Welcome to Holland Hydroponics, if you’re into hydroponics then you’ve come to the right place!

Here at Holland Hydroponics we have everything you need under one roof. From grow lights to high-tech nutrient supplements, we have over sixteen years’ experience stocking products from leading brand suppliers with proven track records.

Our friendly and informative staff are on hand to help you make the right choice. We have a large premise on Rondin Road in Manchester. It’s packed full of the most popular and cutting-edge hydroponics equipment - at extremely competitive prices.

We also have an extensive network of specialists who can advise you on getting the most from your gardening projects. Whether hydroponics is your hobby or your profession. In addition to our hydroponics and lighting range we are increasingly catering to the organic-minded grower, supplying a wide range of natural, bio and eco-friendly gardening products.

We are happy to answer questions by phone or email. We highly recommend a visit to one of our stores where our experienced staff are happy to demonstrate our products. Good luck and happy growing from all of us at Holland Hydroponics!

OUR MONEY BACK GUARANTEE

Your satisfaction is important to us and we always aim to provide the best service and products possible. If you are not completely satisfied with any item you have bought from us, return it to us unused and in the original packaging and condition in which you received it with the receipt within 30 days of purchase and ask for a full refund. All of our electrical and digital items have a manufacturers guarantee; faulty items may have to be referred to the manufacturer for inspection before a new product is given out. We will not be held responsible for any damage caused by you (the customer). Faulty lamps (bulbs) will only be exchanged if returned with original OUTER wrapper.

All electrical products come with a one to five year manufacturers guarantee, please contact Holland Hydroponics on 0845 8720569 or call us free on 0800 038 7100 for the exact guarantee on any product. We operate an exchange policy; please contact us for full details. All lighting units are tried and tested twice before leaving our premises.

LOOKING FOR A PRICE?
IT’S EASY YOU CAN EITHER :-

• GIVE US A CALL: FREEPHONE 0800 038 7100
• VISIT OUR WEBSITE WWW.HYDROPONICS.CO.UK & SEARCH BY PRODUCT CODE (TOP RIGHT HAND CORNER)
• SEND US AN EMAIL: SALES@HYDROPONICS.CO.UK

If you’re an “Express” shopper (use our Huddersfield store) look out for the symbol in the product list of the catalogue and website - all constantly stocked items at the Express stores will have this symbol next to them. All Express items also have the Express logo on the picture. Don’t worry if what you want isn’t an Express stocked item - we can get it there for you within a few days at no extra cost!

You can order any items from the Express stores using the following methods:

• ORDER ONLINE
  Simply reserve and collect to pick up at Huddersfield (please leave your details so we can contact you when it is there).

• BY PHONE
  Call us on 0845 872 0569 or FREE on 0800 038 7100.

• CALL INSTORE
  Order in-store to collect at a later time.

PLEASE NOTE: There will be a short waiting time if the product you want is not in stock.

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...it’s easy!

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All electrical products come with a one to five year manufacturers guarantee, please contact Holland Hydroponics on 0845 8720569 or call us free on 0800 038 7100 for the exact guarantee on any product. We operate an exchange policy; please contact us for full details. All lighting units are tried and tested twice before leaving our premises.
Lighting for Propagation

When plants are young, high pressure lighting can be too intense, causing them stress and negatively affecting growth. Instead, cuttings and seedlings can be placed under fluorescent lighting until they are ready to move on into the vegetative stage.

Fluorescent lights do not require a ballast (they are self-ballasting), run at low temperatures and have a much lower running cost compared to high pressure lamps. Because the light they produce is less intense, it diminishes more quickly and therefore it is best to place fluorescent lights close to your plants, within a few inches to the plant’s top.

Fluorescent lights are available as single tube fittings or canopies that combine several tubes in a reflective hood. Also available are compact fluorescent (CFL) lamps, which provide a more intense light for small spaces by effectively coiling several long tubes into a compact form.

Lamps with a blue, white or purple colour can be used for propagation, though purple is favoured as it most effectively promotes root growth in the early stages. During propagation, lights should be kept on for 18 hours a day, although many growers find that quicker growth is achieved by keeping them on constantly, without a night period at all.

High Intensity (HID) lighting for growth and flowering

When plants enter the adult stages of their life they benefit from much stronger light. When light hits the leaves, the plant uses this energy through photosynthesis to fuel its many processes. The more energy the plant is given, the more quickly it can grow and the greater harvest it can yield.

High intensity lighting systems use highly pressurised gas to produce very strong light which is able to drive plants to achieve their maximum potential. Because the light is very intense, it diminishes less severely and is therefore suitable for covering several plants from top to bottom.

The main downside to high pressure systems is that the lamps produce an extraordinary amount of heat, which can raise grow room temperatures to levels which are damaging to plants. This means that the amount of light you can give the plants is limited by your ability to maintain acceptable temperatures in the space through ventilation or by isolating the lamp in an air-cooled reflector. High pressure systems are available at several levels of power to suit different sized spaces, the most common being a 600w unit which can cover 1.2m².

What do I need?

- A. Ballast
- B. Bulb
- C. Reflector
- D. Contactor & Timer
- E. Hanging Equipment

Order Online At: www.hydroponics.co.uk  Mail Order Tel: 0845 872 0572
1. Kaizen Complete
Our lowest price yet! 600W complete lighting kit from Kaizen. Extremely good quality and value for money. Comes with one year guarantee. Ideal for growers who operate on a budget without compromising on quality.

COMPLETE SYSTEMS INCLUDE:
KAIZEN COMPLETE 600W:
Reflector + 600W Ballast + 600W Dual Spectrum Lamp

2. Compact MK3 Complete
This superb value complete lighting system comes with reflector, a Maxibright compact ballast, and a bulb.

COMPLETE SYSTEMS INCLUDE:
COMPACT MK3 COMPLETE 250W:
Reflector + 250W Compact Ballast + 250W Dual Spectrum Lamp

COMPACT MK3 COMPLETE 400W:
Reflector + 400W Compact Ballast + 400W Dual Spectrum Lamp

COMPACT MK3 COMPLETE 600W:
Reflector + 600W Compact Ballast + 600W Dual Spectrum Lamp

COMPACT MK3 COMPLETE 1000W:
Reflector + 1000W Compact Ballast + 1000W Sodium Son-T Lamp

3. Megalight Complete
Quality lighting at budget prices! Fully vented metal ballast unit. Ideal for both hobby and commercial growers.

COMPLETE SYSTEMS INCLUDE:
MEGALIGHT COMPLETE 400W:
Reflector + 400W Megalight Ballast + 400W Dual Spectrum Lamp

MEGALIGHT COMPLETE 600W:
Reflector + 600W Megalight Ballast + 600W Dual Spectrum Lamp

See Lighting & Accessories
Turn to page 016

Light Movers
Banish dark corners, use a light mover

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. Diamond Complete

Shaped like a diamond to give maximum output and avoids hotspots with even light spreading. Lightweight. Computer designed to be the ‘ultimate reflector’. Separate designs for 250/400 watt and 600/1000 watt for optimal reflection characteristics - please make sure you ask for the right type for your bulb.

**COMPLETE SYSTEMS INCLUDE:**

**DIAMOND COMPLETE 400W**
- Diamond 250W/400W Reflector + 400W Ballast + 400W Dual Spectrum Lamp
- Diamond Complete 400W

**DIAMOND COMPLETE 600W**
- Diamond 600W/1000W Reflector + 600W Ballast + 600W Dual Spectrum Lamp
- Diamond Complete 600W

**DIAMOND COMPLETE 1000W**
- Diamond 600W/1000W Reflector + 1000W Ballast + 1000W Sodium Son-T Lamp
- Diamond Complete 1000W

**DIAMOND REFLECTOR ONLY 250-400W**

**DIAMOND REFLECTOR ONLY 600-1000W**

1. Diamond Complete

2. Ultralite Pro Complete

For the dedicated gardener, this unique and patented horizontal parabolic reflector gives a beautifully even spread of light. In George Van Patten's tests this reflector gave the best performance (most lumens on the plants) with a 600 watt bulb. The Ultralite system comes complete with a ballast and a bulb.

**COMPLETE SYSTEMS INCLUDE:**

**ULTRALITE PRO COMPLETE 400W**
- Ultralite Pro Reflector + Bulb Holder & Cord Set + 400W Ballast + 400W Dual Spectrum Lamp

**ULTRALITE PRO COMPLETE 600W**
- Ultralite Pro Reflector + Bulb Holder & Cord Set + 600W Ballast + 600W Dual Spectrum Lamp

**ULTRALITE PRO COMPLETE 1000W**
- Ultralite Pro Reflector + Bulb Holder & Cord Set + 1000W Ballast + 1000W Sodium Son-T Lamp

2. Ultralite Pro Complete

3. Supernova Complete

Maximise your results with the Supernova complete system. The Supernova reflector offers very high reflectivity through its hammered dimpled anodised aluminium.

**COMPLETE SYSTEMS INCLUDE:**

**SUPERNOVA COMPLETE 400W**
- Supernova Reflector + 400W Ballast + 400W Dual Spectrum Lamp

**SUPERNOVA COMPLETE 600W**
- Supernova Reflector + 600W Ballast + 600W Dual Spectrum Lamp

**SUPERNOVA COMPLETE 1000W**
- Supernova Reflector + 1000W Ballast + 1000W Sodium Son-T Lamp

3. Supernova Complete

Why Use a Reflector?

Reflectors help you make the most of your grow lights by reflecting light (that would otherwise escape) back down in the direction of your plants. There are many different types of reflectors that are suited to different environments and applications. All of our reflectors can be sold separately. We're always happy to give you advice on compatibility and help you to decide which reflector will work best to meet your needs.
Adjust-a-Wing 1

Control the direction and spread of your light with an Adjust-a-Wing lighting system. The ingenious Adjust-a-Wing reflector can be configured to increase lighting efficiency in your garden by either spreading light out or directing it straight down like a beam (perfect for use with light movers).

COMPLETE SYSTEMS INCLUDE:

ADJUST-A-WING COMPLETE 250W
Adjust-a-Wing Reflector 250W-600W + Adjust-a-Wing Housing 250W-600W + 250W Ballast + 250W Dual Spectrum Lamp

ADJUST-A-WING COMPLETE 400W
Adjust-a-Wing Reflector 250W-600W + Adjust-a-Wing Housing 250W-600W + 400W Ballast + 400W Dual Spectrum Lamp

ADJUST-A-WING COMPLETE 600W
Adjust-a-Wing Reflector 250W-600W + Adjust-a-Wing Housing 250W-600W + 600W Ballast + 600W Dual Spectrum Lamp

ADJUST-A-WING COMPLETE 1000W
Adjust-a-Wing Reflector 1000W + Adjust-a-Wing Housing 1000W + 1000W Ballast + 1000W Sodium Son-T Lamp

Adjustable parabolic reflector. exceptionally lightweight. Fully adjustable to give maximum light spread and directional control. Ideal for slopy roofs.

Super-reflective dual parabolic cross-section reflector for minimum light loss and even light distribution so your canopy grows flat. Comes with the Lumatek electronic ballast for the perfect combination to give maximum, quality light production from a single bulb.

Superwing Complete 600W

Superwing Reflector + Bulb Holder & Cord Set + Lumatek 600W Ballast + 600W Dual Spectrum Lamp

Powerful ventilation without the noise
1. Vertizontal Complete

This large size Vertizontal reflector provides a wide area of coverage from low mounting heights. This reflector can be mounted vertically or horizontally. Size 46” Diameter x 10” Deep.

COMPLETE SYSTEMS INCLUDE:

VERTIZONTAL COMPLETE 600W
Vertizontal Reflector + 600W Dual Spectrum Lamp + 600W Magnetic Ballast

VERTIZONTAL DIGITAL COMPLETE 600W
Vertizontal Reflector + 600W Dual Spectrum Lamp + 600W Digital Ballast

2. Grostar Complete

Grostar reflector is mirror-coated for minimum 95% reflection of light, meaning more plant growth for the same wattage of lamp. It can be bought as the reflector alone or as a full system with the 600W Hacienda digital ballast and a 600W Dual Spectrum Sunmaster bulb, 42” square (approx 110cm) 16” deep (approx 41cm) and very light weight - Approx 2.2 lbs (1kg).

COMPLETE SYSTEMS INCLUDE:

GROSTAR DIGITAL COMPLETE 600W
Grostar Reflector + Grostar Housing + 600W Hacienda Digital Ballast + 600W Dual Spectrum Lamp

3. Sun King Complete

The Sun King features a symmetrical parabolic design which disperses light uniformly, even when mounted at a low height. It is constructed from highly reflective imperial white powder coated aluminum and has a vertically mounted bulb holder, allowing you to position the reflector closer to your plants without hotspots. The reflector can be used with sodium and halide bulbs up to 1000W.

