade layer will wear off gradually, which means that the shading effect is reduced slowly and there is no need for a cleaning product. If necessary a second layer can be applied when a more intense or longer shading is needed.

SUDLAC SOMBRERO POWDER

ITEM# NIS89216



Sombrero powder is a cost effective shading product that is used for applying a temporary shade layer on greenhouses. It forms an efficient white barrier against too much heat and sunlight that can be used on all types of greenhouses around the world. The layer has

a good wear resistance up to 2 months on which a second layer can be applied if necessary. The shading will wear off gradually, which means that the shading effect is reduced slowly and there is no need for a cleaning product.

SUDLAC TRANSPAR

ITEM# 28010101



Protection from heat while maintaining grow-light levels. Wear resistant. Removable.

Transpar is a very efficient shading compound that offers a high level of temperature reduction while still maintaining high light levels.

Your crop benefits the entire season from the optimum balance between growlight and heat radiation, with a high level of diffusion.

After diluting it is easy to apply Transpar manually or by machine on any greenhouse surface.

At the end of the season easily removable with SUDLAC Topclear.

SUDLAC TOPCLEAR

ITEM# 28010102



Topclear is the cleaner to remove the Sudlac coatings Eclipse LD, Transpar, Optifuse & Optifuse IR. By using Topclear a grower has full control over when the coating is to be removed.



CROP PROTECTION

ORGANIC

All products are OMRI Listed.

ACTINOVATE AG

ITEM# NIS800109

Streptomyces lydicus. WYEC108

Saprophytic rhizosphere colonizer that controls soil-borne and foliar diseases.

Mode of action: Colonizes rhizosphere forming symbiotic relationship and attacks fungi.

Diseases: Pythium, Rhizoctonia, Botrytis, Fusarium, Verticillium, powdery mildew, etc.

Crops: Vegetables, greens, herbs, fruit, etc.

Drench: 4-6 oz. per gallon

Hydroponic: 18-54 oz. per acre

Foliar: 6-12 oz. per 50-150 gallons

PreHarvest Interval (PHI): 0



AGREE WG

ITEM# NIS800203

Bacillus thuringiensis Subspecies aizawai strain GC-91 For control of lepidopterous

Mode of action: After consuming a lethal dose, larvae stop eating within an hour, but may remain on the foliage until they die.

Insects: Lepidopterous

Crops: For use in Greenhouse and Nursery

Rates: 1/2lb to 2lb per Acre

PreHarvest Interval (PHI): 0



AZATIN O

ITEM# NIS800178

Biological Insect Growth Regulator (IGR)

Mode of action: UN - Molting Process is Disrupted

Insects: Aphids, caterpillars, fungus gnats, leafminers, thrips, mealybugs, and whiteflies.

Crops: Indoor and outdoor ornamentals, turf (including commercial lawns), vegetables, herbs, and other horticultural crops

Rates: 4 to 16 fl.oz./100 gallons of water

¼ tsp to 1 tsp (1.2 ml to 4.8 ml)/gallon of water

PreHarvest Interval (PHI): 0



AZERA

ITEM# NIS800117

Insecticide for Organic Production

Mode of action: 3A

Insects: Aphids, whiteflies, leafminers and caterpillars

Crops: May be used on all growing crops

Rates: 1oz to 2oz per gal for every 1000sqft

PreHarvest Interval (PHI): 0



CEASE

ITEM# NIS800181

Microbial Fungicide and Bactericide based on a naturally occurring, patented strain of *Bacillus subtilis* (Strain QST 713)

Mode of action: Cease contains a group of natural antifungal and antibacterial compounds with multiple modes of action to destroy pathogens.

Diseases: For Foliar Fungal pathogens such as Botrytis gray mold, powdery mildews, and for bacterial diseases, such as *Pseudomonas*

For Soil Borne Diseases such as those caused by *Rhizoctonia*, *Pythium*, *Fusarium* and *Phytophthora*.

Crops: Greenhouse, field, interiorscape, commercial landscapes and shade house environments on a wide array of ornamentals including bedding plants, potted plants, cut flowers, tropical foliage and container grown trees, shrubs, and vegetables grown under cover.

Rates: 2 qts to 8 qts/100 gallons of water

PreHarvest Interval (PHI): 0



CUEVA FUNGICIDE

ITEM# NIS800202

A fixed copper fungicide made by combining a soluble copper fertilizer with a fatty acid to form a true soap

Mode of action: Cueva is a true soap that creates a protective barrier on the plant

Diseases: Downy Mildew, Powdery Mildew, Botrytis, Alternaria Leaf Blight

Crops: Vegetables and Field Crops

Rates: 1/2 gal to 2 gal per 100 gallons of water

PreHarvest Interval (PHI): 0



DOUBLE NICKEL 55 AND LC

ITEM# NIS800204

Bacillus amyloliquefaciens strain D747, a preventive biofungicide for control/suppression of fungal and bacterial plant diseases.

Mode of action: This product uses 5 different modes of action that all work together

Diseases: Powdery Mildew, Botrytis, Alternaria, Bacterial Leaf Spot

Crops: Fruit and Vegetable Crops grown in Nurseries, Greenhouses, Shadehouses

Rates: 55 Dry – 1/4lb to 3 lb per 100 gallons of water
LC Liquid Spray – 1/2qt to 6qt per 100 gallons of water

LC Liquid Drench – 1/2pint to 4 1/2 pint per 100 gallons of water
PreHarvest Interval (PHI): 0

**ENTRUST AND ENTRUST SC**

ITEM# NIS800206

Created from the fermentation of a naturally occurring soil bacterium Spinsad

Mode of action: Two modes of entry — contact and ingestion — provide quick knockdown and some residual

Insects: Lepidopterous and Thrips

Crops: Fruits and Vegetables grown in Nurseries and Greenhouses

Rates: Crop Specific, See Label

PreHarvest Interval (PHI): Crop Specific, See Label

**HORIVER STICKY TRAP**

HORIVER has a grid. This makes counting easier

Use: In tall crops such as cucumber, tomato and pepper, traps should be positioned just above the plant head and raised as the crop grows. For optimal effect against leaf-miner, put traps horizontally on concrete paths. In crops with a low canopy, traps should be supported by canes or wire holders a maximum of 30 cm above the crop. The traps should be placed in areas with the highest risk of infestation, i.e. at doors, gable ends and lateral ventilation openings. Traps should be removed if significant numbers of flying parasites are caught. This happens particularly when traps hang amongst the plants (instead of above).

Quantity to be used: For monitoring purposes the advised rate is 5 traps per 1,000 m². When the traps are meant to give a contribution to control in hot spots (i.e. mass trapping), use at least 1 trap per 20 m², to a maximum of 1 trap per 2 m².

Both small and big traps can be used for this purpose.

Target: Aphids, leaf-miners, whiteflies, thrips and sciarids.

**ITEM# DESCRIPTION**

26131000	Yellow / Large
26000200	Yellow / Small
26136000	Blue / Large
26000198	Blue / Small

MILSTOP

ITEM# NIS800182

Water Soluble Broad Spectrum Foliar Fungicide, I

Mode of action: MilStop causes rapid water loss from the spores

Diseases: Cures powdery mildews / Prevents other foliar diseases

Crops: For use on interiorscape, greenhouse, nursery, woody, herb and field crops

Rates: Field - 2 lbs to 5 lbs/acre

Greenhouse - 1.25 lbs to 5 lbs/100 gallons of water

PreHarvest Interval (PHI): 0

**MYCOTROL O**

ITEM# NIS800179

Mycoinsecticide, Beauveria bassiana Strain GHA – Organic Version of BotaniGard ES

Mode of action: Unique mode of action – spores infect directly through the insect's cuticle

Insects: Controls adult and larval stages of whitefly, thrips, aphids, and more

Crops: Use in greenhouse, nursery, vegetables, landscape and interiorscape

Rates: Whiteflies, mealybugs, aphids - ½ qt. to 1 qt./100 gallons

Thrips - 1 qt. to 2 qt./100 gallons

Other labeled insects - ½ qt. to 2 qt./100 gallons*

PreHarvest Interval (PHI): 0

**NEEMIX 4.5**

ITEM# NIS800205

Azadirachtin 4.5%, Neemix 4.5 is an insect growth regulator

Mode of action: Interfers with the insects' ability to molt and is effective on all larval and pupae stages. It also repels and deters feeding

Insects: Broad Spectrum including Aphid, Whitefly and Thrip

Crops: Vegetables and Fruits Grown in Greenhouses, Fields and Nurseries

Rates: 4oz to 16oz per 100 gallons of water per acre

PreHarvest Interval (PHI): 0



OXIDATE 2.0

ITEM# NIS800201

OxiDate 2.0 is a natural disinfectant and fungicide

Mode of Action:

Diseases: Fungicide, Bacteriacide and Algaecide

Crops: Greenhouse and Nursery Crops, Greenhouse Structures and Equipment

Rates: See Label for Use Rates

PreHarvest Interval (PHI): 0



PYGANIC EC 1.4

Immediate insect control for organic production

Mode of action: Sodium channel modulators; disrupts nervous system

Insects: Aphids, beetles, cabbageworms, fungus gnats, thrips, mealy bugs, hornworms, whiteflies

Crops: Ornamentals, vegetables, fruit etc.

Rate: 16 to 64 fl. oz. per acre; 1 to 2 fl. oz. per gallon

PreHarvest Interval (PHI): 0



ITEM#	DESCRIPTION
80010034	EC 1.4 II
80010033	EC 5.0 II

ROOTSHIELD WP

ITEM# 80010058

Preventative biological fungicide —

Trichoderma harzianum T-22

Mode of action: Excludes and enzymatically attacks fungal pathogens

Diseases: Pythium, Fusarium, Rhizoctonia, Thielaviopsis, Botrytis, etc.

Crops: Roots only

Rate: Rootshield WP: 3 - 5 oz per 100 gallons; scoop: 1.5 oz

PreHarvest Interval (PHI): 0



SUFFOIL-X

ITEM# NIS800180

A unique concentrate of pre-emulsified, highly refined, high paraffinic, low aromatic oil.

Mode of Action: “M - Uniform coverage to suffocate pests without causing burn or stress to plants”

Insects/Disease: Effectively controls a broad range of insects, mites and fungi - including powdery mildew

Crops: FOR ORGANIC PRODUCTION

Rates: 1 gal to 2 gal/100 gallons of water

PreHarvest Interval (PHI): 0



TRIACT 70

ITEM# NIS800108

Fungicide, insecticide and miticide for organic production

Mode of action: Blocks hormones; feeding deterrent; suffocant; coats and dehydrates fungal spores

Insects: Insects: mites, whiteflies, aphids, and scales

Diseases: black spot, powdery mildew, rusts, scab

Crops: Ornamentals, trees, flowers, shrubs

Rate: 1 to 3 gallons per 100 gallons



BENEFICIAL INSECTS

BIOBEE BIOCALIFORNICUS, NEOSEIULUS CALIFORNICUS

Neoseiulus californicus is used to control the red spider mite.

Neoseiulus californicus is a predatory mite from the phytoseiid family. As polyphagous species, it can survive in crops -like pepper- until its favorite prey appears.

Crops: Horticultural crops (except tomato) and ornamental crops



BIOBEE BIOANDERSONI, AMBLYSEIUS ANDERSONI

Amblyseius andersoni is a polyphagous phytoseid. It feeds on mites from families Tetranychidae, especially *Panonychus ulmi*, Eriophyidae and also pollen.

andersoni has a good performance in both indoor and outdoor crops and is usually used to control spider mite pests.

Crops: *andersoni* can be used in a wide range of crops, such as: fruit crops, conifers, ornamentals, vegetables, vine, strawberry, raspberry, blueberry and citrus.



BIOBEE BIOENCARSIA, ENCARSIA FORMOSA

Encarsia formosa is a parasitic wasp of the greenhouse White fly (*Trialeurodes vaporariorum*). The females of *E. formosa* are attracted to its prey by the honeydew segregated. Once the wasp finds the larva of white fly, lays an egg inside it and the insect that emerges from it will eat the white fly from inside.

Crops: It is used in several horticultural, ornamental and fruit crops.



BIOBEE BIOAPHIDOLETES, APHIDOLETES APHIDIMYZA

Aphidoletes aphidimyza is a midge from family Cecidomyiidae, and its larvae control effectively the aphids from family Aphidae. The *A. aphidimyza* lays its eggs on plants that have a high population of aphids, in the underside of the leaves. When the larva of *A. aphidimyza* finds the prey, it injects a toxin into it and eats the aphid 10 minutes later.

Crops: It is used in several horticultural, ornamental and fruit crops.



BIOBEE BIOSWIRSKII, AMBLYSEIUS SWIRSKII

Amblyseius swirskii is a member of Phytoseiidae family of predatory mites. It is native to the eastern Mediterranean, including Israel where it is found in citrus groves. The *swirskii* mite is an efficient predator of young stages of the western flower thrips as well as the eggs and young nymphs of white flies. It also feeds on red spider mites as well as on broad mites. In the absence of prey it can survive on pollen and nectar from flowers.

Crops: Greenhouse and outdoor vegetables, ornamentals and fruit trees



BIOBEE BIOCUCUMERIS, NEOSEIULUS CUCUMERIS

Neoseiulus cucumeris is used to control several species of thrips, especially *Frankliniella occidentalis*. *Neoseiulus cucumeris* is a mite from the phytoseiid family. They also eat red spider mites, broad mites and other similar insects. They can survive without thrips if they find plants with pollen.

Crops: It is used in several crops, ornamental and vegetables (like cucumber and sweet pepper).



BIOBEE BIOPERSIMILIS, PHYTOSEIULUS PERSIMILIS

Phytoseiulus persimilis is a predatory mite originated in South America. It is a natural and efficient predator used to control spider mites. The adult female is reddish orange in color, pear shaped, and longer than its prey. Its special feature is long front legs which help in moving faster, especially when exposed to strong light or when its normal activity is interrupted.

Crops: Vegetables, flowers, and strawberries



BIOBEE BIODIGLYPHUS, DIGLYPHUS ISAEA

Diglyphus isaea is parasitic wasp for controlling the leaf miner – a very common pest in vegetables. Female wasps can lay over 60 fertile eggs in their lifetime. The adult female wasp sucks the liquids from its prey killing them and using the protein for her egg development. It lays its eggs close to the leaf miner and when the eggs hatch the young larvae continue feeding on them. These parasitic wasps are adapted to function in hot climatic conditions 86°F and above (30°C and above).

Crops: Fruits and vegetables



BIOBEE BIOCRYPTOLEAMUS, CRYPTOLAEMUS MONTROUZIERI

The predatory beetle *Cryptolaemus montrouzieri* belongs to a family of ladybird beetles. It is a general predator of mealybugs and feeds on a variety of mealybug species. The adult is 0.15 inch (4 mm) long, with a dark brown body and an orange head, prothorax, wing tips and abdomen.

Crops: Vineyards, citrus orchards, fruit trees and ornamentals.



BIOBEE BIOAPHIDIUS, APHIDIUS COLEMANI

Aphidius colemani is a parasitic wasp that controls several aphid species including the green peach aphid, and the cotton aphid. The parasitoid controls almost all developmental stages of the aphids.

Crops: Vegetables, strawberries, fruit trees, and ornamentals.



BIOBEE BIOANAGYRUS, ANAGYRUS PSEUDOCOCCI

A. pseudococci is a solitary endoparasitoid of the citrus mealybug and the grape mealybug. The adult female wasp of *Anagyrus* preferably lays its eggs singly inside third instar larvae and young females of mealybugs. It may also parasitize larvae of younger stages. The parasitoid larva hatches and feeds on the internal organs of its host.

Crops: Table grapes, vineyards, citrus, blueberries, vegetables and ornamentals.



BENEFICIAL NEMATODES

NEMA-GREEN® BIOLOGICAL CONTROL OF CHAFER GRUBS

If your turf turns yellow and brown despite watering and can be easily rolled off, you may have damage caused by C-shaped white grubs that feed on the roots.

nema-green® contains insect-pathogenic nematodes of the species *Heterorhabditis bacteriophora*.

Nematodes:

- are naturally occurring enemies of chafer grubs.
- are safe for beneficial insects, plants, pets and humans.
- have been used for over 12 years by professional horticulturists, greenkeepers and landscape gardeners.



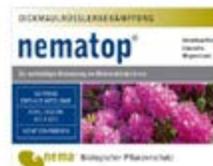
NEMASTAR® BIOLOGICAL CONTROL OF LEATHERJACKETS

nemastar® has proven a reliable control agent on leatherjackets over the last 6 years. It contains insect-pathogenic nematodes of the species *Steinernema carpocapsae* that search actively for larvae in the soil. nemastar is highly efficient against the young larvae stages in September and October. In field experiments performed by the University of Kiel up to 82 % of leatherjackets were killed by nematodes.



NEMATOP® BIOLOGICAL CONTROL OF BLACK VINE WEEVIL

nematop® contains insect-pathogenic nematodes of the species *Heterorhabditis bacteriophora*. These nematodes are naturally occurring enemies of vine weevil larvae. They search actively in the soil for vine weevil larvae and pupae. • Our research has shown that the nematodes can survive in the soil for several months in the absence of weevil larvae. Nematodes have been used for over 12 years by professional horticulturists, for the control of vine weevil.



