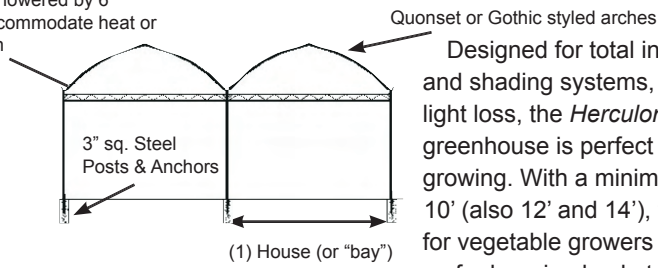


12" Steel truss lowered by 6" standard to accommodate heat or shading curtain



Herculon

Designed for total integration of heating and shading systems, as well as minimal light loss, the *Herculon* gutter-connect greenhouse is perfect for year-round growing. With a minimum gutter height of 10' (also 12' and 14'), the *Herculon* is ideal for vegetable growers (tomatoe, cucumber) or for hanging basket production (with room for under-crop production). Constructed of galvanized steel, the support posts are 3", the triangular trusses are 1" X 2", and the arches can be 1" X 2" or 1" X 3" in either the traditional Quonset style or the drip resistant Gothic style. The houses come in widths of 18', 21' or 24', and the initial greenhouse set up is a minimum of 2 houses (or bays). The gutter-connect style also makes expansion a breeze: just take down one wall, attach a new house/bay and then re-assemble the wall. With a multitude of options available, the *Herculon* is an excellent investment for your growing operation.

Herculon 18', 21' and 24' Gutter-connect greenhouses are designed for a snow load of 40 lbs./ft.² of ground weight snow. **NOTE: Must be heated when snow load is expected (according to the National Greenhouse Manufacturers Association – NGMA).**



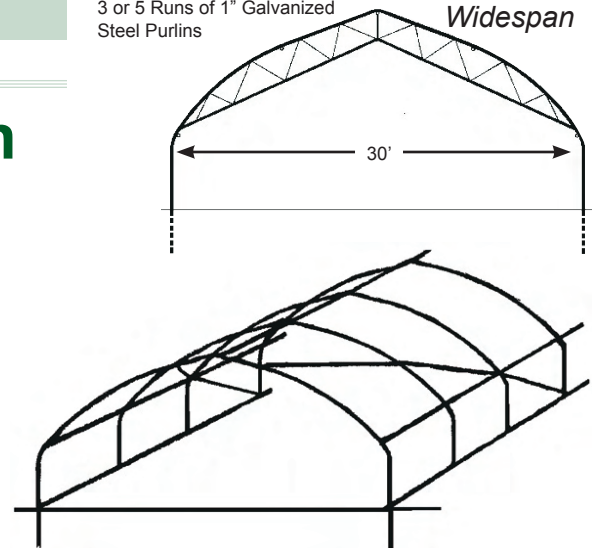
At *Professional Gardener Co. Ltd.*, we carry quality Greenhouse Structures in the *Herculon*, Freestanding / Widespan, and Cold Frame designs. Made of galvanized steel, each design comes with a variety of options so we can customize your greenhouse to your specific needs.

Freestanding / Widespan

(Right) Affordable versatility describes the *Freestanding / Widespan* model. It is available in 6 widths: 18', 21' and 24' Freestanding, and 27', 30' and 32' Widespan. Constructed of 2" round galvanized steel with 1½" square gable tubing, you have an option of 4' or 5' arch spacing (5' only on the 32' Widespan). There are 3 runs of 1" purlins for the 18' and 21' houses, and 5 runs for the larger houses. Wind bracing of 1¼" steel is included. The Widespan models come with Crop Transfer Bracing for additional strength (at 8' or 10' intervals on the 27' or 30' models, and at 5' spacing on the 32' model).

Freestanding / Widespan greenhouses are designed for a snow load of 26 lbs./sq.² of ground weight snow. **NOTE: Must be heated when snow load is expected (according to NGMA).**

3 or 5 Runs of 1" Galvanized Steel Purlins




Gothic Coldframe

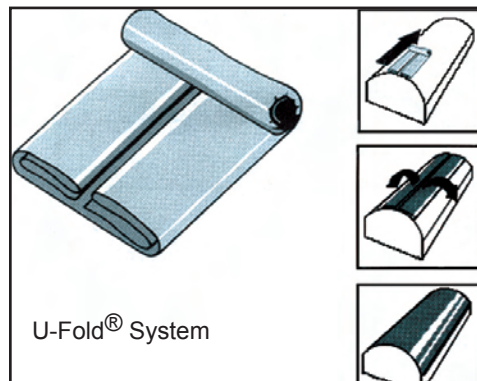
(Right) Designed for an easy 2-3 day installation, the *Gothic Coldframe* is constructed from 1½" O.D. galvanized steel tube. There are (3) runs of 1" purlins and its arches are available at 4' or 5' spacing (comprised of (2) anchor points, (2) half arches and (1) centre peak). End arches and end centre peaks are 1½" square tube for easy gable framing. Included are (8) 1" diameter pre-drilled wind braces and all required fasteners. An additional sidewall height of 3 feet may be obtained by adding an extra set of anchor posts on top of those driven into the ground. *Gothic Coldframes* are not guaranteed due to their seasonal use. **Note: Must be heated when snow load is expected (according to NGMA).**





Poly Covering

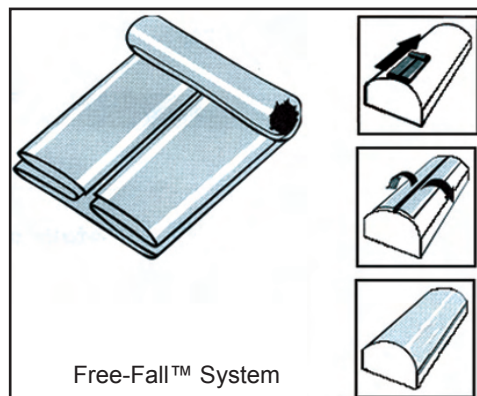
Part #	Sizes	Fold	Part #	Sizes	Fold
Dura-Film Super 4 (6 mil)			Dura-Film Super 4 (6 mil) TUBES*		
GH17110	14 X 100	4-Fold	GH18110	20 X 110	U-Fold
GH17120	16 X 100	4-Fold	GH18120	20 X 150	U-Fold
GH17140	20 X 100	4-Fold	GH18130	24 X 100	Free Fall
GH17160	24 X 100	4-Fold	GH18131	24 X 110	Free Fall
GH17180	24 X 150	4-Fold	GH18140	24 X 150	Free Fall
GH17190	28 X 100	U-Fold	*Tube Maximum Width is 24 feet		
GH17205	28 X 150	U-Fold	Flame Retardant White 6mil		
GH17210	32 X 100	U-Fold	GH18510	32 X 100	
GH17220	32 X 110	U-Fold	GH18520	40 X 100	
GH17230	32 X 150	U-Fold	Overwintering White 70% 3 mil		
GH17235	36 X 100	U-Fold	GH25111	32 X 100	U-Fold
GH17237	36 X 150	U-Fold	GH25112	40 X 100	U-Fold
GH17240	40 X 100	U-Fold	Panda (Co-Extruded)		
GH17250	40 X 110	U-Fold	Reflective Black & White Poly		
GH17270	40 X 150	U-Fold	GH26250	10 X 100	4mil
GH17290	42 X 100	Free Fall	GH26255	24 X 150	4mil
GH17300	42 X 150	Free Fall			
GH17310	48 X 100	Free Fall			
GH17320	48 X 150	Free Fall			
GH17350	50 X 100	Free Fall			
<i>By Special Order Only</i>					



U-Fold® System

Installation:

- ◆ Place centre of roll at centre-line of greenhouse and unroll.
- ◆ Unfold poly completely on both sides of the greenhouse.
- ◆ Adjust and secure.



Free-Fall™ System

Installation:

- ◆ Place centre of roll at centre-line of greenhouse and unroll.
- ◆ Unfold poly completely on both sides of the greenhouse.
- ◆ Adjust and secure.



Dura-Film® Super 4

Our most Popular Poly!!!

A 6 mil, 4-year poly with all the special features of Dura-Film® Poly Coverings.

Special options include:
Bee compatability, White opacity and Diffusion
(minimum order requirements may apply)

Poly Covering Accessories

Poly Patch, 2", 4", 6" & 10" widths, 48' length

Wirelock 24', w/5 lock wires (GH28120)

Lock Wires only @ 5' length (GH28121)

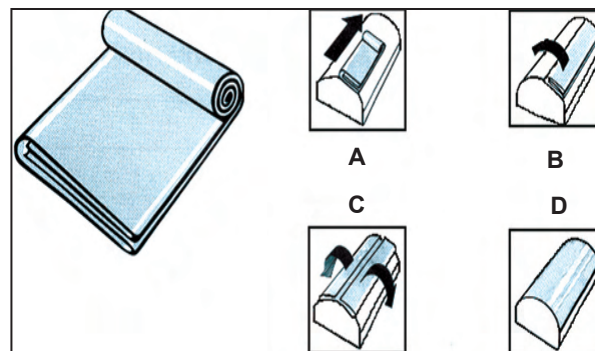
Inflation Kit Motor only, 3M777D, 8 mm Shaft (5/16") (GH29110)*

Inflation Kit Motor only, 4M093, 12mm Shaft (1/4") (GH29111) *

*** Measure the existing motor shaft carefully to ensure the proper motor with the appropriate shaft size is ordered.**

Inflation Kit, complete (GH29125)

Jumper Hose Assembly 36" (GH29140)



Installation:

- ◆ Place edge of roll at centreline of greenhouse and unroll (A).
- ◆ Unfold poly over the centreline (B).
- ◆ Unfold poly completely on both sides of the greenhouse (C).
- ◆ Adjust and secure (D).



Versatile poly, either single or double layered, shown on a seasonal Gothic Coldframe (left) and a year-round Herculon gutter-connect greenhouse (below).



Full Inflation Kit, with all components necessary to inflate double poly layers. Inflating these layers increases the insulation value and lifespan of the poly, and virtually eliminates condensation.
GH29125

(Right) Sun Clear is an anti-condensate liquid, sprayed to the interior layer of your greenhouse covering, to prevent potentially damaging condensation. When applying, the greenhouse MUST be empty and surfaces MUST be dry.
1 US quart — GH52210



Poly Requirements				
Greenhouse Style	Width	Roof Poly	Gutter Height	Side Poly
Herculon	18'	20'	10'	20'
	21'	24'	12'	24'
	24'	28'	14'	28'
Freestanding / Widespan *	21'	36'		
	24'	40'		
	27'	48'		
	30'	48'		
Gothic Coldframe *	20'	32'		

* Sizes are from base to base, over the centre ridge.



Shading Compound
1 gallon — GH52150
5 gallon — GH52160

Side Roll Up System

(Below) Make cooling or ventilating your Coldframe or Freestanding Greenhouse easy and economical with the Side Roll Winch System. This labour saving device is quickly installed, and with one on each side, gives you excellent cross ventilation as well.



Greenhouse Ground Covers

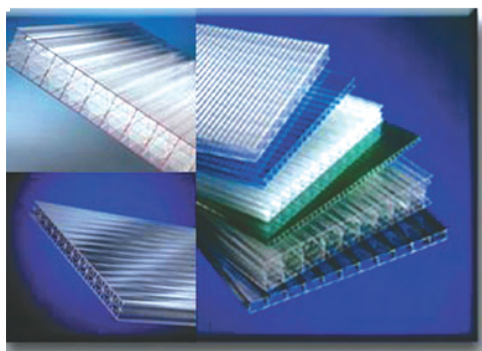
(Woven polypropylene, with Marker Lines)

GH26305	6-ft X 300-ft
GH26310	12-ft X 300-ft
GH26315	15-ft X 300-ft





(Above) A gutter-connect greenhouse covered in Lexan Twinwall Polycarbonate.



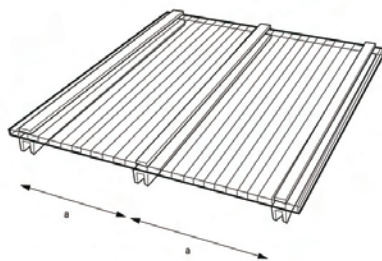
(Above) Samples of Lexan Thermoclear panels, showing the individual channels for insulation. *Professional Gardener* stocks the clear twinwall. All other colours and multiple channels are by special order only.

(Right) A schematic showing two Twinwall panels joined by aluminum HP channels.

Lexan Twinwall Polycarbonate

The toughest Greenhouse Covering under the Sun!

- **Hail resistant and virtually unbreakable:** Twinwall coverings have an impact strength 2000X over glass and 8X over acrylic. This strength remains with temperatures ranging from -40°C (-40°F) to 115°C (250°F).
- **High Insulation Properties:** Twinwall gets up to a 40% greater energy efficiency.
- **Superior Light Transmission:** Twinwall has up to a 90% better light transmission over glass, diffusing the light to avoid "hot spots". Any visible light converts to infrared light, creating a greenhouse effect.
- **Drrippguard System:** With a condensation control surface, Twinwall prevents water from dripping onto crops.
- **Flame Retardant:** Twinwall material will melt but does not catch fire and spread flames.
- **Long-Term Durability**
- **Ultra Lightweight:** Weighs less than $\frac{1}{16}$ th that of glass.
- **Easy Installation, Fabrication and Forming:** Can be cut, drilled, sawed, nailed, screwed and shaped with standard power tools. Expansion and contraction in response to temperature changes is minimal.



- Available in 4' widths, in lengths from 4' to 24', 6mm or 8mm thickness.
- Aluminum HP Channel, End Caps and U Caps stocked.
- Self-tapping Tek screws for both wood and steel.

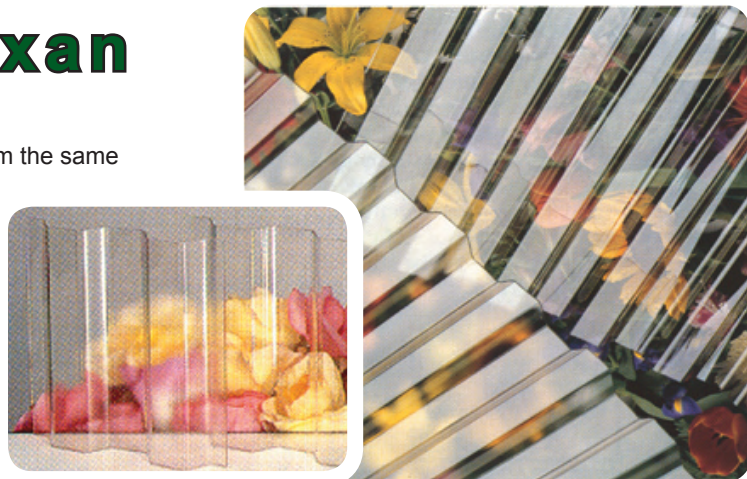
Corrugated Lexan

Perfect for lighter uses and milder climates!

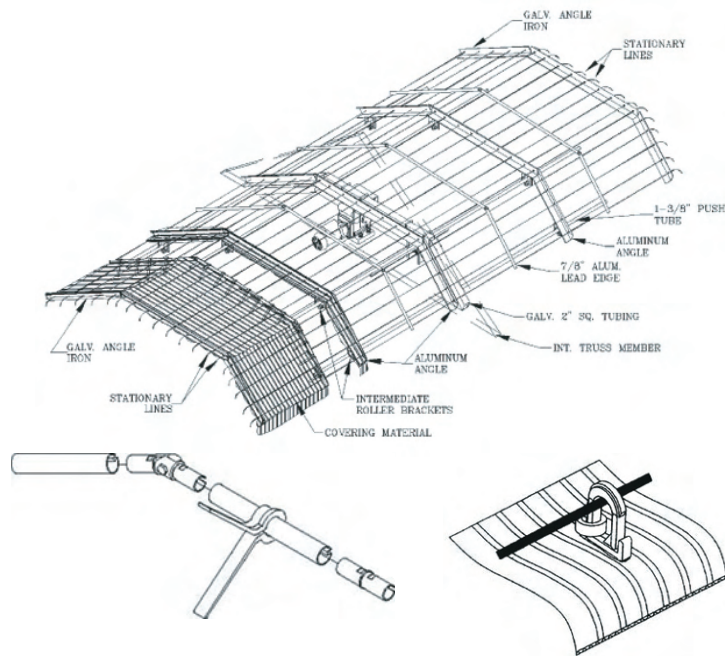
Corrugated Lexan is a single layer covering, produced from the same material as the Twinwall Polycarbonate. With a light transmission standard of 93%, Corrugated Lexan has the same long-term durability and versatility as the Twinwall. This covering can also be handled and cut using regular power tools.

Available in 51" widths, with lengths from 6' to 20'. Foam Stripping available in 36" lengths.

(Right) Vibrant colours clearly show through Corrugated Lexan panels. These panels are available in other colours *by special order only!* Minimum orders will apply.



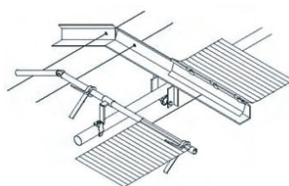
AUTOMATED SHADE / HEAT CURTAIN



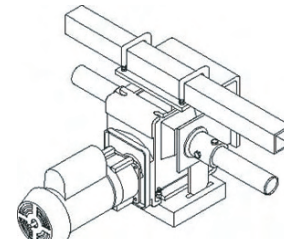
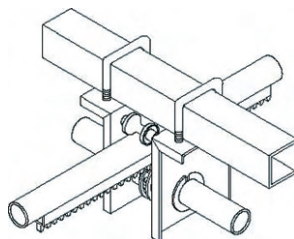
With an automated shade/heat curtain, controlling light levels and maintaining heat levels in your greenhouse is as simple as throwing the switch! You can adjust the curtain to provide the best environment for growing – improving the quality of the crop. By preventing excess heat loss in the winter, it saves on fuel bills.

Benefits:

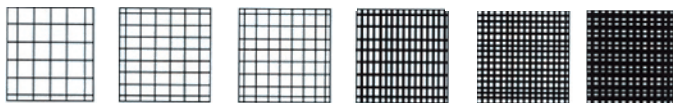
- Control temperature levels
- Maintain uniform temperatures in the winter
- Slow moving, so the occurrence of “cold / hot air dump” is reduced.
- Control Light Levels
- Reduces Labour
- Available in different roof profile designs



(Counterclockwise from above right) Fabric suspension at Gutter or Eave; Leading Edge Tubing Components; Intermediate Truss Section; Rack & Pinion Chassis Assembly; Drive Unit Assembly.



Shade Fabrics



Perfect for shading seasonal greenhouses, lathe houses or retail areas, these shade cloths can be ordered in custom sizes in addition to our stock sizes.

Features:

- Woven polypropylene fabric
- Sewn edges for stronger edges
- Grommets 2-ft on centre around the circumference
- Resists mildew and abrasion
- Resistant to most acids, alkalies and solvents

Shade Cloth / Fabroc Stock Sizes	
Shade Cloth 47% (Black) 10' X 50'	GH50120
Shade Cloth 47% (Black) 10' X 100'	GH50130
Shade Cloth 47% (Black) 12' X 20'	GH50140

Nico-Knit



Unlike the woven polypropylene shade cloth, this fabric is knitted together.

Features:

- Resists tearing, puncturing & unravelling.
- Shade range: 40%, 50%, 60%, 70%
- Custom Orders Only!



WADSWORTH

CONTROL SYSTEMS

The VC2000 Vent Control can handle 325' of 54" roof vent, and can be expanded. The VC100 (*not shown*) can lift up to 75' of 48" roof vent.



Vent Control VC100A I	GH39121
Vent Control VC100A 2R	GH39123
Vent Control VC2000 I	GH39125
Vent Control VC2000 2R	GH39127
Hydraulic Damper 24 vac	GH39170
Hyd. Damper 120 vac	GH39160



Perfect for centralizing control of all your environmental systems, the Step 500A Environmental Controller can be programmed for whatever your individual needs are, day or night. The Step 500A will operate 3 heating and 5 cooling stages.