Medium Reflector: H29cm, Diameter 80cm
Large Reflector: H39cm, Diameter 100cm

COMPLETE SYSTEMS INCLUDE:

SUN KING MEDIUM COMPLETE 600W
Sun King Medium Reflector + 600W Dual Spectrum Lamp + 600W Magnetic Ballast

SUN KING MEDIUM DIGITAL COMPLETE 600W
Sun King Medium Reflector + 600W Dual Spectrum Lamp + 600W Digital Ballast

SUN KING LARGE COMPLETE 600W
Sun King Large Reflector + 600W Dual Spectrum Lamp + 600W Magnetic Ballast

SUN KING LARGE DIGITAL COMPLETE 600W
Sun King Large Reflector + 600W Dual Spectrum Lamp + 600W Digital Ballast

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**Digital Light Systems**

**1. Hacienda Complete**

Bringing you the best digital technology on a budget!

- Fast start-up, high lumen output, lightweight and cool-running unit.
- 2 year warranty.

**COMPLETE SYSTEMS INCLUDE:**

**HACIENDA COMPLETE 400W**
Reflector + 400W Hacienda Digital Ballast + 400W Dual Spectrum Lamp

**HACIENDA COMPLETE 600W**
Reflector + 600W Hacienda Digital Ballast + 600W Dual Spectrum Lamp

**2. Lumatek Complete**

- The latest in digital technology ballasts.
- Super Lumens Switch increases lumen output by 10% on HPS bulbs only.
- Do not use the Super Lumens Switch for Metal Halide or mixed Sodium bulbs like Grolux or Dual Spectrum.
- Lightweight, silent operation and cool running.
- Longer lamp life due to gentle but fast start-up.

- 3 years full warranty.
- IEC connector.
- Internally radio frequency shielded.
- Unique graduated cooling fins.
- Resin-coated components for long life.
- Screwholes for wall mounting.

**LUMATEK ELECTRONIC COMPLETE 250W**
Reflector + 250W Lumatek Ballast + 250W Sodium Son-T Lamp

**LUMATEK ELECTRONIC COMPLETE 400W**
Reflector + 400W Lumatek Ballast + 400W Dual Spectrum Lamp

**LUMATEK ELECTRONIC COMPLETE 600W**
Reflector + 600W Lumatek Ballast + 600W Dual Spectrum Lamp

**3. Quantum Complete**

- This complete system features the Quantum ballast an amazing new dimmable digital ballast.
- Offers a dimming switch that allows you to run at 100%, 75% or 50% power.
- Can be used with high pressure sodium and Metal Halide bulbs.

- Runs 15% cooler than other digital ballasts
- 99.9% power factor
- Stable output frequency
- Higher lumen output than magnetic ballasts
- Care free and light weight.

**QUANTUM COMPLETE 600W**
Reflector + 600W Quantum Digital Ballast + 600W Dual Spectrum Lamp
1. Blockbuster Reflector

Square shaped 150mm Block Buster air cooled reflector is perfect for square growing areas 95% of the interior is made from reflective European aluminum. It is sealed with neoprene gaskets and hinged glass.

It comes wired with lamp cord and socket and has galvanized steel housing with Dupont powder coated finish.

2. Magnum XXXL Reflector

The Magnum XXXL reflector is one of the largest reflectors! Maximum air cooling with 150mm (6”) fittings built-in. Comes with built-in socket & amp, 15 ft lamp cord and tempered glass. Sealed with gasketed glass and integrated retention bars to hold glass tightly in place. 95% reflective German aluminum interior, offers excellent reflectivity and diffusion. Galvanized steel body powder-coated. Re-strike bend above the lamp for optimum performance.

Dimensions: 32 1/2” long x 26 1/4” wide x 7 3/4” tall

3. Super Sun 2 Reflector

A 150mm Air-Cooled reflector with integrated 150mm (6”) air-cooled fittings the Super Sun 2 reflector is ideal for the small set up.

Manufacturers Information

• Sealed with neoprene gasket and hinged glass.
• Design is based on the high original Super Sun® Reflector performance
• Galvanized steel with Dupont powder coating.

4. In/Out Air-Cooled Supernova Complete

The In/Out Air-cooled Supernova reflector has 2 x 6” flanges to attach ducting on both sides, Meaning you can bring in a separate air supply to cool the bulb.

IN/OUT AIR-COOLED SUPERNOVA COMPLETE 400W
In/Out Air-cooled Supernova Reflector + 400W Ballast + 400W Dual Spectrum Lamp + Supernova Glass Bracket/Cover + Supernova Glass

IN/OUT AIR-COOLED SUPERNOVA COMPLETE 600W
In/Out Air-cooled Supernova Reflector + 600W Ballast + 600W Dual Spectrum Lamp+ Supernova Glass Bracket/Cover + Supernova Glass

IN/OUT AIR-COOLED SUPERNOVA COMPLETE 1000W
In/Out Air-cooled Supernova Reflector + 1000W Ballast + 1000W Sodium Son-T Lamp+ Supernova Glass Bracket/Cover + Supernova Glass

Order Online At: www.hydroponics.co.uk  Mail Order Tel: 0845 872 0572
Air Cooled Lighting

Wave goodbye to heat problems with this complete air-cooled lighting solution - everything you need for one great price! This popular and versatile system is based on the MK1 Air-Cooled Supernova lighting system and comes complete with a 100mm fan, ducting, glass and glass bracket. Air-Cooled lights work by passing air continuously over the lamps and exhausting this warm air out of your grow room via some ducting. Using acoustic/insulated ducting on the outlet will help cool your growroom even more.

1. Sunstretcher Medium Complete

Amazing new air-cooled complete system at an affordable price! The Sunstretcher Medium provides excellent cooling and reflectivity. Highly reflective dimpled reflector with 95% reflective European aluminium inner. Completely sealed by a hinged glass cover and is powder coated. Has two 6” (150mm) air ducts and comes with pre-wired cable and E40 lamp holder. Great product at an amazing price! Fans sold separate. Reflectors measures 690mm x 540mm x 245mm.

COMPLETE SYSTEMS INCLUDE:
- SUNSTRETCHER MEDIUM COMPLETE 600W
- SUNSTRETCHER MEDIUM DIGITAL COMPLETE 600W
- SUNSTRETCHER MEDIUM 6” REFLECTOR ONLY

2. Sunstretcher XXXL Complete

The Sunstretcher XXXL system is a fantastic new air-cooled complete system at a bargain price! Highly reflective, huge dimpled reflector with 95% reflective European aluminium inner. Completely sealed by a hinged glass cover with a safety cable secure it into place. Constructed using heavy duty galvanised steel with a powder coat. It has two 150mm air ducts and comes with pre-wired cable and E40 lamp holder. Great product offering maximum light spread at an unmissable price! Reflectors measures 995mm x 690mm x 250mm

COMPLETE SYSTEM INCLUDES:
- SUNSTRETCHER XXXL COMPLETE 600W
- SUNSTRETCHER XXXL DIGITAL COMPLETE 600W
- SUNSTRETCHER XXXL 6” REFLECTOR

3. Cooltube Complete

The Cool Tube System is similar to the Cool Shade System but it is designed for narrower and 1.25mm (5”) ducting.

COMPLETE SYSTEMS INCLUDE:
- COOLTUBE SYSTEM COMPLETE 5” 250W
- COOLTUBE SYSTEM COMPLETE 5” 400W
- COOLTUBE SYSTEM COMPLETE 5” 600W
- COOLTUBE SYSTEM DIGITAL COMPLETE 5” 400W

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. Cool Shade Complete

The Cool Shade System features the revolutionary Cool Shade reflector - engineered to channel excess heat away from your growroom. Its patented tubular design works with an inline duct fan (sold separately) to actively air-cool the bulb. This all adds up to cooler grow rooms, greater light penetration, and increased yields. The Cool Shade houses a removable internal reflector. 150mm (6") diameter, 52cm length.

COMPLETE SYSTEMS INCLUDE:

COOLSHADE SYSTEM COMPLETE 6" 250W
Coolshade 6" Reflector + 250W Ballast + 250W Dual Spectrum Lamp

COOLSHADE SYSTEM COMPLETE 6" 400W
Coolshade 6" Reflector + 400W Ballast + 400W Dual Spectrum Lamp

COOLSHADE SYSTEM COMPLETE 6" 600W
Coolshade 6" Reflector + 600W Ballast + 600W Dual Spectrum Lamp

COOLSHADE SYSTEM COMPLETE 6" 1000W
Coolshade 6" Reflector + 1000W Ballast + 1000W Sodium Son-T Lamp

2. Twin Cool Shade Complete

Double your light output, use the Twin Cool Shade complete system with two bulbs. Same as the cool tube 6" but fits two bulbs. It fits perfectly in a 1.2 metre tent.

COMPLETE SYSTEMS INCLUDE:

TWIN COOL SHADE COMPLETE 600W
Twin Cool Shade 6" Reflector + 600W Ballast + 600W Dual Spectrum Lamp

TWIN COOL SHADE COMPLETE 1000W
Twin Cool Shade 6" Reflector + 1000W Ballast + 1000W Sodium Son-T Lamp

Diamond Extraction Kit

High temperatures giving you a headache try our air cooled reflectors with an extraction kit.

Includes:
- Quality in-line extraction fan
- 10m of aluminium ducting
- ‘Diamond’ Carbon Filter

SEE VENTILATION TURN TO PAGE 106
Types of Reflectors

- **Parabolic**
  Parabolic reflectors have a unique shape for more light spread; the shape enables the waves of light to reflect in different angles in a downward direction instead of straight down. Forming an even spread of light across the plant canopy ensures all plants benefit from the same amount and intensity of light. Ideally suitable for a grow room rather than a tent as the reflectors are large and can be heavy.

- **Air-cooled**
  Air cooled lighting works by using a separate extraction system to remove the hot air from around the bulb and reflector. They can either be open to the grow room or sealed systems with a separate exhaust and intake to the ventilation system in the room. Sealed systems are recommended for use in grow rooms using CO2 as this way the fans ventilating the room can be turned off (so the CO2 isn’t removed) but the hot air from around the light can be removed (keeping temperatures low).

- **Other Reflectors**
  The diamond reflector – this reflector was designed specifically for use with HID lighting, taking into account the properties of the light the HID bulbs emit. Perfect for an average size tent.
  The Euro reflector – this reflector is a standard dimpled reflector that is supplied with our standard lighting kits or can be purchased separately. It gives an average coverage of 1m² and the dimpled texture prevents hotspots. Excellent value for money.

Why do I need a contactor?

The contactor - or relay - is necessary because if HID lights are plugged directly into a standard timer the amount of power being pulled through it is enough to simply melt the timer’s contacts. Even if a timer seems to be working for the time being, it is only a matter of time before this happens, and it can be truly disastrous. If it does, the timer will usually stick on the 'on' position, ruining any flowering plants and potentially causing a fire hazard. A contactor separates the timer from the large flow of electricity the lights draw through it, ensuring this does not happen. They are available with a timer built into the unit, or with two plugs, one of which carries the power whilst the other plugs into a timer of your choice. Also available are heavy duty timers, which can be used for one 600w light without needing a contactor.

Why do I need a timer?

How do plants know when the seasons change and when to flower? The answer is that they have an internal chemical process which effectively measures the length of the day, and as the days become shorter in late summer, there is a tipping point at which the plant changes into flowering mode. This means that to keep indoor plants from prematurely flowering we must provide them with light for at least 18 hours a day. Likewise, once they are in flower their light periods must be limited to 12 hours a day; otherwise they may switch back into vegetative mode which can ruin the grow. This is why it is crucial to have the lights connected to a timer, so that the length of the plants’ light period can be strictly controlled and kept regular.

Why do I need hanging equipment?

It is important to be able to easily adjust the height of your lighting unit so that the plants receive the optimum levels of light without being burnt by the heat from the lamp. For HID lighting it is ideal to have around 18 inches between the lamp and the top layer of foliage. If you notice these leaves becoming crispy and curling up at the edges the lamp may be too close. For young plants you may need to move the light further away to avoid causing them shock.

It is also critical that your hanging equipment is strong and reliable. Many reflectors – notably air-cooled systems – are quite heavy and it could be a costly and dangerous mistake if one were to fail. Chain is the cheapest option but can be frustrating to work with, whilst other products such as Rope Ratchets combine strength and ease of use.

Order Online At: [www.hydroponics.co.uk](http://www.hydroponics.co.uk)  
Mail Order Tel: 0845 872 0572
What is a ballast?