STEINERNEMA FELTIAE

OMRI-listed BioSF, *Steinernema feltiae* by e-nema

Steinernema feltiae controls the larval stage of Sciarids, and reduces the fungal disease that may gain entry to plants through wounds caused by the Sciarid larvae. It controls Codling moth larvae (*Cydia pomonella*), Plum fruit and Oriental fruit moth (*Cydia pomonella*, *Grapholita funebranne*, *G. molesta*), Fungus gnat larvae (*Lycoriella spp.*, *Bradysia spp.*), Apple, pear and plum Sawfly (*Hoplocampa testudibea*, *H. brevis*, *H. minuta*, *H. flava*), and Apple Clearwing (*Synanthedon myopaeformis*)



STEINERNEMA CARPOCAPSAE

OMRI-listed BioSC, *Steinernema carpocapsae*, by e-nema

Steinernema carpocapsae controls the leatherjackets of crane flies (*Tipula paludosa* and *Tipula oleracea*), Cutworms (*Agrotis spp.*), Codling moth larvae (*Cydia pomonella*), Tomato leafminer, Grass moth, Banana moth, Thrips (*Frankliniella occidentalis*), and butterfly caterpillar (e.g. *Duponchelia fovealis*, *Opogona sacchari*)



HETERORHABDITIS BACTERIOPHORA

OMRI-listed BioHB, *Heterorhabditis bacteriophora*, by e-nema

Heterorhabditis bacteriophora controls the black vine weevil (*Otiorynchus sulcatus*), White grubs such as Garden chafer (*Phyllopertha horticola*), June beetle (*Amphimallon solstitiale*), and Welsh beetle (*Hoplia philanthis*), Cockchafer grubs, Clay colored beetle (*Otiorynchus singularis*), Strawberry root weevil (*Otiorynchus ovatus*), rough strawberry root weevil (*Otiorynchus rugostriatus*), and Western corn rootworm (*Diabrotica virgifera*).



BIO-ENZYME

AQUABELLA WATER TREATMENT

AquaBella® is an easy-to-apply biological water treatment system used to keep water crystal-clear in fresh and salt water environments—perfect for shrimp farming, fish farming and other aquaculture environments. AquaBella utilizes naturally occurring beneficial microbes to remove ammonia, nitrates and nitrites—and to eliminate odors.



INSECTICIDES

1300 ORTHENE TR

ITEM# 80010056

Micro total-release broad-spectrum insecticide/miticide

Mode of action: Disrupts nervous system

Insects: Aphids, caterpillars, fungus gnats, leafminers, mealybugs, scale, mites, thrips and whiteflies

Crops: Bedding plants, cut flowers, foliage, ornamentals

Rate: 6 oz can per 4,500 sq ft



1600 X-CLUDE

ITEM# 80010048

Broad-spectrum pyrethrin-based aerosol insecticide/miticide with PBO synergist

Mode of action: Disrupts nervous system

Insects: Most controlled environment agriculture pests

Crops: Ornamentals

Rate: Spray foliage from directly above the plant



ATTAIN TR

ITEM# 80010049

Micro total-release broad-spectrum insecticide/miticide

Mode of action: Affects nervous system of insects; contact & residual; fast knockdown

Insects: Aphids, caterpillars, fungus gnats, mealybugs, leafrollers, scale, thrips, mites, whiteflies

Crops: Bedding plants, cut flowers, foliage, ornamentals

Rate: 2 oz can per 3,000 sq ft; 6 oz can per 9,000 sq ft



AVID 0.15EC

Derived from the bacterium *Streptomyces avermitilis*

Mode of Action: Paralysis stops feeding & damage

Insects: Mites & leaf miners; suppresses aphids, thrips & whiteflies

Crops: Greenhouse, ornamentals, foliage, woody ornamentals

Rate per 100 gallons: 4 oz for mites & 8 oz for leaf miners



ITEM#	DESCRIPTION
80010032	Insecticide 32 oz.
80010059	Miticide 8 oz.

BEETHOVEN TR

ITEM# 80010065

Micro total release miticide & ovicide

Mode of action: unknown**Pests:** Mites, including two-spotted spider mites; whitefly suppression**Crops:** Bedding plants, cut flowers, hanging baskets, foliage, and other ornamentals**Rate:** One can per 1,500 to 3,000 sq ft**BOTANIGARD ES**

Mycoinsecticide, Beauveria bassiana Strain GHA – Liquid Emulsifiable Suspension

Mode of Action: Unique mode of action – spores infect directly through the insect's cuticle**Insects:** Controls adult and larval stages of whitefly, thrips, aphids, and more**Crops:** Use in greenhouse, nursery, vegetables, landscape and interiorscape**Rates:** Whiteflies, mealybugs, aphids - ½ qt. to 1 qt./100 gallons

Thrips - 1 qt. to 2 qt./100 gallons

Other labeled insects - ½ qt. to 2 qt./100 gallons*

PreHarvest Interval (PHI): 0

ITEM#	DESCRIPTION
80010084	Quart
80010088	Gallon

BOTANIGARD 22WP

ITEM# NIS800187

Mycoinsecticide, Beauveria bassiana Strain GHA – Wettable Powder

Mode of Action: Unique mode of action – spores infect directly through the insect's cuticle**Insects:** Controls adult and larval stages of whitefly, thrips, aphids, and more**Crops:** Use in greenhouse, nursery, vegetables, landscape and interiorscape**Rates:** Whiteflies, mealybugs, aphids - ½ lb to 1 lb/100 gallons

Thrips - 1 lb to 2 lb/100 gallons

Other labeled insects - ½ lb to 2 lb/100 gallons*

Interiorscape bed rates - ¼ to 1 tsp./gal./10 sq.ft.

PreHarvest Interval (PHI): 0**EVERGREEN CROP PROTECTION****EC 60-6**

Multi-purpose pyrethrin-based insecticide combined with piperonyl butoxide (PBO), a synergist, to improve efficacy

Mode of action: Disrupts the insects nervous system**Insects:** Most controlled environment agriculture pests**Crops:** Hydroponics, ornamentals, post-harvest fruits & veggies**Rate:** 12 to 24 oz per 100 gals. or 1-2 tbs/gal;**hydroponics:** 0.001 to 0.1 ppm

ITEM#	DESCRIPTION
80010025	1 Quart
80010026	1 Gallon

FLORAMITE

Selective, long-lasting miticide with 3-day knockdown of all stages of spider mites

Unknown mode of action

Mites: Two spotted spider, Pacific, strawberry, European red, citrus red, clover, Southern red, spruce spider, bamboo spider, Lewis mites**Rate:** 4 to 8 oz per 100 gallons

ITEM#	DESCRIPTION
80010031	8 oz.
80010027	32 oz.

FORBID 4F

ITEM# 80010082

Effective residual & translaminar miticide/insecticide

Mode of action: Disrupts membranes and causes desiccation**Labeled for:** Ornamentals**Rate:** 1.4 to 4 oz per 100 gals.**JUDO**

ITEM# NIS800103

Effective residual & translaminar miticide/insecticide

Mode of action: Disrupts membranes and causes desiccation**Insects:** Mites and whiteflies**Crops:** Ornamentals**Rate:** 2 to 4 oz per 100 gallons

KONTOS

ITEM# 80010070

Foliar and systemic insecticide

Mode of action: Inhibits lipid synthesis and growth regulation**Insects:** Aphids, mealybugs, psyllids, spittlebugs, whiteflies**Crops:** Ornamentals, fruit and nut trees, and vegetable plants**Rate:** 1.7 to 3.4 fl oz per 100 gallons**MARATHON II**

ITEM# 80010079

Foliar and systemic flowable insecticide

Crops: Ornamentals, fruit and nut trees and vegetables**Rate:** 50 ml (1.7 oz) per 100 gallons**MET52 EC**

ITEM# NIS800106

Metarhizium anisopliae Strain F52*

Mode of Action: Metarhizium spores germinate on the insect surface and hyphae invade and kill susceptible insects**Insects:** Thrips, mites and whiteflies**Crops:** Leafy Vegetables, Ornamentals, Berry and Small Fruits**Rates:** Indoor Spray - 8 fluid ounces to 32 fluid ounces/100 gallons of water

Outdoor Spray - 8 fluid ounces to 64 fluid ounces/100 gallons of water

Drench - 48 fluid ounces to 80 fluid ounces/100 gallons of water

PreHarvest Interval (PHI): 0**MOLT-X**

ITEM# 80010036

An emulsifiable concentrate containing 3.0% by weight azadirachtin

Mode of Action: UN - Molting Process is Disrupted**Diseases:** aphids, armyworms, beetles, budworms, cutworms, fungus gnats, leafhoppers, leafminers, leafrollers, lepidopterous larvae, and whiteflies**Crops:** For Agricultural and Commercial use, Greenhouse, Shadehouse, Interiorscape and Nursery use on outdoor food crops, indoor plants, turfgrass, outdoor shrubs, trees and ornamentals.**Rates:** 8 oz. to 10 oz./100 gallons of water**PreHarvest Interval (PHI):** 0**PCO PYRETHRUM TR FOGGER**

ITEM# 80010050

Pyrethrin-based aerosol with PBO synergist for use in food and nonfood areas

Mode of action: Disrupts nervous system**Insects:** Cockroaches, fleas, ticks, houseflies, mosquitoes, crickets, silverfish, moths

Treats rooms of buildings only. Not labeled for use on crops.

Rate: Each can will treat 5,000 cubic feet of continuous space.**PRECLUDE TR**

ITEM# 80010055

Micro total release carbamate insect growth regulator

Mode of action: Blocks change from juvenile to adult stage**Insects:** Most controlled environment agriculture pests**Crops:** Ornamentals**Rate:** 2 oz can per 3,000 sq ft**PURGE III**

ITEM# 80010051

Pyrethrin-based automatically metered aerosol for food-handling areas

Mode of action: Nervous system disruptors**Insects:** Flying insects**Crops:** Food-handling areas**Rate:** Metered every 15 minutes to provide control for 30 days**PYRETHRUM TR**

ITEM# 80010047

Micro total release broad-spectrum insecticide/miticide

Mode of action: Nervous system disruptors**Insects:** Most controlled environment agriculture insects**Crops:** Ornamentals, veggies and herbs**Rate:** 2 oz can per 3,000 sq ft

PYCANA™

Pycana™ is a OMRI Listed Insecticide/Miticide combination product containing pyrethrins and canola oil. Pycana provides quick knockdown of many insects and mites including aphids, leafhoppers, earwigs, plant bugs, psyllids, mealybugs, thrips, whiteflies, and spider mites.

Pycana may be used on ornamentals, fruits, vegetables, and herbs grown in greenhouses, shadehouses, hoopouses, and container grown nurseries.

**PYGANIC EC 1.4**

Immediate insect control for organic production

Mode of action: Sodium channel modulators; disrupts nervous system

Insects: Aphids, beetles, cabbageworms, fungus gnats, thrips, mealy bugs, hornworms, whiteflies

Crops: Ornamentals, vegetables, fruit etc.

Rate: 16 to 64 fl. oz. per acre; 1 to 2 fl. oz. per gallon



ITEM#	DESCRIPTION
80010034	EC 1.4 II
80010033	EC 5.0 II

PYLON MITICIDE

ITEM# NIS800107

Broad-spectrum miticide with translaminar mobility

Mode of action: Disrupts mitochondrial membrane

Insects: Most mites, thrips, fungus gnats, some caterpillars and foliar nematodes

Crops: Ornamentals, vegetables

Rate: 2.6 to 5.2 oz per 100 gallons

**SHUTTLE O**

ITEM# 80010066

Rapid knockdown and long-term residual control of all stages of mites

Mode of action: Inhibits electron transport in mitochondria

Mites: Two-spotted spider mites, spruce spider mites, citrus red mites, European red mites, Pacific spider mites, Willamette spider mites, strawberry spider mites, and Texas citrus mites

Rate: 6.4 to 12.8 fl oz per 100 gallons

**TRIACT 70**

ITEM# NIS800108

Fungicide, insecticide and miticide for organic production

Mode of action: Blocks hormones; feeding deterrent; suffocant; coats and dehydrates fungal spores

Insects: Insects: mites, whiteflies, aphids, and scales

Diseases: black spot, powdery mildew, rusts, scab

Crops: Ornamentals, trees, flowers, shrubs

Rate: 1 to 3 gallons per 100 gallons

**TRINITY TR**

ITEM# 80010003

Broad-spectrum and xylem-mobile fungicide for control of key foliar diseases

Mode of action: Inhibits biosynthesis of sterol, a critical component of fungal cell membranes

Diseases: Alternaria, Botrytis, Downy Mildew, Fusarium, Powdery Mildew, Rhizoctonia

Crops: Bedding plants, cut flowers, hanging baskets, foliage, potted plants

Rate: One to two 2 oz. cans treat up to 3,000 ft²



FUNGICIDES

ACTINOVATE ORGANIC L&G GARDEN

ITEM# 80010096

Actinovate for Lawn & Garden contains a high concentration of a patented beneficial microorganism. When applied, the Actinovate microbe grows on the plant's roots and leaves, living off the plant's by-products while at the same time attacking harmful disease causing pathogens. This natural product effectively suppresses & controls a wide range of foliar and root diseases.



AFFIRM WDG

ITEM# NIS800185

Polyoxin D zinc salt (11.3%)

Mode of Action: 19 - Chitin synthase inhibition in cell wall development

Diseases: Leaf borne diseases like Anthracnose, Alternaria, Botrytis, Rhizoctonia and Powdery Mildew

Crops: Labeled for use on ornamentals and edibles grown outdoors and in greenhouses

Rates: 6.2oz/Acre for Edibles

4 oz to 8 oz/100 gallons of water for Ornamentals

PreHarvest Interval (PHI): 0



COMPASS O 50WDG

ITEM# NIS800110

Contact and translaminar fungicide

Mode of action: Inhibits mitochondrial respiration

Diseases: Powdery mildew, botrytis, anthracnose, septoria, downy mildew & rhizoctonia root rot

Crops: Ornamentals

Rate: 1-4 fl oz per 100 gallons; 1/3 tsp per gallon



EAGLE 20EW

ITEM# 80010017

Systemic protectant and curative fungicide

Diseases: Powdery mildew, rust, scab

Crops: Ornamentals, some fruit and vine crops

Rate: 6 to 12oz. per 100 gals.



PHYTON 27

ITEM# 80010073

Copper-based organo-metallic bactericide & fungicide with systemic activity

Mode of Action: Denaturation of proteins and enzymes

Diseases: Botrytis, black spot, powdery mildew, Rhizoctonia, Erwinia, Pseudomonas, fire blight, etc.

Crops: Roses, geraniums, azalea, calla lilly, Impatiens, begonia, poinsettia etc.

Rate per 10 gallons: 1.3 to 5 oz.



ROOTSHIELD WP

ITEM# 80010058

Preventative biological fungicide — *Trichoderma harzianum* T-22

Mode of action: Excludes and enzymatically attacks fungal pathogens

Diseases: Pythium, Fusarium, Rhizoctonia, Thielaviopsis, Botrytis, etc.

Crops: Roots only

Rate: Rootshield WP: 3 - 5 oz per 100 gallons; scoop: 1.5 oz



MYCOSTOP BIOFUNGICIDE

OMRI-listed

Mode of action: Controls damping-off, wilt and root diseases caused by Fusarium, Phytophthora, Alternaria and Pythium fungi. Suppresses diseases caused by Rhizoctonia sp. and Botrytis sp. Promotes growth and increases yield even in healthy crops.

Crops: Vegetables, herbs, ornamentals, peanuts, and seedling production.



DISINFECTANTS

GREEN SHIELD DISINFECTANT

ITEM# 80010072

Disinfectant and algacide

Mode of action: Destroys cell membranes

Unlike bleach, Green-Shield is EPA-registered for broad-spectrum control of pathogens and algae in and around greenhouses and causes no damage to clothing from splashes. Green-Shield lasts four times longer in solution than bleach and provides residual control as long as treated surfaces stay wet, without bleach's odor, irritation and volatility.

Treats controlled environment agriculture structures, greenhouses, nurseries, landscapes and interiorscapes on work areas, benches, tools, containers, walkways, floors and evaporative cooling pads.

Rate: Evaporative coolers 1 tsp/15 gal biweekly; work areas, walkways, and pots 1 TBSP/gal; tools 1 tsp/qt



OXIDATE 2.0

Natural Disinfectant and Fungicide

Diseases: Fungicide, Bactericide and Algacide

Crops: Greenhouse and Nursery Crops, Greenhouse Structures and Equipment

Rates: See Label for Use Rates

PreHarvest Interval (PHI): 0



OTHER CROP PROTECTION

THATCH CONTROL STREPTOMYCES VIOLACEUSNIGER

ITEM# 80010068

Streptomyces violaceusniger is a microbial inoculant used to preventatively treat plants for protection from Fusarium pathogens. It is environmentally safe, non-toxic and 100% all-natural.



VACATION ANTI-DROUGHT

ITEM# 80010067

- Vacation is an anti-drought treatment that will put plants in a temporary state of dormancy
- It eliminates the need for water for up to two weeks without harming plants
- Vacation can be used on shrubs, bedding plants, trees, flowers & turf
- The effects of Vacation gradually wear off after about 2 weeks; if needed again, just reapply
- Great for cut Christmas trees





FERTILIZER

HORT AMERICAS HYDROPONIC FERTILIZER

ITEM# 10020053

Hort America Hydroponic Fertilizer is specially formulated for growing leafy greens, culinary herbs, microgreens and other crops in a hydroponic system. Hort America has designed this water soluble fertilizer to deliver the essential nutrients for optimum uptake by the root system. It can be used as a constant feed or as a supplement. Hort America recommends that the grower have their source water tested by a professional water analysis laboratory to determine the nutrients, pH, EC and total alkalinity of your source water.

SUGGESTED RATES: 0.271 to 0.455 lbs/100 gallons - 1.23 to 2.06 grams/1 gallon (3.785 L). Supplement with 3.58 grams/gallon of Calcium Nitrate and 1.67 grams/gallon of Magnesium Sulfate.

GENERAL GUIDELINES FOR HYDROPONIC CROP PRODUCTION: Maintain a pH between 5.4 and 5.8 with an EC of 1.5 mS/cm once the cotyledons have fully expanded. Contact Hort America for more details and our crop production guides.