Step 500 Wadsworth	GH39130
Step 500 Aspirator (No cable)	GH39135
Step 500 Aspirator Circuit Board	GH39140
Step 500 Outdoor Aspirator Circuit Board	GH39150
Versi-Step T&RH Aspirator	GH39129

MicroSTEP/SA Computer

The MicroSTEP/SA is a grower's second set of eyes and ears. Its flexibility and capability continually monitor numerous environmental controls . . . so you can concentrate on growing the best crop!

Features and Benefits:

- Integrated control for heating, cooling, humidity, CO₂ levels, curtain systems, irrigation and mist, air circulation and lighting.
- 8 line graphic display with 40 characters per line. Backlit for easy viewing. Menu driven program controlled by 16 button keypad.
- A total of 40 outputs and 32 inputs. Manual override switches and pilot lights for each of the 40 outputs.
- All equipment connects through replaceable DPDT relays rated for 10 amps.
- Each unit controls up to 8 simple environments. No pre-set limitations on your equipment.
- The optional weather control station allows for even better control: vent protection in wind storms, sunlight readings, rain and snow detection.
- Complete package includes one aspirated temperature and humidity sensor with 100' of aspirator cable. Light and CO₂ sensors optional. Sensor inputs mounted on terminal blocks for easy field-wiring.
- Four analog outputs to control modulating heat valves and variable speed fans.



- Power failure alarm.
- One week data retention.
- Economical and expandable.

(Above) The Optional Weather Station for Wadsworth Systems. It monitors these outdoor weather conditions:

- Temperature
- Humidity
- Wind speed & direction
- Precipitation
- Light Levels

ALSO AVAILABLE:

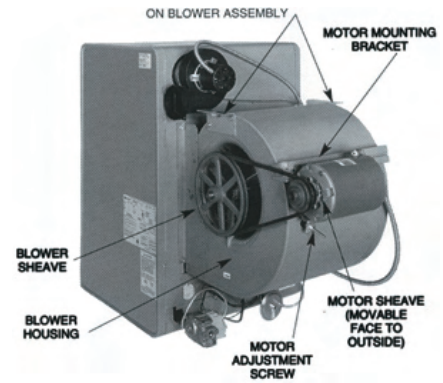
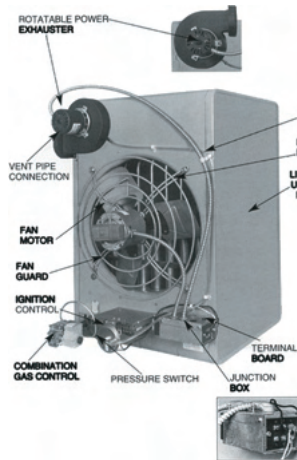
The *WeatherGuard System* takes the worry out of unexpected wind, rain and snow. It is designed to override normal operations to close vents or retract shade systems when high winds, cold weather, rain or snow might damage the greenhouse.



Modine Heaters	
BDP175A*	GH45110
BDP200A	GH45120
BDP250A	GH45130
BDP300A	GH45140
BDP350A	GH45150
BDP400A	GH45160
PDP175A*	GH45200
PDP250A	GH45210
PDP300A	GH45220
PDP350A	GH45230
PDP400A	GH45240
Heating Thermostat T822D	GH45290
Transition Assembly 24"	GH46110
Transition Assembly 18"	GH46120
* BDP = Belt Driven Power Vent PDP = Propeller Driven Power Vent	



These high efficiency natural gas heaters can be retrofitted for propane and are power vented although they may be direct vented out of the structure. A transition unit and poly tubing can be attached to the heater, allowing horizontal air movement evenly throughout the greenhouse.



Rule of Thumb:
150,000 BTUs per 1000 feet² or
150,000 BTUs per 100 metres²

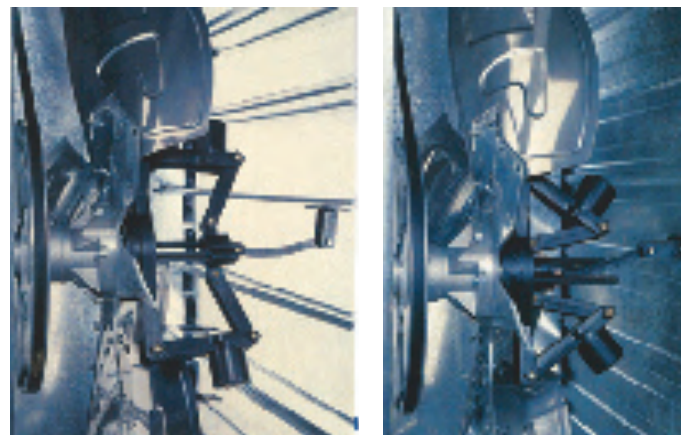


Euroemme Fans have extraordinary value and efficiency for their superior engineering and design. Featuring the exclusive Centrifugal Shutter System (CSS), the shutters remain fully open at all times when operational – *with NO back pressure!* When not in use, the shutters close tightly, preventing air leakage and heat loss. The fan blades are engineered to pull more air at a lower speed. Combined, these features make the Euroemme Fans economically better!

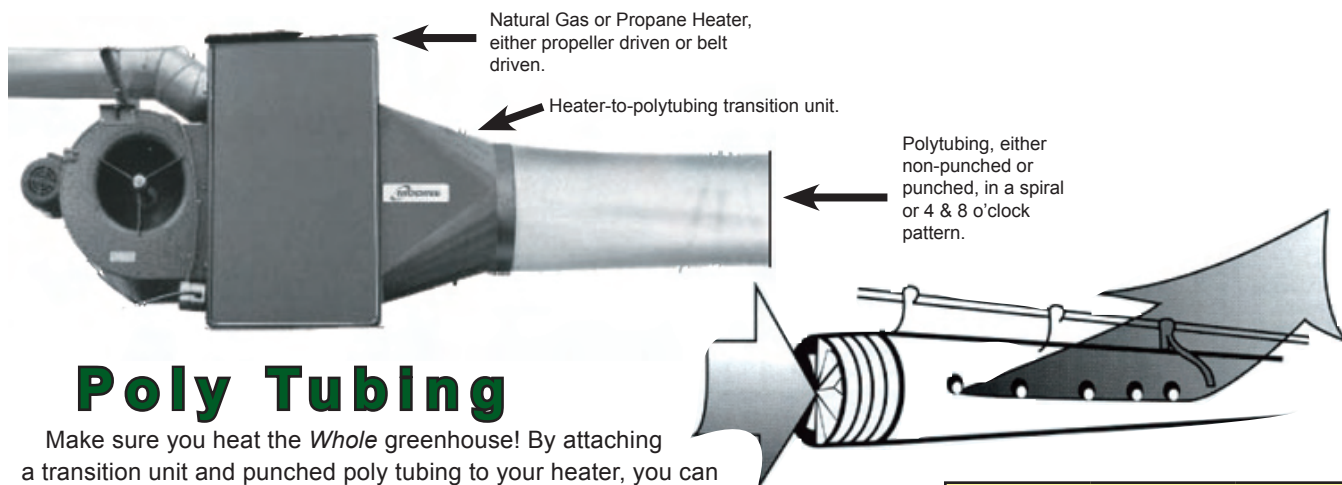
Euroemme Fans are designed for long life and minimum maintenance. A strong pulley hub in die-cast aluminum keeps propeller vibrations to a minimum. The fan belt has cogs along its entire length – little teeth that reduce the chance of slipping and provide a cooling action to the fan belt. Therefore, the fan belt wears more slowly, giving the Euroemme Fans another efficient and economical value!



Euroemme Fans	
36" Fan	GH40135
Mount Brackets 36" 2/set	GH40136
50" Fan	GH40140
Mount Brackets 50" 2/set	GH40141
Fan Hub Only (36", 48", 50")	GH40143
Centrifugal Opener (36")	GH40110
Centrifugal Opener (50")	GH40144



CSS system, with shutters fully open (above left) and with shutters closed tight (above right).



Poly Tubing

Make sure you heat the *Whole* greenhouse! By attaching a transition unit and punched poly tubing to your heater, you can deliver heat evenly throughout the greenhouse. This system also helps with air circulation as it pulls air from one end to the other.

By keeping the fan on (heat off) and placing an intake shutter behind the unit, you can have this system double its capabilities to provide first-stage cooling.

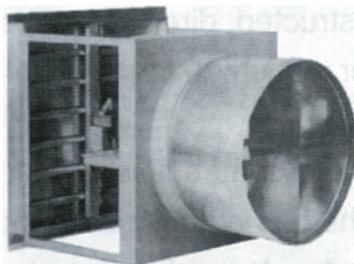
Poly Tubing is available by the foot in 4 mil thickness with diameters from 5" to 30" and either punched or non-punched.

Poly Duct Tube (Non-Punched)		
Inflated Diameter	Flat Diameter	Stock Number
8"	13"	GH43150
12"	19"	GH43110
18"	29"	GH43120
24"	38"	GH43135
30"	47"	GH43140



(Above) *Horizontal Fans*, placed strategically throughout the greenhouse, help circulate air, resulting in better heat and cooling efficiency. Air circulation also helps disease control.

(Below) *Jet Fans* are primarily used in greenhouses heated by steam, hot water or alternate fuel sources other than gas or propane. When poly tubing and intake shutters are attached, Jet Fans offer good cooling and circulation benefits.



Horizontal & Jet Fans	
Horizontal Air Fan VAR 18"	GH42191
Speed Controller H-115	GH42210
Jet Fan JF18-w/22" Shutter	GH41110
Jet Fan JF24-w/30" Shutter	GH41120
Jet Fan JF30-w/36" Shutter	GH41130

Insect Screening

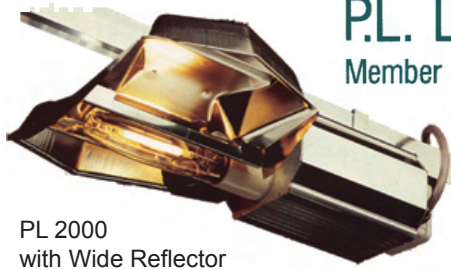
Beige in colour and tightly woven, this mesh screen is placed in front of intake or cooling fans and ventilation systems and/or openings, to prevent the access into your greenhouse of small, potentially devastating pests such as thrips, whitefly, aphids, etc. 59" width.

Sold by the linear foot
GH26500



Intake Shutters	
Shutter motorized 28"	GH42185
Shutters Air Intake 20" w/motor	GH42100
Shutter, Air Intake 48" w/2 motor pack	GH42145
Shutter, Air Intake 36" w/motor pack	GH42146
Thermostat, 4-Stage Electronic	GH39520
Thermostat Cooling 2E206	GH42170
Humidity Control H46C1000	GH42175
Motor Pack - dbl. panel	GH42150
Motor Pack - sgl. panel	GH42160
Motor Pack - sgl. Panel 24V	GH42161
Motor Pack 110vac Single	GH42165
Springs to Torque Box	GH42166

Lights	
PL2000 400W HPS Super Light	EQ35325
PL2000 / 1000HPS, w/bulb	EQ35330
Light Components	
Ballast for 400W HPS	EQ35150
Ballast for 430W HPS	EQ35155
Ballast for PL2000, 400W	EQ35160
Ballast for PL2000, 430W	EQ35161
Capacitor for fixtures, 45mf	EQ35165
Capacitor for fixtures, 48mf	EQ35166
Capacitor for fixtures, 55/56 mf, 400W 277-347v	EQ35167
Ignitor for light fixture, ½ Round	EQ35171
Ignitor for light fixture, 3 wire	EQ35170
Ignitor for light fixture, Rnd	EQ35172
Mirror Diaphragm 52CD	EQ35145
Reflector, PL2000 Medium	EQ35210



PL 2000 with Wide Reflector

Reflector, PL2000 Wide	EQ35230
Replacement Bulb 400 Watt Cermalux	EQ35130
Replacement Bulb 430 Watt Super Master Son-T	EQ35135
Replacement Bulb 1000 Watt	EQ35136

P.L. LIGHT SYSTEMS

Member of HORTILUX | SCHREDER GROUP

Summary table of plant lighting Minimum values in greenhouse*

	Lux	Foot candles
Cut Flowers		
Fresia	3760	350
Alstroemeria	4300	400
Rose	4840-6450	450-600
Cut Chrysanthemum	3760	350
Gerbera	4300	400
Lilies	3760	350
Pot Plants		
Miniature rose	6450-8600	600-800
Chrysanthemum	3760	350
Kalanchoe	3760	350
Begonia	3760	350
Cyclamen	3760	350
Orchids	4840	450
Nursery stock	4840	450
Bedding Plants	4300-4840	400-450
Plugs	4840-5900	450-550
Lettuce	4840	450
Tomatoes	11000	1000
Cucumber		

Research data available upon request
*suggested guidelines only

Lamp Wattage	Voltage	Amperage Draw	Input Wattage
150W	120/208/240/277/347/480	1.7/1.1/0.8/0.7/0.5/0.4	190W
250W	120/208/240/277/347/480	2.5/1.5/1.3/1.1/0.9/0.7	300W
400W	120/208/240/277/347/480	3.8/2.2/1.9/1.7/1.3/1.0	465W
430W	120/208/240/277/347/480	5.2/3.0/2.6/2.3/1.8/1.3	490W
600W	120/208/240/277/347/480	5.7/3.3/2.9/2.5/2.0/1.4	675W
1000W	120/208/240/277/347/480	9.5/5.5/4.8/4.2/3.3/2.3	1100W

CO ₂ System (Natural Gas)	
CO ₂ Control Package, complete	EQ50110
CO ₂ Generator	EQ50120
CO ₂ Propane Conversion kit	EQ50140



(Right) Redi-Heat Thermostat and a Heating Cable, used within a growing media or under germination trays to increase rooting and germination of seeds and cuttings.
CSA Approved.



While our CO₂ System can provide up to 1500 ppm CO₂ per generator per hour, only 1000 ppm is required to boost crop production and quality. In nature, CO₂ levels in the atmosphere are approximately 400 ppm.



Greenhouse Benches

Custom ordered benches are easily assembled, and made of galvanized steel and aluminum. Available in stationary or rolling styles, these benches increase the production square footage of growing areas.



Heating Cables	
60-ft Redi-Heat Cable	EQ15151
100-ft Redi-Heat Cable	EQ15152
140-ft Redi-Heat Cable	EQ15153
200-ft Redi-Heat Cable	EQ15154
Germination Pad 21" X 57.5"	EQ15155
Redi-Heat Thermostat Model RHT-4	EQ15150

Greenhouse & Nursery Knives (shown right fr. top to bottom)	
Pruning	PT30180
Grafting	PT30170
Budding	PT30140
Grafting	PT30155
Budding	PT30110
Florists	PT30150





H.E. Anderson
COMPANY

Anderson Injector Systems

Acid Head (A10-VCP)	WS19140
Pumphead Assembly H4-HD	WS19125
Pumphead Standard P4-HC	WS19110
Tank - Plastic Fertilizer (30 gal) w/cover	WS21120
Tank - Plastic Fertilizer (45 gal) w/cover	WS21130



(Above) Another example of an Injector Series set-up showing a Ratio:Feeder monitor attached. The Ratio:Feeder monitors EC, pH and water flow. Here, the mixing tank is shown along with pumps, injector heads and water metering valve.

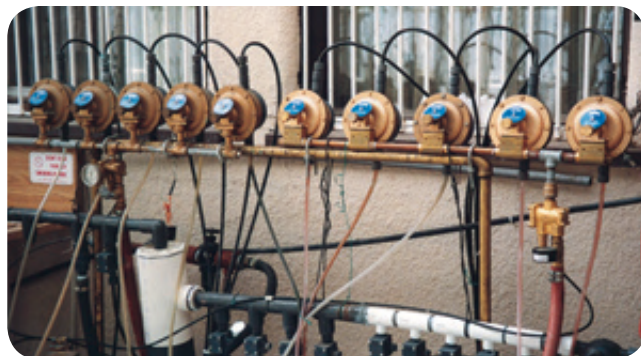
Ratio:Guard Monitors

Ratio:Guard Monitors are available for pH and EC monitoring. (ORP for chlorine/hydrogen peroxide monitoring is available by special order.) Attached to your injector system, these monitors are invaluable tools to track exactly at what levels a solution is being applied to your crop. Easy monitoring makes it simple to know when adjustments must be made.

(Right) The **Ratio:Guard EC Monitor**



(Left) The **Ratio:Guard pH Monitor**



(Above) A Series of 10 Anderson Injector Heads set up with pH and EC monitors.

By setting up series of injectors, a grower can fine tune the fertilizers and micronutrients needed for specific crops and growing stages.

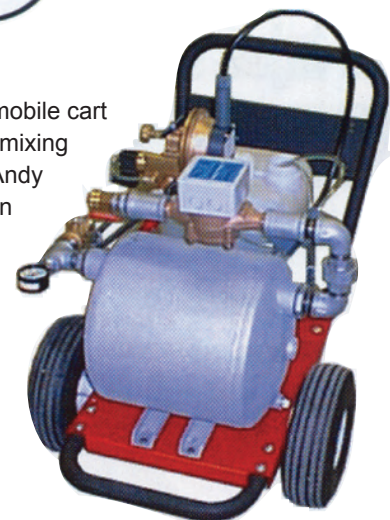
(Below) Barrel "A" injects acid into the water lines, followed by Barrels "B" & "C", which contain two different fertilizer solutions.



(Left) Perfect for the smaller grower, the **Andy Jr. Injector** provides an economical alternative to the larger, multi-head injectors. Andy Jr. will apply one or two solutions at $\frac{1}{4}$ to 20 GPM. Portable models are available.



(Right) A mobile cart fitted with mixing tank and Andy Jr. Injection head.





DOSATRON[®]
INTERNATIONAL - INC.
PRECISION TECHNOLOGY

Dosatron Injector Systems

Dosatron Injector 14 GPM D14MZ2	WS26151
Dosatron Injector 32 / 40 GPM	WS26150
Dosatron Injector 7 GPM D128R	WS26152
Dosacart, 15 Gal Tank, w/hook-up Kit <i>Does not include injector</i>	WS26155
"Li'l Bud", w/5 Gal removable fertilizer pail, w/hook-up kit <i>Does not include injector</i>	WS26156

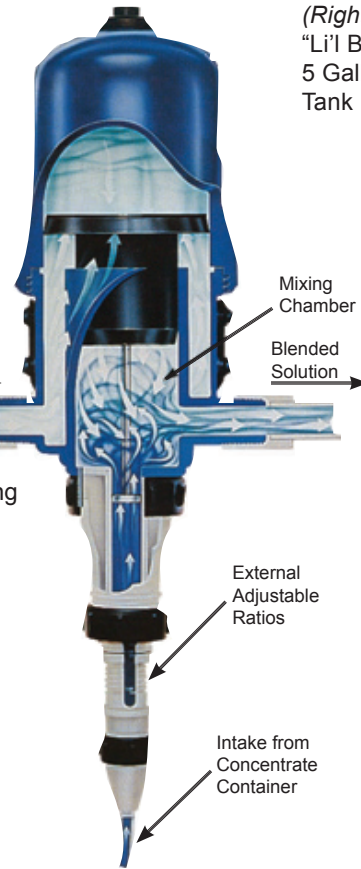
Dosatron Injectors are a highly flexible system for treatment and application of fertilizers, pesticides, acids and wetting compounds. Multiple injector heads can be set up to apply multiple solutions at the same time. These systems may be used for misting systems, drip irrigation, sprinklers, automatic systems or manual hose watering. Operates on low flow rates; however, no matter what the change in flow or pressure, the Dosatron keeps the dose of solution constant.