A ballast is a device used to limit and regulate the power fed to an HID lamp, so that it has the consistent current necessary for stable operation. Ballasts are essential and must match the power rating of the lamp, i.e. a 400w ballast must only be used with 400w lamps.

There are two main types of ballast available, magnetic (A) and digital (B). Whilst traditional HID ballasts use a magnetic induction coil, newer digital ballasts utilise solid-state technology to run at a much higher frequency giving you a constant source of light at greater efficiency. This results in a longer life for your lamps and ballast, less noise and heat produced and lower running costs. For these reasons we highly recommend using digital ballasts. Unfortunately they are more expensive than magnetic ballasts, but they do represent much greater value in the long-term.

Which HID lamp (bulb) should I use?

When in the vegetative stage, plants prefer light in the blue part of the spectrum, whereas flowering plants are more productive under red light. This is a consequence of the movements of the sun during the plant's natural seasonal cycle. They grow vigorously in the spring (when we have the longest days and the sun is clear and high in the sky) and produce flowers throughout the summer until their autumnal harvest time when the sun is lower, days gradually shorten and its light shifts toward the red part of the spectrum (think of the warm light of a late summer evening).

There are three main options available for HID systems to suit these requirements:

- **High Pressure Sodium Example**
  - Dual Spectrum High Pressure Sodium (HPS) - The best value, most user-friendly and most commonly used kind of lamp; producing a blended light which contains both red and blue parts of the spectrum. This lamp can be used for both vegetative and flowering stages of the plant's life.
  - Red spectrum HPS - These lamps produce light predominantly in the red/orange part of the spectrum, and are designed to achieve maximum results during the flowering stage.

- **Metal Halide Example**
  - Metal Halide - Although these lamps are available with different spectrums, they are predominantly known as a blue spectrum lamp which is excellent for the vegetative stage. Many growers have found these lamps produce healthier, more vigorous plants during vegetation when compared to dual spectrum lamps. Metal Halide lamps also benefit from slightly cooler running temperatures.

Fluorescent lighting for growth and flowering

Fluorescent lighting systems (as outlined above - see Lighting for Propagation) can be used for the vegetative and flowering stage. Because of their low running temperature they are ideal for growing in small spaces and their low power usage keeps costs low for the small scale grower. They are available in both blue/white for vegetative growth and red/orange for flowering.

They are an excellent option during the vegetative stage because they can be placed much closer to the plant's foliage, which tends to encourage the plant to remain short and bushy; favourable characteristics to look for when growing indoors.

Fluorescent systems can be used for flowering, but do not produce good results when compared to an HID system. Because the light they produce is low intensity they struggle to penetrate the foliage and reach lower branches, meaning that several fluorescent bulbs may be needed to fully cover your plants during flowering.
1. Kaizen Ballast

The Kaizen ballast is extremely good quality and value for money. It comes with one year guarantee. Perfect for growers who operate on a budget without compromising on quality.

Kaizen Ballast 600W

2. Compact MK3 Ballast

Smaller than average ballasts but still packs a punch. For additional peace of mind, these ballasts come with a 1 year guarantee.

Compact MK3 Ballast 250W
Compact MK3 Ballast 400W
Compact MK3 Ballast 600W
Compact MK3 Ballast 1000W

3. Megalight Ballast

Fully-vented metal ballast unit. Ideal for both hobby and commercial growers.

Megalight Ballast 400W
Megalight Ballast 600W

4. Hacienda Ballast

Shielded against and designed for low radio frequency output, the bane of many other digital ballasts. Gentle with your bulbs, the electronic control stresses the bulb less than with magnetic ballasts. When used with the Sunpulse range of lamps, the lamps themselves also have a 2 year warranty.

Hacienda Digital Ballast 400W
Hacienda Digital Ballast 600W

5. Lumatek Ballast

Lumatek electronic ballasts are at the cutting-edge of digital ballast technology. Producing up to 14% more lumens per watt than a standard magnetic ballast, Lumatek ballasts offer faster start-up times, silent operation and longer bulb life, all housed in a sleek, lightweight, and compact design.

Lumatek Electronic Ballast 250W
Lumatek Electronic Ballast 400W
Lumatek Electronic Ballast 600W

6. Quantum Digital Ballast

The Quantum digital ballast produces more lumens than standard electronic ballasts. It is also dimmable for different stages of your grow. Offers a dimming switch that allows you to run at 100%, 75% or 50% power. Can be used with high pressure sodium and Metal Halide bulbs. Accepts 120V (5.4Amp) or 240V (2.6Amp) includes both cords. 50 to 60 Hertz allowed Runs 1.5°C cooler than other digital ballasts Has a 99.9% power factor. It has the most stable output frequency. It has a higher lumen output than magnetic ballasts Care free and light weight.

Quantum Digital Ballast 600W

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572

013
1. **Lumen8 Dual Spectrum**

Holland Hydroponics is very excited to announce the arrival of the new “Lumen8” lamp. Offering one of the highest performance lighting solutions available, Lumen8 lamps have been developed with the growers who want the best results in mind. Developed by the Lumen8 Lamp Design Technologies labs, these lamps have been designed by leading horticulturalists and utilize PAR (photosynthetic ally active radiation) lighting for optimum fruiting and flowering and increased yields. The Lumen8 range of dual spectrum lamps produce blue and red light for optimum results and also produces additional UV for finishing and ripening. The lamps are compatible with all magnetic and digital ballasts. These lamps are available in 600W. 6 month guarantee.

2. **Sunmaster Dual Spectrum Lamps**

Sunmaster Lamps have been specially designed for horticultural use. Offering more red and blue usable light without depleting overall lumen output or intensity. 6 month guarantee.

3. **Grolux Lamps**

This great general purpose horticultural bulb will give you optimum plant growth. The colour has been adjusted to provide a broader spectrum of light (in the blue spectrum) which makes it ideal for both vegetative growth and flowering. 6 month guarantee.

4. **Plantastar Blended Lamps**

Like the Grolux, this blended sodium bulb can be used for both grow and bloom stages to achieve fantastic results. 6 month guarantee.

5. **Sylvania 250W Son-T Lamp**

Full red spectrum, high pressure sodium bulb. Perfect for flowering your plants. Around 32,000 lumen output. 6 month guarantee. Do not confuse with the Grolux with added blue which is not available in 250W. See the Plantastar and Sunmaster Dual Spectrum for this size with extra blue.
**Sodium bulbs are perfect for replicating the orange/red light of the “harvest sun” - helping your plants to pack on weight during the flowering stage.** 6 month guarantee.

- SODIUM LAMP, HPS SON-T+ 250W
- SODIUM LAMP, HPS SON-T+ 400W
- SODIUM LAMP, HPS SON-T+ 600W
- SODIUM LAMP, HPS SON-T 1000W

**High Pressure Sodium lamps with an orange/red spectrum specially designed for the flowering stage.**

**Classical style metal halide lamp for strong blue light suitable for growing plants, can also be used to add blue when using pure sodium lamps during flowering and fruiting. 10,000 hours life. 6 month guarantee. Though the 600W gives 50,000 lumens they are very blue - not measured well by the lumen, a unit for human sight weighted towards the yellow/orange.**

- SUNMASTER METAL HALIDE LAMP 400W
- SUNMASTER METAL HALIDE LAMP 600W

**Produces a powerful light, rich in the blue spectrum and perfect for vigorous vegetative growth. Runs hotter than a sodium lamp. After plants get established, metal halide lamps can be used up until flowering. For the best results, switch to a sodium or mixed spectrum lamp when flowering and fruiting starts. 6 month guarantee.**

- METAL HALIDE LAMP 250W
- METAL HALIDE LAMP 400W
- METAL HALIDE LAMP 600W
- METAL HALIDE LAMP 1000W

The best results for digital ballasts - more efficiency and longer bulb life - are only achieved when using the right bulb - these bulbs. Produced specifically for digital or electronic ballasts, not the standard magnetic ballasts. These blended High Pressure Ceramic Metal Halides have a long lamp life (approx 20,000 hours), very slow colour change and brightness drop-off and are designed specifically for horticulture. Please be careful when ordering - the Retro Magnetic style is not for digital ballasts. 3K Red/Orange is ideal as one lamp all the way through the growth and flowering cycles. Ultraviolet light, produced by the 10K lamp is good for provoking herbs like basil, sage and mint to produce more flavour and essential oils in the last week before harvest.

The manufacturer recommends using all four colours for the best results and healthiest plants:

- 3K : Red/Orange for most of flowering.
- 4K : Full Spectrum for seedlings, cuttings and the last week of veg.
- 6.4K : Daylight for most of veg.
- 10K : UVA Spectrum for the last week before harvest.

All Sunpulse lamps are only available in 600w and have a 2 year warranty.

- SUNPULSE DIGITAL METAL HALIDE RED 3K
- SUNPULSE DIGITAL METAL HALIDE FULL 4K
- SUNPULSE DIGITAL METAL HALIDE DAYLIGHT 6.4K
- SUNPULSE DIGITAL METAL HALIDE UVA 10K
Light Movers

Light movers give expert growers their edge. As well as increasing your grow area with just a few extra watts, a light mover also provides several other advantages...

- Stationary lights can create shading under the canopy due to light being absorbed by the top leaves.
- Moving your lights back and forth allows a full spectrum of light to penetrate the plant canopy to underlying regions, eliminating permanent shadow areas.
- The angle of light continuously changes, allowing increased light energy to reach a larger leaf surface area resulting in a healthy, natural and even growth profile.
- As your lights are constantly moving, your plants can safely grow closer without risking heat damage. All this adds up to more growth and improved light spread, without a jump in energy costs.

1. Light Rail 3.5

Instrument grade drive motor with a variable (maximum 60 second) delay at the end of the rail for even growth. Motor sealed for use in damp environments. Removes the need for a second lamp, saves energy. 5.5 watt motor drives the lamp from one end to the other in 6 to 7 minutes. 6 foot rail. 2 year warranty.

2. Light Rail 3.5 Slave Unit

Add an extra lamp. Slave unit for Light Rail 3.5 comes with 6’ rail, threaded bar and slave motor. Runs attached lengthwise to the first rail, for a very long grow table.

3. Jupiter II Light Mover

Expert growers love the Jupiter II light mover. Not only does it increase your growing area with just 2.5 extra watts, but your plants will grow more evenly under the improved light spread. Heavy duty, and made from high quality materials, the Jupiter II will improve your harvests. Has the advantage of being available in several different kits for multiple lights to fit various room shapes. 2 year guarantee. See images 3a, 3b, 3c and 3d for kit assemblies.

Light Rail 3.5 Replacement Parts

Not Pictured.

Light Rail 3.5 Drive Wheel Kit
Light Rail 3.5 Hardware Kit Inc. Jockey Wheel
Light Rail 3.5 Replace Trolley Wheel Kit
Light Rail 3.5 Stop End
Light Rail 3.5 Jockey Wheel
Light Rail 3.5 Rail Only
Light Rail 3.5 Jockey Wheel
Light Rail 3.5 Stop End Only
Light Rail 3.5 Cross Bar Only
Light Rail 3.5 Hex Bolt
Light Rail 3.5 Jockey Wheel

Jupiter II Light Mover Replacement Parts

- Jupiter Motor Only
- Jupiter Motor With Rod Only
- Jupiter Rail Only
- Jupiter Stop End Only
- Jupiter Cross Bar Only
- Jupiter Hex Bolt
- Jupiter Jockey Wheel
- Jupiter Push Rod Only
- Jupiter Rail Only
- Jupiter Stop End Only
- Jupiter Cross Bar Only
- Jupiter Hex Bolt
- Jupiter Jockey Wheel

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
Compact Fluorescents are now available as part of a variety of kits made up by Holland Hydroponics – depending on your budget, they can be bought with either a simple lamp hanger or with a full CFL reflector, and each kit comes complete with a set of lamp hangers. Remember – these CFLS’s are self-ballasted, meaning no ballast is required.