[Click here for more information.](#)

DIRECTIONS FOR USE

These are general guidelines that need to be adjusted to your hydroponic system, environmental conditions, and to the quality of your source water.

HYDROPONICS: Have your source water tested by a professional water analysis laboratory to determine its nutrients, pH, EC and total alkalinity. Calcium nitrate, magnesium sulfate, or any of the plant essential elements can be added as required.

SUGGESTED RATES:

0.271 to 0.455 lbs/100 gallons - 1.23 to 2.06 grams/1 gallon (3.785 L)

Add to the nutrient solution 3.58 grams/gallon of calcium nitrate and 1.67 grams/gallon of magnesium sulfate.



GUARANTEED ANALYSIS

Total Nitrogen (N)	9%
9% Nitrate Nitrogen	
Available Phosphate (P ₂ O ₅)	7%
Soluble Potash (K ₂ O)	37%
Boron (B)	0.09%
Copper (Cu)	0.05%
0.05% Chelated Copper	
Iron (Fe)	0.50%
0.50% Chelated Iron	
Manganese (Mn)	0.19%
0.19% Chelated Manganese	
Molybdenum (Mo)	0.01%
Zinc (Zn)	0.19%
0.19% Chelated Zinc	

Derived from: Potassium nitrate, Monopotassium phosphate, Sodium borate, Copper EDTA, Iron DTPA, Manganese EDTA, Sodium Molybdate, Zinc EDTA

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS:

7.0%.....Copoly-[(3 carboxypropionamide) (2 carboxymethylacetamide)]

CAUTION: The application of fertilizing materials containing Molybdenum (Mo) may result in forage crops containing levels of Molybdenum (Mo) which are toxic to ruminant animals.

WARNING: Some crops may be injured by application of boron.



PRE-EMPT ORGANIC FERTILIZER

ITEM# 10020060



OMRI-listed Pre-Empt is a revolutionary product that can completely replace conventional hydroponic fertilizer programs. Pre-Empt was developed for recirculating nutrient film technique (NFT) crops including lettuce, leafy greens, basil and other herbs. Testing has proven Pre-Empt to be a suitable hydroponic fertilizer for nearly all crops

without any additives.

Pre-Empt goes through a five stage fermentation process that incorporates molasses with other natural plant extracts. This process packs Pre-Empt with essential macro- and micro-nutrients, amino acids like humic and fulvic acid, as well as an array of vitamins which build a full spectrum of nutrients.

We suggest pairing Pre-Empt with Terra Bella, a root microbe inoculant, to naturally promote the uptake of nitrogen and other essential nutrients for plant growth. The combination of aerobic and anaerobic microbes in Terra Bella works throughout the root zone to increase crop yield and resistance to disease and pests.

TERRA BELLA

ITEM# 10020062



Soil Corrective & Root Inoculant

TerraBella's highly concentrated blend of microbes naturally promotes uptake of nitrogen and other essential nutrients for plant health. The combination of aerobic and anaerobic microbes works throughout the root zone to increase crop yield and resistance to disease and pests.

TerraBella can be used as a supplement to your traditional inputs.

The result? A positive return on investment from higher yields and an accelerated time-to-market, as well as an overall improvement to root systems and long-term plant health.

Farmers around the globe are realizing the many economic and agricultural benefits of TerraBella.

CALCIUM NITRITE

This product is refined, coated, granular or prilled, highly soluble material consisting mainly of calcium nitrate ($\text{Ca NO}_3)_2$) with 6% ammonium nitrate (NH_4NO_3) and approximately 15% water of crystallization. The coating is organic and applied at a level of 0.15% (prilled) or 0.35% (granular) by weight of product.

POTASSIUM NITRATE

Potassium nitrate (saltpeter) is used when the nitrogen target of your hydroponic nutrient solution has not yet been met with the calcium nitrate and your calcium levels are at the higher range, potassium nitrate is a good tool that can be used to increase both nitrogen and potassium. Potassium nitrate is highly soluble and very pure.

MONO POTASSIUM PHOSPHATE

“Haifa MKP™ is a fully water-soluble mono-potassium phosphate fertilizer, a highly efficient source of phosphorus and potassium for plants as a nitrogen-free fertilizer, Haifa MKP™ is the preferred source of phosphorus and potassium when nitrogen fertilization should be limited. For example, early in the growing season, when phosphorus and potassium are needed at high rates for the establishment of root system. Application of Haifa MKP™ at the productive stages of sugar-rich fruit crops helps to increase sugar content and to improve the quality of these.”

MAGNESIUM SULPHATE K+S

Magnesium sulfate (or Epsom salt) is used to correct magnesium deficiency which can be common in the hydroponic production of vegetable crops. It is perfect for use as a part of a hydroponic nutrient solution because it is a inexpensive, highly soluble and naturally occurring.

ORGANIC FERTILIZERS

Kimitec Organic Fertilizer Hydroponic Usage Rates ml/gal*

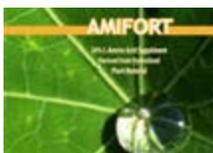
	Recirculating	Hydro to waste	Soiless	Foliar
Amifort	0.25 to 0.75 ml	0.75 to 1 ml	1 to 3 ml	7.5 to 15 ml
Bombardier	1.5 to 2.5 ml	2.5 to 3.5 ml	3.5 to 6 ml	7.5 to 15 ml
Bombardier Sugar	2 to 3 ml	3 to 3.5 ml	3.5 to 6 ml	7 to 15 ml
Caos	1.5 to 2.5 ml	2.5 to 3.5 ml	3.5 to 6 ml	6 to 10 ml
Espartan	1.5 to 2.5 ml	2.5 to 3.5 ml	3.5 to 6 ml	10 to 20 ml
Katon	0.5 to 1 ml	1 to 2 ml	2 to 4 ml	8 to 12 ml
Tunda Mix	0.5 to 1 ml	1 to 2 ml	2 to 4 ml	6 to 8 ml
Rhyzo	50 g per gallon for concentrate; Use concentrate at 0.25 to 1 ml per gal			

* 1/4 tsp = 1.25 ml, 1/2 tsp = 2.5 ml, 1 tsp = 5 ml, 1TBSP = 15 ml, 1 oz = 30 ml

Kimitec Organic Fertilizer Frequency & Growth Stage

	Frequency	Rooting	Vegetative	Transition	Flowering	Late Flowering
Amifort	Bi-weekly		X	X	X	
Bombardier	Weekly		X	X	X	X
Bombardier Sugar	Weekly				X	X
Caos	Weekly				X	X
Espartan	Weekly		X	X	X	
Katon	As needed		X	X	X	X
Tunda Mix			X	X	X	
Rhyzo	Weekly to by-weekly	X	X	X	X	X

AMIFORT 5-0-0



Amifort is an organic liquid fertilizer containing 15 simple/free L-amino acids (26%) that are taken up by the plants, broken down into essential nutrients, and used as energy. Used as a nitrogen amendment.

Crops: Fruits, vegetables, field crops, cereals, cotton, citrus, fruit trees, grapes, olives, ornamentals, corn and nursery plants

Derived from: Double hydrolyzed barley, wheat, corn, and sugar beet

Delivery: Foliar spray, injector system, hydroponics, and drip irrigation

Substrates: Hydroponics, Riococo coir, Grodan, perlite, peat based soilless mixes, native soil

Drip irrigation: 2 to 5 pints per acre. Surface irrigation: 3 to 7 pints per acre.

ITEM#	DESCRIPTION
90010001	1 Liter
90010003	20 Liter
90010002	5 Liter

BOMBARDIER 8-0-0



Bombardier is an organic liquid fertilizer containing L-amino acids (15%), polysaccharides(6%), fulvic acids (23%), and organic matter (16%). Used to increase vegetative growth, stress resistance, fruit yields, and soil structure in greenhouse vegetables.

and soil structure in greenhouse vegetables.

Crops: Vegetables, cotton, corn, ornamentals, citrus & fruit trees, grapes, olives

Derived from: Fermented sugar beet molasses, wheat barley and corn

Delivery: Drip irrigation, irrigation, foliar, and hydroponics

Drip irrigation: 0.5 to 1.6 gal per acre

ITEM#	DESCRIPTION
90010003	1 Liter
90010005	20 Liter
90010004	5 Liter

BOMBARDIER SUGAR 4-0-0



Bombardier is an organic liquid fertilizer containing oligoscharides (29%), L-amino acids (9%), fluvial acids (15%), and organic matter (39%). Used to increase brix of fruits and vegetables.

Crops: Tomatoes, peppers, egg plant, cucumbers, fruits & citrus

Derived from: Fermented sugar beet molasses and glucose syrup

Delivery: Drip irrigation, irrigation, foliar, and hydroponics
Drip irrigation: 0.5 to 1.6 gal per acre

ITEM#	DESCRIPTION
90010009	1 Liter
90010011	20 Liter
90010010	5 Liter

CAOS



Caos is a liquid calcium fertilizer that is used to prevent calcium blossom end rot and cure calcium deficiencies of vegetables.

Crops: Fruits, vegetables, ornamentals and field crops

Derived from: Calcium chloride

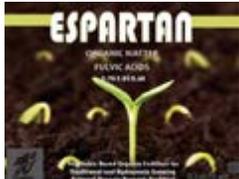
Delivery: Foliar, injector, drip, hydroponics, and surface irrigation

Injector: 2,000 to 3,000 ppm; Drip irrigation: 2 to 30 pints/acre;

Surface: 3 to 40 pints/acre

ITEM#	DESCRIPTION
90010006	1 Liter
90010008	20 Liter
90010007	5 Liter

ESPARTAN 2.7-3.0-2.6



Espartan is a liquid organic fertilizer used as a balanced NPK hydroponic fertilizer and also to improve soil texture and structure.

Crops: Fruits, vegetables, ornamentals and field crops

Derived from: Organic matter (33.5%) and fluvic acids (19%)

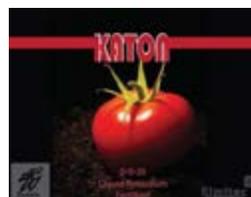
Delivery: Hydroponics, drip and surface irrigation

Drip irrigation: 1 to 1.6 gal/acre; Surface: 1.6 to 2.1 gal/acre;

Hydroponics: 0.32 to 4 gal/acre

ITEM#	DESCRIPTION
90010012	1 Liter
90010014	20 Liter
90010013	5 Liter

KATON 0-0-26



Katon is a liquid potassium fertilizer used as a fast recovery from potassium deficiencies.

Crops: Fruits, vegetables, ornamentals and field crops

Derived from: Potassium chloride

and EDTA chelate

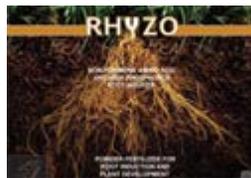
Delivery: Foliar, hydroponics, drip and surface irrigation

Irrigation: 3 to 4 pints/acre

ITEM#	DESCRIPTION
90010015	1 Liter
90010017	20 Liter
90010016	5 Liter

RHYZO 7.5-39-0

ITEM# 90010021



Rhyzo is a powder fertilizer for root education and plant development.

Crops: Vegetables, fruit & nut crops, ornamentals

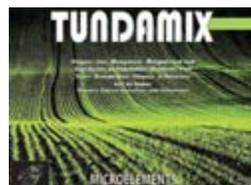
Derived from: Amino acids (32%),

monoammonium phosphate, B vitamins

Delivery: Root or substrate dip, irrigation, and hydroponics

Irrigation: 1 to 2 lb per acre

TUNDAMIX



Tundamix is a liquid concentrate of chelated micronutrients (Cu, Fe, Mn, Mo, Zn) used to prevent and correct micronutrient deficiencies.

Crops: Vegetables, fruit & nut crops, ornamentals

Derived from: Copper sulfate, iron sulfate, manganese sulfate, molybdenum trioxide, zinc sulfate, and liginosulfates

Delivery: Drip irrigation, foliar, and hydroponics

Irrigation: 0.4 to 0.7 gal/acre

ITEM#	DESCRIPTION
90010018	1 Liter
90010020	20 Liter
90010019	5 Liter

HORTICULTURAL EQUIPMENT

TROLLEYS & CARTS

BERG EASYKIT PIPE RAIL TROLLEY

ITEM# 53010003



The simply designed Berg Easykit pipe rail trolley is an innovative model at an exceptional price. The platform is manually adjustable, easily maintained, lightweight, spacious, strong and safe place to work. The Berg Easykit pipe rail trolley is easy to maneuver on rails or concrete paths.

An optional tilt sensor will alert you when the pipe rail system or path is not level. The reliable control box lets you drive forward or backwards. The chain

drive system and electric motor give the trolley a speed of 40 meters/min (131 feet/min). The control switches and foot pedal make this an easy to control pipe rail trolley. Wheels are adjustable from 42.5 to 80 cm (16.7 to 31.5 inches). The Berg Easykit trolley is also collapsable for easy storage and economical freight costs. Assembly time is usually about 1 hour.

TECHNICAL DATA	METRIC	IMPERIAL
Trolley length	174 cm	68.5 in
Trolley Width	ctc +10 cm	3.9 in
Platform length	110 cm	43.3 in
Platform width	45 cm	17.7 in
Minimum height	20/40 cm	0.7/1.3 ft
Maximum height	280 cm	9.2 ft
Interval	15 cm	5.9 in
Weight	130 kg	286.6 lb
Maximum work load	100 kg	220.5 lb
Maximum speed	40 m/min	131 ft/min
Battery	24V/50 Ah	

Assembly video:

<https://www.youtube.com/watch?v=NLfkbCZWN3g>

Spare parts pdf:

<http://www.buisrailwagen.nl/files/Sitebestanden/onderdelen/onderdelen%20blad%20EasyKit.pdf>

BERG BENOMIC HARVESTING TROLLEY

ITEM# 53010001



This Berg harvesting pipe rail trolley is the best for nursing, harvesting and spraying your crop. It can reach a height of 9.8 ft (300 cm). Smooth surface: With the water resistant, smooth surface the Benomic can be easily cleaned, thus reducing plant pathogen sources. No bolts, sharp edges, or holes prevent debris buildup and reduce plant damage.

Scissor: Available in 2-scissor, 3-scissor,

and 4-scissor models.

Maintenance: All service parts are easily accessible by lifting the cover.

Speed, power and controls: 0.37 kW electrical motor drives the Benomic up to speeds of 60 m per minute. Long-lasting, clearly arranged controls make the Benomic easy to operate.

TECHNICAL SPECIFICATIONS

2-scissors (3- & 4-scissors)

Length	193 cm
Width	ctc+14cm
Platform length	170 cm
Platform width	42 cm
Min. height	54 cm (63 cm; 71 cm)
Max. Height	300 cm (440 cm; 570 cm)
Max. workload	250 kg (120 kg; 120 kg)
Weight	410 kg (450 kg; 550 kg)
Max speed	60 m/min
Pipe rail	center to center 42-80 cm

BERG BENOMIC STAR

ITEM# 53010001



The STAR is aimed mainly at plant care. As standard the wagon is fitted with a twin scissor hoist giving a platform height of 300 cm.

harvesting and

BERG METO TRANSPORTATION CART

ITEM# 60010032



The Berg Meto Transportation Cart is used for automatic path to path transportation of the Berg Meto Spray Robot.

The Meto Spray Robot's operation panel is identical to the one on the Meto spray trolley. The panel is compact, has an organized lay-out and is provided with touch controls. Various requirements can be entered via a dialogue-programming feature. It offers, for example, a path skip option.

The Meto Transportation Cart navigates the walkway, shifting the Meto spray unit from path to path. The Meto Transportation Cart is guided by a slide way constructed in the walkway. A hose reel unit is installed onto the cart, which can be connected to a high-pressure supply line or spray tank unit. The cart's motion serves an automatic hose reel or unreel action.

The cart can be equipped with a malfunctioning detector attachable to a greenhouse alarm or personal beeper, informing of operation circumstances if employees are absent from the greenhouse.

TECHNICAL SPECIFICATIONS

Length	180 cm
Width	140 cm
Height (incl. reel)	225 cm
1/2" Hose Reel	100 m

BERG PIPE RAIL TROLLEY

ITEM# 60010029



Trolleys are standard equipment in the cultivation of vining crops.

BERG NYLON LIFTING WHEEL

ITEM# NIS530100

100 X 40 MM 15 MM

BERG VULKOLAN LIFTING WHEEL

ITEM# 53034209

100 X 30 MM 15 MM

MOBILE HOOK WINDER

ITEM# NIS600100



The Mobile Hook Winder is ideal for growers that have small acreage, from a few meters up to 1 hectare. They now only have to order a box with metal hooks, and some pull rolls with horticultural twines. At the end of the season, the growers can clean the empty hooks and rewind new twine on them.

GREENHOUSE PICKING CART

ITEM# 60010024

- Perfect for hauling or storing harvest lugs
- Pneumatic tires provide smooth ride for the harvested produce
- Each cart has a sturdy expanded metal deck and easy grip handles



SPRAYERS

EMPAS - SPRAY-CART GEORGIA

ITEM# NIS600101



Georgia 4-wheel motorized spray carts with a tank capacity of 600 to 2000 litres (150 – 250 gallons). As standard including hydraulic mixing in the tank, spring cover with air vent, sight gauge with drainage tap, filler pipe with GEKA connection

and non-return valve, 16-litre clean water tank and 6-ply tyres. The shape of the tank ensures that that tank can be drained. Excludes accessories such as hose and spray gun.

EMPAS VERTICAL SPRAY MASTS

ITEM# NIS600102

Available with various wheel and pipe frames. Empas spray masts are in standard manner manufactured in stainless steel and are suitable for vegetation up to the height of approximately 350 cm. By means of the height adjustment an optimum spray scope may be obtained.