(Left) Dosatron 14GPM

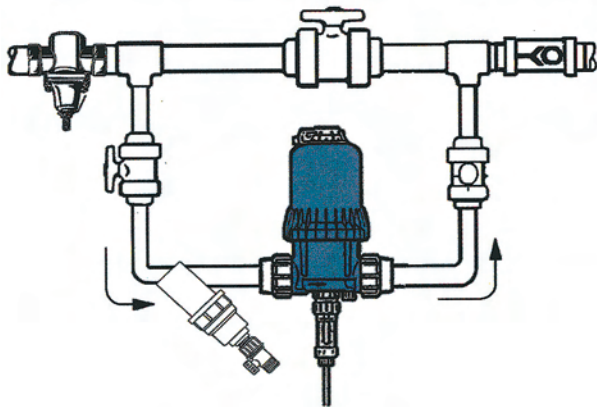


(Right) Dosacart
15 Gallon Tank



(Right) An internal schematic showing the Dosatron Injector in operation.

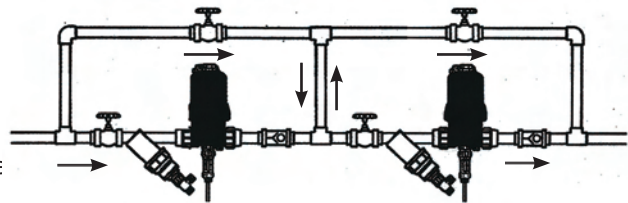
(Right)
"Li'l Bud" Dosacart with
5 Gallon Removable
Tank



(Above) Single Dosatron Injector head / pump set-up.

**Replacement
Parts
Available**

(Right) Two-Injector head set-up showing by-pass valve
This system can apply one or two solutions.



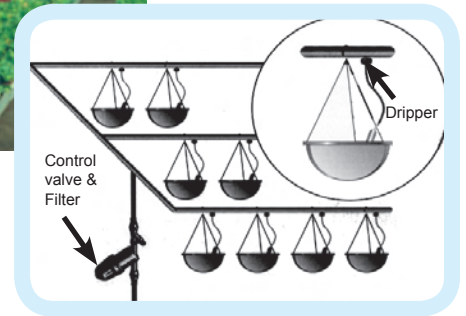
Repair Service Available for Anderson and Dosatron Injection Systems

Netafim Watering Systems

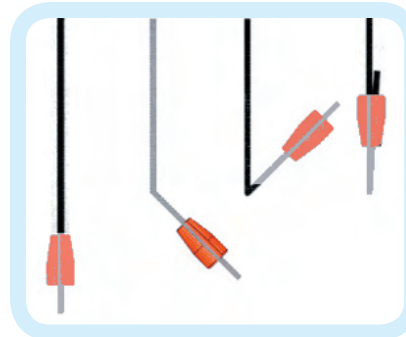
1/2" Female adapter NPT to Micronet	WS49549
Barbed Butterfly	WS49570
Connector 1/2 Ram 17	WS49335
Connector Nipple 5mm	WS49210
Dan Sprinkler (Violet)	WS49420
Drip tube 5/3mm 1000'/roll	WS49250
Drip tube 6/4mm 1000'/roll	WS49262
DripTube Feedline 0.5" 500'	WS45500
DripTube Feedline 0.75" 500'	WS45510
Dripper PC8 2 GPH	WS49153
Dripper Pot 2.0 GPH (Green)	WS49121
Dripper WP 2.0 GPH (Green)	WS49120
Dripper WP Barb 0.5GPH (Red)	WS49115
Dripper WP Thread 0.5GPH (Red)	WS49110
Goof Plug 3/7mm 10/pkg	WS49170
LPD hi p (service)	WS49507
LPD low p (service)	WS49505
Micronet Fogger 2GPH	WS49611
Micronet Fogger 4 X 2 GPM	WS49612
Micronet LPD Purple 28psi	WS49508
Micronet Vibro Mister Violet	WS49615
Micronet VibroSpray Nozzle (Black w/LPD)	WS49614
Micronet VibroSpray Nozzle (Green w/LPD)	WS49613
Pressure Regulator 9 PSI & 20 PSI	WS41181
Punch Tool 0.125" (3mm)	WS49350
Solenoid 24VAC / 60	WS35201
Solenoid Valve 0.75" - 24V	WS35200
Solenoid Valve 1" - 24V	WS35180
Water Filter 0.75" shutoff	WS35265
Water Filter 1"	WS35240
Water Filter 1.5"	WS35245
Water Filter 2"	WS35250



(Left) Tube drip system for Hanging Baskets. NetaFim Systems deliver an even application of water to a hanging basket . . . no matter where it is located on the drip line.



(Right) Hanging Basket Drip system off one Solenoid Valve.



(Left) Drip Tube with weight to show on / off position.



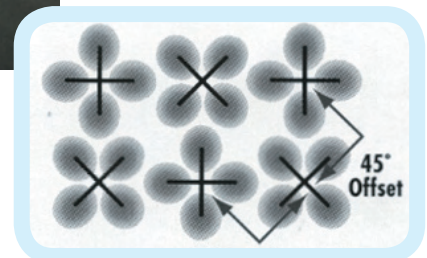
(Left) A Pot Watering system, showing the spray stake and drip tube, with Woodpecker compensating dripper. (shown below left). Great for either greenhouse or nursery pots, as well as for grow bags.



Quick Punch



(Left) Micronet Fogger, available in 2 GPM or 4x2 GPM flow. Four-way misters allow for greater crop coverage, especially when installed in a 45° Offset pattern (shown below). Great for helping germination, humidity and cooling.



Dramm Watering Systems	
#55 Thumb Valve (HD)	WS36166
#65C Shutoff Lever	WS37117
#170AL Water Breaker	WS36180
#170PL Water Breaker	WS36181
#400AL Water Breaker	WS36170
#400PL Water Breaker	WS36200
#1000PL Red Breaker	WS36195
#350AL Screen Aire Nozzle	WS36165
#510C Seedling Nozzle	WS36190
6" HandiGrip Handle	WS36123
16" HandiReach Handle	WS36125
24" HandiReach Handle	WS36130
36" HandiReach Handle	WS36140
48" HandiReach Handle	WS36150
48" Hanging Basket Handle	WS36160
Brass Ball Shut Off 0.75"	WS37110
Misty Mist Nozzle /w insert	WS38510
No Drip Riser	WS38520
Nozzle Nylon Micro - Grey 90	WS42120
Nozzle Nylon Micro - Red 180	WS42110
PinJet Nozzle 0.9 igpm (Green)	WS42150
PinJet Nozzle 1.2 igpm (Red)	WS42140
Syphonject - Brass	WS28110

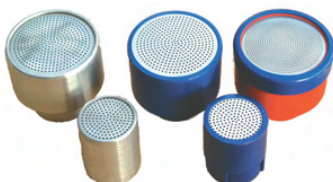


(Left)
Misty Mist
Nozzle



(Right)
No Drip
Riser

PinJet
Nozzles



Water Breakers

(Back, L-R) #400 AL, #400 PL,
#1000PL Red
(Front, L-R) #170 AL, #170PL

(Right) Syphonject — Simply attach the brass nozzle to the faucet, and the hose to the nozzle. With the siphon hose in the concentrate and the water flow at full, this little injector will deliver a solution at a 1:16 ratio.

DRAMM

(Right, fr. L-R)
HandiReach Handles:
16", 24", 36", 48" for
Hanging Baskets;
48" Regular
(Below) Brass Ball
Shut-Off



(Left) Quik Punch

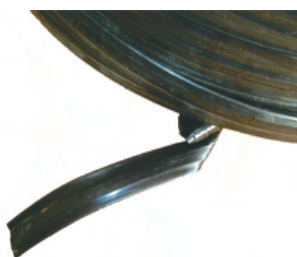
(Right)
On/Off Emitter
(Far Right)
Standard Emitter




Jain Irrigation Systems Ltd.



(Top Roll) Thin Drip Tube
(Bottom Roll) 1/2" Feeder Tube



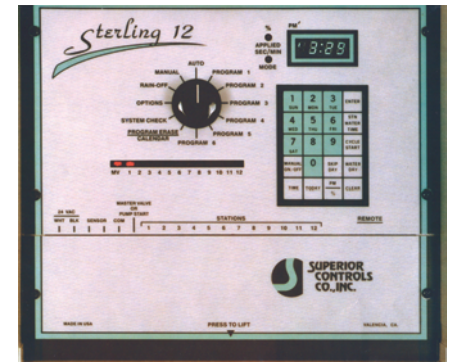
Twin-wall 10 mil tubing. Holes are spaced at 2", 4" and 12". Flexible drip line for rows or nursery containers. True Drip Flow and Turbulent Flow: clogging is reduced, so longer row lengths possible. No internal emitters to disrupt flow, resulting in greater water uniformity.

Jain Irrigation Watering Systems	
0.5 Emitter w/EOW76-24	WS45400
0.5 PC Emitter w/EOW76-36	WS45401
Hole Punch HP100	WS45340
P-Type Spray Stakes	WS45190
Quik Punch	WS45160
Trickle Stakes	WS45200
Triple Spray Stik (Blue TS-90)	WS45310
Tube EW60-24	WS45130
Tube EW60-30	WS45140
Tube EW60-36	WS45150
Tube on/off EOW60-24	WS45110
Tube on/off EOW60-30	WS45118
Tube on/off EOW60-36	WS45120
Tube on/off EOW60-48	WS45115
Tubing 0.050 (roll)	WS45180
Tubing 0.060 (roll)	WS45170
Twin-wall 2" 10mil (3000 roll)	WS45157
Twin-wall 4" 10mil (3000' roll)	WS45156
Twin-wall 12" 10mil (1000' roll)	WS45158
Twin-wall 12" 10mil (3000' roll)	WS45155
Twin-wall 12" 10mil (6000' roll)	WS45154

Sterling Water Controllers give a grower the versatility he needs for automated watering systems at an economical value! There is a controller for every size and spectrum of greenhouse operation!

- Up to 9 daily cycle starts per program, for each station.
- Each program can be set for a loop feature.
- Non-Volatile Memory: it retains the programmed information, regardless of the duration of power loss.
- Based on a 24-hour time clock, can be programmed in hours, minutes or seconds.
- Programmable watering calendar: Factory set is 7 days, but can be any length from 1 to 32 days.
- Automatic, semi-automatic, manual and timed manual operations.
- Ten-year Lithium Battery (included): keeps real time during power loss.
- Output: 24 VAC @ 40VA: up to (3) 4-watt solenoids can operate simultaneously.

Sterling Watering Controls	
4M Sterling Water Computer	WS50210
8M Sterling Watering Computer	WS50220
12M Sterling Watering Computer	WS50230
18M Sterling Watering Computer	WS50240
7 Mist Master Controller	WS50260



Fog Nozzles	
0.5 GPM SF	WS37180
1 GPM Fine	WS37190
2 GPM Low	WS37200
4 GPM Heavy	WS37210



SuperFine 0.5 GPM

Heavy Spray 4 GPM

Fog Nozzles are great for hand misters or low volume insecticide sprayers.

Can be used for misting seedlings or pesticide application.

**If you don't see what you need . . .
CALL US !!!
We'll help you find it !**

HAWS Watering Cans & Roses	
4 Quart - plastic 5L	WS55150
6 Quart (1.5 gal) - plastic 6.8L	WS55160
Oval Rose 2/3	WS55120

4 Quart Plastic Haws Watering Can shown with #4 Round Rose.
(Top) #4 Round Rose
(Bottom) Oval Rose



Indoor Watering Tanks	
Aquamatic #4 20 US Gal	WS30220
Aquamatic #6 40 US Gal	WS30225



(Below)
Made of non-marking red rubber, these 2-braid hoses come in 1/2", 3/4" and 1" diameters and can be cut to custom lengths. Shown complete with fittings.

A complete hose will contain the hose length, 2 clamps and a set of threads.



(Right) Hortec Couplings.
(L-R) 3/4" Female Tap Adapter (Inside Thread), 3/4" Hose Adapter, 3/4" Male Tap Adapter (Outside Thread)

Hoses & Adapters	
Hortec 0.75" - Female Thread	WS43116
Hortec 0.75" - Hose Adapter	WS43117
Hortec 0.75" - Male Thread	WS43115
Hortec 1" - Female Thread	WS43121
Hortec 1" - Hose Adapter	WS43122
Hortec 1" - Male Thread	WS43120
Hortec 5/8" - Hose Adapter	WS43110
Hose (Rubber) 0.5" - 2 braid	WS48120
Hose (Rubber) 0.75" 2 braid	WS48130
Hose (Rubber) 1" - 2 braid	WS48110

SENSAPHONE



Monitor your Greenhouse . . . Anytime, Anywhere! By simply dialing up the sensor, you'll be given the unit's ID# & Time, Power Condition, Battery Back-up Condition, as well as the ability to dial in a code to listen for inconsistencies, such as fans, motors, movement, etc.

In addition to automatically reporting greenhouse temperature, Model 1104 can be programmed for 3 additional conditions, and Model 1108 can be programmed to detect 7 additional environmental conditions. These can include unauthorized entry, flooding, steam pressure, humidity, smoke detectors, etc.

When a crisis occurs, these units will phone up to 4 programmed telephone numbers to alert growers to problems.

Sensaphone Systems

Sensaphone Model 400	EQ27114
Sensaphone Model 800	EQ27115
Remote Temperature Sensor, Weatherproof	EQ27116
Magnetic Reed Switch	EQ27118

Tapener Gun for Staking Vines

Max Tapener Gun -- Green	EQ30110
Blades for Tapener Guns -- 3/box	EQ30120
Staples 604E 4800/box	EQ30130
Tape Max Blue (11mm X 26m)	EQ30157
Tape Max Red (11mm X 16m)	EQ30158

Tomato & Vine Accessories

Vine Clips 24mm 2500/bag	EQ31110
Tomato Hooks Vertical 1250/cs	EQ32110
Tomato Truss Supports 1000/cs	EQ32115
J Hook Truss Support 5000/cs	EQ32116

Max Tapener Gun shown with 11mm Tape



(Below) Vertical Tomato Hook (EQ32110 – top), shown with Tomato Truss Supports (EQ32115 – centre) and Vine Clips (EQ31110 – bottom).



(Left to Right) Therm-Alarm buzzer, Therm-Alarm, 24V Transformer



Alarms

Therm-Alarm	EQ27120
Therm-Alarm Buzzer	EQ27110

Therm-Alarm can be set for max. / min. greenhouse temperature. When the unit detects the temperature has dropped or risen above the set parameters, it will sound an alarm.



(Left) Tork 8301
(Right) Tork 1101

Time Clocks

Time Clock Tork 8301	EQ51130
Time Clock Tork 1101	EQ51120
Tork 1101 Motor	EQ51125
Tripper 1101 2/pkg	EQ51110
Transformer 24 Volt	EQ52110
Transformer - 24VAC, 20VA	EQ52112

Humidity Sensors

Humidiguide 5547	EQ27160
Hygrometer Taylor T5522C	EQ26130
Hygrometer/Thermometer PG	EQ26140
Hygrometer Wicks 12/pkg	EQ26131
Water Sensor	EQ27117



(Top Left) Soil Thermometer
(Left to Right) Humidiguide, Greenhouse Thermometer, Max/Min Thermometer

Temperature Sensors

Soil Thermometer Taylor 6215C	EQ27150
Thermometer (Max/Min) TR400	EQ27140
Thermometer Greenhouse TR614	EQ27130

Save time, money, labour and expensive seed! The *E-Z Seeder* is fast, accurate, easy to use and economical.

Each seeder model is designed to fit a specific flat size and all of the plug and cell trays within that flat size. The seeds drop directly into the centre of the plug/cells, increasing the optimum growth capacity.

Interchangeable seed plates allow the grower to sow most types of seed, pelleted or raw. The plates are all aluminum, treated for durability, static free, lightweight and designed not to rust.



(Above) *E-Z Seeder & Different Seed Plates*

PLUG POPPER

No more broken stems or damaged roots! The *Antal/Cayson Plug Popper* easily pops the plugs from the tray in a matter of seconds. And tray size doesn't matter – exchange the insert and you're ready for any tray!



Operated by a simple foot-pedal, there are no cords, hoses or motors to maintain. This quality plug popper has a durable powder-coat finish, adjustable stroke limiter and 4" easy-roll wheels to move it where it's needed most!



(Left) *Seedmaster Vibraseeder*

E-Z SEEDER

EZE Seeder Seed Plates

Seed Plate Hole Size	Crop
2	Chinese Lantern, Dianthus, Scabiosa, Watermelon
3	Arabis, Armeria, Blue Fescue, Celery, Cerastrum, Coleus, Dusty Miller, Fountain Grass, Gallardia, Godetia, Potatoes, Rudbeckia, Snapdragon, Stalice, Strawflower, Sweet Marjoram, Thyme, Wallflower
4	Alyssum (p/u 3-4 single), Anthemis, Arabis, Asters, Begonia (pelleted), Bellis, Campanula, Carnation, Celosia, Columbine, Dianthus, Ground Cherry, Hemlock, Impatiens, Lobelia (pelleted), Pansy, Phlox, Pyrethrum, sm. Tomatoes, Verbena, Viola
7	Ageratum, Azalea, Campanula, Clethra alnifolia, Eucalyptus, Foxglove (Digitalis), Nicotiana, Oregano, Pampus Grass, Pieris, Petunia, Portulaca, Tobacco, Veronica
9	Amaranthus, Anise, Basil, Candytuft, Caraway, Chinese Cabbage, Dianthus, Iberis sempervirens, Lettuce, Parsley, Sweet Fennel
10	Bachelor Buttons, Browallia, Heliopsis, Lettuce, Rosemary, Shasta Daisy, Stalice,
13	Celery, Chrysanthemum, Dahlia, Dianthus, Gloriosa Daisy, Gypsophila, Hollyhocks, Impatiens, Rudbeckia, Salpiglossis, Shasta Daisy, Sweet William, Viola, Zoysia Grass
15	Gloxinia, Lisianthus, Lobelia (cluster)
16	Aconitum, Arborcolia, Armeria, Bells of Ireland, Broccoli, Brussel Sprouts, Cabbage, Calendula, Cauliflower, Centaurea, Cissus, Cleome, Coreopsis, Cosmos, Cyclamen, Dahlia, Delphinium, Ice Plant, Dracaena, Eggplant, Forget-Me-Not, Geranium, Gerbera, Gomphrena, Hypoestes, Kale, Kochia, Kohlrabi, Leek, Lilac, Linaria, Oneothera, Onion, Ornamental Pepper, Petunias (pelleted), Primula, Ranunculus, Rudbeckia, Sage, Salvia, Scabiosa, Schefflera, Solanum, Stock, Tomatoes, Tree Tomato, Vinca, White Spruce, Zinnia

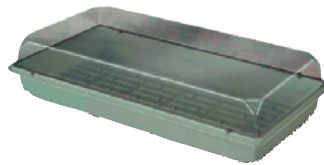
**GET YOUR PLANTS OFF TO THE RIGHT START!!!
DON'T FORGET . . .**



Ready Mix is a specially formulated growing media for seedlings. And *Tune Up Starter* formula adds that extra boost young seedlings and plugs need.