1. **CFL Bulb and Hanger Kits**

**KIT CONTAINS:**
- CFL Lamp 1x CFL lamp hanger 4m cable & Plug
- CFL LAMP 125W BLUE + HANGER
- CFL LAMP 125W RED + HANGER
- CFL LAMP 200W RED + HANGER
- CFL LAMP 200W BLUE + HANGER
- CFL LAMP 250W RED + HANGER
- CFL LAMP 250W BLUE + HANGER

2. **CFL Bulb and Budget CFL Reflector Kits**

**KIT CONTAINS:**
- CFL Bulb and Budget CFL reflector and a pair of rope ratchets
- CFL 125W RED BUDGET REF KIT
- CFL 125W BLUE BUDGET REF KIT
- CFL 200W RED + REFLECTOR KIT
- CFL 200W BLUE + REFLECTOR KIT
- CFL 250W RED + REFLECTOR KIT
- CFL 250W BLUE + REFLECTOR KIT

3. **CFL Bulb and CFL Reflector Kits**

**KIT CONTAINS:**
- CFL Bulb and CFL reflector and a pair of rope ratchets
- CFL 125W BLUE REFLECTOR KIT
- CFL 125W RED REFLECTOR KIT
- CFL 200W RED + REFLECTOR KIT
- CFL 200W BLUE + REFLECTOR KIT
- CFL 250W BLUE + REFLECTOR KIT
- CFL 250W RED + REFLECTOR KIT

**T5HO’s**

Fluorescent tubes in various spectrums...

SEE LIGHTING & ACCESSORIES

TURN TO PAGE 019

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
Lighting & Accessories

1. CFL Self-Ballasting Fluorescent Lamps

Excellent for small spaces and with low heat output. So cool it can be touched without injury so can be used very close to plants. However, avoid moving the bulb while lit as it is more delicate. Avoid imitations. Both wattage bulbs are available in blue dominant spectrum for growth or red dominant for flower. 10,000 hours before intensity starts to diminish.

- CFL 125W BLUE: MTX3832
- CFL 125W RED: MTX3833
- CFL 200W BLUE: NMJ7767
- CFL 200W RED: NMJ7768
- CFL 250W BLUE: ZY66645
- CFL 250W RED: ZY66646

2. Lamp Holder E40 Standard

Do it yourself E40 replacement bulb fitting. Will house almost all grow lamps.

- LAMP HOLDER E40 STANDARD: CB2125

Lamp Hanger with 4m Cable And Plug

Single compact fluorescent lamp holder on a 4 metre cable. Perfect for small or growing spaces that are difficult to access.

- CFL LAMP HANGER WITH 4M CABLE AND PLUG: RVB5533

3. Envirogrow CFL

Low energy, low temperature self-ballasting grow lights available in both blue and red spectrum. Ideal for small rooms or as supplementary lighting. Life expectancy of 18,000 hours. E40 screw fitting.

- ENVIROGROW CFL 150W COOL WHITE: EJW2666
- ENVIROGROW CFL 250W COOL WHITE: DFK7664
- ENVIROGROW CFL 250W WARM WHITE: DFK7665

4. Budget CFL Reflector

Dimpled, lightweight reflector for one self-ballasting CFL bulb. Comes with E40 bulb holder, 2½ metre cable and moulded 3 pin plug. Remember to remove the plastic protective covering before use.

- BUDGET CFL REFLECTOR 1 LAMP: DJU0001

5. CFL Reflector

High quality reflector with high reflective finish and three pin plug. Also available as a double reflector (not pictured) Remember to remove the blue plastic covering before use.

- CFL REFLECTOR 1 LAMP: J6w9369
- CFL REFLECTOR 2 LAMP NO FAN: CFL0002

Clone kits

Give your cuttings the best start

SEE PROPAGATION
TURN TO PAGE 028

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. 2ft & 4ft T8 Fluorescent Canopies

2 ft Canopy comes with four 18W tubes. Produces 5,800 lumens. Measures 69cm x 60cm x 10cm. 4 ft Canopy comes with four 36W tubes. Produces 11,600 lumens. Measures 123cm x 60cm x 9cm. Needs wire and plug separately.

2. Lightwave T5 Fluorescent Canopies

Just plug and play! This Lightwave canopy can be used with a mixture of red and blue 54W spectrum lamps or all red/all blue. 8 or 4 tube canopies available. Much cooler than sodium lamps, meaning they can be hung closer to your plants – perfect where height is restricted.

T5 - 2 X 24W (48W)
60 x 24 x 7cm,
3300 lumens
60 x 37 x 7cm,
6600 lumens

T5 - 4 X 54W (216W)
119 x 37 x 7cm,
16600 lumens

T5 - 8 X 54W (432W)
Can be changed from 4 tubes to 8 tubes at the flick of a switch, when your plants get big enough to need more light.

3. D.I.Y. Fluorescent Fittings

2.5” x 3.5” cross section. Needs wiring and a plug.

4. Sunblaster T5 Fluorescent

A slim line, lightweight high output fluorescent light ideal for supplemental overhead or side lighting. Includes fitting, bulb, power cord, link cable and mounting brackets. Can be linked together to a maximum of eight running from one power cord. Perfect as propagation lighting or early vegetative growth. Runs very cool and has a long life (10,000 hours).

Available in 2ft or 4ft.

2ft 24W  2232 lumens
4ft 54W  5022 lumens

It is recommended to use Sunblasters with the T5 Nano reflector to dramatically increase the amount of light reaching your plants.

5. Fluorescent Tubes (various)

Especially good for propagation or supplementary lighting. Available in many different spectrums for different applications. If in doubt ask one of our sales staff for help.

Grolux

Osram
1. Ecotechnics Powerstar 1 way

1kw contactor unit designed to be used in conjunction with a plug-in mechanical timer. Offers protection against timer failure and prolongs the timer life by taking the power surge required to spark high pressure bulbs, whilst only taking the time from the timer. 3 Year Warranty.

P'STAR 1 WAY POWER CONTROLLER NO TIMER
P'STAR 1 WAY POWER CONTROLLER SUPPLIED WITH TIMER
VDV7199
VDV7200

2. Ecotechnics Powerstar 2 way

Same as the Powerstar 1 way but has a 2kw contactor unit and can power 2 x 600W lights off one timer. 3 Year Warranty.

POWERSTAR 2 WAY CONTROLLER NO TIMER
POWERSTAR 2 WAY CONTROLLER SUPPLIED WITH TIMER
CCA2167
VCG98475

3. Ecotechnics Powerstar 4 way

Same as the 1 way but has a 3kw contactor unit and can power 4 x 600W lights off one timer. 3 Year Warranty.

POWERSTAR 4 WAY CONTROLLER NO TIMER
POWERSTAR 4 WAY CONTROLLER SUPPLIED WITH TIMER
GWP2322
BXV9775

4. Ecotechnics Powerstar 8 way

Same as the 1 way but can power 8 x 600W lights off one timer. 3 Year Warranty.

POWERSTAR 8 WAY CONTROLLER (INTEGRATED TIMER)
NCF3596

5. Grässlin Segmental Timer

This standard segmental timer couldn’t be easier to use – each pin around its dial represents 15 minutes of a 24 hour day. Simply push the pins in or pull them out according to whether you want power ‘on’ or ‘off’. Make sure that you use in conjunction with a power controller if using to control your lighting.

TIMER, SEGMENTAL GRÄSSLIN
KST8526

6. Grässlin Digital Timer

High quality, fully programmable digital timer. Can be used to control fan, pumps or very low wattage lighting units. Can only control more than 100W lighting if used in conjunction with a contactor.

TIMER, DIGITAL GRÄSSLIN
YMV7517

Powerstar Contactors

Here is a chart which explains which contactors accept what wattage of lamps and how many of them...

<table>
<thead>
<tr>
<th>TYPE</th>
<th>RATED WATTAGE Kw</th>
<th>no. of 250w lamps</th>
<th>no. of 400w lamps</th>
<th>no. of 600w lamps</th>
<th>no. of 1000w lamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-WAY</td>
<td>1Kw</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2-WAY</td>
<td>2Kw</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4-WAY</td>
<td>3Kw</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8-WAY</td>
<td>6Kw</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

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Mail Order Tel: 0845 872 0572
Green Power Contactors

Here is a chart which explains which contactors accept what wattage of lamps and how many of them...

<table>
<thead>
<tr>
<th>TYPE</th>
<th>RATED WATTAGE Kw</th>
<th>no. of 250w lamps</th>
<th>no. of 400w lamps</th>
<th>no. of 600w lamps</th>
<th>no. of 1000w lamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>2T</td>
<td>1Kw</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>4T</td>
<td>2Kw</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>6T</td>
<td>4Kw</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>8T</td>
<td>4.2Kw</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>5T Relay Timer</td>
<td>1.2Kw</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2T Relay Timer</td>
<td>1.2Kw</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Green Power Contactors

New Green Power Contactors formerly the ‘Ecoswitch’ and licensed by Canatronics. These premium quality contactors ensure ultimate safety and peace of mind. Assembled in the UK to exacting standards, these contactors feature heavy duty compounds throughout with switchable sockets hard wired onto the unit and extra thick cabling to provide unrivalled reliability. Comes with a two year manufacturers guarantee.

Green Power RT Contactors

2 socket relay timer is a handy relay for your two light grow rooms with limited access to sockets. It has a maximum input load 1200 watt.

5 socket relay timer is an excellent solution for your two light grow rooms with limited access to sockets, providing a range of functions from only one plug. Two of the sockets are for lights (up to 600W), with an auxiliary socket for an air cooled lighting fan which turns on and off at the same time as the lights. This could also be used for CO2 release unit. There is a fourth socket which is continuously on for an extraction fan or fan controller, and a fifth which turns on when the lights go off, suitable for a heater (up to 200W). Each individual socket has its own switch enabling you to turn off devices that aren’t required.

Both feature heavy duty, high quality parts throughout and a back bracket for hanging on a wall or tent.

5/4/6 way Extension Lead

2m 13 amp extension lead with either 4 or 6 plug sockets.
1. Black / White Plastic

White side 75 – 85% reflective, black side cuts leakage of nuisance light into the room where you have your grow tent. 2 metres wide.

BLACK/WHITE PLASTIC 1M
BLACK/WHITE SHEETING 5M
BLACK/WHITE SHEETING ROLL 10M
BLACK/WHITE PLASTIC ROLL 25M
BLACK/WHITE PLASTIC ROLL 150M

2. Diamond Sheeting

This fantastic product is ‘diamond pressed’, which increases light diffusion in the grow room meaning an end to hotspots. It is also easier to handle and more resistant to creasing than any other sheeting. 1.4 metres wide.

DIAMOND SHEETING 1M
DIAMOND SHEETING 5M
DIAMOND SHEETING ROLL 10M
DIAMOND SHEETING ROLL 100M

3. Heat Containment Foil

Concerned about heat escaping from your growroom? This amazing heat containment foil is cutting edge technology – it prevents over 90% of the radiant heat lost to the walls and ceiling of your growroom while also reflecting up to 95% of visible light! 1.25 metres wide.

HEAT CONTAINMENT FOIL 1M
HEAT CONTAINMENT FOIL 5M
HEAT CONTAINMENT FOIL ROLL 100M

4a. Mylar

97% reflective silver plastic sheet, developed by NASA, very strong, best quality, does not rip easily, long-lasting. Though it looks silvery like aluminium, aluminium foil only reflects up to 55% of the light that falls on it. 1.4 metres wide.

MYLAR 1M
MYLAR 5M
MYLAR ROLL 100M

4b. Pre-Rolled Mylar

For your convenience, pre-rolled mylar around a cardboard tube.

MYLAR ROLL 10M
MYLAR READY-ROLLED 25FT (7.6M)
MYLAR READY-ROLLED SOFT (15.2M)
MYLAR READY-ROLLED 100FT (30.4M)

5. Reflectagro

97% reflective. Similar to Mylar but with the added bonus of a white backing, making it stronger and more durable so less creases. Both Mylar and Reflectagro are worth the extra money you spend, the extra light saved giving extra harvest. 1.4 metres wide.

REFLECTAGRO 1M
REFLECTAGRO ROLL 100M

6. White/Black/White Plastic

Light proof with a black core to form a good blockage of light, but reflective white on both sides. Excellent for making the divisions between flowering stage and growing stage areas, where the hours of light may be very different. 3 metres wide.

WHITE/BLACK/WHITE PLASTIC 1M
WHITE/BLACK/WHITE SHEETING 5M
WHITE/BLACK/WHITE SHEETING ROLL 10M
WHITE/BLACK/WHITE PLASTIC ROLL 25M
WHITE/BLACK/WHITE PLASTIC ROLL 150M

Light is precious! Make the most of it by covering your growroom with reflective sheeting. You'll be amazed at the results that can be achieved by bouncing up to 97% of escaping light back into your grow room. Reflective sheeting will give you greater growth and an increased yield - well worth the small investment. We recommend that you cover your walls, floor, and ceiling in it to throw as much light as possible back onto your plants. They will thank you for it! Reflective materials are ideal for lining your grow tents or walls.