BERG METO SPRAY ROBOT

ITEM# NIS600103



The Berg Metro Spray Robot is used for automatic spraying of greenhouse crops. The Metro Spray Robot reduces labor and exposure to pesticides. Automatic path transportation with the Berg Metro Transportation Cart.

The trolley's operating panel is compact with an organized layout and touch controls.

The latest spray technological developments have been incorporated into the Metro. It provides extensive and uniform crop coverage.

The Metro can spray in both forward and reverse motion at variable speed settings. It also caters to sub-section spraying requirements, e.g. the last 66 feet of a path. The unit is equipped with a double spray boom allowing for supplementary spraying of specific locations. A stainless steel boom sprays the crops on both sides of the path. The other boom sprays forward onto the gable where most infection habitually originates.

TECHNICAL SPECIFICATIONS

Length	170 cm
Width	52 cm
Height (excluding spray boom)	175 cm
Max speed	70 m/min
1/2" Hose Reel	95 m

HEATERS

HOLLAND HEATER

ITEM# NIS600104



Holland Heaters are 99% fuel efficient direct fired units. Due to their clean burning, all the heat can be directed into the greenhouse. There is no need to use a chimney or exhaust stack. The largest unit has a capacity of 440,000 BTU.

Properties:

- Deliverable in 80(8L), 100(10L) and 120 KW(12L).
- Deliverable for paraffin oil (petroleum).
- Rust resistant chromium steel housing.
- Heat resistant stainless steel combustion chamber.
- Optimum air output and minimum noise production.
- Air inflow ring at the ventilator.
- Electrical ignition.
- Photocell flame protection.

SUPER SAVER FURNANCE HEATER

ITEM# NIS600105

Super-Saver Furnace Heaters features and benefits:

- Models available from 120,000 to 250,000 BTUs.
- Comes standard with mount kit.
- Hot surface or direct spark ignition.
- High temperature aluminized steel burn chamber.
- Side swing doors for easy maintenance.
- "Y" heat deflector.
- 1/3 hp. totally enclosed motor.
- Standard 1/2-inch gas cock installed at gas valve.
- Back-up safety sail switch.
- High limit safety sail switch with manual test.
- On/off toggle switch

FANS / AC

12" PATENTED VERSA-KOOL AIR CIRCULATION FAN

ITEM# 34900201



Increase safety and productivity with Versa-Kool circulation fans. The guard design allows for greater air movement at very low noise levels. Improve air quality and working conditions by strategically placing Versa-Kool circulation fans throughout the work area.

The fan is equipped with an enclosed, heavy-duty, maintenance-free motor and thermally protected, pre-lubricated ball bearings. The fan has safe, non-restrictive fan guards, an aluminum fan blade and 5-inch L-shaped powder-coated steel fan mount. Noise levels are low. The fan can be used at a single speed or at variable speed with optional control.

Motor specifications: 1/10 hp., 115/230 volts, 1.3/0.65 amps, 1,725 rpm, 1,554 cfm. More sizes available upon request.

36" BELT DRIVE FAN



Designed for high airflow and high efficiency. Totally enclosed, thermally protected motor for safety and long life. Fans ship fully assembled with aluminum inlet shutters, self-adjusting belt tensioner and galvanized outlet guard. Designed for ease of maintenance, with easy belt

replacement and optional Remote Lubrication System. Suitable for buildings with any wall thickness.

ITEM#	DESCRIPTION
NIS350101	Exhaust, in box housing, 5-wing blade, 1/2 hp
NIS350102	Galvanized panel fan, 3-wing blade

CIRCULATION AND HAF FANS



Hort Americas offers greenhouse fans in different sizes with a wide variety of options.

- 8- to 24-inch circulation fans
- 20- to 36-inch OSHA style fans
- 24- to 38-inch galvanized panel fans
- 36-inch plant air fans
- 52-inch belt driven panel fans

Hort Americas is currently offering

Schaefer and GSI products

CIRCULATION FAN WITH OSHA GUARDS, 2-SPEED

ITEM# NIS350100



Two-speed, pull chain, totally enclosed, maintenance-free, heavy duty, ball bearing, permanent split capacitor, thermally protected motor. Durable polyester-coated fan guard meets OSHA requirements. 10-foot, 115-volt grounded attached cord.

Fan sizes range from 20-36" Motor specifications available upon request.

specifications available upon request.

EVAPORATIVE COOLING SYSTEMS

ITEM# NIS350103



WayCool® and Pro-Kool® portable evaporative coolers reduce air temperature in your warehouse, outdoor events and hard to cool areas by as much as 30°F at a fraction of the cost of A/C. They are environmentally friendly and can be used indoors and outdoors.

PANEL FANS

ITEM# NIS350106



Sizes available: 36-, 48-, 52- and 54-inch.

Pillow block bearings. Efficient motors. Easy to install. Efficient motors. Easy to install. X-design motor bracket for added strength and durability. Equipped with cog v-belt and automatic tensioner. Can be ordered complete with cord set (240 v, 60 Hz

and single phase models).

PRO-KOOL PORTABLE EVAPORATIVE COOLER WITH 42" HIGH VELOCITY FAN

ITEM# NIS350104



Pro-Kool evaporative "swamp" coolers from Schaefer blow large volumes of cooled air in a broad stream to "area cool" facilities and work areas. Pro-Kool evaporative coolers can reduce air temperature by as much as 20° F.

The 42-inch high velocity Pro-Kool evaporative cooler is ruggedly built with a corrosion-resistant polyethylene

housing and stainless steel fan blades. The 42-inch model is equipped with a 38-gallon water reservoir, coated evaporative pads and a 1 hp. 2-speed motor.

14,232/9,406 cfm. 51-inch length x 33-inch width x 68-inch height.

PORTABLE AIR CONDITIONER

ITEM# NIS350105

Designed for portability and convenience. Portable Air Conditioners roll easily from the between work areas and set up in minutes. The air-cooled portable air conditioner line consists of six models, from 12,000-77,500 BTU/hr. (1-6 tons). Additional products/options available. Contact Hort Americas for more details.

SCHAEFER WET WALL EVAPORATIVE COOLING SYSTEM



Schaefer Wet Wall Evaporative Cooling System uses the natural cooling process of water evaporation in conjunction with Schaefer exhaust fans to provide up to 30°F of cooling for large volume buildings. Ideal for cooling animal confinement facilities, greenhouses,

warehouses, factories and other large facilities.

Features and benefits:

- Standard wet wall lengths: 10-60 inches in 5- or 10-inch increments
- Standard wet wall heights: Single Stacked Systems 4-, 5- and 6-inches and Double Stacked Systems 8-12 inches in 1-inch increments
- Custom lengths and heights available by special order
- Uncoated/1-side coated and 2-side coated pads available in 4- and 6-inch pad thicknesses lasting up to 5 years with proper pad maintenance
- Choice of or ¾ hp Gould™ pumps; 110V or 220V
- Single- or multi-stage automatic controls available
- Two year warranty
- Made in the USA

VOSTERMANS GREENHOUSE HAF FANS



Multifan recirculation fan: Creating a uniform climate
 Vostermans Ventilation offers a line of Housing fans for greenhouses. The Multifan Greenhouse (recirculation) fans have a compact aerodynamic tube and a specially developed motor-impeller combination.

VOSTERMANS MULTIFAN V-FLO FAN



The Multifan V-Flo Fan for optimal, vertical circulation in greenhouses. Ventilation plays a vital role in modern greenhouses. Vertical ventilation results into a better and more uniform climate and energy savings. Because of several energy technical improvements in modern greenhouses and more intensive cultivation methods, the necessity of controlling humidity levels on crop level increases. With the V-FloFan, Vostermans Ventilation offers the grower the opportunity to reduce the negative impacts, due to humidity, in a simple and energy efficient way.

ROOFMASTER LIGHT

ITEM# NIS350109



A greenhouse roof washing system consists mainly of the roof washer itself and a moving platform. The whole system can be moved along a greenhouse's gable via a rail attached to the greenhouse. The roof washer stands in the gutters on the moving platform, which is suspended from the rail. Versatile for almost every type of modern greenhouse, in various verisons.

Proven reliability, due to more than twenty years of experience
 Post guarantee. Worldwide installation, support and parts supply.

MOBILE GULLY SYSTEM (MGS)

ITEM# NIS350108



MGS is tailor made and totally adapted to the specifications of the greenhouse and needs of both grower and crops.

MGS-installations consist of:

1. A propagation area in specially designed trays. Plants can grow further at a high density (100 plants per square meter).
2. A production area. Plants can be put on the channels either manually or using a plant robot.
3. A growing area. As plants grow bigger, channels separate gradually to optimally use surface space.
4. A harvest area.

Please contact Hort Americas to learn more about MGS Hortiplan and to receive a complete quote.

CO2 TUBING

ITEM# 34020440

Tubing used for carbon dioxide enhancement in controlled environment agriculture. Dimensions: 94 mm, 500 m/roll, 3 rolls/case



GENERAL EQUIPMENT

SUNMASTER GREENHOUSE FILMS

ITEM# NIS350107

Sun Master® greenhouse films combine long lifetime, superior strength and high light transmission with optional characteristics that transform the film to an active contributor to plant protection, growth, and productivity.

- Ideal for both single and double layer greenhouse applications.
- Strong copolymer resin for excellent durability.
- Tri-layer construction gives maximum physical properties and superior film life.
- High clarity, 6 MIL 4 year covering contains UV protectors.
- Special cut lengths mean you get the exact amount you need.
- Priced per linear ft.
- Under 50 feet long incurs a small panel charge.
- Exclusive 4 year warranty!



GROUND COVERS

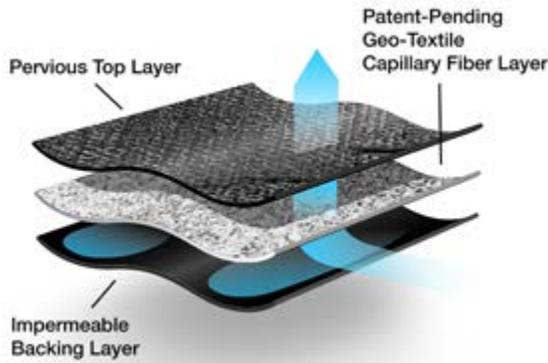
A 3.2oz, UV stabilized, polypropylene fabric. It is a strong heavy fabric, which allows it to be more resistant to tearing, puncturing and weed penetration. White Ground Cover can also be used as an alternative to a frost blanket. When applied on top of planting it protects against light frost and cold temperatures by holding heat in during the day and by blocking wind at night. White Ground Cover is permeable, allowing water and nutrients to pass through. It is excellent when used in rose growing production.



ITEM#	DESCRIPTION
34100209	White
34516525	Black

WATERPULSE CAPILLARY MATS

ITEM# NIS801501



Slash Water Use Up To 70%

WaterPulse offers a range of advanced irrigation products for retail garden centers, commercial growing operations and more. Our products use patent-pending technology to mimic the natural capillary action of soil to move water to plants efficiently and precisely to significantly reduce water usage, waste, and overall cost all while improving plant quality and the bottom line for our customers. WaterPulse mats deliver water so efficiently that water savings exceed 70% and plant mortality drops by up to 50%.

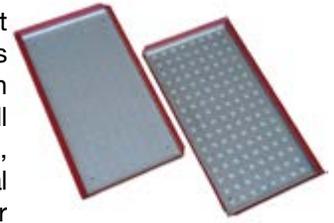
OASIS FLORALIFE P.A.C. CLEANER

This high foaming, heavy-duty chlorinated cleaner is an ideal first step for cleansing nonporous surfaces such as greenhouses, packing houses, floors, benches, coolers and tools. Safe to use around plants, Floralife® P.A.C. clings to surfaces to remove soils, algae, plant materials, oils, proteins and sugars without scrubbing. Special surfactants help to wet and lift dirt from surface while emulsifiers suspend dirt for easy removal.



BERRY PRECISION SEEDER

Perfect for small to midsize operations. One of the fastest and most accurate seeders available. Seed watermelon to raw petunias as well as cell packs. No motors, solenoids, bearings or electrical components to break down or wear out.



- Made of lightweight polycarbonate and machined aluminum
- Transparent seeder body allows for easy inspection of clogged holes and/or misses
- Seeds the whole plug tray at once, not one row at a time
- No annoying holder required - trays are directly seeded
- Patented seed channel
- Corrosion resistant
- Seed up to 250 trays per hour with unequal accuracy

MOLEAER™ MINI XTB NANOBUDDLE GENERATOR

The patent-pending Moleaer™ Mini XTB Nanobubble Generator is the most efficient aeration technology to transfer virtually any gas into any liquid. The XTB produces trillions of nanobubbles, ~100nm in size, providing more than 200-times the interfacial surface area of conventional ultra-fine micro bubbles. The XTB transfers gas with greater than 90% efficiency, providing maximum utilization potential, improving the functionality of water, and enhancing wastewater treatment processes. Moleaer's nanobubbles remain in suspension after saturation, creating a reserve of available gas in the liquid.





HORTICULTURE LIGHTING

GE ARIZE™ LIFE

A LED growing system to flourish tissue cultures or in growth chambers; ARIZE™ Life is a fluorescent replacement with all the benefits of LED technology including longer product life, energy savings, and lower maintenance while providing optimal colors on the spectrum for plant growth. The ARIZE™ Life products can be easily mounted and daisy chained from end to end to help reduce installation costs and time

Features of ARIZE™ Life

- Light intensity for Tissue culture growth
- IP66 rated and UL wet rated for easy watering and cleaning.
- Daisy Chain end to end making installation easier and faster
- 2 ft., 4 ft. and 8 ft. light bar.
- Uniform light for even plant growth.
- Operating Environment: 0°C to +40°C.
- L80/36000 hours per TM-21
- 5 year limited warranty.



ITEM#	DESCRIPTION	GROWTH TYPE*	ELECTRICAL POWER (W)	(UMOL/S)	EFFICACY: UMOL/J	LENGTH
93031537	GEHL24MPKB1	Balanced	7.4	19.8	2.7	2 ft.
208377	GEHL48MPPR1	Reproductive	15.8	42.3	2.7	4 ft.
208378	GEHL48MPKR1	Reproductive	17.5	39.9	2.3	4 ft.
93031538	GEHL48MPPV1	Vegetative	16.5	41.6	2.5	4 ft.
93031539	GEHL96MPPV1	Vegetative	31.9	83.3	2.6	8 ft.
208380	GEHL96MPPR1	Reproductive	30.4	84.6	2.8	8 ft.





GE ARIZE™ LYNK

Help your indoor farming boom with the use of ARIZE™ Lynk. A uniquely designed LED growing system that can be used in growth chambers and rooms, greenhouses, hydroponic, aquaponic and aeroponic operations, as well as vertical farms, ARIZE™ Lynk is a LED system designed to facilitate indoor farming by providing the most suitable spectrum of light. The ARIZE™ Lynk product can be easily installed and daisy chained from end to end to reduce costs and time.

Features of ARIZE™ Lynk

- Light Intensity for typical indoor farming applications
- IP66 rated and UL wet rated for easy watering and cleaning.
- Daisy Chain end to end making installation easier.
- 4 ft. and 8 ft. light bar.
- Uniform light for even plant growth.
- Operating Environment: 0°C to +40°C.
- L80/36000 hours per TM-21
- 5 year limited warranty.



ITEM#	DESCRIPTION	GROWTH TYPE*	ELECTRICAL POWER (W)	(UMOL/S)	EFFICACY: UMOL/J	LENGTH
213285	GEHL48HPPV1	Vegetative	33.5	75.8	2.3	4 ft.
213286	GEHL48HPPB1	Balanced	30.8	72.1	2.3	4 ft.
93031540	GEHL48HPKB1	Balanced	34.3	77.5	2.3	4 ft.
213287	GEHL48HPPR1	Reproductive	32.0	77.0	2.4	4 ft.
93031582	GEHL48HPKR1	Reproductive	33.0	76.7	2.3	4 ft.
93031583	GEHL48HWHR1	Reproductive	28.0	53.9	1.9	4 ft.
93031581	GEHL48HWTB1	Balanced	28.0	61.0	2.2	4 ft.
213288	GEHL96HPPV1	Vegetative	66.9	151.6	2.3	8 ft.
213289	GEHL96HPPB1	Balanced	61.7	144.2	2.3	8 ft.
213290	GEHL96HPPR1	Reproductive	63.9	153.9	2.4	8 ft.

*Growth Spectrums

- Reproductive: higher red content to promote flowering and fruit generation.
- Vegetative: higher blue content to promote healthy and thick leafy plants
- Balanced: balanced red to blue ratio for overall growth

ARIZE™ GREENHOUSE PRO LED FLOWERING LAMP

The Arize™ Greenhouse Pro LED lamp is designed to facilitate greenhouse photoperiod control. Photoperiod control allows growers to manage vegetative growth or rapid flowering throughout the year by extending or shortening day-length. This lamp will help control plants growth so the production is ready at the precise time.

When selecting the best equipment for your greenhouse, choose Arize™ Greenhouse Pro LED flowering lamp to control and create ideal growth conditions. Low energy and high results are the focus of Arize Greenhouse Pro LED Lamp and is sure to provide optimal plant management.

Engineered for today's thriving flowering Greenhouses



Technical Specifications

ITEM#	DESCRIPTION	LAMP BASE	SPECTRUM	PACKAGING	UMOL/S	UMOL/J	WATTAGE/LAMP	LIFE	INPUT VOLTAGE RANGE
93042116	GEHB3010PKF12-1	E26	Flowering- Pink	10 lamps/Box	17.84	1.81	10	L90= 10,000 hrs.	95-132VAC 50/60Hz

ARIZE™ T8 LED TUBES

UL Type C T8 LED Tubes

Tissue Culture Laboratories and Growth Chambers
LED replacement tubes for fluorescent lights that are found in tissue culture laboratories or growth chambers. This LED tube provides all the LED advantages of longer life, energy savings and lower maintenance when compared to typical fluorescent lights.