Clear Cover Dome



20 Row Seedling Tray

Hexagonal Plug Tray

105	Cells 7 X 15	100/case	CT40109
-----	--------------	----------	---------

Nova Plug Flats

#72	Cells 6 X 12	100/case	CT40200
#84	Cells 7 X 12	100/case	CT40210
#288	Cells 12 X 24	75/case	CT40135
#512	Cells 16 X 32	100/case	CT40162

Square Plug Trays

#50	Cells 5 X 10	100/case	CT40190
#72	Cells 6 X 12	100/case	CT40180
#98	Cells 7 X 14	100/case	CT41110
#128	Cells 8 X 16	100/case	CT40110
#162	Cells 9 X 18	100/case	CT40170
#162 Deep	Cells 9 x 18	100/case	CT40171
#200	Cells 9 X 18	50/case	CT40120
#288S	Cells 12 X 24	100/case	CT40130
#288 Deep	Cells 12 X 24	100/case	CT40132
#392	Cells 14 X 28	100/case	CT40140
#406	Cells 14 X 29	100/case	CT40150
#512	Cells 16 X 32	100/case	CT40160
#512 Deep	Cells 16 X 32	100/case	CT40164

Pro-Tray Inserts – Round Cells, Solid Sheet

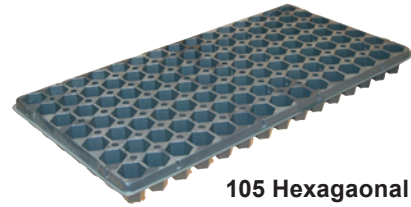
#24 Pro Tray -- Staggered Cells		100/case	CT41114
#38 Pro Tray -- Staggered Cells		100/case	CT41130
#50 Pro Tray		100/case	CT41140
#72 Pro Tray		100/case	CT41150
#98 Pro Tray		100/case	CT41160
#162 Pro Tray		100/case	CT41120

Special Propagation Trays

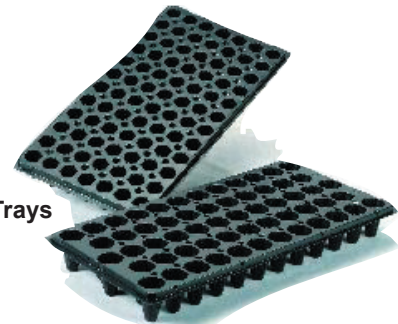
20 Row Seedling Flat		50/case	CT10320
Germination Tray –1" Deep		100/case	CT16180
Clear Cover Dome		100/case	CT10315

Star Deep Propagation Trays

38 Star Deep		50/case	CT40195
50 Star Deep		50/case	CT40196
72 Star Deep		50/case	CT40197

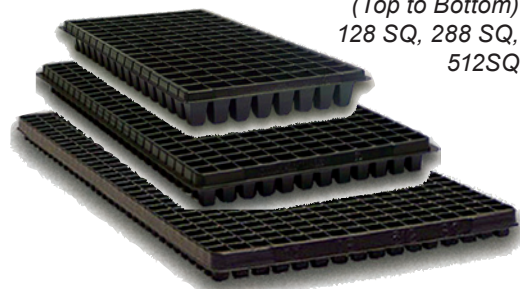


105 Hexagonal Tray

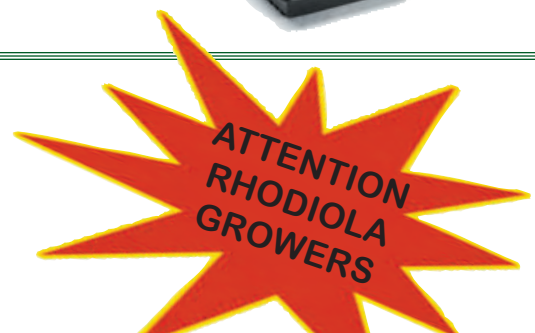


Nova Plug Trays

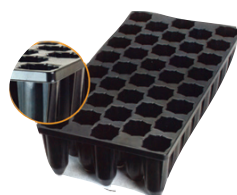
Square Plug Trays
(Top to Bottom)
128 SQ, 288 SQ,
512SQ

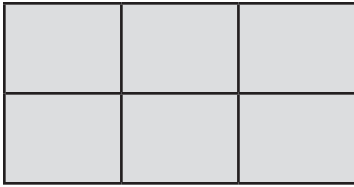


Pro-Trays

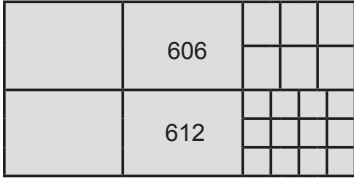


**–NOW AVAILABLE–
50 Cell & 72 Cell Star Deep Trays
Less Transplanting!
Strong & Deep Root Systems!**





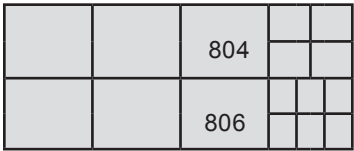
601 Traditional 100/case *CT10230*



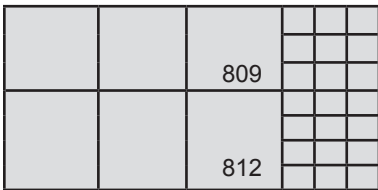
606 Trad. 100/case *CT10240*
 606 Deep 100/case *CT10245*
 606 True Deep 100/case *CT10510*
 612 Trad. 100/case *CT10250*



801 Traditional 100/case *CT10260*

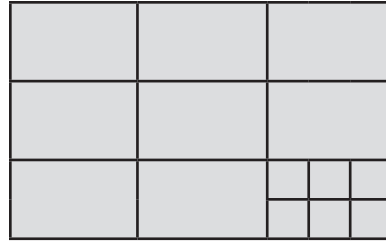


804 Traditional 100/case *CT10270*
 806 Traditional 100/case *CT10280*

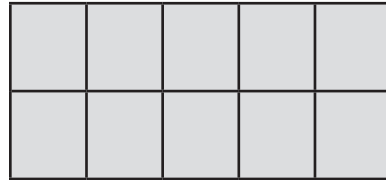


809 Traditional 100/case *CT10290*
 812 Traditional 100/case *CT10300*

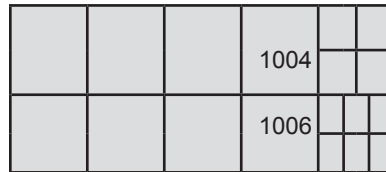
These diagrams represent the following ITML Inserts: Traditional, Traditional Deep (Jumbo), Traditional Semi-Series (Mid), True Series and True Series Deep. The Narrow Series is also available – contact our Sales Department.



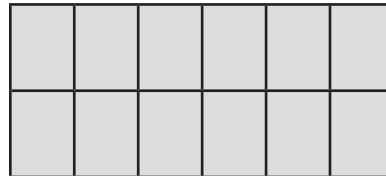
906 True Deep 100/case *CT10520*



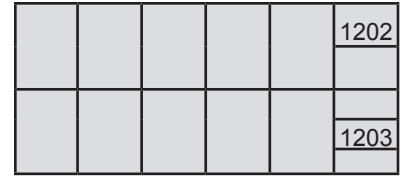
1001 Traditional 100/case *CT10130*



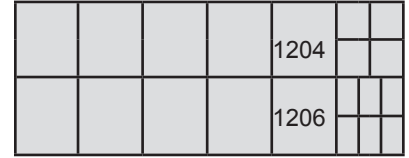
1004 Traditional 100/case *CT10140*
 1006 Traditional 100/case *CT10150*



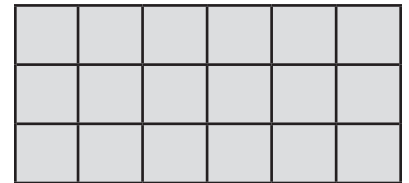
1201 Traditional 100/case *CT10160*
 1201 True 100/case *CT10530*



1202 Traditional 100/case *CT10161*
 1203 Traditional 100/case *CT10162*



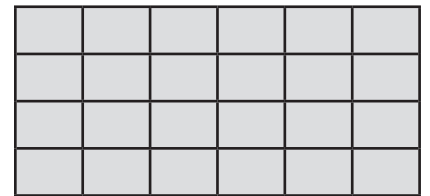
1204 Trad 100/case *CT10165*
 1204 Semi-Series 100/case *CT10166*
 1204 True 100/case *CT10540*
 1206 Traditional 100/case *CT10180*
 1206 Semi Series 100/case *CT10185*
 1206 True 100/case *CT10550*



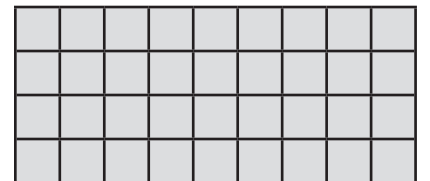
1801 Traditional 100/case *CT10190*
 1801 True Deep 100/case *CT10560*



1802 Traditional 100/case *CT10191*
 1803 Traditional 100/case *CT10192*
 1804 Traditional 100/case *CT10194*
 1804 True 100/case *CT10570*



2401 Traditional 100/case *CT10210*



3601 Traditional 100/case *CT10220*

Inserts Sizes: Outside Width X Length X Height

Traditional Inserts: 10.5" X 21" X 2.25"
 Traditional Semi Series (Mid): 10.5" X 21" X 2.25"
 Traditional Deep (Jumbo) Inserts: 10.5" X 21" X 3.25"
 True Series: 10" X 20" X 2.75"
 True Series Deep: 10" X 20" X 3.75"

Daisy Trays			
1020 True Daisy (Injection Molded)	11" X 21½" X 2½"	50/case	CT12110
1020 Web Daisy – Open Side	10¾" X 21" X 2¾"	50/case	CT16162
Open Trays (Vacuum Moulded)			
1020 w/holes	11" X 21½" X 2½"	100/case	CT15145
1020 w/no holes	11" X 21½" X 2½"	50/case	CT15152
1020 w/no holes	11" X 21½" X 2½"	100/case	CT15153
Heavy Trays (Injection Molded)			
1020 Heavy Solid Side	10⅞" X 21¼" X 2⅝"	50/case	CT16166
Centre-Ribbed (Vacuum Moulded)			
1020 Rib Tray	11" X 21½" X 2½"	100/case	CT15130



Narrow Series Trays are Available
Contact our Sales Department



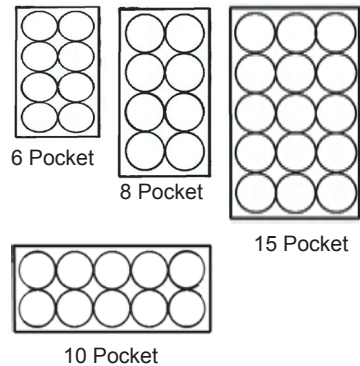
(Left) Traditional Insert Trays

(Below)
Pro-Tote Carry Trays for Round Pots



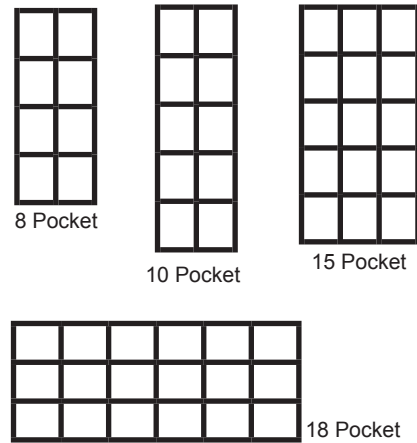
(Left) Kord Square Pocket Tray

Pro-Tote



Pro-Tote Pocket Trays				
6 Pocket Tray	1 Gallon	19" X 13"	50/case	CT16530
6 Pocket Tray	6.0" AZ	18" X 12"	50/case	CT16500
6 Pocket Tray	6.5" Round	19½" X 13"	50/case	CT16490
8 Pocket Tray	5.0" AZ	20" X 10"	50/case	CT16520
8 Pocket Tray	5.0" Regal Std.	20" X 10"	50/case	CT16525
10 Pocket Tray	4.0" AZ & Std.	20" X 8"	50/case	CT16505
10 Pocket Tray	4.5" AZ & Std.	23¼" X 9½"	50/case	CT16507
15 Pocket Tray	4.0" AZ & Std.	20" X 12"	50/case	CT16510
15 Pocket Tray	4.5" AZ & Std.	22¾" X 13¾"	50/case	CT16512

Kord Square Pocket Tray



Kord Traditional Square Pocket Tray				
8 Pocket Tray	5.5"	21¼" X 11" X 2½"	50/case	CT16140
10 Pocket Tray	4.5"	21⅞" X 8½" X 2"	50/case	CT18142
15 Pocket Tray	4.0"	20¼" X 12¼" X 2"	50/case	CT18140
15 Pocket Tray	4.5"	21¼" X 12¾" X 2"	50/case	CT18145
18 Pocket Tray	3.5"	20½" X 10½" X 2¼"	50/case	CT18110



(Left) Elite/Ultra Azalea



(Right) Elite/Ultra Standard



(Left) Regal Azalea



(Right) Regal Standard



(Left) Traditional Azalea



Traditional Standard

Pan Containers		
6" Pan K Traditional	450/case	CT26125
7" Pans	250/case	CT26135
8" Pans	250/case	CT26142
10" Pans	100/case	CT26110



Pans

Elite/Ultra AZE		
4"	1000/case	CT25113
4.5"	1000/case	CT25115
5"	750/case	CT25166
6"	500/case	CT25175
6.5"	450/case	CT25185
7"	250/case	CT25195
7.5"	200/case	CT25200
8"	270/case	CT25215
8.5"	100/case	CT25219
10"	100/case	CT25145
Elite/Ultra Standard		
4" Thin-Walled	1550/case	CT25261
4.5" Standard	1000/case	CT25273
Regal AZE		
6"	500/case	CT25175
6.5"	450/case	CT25185
Regal Standard		
4"	1320/case	CT25260
4.5"	1000/case	CT25272
5" Green	500/case	CT25275
5" Terra Cotta	500/case	CT25276
6" Green	420/case	CT25292
Traditional Kord AZE		
12"	20/case	CT25150
Traditional Kord Standard		
3" Standard	1000/case	CT25240
3.5"	400/case	CT25255

IMPORTANT !
 If you require pots in specific colours, Please contact *Professional Gardener* for a special quote. These special colours require a minimum order as well as an additional charge from the manufacturer.

Kordlok			
3.5"	Green	504/case	CT29930
3.5"	Black	504/case	CT29931
3.5"	Clay	504/case	CT29932
4"	Green	510/case	CT29940
4.5"	Green	510/case	CT29920
4.5"	Black	510/case	CT29921
4.5"	Clay	510/case	CT29922
5.5"	Green	200/case	CT29910
5.5"	Clay	200/case	CT29912
5.5"	Black	200/case	CT29917



Kordlok System

Kord Lite			
3.5"	Black	800/case	CT30130
3.5"	Terra Cotta	800/case	CT30131
3.5"	Green	800/case	CT30132
4"	Green	660/case	CT30134
4"	Black	660/case	CT30135
4.5"	Black	660/case	CT30136

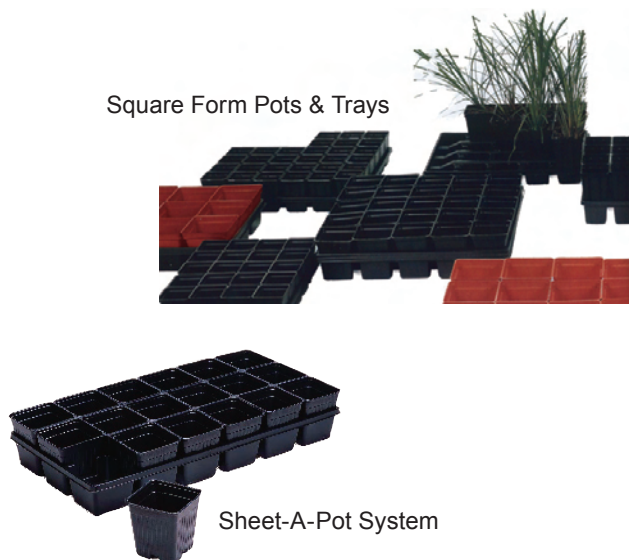


Kord Lite System

Traditional & Jumbo Square Pots

Kord Traditional & Jumbo Square Pots			
2.5" Traditional	Green	992/case	CT30139
3" Traditional	Green	504/case	CT30142
3.5" Traditional	Green	504/case	CT30144
4" Traditional	Green	816/case	CT30163
4.5" Traditional	Green	510/case	CT30182
3.5" Jumbo	Black	504/case	CT29929
5.5" Jumbo	Terra Cotta	200/case	CT30197
5.5" Jumbo	Black	200/case	CT30198
5.5" Jumbo	Green	200/case	CT30199

Square Form Pots & Trays



Sheet-A-Pot System

TLC Square Form Pots			
2.5"	P64	800/case	CT30502
	3225 Carrying Tray (Use w/P64)	50/case	CT30504
3.5"	P86	1500/case	CT30505
4.5"	P107D Deep	495/case	CT30525

Kord Sheet-A-Pot System & TLC Web Pots			
2.5"	P32D Web Pot	3200 pots/case	CT30330
3.5"	P18 Web Pot	990 pots/case	CT30231
3.5"	INP1835 Sheet Pot	1800 pot/cs	CT30234
4"	INP1540 Sheet Pot	750 pots/case	CT31000
4.5"	P10 Sheet Pot	1000 pots/case	CT30999

See Page 21 for information on Carry Trays

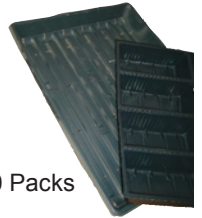
Press-Fill System



The Press Fill System for SVDs and SVTs saves time and labour preparing flats for soil and planting.



B10 Packs
100/case
CT10110



F1721 Flats
For use with B10 Packs
CT15160



SVD & SVT Pots



The depth difference between an SVT 4 1/2" on the left, and an SVD 4 1/2" on the right.

Square Vacuum Pots — Deep (SVD) & Traditional (SVT)				
2.5" SVD	Black	2 1/2" top / 1 5/8" bottom / 3 1/2" deep	800/case	CT30140
3.5" SVD	Black	3 1/2" top / 2 1/2" bottom / 3 1/2" deep	450/case	CT30149
3.5" SVD	Terra Cotta	3 1/2" top / 2 1/2" bottom / 3 1/2" deep	450/case	CT30154
4" SVT		3 3/4" top / 1 15/16" bottom / 3 1/4" deep	500/case	CT30170
4.5" SVD		4 1/8" top / 3 3/8" bottom / 5" deep	500/case	CT30190
4.5" SVT		4 1/8" top / 3 3/8" bottom / 3 3/4" deep	510/case	CT30195

SVD & SVT Carrying Trays			
2.5"	SVD32	100/case	CT16100
3.5"	SVD18	100/case	CT16110
4"	S20	50/case	CT16120
4.5"	S15	50/case	CT16130
4.5"	S10	100/case	CT16132

(Right) SVT & SVD trays. SVD32 on top, SVD18 in the middle, and an S15 on the bottom.



Basket Pack 635
w/Handles
300/case
CT17110

Market Mate 6
w/Handles
100/case
CT17115



Belden Hanging Baskets – Saucerless			
14"	Green	25/case	CT34994
14"	Terra Cotta	25/case	CT34996
14"	White	25/case	CT34992



The Belden Hanging Basket is among the largest solid container hanging baskets you can get. An inside saucer / watering reservoir makes watering easier with less chance of dripping onto plants underneath.

Kord FiberGrow Hanging Pots				
10"	MHB 1006G Grommets (c/w wire)	10" X 6"	each	CT46210
10"	MHB1006 Basket	10"X 6"	30/case	CT46102
10"	MHB1006A Hoop/Hanger	19" Long	30/case	CT46104
12"	MHB 1207G Grommets (c/w wire)	12" X 7"	each	CT46220
12"	MHB1207 Basket	12" X 7"	30/case	CT46112
12"	MHB1207A Hoop/Hanger	19" Long	30/case	CT46114
14"	1409 MHB Basket	14" X 9"	12/case	CT46122
14"	1409A Wire Cage/Hanger	22" Long	12/case	CT46124
16"	1610 MHB Basket	16" X 10"	12/case	CT46132
16"	1610A Wire Cage/Hanger	24" Long	12/case	CT46134

Pots and Wire Cage/Hanger assembly sold separately.



(Above)
FibreGrow
Hanging Pots



WaxTough Pots and Hanging Baskets are available by special order.