Our white/black/white sheeting is totally lightproof. Reflective sheeting is priced per metre in length. Our mylar is 1.4 metres wide. Our standard black and white sheeting is 2 metres wide and our white/black/white plastic sheeting is 3 metres wide. You can easily secure reflective material on the sides of your grow tent or walls with our heavy duty tape. We also sell self-adhesive Velcro which is perfect for sealing the door flaps of your grow tent.

Order Online At: www.hydroponicsS.co.uk
Mail Order Tel: 0845 872 0572
1. Light Hanging Accessories

We stock everything you need to build a world-class growroom, right down to the smallest fixtures and fittings.

- Chain 1m
- S Hook Small 38mm
- S Hook Large 50mm
- Steel Screw Eye 60mm
- Steel Screw Eye 80mm
- Suction Hook
- Ceiling Hook
- Plug, 13 amp Normal
- Fuse 3A
- Fuse 5A
- Fuse 10A
- Fuse 13A

2. Plugs and Fuses

Plug fitted with 13 amp fuse, 3 pin electric. 3 amp, 5 amp, 10 amp, 13 amp fuses also available.

- Plug 13 amp Normal
- Fuse 3A
- Fuse 5A
- Fuse 10A
- Fuse 13A

3. Kettle Plugs

IEC fittings also known as kettle plugs.

- Kettle Plug IEC Female Rewirable
- Kettle Plug IEC Male Rewirable
- IEC Female Socket 16A
- IEC Male 16A

4. Easy Gliders

Simple, easy-to-use system for hanging lamps and other heavy equipment. 2 metres of stainless steel cable. Holds up to 20 kg per cable.

- Easy Gliders (Pair)

5. Rope Ratchets

These are great for hanging heavy lighting fixtures, carbon filters or fans. Easy to install and use. Objects can be raised and lowered with ease. Each pair will hold weights of up to 68kg. Pack of 2 hangers.

- Rope Ratchet Hangers (Pair)

6. Electric Cable

2 or 3 core electric cable.

- Electric Cable 2 Core 1m
- Electric Cable 3 Core 1m

7. Easy Rolls

Suspension system for hanging your reflectors, allowing height adjustment in one simple movement. They are packed as a pair as two are needed for each reflector. They hold a maximum of 10kg; they have a height adjustment of up to 100cm and can therefore be used for all stages of plant growth. A vast improvement over the chains that have been used for so many years.

- Easy Rolls (Pair)

8. Heat Shield

If head room is becoming a problem for your plants then a heat shield can help. It can be attached easily to your lamp holder and sits directly below the bulb. Essentially it deflects the heat from your bulb and spreads the light. This allows your plants to grow into the space directly below the lamp meaning you can retain the position of your light closer to your plants. A heat shield also helps to provide a uniform spread of light for more even plant development.

- Heat Shield Small for 250-600W
- Heat Shield Large for 1000W
1. Make the cut

- Take a scalpel or sharp scissors and ensure it is sterilised. This can be done with rubbing alcohol, by immersing it in boiling water or by using a lighter flame.

- Cut the desired stem off the mother plant at a 45° angle, between leaf joints (nodes).

2. Trim your cutting

- Trim off the bottom set of leaves, leaving the nodes exposed, which are packed with potential rooting cells.

- Trim off any sun/fan leaves and cut any other large leaves in half to reduce transpiration (water loss).
**3. Apply rooting hormone**

- Pour some rooting gel or powder into a small container (to avoid contaminating the whole bottle) and dip in the end of the cutting, including the bottom two exposed leaf nodes.

**4. Plant your cutting**

- Insert your cutting into a rooting medium and gently pack it around the stem to hold it upright. Small rockwool cubes or rooting sponges (Root Riot / Root It) are ideal to encourage fast rooting.

- Cubes can be pre-soaked with a gentle nutrient solution and shaken to remove excess liquid. Squeezing them is not advised as it can spoil their structure and expel oxygen. The medium should be evenly moist, but not soggy.
Propagation

Propagators provide the perfect start in life for your seedlings and cuttings. The clear lid allows light in whilst helping to maintain a warm and humid atmosphere. Your precious young plants are incubated during their crucial early stages of root development and get off to a flying start. Heated and unheated propagators are available in various sizes complete with adjustable air vents.

1. Unheated Propagators

Unheated propagators are great when used in a room that already has a warm ambient temperature. Sizes may vary slightly...

Medium: 15” x 9.5” x 7.1”
381mm x 241mm x 180mm

Large: 20.5” x 16.5” x 9.5”
521mm x 419mm x 241mm

2. Heated Propagators

Keep seed or cutting trays heated to 24°C to avoid harming cuttings or seeds. Top quality manufacturing and materials.

Medium: 379mm x 239mm x 214mm, 12W
Large: 520mm x 420mm x 280mm, 22W

3. Rootit! Propagator

Lightweight, budget unheated propagator. Fits one SBS 77 or SBS 150, or 2 x SBS 24 trays. Large lid for taller cuttings, height with lid 19cm (8”). Channels in base avoid plants sitting in water.

Size:
23” x 14.5” x 8”
584mm x 368mm x 203mm

4. Temperature Adjust Propagator

Large temperature adjustable electronic propagator. Thermostat can be adjusted from 13°C to 25°C.

Size:
480mm x 380mm x 278mm, 50W

5. Big 3 Heated Propagator

Large heated propagator, set at 19°C. Will not run too hot or burn roots. Avoids pauses and checks to growth on cold days, keeping the delicate little plants happy and healthy, growing fast and less susceptible to diseases. 3 separate propagators for versatile production and to avoid disease spread.

UNHEATED PROPAGATOR MEDIUM: MFV7349
UNHEATED PROPAGATOR LARGE: MFV7350
TRAY FOR 19" PROPAGATOR: E81726

6. Jumbo Heated Propagator

Want to take things to the next level? Our new Jumbo Heated Propagator is your very own indoor polytunnel with a thermostatically controlled heating blanket and easy access zips. Light weight and easy to store. 3 year warranty on heat mat.

ROOTIT PROPAGATOR COMPLETE: PSX4838
ROOTIT PROPAGATOR LID: PSX4837
ROOTIT PROPAGATOR TRAY: PSX4836

7. Large Plastic Tray & X-Stream Propagator Lid

Large plastic tray, can be used with the large plastic tray.

"BIG 3" HEATED PROPAGATOR 3 TRAYS: FK71565
JUMBO HEATED PROPAGATOR: YT95386

7a. Large Plastic Tray

Approx: 1095mm x 555mm (43” x 21”).

LARGE PLASTIC TRAY 1M X 0.5M: FY95396

7b. X-Stream Propagator Lid

Can be used with the large plastic tray.

PROPHAGATOR X-STREAM LID: BNV9338

8. 610mm Square Plastic Tray

Approx 610mm x 610mm (24” x 24”).

SQUARE TRAY 610MM: BXJ3841

8. 610mm Square Plastic Tray

Approx 610mm x 610mm (24” x 24”).

SQUARE TRAY 610MM: BXJ3841

9. 1m Square Plastic Tray

Approx 100cm x 100cm (39.5” x 39.5”).

SQUARE PLASTIC TRAY 1M: XCS6566

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
Aeroponics
Is the science of growing plants in air. The plants are simply held in place by small holes - the hanging roots are sprayed periodically with a fine nutrient mist. It is extremely efficient; it allows the root zone to be fully oxygenated for optimum root and plant health. Aeroponics uses less water, less nutrients, and a lot less propagating medium! Aeroponic propagators produce superb cuttings in less time. The roots are long, abundant, and robust and the success rate is very high.

1. Aeroponic Propagator - 12 SITE
AEROPONIC PROPAGATOR 12 SITE COMPLETE
AEROPONIC PROPAGATOR 12 SITE CLEAR LID
AEROPONIC PROPAGATOR 12 SITE TANK
AEROPONIC PROPAGATOR 12 SITE DELIVERY TUBE SPRINKLER HEAD

2a. Aeroponic Propagator - 20 SITE
AEROPONIC PROPAGATOR 20 SITE COMPLETE
AEROPONIC PROPAGATOR 20 SITE CLEAR LID
AEROPONIC PROPAGATOR 20 SITE TANK
AEROPONIC PROPAGATOR 20 SITE DELIVERY TUBE SPRINKLER HEAD

2b. Aeroponic Propagator - 36 SITE
AEROPONIC PROPAGATOR 36 SITE COMPLETE
AEROPONIC PROPAGATOR 36 SITE CLEAR LID
AEROPONIC PROPAGATOR 36 SITE TANK
AEROPONIC PROPAGATOR 36 SITE DELIVERY TUBE SPRINKLER HEAD

2c. Aeroponic Propagator - 105 SITE
AEROPONIC PROPAGATOR 105 SITE COMPLETE
AEROPONIC PROPAGATOR 105 SITE CLEAR LID
AEROPONIC PROPAGATOR 105 SITE TANK
AEROPONIC PROPAGATOR 105 SITE DELIVERY TUBE SPRINKLER HEAD

4. Amazon Aeroponic System
An easy to use and accessible system, capable of taking your plants past the propagation stage and on to full maturity. The powerful sprays ensure full and complete irrigation to deliver truly phenomenal results. The pump and nutrient solution are easy to access. Available as a single or a twin system.

4a. Amazon Twin System
Tank dimensions: 100 Litres, 1600mm x 673mm x 254mm
Chamber tray dimensions: 750mm x 750mm x 140mm (x 2)

4b. Amazon Single System
Tank dimensions: 50 Litres, 787mm x 673mm x 203mm
Chamber tray dimensions: 750mm x 750mm x 140mm

Order Online At: www.hydroponics.co.uk
1. Cutting Board

27 plant site propagator, deep water propagation with air bubbler keeping the water well oxygenated and moving around for the developing roots and forcing fresh humid air to rise constantly around the cuttings. Simple and effective for the beginner or advanced gardener with very good survival rates.

2. Self Watering Tray

Capillary action keeps the plants moist continuously while you are away on holiday or otherwise engaged.

3. Clone Kit

Includes reusable propagating/cloning tray with clear lid, 24 Rockwool seed/cutting blocks, 100ml Formulex, 50ml Clonex rooting gel, scalpel and instructions.

4. Clone Riot Kit

Like the Clone Kit but with Root Riot blocks instead of Rockwool. Includes reusable propagating/cloning tray with clear lid, 24 Root Riot seed/cutting blocks, 100ml Formulex, 50ml Clonex rooting gel, scalpel and instructions.

5. Clone Station 0.8m Grow Tent

All in one unit for propagation. Solid top for working on clones, cuttings or seedlings. Waste bin or tool store by the side. Can take two large propagators and two pairs of Propagation lights. Adjustable shelves that can be removed for use for mothers when not propagating.

6. Clone Box

From the manufacturers of Homebox comes this version for clones and seedlings but also perfect for mother plants. 4 fan inlets/outlets. 3 adjustable racks, can be used with 1, 2 or 3 layers.

7. Gloves

Should be worn whenever handling gels, pH adjusters, hydrogen peroxide, enzymes, pesticides or hazardous agricultural chemicals. Also these gloves have many uses around the home - when dyeing hair, cleaning, making soap or changing cat litter. Fits either hand. Not sterile. Sold per glove not per pair.

8. Scalpel

Essential for a clean, sharp cut with least bruising to the delicate plant tissue when taking and trimming a cutting. Always clean your scalpels regularly and disinfect them to prevent passing diseases to your mother plant or cuttings. Store safely.

9. X-Stream Propagation Dome & Bucket

The X-Stream Propagator lid fits on top of the pictured 20 litre bucket or Oxypot to increase humidity for young plants.
1. Root Riot

Natural composted fibre starter cubes for cuttings or seeds. Biodegradable, clean and dust-free. Plenty of air access even when watered thoroughly for rapid healthy root growth. Inoculated with helpful fungi to prevent root rot. Can be transplanted to soil or hydroponics systems.

ROOT RIOT STARTER CUBES 24 TRAY HQ3725
ROOT RIOT STARTER CUBES REFILL X 100 HQ3726

2. Courier 5 Fleximix

For sending cuttings by post. Cuttings can be taken and immediately sent in the post (tropical plants should not be sent in cold weather) while still rooting or the Courier 5 can be used as a mini-propagator and the rooted cuttings then mailed out.

COURIER 5 FLEXIMIX CLONE/SEEDLING MAILER CEG9665

3. Starter Trays & Cubes

For starting off your seeds or cuttings without any risk of disease from the substrate, Rockwool is the ideal medium. The cushioning nature of these little cubes enables even the most sensitive of seedlings to be moved without damage to the roots. SBS 98 comes without a tray.

Large starter cubes are 1½” square at the top. Small starter cubes are 1” square at the top. These are made to fit the 3” and 4” cubes: the large holes are 1½” diameter and the small holes are 1” diameter.