Features

- Rotatable end cap to better position light
- Low energy 4ft T8 LFL replacement
- Shatter resistant, prevents breakage and downtime
- Easy disposal, non-hazardous waste
- Light intensity for Tissue culture growth
- L90/36,000 hours per TM-21
- 5 year limited warranty
- IP65 rated, UL wet rated

ITEM#	DESCRIPTION	SPECTRUM	ELECTRICAL POWER (W)	LENGTH	(UMOL/S)	EFFICACY (UMOL/J)
93067251	GEHT48MPKB1	Pink - Type B	10	4ft	19	1.9

GE ARIZE ELEMENT™ TOP LIGHT

GE Arize Element™ Top Light is a LED growing system designed to enhance greenhouse and indoor farming. The system delivers high light output with less heat than a HID (HPS or MH) system and provides the perfect spectrum to grow efficiently year-round. The GE Arize Element™ Top Light is designed to be an LED replacement for HID/HPS lighting used in indoor farms and greenhouses. With the Elements external driver, the for LED fixture or power supply to be replaced independently Low weight and novel hanging feature makes installation easier and less costly. With the high efficiency LED design (up to 2.8µmol/J).

Features

- Modular design allows for LED fixture or power supply to be replaced independently
- Low weight and novel hanging feature makes installation easier and less costly
- High efficiency LED design, up to 2.8µmol/J
- IP66 & UL wet rated
- L90/36,000 hours per TM-21
- 5 year limited warranty



Benefits

- Remote driver allows for ease of installation and maintenance
- Integrated hook system compatible with crop wire
- Footprint and installation method minimizes shadowing allowing more sunlight to enter

Applications

- Greenhouses
- Indoor farms

Technical Specifications

ITEM#	DESCRIPTION	GROWTH TYPE	ELECTRICAL POWER (W)	PPF (MMOL/S)	EFFICACY (MMOL/J)
93067255	GEHR3007M-N120CH-PPB-1	Balanced	195	525	2.7

OSRAM PHYTOFY® RL

PHYTOFY® RL is a tunable LED horticultural lighting system for research applications with real-time control and scheduling features for each individual channel.

The calibrated system is capable of delivering light treatments with varying spectra (wavelength and intensity) for horticulture research, including far-red end-of-day treatment, brief UV light, night interruption light, etc.

Capable of 600 µmol m⁻² s⁻¹ at 406 mm / 16" canopy height, this system is the perfect choice for the research and development of plant-specific light recipes. Light control is available through a graphical user interface and API. Compatible to add external sensor feedback and intelligent software.

Helping growers, research institutes, universities, pharmaceutical production and others how the sciences can be used to optimize plant growth to their needs.



OSRAM ZELION® HL300 SERIES



The ZELION HL300 are 100W – 600W tunable LED fixtures designed for all horticulture applications where supplemental lighting is required. These fixtures emit light in the photosynthetic active region of the visible light spectrum and can withstand the harsh environments of most modern production greenhouses over the life of the product. The optimized fixture design makes them easy to install and provides the smallest shadow footprint as compared to other fixtures in the same LED fixture class. The ZELION HL300 is the catalyst to achieve optimum photosynthesis for plant productivity and is an ideal replacement for 1000W HPS and Metal Halide systems. There are 3 fixture options available in addition to PC based Control Systems that allow for tuning and dimming of the fixtures.

Product Features

- ZELION HL300 comes in 3 fixture options with specialized spectra to meet the needs of a broad range of horticulture applications
- Up to 50% more efficient than traditional HPS and Metal Halide systems
- Utilizes specialized OSRAM LED technology for superior performance and life
- Dynamic control allows for optimization of spectral composition and PAR intensity
- Optimum efficiency in the delivery of photons per watt when compared with other LED class horticulture fixtures
- Uniform light distribution (optical system patent pending)

OSRAM LED LIGHT CONTROLLER

Maintain the full control of your LED installation.

The LED Light Controller makes it possible to control the light intensity and the spectral composition throughout the day.



ARUNA HORTICULTURE LIGHTING

High Pressure Sodium

1000W/HB/400V/EL



- Horizontal burning position
- Clear bulb
- High efficacy / Low operating cost
- Superior life hours
- Reliable life time and operation with Aruna Active Antenna Technology

Application areas:

- Horticulture lighting
- Street lighting

ANSI CODE/Ballast:

- EB

Electrical data/Requirements:

Lamp Wattage (W)	1000
Operating Voltage (V)	250
Operating Current (A)	4.0
Ballast	Electronic
Min. Open Circuit Voltage (RMS)	360
Min Max Starting Pulse (Peak V)	3500 – 4000

P.L. LIGHT SYSTEMS HORTILED TOP



A highly versatile LED top-lighting solution that offers unrivaled lighting performance and energy efficiencies from P. L. Light Systems. With a light output of 860 $\mu\text{mol}/\text{m}^2\cdot\text{s}$ and a system efficacy of 2.7 $\mu\text{mol}/\text{J}$, the HortiLED TOP delivers optimum performance and energy savings.

Engineered to deliver lighting performance on par with that of traditional light sources, the HortiLED TOP is ideal for use in many different top lighting applications.

Available in multiple distribution and spectral options—HortiLED TOP offers unparalleled lighting design flexibility. Optional 0-10V dimming allows for seamless integration with compatible control systems.

Light output can be dimmed on a relative scale.

A simple plug-and-play platform, intuitive mounting and multiple voltage options, allows for quick and easy installation or retrofitting from traditional light sources.

Two distribution options:

80 Degrees: With a highly-focused beam pattern, this distribution option delivers exceptional depth penetration into the plants.

150 Degrees: Offers exceptional uniformity—enabling wider spacing so growers can achieve desired light levels even across the surface of the crop, with fewer modules.

TECHNICAL SPECIFICATIONS

System Efficacy: 2.7 $\mu\text{mol}/\text{J}$
 Flux (R-LB): 860 $\mu\text{mol}/\text{m}^2\cdot\text{s}$
 Rated Main Voltage: 120-480V
 Input Frequency: 50-60 Hz
 Power factor: >0.95
 Actual Input Power: 320W
 Dimming (optional): 0-10V
 Lifetime: 25,000 hr Photon flux maintenance of 90% @ max. ambient operating temp of 40°C
 Warranty: 3 years

DIMENSIONS

Length: 38.039 in. (966.2 mm)
 Width: 4.681 in. (118.9 mm)
 Height: 3.740 in. (95 mm)

P.L. LIGHT SYSTEMS HORTILED MULTI



A small fixture that offers big energy savings, allowing for maximum space utilization and system efficacies as high as 2.5 $\mu\text{mol}/\text{J}$.

The HortiLED MULTI is available in two module lengths and distribution options. Each option is designed to deliver optimum light levels and uniformity across the length and width of shelf—while minimizing light loss off the sides of the shelf.

Designed to deliver exceptional uniformity, the HortiLED MULTI ensures even illumination to each individual plant—regardless of its position in the layer.

Multiple spectral options allow growers to tune the lighting according to the desired plant responses.

Two distribution options:

80 Degrees: With a highly-focused beam pattern, this distribution option delivers exceptional depth penetration into the plants.

150 Degrees: Offers exceptional uniformity—enabling wider spacing so growers can achieve desired light levels evenly across the surface of the crop, with fewer modules.

TECHNICAL SPECIFICATIONS

System Efficacy: 2.0-2.5 $\mu\text{mol}/\text{J}$
 Flux (120 cm): 80-180 $\mu\text{mol}/\text{m}^2\cdot\text{s}$
 Flux (150 cm): 112-225 $\mu\text{mol}/\text{m}^2\cdot\text{s}$
 Rated Main Voltage: 120-227V
 Power Factor: >0.95
 Actual Input Power (120 cm): 44W (LO) / 72W (HO)
 Actual Input Power (150 cm): 72W (LO) / 85W (HO)
 Dimming (optional): 0-10V
 Lifetime: 25,000 hr Photon flux maintenance of 90% @ max. ambient operating temp of 40°C
 Warranty: 3 years

DIMENSIONS

	120 cm Module	150 cm Module
Length	46.496 in. (1181 mm)	57.913 in. (1471 mm)
Width	1,902 in. (48.3 mm)	1,902 in. (48.3 mm)
Height	2,386 in. (60.6 mm)	2,386 in. (60.6 mm)

HID LIGHTING



HSENXT2 HPS

PRODUCT CONFIGURATION

1. FIXTURE	2. WATTAGE	3. VOLTAGE	4. LIGHT SOURCE	5. REFLECTOR
HSENXT2 A NXT2 (HPS)	G 1,000 Watts	C 240V	HC 1,000W Philips HPS DBL	A Alpha
		D 277V	HE 1,000W Osram HPS DBL	B Beta
		E 347V		
		F 400 V		

OPTIONS

Cord/Plug	Mounting ¹	Connection Box ²
HSENXT2WHIPCORD 3ft Whip Cord	BRANXTTRUSSSTD Std Truss Hanging Bracket	HSECONNBOX HSE Wieland Connection Box
CORCUS600V Custom Length 600V Whip Cord	BRANXTSTDTRACK Std Track Hanging Bracket	
HSENXT2CORDESET 70cm w/Wieland Connector	BRANXTCUSTOM Custom Bracket	
COR240VHSE 6ft w/240V 15A Straight Blade Plug		
COR250VHSE 6ft w/250V 20A Twistlock Plug	<i>¹Note: one (1) bracket required/fixture</i>	<i>²Note: only required for HSENXT2CORDESET option</i>
COR277VHSE 6ft w/277V 20A Twistlock Plug		
COR347VHSE 6ft w/347V 20A Twistlock Plug		
COR480VHSE 6ft w/480V 20A Twistlock Plug		

REPLACEMENT PARTS

Reflectors	Lamps
REF/A Standard Truss Hanging Bracket	BUL/HC 1,000W Philips HPS DBL
REF/B Std Track Hanging Bracket	BUL/HE 1,000W Osram HPS DBL

HSEASY HPS



PRODUCT CONFIGURATION

1. FIXTURE	2. WATTAGE	3. VOLTAGE	4. LIGHT SOURCE	5. REFLECTOR
HSEASY A (HPS)	G 1,000 Watts	D 277V E 347V F 400 V	HC 1,000W Philips HPS DBL HE 1,000W Osram HPS DBL	J Asymetric

OPTIONS

Cord/Plug	Mounting ¹	Connection Box ²
HSENXT2WHIPCORD 3FT WHIP CORD	BRANXTTRUSSSTD STD TRUSS HANGING BRACKET	HSECONNBOX HSE Weiland Connection Box
CORCUS600V CUSTOM LENGTH 600V CORDSET W/WHIP	BRANXTSTDTRACK STD TRACK HANGING BRACKET	
HSENXT2CORDSET 70CM W/WIELAND CONNECTOR	BRANXTCUSTOM CUSTOM BRACKET	
COR240VHSE 6FT W/240V 15A STRAIGHT BLADE PLUG		
COR250VHSE 6FT W/250V 20A TWISTLOCK PLUG	¹ Note: one (1) bracket required/fixture	² Note: only required for HSENXT2CORDSET option
COR277VHSE 6FT W/277V 20A TWISTLOCK PLUG		
COR347VHSE 6FT W/347V 20A TWISTLOCK PLUG		
COR480VHSE 6FT W/480V 20A TWISTLOCK PLUG		

REPLACEMENT PARTS

Reflectors	Lamps
REF/A Standard Truss Hanging Bracket	BUL/HC 1,000W Philips HPS DBL
REF/B Std Track Hanging Bracket	BUL/HE 1,000W Osram HPS DBL

HSESTD



PRODUCT CONFIGURATION

1. FIXTURE	2. WATTAGE	3. VOLTAGE	4. LIGHT SOURCE	5. REFLECTOR
HSESTD A (HPS)	E 600 Watts	C 240V	HC 1,000W Philips HPS DBL	C Delta
		D 277V	HE 1,000W Osram HPS DBL	D Zeta
		E 347V		
		F 400 V		
		G 480 V		

OPTIONS

Cord/Plug	Mounting ¹	Connection Box ²
CORD3FT 3FT 600V Cordset w/whip	BRANXTTRUSSSTD STD TRUSS HANGING BRACKET	HSECONNBOX HSE Weiland Connection Box
CORCUS600V CUSTOM LENGTH 600V CORDSET W/WHIP	BRANXTCUSTOM CUSTOM BRACKET	
COR240VHSE 6FT W/240V 15A STRAIGHT BLADE PLUG	BRATRACKPERP Perp Bracket Track	
COR250VHSE 6FT W/250V 20A TWISTLOCK PLUG	BRATRUSSPERP Perp Bracket Truss	
COR277VHSE 6FT W/277V 20A TWISTLOCK PLUG		
COR347VHSE 6FT W/347V 20A TWISTLOCK PLUG		
COR480VHSE 6FT W/480V 20A TWISTLOCK PLUG		

²Note: only required for HSENXT2CORDSET option

¹Note: one (1) bracket required/fixture

REPLACEMENT PARTS

Reflectors	Lamps
REF/C Delta Reflector with Collar	BUL/GD 600W Philips HPS EL
REF/D Zeta Reflector with Collar	



HYDROPONIC SUBSTRATES & GROWING MEDIA

HORT AMERICAS ORGANIC PLUGS BY RIOCOCO (CBOP) *(Previously Riococo Cocopress)*



Hort Americas' CBOP is an OMRI certified starter plug made of compressed coco that offers both a Sustainable and Organic start to your crop. These plugs are made up of high quality Sri Lankan coco and wrapped in a biodegradable mesh which allows for a very rapid and low

mess expansion, while at the same time offering optimal water holding and root penetration. Start your crops off right in the new Hort Americas Closed Bottom Organic Plugs!

ITEM#	DESCRIPTION
70010094	25mm Coco Plug (3,000/case)
70010090	32mm Coco Plug (2,500/case)
70010092	42mm Coco Plug (1,000/case)

HORT AMERICAS CLAY PEBBLES



Hort Americas Clay Pebbles are an expanded clay aggregate that make for the perfect hydroponic growing media and an excellent option for interiorscapers searching for the modern euro look and feel.

The HA Clay Pebbles are a clean and cost effective alternative to hydroton and other similar aggregate substrates used in dutch buckets, net pots (in NFT or in aeroponics), drip irrigation or other container gardening applications where a pH stable and consistent growing medium is desired. HA Pebbles are pH stable.

ITEM#	DESCRIPTION
50500043	8-16mm (10 ltr bag)
50500844	8-16 mm (40 ltr / bag)

SLINGERLAND POTTING SOILS

ITEM# NIS0800100



Slingerland Potgrond has various unique substrate and bark formulas which are rated amongst the best substrates in potted plants, tree nurseries, bedding

plants and perennials. And the good news for orchid growers is that the company is also a market leader in substrates for this particular cultivation. How does Slingerland Potgrond develop this top product? Through controlling a large part of the chain; from the extraction of raw materials up to and including the production of the substrate. Slingerland Potgrond wants to see the raw materials for themselves in order to assess them and make a selection. This is why the specialists regularly visit the extraction sites of, among others, bark, clay and peat. Only the best is good enough. An internal monitoring system guarantees the quality and safety of the substrate compositions, up to and including delivery to the customer.

SLINGERLAND BARK FOR ORCHIDS

ITEM# NIS0800000



A high quality, specialist crop such as the orchid makes extreme demands on the used substrate. It should have very high air content, in combination with a stable structure and an excellent

moisture buffering capacity. We add air to the substrate by means of especially selected tree bark from Portugal and the South of France. We mix this with optimum moisture buffering components, such as bog moss (sphagnum) from Chile. Our substrate is the basis for a high percentage of 'two stem plants' and a relatively short production period. Please ask after the possibilities in your particular situation

COIR

RIOCOCO GREEN STARTER BAGS CUSTOM-MADE



ITEM# 70010064

The custom-made Green Starter Bags are produced with a special blend of raw materials designed to provide plants with the optimal ratio of water holding capacity and oxygen. The Green Starter Bags work

well with drip irrigation, hand-watering and indoor gardening. They're perfect for Cajun Hibiscus and heirloom tomatoes. Product dimensions: (dry) 10 x 7 x 2 inches, (wet) 10 x 7 x 8 inches. EC is below 3.0, pH is between 5.6-6.8.

The bags are easy to use:

1. Lay the bag on a flat surface.
2. Remove the sticker from the top of the bag and open up the bag. Expand the coir by adding water.
3. After saturating the block of coir in the bag, cut drain holes in the bottom corners.

RIOCOCO COIR GROW BAGS



Riococo Coir Grow Bags contain a blend of 15 mm size coco peat and crushed coco chips. The selected raw materials are blended and compressed into an 8:1 ratio to make slabs for the required size. Slabs are packed in UV-stabilized (for 2 years) co-extruded bags. Custom sizes available.

ITEM#	TYPE	CROP
70010066	100	Tomatoes, cucumbers
70010045	200	Tomatoes, cucumbers, & eggplant
70010068	300	Tomatoes, strawberries

RIOCOCO COIR STARTER BLOCK, PROPAGATION

ITEM# 70010042



Riococo Coir Starter Block allows growers to propagate easier and faster to produce healthy plants organically. The 100% biodegradable block has excellent water holding capacity. Equal distribution of water throughout the block ensures optimum management of the air and water balance and the

equal distribution of nutrient solutions.

The block is made from a 100% coir fiber compressed disc packed in biodegradable cellulosic paper. Natural coir fibers retain water and keeps roots well-aerated. Its open structure is maintained throughout the propagation cycle until the block is transplanted into a separate growing container.

Dimensions are 10x10x5 cm. Comes 300/case and 64 cases/pallet.