(Below) FibreGrow Pots and Pans



FibreGrow Pots			
5" AZ Pots		250/case	CT44505

(Right) FibreGrow
Square Pots
(Below) FibreGrow
Rectangle Pots



FiberGrow Garden Packs and Patio Pots			
4.5" Garden Pack KF801	8 pots/pack	each	CT44110
Hexagonal Planter HX1210	12"	each	CT44210
Saucer for Hex. Planter	12"	24/case	CT44414
Rectangle Planter	16" X 6"	24/case	CT44415
Rectangle Pot (Window Box)	24" X 6"	12/case	CT44410
Rectangle Saucer	16" X 6"	24/case	CT44416
Round Shallow Planter	15" X 6"	25/case	CT44413
Round Shallow Planter	18" X 8"	20/case	CT44417



(Above) FibreGrow
Round Patio Pots
(Left) FibreGrow
Garden Packs



(Left)
Traditional Hanging Pot Saucerless



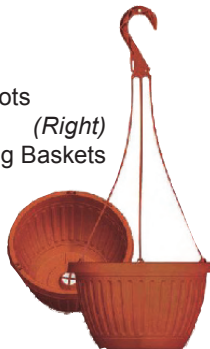
(Right)
Kord Hanging Basket



(Left)
Elite Hanging Basket
(Right)
Swirl Hanging Basket



(Left)
Panterra Hanging Pots



(Right)
Centabella Hanging Baskets



DecoStone Hanging Pots

12"	Taupe	50/case	CT34950
12"	Sandstone	50/case	CT34951
12"	Clay	50/case	CT34952

(Left) DecoStone Hanging Baskets
in Clay and Taupe

Flower Pouch
10/hole, 25/bundle
CT33110



Hanging Basket Accessories	
S Hooks - 18"	CT35310
Dramm Hanging Pot Remover	CT35410

Traditional Hanging Pots HTS Series

10"	White	50/case	CT35126
10"	Green	50/case	CT35127
12"	Green	50/case	CT35080
12"	White	50/case	CT35090

Kord Hanging Basket HNI Series

8"	Green	50/case	CT35180
8"	White	50/case	CT35185
10"	Green	50/case	CT35144
10"	White	50/case	CT35145
12"	Green	50/case	CT35100
12"	White	50/case	CT35101

Elite Hanging Baskets HEI Series

6"	Green	250/case	CT35161
6"	White	250/case	CT35162
8"	Green	100/case	CT35195
8"	White	100/case	CT35190
10"	Green	100/case	CT35125
10"	White	100/case	CT35120

Swirl Hanging Baskets HSI Series

8"	Green	100/case	CT35169
8"	White	100/case	CT35168
10"	Green	100/case	CT35130
10"	White	100/case	CT35128
12"	Green	50/case	CT35103
12"	White	50/case	CT35102

Panterra Hanging Pots HPI Series

10"	Clay	100/case	CT34942
10"	Granite	100/case	CT34940
12"	Clay	50/case	CT34910
12"	Granite	50/case	CT34915

Centabella Hanging Baskets CBH Series

10	Clay	100/case	CT34943
12"	Clay	50/case	CT34916
12"	Granite	50/case	CT34917
12	Sandstone	50/case	CT34918

Wire Hangers

3 Strand	Wire	19"		CT35205
4 Strand	Wire	22"/24"		CT35206
4 Strand	Wire EYE	24"		CT35207

Plastic Hangers

3 Strand	Long Snap Hanger	22"	Clay	CT35214
3 Strand	Long Snap Hanger	22"	Green	CT35212
3 Strand	Long Snap Hanger	22"	White	CT35213
4 Strand	Long Snap Hanger	18.5"	Clay	CT35225
4 Strand	Long Snap Hanger	22"	Green	CT35222
4 Strand	Long Snap Hanger	18"	White	CT35223



(Left) Panterra Pots and Saucers
 Pots are available in 8", 10", 12" and 14", in clay. Other colours available *by special order* are granite and green. Saucers are available in a 6.5" shallow, snap on in clay, as well as 10", 12" and 14" deep, clip on in clay.



(Right) Royal Pots Available in 6", clay-coloured, 300/case.



(Left) Panterra Bowls
 Available in 6.5", 8", 10", 12" and 14" sizes, in clay. Granite and green available *by special order*.

(Right) Panterra Oval Planters and Saucers
 Oval planters are available in 12", 16" and 20", in clay, Granite and green available *by special order*. Saucers are deep, clip on style, in the same sizes.



(Left) Centabella Urns
 Urns are available in 10.5", 12.5", 15.5" and 19" in clay or sandstone.

(Right) DecoStone Planters and Window Boxes
 Planters are available in 11.5", 13.5" and 16", while Window Boxes are available in 21". Colours are Taupe, Sandstone and Clay. Plant Supports are available for the planters *by special order only*.



Listo™

Listo's Terra Roma and Mojave design lines come in 4 Colours: Green, White, Terra Cotta, and Black. Each design line includes:

- Bowls: 12" and 14"
- Urn Planters: **TR** 15.5" and 19"; **Mojave** 13.5", 16", 18.5" and 22"
- Square planters: 10.5", 12" and 15"
- Window Boxes: 24" and 30"



(Left) The fluted sides of the **Terra Roma** design in bowls

(Right) The simple, classic look of the **Mojave** design in window boxes



(Left) **Terra Roma** Square Planters



(Right) **Mojave** Urn Planters



(Below) The wonderful texture of the **Rattanya Vintage Urn Planter**. Available in 16.25" diameter, in Terra Cotta or Black



Basic Black is Back!!!

Always Stylish . . .

Always Elegant . . .

Always Trendy . . .



A
16½" - CT37900

- A) Rattanya Vintage
- B) Classic Renaissance Urn
- C) Antique Kettle
- D) Terra Roma Window Box
- E) Grecian Urn (12", 18")
- F) I. Terra Roma Square Planter
II. Mojave Round Planter
III. Terra Roma Planter



B
14" - CT37940
19" - CT37934

12½" - CT37409
15½" - CT37410 (pallet)
19" - CT37421

↓ (III)



C
12" - CT37922
15" - CT37923



F
(I) 10½" - CT37350
12" - CT37370
15" - CT37405

(II)

↑
11½" - Special Order
13½" - CT37424
16" - CT37425
18½" - CT37426
22" - CT37427



D
24" - Special Order • 30" - CT37727



E
12" - CT37946
18" - CT37942

Wire Hanging Baskets and Planters

14"	Hanging Basket Light w/eye hanger	CT34110
16"	Hanging Basket Light w/eye hanger	CT34120
10"	Planter flat w/chain	CT36480
12"	Planter flat w/chain	CT36490
14"	Planter flat w/chain	CT36498
16"	Planter flat w/chain	CT36500
18"	Planter flat w/chain	CT36510
20"	Planter flat w/chain	CT36520
24"	Planter flat w/chain	CT36530
28"	Wire Planter flat w/chain	CT36540
18"	Wall planter	CT36610

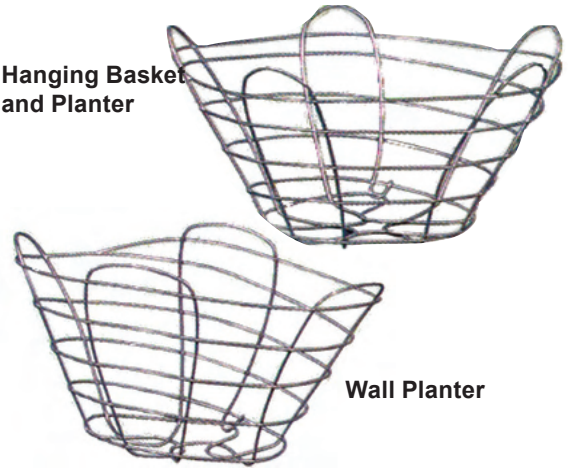
Wire Basket and Planter Liners

10"	Cocoliner - flat		
12"	Cocoliner - flat		CT36495
14"	Cocoliner - flat		CT36499
16"	Cocoliner - flat		CT36501
18"	Cocoliner - flat		CT36512
20"	Cocoliner - flat		CT36522
24"	Cocoliner - flat		CT36532
28"	Cocoliner - flat		CT36541
18"	Cocoliner – Wall Planter		CT36620
16"	Moss Mat Liner		CT36630
18"	Moss Mat Liner		CT36632
18"	Moss Liners – Wall Planter		CT36625
16"	Burlap Plastiliner		CT36642
18"	Burlap Plastiliner		CT36645
	Moisture Mat	5' x 10'	CT36647
	Cocoliner Bulk	10' x 6.5'	CT36650
	Moss Mat Bulk	10' x 5'	CT36652
	Moss, Woodland Bale	3.25 ft ³	CT36655

Wire Chains

14"	Chains only	3 strand	CT36899
16"	Chains only	3 strand	CT36900
18"	Chains only	3 strand	CT36902
20"	Chains only	5 strand	CT36904
24"	Chains only	5 strand	CT36906
28"	Chains Only	5 strand	CT36907

Hanging Basket and Planter



Wall Planter

Cocoliner



Wire Chains

Mossmat Liner



Burlap Plastiliner



3.25 ft³ Moss Bale



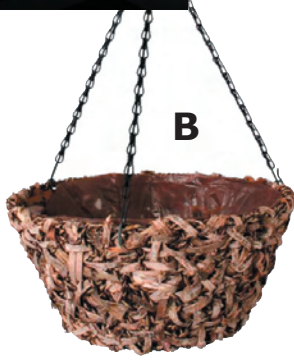
Bulk Mossmat

These four items available by special order only.

BRAUN NURSERY LIMITED
HORTICULTURE INC



A 24" - CT36785
30" - CT36786
36" - CT36787



B 14" - CT36667
16" - CT36669

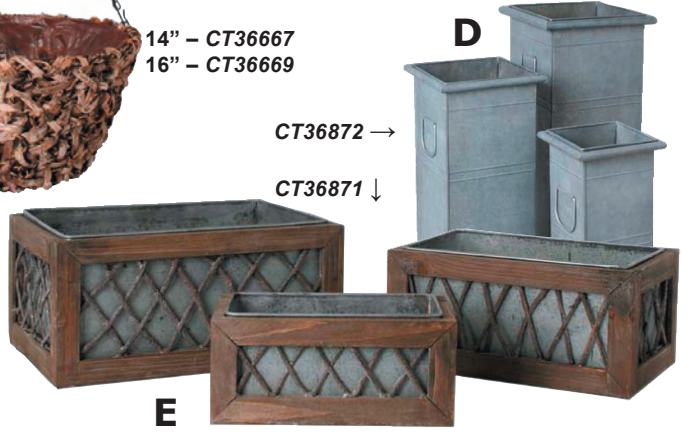


CT36875 **C**



12" - CT36784

L

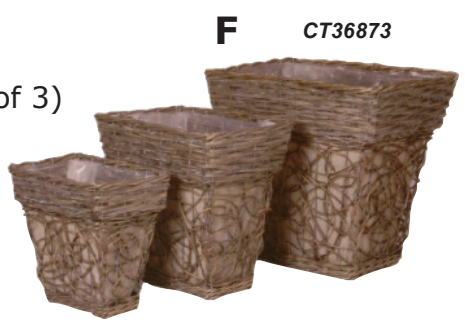


E

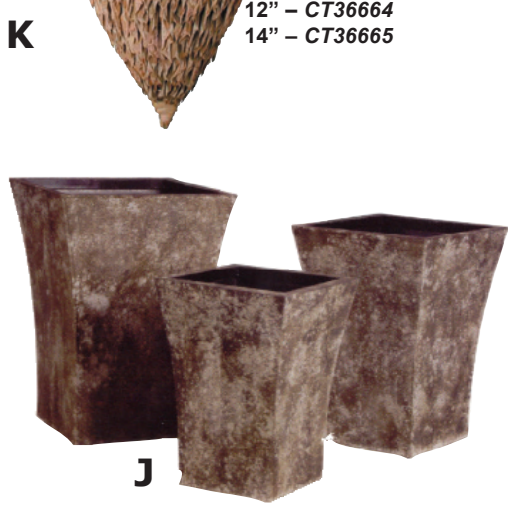
CT36872 →
CT36871 ↓

D

- A) Algarve Window Hayrack
- B) Birch Bark Flat Bottom Basket
- C) Polynesian Bowl (Set of 3)
- D) Urban Square Upright Planters (Set of 3)
- E) Urban Rattan Rectangular Planters (Set of 3)
- F) **NEW** Artisan Rectangular Planters (Set of 3)
- G) Cone Leaf Basket w/Tripod Stand
- H) Antique Crested Planters (Set of 3)
- I) Antique Lattice Planters (Set 3)
- J) **NEW** Northshore Flared Upright Planters (Set of 3)
- K) Seagrass Cone Basket w/chain wire
- L) Algarve Hanging Basket w/cocoliner



F CT36873



J

12" - CT36664
14" - CT36665

K



G

14" - CT36773
16" - CT36774

CT36891 ↑
← CT36880
CT36890 →

H



(Right) Round Jiffy Pots: #122, #130 and #340.



(Left) Square Jiffy Pots: #222 and #230.

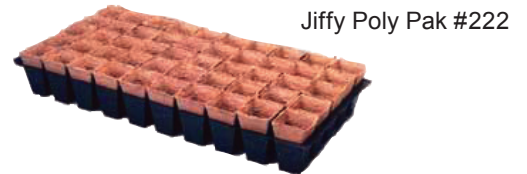
Jiffy Pots -- Round				
2.25" Round	#122	32/1020 Flat	2816/case	CT20170
3" Round	#130	18/1020 Flat	1404/case	CT20180
4" Shorty	#340	14/1020 Flat	1056/case	CT20230
Jiffy Pots -- Square				
2.25" Square	#222	36/1020 Flat	2816/case	CT20200
3" Square	#230	18/1020 Flat	1260/case	CT20210
Jiffy Strips				
1.75" Sq. JStrips	#517	N/A	300 strips/cs	CT20250
2.25" Sq. JStrips	#522	3 strips/1020 Flat (loose fit)	2520 strips/cs	CT20260
2.5" Sq. JStrips	#525	4 strips/1020 Flat	2304 strips/cs	CT20280
3" Sq. JStrips	#530	18/1020 Flat (loose fit)	1260 strips/cs	CT20270
Jiffy 7 Pellet Strips				
Jiffy 7	#731-25	3 strips of 25/1020 flat	1845/case	CT20145
Jiffy 7	#730	Bulk – pre-drilled hole	2000/case	CT20140
Jiffy 7 Single	#700	Bulk – no hole	1000/case	CT20130
Jiffy Poly Paks				
Jiffy Poly-Pak	#528	98 pots/1020 Flat	5096/case	CT20195
Poly-Pak 2"x3"	#220	50 pots/1020 Flat	2000/case	CT20190



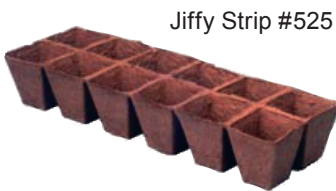
Jiffy Strip #517



Jiffy Strip #522



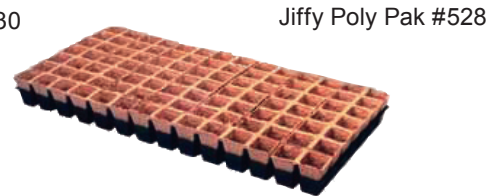
Jiffy Poly Pak #222



Jiffy Strip #525



Jiffy Strip #530



Jiffy Poly Pak #528



Jiffy 7 Pellet Pak #730-25

Individual Jiffy Pellets



#311180	18X42mm	#730	30X32mm	#700	42X42mm	#727	42X65mm	#5095-H	50X95mm
#311250	25X32mm	#311360	36X38mm						

The Perfect Growing Media for:

- Bedding Plants
- Potted Plants
- Foilage Plants
- Hanging Baskets
- Interior Landscapes
- Tropicals
- Container Nursery Stock
- Vegetables
- ... and much more!

FLORA COMPO'®



The Benefits of Flora Compo:

- Organic based compost.
- Includes the "Plus" factors, 65 Litre bag
- Rich texture – not a fine dust. No sand or bark added.
- Granular wetting agent to capture and retain moisture.
- Resists compaction.
- pH and EC Balanced
- Proper nutrient balance with micronutrients



65L Bag (approx. 2½ cu.ft.) loosefill growing media

GM10110



What's a "Plus" Factor?

The "Plus" Factors include":

- Living fungi micro-organisms naturally found in soils.
- Silicone
- Naturally occurring Enzymes & hormones

The fungi help eliminate the food source for disease-causing organisms while allowing greater nutrient availability for plants.

Silicone has also been added, which stabilizes the pH of the growing medium while promoting healthier and stronger cell walls

The enzymes and hormones help boost the plant's development, resulting in healthier, stronger growth.

Ready-Mix Can Be Used For:

- Seed Flats & Inserts
- Plug Trays & Flats
- Pro-Trays
- Seedlings
- Rooting Cuttings
- Bedding Out Plants



What Advantages Will You See?

- The "Plus" factor advantages
- Uniform consistency
- Less labour, ready to use
- Economically priced
- Easy handling, lightweight
- Excellent water holding capacity because of the added P.G. granular Wetting Compound
- Good aeration and drainage
- Reduces root diseases and damping off

The "PLUS" Factor And My Seedlings?

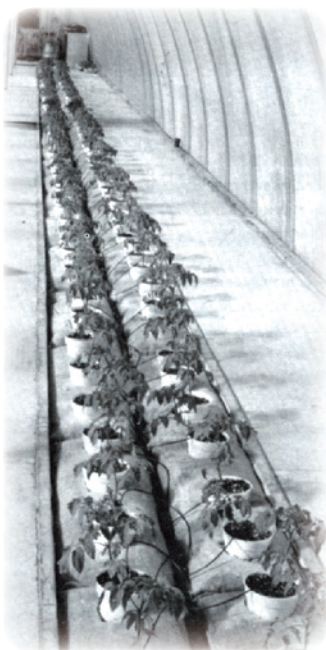
Ready-Mix with the "Plus" factor added will greatly benefit you in a number of ways.

- Many seeds will germinate in fewer days than normal.
- Seedlings will be stronger and healthier as a result of having increased capacity to draw upon available nutrients and oxygen.
- Promotes the growth of feeder roots for better absorption of vital nutrients. Increases dry weight of roots and shoots.
- Disease problems are prevented.
- Helps in preventing diseases like Fusarium, Pythium and Rhizoctonia.
- Increases the rate of survival of seedlings.

A 75 Litre bag will fill approximately 13 standard size flats, or about 750 2.25" Jiffy Pots

75 Litre Greenhouse Mix GM11110

Greenhouse Growing Media		
Grow Bags w/ Interceptor	15" X 45"	GM40110
COIR Bags (Coconut Fibre)	36" X 4" X 5"	GM40115
Jiffy Mix	10 Litre	GM90110
Jiffy Mix	40 Litre	GM90130
Peat Moss Grower Grade		GM15110
Perlite Grower Grade	4ft ³	GM20110
Polyacrylamide Ab Coarse		GM37110
Polyacrylamide Ab Fine		GM37111
Soil Master (Terra-Green) – red granular	50lb	GM45115
Soilmaster Plus	50lb	GM45112
Vermiculite - Fine	4ft ³	GM25111
Vermiculite - Grower Grade		GM25110
Wetting Compound Granular Grower Grade	10L	GM35110



“MONEY MAKER” GROW-BAGS

“Money Maker” Grow Bags, from *Professional Gardener*, can help you achieve above average yields by providing a controlled nutrient feeding system, root zone temperature, water drainage and a consistent soilless medium texture which will allow for optimum water and oxygen levels for the roots.

Each 15" X 45" bag is comprised of micronutrient rich soilless media (with calcium carbonate and super phosphate) wrapped in a woven polypropylene bag, which allows excess water to drain away. The bags hold 1½ ft³ of medium, with an approximate EC of 1, and pH of 6.