STARTER CUBES SBS 24 ROCKWOOL WPM9238
STARTER CUBES SBS 48 ROCKWOOL RTR2284
STARTER CUBES SBS 77 ROCKWOOL MWM7495
STARTER CUBES SBS 77 BOX ROCKWOOL BOX OF 18 VJN3341
STARTER CUBES SBS 98 ROCKWOOL VIN3342
STARTER CUBES SBS 98 ROCKWOOL WRAPPED XGD8222
STARTER CUBES SBS 150 ROCKWOOL GAL8864
STARTER CUBES SBS 150 ROCKWOOL BOX OF 18 GEM9576

4. Round Starters

Just the same as the large square starter cubes, but round!

STARTER PLUGS ROUND ROCKWOOL TRAY OF 84 PLUGS CV7139
STARTER PLUGS ROUND ROCKWOOL BOX OF 15 TRAYS CV7140

5. Eazy Plugs 77 Tray

Eazy Plugs are made with a mixture of peat, coir dust, fertiliser and other basic components. Specially formulated organic plug for rapid rooting of cuttings or optimum germination of seeds, Eazy Plugs are made from organic materials. They have a predetermined pH and EC value with buffering. Their open structure allows the correct balance of water and air. It also has water buffering properties. Can be used with Coco Potz, Rockwool, soil or any other medium. 100% compostable.

EASY PLUGS 77 TRAY GWF1143

6. Empty Trays

54 site empty tray: Ideal for 1” Rockwool blocks. Can be filled with your own choice of seed or cutting medium - perlite, seed compost like Canna Seedmix or Bio Bizz Light-Mix, Seramis, shredded Rockwool, etc.

84 site empty tray: Ideal for use with medium Jiiffy blocks. Shallow but with large drainage holes. If kept above the drained water along with plenty of air-circulation will encourage air-pruning of roots to give more rootbranching and efficient use of the medium.

STARTER TRAY EMPTY BLACK 54 HOLE ZPM6663
JIFFY TRAY EMPTY BLACK 84 HOLE PS7827

Order Online At: www.hydroponics.co.uk
1. Peat Pots

Roots can just pass through these one-use pots, meaning less transplant shock when you put them into a larger pot. Just plant the whole thing in the new compost.

Sizes:
- Small: 33mm
- Medium: 41mm
- Large: 44mm

PEAT POTS SQUARE 1 ½”
PEAT POTS SQUARE 2 ¼”

Order Online At: www.hydroponics.co.uk

0845 872 0572

2. Jiffys

Perfect for propagation. Compressed dry peat expands into self-contained pots when soaked in water – ideal for starting seedlings or cuttings. Jiffys are convenient to store, easy to work with and contain all the necessary nutrients for vigorous initial development until they are ready to be transplanted, usually about two weeks. Available in three sizes.

Sizes:
- Small: 33mm
- Medium: 41mm
- Large: 44mm

JIFFY LARGE BOX OF 1000
JIFFY LARGE X 100
JIFFY MEDIUM BOX OF 1000
JIFFY MEDIUM X 100
JIFFY SMALL BOX OF 2000
JIFFY SMALL X 100

3a. Fleximix Rootit! 24 Tray

Made from organic materials, fully biodegradable, faster, more vigorous rooting, perfect air/water capacity for healthy roots. Easy potting up.

Fleximix 24 Tray

TPC3986

3b. Fleximix Rootit! 50 Refills

Refills for the Fleximix Tray. Same quality but more of them!

Fleximix 50 Refill Bag

TPC3987

4. Jiffy Coco

Coco allows much faster root development and penetration than the traditional peat jiffy pots - and saves some ancient peat bags as well! Ideal for starting plants for potting up into coco or soil. Compressed dry coco disks which expand into pots when soaked in water for immediate seed sowing or for cuttings. Contains nutrients to keep the little plants happy until they are transplanted, usually about two weeks. One size only - equivalent to the medium Jiffy (41mm).

JIFFY COCO X 64
JIFFY COCO BOX OF 640

Order Online At: www.hydroponics.co.uk

0845 872 0572

5. Greenfuse Root

Pure organic root stimulator based on plant extracts. Not a rooting hormone, you will have to use a rooting gel or powder as well. 1ml of concentrate per litre for hydroponics or any other substrate.

GREENFUSE ROOT 300ML

Order Online At: www.hydroponics.co.uk

0845 872 0572
Propagation

1. No Shock


Can also be watered onto seeds to help them avoid birth trauma.

No Shock 1L

2. Clonex Rooting Gel

Growth Technology Clonex Rooting Gel places the tools of the professionals into your hands. Clonex contains a full profile of nutrients and trace elements to accelerate root development. Contains IBA.

It also contains antimicrobials to protect your cuttings from disease.

Clonex Rooting Gel 50ML
Clonex Rooting Gel 250ML
Clonex Rooting Gel 1L

3. Grotek Stimroot Rooting Powder

The same hormones as the gels but in powder form. If you use too much they can slow down rooting.

No. 1 has 0.1% IBA for softwood cuttings.
No. 2 has 0.4% IBA for semi-hardwood cuttings.

4. Grotek Rootmax

Thick rooting gel for enhancing and encouraging the rooting of cuttings. Contains 0.3% IBA.

Rootmax Rooting Gel 50G
Rootmax Rooting Gel 100G
Rootmax Rooting Gel 250G

5. RootIt! Gel4Plugs Rooting Gel

Made for squeezing into the hole in the rooting plug so the gel fills the hole and protects the stem of the cutting. Contains IBA and Vitamin B1.

RootIt Gel4Plugs Rooting Gel 250ML

6. Canna Start

Canna Start is a balanced one part nutrient for seedlings and rooted cuttings: Start can be used on most propagation substrates including soils, Rockwool, Jiffy plugs, Fleximix, Root Riot and many more. Start provides all the micro and macro-nutritional elements for a seedling or cutting to develop into a strong healthy plant.

Canna Start 500ML
Canna Start 1L
Canna Start 5L

7. Formulex

Formulex is a specialist one-part fertiliser that had been designed specifically for the delicate early stages of plant growth. It’s perfect to nurture your cuttings (clones) and seedlings. It can be used in soil or hydro (for pre-soaking Rockwool starter cubes, for example). Formulex provides everything your young plants need for vigorous, bountiful growth. Typical Dose: 1ltr makes 100-200 ltrs of nutrient solution.

How long does the propagation stage last?

Typically most plants require to be propagated for 2-3 weeks, however that is only a rough guideline. If growing from seed, plants are ready to move on from propagation when the second set of leaves appear, or when roots begin to emerge and become visible. If growing from a cutting, plants will be ready once you see some new growth from them (this can take some time so be patient.) With proper care and attention, your plants will emerge from propagation healthy, established, and ready to continue growth and development in the vegetative stage.

Order Online At: www.hydroponics.co.uk

Mail Order Tel: 0845 872 0572

031
Growth Media

What is Growth Media

Growth Media can be made of anything that will hold a plant's root structure. Remember growing cress in cotton wool at school? Well, in hydroponics, we use all sorts of different growth media for different applications.

Benefits

Different growth medias have different benefits: Some growth media come with essential nutrients and minerals already in them, reducing the need for use of nutrients and nutrient additives. Other growth medias are completely inert, meaning they have no nutritional value, hence you add the nutrients your plant requires using a selection of nutrients and nutrient additives, giving you more control. Some growth medias come with water holding porous rock, which means if the growth media starts to run dry there is some water still stored within it.

When to use

Growth Media is used throughout a plants life cycle, from seedlings to cuttings and through to adulthood - plants need a growth media to establish their root structure.

Applications for different Growth Media

Growth Media is used throughout a plants life cycle, from seedlings to cuttings and through to adulthood - plants need a growth media to establish their root structure.

A. Rockwool

Rockwool is an inert medium, completely free of nutrients and is usually available in a pH balanced form (although some rockwool may be slightly alkali), Rockwool can be bought in a wide variety of forms for different uses including: cubes for propagation, shredded mixes (with coco or polyurethane foam) known as ‘mapito’, horizontal slabs for trough systems (‘Exact’ slabs), slabs for use in vertical systems such as the Agrowtent (‘Maxxima’ slabs) and blocks for use in NFT or flood and drain systems (available in a variety of sizes). Nutrients that are formulated for hydroponics are usually recommended for use with rockwool.

B. Vermiculite, Diahydro, Perlite

All of these products are made from porous rock material meaning they have excellent water retention qualities. These products can be used on their own as a hydroponic growth media. They can also be used with soil or coco to improve water retention and air capacity; simply mix them in with the soil or coco. Usually a 50/50 mix works well, but it depends on your requirements. Diahydro has the added benefit of being rich in silica, which improves cell wall structure and defence against pests. If used on their own, all of these products require nutrients adding to your water throughout the plant’s life cycle.

C. Coco Fibre / Coco Coir

Coco is made using the outer husk of the coconut shell. It is naturally rich in potassium and sodium, so most coco products are pre-treated by the manufacturers so that they are ready to use. Make sure to check when you purchase coco whether it has been pH buffered and washed; some kinds of coco may need to be flushed through a couple of times with water at pH 6.0 before plants can be put in it. Coco is a relatively light medium that has good water retention without becoming soggy; it is much harder to over-water coco than soil. It has an excellent air capacity of around 30% which aids root growth and nutrient uptake. Coco contains a naturally occurring fungus called Trichoderma that helps prevent disease and aids root development. Due to gradual leaching of potassium from within the coco, it is strongly advised to use a coco-specific nutrient.

D. Clay Pebbles

Baked clay pellets are suitable for hydroponic systems in which all nutrients are carefully controlled in water solution. The clay pellets are inert, pH neutral and do not contain any nutrient value. We consider expanded clay to be an ecologically sustainable and re-usable growing medium because of its ability to be cleaned and sterilised. Hydroton clay pebbles come pre-washed but it is recommended that they are rinsed before use to remove any dust produced during transport.

E. Soil Mixes and Organic Soil

The soils stocked at Holland Hydroponics are made up of different substances to achieve certain properties. Some soils will be fertilised so that minimal additions are needed during the growth stage. Others will contain little nutrition, giving you greater control of what your plants receive.

Soil mix ingredients - explained...

- Sphagnum Peat Moss: Increases the soil’s capacity to hold water and nutrients.
- Garden Peat Moss: Increases acidity and the soil’s capacity to hold water and nutrients.
- Worm Manure / Worm Humus / Worm Castings: Natural fertiliser to enrich poor or depleted soil.
- Vermiculture: (See Vermiculture, Perlite, Diahydro).
- Perlite: (See Vermiculture, Perlite, Diahydro).
- Coco Coir: (See Coco Fibre)
- Diahydro: (See Vermiculture, Perlite, Diahydro).
- Bone Meal: A slow-release fertilizer, bone meal is primarily used as a source of phosphorus.
- Beneficial Microbes: Bacteria and fungus that prevent diseases and increase nutrient uptake.
- Lime: Raises the pH of the medium.
- Bat Guano: Contains high levels of phosphorus and nitrogen. Also known as a natural flavour enhancer.
1. Perlite

A light porous medium with amazing capillary action – the tiny channels suck water and nutrients up from a reservoir below into the upper layers of the medium, whilst maintaining drainage to keep air around the roots. Lightweight, sterile and incredibly effective as a growing medium. Also for mixing in soil or other composts to improve drainage. Often mixed together with vermiculite to make a cheap seedling and cutting medium.

2. Vermiculite

For water retention and bulk in soil media or mixed with perlite as a hydroponic medium.

3. Clay Pebbles

Expanded clay pebbles are used in hydroponics as a medium to support the plant. They are chemically inert, do not affect pH and provide excellent drainage. They are made from a special type of clay which is heated to a high temperature causing it to pop like popcorn. Because the pebbles drain freely and don’t hold excessive water, they provide good oxygen levels around the root zone and are particularly suitable for flood and drain systems. Specifically for hydroponic cultivation.

4. Seramis Clay Pebbles

Totally inert, pH neutral clay-based medium. Cuttings can be put straight into Seramis. 50% air space for maximum and healthy root growth. Cannot be over-watered due to perfect drainage. Irregular shape for stability in the pot. Perfect under corrugated. Wets easily and draws water up to 20cm height in 24 hours from dry. Lightweight - less than 0.4 kg per litre, 0.8 kg per litre fully wetted.

5. Diahydro

This is the newest natural growing medium available. Large granules of diatomaceous earth provide a white, sterile, insect killing, moisture-holding, easily drained, airy substrate that leaches small amounts of silicate into the water. Ideal for all plants. Results in trials are quite incredible. Roots grow bigger, faster and healthier. Has traces of minerals and nutrients. Amazing with the Autopot kits. Soil Association certified for use in organic agriculture.