RIOCOCO FRESH COIR BLOCK

ITEM# 70010040



The Riococo Fresh Coir Block is a standard coir mix block that consists of 1/4-, 1/2- or 3/4-mesh processed coir material. Standard coir block comes in a 4:1 compressed form and it is easy to handle and use. It can be used in indoor or outdoor growing mixes for nurseries, greenhouses, lawns and

landscaping, etc., or as part of professional or retail potting mixes. EC level on Triple washed coir 0.6ms/cm. pH is 5.5 – 6.2 210 blocks/pallet.

RIOCOCO GERBERA MIX COIR BLOCK

ITEM# 70010080



Gerbera coir block is made from fresh materials blended in different ratios. Gerbera coir blocks need to wet and expand before any nutrients or fertilizers are added. Gerbera plants can be planted directly into the expanded coir fiber mix or premium

potting mix including other soilless growing media. Can be used for other crops as well. EC level on Triple washed coir is <1.0ms/cm. pH is 5.5 – 6.2 210 block/pallet.

RIOCOCO ADVANCED GROWING MIX FOR BERRIES

Strawberries require considerable amounts of oxygen in their root zones. It is inevitable that the media for growing strawberries needs a good aeration property. One of the reasons why we developed a mix with 7-8 mm coco crushed material and <5 mm coco pith material blended together, was to provide moderate levels of aeration and moderate drainage properties to encourage the plant roots to develop its full potential. Our super washed Berry Mix blend works in any climate condition, poly or glasshouses, or any gutter or non-gutter growing systems. Super washed material mix blended without fine dust and uneven material.

*Mix can be used for short-term or long-term crops.
Very clean, uniform and no wastage.
Ideal air and water-holding capacity which produces healthier plants.
Excellent drainage and higher Cation Exchange Capacity (CEC).
Prevents stress after re-potting from propagation mix to Advanced Berry Growing Mix.
Balances pH and EC levels.*



ROCKWOOL

GRODAN VITAL SLAB



The best slab for growers who want early fruit formation and easy irrigation throughout the entire season.

- Fast root penetration
- Uniform stem development
- Uniform growth
- Fast resaturation and easy to control WC & EC
- For an optimal result the right block slab combination is essential. Plantop NG2.0 or Plantop Dry NG2.0 and Grodan Vital based on the same technology are fully compatible. The uniform structure guarantees a continuous development of roots both in the block and the slab throughout the whole season.

GRODAN GROTOP MASTER SLAB



Grotop Master is the best slab for vegetative and generative crop control; this slab was developed for Precision Growing.

- Dual density is a major advantage in the case of large plant distances
- Optimum WC and EC (resaturation) steering ranges
- Uniform distribution of roots
- Exceptionally good WC and EC uniformity
- Plants can be planted directly in the preformed holes
- Less drainage enables better control of EC and savings in water and nutrients

GRODAN CUBE



Stonewool Cubes are one of our most popular items. Suitable for a wide range of plants, Stonewool Cubes are effective in growing anything from tomatoes, lettuce, flowers and even aquatic plants. The cubes are arranged in sheets that make propagating and transplanting easy. The sheets fit nicely into a standard 10" x 20" flat.

ITEM#	DESCRIPTION
50600531	AO 25 x 40 (20 cubes/sheet; 6,000/case)
50600532	AO 36 x 40 10x10hole (1.5" plugs) (98 cubes/sheet; 2,940/case)
20010013	AO 50 x 40 (2" plugs) (50 cubes/sheet; 1,500/case)
20010037	AO 36x40 15x15 hole (2,940/case)
50600533	AX 25X40 10X10 hole (6,000/case)
20010030	AO 25x40 10x10 hole (122) Straight Cut (6,000/case)

GRODAN BLOCK DELTA



Grodan Delta Block guarantees plant propagators an optimum air/water balance. The variation in small and large pores throughout the block ensures that the roots are always supplied with sufficient air and water.

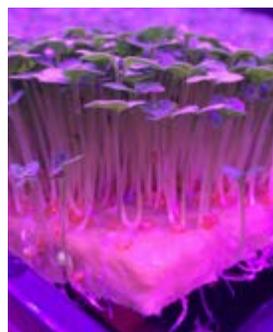
The water content of the block can be controlled with great precision.

The efficient pattern of the pores ensures that water and nutrients are distributed uniformly throughout the block, thereby offering excellent control over both the nutrient solution and the pH. This promotes development of a strong root system during propagation. The uniform distribution and vertical structure of the fibers results in the same resistance for each root, thereby ensuring that the roots distribute themselves uniformly throughout the block.

ITEM#	DESCRIPTION
50600498	DM4G 27x35 (384/case)
20010022	DM9G 27x35 2 hole top right (144/case)
20010032	DM6G 27x35 (216/case)
20010035	DM6G 27x35 2 hole (216/case)

CRESS PLATES

ITEM# 20010017



The GRODAN Cress Plate is the optimal product for the production of microgreens and in bulk harvested leafy vegetables or culinary herbs in vertical farming set-ups. The thin sheets of GRODAN stone wool are specially developed for those very quick growing crops that need minimal substrate. Using the cress plate will result in an uniform and quick crop

development.

- Thinnest GRODAN product on the market
- Uniform water levels through product
- Quick and easy germination
- Even crop development

Dimensions:

- 49.5 x 24 x 1 cm (fits 10/20 tray)
- 60 x 50 x 1 cm *coming soon*

Quantity:

- 10 x 20 size, 90 sheets/carton
- 60 x 50 size, 50 sheets/carton coming soon

GRODAN KIEM PLUG



Grodan Rockwool Propagation Plugs offer a unique and effective germination solution. Specifically designed for sowing seeds, Rockwool Propagation Plugs provide a sterile and porous substrate that aids in rapid and even root development. The plugs can be either manually transplanted or used in automated transplant machines.

ITEM#	DESCRIPTION
50041134	Kiem Plug in French Trays (3120/case) (240/ tray, 13 trays/case)
105016	Loose Kiem Plugs 20x27 (11,000/case)

OTHER SUBSTRATES

VEGBED BAMBOO FIBER MATS



The VegBed bamboo fiber mats are designed for hydroponic microgreen production. This growing medium is the first product on the market to be made from 100% sustainable bamboo fibers. The dense interweave allows for amazing water absorption and a base for root growth.

- Outstanding water retention (Holds 9.5 times its weight in water).
- Made from 100% sustainable bamboo fiber, no glue or binders used.
- Naturally biodegradable.
- Incredibly easy to use.
- Easy to harvest and clean up.
- Transfer directly to clamshell packaging or deliver straight to the restaurant.
- No nutrient solution or pH adjusting needed
- Won't alter microgreen taste.

Standard size will fit 10" x 20" trays. Approximately 1/8" thick and 200 gsm

GROW-TECH BIOSTRATE MICROGREEN ROLL

ITEM# 70010000



This lightweight biobased textile absorbs and retains water while providing an inert environment for dense healthy root development. BioStrate is compostable*. However, it will maintain its structural integrity for the life of your product and won't clog filters.

Hort Americas stocks 9 x120 rolls.

PUREGROWN™ HEMP-FELT



This OMRI listed 100% hemp product is made from fibers grown without the use of pesticides, herbicides or synthetic fertilizers. PUREgrown hemp-felt is designed to transport water evenly throughout the entire medium and maintain a perfect ratio of water and air for the development of healthy root

systems. Consistent growing conditions allow for consistent production of young plants.

PUREgrown standard size:

750gsm mat, 3/16" (5mm) thick for microgreens, wheatgrass

Benefits for Plants:

- Holds the optimal amount of water & air
- Roots are stabilized

Benefits for Growers:

- Made from natural fibers
- Ready to plant, no pre-treatment required
- Lightweight
- Easy to use
- OMRI listed

Benefits for the Environment:

Made from hemp grown without the use of pesticides, herbicides or synthetic fertilizers

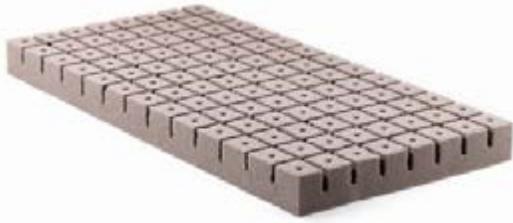
PERLITE

ITEM# 70010053



Lightweight perlite is an option as both a stand-alone hydroponic growing substrate or in blending with coir or Canadian peat moss. 4.4 cubic foot bag.

OASIS® ROOTCUBES® GROWING MEDIUM



Rootcubes are a specialized foam medium designed specifically for unrooted cuttings. This economical propagation medium provides the perfect balance of air and water to encourage plant growth and ensure unrooted cuttings get off to a good start. The cubes contains the right amount of starter nutrients.

ITEM#	DESCRIPTION
70010027	1 1/2" Medium—50 cells/sheet
70010030	1" Medium—162 cells/sheet
70010033	1 1/4" Medium—104 cells/sheet
	Individual trays

OASIS® HORTICUBES®XL GROWING MEDIUM



Created for the specific needs of professional hydroponic growers, XL's modified cell structure and unique chemistry promote faster, stronger root growth. Specialized density and drainage properties in a fine-cell design provide uniform moisture throughout the substrate, whether overhead irrigation or sub-irrigation is used. This ensures nutrients are more readily available. HortiCubes XL are available with top and bottom grooving or top only grooving. Seeding options are also available for single and multi-seed sowings. The 267 tray is only available with top grooving. 20 sheets/case.

ITEM#	DESCRIPTION
70010100	50 ct. Top groove, single dibble
70010013	162 ct. Top Groove, Multi Seed
70010014	104 ct. Top Groove, Multiseed
70010015	50 ct. Top Groove, Multiseed
70010016	50 ct. Bottom groove, single seed
70010017	104 ct. Bottom grooving, multi seed
70010018	50 ct. Bottom groove, multi seed
70010019	104 ct. Top groove single seed
70010021	162 ct. Single seed, bottom and top groove
70010031	276 ct. Multi seed
70010032	276 ct. Single seed



IRRIGATION

HORT AMERICAS IRRIGATION KIT

The Hort Americas drip tape irrigation kit contains everything you will need to provide a complete watering solution for your garden or grow beds. Hort Americas prides itself on being a provider of only the best in growing systems for growers big and small. Whether you have a 20 foot Garden or an Acre of Greenhouse, this kit is designed to provide you consistent trouble free watering. This system has been carefully designed to ensure minimal set-up time and ease of use and every component has been hand selected by our staff of professionals to provide consistent and dependable results. The kit comes with detailed instructions and as an added resource, instructions are also available on our website. The kit includes everything you need to be able to water your beds using nothing more than your outside faucet. See the Parts List and Assembly Diagram below for a visualization of the system from the faucet to the end of the drip tape lines.



KEY	ITEM #	DESCRIPTION	QTY
1	14060070-01	Black PE Tubing .600" x .700" (18mm)	1
2	P1-51525-06-500	P1 5/8" 15MIL Drip Tape 0.25gph Spaced 6" x 500ft	1
3	A4-HTF200	3/4" Female Hose Thread Swivel X 3/4" Male Hose Thread 200 Mesh Stainless Steel Screen Filter	1
4	A2-VHT75	3/4" Female Hose Thread X 3/4" Male Hose Thread Plastic Valve	1
5	32PRV.75-LF15V2	3/4" Low Flow Pressure Regulator (15PSI)	1
6	A1-H7HT	Series 700 PERMA-LOC X 3/4" Male Hose Thread Adapter	1
7	A1-H7CAP	Series 700 Perma Loc X 3/4" Male Hose With Threaded End Cap	1
8	A2-TV5B250	250 Series Barb x 5/8" Tape Shut Off Valve	10
9	C5-T5EC	5/8" Tape End Closures	10

ACCESSORY COMPONENTS



KEY	ITEM #	DESCRIPTION	QTY
1	A1-TC500	5/8" Tape Coupling	1
2	A5-AGPD	Rack of Dual Sized Goof Plugs	1
3	B5-APPT	Poke and Plug Punch & Insert Tool (4MM)	1
4	B5-S710	8" Wire "J" Stake 16 & 18mm	30

HORT AMERICAS IRRIGATION KIT

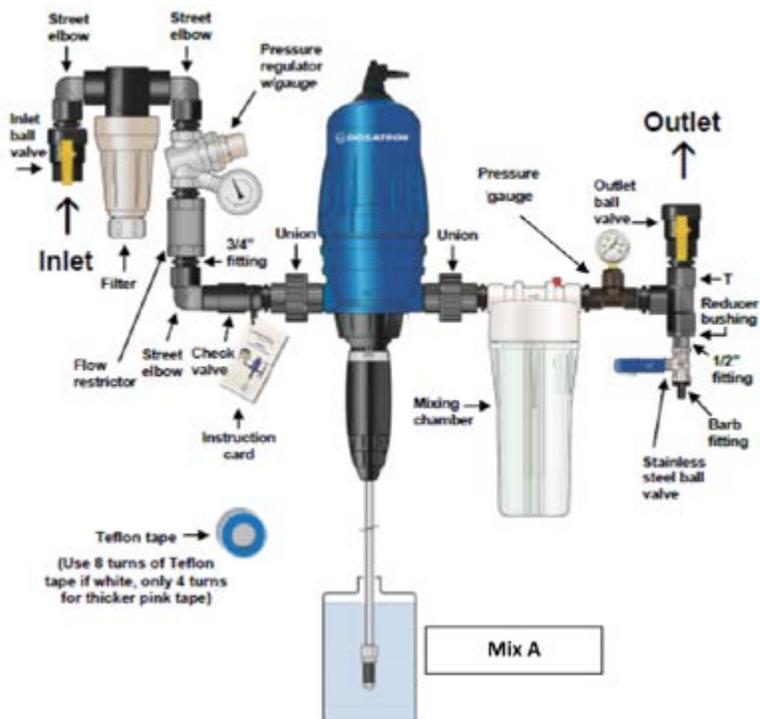
BASIC ASSEMBLY DIAGRAM



HORT AMERICAS INJECTOR KITS

1-INJECTOR ASSEMBLY SET UP WITH BUILT IN BYPASS

ITEM# 16040011

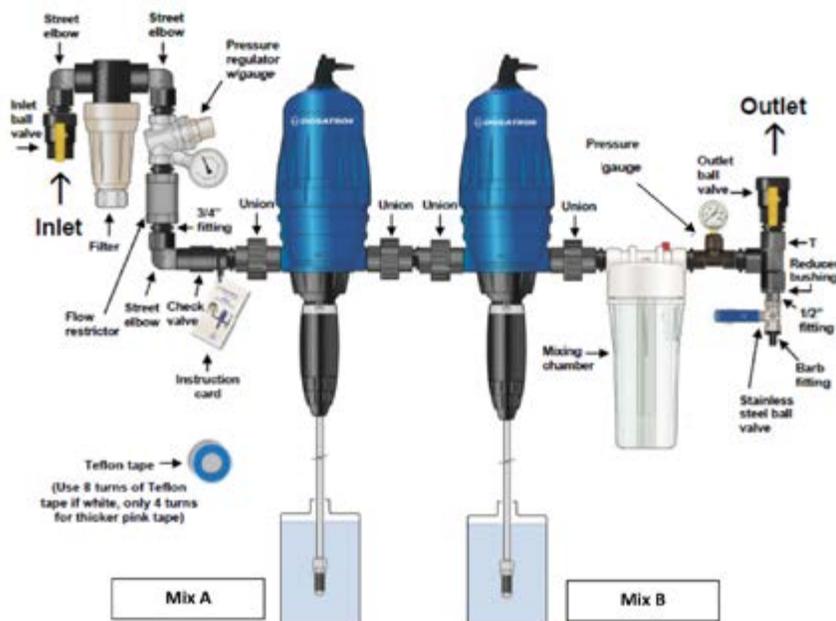


Hort Americas is pleased to offer you an all-in-one fertigation solution for your hydroponic greenhouse. Using a full line up of Dosatron 14 GPM components, this kit offers you flexibility to build your inline injector board assembly using 1 to 3 injectors depending on your fertigation needs. To simplify plumbing, the Dosatron D14MZ2 injectors have been equipped with a built in bypass valve, to give the flexibility of turning unused injectors off in multiple injector systems. Whether you choose the 1-injector setup or the 3-injector setup, the kit fits easily into a single box and can be shipped anywhere.

Please note, this kit is designed and put together for systems that meet the requirements of the Dosatron D14MZ2 Injector only. We at Hort Americas have found the 14 GPM Injectors to be the most common and highest used of the injectors for small to medium sized hydroponic operations.

2-INJECTOR ASSEMBLY SET UP WITH BUILT IN BYPASS

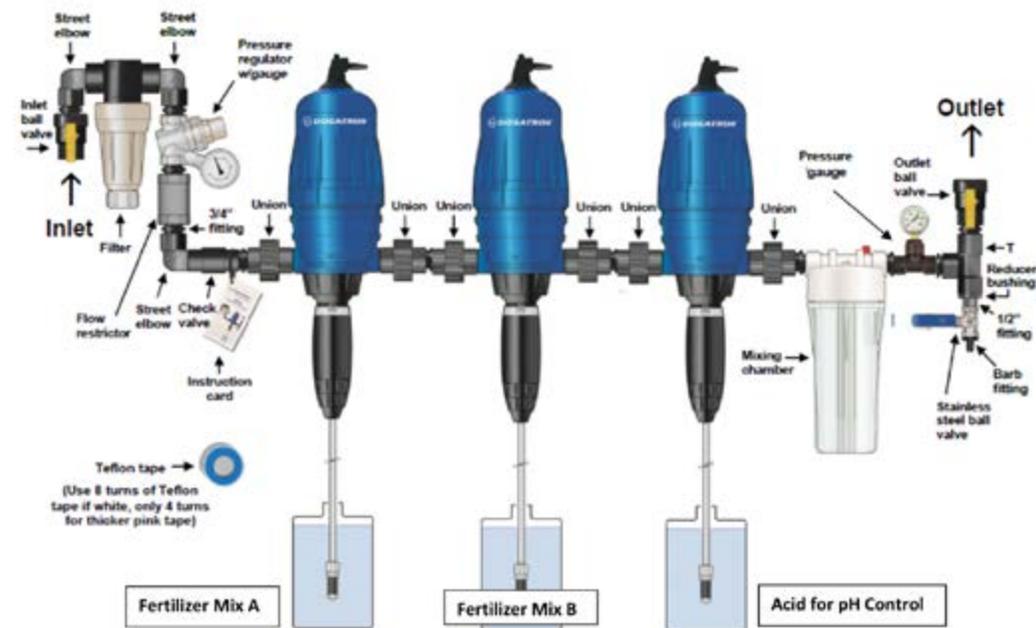
ITEM# 16040012



If your system will not support this particular kit, please speak with your Hort Americas representative and they will be happy to work on other potential options for you.