Stock Number **GM40110**



(Above Left) “Money Maker” Grow Bags for growing tomatoes, cucumbers and peppers, with drip irrigation. (Left) “Money Maker” Grow Bag

compared with the COIR™ Grow Bag (far right).

(Right) The COIR™ Grow Bag.

These bags are made from compressed coconut fibre and are dehydrated for lightweight shipping. When fully hydrated, the bags measure approx. 4" high X 8" wide X 42" long, as shown above. **GM40115**

SUNSHINE



Sunshine Mix #1 / Loosefill Complete 1

A universal yet versatile formula perfect for the production of a wide variety of crops.

CT10200

Sunshine Mix #4 / Aggregate Mix 4 (High Porosity)

This mix is recommended when a higher air capacity and faster drainage become necessary (winter, sensitive crops, frequent leaching of the soil).

CT10210

The following Sunshine Mixes are also available, by special order.

Sunshine Mix #2 / Loosefill Basic 2

Virtually identical to Mix #1, Mix #2 does not have an added nutrient charge to the mixture. This allows the grower to have complete control when fertilizing.

Sunshine Mix #3 / Loosefill Germination

Specifically formulated for the propagation of seeds and cuttings.

Sunshine Mix #5 / Loosefill Plug 5

For use in ornamental and vegetable transplant plugs, this mix helps develop a better root system.

Sunshine Mix #6 / Loosefill Premix 6

Without an added aggregate, this mix is perfect for the grower who mixes his own media. He can choose the aggregate he prefers (pumice, bark, etc.)

Sunshine Mix #7 / Loosefill Gel Polymer 7

This mix contains a polymer gel, which helps hold moisture near the plant roots. Perfect when a crop needs frequent watering or to prepare the plant for less than ideal care conditions beyond the greenhouse.

Sunshine Mix #8 / Loosefill Complete 8

An all-purpose mix, with perlite and vermiculite included. Suitable for many different plant crops.

Peat Moss

Pure Canadian Sphagnum

Sphagnum peat moss is the highest quality Canadian peat moss available. It loosens and aerates soil and adds body to lighter soils. Its benefits are numerous:

- Helps to hold moisture for the roots.
- Provides a low pH level, and will help decrease the pH level without the use of chemicals, if used in the proper proportions.
- Ideal natural organic medium to mix with prairie alkaline soils
- Impedes the leaching of applied fertilizers.

Available in 3.8 ft³ bales

GM15110



Perlite

Soil Conditioner & Propagation Medium

As a soil conditioner, perlite is unique in preventing soil from compacting. It is a processed volcanic ash compound that resists decaying and lasts for years.

As a propagation material, perlite has been successfully tested throughout Canada and the United States, both in the laboratory and in the field.

Available in 4ft³ bags propagation grade

GM20110



Polyacrylamide

Soil Amendment

Made of a modified polyacrylamide that absorbs water to hundreds of times its own weight, Polyacrylamide can be mixed with growing media or it can be mixed with water to be used as a dip for bare root plants.

Biologically stable, it will not degrade as a starch-based material does. Available in a crystal or powder form, it is non-irritating to the eyes and standard skin patch tests have produced no reactions.

For soil-based media, 1 lb/yd³; for soilless media 1.5 lbs/yd³

Coarse (1 lb bag) GM37111



Terra Green (Soilmaster)

A Montmorillonite Mineral Soil Conditioner

Excellent for use with potted or container plants, Terra-Green has a neutral pH and is completely inert. When comprising 25% of a soil mix, this soil conditioner will provide for better root development, will loosen the soil and increase the amount of oxygen available for the plant absorption.

50 lb. bags GM45112



Vermiculite

Nature's Own Mineral – Expanded Mica

Vermiculite – a sterile mineral conditioner – is made up of countless cells or pockets which hold and release air and water as the plant needs them.

While guarding against compaction, its granular structure breaks up even the heaviest clay soil and permits sandy soil to hold moisture. In vegetable beds, vermiculite allows for unhindered root development and increased available oxygen.

Med. sized, hort grade, in 4ft³ bags GM25110

Fine grade GM25111



Wetting Compound

Soil Amendment

Adding PG Granular Wetting Compound to your growing medium ensures that water effectively penetrates and is evenly distributed throughout the soil. It reduces surface tension, speeding up the wetting of dry peat moss and hard-to-wet growing media. It also results in lower water requirements and improved drainage, while encouraging stronger and healthier plants.

Available in granular (0.5 to 1 L/m³) or liquid (100ml/m³ or 3.5 oz/yd³) formulations.

10L Granular GM35110





Fertilizer Crop Guide

	3-15-27	7-35-27	10-40-15	10-52-10	15-10-30	15-15-15	15-20-25	15-30-15	18-20-27	20-0-25	20-10-20	20-12-28	20-20-20W	20-20-20S	28-10-22	28-14-14	30-20-10	35-5-10	40-2-5
African Violets			X	X				X				X	X						
Annuals			X	X		X					X		X	X					
Bedding Plants			X	X		X					X		X	X					
Azaleas											X					X	X		
Begonias			X	X		X					X		X	X					
Carnations			X	X						X	X								
Chrysanthemums			X	X	X						X		X	X		X	X		
Cucumbers			X	X				X				X	X	X					
Forestry		X							X						X				
Geraniums						X		X			X		X	X					
Hydrangeas			X	X				X			X		X	X					
Hydroponic Tomatoes	X		X	X															
Lettuce								X					X	X					
Lilies								X			X		X	X					
Poinsettias			X	X			X						X	X					
Roses			X	X									X	X		X	X		
Snapdragons			X	X									X	X		X	X		
Tomatoes			X	X	X			X					X	X					
Trees & Shrubs			X	X												X			
Tropical Foliage Plants			X	X									X	X					
Turf			X	X												X		X	X
Vegetables - Greenhouse			X	X									X	X					

Tune Up "Plus" – 17.5 Kg Bags	
10-40-15	FR10110
10-52-10 Starter	FR10120
15-10-30 Tomato	FR10130
15-20-25 Poinsettia	FR10150
15-30-15 Bloom	FR10160
20-10-20 Soilless	FR10180
20-12-28 Cucumber	FR10190
20-20-20 Summer	FR10200
20-20-20 Winter	FR10210
28-14-14 Tree & Shrub	FR10230
3-11-27 Hydroponic	FR10240
30-20-10	FR10250
7-35-27 (Custom Forestry)	FR10310
28-10-22 (Custom Forestry)	FR10320
18-20-27 (Custom Forestry)	FR10330
10-40-15	FR10340
12-13-38 Peppers	FR10375
NOTE: Any fertilizer labeled as "Custom" is a special order and has minimum purchase requirements.	

The Electro-Conductivity Chart for Tune-Up Fertilizers – giving corresponding PPM of Nitrogen – is available on Page 86



Fertilizer Order Guide

11 - 55 - 0, MAP	50 lb	FR26155
16-20-0 Ammonium Phosphate	25 Kg	FR63165
Agriform 20-10-5	5 g	FR65160
Agriform 20-10-5	10 g	FR65140
Agriform 20-10-5	21 g	FR65150
Aluminum Sulphate (DG)	5 Kg	FR15120
Aluminum Sulphate (DG)	25 Kg	FR15110
Ammonium Nitrate GG (DG) Restricted Component	25 Kg	FR25120
Ammonium Sulphate	25 Kg	FR25110
Apex 14-14-14 Bloom 3-4 mos.	50 lb	FR36034
Apex 21-5-12 6-7 mos.	50 b	FR36037
Apex 21-5-6 3-4 mos.	50 lb	FR36036
Bone Meal -2 - 13- 0	25 Kg	FR24110
Borax Decahydrate	2 Kg	FR22110
Borax Decahydrate	50 lb	FR22115
Buffer X	1 Litre	CH17116
Buffer X	4 Litre	CH17117
Calcium Carbonate	25 Kg	FR26110
Calcium Chelate	2 Kg	FR21104
Calcium Chloride	20 Kg	FR26121
Calcium Hydroxide (Hydrated Lime)	25 Kg	FR25160
Calcium Nitrate (Reclamation Prill)	50 lb	FR25140
Calcium Nitrate GG	50 lb	FR25150
Citric Acid	22.7 Kg	FR40150
Copper Chelates	2 Kg	FR21110
Copper Chelates	20 Kg	FR21122
Copper Chelates 14%	25 Kg	FR21120
Copper Sulphate (DG)	5 Kg	FR15150
Copper Sulphate (DG)	25 Kg	FR15140
Dolomite Lime	40 Kg	FR26130
Dye Blue	500 g	FR30160
Dye Green	500 g	FR30140
Dye Red	500 g	FR30120
Dye Yellow	500 g	FR30180
Gypsum Granular Fine	50 lb	FR15132
Gypsum Granular Regular	50 lb	FR15131
Iron Chelates 13%	2 Kg	FR21130
Iron Chelates 13%	25 Kg	FR21141
Iron Chelates 13.2%	20 Kg	FR21140
Iron Sulphate - Hepta (20%) (DG)	5 Kg	FR15170
Iron Sulphate - Mono Granular (DG)	22.7 Kg	FR15160
Magnesium Chelate	2 Kg	FR21150
Magnesium Chelates	20 Kg	FR21160
Magnesium Nitrate Flake (DG)	50 lb	FR25181

Magnesium Sulphate	55 lb	FR15183
Manganese Chelate 13%	25 Kg	FR21181
Manganese Chelates	2 Kg	FR21170
Manganese Sulphate	5 Kg	FR15200
Manganese Sulphate	22.7 Kg	FR15190
Micro Mix	20 Kg	FR20110
Mono Ammonium Phosphate	50 lb	FR25205
Mono Potassium Phosphate	25 Kg	FR25201
Muriate of Potash (Potassium Chloride)	25 Kg	FR25210
Nitric Acid (DG)	77 Kg	FR40120
Nitric acid pump		FR40110
Phosphoric Acid 85% (DG)	35 Kg	FR40140
Potassium Bicarbonate	10 Kg	FR25230
Potassium Nitrate (Ultrasol K Plus) (DG) Restricted Component	25 Kg	FR25250
Potassium Silicate	20 Litre	FR25240
Potassium Sulphate GG	25 Kg	FR25261
Sodium Molybdate	1 Kg	FR22120
Sodium Molybdate	500 g	FR22125
Substral Chelated Micro	2 Kg	FR20120
Substral Chelated Micro	20 Litre	FR20140
Substral Chelated Micro	22.7 Kg	FR20130
Substral Chelated Mirco	4 Litre	FR20150
Sulphur, Wettable 90%	22.7 Kg	FR36120
Triple Phosphate (0-48-0)	22.7 Kg	FR26150
Urea 46-0-0 GG	25 Kg	FR26155
Urea 46-0-0 Reclamation Prill	25 Kg	FR26165
Wetting Compound, P.G.	4 Litre	FR36145
Wetting Compound, P.G.	20 Litre	FR36135
Zinc Chelate	25 Kg	FR21211
Zinc Chelates	2 Kg	FR21190
Zinc Sulphate (DG)	5 Kg	FR15220
Zinc Sulphate (DG)	25 Kg	FR15210

- **DG denotes Dangerous Goods**
- **GG denotes Greenhouse Grade**
- **“Restricted Component” legislated by Natural Resources Canada Explosives Act**
— Call for Information —



DOSATRON
INTERNATIONAL INC.
PRECISION TECHNOLOGY



H.E. Anderson
COMPANY

Fertilizer Injector Systems
are located on Page 12 & 13

- Aluminum (Al)

Aluminum is essential for growth in numerous plant species, including peas, maize, sunflowers, common cereals and grasses. It acts as a catalytic agent when the plant is absorbing carbon, by speeding up the rate of photosynthesis. Aluminum is usually found in small amounts in all plants. While abundant in natural soils, aluminum must be added to soilless mixtures.
- Boron (B)

Boron facilitates the intake of calcium, which limits the toxic effects of other elemental salts. In soilless media, a concentration of 0.5 to 1.0 ppm is normal.
- Calcium (Ca) –

A major nutrient, most crops require a calcium soil concentration of 300 ppm to 500 ppm. Calcium is essential in reducing and buffering the toxic effect of other elemental salts; it also influences protein synthesis. It does not translocate well in plants.
- Carbon (C)

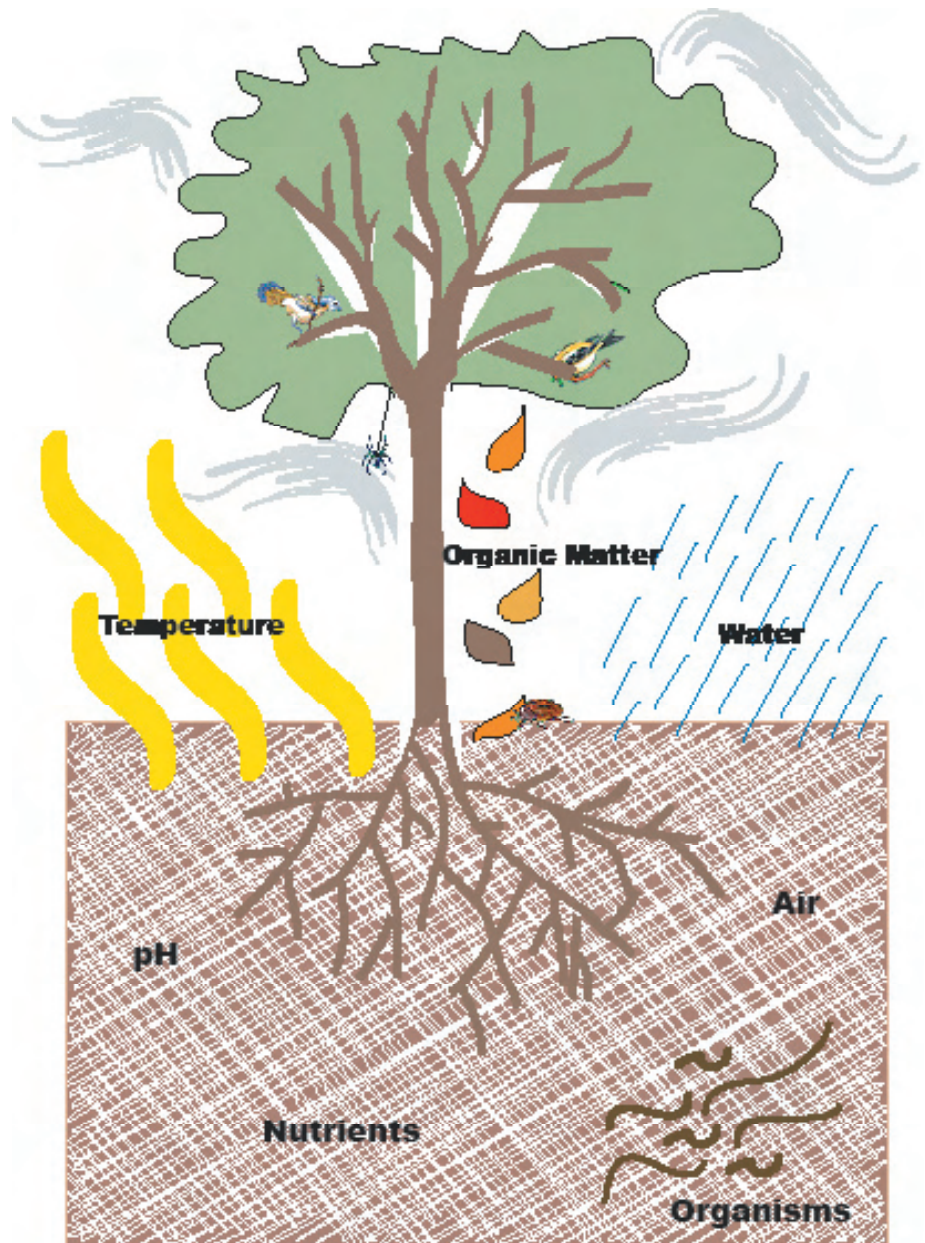
Obtained from the air in the form of carbon dioxide (CO₂) – via the stomata in the leaves -- the absorption of carbon initiates the photosynthesis process in the plant. During daylight hours, the CO₂ concentration should range between 300 ppm and 1500 ppm.
- Cobalt (Co)

Though classified a minor nutrient, Cobalt is essential for the absorption and utilization of nitrogen in plants. Cobalt deficiencies do not show any specific characteristics. Concentrations in soilless media should be between 0.05 ppm and 0.1 ppm.
- Copper (Cu)

Copper assists in oxygen utilization – essential for survival. Onions, lettuce, maize and fruit trees respond well to applications of copper salts. In soilless media, the concentration of copper salts should not exceed 0.05 ppm and 0.1 ppm.
- Iron (Fe)

Deprived of iron, a plant's growth will be completely

Essential Elemental Nutrients . . .



The seven (7) factors essential to great soil composition, for healthy plant growth: Temperature, Water, Air, Organic Matter, pH, Nutrients and Organisms.

inhibited. Though relatively immobile within the plant, Iron acts as a catalytic agent in the formation of chlorophyll. Its availability is dependent upon the pH of the soil. In fertilizer, iron should not exceed 5 ppm, and smaller amounts have proven effective. In a soilless media, iron values should be between 2.0 ppm and 3.0 ppm.

... For Healthy Plant Growth

- Hydrogen (H)

Water is the carrier from which plants absorb hydrogen. An essential component in photosynthesis, hydrogen combines with carbon and oxygen to make fats and carbohydrates for good plant growth.

- Magnesium (Mg)

Essential to the formation of chlorophyll, magnesium is also a carrier for Phosphorus (P). Most crops require a soil concentration of 50 ppm – 100 ppm of magnesium.

- Manganese (Mn)

The concentration and requirement for manganese varies from plant to plant. What is important is the interaction between manganese and both iron and calcium. When manganese is deficient, iron salts can increase to toxic levels. Alternately, when the manganese concentration is too high, the availability of iron to the plant decreases to detrimental levels. This same antagonism occurs between calcium and manganese. In soilless mixtures, manganese should be at a concentration of 0.5 ppm to 2.0 ppm.

- Molybdenum (Mo)

Molybdenum is essential for the health of the plant leaves, and therefore essential to photosynthesis. A lack of molybdenum results in mottling of the lower leaves, leading to the eventual die back of the leaves with only the mid rib remaining. Commonly, a concentration of 0.001 ppm will supply the necessary molybdenum. However, certain crops may require higher concentrations (e.g., poinsettias require 5 ppm to 10 ppm in soilless media).

- Nitrogen (N)

Combined with Hydrogen, Carbon, Oxygen, Phosphorus and Potassium, Nitrogen forms the core set of primary elemental nutrients for plant growth and health. It has a vital role in the formation of proteins, and in the production of chlorophyll, protoplasm and nucleic acids in the plant. Different crops and soil solutions require different nitrogen concentrations, which can range from 150 ppm to 1000 ppm. Obtained from various sources (including air and earth), most plants use nitrogen in either a nitrate or ammonium salt form.

- Oxygen (O)

Obtained through air and water, respiration is essential for plant growth. This process does not only occur in the leaves, but also in the roots. Therefore, good soil composition includes miniscule air pockets to allow the root hairs to absorb oxygen.

- Phosphorus (P)

Most influential in the development of roots, phosphorus is most abundant in the plant's roots and seeds. It is water soluble and easily translocated within the plant. Absorbed

primarily as phosphates, soil concentrations range from 50 ppm to over 100 ppm. Though as necessary as nitrogen, there is an antagonism between the

two elements. An excess in one will inhibit the intake of the other. Phosphorus also has an antagonism with iron, and correct ratios are essential.

- Potassium (K)

Potassium is essential for the beginning of the nitrate nitrogen process and for the overall health and good growth for the plant. It is found throughout the plant and is highly mobile. Soil concentrations range from 100 ppm to as high as 400 ppm. Generally, application of potassium salts is higher in the winter and on cloudy days compared to summer and bright days.