Order Online At: www.hydroponics.co.uk

Mail Order Tel: 0845 872 0572
1. **Bio Bizz All-Mix**

Developed to be the best potting soil for organic cultivation, it consists of a mixture of 20% sphagnum peat moss, 35% garden peat, 10% high quality worm manure, 30% perlite and 5% Pre-Mix. Composted together to ensure ideal microbial flora activity and high nutrient availability and fertility, a living soil of the highest grade. Recommended. OMRI and SKAL certified.

**Bio Bizz All-Mix 20L**: JBL5148
**Bio Bizz All-Mix 50L**: JBL5146

2. **Bio Bizz Light-Mix**

Less fertilised than All-Mix. Ideal for starting plants off or as a soil base, for use with liquid nutrients for finer control of nutrient levels. Its open structure ensures a fast development of roots and vigorous new growth. OMRI and SKAL certified.

**Bio Bizz Light-Mix 20L**: JBL5148
**Bio Bizz Light-Mix 50L**: JBL5146

3. **Bio Bizz Pre-Mix**

Very nutrient rich additive for unfertilised soil. 100% natural ingredients derived from organic matter, bone meal, rock meal and trace elements. With a rich active microbial flora this mix was formulated to guarantee vigorous growth, abundant flowering and maximum resistance to disease and fungal attack. Can be added to exhausted soils to revitalise them once all the nutrients are used up or as a top-dressing. OMRI and SKAL certified.

**Bio Bizz Pre-Mix 5L**: QMM7557

4. **B'Cuzz Bio Grow Mix**

B'Cuzz have reached an air content in the Bio-Soil substrate of 25% without using perlite, the better drainage and air content ensuring maximum root health. This lightly fertilised soil contains starter nutrients to enable plants to immediately begin their exuberant growth. After a few weeks feed the plants with liquid nutrients for an optimal result.

**B'Cuzz Bio Grow Mix 50L**: KMK6874

5. **Vitamix Pro**

Lightweight mix based on a tried and tested formula of top quality peat and screened sphagnum moss, with added wetting agents and Vitacell. Vitacell is a foamed aminoplast resin that is fully biodegradable and increases air space and drainage in the substrate without sacrificing water-holding capacity. Vitamix Pro boosts root vitality and promotes the production of bigger harvests.

**Vitamix Pro Soil 5L**: ESD314

6. **John Innes Composts**

John Innes No. 3 is a traditional multipurpose standard compost for all horticultural uses.

John Innes Seedmix is especially formulated for use with seeds and cuttings. Both composts are loam-based so are very heavy and dense.

**John Innes Seedmix 10L**: NNE4876
**John Innes Seedmix 25L**: NNE4879
**John Innes Compost No. 3 10L**: NNE4877
**John Innes Compost No. 3 25L**: NNE4878

7. **Special Mix (Gold)**

Golden bags of substrate containing coco, perlite, lime and black peat with a small amount of fertiliser. Does not contain Baltic peat.

**Special Mix (Gold) 5L**: CBZ3843

8. **Plagron Worm Humus**

Worms make soil, worm castings improves your soil mix, adding nutrients and structure to make that perfect imitation of natural conditions that your plants will love.

**Plagron Worm Humus 5L**: MM8754
**Plagron Worm Humus 25L**: PLA2525
1. Plagron Bat Mix
A special compost made with Bat Guano as the main nutrient, a classic and much-admired natural fertiliser and growth booster. Bat mix also includes worm humus, peat and perlite. One of the strongest naturally-fertilised soils available.

2. Plagron Royalty Mix
Made with a mixture of timed-release fertilisers, meaning you don’t need to add any fertiliser for 6 weeks after potting your plants. This is a mix of the finest types of peat, various types of fibre and perlite. Ensures vigorous growth and increased water retention with the presence of unique Plagron worm compost and a combination of carefully selected organic fertilisers. Water well, allowing the water to seep through, before use.

3. Plagron Grow Mix
Made with a powerful but careful combination of selected fertilisers that meet all the nutritional requirements of the plant in the first three weeks. A mix of carefully selected types of finest peat and various types of fibre. Plagron worm compost ensures vigorous plant growth and increased water retention. Grow Mix is the perfect base for optimum growth and blooming.

4. Plagron Light Mix
Only lightly fertilised so you control the nutrition that you add. Perfect for cuttings and seedlings that might be “burnt” by more powerful mixes. Also ideal for adding your own solid nutrient recipes. Consists of the best and carefully selected types of peat.

5. Plant Magic Plus Soil Supreme
This special blend of Fytocell foam, sphagnum peat and organic growth stimulant contributes to rapid root development, allowing for faster uptake of vital nutrients. The results are impressive, with bigger fruits and more colourful and aromatic flowers. Fytocell foam is 100% Bio-degradable and excellent at retaining moisture. A great food source for beneficial fungi and micro-organisms.

6. Canna Pro Soil Mix
Unlike any other soil you will find in a garden centre. It contains a blend of soil, compost, worm castings, perlite and a special ‘natural plant booster’- a blend of organic ingredients. RHP quality controlled and regularly checked for toxic heavy metal contamination and plant diseases, producing soil of consistent structure and quality. For use with Canna Terra or Canna Bio nutrients.

7. Canna Pro Plus Soil Mix
Canna Terra Professional Plus+ soil mix is even better compact than the standard Canna Terra, with added white peat and composted bark to provide drainage and fully fertilised for exceptional growth. This special formula comes from the desire to create the purest possible soil mix on earth. The formulation is specifically for indoor growing. RHP quality controlled.

8. Canna Terra Seed Mix
Perfect for germinating seeds or rooting cuttings. Canna Seed Mix has an open structure consisting of very clean coco coir that ensures a higher retention of water, but still with excellent air access. Low nutrition ensures that the tender little roots of the new plants are not “burnt.”
Rockwool is a modern alternative to soil. It is lightweight, completely sterile and non-toxic. Its unique structure provides roots with a perfect air to water ratio. The classic hydroponics medium, Rockwool is perfect for a wide variety of hydroponics systems. We stock a complete range of rockwool products from various sizes of starter cubes to 1.3 metre long slabs for growing several plants to maturity. Soak in pH adjusted nutrient solution (pH 5.5 is ideal) and drain before use.

### Rockwool Cubes

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<td>1m Rockwool Slabs</td>
<td>CULTILÈNE 1M MAXXIMA x 2</td>
<td>EJ6163</td>
</tr>
<tr>
<td>1.33m Rockwool Slabs</td>
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<td>CULTILÈNE 1.33M MAXXIMA x 20</td>
<td>CME6117</td>
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</tbody>
</table>

### Mapito

A special mixture of rockwool and coco chips provides the moisture-holding of Rockwool with good drainage. Plenty of airspace in the medium and resistance to compaction assures root health. Excellent capillary action. Recommended feed to use with this is a Hydro feed. 80 litre bag.

**Order Online At:** [www.hydroponics.co.uk](http://www.hydroponics.co.uk)  
**Mail Order Tel:** 0845 872 0572
1. Canna Coco Professional Plus

Ready-to-use coco fibre compost with flakes that meets the demanding RHP standard. Homogenous texture, free of chemical additives, harmful viruses and soil diseases. Fully buffered with calcium and magnesium for the best yield and quality. Trichoderma is added to protect your plant’s roots from the moment they are transplanted.

Do not confuse this superior product with Canna Coco Natural, which is only for people who want to buy extra buffers and soak it in their bath for a day. We don’t sell Coco Natural.

100% natural compost made from coco grit and fibres. B’cuzz Coco substrate is washed and buffered. The coco medium has good retention and directional qualities of water flow so that an optimal absorption of the liquid nutrients may be realised. Lightly fertilised.

Pure virgin coco, dry compressed discs of coarse coco fibre and chips. Excellent for drainage so can be used in drip irrigation unlike the usual coco media, which can become water-logged if overwatered. Easy to store. Compressed for easy transport. This substrate is thoroughly pre-washed and treated for diseases, vermin and weeds. Special additives are included to assure the best production. One brick makes 10-11 litres. Bag of 6 Bricks makes 60-66 litres.

All the advantages of Canna Coco substrate but in a 1 metre long slab that fits the 1 metre troughs, usually used for Rockwool slabs in various systems.

Coco in a self contained disposable pot. Simply add water leave to stand and magically it will expand to 10 litres of ready to grow coco. We recommend you flush through with plenty of water before use. The container is made from black/white plastic to help protect your roots. Drain with ease by simply piercing holes in the container. Easy, simple, what more do you need!

Coco Fibre

Produced from the hairy husk of the coconut, coco fibre has been found over many years to be an effective growth medium that produces big, healthy plants and prolific harvests. Water retentive but with good drainage, plenty of air content and easy root growth. A little thirstier for nitrogen than other substrates, coco should be used with nutrients designed for coco substrates. Coco fibre is a firm favourite among expert growers because it is so easy and pleasant to work with. We cannot recommend this growth media enough!

1. Canna Coco Professional Plus
2. B’cuzz Coco
3. GT Profit Discs
4. Jiffy Coco Cubes
5. Bio Nova Coco Bricks
6. Coco Potz
7. Canna Coco Slab

Order Online At: www.hydroponics.co.uk

Mail Order Tel: 0845 872 0572
Flood & Drain Systems

What is a flood and drain system?

Flood and drain systems feed nutrients to a plant bed from the bottom up, with nutrient flooding the root zone, the nutrient then drains away, drawing fresh air through the root zone. This feeding technique is also known as ebb and flood. These systems come as either tables, where all the plants are grown together in one large tray, for example NEF or Future Garden, or as pot systems, where each plant is grown in an individual pot, with all pots connected to one large nutrient tank, for example Intelligent Watering System (IWS) or Multiflow.

ADVANTAGES:
- Less salt build up due to rinsing / immersion of the medium.
- Benefit of fresh air being dragged into the system, aerating the root zone.
- Free draining pots / medium prevents water-logging.
- The IWS can be used to feed up to 48 plants from one tank, increasing efficiency.
- Can be used with the majority of mediums.

USEFUL TIPS:
- With the Future Garden and NEF the shallow trays (and therefore roots) can cause instability for very large plants so remember to support your plants with plenty of yo-yos and pea netting.
- Keep an eye on the temperature of the root zone in the NEF and Future Garden as the shallow trays mean the medium can heat up quickly. Corriboard covered in Mylar will help with this and has the added benefit of reflecting light back up to the plant canopy.
- As these systems encourage masses of healthy root to grow, pipes must be monitored closely to prevent blockage by root growth. Copper root control disks and pipe filters can help with the overgrowth of roots.
- For best results, remove the nutrient solution and replace it with freshly made solution on a weekly basis, with daily pH and EC checks. A Trimeter helps with this, as it gives a constant reading of pH and EC, so checking these values is as easy as simply looking at a screen.

How does the Future Garden / NEF work?

The main plant bed can be filled with a variety of media, most commonly expanded clay pebbles. Into this bed vegetating plants in rockwool or net pots are placed and a Correx board lid covers the rest of the table to prevent light falling on the media which could cause algae growth. Beneath the plant table is a reservoir containing a pump run on a timer. At set intervals (for example 15 minutes every 2-3 hours) the pump delivers nutrient rich water up to the bed, flooding the rhizosphere and expelling stale air in the media. When the water reaches an appropriate level to coat all the roots excess is spilled back into the reservoir via an overflow pipe. Once the pump has completed the feeding it will switch off allowing water to run back through it down to the tank, drawing fresh air into the root zone for the plants to absorb.
What is a deep water culture system?

Deep water culture is a technique which relies on the plant growing towards the nutrient solution, rather than the nutrient solution being pumped to the plant. DWC systems can also be known as “bubbler” systems. One example of a system that uses this technique is the Oxypot, but DIY versions of this are easy to create. DWC is ideal for keeping mother plants as it promotes vigorous growth and abundant foliage without taking up much space.

ADVANTAGES:
- Small scale system perfect for specimen or mother plants.
- One of the most simple water culture set ups minimal hassle with liability being pump failure.
- Excellent root zone aeration encourages large root mass.

USEFUL TIPS:
- The drain pipe is clear because it allows you to see at a glance the level of the solution in the bucket.
- Leave the air pump on constantly so that the roots don’t live in stagnant water.
- It is vital to check the pH and EC every day, as there is very little medium to buffer the levels, meaning that the plant will suffer very quickly as the parameters change. Also, because the reservoir is so small, pH and EC levels will change quickly as the plant takes what it needs from the nutrient solution.
- It is helpful to raise Oxypots off the floor on a couple of bricks so that when you need to change the water, the drain pipe can be unhooked and angled downwards to allow the water to easily drain out into a container. Raising it off the floor will also reduce nuisance vibrational noise created by the aerator.