3-INJECTOR ASSEMBLY SET UP WITH BUILT IN BYPASS

ITEM# 16040013



ITEM NUMBER	QUANTITY	DESCRIPTION
	2	3/4" polypropylene Banjo single union ball valve
	1	1/2" stainless steel ball valve
	1	3/4" polypropylene 200 mesh tee filter
	1	3/4" brass pressure regulator w/gauge
	1	3/4" 14 GPM flow restrictor
	1	3/4" polypropylene check valve
	2	3/4" union schedule 80 PVC
IPK34-14GPM	8	3/4" x 2" Banjo polypropylene fittings
	1	1/2" x 2" Banjo polypropylene fitting
	1	1/2" x 1/2" Banjo barb fitting
	1	3/4" male to 1/2" female Banjo reducer bushing
	1	3/4" Banjo T
	3	3/4" Banjo street elbows
	1	Roll of Teflon tape
	1	Instruction card
	1	Zip tie
MC34-PP	1	Mixing chamber
PG100-34KIT	1	0-100 Psi Pressure Gauge Kit 3/4" FPT
NIP075-2	2	2" SCH 80 NIPPLE for Pressure Gauge Kit
80020014	1	14 GPM Injector with Built in Bypass Valve



Dosatron 14 GPM: D14MZ2

Ratio: 1:500 - 1:50 | **Pipe Size:** 3/4" NPT

Size: 19 1/8" high x 6 5/16" wide | **Weight:** 6 lbs

Creating the right nutrient mix for your hydroponic growing operation is a delicate science. With Dosatron's full line of injectors, you can automate your process to create fine-tuned, multi-chemical mixes with repeatable results, every time! Dosatron fertilizer injectors are water-powered so no electricity is necessary. They are simple to use and easy to adjust allowing for flexible dosage rates, and they are easy to maintain saving you time and effort.

NOTE: The D14MZ2VFBPII included in the Hort Americas Injector Kit is a Standard D14MZ2 with a built-in bypass for easy on/off of the injector without the need for additional plumbing.



Dosatron fertilizer Injectors ensure precise dosing continuously and economically. Ideal for dispensing fertilizer, fungicides, pesticides, algacides, disinfectants and surfactants.

DOSATRON 14 GPM INJECTOR

ITEM# 80020014



D14MZ2

ITEM# 80020014

Ratio: 1:500 - 1:50

Pipe Size: 3/4" NPT

Size: 19 1/8" high x 6 5/16" wide

Weight: 6 lbs

D14MZ10

Ratio: 1:100 to 1:10

Pipe Size: 3/4" NPT

Size: 19 1/8" high x 6 5/16" wide

Weight: 6 lbs

D14MZ3000

Ratio: 1:3000 to 1:333v

Pipe Size: 3/4" NPT

Size: 21" high x 6 5/16" wide

Weight: 6 lbs

D14MZ520

Ratio: 1:20 to 1:5

Pipe Size: 3/4" NPT

Size: 26 1/8" high x 10 1/4" wide

Weight: 8.8 lbs

Bypass: Optional

DOSATRON 11 GPM INJECTOR

ITEM# NIS800200

D25F1

Ratio: Fixed at 1:100

D25RE2

Ratio: 1:500 to 1:50

D25RE09

Ratio: 1:1000 to 1:112

Pipe Size: 3/4" NPT

Size: 14" high x 6 1/4" wide

Weight: 4 lbs

Bypass: Optional



DOSATRON 100 GPM INJECTOR

ITEM# NIS800201



D20S

Ratio: 1:500 to 1:50

Pipe Size: 2" NPT

Size: 55" high x 15" wide (with legs)
42" high x 15" wide (no legs)

Weight: 47 lbs

Bypass: Standard

D20S-2000

Ratio: 1:2000 to 1:200

DOSATRON 20 GPM INJECTOR

ITEM# 80020012



D45RE15

Ratio: 1:500 to 1:66

Pipe Size: 1" NPT

Size: 24" x 7 1/2"

Weight: 8 lbs

DOSATRON 40 GPM INJECTOR

ITEM# 80020010



D8RE2

Ratio: 1:500 to 1:50

Pipe Size: 1 1/2" NPT

Size: 25 1/4" high x 8 1/2" wide

Weight: 12 lbs

D8RE3000

Ratio: 1:3000 to 1:800

Pipe Size: 1 1/2" NPT

Size: 26 3/8" high x 8 1/2" wide

Weight: 12 lbs

D8RE5

Ratio: 1:100 to 1:20

Pipe Size: 1 1/2" NPT

Size: 25 5/16" high x 8 1/2" wide

Weight: 12 lbs

Bypass: Optional

DOSACART

ITEM# 80020011

Simply the easiest and most convenient way to fertilize and treat your plants while you water. DosaCarts provide proportional on-demand dispensing, polyethylene construction, 10" no flat tires, and narrow width for maximum mobility.



Includes:

- Large 15-gallon tank
- Crash bar
- Clean-out valve

Accommodates:

- 7 GPM
- 11 GPM
- 14 GPM
- 20 GPM

Quick Hook-Up kits available:

- 7 GPM, 11 GPM, 14 GPM
- 20 GPM - Part #: HSPKD45

ECO-CART

Portable Fertilization System

ITEM# NIS800202

The 5-gallon Eco-Cart provides quick and easy proportional on-demand dispensing, for a great value.



Eco-Cart - 14 GPM includes:

- Cart
- 5-gallon bucket with lid
- Dosatron D14MZ2
- Plumbing

Eco-Cart - 11 GPM includes:

- Cart
- 5-gallon bucket with lid
- Dosatron D25F1 (fixed 1:100)
- Plumbing

Eco-Cart includes:

- Cart
- 5-gallon bucket with lid
- Plumbing

NUTRIENT DELIVERY SYSTEM MONITOR KIT

ITEM# NIS1HYKMON



The Nutrient Delivery System is a simplistic system made up of three main panel sections which can be arranged to accommodate a wide variety of fertigation programs. With total control in mind, customizing the entire panel is easy based on your personal nutrient program! By automating the nutrient delivery

process it accurately dispenses the desired solution.

LI'L BUD-D

ITEM# NIS800203



Includes:

- Cart
- 5-gallon bucket with lid

Accommodates:

- 7 GPM
- 11 GPM
- 14 GPM

Quick Hook-Up kit available:

- 7 GPM, 11 GPM, 14 GPM

DOSATRON ACCESSORIES



FILTER

ITEM# 80020009

200 mesh/80 micron.

Provides protection from debris in water lines



CHECK VALVE

ITEM# NIS800204

Reduces effects of water hammer



FLOW RESTRICTOR

ITEM# NIS800205

Controls and manages water flow



PRESSURE REGULATOR

ITEM# NIS800206

Controls and manages water pressure



WATER HAMMER ARRESTOR

ITEM# NIS800207

Controls effects of water hammer



DOSA-KLEAN

ITEM# NIS800208

Cleans your injector and lubricates the interior seals and all moving components



DRIPPER STAKE ASSEMBLIES (0.5 GPH)

ITEM #	TUBE LENGTH	PACK QTY
40201-020600	24"	25
40201-020700	30"	25
40201-021000	36"	25

**0.75 and 1.0 GPH assemblies also available



MISCELLANEOUS COMPONENTS

KEY	ITEM #	DESCRIPTION	BAG QTY
1	N-32500-001125	5 mm Insert Connector - Barb x Threaded	250
2	32000-001806	Angle Barbed Stake	250
3	32000-001010	Goof Plug	10
4	45000-001200	3 mm Plastic Punch (for drippers/sprinklers)	1
5	63000-005870	24" Hanging Assembly for Sprinklers, Misters or Foggers	25



WOODPECKER PRESSURE COMPENSATING JUNIOR DRIPPERS (WPCJ)

ITEM #	COLOR CODED INLET/OUTLET	NOMINAL FLOW (GPH)	BAG QUANTITY
21520-000930	Brown	0.26	250
21520-001040	Red	0.5	250
21520-001230	Blue	0.7	250
21520-001440	Gray	1.0	250
21520-001640	Green	2.0	250

**Carton quantity (13,000) available also



SUPER FLEX



POLYETHYLENE



SUPER FLEX UV WHITE™ POLYETHYLENE (PE) TUBING (5/3 MM)

ITEM #	DESCRIPTION
40001-002500	1000' coil
40001-002800	18" Pre-cut
40001-002900	24" Pre-cut

BLACK POLYETHYLENE TUBING

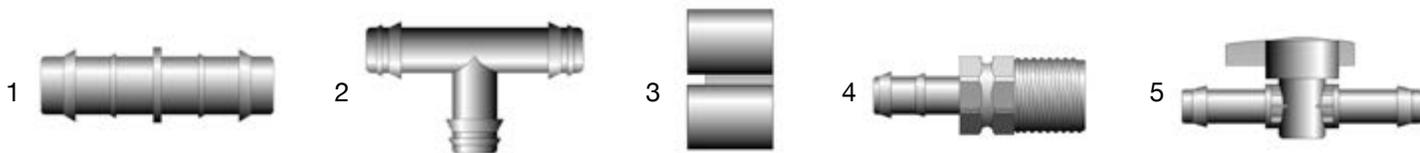
ITEM #	INSIDE DIAMETER	OUTSIDE DIAMETER	SIZE	COIL LENGTH
40510-000003	.520"	.620"	16 mm	1,000'
40510-000025	.520"	.620"	16 mm	500'
40510-000024	.520"	.620"	16 mm	100'
40510-000005	.600"	.700"	18 mm	1,000'
40510-000036	.600"	.700"	18 mm	500'
40510-000018	.820"	.940"	3/4"	500'
40510-000070	.820"	.940"	3/4"	100'
40510-000020	1.06"	1.20"	1"	500'
40510-000085	1.06"	1.20"	1"	100'

UV WHITE™ POLYETHYLENE TUBING

ITEM #	INSIDE DIAMETER	OUTSIDE DIAMETER	SIZE	COIL LENGTH
40510-000100	.520"	.620"	16 mm	500'
40510-000105	.820"	.940"	3/4"	500'
40510-000106	.820"	.940"	3/4"	100'
40510-000108	1.06"	1.20"	1"	500'
40510-000109	1.06"	1.20"	1"	100'

UV WHITE™ POLYETHYLENE (PE) PRE-PUNCH TUBING

ITEM #	INSIDE DIAMETER	OUTSIDE DIAMETER	SIZE	COIL LENGTH	PRE-PUNCHING SPACE
40510-000252	.820"	.940"	3/4"	500'	36"
40510-000181	1.06"	1.20"	1"	500'	36"



FITTINGS AND CONNECTORS

KEY	ITEM #	DESCRIPTION	BAG QTY
1	32500-010720	Insert Coupling (16mm)	50
2	32500-011330	Insert Tee (16mm)	100
3	32500-013030	Figure 8 Line End (16 mm)	100
3	78241-002500	Figure 8 Line End (3/4")	1
4	32500-011020	MIPT Insert Adapter (16 mm x 3/4")	50
4	32500-014827	MIPT Insert Adapter (0.820" x 3/4")	50
5	00005-008960	Inline Shut-Off Valve (16 mm)	1
5	00005-008990	Inline Shut-off Valve (3/4")	1
**18mm available upon request			
#	32500-012530	Elbow Insert Connector (16 mm)	100



MANUAL DISC FILTERS

KEY	ITEM #	FILTER SIZE	MESH	FLOW RANGE	MAX PRESSURE
1	70640-001200	3/4"	120	1-12	140 psi
2	70641-001600	1"	120	5-26	140 psi
2	70641-001700	1"	140	5-26	140 psi
3	70641-003640	2" Dual HP	120	40-120	174 psi
4	70640-004521	2" Dual Lite	120	40-110	115 psi



PRESSURE REGULATORS

KEY	ITEM #	DESCRIPTION	FLOW RANGE	NOMINAL OUTPUT PRESSURE	REGULATING UNITS
1	31000-001000	3/4" Low Flow Pressure Regulator	.25 - 4.4	15	-
1	31000-001200	3/4" Low Flow Pressure Regulator	.25 -4.4	35	-
2	30500-001600	3/4" Pressure Regulator	4.5 - 17.6	35	1
3	30540-002700	2" Pressure Regulator	22 - 70	35	4

SERIES 80 NYLON CONTROL 2-WAY VALVES

ITEM #	SIZE	VOLTAGE
71640-007355	3/4" Globe	24VAC
61ET.75GH2-24DC	3/4" Globe	24VDC
71640-007406	1" Globe	12VDC
61ET1GH2-12DC	1" Globe	



T-TAPE DRIP TAPE

T-Tape Drip Tape is the simple solution to the complex irrigation needs a grower might face. Choose the T-Tape Drip Tape option that best fits your needs.

ITEM#	DESCRIPTION	SOIL TYPE
NIS500100	505 T-Tape	Medium tilled soils
NIS500101	506 T-Tape	Minimum tilled soils
NIS500102	508/708 T-Tape	Minimum tilled soils
NIS500103	510/710 T-Tape	Heavy & rocky soils
NIS500104	515/715 T-Tape	Rough terrain & subsurface drip irrigation



BATO IRRIGATION MAT

ITEM# NIS506117

Bato Irrigation Mat is the ideal underlay for various crops, such as pot plants and bedding plants.

Bato's Irrigation Mat is the ideal underlay for various crops, such as pot plants and bedding plants. The mat absorbs a maximum quantity of water and releases the water gradually to the plants via capillary action.

Standard dimensions: 400 g/m²; 40 m/roll

Available in widths of widths of 50, 70, 100, 105, 125, 150, 160, 185, 200, and 210m

Other sizes and qualities available on request for 5,000 square meter or more.





ORCHID SUPPLIES

HORT AMERICAS ORCHID GROWING MIX

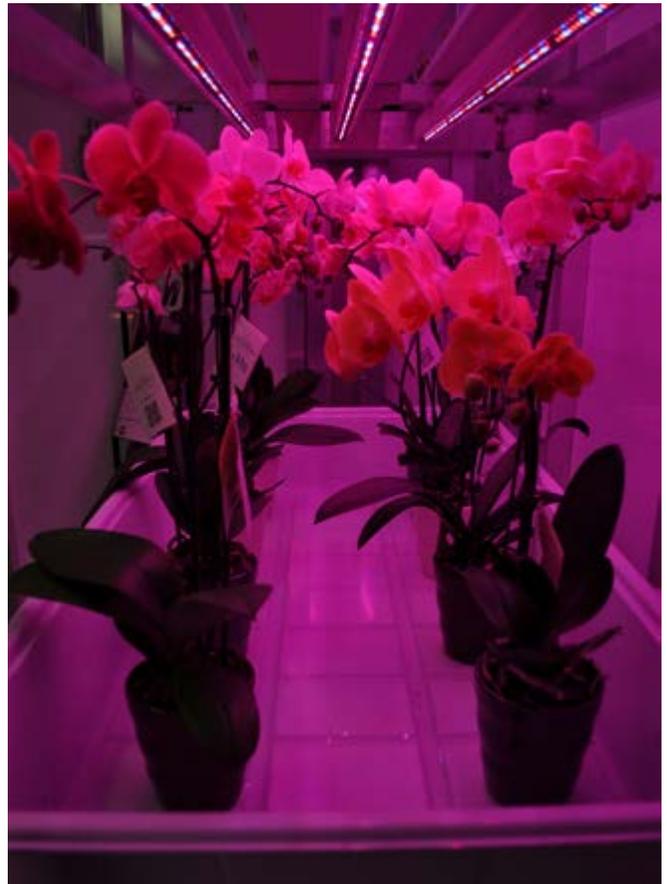
ITEM# NIS701100

Our Hort Americas Orchid Mix is the US take on the Dutch orchid substrates produced by Slingerland Potgrond. With the support of our Dutch partners, US grower partners, Vendor partners and Research Universities Hort Americas set out to re-create a product that was previously only produced in Europe.

After a couple of years of trial and error we successfully created a product that uses US sourced raw materials and displayed the same physical properties as the mixes that are used and trusted in the most advanced greenhouses in Holland.

The HA Orchid Mix is designed for phalaenopsis orchid production and consists of pine bark, Chilean sphagnum moss and a slight nutrient charge. Product is currently produced in the South-eastern area of the United States. It can be purchased in 2.8 cubic foot bags and 55-cubic foot totes.

(Hort Americas can create other custom bark mixes to suit your needs. Contact your Hort Americas representative today to learn more about a variety of options.)