- Silicon (Si)

Silicon contributes to plant growth and helps protect the plant against rusts, mildews and aphids. It also helps make the plant's epidermis impervious to enzyme penetration. In the form of SiO₂, the silicon concentration in soilless media should be below 100 ppm.

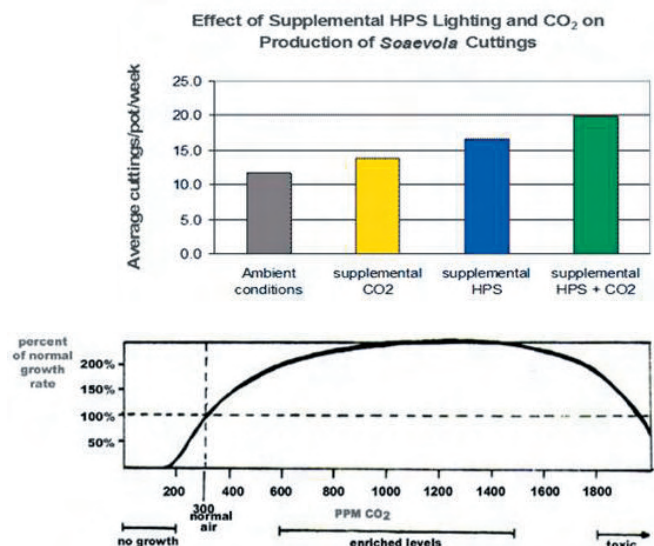
- Sulphur (S)

Needed in the formation of protein and other plant components, sulphur also helps produce better root systems, improved chlorophyll supply and increased numbers of nodules on legume roots. Soil solution concentrations can range from 200 ppm to 1000 ppm.

- Zinc (Zn)

Required in small doses, a deficiency in zinc results in stunted plant growth, contributes to various nutrient deficiencies and frequently results in the death of the plant. Recommended soilless media concentrations are 0.1 ppm to 0.5 ppm.

Why Plants Need CO₂



Symptoms of Nutrient Deficiency & Toxicities

Use these symptoms as a guideline to diagnose nutrient problems within a crop. The exact symptoms will vary between crops. The ability to diagnose problems early and make immediate adjustments will increase the success of your crop.

• Boron (B) •

Deficiency: Stem and root meristems often die. Root tips become swollen and discoloured. Internal tissues sometimes disintegrate (or discolour, e.g., “heart rot” in beets). Leaves will show various symptoms including thickening, brittleness, curling wilting and chlorotic spotting.

Toxicity: Yellowing of the leaf tip followed by progressive necrosis of the leaf, beginning at the tip or margins and proceeding to the mid-rib.

• Calcium (Ca) •

Deficiency: Bud development is inhibited and root tips often die. Young leaves are affected prior to the older leaves, and become distorted and small with irregular margins and spotted or necrotic areas.

Toxicity: There are no known, *consistent*, symptoms associated with excess calcium.

• Chlorine (Cl) •

Deficiency: Begins with wilted leaves which become chlorotic and necrotic, eventually attaining a bronze colour. Roots become stunted and thickened near tips.

Toxicity: Burning or firing of leaf tips or margins. Bronzing, yellowing and leaf abscission, sometimes chlorosis. Reduced root size and slower growth rate.

• Copper (Cu) •

Deficiency: Natural deficiency of copper is rare. Young leaves can become dark green and twisted, or misshapen, often with necrotic spots.

Toxicity: Reduced growth is followed by symptoms of iron chlorosis, stunting, reduced branching, thickening and abnormal darkening or rootlets.

Nutrient Antagonism

There are 16 elemental nutrients considered essential to produce overall health, good growth and reproduction in plants. These are classified into 9 major and 7 minor nutrients. Of the 9 major nutrients, 3 are obtained primarily from the atmosphere: Oxygen (O), Hydrogen (H) and Carbon (taken in as carbon dioxide) through air and rain via the plant leaves and roots. Carbon can also be obtained from the soil via organic material. The remaining 6 major nutrients and the 7 minor nutrients are found primarily in the soil environment. It is here that they interact, sometimes to the detriment of the plant they are supposed to be helping.

The 6 major nutrients obtained from the soil, organic material and through fertilizer applications, are Nitrogen (N), Phosphorus (P), Potassium (K) – the famous N-P-K of fertilizer formulations – as well as Calcium (Ca), Magnesium (Mg), and Sulphur (S). The 7 minor nutrients are Boron (B), Chlorine (Cl), Copper (Cu), Iron (Fe), Manganese (Mn), Molybdenum (Mo) and Zinc (Zn). Like most things in nature, nutrients are subject to cause and effect. When certain nutrients are found in excess amounts, a *Nutrient Antagonism* occurs. Basically, these extra amounts bind to other nutrients, inhibiting their availability to the plant. Therefore, the plant must deal with *both* the extra, possibly toxic, nutrients *and* the deficiencies of other nutrients.

Element / Nutrient in Excess	Element / Nutrient Deficiency Caused
Calcium (Ca)	Boron (B), Iron (Fe), Magnesium (Mg), Potassium (K)
Copper (Cu)	Iron (Fe)
Iron (Fe)	Manganese (Mn)
Nitrogen (N)	Potassium (K)
Magnesium (Mg)	Calcium (Ca), Manganese (Mn), Potassium (K)
Manganese (Mn)	Iron (Fe), Zinc (Zn)
Phosphorus (P)	Iron (Fe), Potassium (K)
Potassium (K)	Calcium (Ca), Magnesium (Mg)
Sodium (Na)	Calcium (Ca), Magnesium (Mg), Potassium (K)
Zinc (Zn)	Iron (Fe)

• Iron (Fe) •

Deficiency: Pronounced interveinal chlorosis similar to a magnesium deficiency but on the younger leaves. Leaves turn a pale green to yellow.

Toxicity: Rare in natural conditions, but has been observed after application of sprays, showing as necrotic spots.

• Magnesium (Mg) •

Deficiency: Shows up in interveinal chlorosis, first developing in the older leaves. Chlorosis may begin at the leaf

margins or tips and progress inward.

Toxicity: Very little information is available on magnesium toxicity.

• Manganese (Mg) •

Deficiency: Initial symptoms are often interveinal chlorosis on leaves. Whether those leaves are younger or older depends on the plant species. Necrotic lesions or small spotting on the leaves, as well as leaf shedding, may develop later.

Toxicity: Shows sometimes as chlorosis,

uneven chlorophyll distribution and iron deficiency. Growth is reduced.

• **Molybdenum (Mo)** •

Deficiency: Often shows as interveinal chlorosis developing first on older midstem leaves, progressing to younger leaves. (Similar to nitrogen deficiency.) May have marginal scorching or cupping of the leaves.

Toxicity: Rarely observed, leaves on tomatoe plants turn yellow while cauliflower seedlings turn bright purple.

• **Nitrogen (N)** •

Deficiency: A major cause of reduced growth, with general chlorosis starting with older leaves. Stems, petioles and lower leaf surfaces of corn and tomatoes turn reddish yellow.

Toxicity: Plants show vigorous foliage of dark green colour, but have restricted root systems. Flowering and seed production can be affected.

• **Phosphorus (P)** •

Deficiency: Plants are stunted and often dark green. Anthocyanin pigments may accumulate in the leaves resulting in a purple colouration, occurring first in mature leaves. Plant maturity is often delayed.

Toxicity: There are no significant symptoms of Phosphorus toxicities. However, the presence of excess Phosphorus does affect the availability of other nutrients. Therefore, the presence of deficiencies in other nutrients may indicate a toxicity in Phosphorus levels.

• **Potassium (K)** •

Deficiency: First visible in the older leaves. In dicots (broadleaf plants), it begins with chlorosis, then progresses to dark, necrotic lesions. In monocots (grasses), the tips and margins of the leaves die first.

Toxicity: Plants do not usually absorb excess amounts of potassium. If present, the excess may lead to magnesium deficiencies, and possibly deficiencies in manganese, zinc and iron.

• **Sulphur (S)** •

Deficiency: Rare, but shows as a visible yellowing of the leaves.

Toxicity: Reduction in growth and leaf size. Leaf symptoms -- often absent or

poorly defined – may include interveinal chlorosis or leaf burning.

• **Zinc (Zn)** •

Deficiency: Evident as a reduction in internode length and leaf size. Leaf margins are often distorted or puckered. Interveinal chlorosis may

occur.

Toxicity: Excess zinc affects the availability of iron to the plant, resulting in iron chlorosis.

Correcting pH

Different plant species require different pH environments. While most prefer a neutral pH, some, like azaleas and rhododendrons, prefer acidic soils. Others prefer a more alkaline soil. The pH of a growing medium can also affect the availability of nutrients to the roots of the plant. The table at the bottom indicates how pH affects the availability of certain nutrients for absorption by the plant – in both mineral (regular) soils and soilless mixtures. Fortunately, pH levels can be corrected fairly easily by knowing what substance to add to a growing medium or to an injection system.

Alkalinizing Soil – Raising pH via Irrigation / Injection Lines:

• Calcium Hydroxide Ca(OH)_2
via *Growing Medium:*

• Calcium Carbonate CaCO_3
via *Irrigation or Growing Medium:*

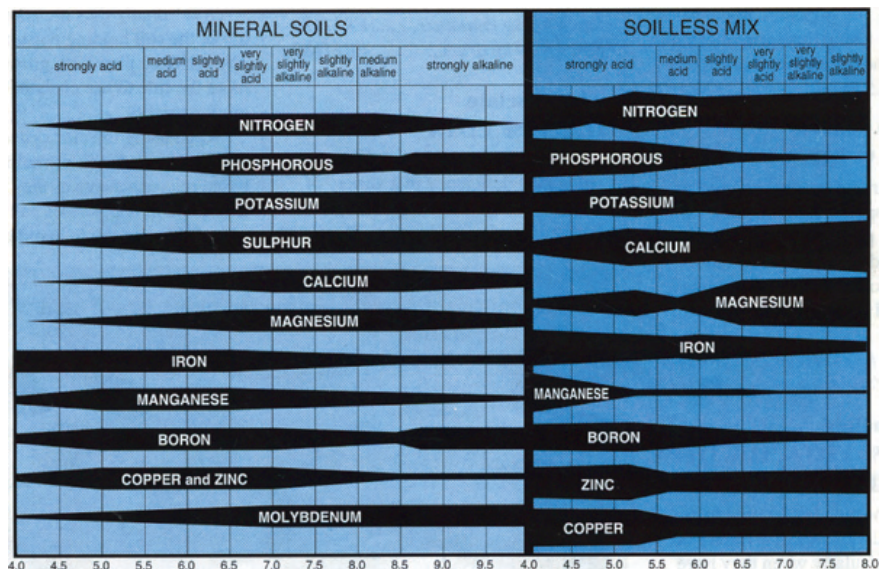
• Potassium Bicarbonate
 KHCO_3 47% K_2O

Acidifying Soil -- Lowering pH via Irrigation / Injection Lines:

• Nitric Acid HNO_3 62%
• Phosphoric Acid 85%

For Turf pH Correction	
Acidifier	Peat-based Growing Media Application Rate
Sulphur (S) Finely ground	4 kg/100m ²
Aluminum Sulphate $\text{Al}_2(\text{SO}_4)_3$	13 kg/100m ²
Iron Sulphate FeSO_4	12 kg/1-2 lb/1000ft ² (2-3 times/year)

Note: The effect of finely ground sulphur will become evident 3-4 months after application. The effect will last for one to two years. If the initial pH is 8, make two applications. If the initial pH is 7.5, a single application should suffice. Repeat tests in several months.



Plant nutrient availability to plants at different pH levels, in mineral soil and soilless growing media.

Commercial Sources of Fertilizer Nutrients

- * **Aluminum Sulphate [Al₂(SO₄)₃]**
36% Aluminum, 64% Sulphate (21% Sulphur)
 Used to acidify soils, particularly for azaleas, rhododendrons and other acid loving plants. Acidifying soil can make iron more available for plant absorption. *However, aluminum sulphate can be toxic! Test the soil pH before and after application.*
- * **Ammonium Nitrate 34-0-0 [NH₄NO₃] 34% Nitrogen**
 A water soluble, acid forming source of nitrogen quickly available to the plant. This formulation provides equal amounts of ammonium and nitrate forms of nitrogen.
- * **Ammonium Sulphate 21-0-0 [(NH₄)₂SO₄]**
21% Nitrogen, 73% Sulphate (24% Sulphur)
 Like aluminum sulphate, ammonium sulphate is used to acidify soil, allowing for a higher iron availability.
- * **Bone Meal 2-12-0 2% Nitrogen, 12% Phosphorus**
 Considered the best source for phosphorus.
- * **Boron B 11.7%**
 Supplying the micronutrient boron, it may be toxic at very low levels in under certain circumstances.
- * **Calcium Carbonate a.k.a Garden Lime [CaCO₃]**
40% Calcium, 60% Carbonate (12% Carbon)
 Used to raise pH levels in soil, its other names include limestone, lime and horticultural lime. Slow acting, it can increase the availability of some other nutrients. Application rates depend on soil pH levels and particulate size. Smaller particles act more quickly.
- * **Calcium Hydroxide a.k.a. Quick Lime [Ca(OH)₂]**
54% Calcium
 Also used to raise soil pH, calcium hydroxide has 1.5X the neutralizing capacity of calcium carbonate. Quick acting, its application rates are determined by the soil pH.
- * **Calcium Nitrate 15.5-0-0 plus 19% Water Soluble Calcium [Ca(NO₃)₂], 15.5% Nitrogen, 24.4% Calcium**
 Readily soluble, calcium nitrate is considered the ideal source of water soluble calcium for greenhouse liquid feed programs and does not affect pH levels. Used to control blossom end rot in tomatoes.
- * **Calcium Sulphate a.k.a. Gypsum [CaSO₄]**
29.4% Calcium, 70.6% Sulphate (23.5% Sulphur)
 Supplies calcium without affecting the pH. Calcium sulphate is considered an important source of sulphur in media in which triple super phosphate is used.
- * **Di-Ammonium Phosphate 21-53-0 [(NH₄)₂HPO₄]**
21% Nitrogen, 53% Phosphate
 Completely water soluble for liquid feeding, di-ammonium phosphate produces an alkaline reaction. *When used dry, it should not come in contact with germinating seed.*
- * **Dolomite Lime – 20% MgO 30% CaCO₃**
 Used to raise the pH of soilless mixes, dolomite lime will supply both magnesium and calcium. It is slow acting and long lasting. Use a pH test to achieve the desired medium pH. *Use outside on sour/acid soil to raise the pH and sweeten it.*
- * **Iron Sulphate (Ferrous Sulphate) Mono Hydrate [FeSO₄] – 30% Fe**
 A slow release source of iron, ideal for mixing with growing media.
- * **Iron Sulphate (Ferrous Sulphate) Hepta Hydrate [FeSO₄] – 21% Fe**
 A water soluble form of iron, it is used for acidifying soil and correcting iron deficiencies in chlorotic plants.
- * **Magnesium Sulphate a.k.a. Epsom Salts [MgSO₄] 10%**
 Used when magnesium is deficient in the soil.
- * **Mono-Ammonium Phosphate 12-62-0 [(NH₄)H₂PO₄]**
12% Nitrogen, 62% Phosphorus
 Readily water soluble for liquid feeding, mono-ammonium phosphate produces an acid reaction. For use on alkaline soil and media.
- * **Mono-Potassium Phosphate (potassium dihydrogen phosphate) 0-51-34 [KH₂PO₄]**
51% Phosphorus, 34% Potassium
 A major ingredient in many fertilizer formulations, mono-potassium phosphate is a water soluble source of potassium and potash. It has a slightly acidic reaction.
- * **Phosphoric Acid 85% [H₃PO₄] – Food Grade**
 Injected into the watering system, phosphoric acid lowers the pH of water and fertilizer solutions while supplying an inexpensive source of phosphorus. Also useful for cleaning automatic watering lines.
- * **Potassium Bicarbonate — KHCO₃ 47% K₂O**
 Used to raise the pH level in water and soilless media.
- * **Potassium Chloride 0-0-60 a.k.a. Muriate of Potash [KCl] 60% Potassium**
 A readily available source of potassium for deficient plants, potassium chloride is also used to enhance plant development and promote disease resistance. *Do not use if sodium chloride (NaCl) is present in the soil or growing medium.*
- * **Potassium Nitrate 13-0-46 [KNO₃]**
13% Nitrogen, 46% Potassium
 Completely water soluble, potassium nitrate is a major provider of potassium and nitrogen for liquid feeding.
- * **Potassium Silicate [K₂OSiO₂]**
50.6% Potassium, 18.2% Silicon
 Available in abundance in natural soils, it must be

added to soilless growing media. Benefits of silicon include greater resistance to pests, diseases and water stress; increased tolerance to high manganese levels; better reproductive growth; better interception of light; and slower senescence of older leaves.

For example, cucumber plants treated with silicon have a greater resistance to powdery mildew.

✱ **Potassium Sulphate 0-0-52 [K₂SO₄] 52% Potassium, 48% Sulphate (18.4% Sulphur)**

A water soluble source of potassium with the slight tendency to acidify the soil.

✱ **Sodium Molybdate [Na₂MoO₄] 46.6% Molybdenum, 22.3% Sodium**

Used to correct molybdenum deficiencies, particular in poinsettias. Use a soil test to determine the rate for specific crop requirements.

✱ **Sulphur**

Sulphur controls powdery mildew, leaf spot, black spot and botrytis on numerous ornamentals. Can also be used on peaches and plums to control brown rot and scab. Use 6 lbs of sulphur in 100 gallons of water.

✱ **Triple Phosphate 0-48-0 [CaH₄(PO₄)₂] 48% Phosphorus, 17.1% Calcium**

A very high source of phosphate, it must be mixed thoroughly in the soil or growing medium. In media lacking sulphur, it should be supplemented with gypsum or other fertilizer containing sulphur.

✱ **Urea 46-0-0 [CO(NH₂)₂] 46% Nitrogen, 20% Carbon**

An excellent organic compound for supplying nitrogen, it can be used dry or in a liquid solution.

Chelated Micronutrients

• **Substral® Microsol Liquid**

Substral® Microsol Dry Mixture

Both formulations contain Chelated Micronutrients as well as Trace Elements, and are to be used when no micronutrients appear in the base fertilizer. The dry formulation must be dissolved in water prior to application.

• **Calcium Chelate**

A rapidly available form of calcium most useful when calcium is required in the presence of high concentrations of sulphates, phosphates and iron. This form of calcium reduces the formation of precipitates.

• **Copper Chelate 15% EDTA**

The availability of copper is affected by the pH, the amount of organic matter and the presence of other metallic ions such as iron and magnesium.

• **Iron Chelate 13% EDTA, 11% DTPA, 9% HEDTA**

Used to correct iron deficiencies, particularly when high pH conditions are present. Best applied as a soil drench.

• **Magnesium Chelate 5.8% EDTA**

Suitable for a variety of crops when deficiency is present.

• **Manganese Chelate 13% EDTA**

Reduced availability of manganese can occur in the presence of high pH conditions, limited organic matter or sandy soil conditions.

• **Zinc Chelate 14% EDTA**

Zinc affects the utilization of other nutrients by the plant. Deficiencies particularly occur in sandy soils, where there is a lack of organic matter or where excessive phosphates have been applied.

• **Borax Decahydrate B 11.43%**

Derived from Borax, it can be toxic to plants if given in incorrect amounts.

• **Sodium Molybdate Na₄MoO₄ 39%**

Sulphate-based Micronutrients

➤ **MicroMix**

Ideal for adding to soilless media prior to planting. Includes Sulphur, Iron, Manganese, Zinc, Copper, Boron and Molybdenum.

➤ **Aluminum Sulphate Al₂(SO₄)₃**

➤ **Copper Sulphate CuSO₄ 25%**

➤ **Iron Sulphate FeSO₄ Heptahydrate 21%**

➤ **Iron Sulphate FeSO₄ Monohydrate 30%**

➤ **Magnesium Sulphate MgSO₄ Epsom Salts 10%**

➤ **Manganese Sulphate MnSO₄ 27%**

➤ **Zinc Sulphate ZnSO₄ Monohydrate 36%**



PPM Chart		
Per Cent	Parts per Thousand	Parts per Million
100	= 1,000	= 1,000,000
10	= 100	= 100,000
1	= 10	= 10,000
0.1	= 1	= 1,000
0.01	= 0.1	= 100
0.001	= 0.01	= 10
0.0001	= 0.001	= 1

Fertilizer Concentration Calculations

These methods of fertilizer concentration calculations are provided for your reference. Use whichever is most appropriate.

“Rule of Thumb” Method

1 Pound of a formulation with 20% of a Nutrient mixed into 100 gallons of water = 200 ppm of that Nutrient in the solution.

Alternately, 1 kg of the same formulation in 1000L of water will = 200 ppm of that Nutrient.

For example, a solution consisting of 1 lb. (454g) of a 20-20-20 fertilizer formulation in 100 gallons (380L) of water has 200 ppm N, 200 ppm P and 200 ppm K. When using a fertilizer formulation of 10-52-10 in the same amount of water, the solution would have 100 ppm N, 520 ppm P, and 100 ppm K.

When using an injector system, the injector ratio must be calculated in.

- Using the 20-20-20 formulation, an injector with a ratio of 1:100 and a stock tank of 1 gallon (4.5L), the following example will show how to determine how much fertilizer to add to the stock tank to get a final end solution of 200 ppm.

In this case, the ratio means 1 gallon (4.5L) of stock will result in an end solution of 100 gallons (450L). Because 1 pound (454g) of 20-20-20 fertilizer in 100 gallons (450L) gives 200 ppm, you multiply the number of gallons/L of stock required by 1 pound (454g) of fertilizer. In this case, 1 gallon (4.5) of stock requires 1 pound (454g) of fertilizer.

- Let's do a second example where 200 ppm N is required, but we'll use a formulation of 10-52-10 and an injector ratio of 1:80.

First, determine how many pounds/grams of 10-52-10 are needed in 100 gallons (450L) of water to give a 200 ppm N concentration. 10-52-10 gives 10% N, 52% P and 10% K. Therefore, in 1 lb. (454g), there is 100 ppm N, 520 ppm P and 100 ppm K. Thus you need 2 lbs (908g) of 10-52-10 in 100 gallons (450L) of water to get 200 ppm (100 ppm X 2 or 100ppm X 908g).

Second, determine the amount of stock solution needed to get the end solution of 200 ppm. In this case, the injector is 1:80; so 1 gallon (4.5L) of stock solution results in 80 gallons (360L) of end solution. *Remember that it is 1 lb/454g of 20% formulation in 100 gallons of water (or 450L) that gives 200 ppm.* So divide the ratio of 80 into 100 gallons (or 360 into 450L) to get a factor of 1.25. Now multiply the number of gallons (litres) needed as stock for 100 gallons (450L) of end solution by this factor to get the amount of stock solution you require. In this case 1 gallon X 1.25 = 1.25 gallons stock solution (or 4.5L X 1.25 = 5.625L of stock solution).

Finally, using the ratio factor established for the amount of stock solution required, determine the pounds (grams) of fertilizer formulation required in the stock solution to give a final 200 ppm concentration. Multiply the number of pounds (grams) of fertilizer needed (determined in the first step) by the ratio factor. In this example, that would be 1.25 X 2 lbs of fertilizer = 2.5 pounds of fertilizer required in 1.25 gallons of water (determined in step 2) to get an end solution of 200 ppm. Or 1.25 X 908 = 1135g (1.135kg) in 5.625L of water to get 200 ppm.

Scientific Method

- To determine the number of grams/litre required to obtain a desired nutrient concentration, use the following formula:

$$\text{Grams/litre} = \frac{\text{desired concentration of nutrient in ppm}}{\% \text{ of nutrient in fertilizer X } 10}$$

eg: To obtain 200 ppm of nitrogen from 10-52-10 fertilizer:

$$\frac{200}{10 \times 10} = \frac{200}{100} = 2 \text{ grams/litre}$$

Thus a solution containing 2 g/L of 10-52-10 per litre will have a concentration of 200 ppm of nitrogen.

- To determine the concentration in ppm of a nutrient in a solution which has a known grams/litre of fertilizer, use the following formula:

$$\text{ppm} = \text{the amount of fertilizer in grams/litre (g/L) X the \% of nutrient in fertilizer X } 10$$

eg: What is the concentration of potash in ppm in a solution of fertilizer containing 5 g/L of 15-30-15?

$$\begin{aligned} \text{ppm} &= 5 \text{ g/L X } 30\% \text{ potash X } 10 \\ &= 5 \times 30 \times 10 \\ &= 1500 \end{aligned}$$

- If an injector is involved in dispensing the solution, these two formulas are calculated as follows:

$$\text{Grams/litre} = \frac{\text{injector ratio X desired concentration of nutrient in ppm}}{\% \text{ of nutrient in fertilizer X } 10}$$

$$\text{ppm nutrient concentration} = \frac{\text{g/L of fertilizer in solution X \% of nutrient in fertilizer X } 10}{\text{injector ratio}}$$

eg: Using the potash example above, and the injector diluting the 5 g/L solution at a ratio of 200:1, the potash nutrient concentration in the final solution becomes:

$$= \frac{1500}{200} = 7.5 \text{ ppm of potash}$$

Greenhouse Chemicals

Regarding Purchase of Chemicals

Due to legislative acts by Alberta Environment, the following conditions **MUST** be met in order for **ANY** chemicals to be purchased from *The Professional Gardener Co. Ltd.*

- For any use **within a city or incorporated limit** OR **on any property open to the public**: A VALID Pesticide Applicator's License must be presented at the time of purchase, or a supervisor's Pesticide Applicator's License information given. This information includes the full name of the applicator, the license number and the full expiry date. If the purchaser has an account with Professional Gardener, this information can be kept in the account's file.
- For application **within a greenhouse OUTSIDE a city or incorporated limit**, OR **for an acreage of 2 acres (1 hectare) or more**:

The owner of the property must purchase the chemical AND provide a legal land description. If the owner is having someone else pick up the material, the legal land description must still be provided. The legal land description is based on the Alberta Township System (ATS), can be found on a legal land document or utility bill and will include the Quarter, Section, Township, Range and Meridian. For example: **SW 24-38-20-W5** means the southwest quarter of section 24, township 38, range 20, west of the 5th Meridian.

Miticides

Avid 1.9 E.C (abamectin)	Controls spider mite & leafminer on greenhouse ornamentals & vegetables. Takes 3-4 days to take effect injurious to Shasta daisies.	1L CH20110
Vendex 50wp (fenbutatin-oxide)	Controls two spotted mites on cucumber & Tomatoes. Non-toxic to bees & not highly injurious to beneficial mites.	750 grams CH20170
Dyno-mite 75wp (pyridaben)	Controls two spotted mites & sweet potato whitefly on greenhouse ornamentals & vegetables. Protection for 21 or more days. On poinsettia apply before October Bract formation. Cucumber & tomatoes 2 days before harvest. Peppers 3 days before harvest.	10 X 28 grams CH20116
Dormant oil	Controls spider mite & scale.	4L CH41110,

Insecticides

Diazinon 50WP	Phosphate insecticide that controls aphids, leafminer, carnation bud mites, sow bugs chinch bugs, scale & mealy bug. Injurious to gardenia, poinsettia, hibiscus, stephanotis, pileas & hydrangea.	2 Kg CH15190
Decis 5.0 E.C (deltamethrin)	A synthetic pyrethroid for western flower Thrip. Registered for chrysanthemum, cineraria, Easter lilies & geraniums.	1L CH15521
Enstar II (s-Kinoprene)	Insect growth regulator that controls whiteflies & aphids. Not registered for vegetables. Avoid spraying open blooms buds or bracts. <i>Enstar</i> kills eggs, inhibits egg laying, sterilizes adults & at higher rates kills adults. Injury may occur on poinsettia bracts or delay roses.	1L CH15227
Safer's Soap 50.5%	Low toxicity chemical to control aphids, whiteflies, mealy bugs & mites. 1L CH15340 — 4L CH15360 — 10L CH15350	
Malathion 50EC, 25WP	Organo-phosphate for control of scale, whiteflies, mealy bugs, mites & aphids. <i>Do not</i> use on ferns, petunias some roses & carnation varieties	2 Kg CH15260 10L CH15270
Thiodan 4ec. 50wp. (endosulfan)	Controls aphids & cyclamen mites. May injure some geranium & chrysanthemum varieties.	10L CH15420

Tristar 70 WP	Controls aphids & whitefly on ornamentals in greenhouse & nursery stock. Do not apply to fruit bearing trees or vegetables. <i>Not more than two applications per year</i> in greenhouses, shade & lath houses.	6 X 16 grams CH15425
Trounce (soap 20%, pyrethrins 0.2%)	May be used on edible crops, trees, ornamentals, flowers, shrubs & vegetables. Kills leafhoppers, earwigs, beetles & whitefly.	1L CH15530 4L CH15535 10L CH15540
Intercept 60WP (imidacloprid)	Highly effective systemic on aphids & whitefly on containerized ornamental & greenhouse tomatoes, cucumber & poinsettia. Can only be applied once per crop year. <i>Dyno-mite</i> can be used in a rotational program for long term crops.	250 grams CH15224
Dimilin (defubrnzuron)	An insect growth regulator for the control of fungus gnats & shoreflies. Do not use on poinsettia, hibiscus or reiger begonia.	500 grams CH15155
Dibrom (naled)	For use on roses, tomatoes, cucumber & greenhouse crops. Apply directly to steam lines or on hot plate.	1 US gallon CH15200
Fungicides		
Daconil 2787 (chlorothalonil)	Excellent fungicide for the control of black spot, blossom blight, powdery mildew, botrytis on roses & other greenhouse crops. Applications should be repeated on a 7-day schedule during periods of wet weather.	10L CH60140
Ferbam (fermate)	An economical fungicide for controlling a variety of rots & rusts. For use of botrytis on greenhouse lettuce, tomatoes & cucumber.	4.54 Kg CH30341
Maestro 80W (re: Captan)	Virtually dust free, free flowing, a fine uniform sprayable suspension. Approved for a variety of fruits, tomatoes, cucumbers & ornamentals.	1 Kg CH30142
Compass 50WP (trifloxystrobin)	Controls powdery mildew & scab on outdoor ornamental fruit trees. As a spray for rhizoctonia on new seedlings in the greenhouse.	454 grams CH60166
Quintozene 75WP	For eradication of certain soil born diseases especially rhizocontonia. Effective for 3 months.	2 Kg CH30225
Rovral 50WP (iprodione)	Wettable powder fungicide suitable for resistant strains of Botrytis & for damping off caused by rhizoctonia . An eradicator & a protectant with good residue activity.	1 Kg CH30260
Ridomil Gold (metalaxyl)	Minor use label expansion for greenhouse cucumber of pythium root rot. Growers using this treatment are required to sign waivers of liability.	0.5L CH30245
Truban 30WP-25EC	Contact fungicide for the control of pythium & phytophthora. Damp off & stem rot in potted plants & soil mixes.	946 ml CH30290 907g CH30300
Previcur n (propamocarb hydrochloride)	A long lasting systemic & protectant against pythium in cucumber crops. Small seedlings should be washed off to prevent damage.	1L CH30122
Sulphur 90%	For powdery mildew & leaf spot, especially on Greenhouse tomatoes.	22.7 Kg FR36120
Meltatox BASF	For powdery mildew & leaf spot on greenhouse & field grown roses. In severe cases, apply on 3-day intervals.	1L CH30320
Phyton-27 (copper comp)	A liquid copper base bactericide/fungicide. Controls botrytis and powdery mildew on roses geraniums, poinsettia & begonia.	1L CH30215
Nova 40WP (mycobutanil)	A protective & curative systemic fungicide, powdery mildew on tomatoes & peppers. Powdery mildew & rust on poinsettia & other pot plants.	4 X 140 gram CH30325
Senator 70WP (thiophanate-methyl)	Controls powdery mildew, black spot, leaf spot & botrytis. Use on roses & ornamental pot crops.	2 Kg CH60182

Subdue Maxx (metalaxyl-m & isomer)	Controls pythium & phytophthora on greenhouse ornamentals & poinsettia.	1L CH60181
Growth Regulators		
A-Rest (ancymidol)	Light applications will produce more normal results. Heavier applications will produce more compact plants.	1L CH10112 4L CH10110
B-Nine (daminozide)	Gives stronger stems, greener leaves & more drought resistance. Foliar spray for chrysanthemums, azaleas, hydrangeas, poinsettia, & bedding plants.	500g CH10150 10 Kg CH10140
Bonzi (paclobutrazol)	Use on impatiens, coleus, celosia, geraniums, petunia & salvia. <i>Very effective at low dosages. Must be very accurately measured.</i>	1L CH10170
Cycocel (chlormequat chloride)	Gives a more sturdy and compact plant. Use after pinching plants, or when potting stock or cuttings with well- developed roots. Apply as a spray or drench for geraniums, azalea and poinsettias	1L CH10160
Ethrel (ethephon)	Used to ripen & give uniform fruit colour on tomatoes.	10L CH10180
Fumigation		
D.D.V.P. (dichloros)	Controls aphids, red spider mite, thrips, mealy bug & whitefly. Injurious to Shasta daisies & pink champagne chrysanthemums & some snapdragon.	12 cans/case CH35120
Miscellaneous products		
Yellow Sticky Strips	Attracts leafminer, whitefly, fungus gnats & thrips. 10 X 25 cm	CH15490
Blue Sticky Strips	Attracts thrips two to three times higher than yellow sticky strips.	10 X 25 cm CH15496
Stim Root	#1 for soft wood (CH45110); #2 for medium-hard wood (CH45120); #3 for hard wood (CH451130)	500 grams
Leaf Clean	Enhances the appearance of tropical broadleaf foliage. No waxes or solvents.	3.78L CH15355
Virucidal Extra (potassium monopersulphate)	A wide spectrum virucidal, bactericidal & fungicidal wash. Foot, tool & greenhouse wash.	3 Kg CH42150

SAFETY FIRST!!!

Always wear the appropriate protective clothing and gear as stated on the label!!

READ THE LABEL !!

These Chemical Tables are **GENERAL GUIDELINES ONLY**. They are by no means complete and are **NOT** to be used as a substitute for instructions or information provided on the chemical label. For specific information, please contact the chemical manufacturer.

EC, pH & Light Meters	
EC Pen - DiST 6	EQ25193
EC Meter - 71 digital	EQ25110
EC Replacement probe	EQ25140
EC 1.413 Solution	EQ25151
EC 2.00 Solution	EQ25150
EC 12.88 SOLUTION	EQ25152

pH / EC Combo Meter w/ temp	EQ25190
pH Meter -- 57 Digital	EQ25180
pH Pen -- Micro pHep 4 w/ temp	EQ25192
pH 4 Buffer solution	EQ25210
pH 7 Buffer solution	EQ25205
pH 10 Buffer solution	EQ25200



pHep 4
pH Pen



DiST 6
EC Pen



pH/EC Gro
Check Meter

pH Replacement Probe	EQ25220
Lux / Light Meter	EQ25160

SAFETY FIRST !!

The Professional Gardener supports care and safety in the workplace. For the protection of the applicator and surrounding crops, precautions must be taken when applying any chemical or fertilizer. Always read the information and instruction provided on the container label. If a specific crop or concern is not addressed, contact the chemical manufacturer for more information.

(Right)
Kasco Prof88
Helmet



(Left) Full Mask
(Below) Half Mask

Clothing

Gloves Solvex Size 9, 10, 12	CH50140
Gloves Vinyl Coated	CH50130
Jacket Yellow – Large	CH50115
Jacket Yellow – Med w/hood	CH50114
Pant Yellow – Medium	CH50117
Pant Yellow – Large	CH50116

Tyvox Spray Suits

Spray Suits – Large	CH50162
Spray Suits - Medium	CH50160
Spray Suits - XLarge	CH50164
Spray Suits - XXLlarge	CH50170

Kasco Masks & Respirators

Kasco Prof88 Helmet	CH51200
Kasco Charger for Prof88	CH51221
Kasco Filter Prof88 (ZA1P3)	CH51220
Kasco Filters T80 (ZA2P3)	CH51210

3M Masks & Respirators

6900 Full Face Mask	CH51120
Respirator 3M #6300(L) complete	CH51100
Half Mask only #6300	CH51110
Prefilters #5N11 (for 6300) 10/pkg	CH51116
Retainers #501 (for 6300)	CH51114

Ultra View Masks

Ultra View Mask Complete	CH51190
Ultra View Lens Only	CH51185
Straps for ultra view	CH51180

WEIGHTS & MEASURES

Measuring Containers	250 ml	CH51300
	1 Litre	CH51305
	3 Litre	CH51315
	5 Litre	CH51320
Scale (Universal)	4 Kg	CH50125
	11 Kg	CH50127
	800 gram	CH50120





(Left) MLVH-10A Mini Autofog™ – Perfect for smaller Greenhouses. (Above) Electric Heavy Duty Sprayer. Fully adjustable pressure up to 500 PSI, and adjustable spray pattern and output rate. Shown above right with optional cart and 12 gallon tank.

DRAMM

(Right) Dyna-Fog Hurricane Electric Portable Aerosol Applicator. Dispenses both oil and water-based products. Three precision nozzles provide greater output capacity. Adjustable between 0-5 GPH, and can handle both large and small areas.



4" dia. Air Intake Port w / Washable Filter

Dramm Mini AutoFog MLVH-10A	EQ40135
Dramm Discharge Hose for CS5AG	EQ40125
Dramm Electric Sprayer H.D.	EQ40120
Dramm HERBI 1 360	EQ40132
Dramm HERBI 2 Dir'tl	EQ40133
Dramm ULVA Sprayer	EQ40130
Spray Shield 16"	EQ40179
DynaFog Anileator Fogger	EQ70167
DynaFog Hurricane	EQ70166
DynaFog Model 2610	EQ70165
JD9-C Spray Gun	EQ40195
Flooding Nozzle for JD9-C (4GPM) PF6014	EQ40193
Flooding Nozzle for JD9-C (5GPM) PF603-5	EQ40192
Root Feeder	EQ40190
Root Feeder Tip 2 Hole	EQ40198
Root Feeder Tip 4 Hole	EQ40206
Side Swipe THS	EQ40280
Sun AP-2 Hand Sprayer	EQ46100
Sun Backpack sprayer	EQ46000
Sun Drift Guard	EQ46070



(Back) Flooding Nozzles
(Front) Nozzle Tips



Root Feeder Attachments



JD9-C
Spray Gun

Ruggedly built and precise, the JD9-C applies solutions in a fine spray to a precise stream. With a host of optional nozzles and feeding attachments, the JD9-C is a versatile and indispensable part of your spray equipment.

The Backpack Sprayer and Hand Sprayer Units are perfect for those small jobs, be it pesticide or growth regulator applications. The long hose and nozzle on the Backpack Sprayer make it easy to reach those hard spots. With adjustable nozzles, from stream to spray, these versatile units put full control of the application into your hands!



(Above Left) Sun AP-2 Hand Sprayer
(Above Right) Sun Backpack Sprayer



Dramm
HERBI 1
360

Side Swipe THS

The **Dramm HERBI 1 360** provides a precise 4', 360° Controlled Droplet Application (CDA), which puts the pesticide where you want it with reduced risk of drift and damage to valuable crops. Battery controlled, it can treat several acres in an hour.

It's not a hockey stick . . . it's the **Side Swipe THS!** The handle/reservoir feeds the wiper on the blade of the stick. Swipe only the weeds . . . your valuable plants remain safe!!!