HORTAMERICAS.COM/ORCHIDS

SLINGERLAND BARK FOR ORCHIDS

ITEM# NIS0800000



A high quality, specialist crop such as the orchid makes extreme demands on the used substrate. It should have very high air content, in combination with a stable structure and an excellent

moisture buffering capacity. We add air to the substrate by means of especially selected tree bark from Portugal and the South of France. We mix this with optimum moisture buffering components, such as bog moss (sphagnum) from Chile. Our substrate is the basis for a high percentage of 'two stem plants' and a relatively short production period. Please ask after the possibilities in your particular situation

10 LB. COIR CHIPS FOR ORCHIDS

ITEM# 70010069



Coir husk chips are currently used by a variety of professional growers as an orchid medium, growing substrate component (an environmentally friendly replacement for perlite), top-dressing for interiorscape and interior plants, and an organic hydroponic medium. Available in 10 lb. block, each block

yields approximately 2 cubic feet

TEKU CONTAINER 12 MCP NATUREL

ITEM# 35646000



Teku MCP pots offers a multi hole star bottom that ensures rapid growth and ideal water and drainage. High Transparency prevents algae growth on the inside of the container. 13,130/pallet.

ORCHID CLIPS

ITEM# 58653420

Orchid hook, 10,000/case, 64 case/pallet

BATO BUTTERFLY CLIP

ITEM# 58654000



The Butterflyclip is a new clip for attaching the plantstem to a bamboostick in a fast and efficient way. The shape of the bambooclip is compact which makes it almost invisible on your product. 50,000 per case.

BATO ORCHID CLIP

ITEM# NIS586100



The Bato Orchid Clip can quickly bundle a (bamboo) stake and plant together. The clip connects the stake and plant to ensure that the plant is supported and protected from damage during shipping and handling. The clip has a variable diameter between 4.5-7 mm.

BATO ORCHID PEG

ITEM# NIS586500100



The Orchid Peg, which has a diameter of 6 mm, quickly bundles a (bamboo) stake and plant together. The peg connects the stake and plant to ensure that the plant is supported and protected from damage during shipping and handling.

BAMBOO STAKES



Hort Americas offers bamboo stakes in a variety of lengths and colors. Stakes are available in natural, dark green and dark brown. Stake lengths range from 30 to 60 centimeters. The stakes can be used for supporting a variety of vegetable and ornamental plants, including tomatoes, cucumbers, peppers and orchids.

Hort Americas also offers a variety of other cropping accessories including clips for staking, vining and grafting, hooks, twine, knives and shears.

ITEM#	DESCRIPTION
31117931	30cm blanc (10,000/case)
58056866	50cm 4.5mm natural (2,500/case)
58056774	50cm 5,5mm darkbrown (2,000/case)
58056743	50cm 5,5mm darkgreen (2,400/case)
58056778	60cm 6mm darkbrown (1,500/case)
58056746	60cm 6mm darkgreen (1,500/case)
58056003	60cm 5mm dark green (2,000/case)
58056745	50cm 6mm dark green (2,000/case)
58056003	60cm 5mm dark green (2,000/case)
58056718	60cm 5mm natural (2,000/case)
58056747	60cm 6mm dark green (2,000/case)
58056945	45cm 4.5mm natural (2,500/case)



CONTROLLED ENVIRONMENT TECHNOLOGY

THE GROWRACK

by GreenTech Agro, makers of Growtainers™

The Growrack™ is a proprietary, self-contained stainless steel rack system which can contain any number of vertical production and propagation levels. The number of levels is determined by the height requirements of the crop being produced. Each level of the 6' to 7.5' tall modular Growrack™ rack system contains an appropriate number of crop-specific LED fixtures. By combining these custom wavelength combinations, the LED lights in the Growrack™ can virtually alter the photosynthesis and/or photomorphogenesis response allowing controllable, predictable and more robust growth, resulting in higher yields in a shorter period of time than conventional production methods.

SIZE

60" X 24" X 72"

Height adjustable up to 96"

Available in:

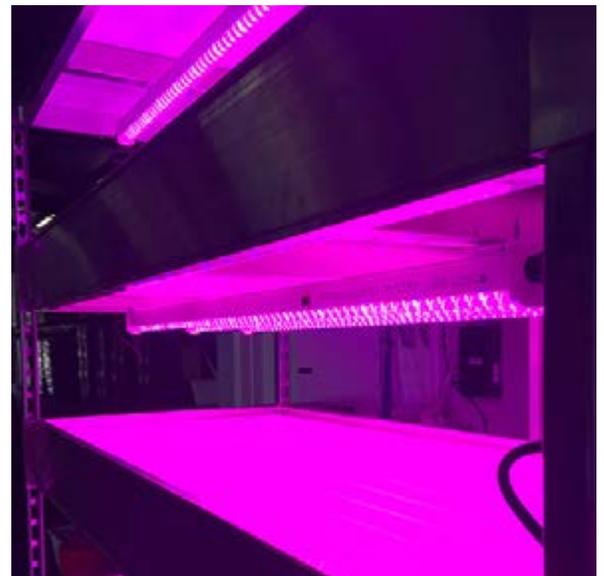
- 6 ft tall – 2 tier system
- 6 ft tall - 3 tier system
- 7.5 ft tall – 3 tier system
- 7.5ft tall – 4 tier system

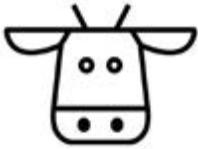
DETAILS

- Built in trays with knock outs for irrigation and/or drainage
- Mounted on a heavy frame with wheels
- Heavy duty Bottom shelf for water tank
- Holes predrilled every 1" for easy lighting installation
- Each level holds 5 10" X 20" Trays
- Pump
- 40 Gallon Tank
- Up to 4 growing levels with 3 LED Lights per growing level

The Growrack™ can be purchased fully assembled or you can purchase and assemble yourself with easy to follow instructions and pre-built plumbing sections.

Complete kit can be purchased with GE Horticultural LED or Ohmax LED Bars.





30MHz

30MHz provides real-time remote crop monitoring on any device, so you get the full context: historical insight on what your crops have been experiencing, and live alerts to respond quickly to current conditions. From optimising irrigation and ventilation, to preventing disease or sunscald, improving pest management or predicting shelf life, 30MHz delivers the metrics on a single platform.

30MHz ZENSIE THE DASHBOARD



An easy to use and customizable dashboard that you can access on any device with real time alerts and deep analytics. Accessible on any device, ZENSIE starts generating powerful insights and visualizations

from wireless sensors moments after setup.

A STRONG MESH NETWORK WITH ANY COMBINATION OF SENSORS

To ensure the highest level of stability, the 30MHz sensors deploy to a private mesh network. In a mesh topography, if one sensor loses connectivity, the rest compensate. This guarantees the network is immune to interruptions. The 30MHz sensors capture some of the most relevant metrics for agriculture.

30MHz GATEWAY



At the heart of the Smart Sensing Toolkit is the Gateway. The 30MHz Gateway ties the internet to your private mesh network. Waterproof and durable, a single Gateway can mesh up to 4,000 sensors, even in

the harshest industrial conditions.

30MHz AIRFLOW SENSOR (0-2 M/S)



A durable, wireless sensor designed for agricultural applications.

Capture data on airflow at 0-2 meters per second in real-time.

Developed for the needs of commercial farmers, this rugged, watertight and easy to mount anemometer captures sensory data on subtle changes in airflow at 0-2 meters per second. Use real-time airspeed data captured in the ZENSIE dashboard to monitor storage, drying and processing, as well as manufacturing conditions.

30MHz AIRFLOW SENSOR (0-20 M/S)



Capture data on airflow at 0-20 meters per second in real-time.

A durable, wireless sensor designed for agricultural applications

Developed for the needs of commercial farmers, this rugged, watertight and easy to mount anemometer captures sensory data on rapid airflow at 0-20 meters per second. Use real-time airspeed data captured in the ZENSIE dashboard to optimize outdoor irrigation, bulb drying and processing conditions.

30MHz CO2 SENSOR



Monitor carbon dioxide levels in your greenhouse, vertical farm or storage facility.

Stay up to date on your crops' needs by monitoring CO₂ levels in real-time with

this wireless carbon dioxide sensor. There are three variations of the sensor available. Each one measures a different range of ppm: 0-2,000 / 0-5,000 / 0-10,000 ppm. Deploy in moments without coding or technical assistance, and start capturing data in the ZENSIE dashboard. Generate graphs, visualizations, heatmaps and custom alerts straight to your mobile, tablet or computer.

30MHz TEMPERATURE HUMIDITY SENSOR



Track greenhouse and storage conditions in real-time.

Set your parameters in the ZENSIE dashboard, and get alerts as soon as temperature or humidity rises or falls

beyond your defined thresholds.

Developed for the needs of commercial farmers, the temperature humidity sensor is designed to provide real-time granular data on environmental conditions from any location, whether it's the furthest corner of a greenhouse or a sealed cold storage container. Set your parameters in the ZENSIE dashboard, and get alerts as soon as temperature or humidity rises or falls beyond your defined thresholds.

The temperature humidity sensor is wireless and watertight, for reliable measurements in any environment. Use this sensor alongside the pointed temperature sensor to determine the dewpoint of individual plants.

30MHZ POINTED TEMPERATURE SENSOR



Measure the object temperature of fruits, vegetables or leaves without contact. Developed with Dutch commercial pepper farmers to capture the skin temperature of individual plants, the pointed infrared temperature sensor is built to flexibly position around objects

of any shape and measure surface temperature without contact. Benchmark and compare temperatures across greenhouse sections, or contrast granular metrics on a single plant. Set your parameters in the ZENSIE dashboard, and get alerts as soon as temperature rises or falls beyond your defined thresholds.

The pointed temperature sensor is wireless and portable, giving you the freedom to measure different plants and locations, depending on your needs.

30MHZ WIND DIRECTION SENSOR



A durable, wireless sensor designed for agricultural applications.

Collect real-time data on air flow in your greenhouse, storage units or workplace. Have more control over the airflow in your greenhouse, storage units or workplace with the wind direction sensor. Use it alongside the 30MHz

airflow sensor to determine how variables such as CO₂, temperature and humidity affect wind direction. The sensor is also suitable for outdoor use.

30MHZ WIND SPEED SENSOR



Measures speeds up to 55 m/s

A durable, wireless sensor designed for agricultural applications.

Monitor weather conditions at different spots in the field.

This sensor measures wind speeds up to 55 m/s and is therefore also suitable for outdoor measurement. Gain insights

on weather conditions in fields and lower tech greenhouses, or monitor areas where significant airstreams affect growth.

30MHZ ARABLE SOIL MOISTURE SENSOR



Custom alerts can provide insights on which crops are in need of irrigation, and which are in need of drainage.

This soil sensor determines volumetric water content (VWC) by measuring the dielectric constant of the medium using capacitance and frequency domain technology to provide accurate measurements of all soils and soilless medias with a wide range of salinities.

30MHZ POTTED SOIL MOISTURE SENSOR



Measure volumetric water content in soils and soilless medias with a range of salinities.

This wireless soil moisture sensor is built to monitor volumetric water content (VWC) for an accurate measurement of all soils and soilless medias with a wide range of salinities. Using real-time data from soil sensors, farmers can adjust and tailor a granular approach to irrigation and nutrient delivery. Custom alerts can provide insights on which crops are in need of irrigation, and which are in need of drainage to prevent the damaging effects of overwatering including standing water compromising root development, overaccumulation of salts, root rot, fungus and mildew.

30MHZ SUBSTRATE MOISTURE SENSOR



Measure the water content, electrical conductivity, and temperature of many types of growing media, primarily in greenhouse applications.

This sensor was designed to measure the water content, electrical conductivity, and temperature of many types of growing media, primarily in greenhouse applications where the slim, stainless steel needles could be inserted easily into a variety of substrates.

30MHZ POINTED MICROCLIMATE SENSOR



Capture the granular microclimate: object temperature, air temperature, humidity, dewpoint, VPD, humidity deficit and relative humidity.

This sensor uses object temperature and temperature humidity measurements to continuously capture microclimate at close range. Use data from the sensor to better determine heating needs, cutting unnecessary energy expenditures and lowering the risk of plant fungus and disease.

30MHZ VENTED TEMPERATURE HUMIDITY SENSOR



Set your parameters in the ZENSIE dashboard, and get alerts as soon as temperature or humidity rises or falls beyond your defined thresholds.

Developed for the needs of commercial farmers, the temperature humidity sensor is designed to provide real-time granular data on environmental conditions from any location, whether it's the furthest corner of a greenhouse or a field full of crops. Set your parameters in the ZENSIE dashboard, and get alerts as soon as temperature or humidity rises or falls beyond your defined thresholds.

30MHZ PHOTOSYNTHETICALLY ACTIVE RADIATION SENSOR



Monitor natural light strength across agricultural environments.

This rugged sun calibration quantum sensor was designed to measure the strength of natural sunlight. Use the PAR to measure PPFD (Photosynthetic Photon Flux Density) in agricultural environments including greenhouses, growth chambers, or outdoor plant canopy environments.

30MHZ PT 100, 500, 1000



This sensor is designed for an accurate measurement of the temperature of raw materials, liquids or crops in storage. It is especially applicable in places where its necessary to monitor the center, such as a pile of crops, reservoirs or any

similar situation.

Capture data on temperature from crops in storage, liquids or raw materials.

30MHZ PEOPLE COUNTER



This sensor is designed to monitor people flow in a space with up to 98% accuracy, even in crowded spaces. Cover multiple counting points with a single sensor, separate counting results for adults and children, and

prevent false counts by detecting non-human objects Track up to 8 individual zones, monitoring fill level, dwell time and wait time per zone.

This sensor combines two optical lenses to determine whether people or objects are moving within the selected field.

30MHZ PASSIVE INFRARED SENSOR



Detect presence and occupancy of objects generating heat.

A durable, wireless sensor designed for agricultural applications

The Passive Infrared (PIR) sensor measures infrared light emitted from

objects that generate heat, and therefore infrared radiation. Use this sensor to detect occupancy and presence in facilities, or detect the presence of animals in pens or mice in mouse traps.

30MHZ OBJECT COUNTER



This sensor detects and counts transparent and reflective objects through an optical lens. Its visible, high power LED light compensates for dirt. Gather real-time data on conveyor belt usage in your agribusiness.

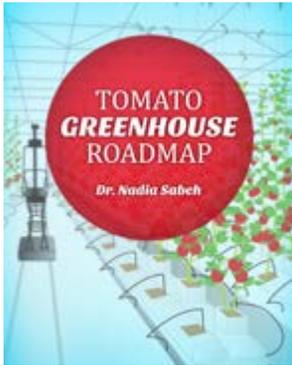
Developed with Dutch seed company Pop Vriend to monitor and optimise conveyor belt usage, this photoelectric sensor counts passing items in real-time at up to a meter distance. This sensor can detect and count transparent and reflective objects, and its visible, high power LED light compensates for dirt and makes alignment easy.



EDUCATIONAL RESOURCES

TOMATO GREENHOUSE ROADMAP

ITEM# 10010010



A Guide to Greenhouse Tomato Production by Nadia Sabeh
 The purpose of this document is to inform prospective greenhouse growers and investors about the unique requirements of commercial tomato production. Topics include an overview of greenhouse planning, design, and operation, as well as tomato selection and crop management. The information presented is

based on current research and accepted design, management and operational strategies.

YOUTUBE CHANNEL: PARTNERS & IDEAS FOR HORTICULTURE / HYDROPONICS

he videos in this play list highlight some of the best companies, most interesting technologies, and ever inspiring ideas focused on commercial horticulture, greenhouse production, hydroponics, vertical farms, urban agriculture, research institutes and aquaponics.



HORT AMERICAS VIDEOS



Understanding the Light in your Horticulture Crops, Basics about lighting and plant production



Light Quality



Light Quantity



Hort Americas Green Pod



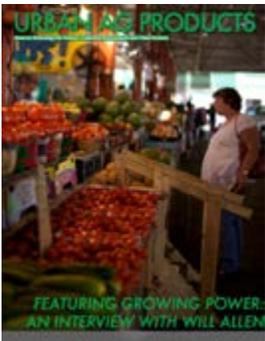
Hort Americas Vertical Growing Cart

URBAN AG NEWS EMAGAZINE AND BLOG

Urban Ag News is an educator providing content through a variety of different media. Through its educational efforts, Urban Ag News seeks to provide its users with a basic understanding of the industry and to keep them informed of the latest technologies.

Below are the 10 issues of the emagazine, click on the image to view.

[Click here to go to UrbanAgNews.com](http://UrbanAgNews.com) for more articles and information.



Issue 1



Issue 2



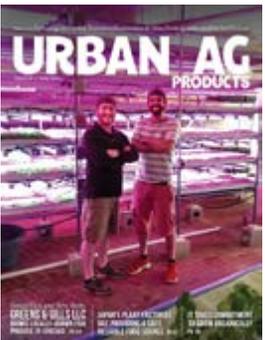
Issue 3



Issue 4



Issue 5



Issue 6



Issue 7



Issue 8



Issue 9



Issue 10



Issue 11



Issue 12



Issue 13



Issue 14



Issue 15

URBAN AG NEWS VIDEOS



Essential Plant Nutrients
101 with Dr. Don
Wilkerson
Part 1



Essential Plant Nutrients
101 with Dr. Don
Wilkerson
Part 2



Grow North Texas
How a Dallas Based
Non-Profit Plans to
Change the Way We Eat



Greener Roots Farm
First Vertical Farm in
Nashville, TN



Grown Locally:
Quality, Community
and Family



Learn more about the
local food movement from
Nashville's Jeremy Barlow
owner of Sloco

ORGANIC FERTILIZER INFORMATION

The infographic displays six stages of plant growth: PLANTATION, VEGETATIVE DEVELOPMENT, BLOOMING, FRUIT SETTING, FRUIT SIZING, and RIPENING. Below these stages, a blue banner reads 'ORGANIC FERTILIZER PROGRAMS' with a link 'CLICK HERE FOR PDF'. At the bottom, three fertilizer programs are listed: 'FRUKA' (red), 'KATON' (teal), and 'BOMBARDIER SUGAR' (orange).



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