How does the Oxypot work?

The plant is suspended in a net pot containing a hydro medium (usually clay pebbles) to support the root zone. The roots, seeking moisture, grow out of the net pot and down into the nutrient solution, which is kept oxygenated at all times by an aerator. Cuttings or seedlings that have rooted into a rockwool cube or rooting sponge can be placed into the pebbles with the water level an inch above the bottom of the net pot, ensuring that the roots do not dry out and die. Once the roots are established and emerge from the net pot, the water level can be lowered to an inch or two below its bottom, to encourage them further. This water level should be maintained from that point onward, although many DWC growers find that gradually lowering the water level is very beneficial during flowering since it exposes more of the root mass to the air. Roots can absorb more oxygen from the air than if it is dissolved in water, so this is an excellent benefit of the Oxypot.
Dripper Systems

What is a dripper system?

Dripper systems use a pump and reservoir to deliver nutrient solution through pipes and dripper stakes to many plants simultaneously. They are very flexible and can be used as a true hydroponics system or as an automated feeding system into traditional pots. Dippers can be used to feed into pots, trays, slabs and even vertical growing set-ups. You can create a dripper system for any media (Hydroton, perlite, rockwool, Diahydro, coco, soil, etc) simply by adjusting the kind of dripper stake and schedule of feeds. Dripper systems can be re-circulating (e.g. Wilma system), whereby unused nutrient solution is returned to the reservoir tank, or run-to-waste, whereby the excess run-off is channelled to a separate drain.

How does a dripper system work?

Personal preference of growing technique will dictate how this system will be used but the principles remain the same. A pump located in the reservoir is connected to supply pipe leading to plant containers. The supply pipe is sealed at the end. Offshoots of smaller diameter pipe (dripper line) are taken from the main pipe which either have an open end or flood dripper stake on the end (for mediums such as Hydroton or diahydro) or an arrow dripper stake (for mediums such as soil or coir). These are placed into the top of the growing medium near the base of the plant. As nutrient solution is pumped into the supply pipe, its sealed end creates pressure, forcing nutrient solution out of the dripper lines and into the medium.

Re-circulating or run-to-waste?

This depends primarily on which medium you would like to use. Free draining mediums such as Hydroton clay pebbles suit re-circulating dripper systems because they do not retain much moisture, so require feeding very regularly. Soil, coco or rockwool mixes such as Mapito have a higher level of water retention, so require only a couple of feeds per day (or less). Re-circulating systems may be less preferable with these mediums because coco or soil deposits can drain into the reservoir and potentially cause blockages in your pump or dripper lines. Run-to-waste systems are definitely better suited to these mediums.

Using soil or coco in a run-to-waste system is slightly safer than using pebbles because if your pump fails the medium will retain enough moisture to keep the plants alive for at least a few days. On the downside, feeding schedules for soil and coco must be worked out through trial and error to ensure that the medium does not become over-watered or fully dry out at any point, and you will not have the root zone benefits of a hydroponic method.

Re-Circulating Dripper System

**USEFUL TIPS:**

- Certain media will have greater run off than others; Hydroton will allow the water to pass quickly over the roots and due to the limited retention of moisture the clay will allow the majority of water through, whereas coco which can hold 9 times its weight in water will absorb and retain the nutrient leading to smaller quantities of run off.
- When using media with a limited retention (e.g. expanded clay pebbles) you will have to feed regularly to avoid the root system drying out. The nutrient can be re-circulated constantly, but it is beneficial to have the pump running on a timer so that the root zone has both wet and dry spells intermittently. For example, the pump could run for 15 minutes every hour.
- With media that can retain moisture to maintain the plant for a period after a feed remember to use a less frequent feed schedule (e.g. 15 minutes every 3 hours) to prevent water-logging of the medium.
- The drippers (the stakes at the end of the feed pipe) are matched to the medium you are using. Flood drippers do not limit water flow and are designed for media with limited water holding capacity. Arrow drippers limit flow to 2L per hour and are designed for media which can retain water.
- Feed times also need to be tailored to the plant’s life cycle and the size of the plant. A plant grown in coco may only need one feed a day during the vegetative stage, but three feeds a day in full flower, when the plant is much larger and requires more nutrition. It is better to increase the frequency of feeds (number per day) than the length (time the pump is on for). Note that when using clay pebbles this does not apply as you can feed as much as you like without risk of over-watering the medium.
- Pumps and filters should be checked regularly for failure or blockage: If the pump fails the plants will suffer (especially in low water holding capacity mediums).
- Dripper pipes (usually 4 mm diameter) can clog easily if salts are allowed to build up or debris from the growing medium accumulates in the solution. Water filters, products such as ATA clean, regular checks of EC and the use of the correct nutrients for the system will prevent this.

**ADVANTAGES:**

- Versatile choice of media
- Recirculating or run to waste
- Plants in individual pots can be removed or added without disturbing the other plants
- Automated feeding ensures plants get water and nutrients when they need it
- One reservoir can feed many plants, limiting time spent hand watering for busy gardeners
What is the Autopot system?

The Autopot system is a gravity fed system, requiring no pumps and therefore no electricity. The system can be adapted for any number of plants and is suitable for use with any medium that can take up water from the bottom of the pot. A mix of 50% soil/coco and 50% perlite is highly recommended. The smart valve technology means the plant will only be given a small amount of nutrient solution at one time and, as the solution is not re-circulated, pH and EC levels will remain relatively stable, with the system being able to be left unattended for the longest period of time of any system.

How does the Autopot work?

The nutrient solution is contained in a header tank which feeds into the pots using only gravity to move the water. Each pot sits within a tray. 1Pot modules use 1.5L pots, one pot to a tray and 2Pot modules use 8.5L pots, two pots to a tray. The Smart Valve within the tray of each pot only lets 20 mm of water into the tray and won’t refill the tray until the water has been used. This allows the plant to go through a wet and dry cycle which encourages healthy root growth. As many pots as are required can be used with the system and pots are easy to add or take away after the system has been purchased and set up. Simply remove the stop end at the end of the feed pipe, replace it with a 16 mm - 4 mm X connector, attach your pots to this connector with 4 mm piping and replace the stop end at the new end of the feed pipe. When the nutrient solution in the tank is running low simply add fresh water and adjust the EC and pH.

ADVANTAGES:

- Doesn’t require electricity.
- No limit to the size of system.
- No recirculation of nutrient solution, keeps pH and EC levels relatively constant.
- Low maintenance.
- No need to drain and refill tanks.
- Easy to add more pots or remove unwanted pots.
- Can be left unattended for far longer than any other system.
- Noiseless operation.

 USEFUL TIPS:

- The smart valve must be kept clean and free of obstructions in order to work properly. Use an in-line filter, placed in the feed pipe directly after the tank, to keep nutrient solution clean and free of debris that could prevent the valve from working correctly.
- As the system is gravity fed the tank must be placed higher than the level of the feed pipes. Also ensure all trays and pots are level.
- If many more pots are added to the system remember to increase the tank size. As a guide see the table to the side.
- To increase the root zone aeration use an AirDome in the base of the pot. This has been shown to significantly increase yields, although please note that an air pump and electricity supply is required to run the AirDome.

<table>
<thead>
<tr>
<th>TANK SIZE</th>
<th>MAX NUMBER OF 1POT MODULES</th>
<th>MAX NUMBER OF 2POT MODULES</th>
</tr>
</thead>
<tbody>
<tr>
<td>47L</td>
<td>4</td>
<td>3 (3 POTS)</td>
</tr>
<tr>
<td>100L</td>
<td>10</td>
<td>9 (18 POTS)</td>
</tr>
<tr>
<td>200L</td>
<td>20</td>
<td>18 (36 POTS)</td>
</tr>
<tr>
<td>350L</td>
<td>36</td>
<td>32 (64 POTS)</td>
</tr>
</tbody>
</table>
**What is a NFT system?**

NFT stands for Nutrient Film Technique. A thin film of nutrient solution flows over the top of the tray providing your roots with all the elements they need. This is a bare rooted technique as the roots of your plant spread free across the tray, with the majority of the roots unenclosed by medium. The only medium required is a cube of rockwool to begin the plant in and anchor the stem.

**How does the NFT system work?**

In an NFT system the nutrient solution is contained in a tank, above this is a gently sloping tray which your plants sit on and fill with a thick root mat. A pump is used to deliver nutrient solution which spreads as a film across the tray and the roots. Spreader mat gives the roots something to bed into and ensures the film of nutrient spreads evenly across the tray, preventing dry spots. The solution will then drain from the slit in the opposite end of the tray, flowing back into the tank for the process to begin again. The pump would usually be kept on constantly but could be timed to suit your plants.

**ADVANTAGES:**

- Lack of medium means that roots have excellent access to oxygen, promoting faster growth.
- No need to work out feed times.
- Flexibility; the same NFT system could equally be used to grow one giant plant or many small ones depending on your preference.

**USEFUL TIPS:**

- Adding an air stone can boost growth considerably and help to prevent root disease by oxygenating the nutrient solution. Do not allow the water temperature to rise above 23°C, when water is warm it has less capacity to hold oxygen and provides ideal conditions for root disease.
- It is recommended to use micro-organisms (such as Viresco Hydroponic) to prevent root disease. Using an enzyme product in conjunction will help break down any dead root matter, also keeping the root zone healthy. Another option is to use a chemical treatment such a Liquid Oxygen or PythOff as a preventative in every feed. Please note that chemical and biological treatments cannot be used at the same time; chemicals such as Liquid Oxygen will kill any micro-organisms and break down any enzymes present in the water, making them useless.
- Most NFT systems will come with an adjustable pump so that the correct flow rate can be achieved. The root mass should only be half submerged in water, thus allowing access to oxygen at all times. If the flow rate is too high and the roots are fully submerged you may see symptoms of over-watering. Make sure the system is placed on a level surface to ensure even water distribution across the tray.
- Ideally, you should empty the nutrient solution, clean and fill the tank with fresh water and food on a weekly basis. In between full nutrient changes, if the tank needs topping up use a half strength nutrient solution as elements in the feed will be depleted at different rates, therefore topping up with half strength solution will prevent excess elements. Remember to check the EC and pH after adding anything to the tank.
- Regularly check the EC and pH, adjusting if needed. Allow the pH to fluctuate between 5.8 and 6.2, as different nutrients are absorbed best at different pH levels, so fluctuation within these levels prevents deficiencies from occurring. If the pH is very far from recommended levels it can often be better to replace all the water instead of using large amounts of pH up or down.
- Check the pump regularly as the lack of medium around the root zone means pump failure can quickly lead to plant damage.
- The grooves on the bottom of the rockwool block should be aligned in the direction of water flow so the flow is not impeded.
- When placing plants onto the tray, make sure at least half an inch of root is visible growing out of the rockwool cube or plants may fail to root correctly and die.
- NFT systems can be prone to algae growth due to light pollution. Although white Correx board is handy to reflect heat away from the tank, it is not completely lightproof and is best used in conjunction with a black Correx sheet layered underneath it to prevent light penetration.
What is the IWS system?

IWS stands for Intelligent Water System. It is a flood and drain system; meaning that it works by flooding individual pots from the bottom up and then draining the nutrient solution that is not taken up in each pot back into the central reservoir. It has all the benefits of any flood and drain system with the added flexibility of individual pots, allowing you to add or remove pots as required and to space the pots according to the plants needs.

How does the IWS system work?

Plants are grown in individual plant pots, all linked to a central reservoir via a pot known as the "brain". The individual plant pots consist of an inner and outer pot, with the inner pot containing the medium and the plant and the space between the inner and outer pot preventing the roots of the plant from constantly sitting in nutrient solution. Nutrient solution is first pumped from the central reservoir to the "brain". As the water fills the "brain" it also flows to the individual plant pots, filling these with nutrient solution. This is known as a flood cycle. The time the pump runs for (and therefore the length of the flood cycle) is set by the grower on an attached timer. As an additional safety measure the "brain" has a float in the base of the pump which switches off the central reservoir pump when the "brain" (and therefore the individual plant pots) become full, preventing accidental flooding of the whole grow room. After the specified time a pump within the "brain" switches on and starts to pump the nutrient solution back from the individual plant pots and the "brain" into the central reservoir. This is known as a drain cycle. Like the flood cycle, a float in the base of the "brain" senses when the nutrient solution has drained from all the pots and switches off the pump. The time between the end of the drain cycle and the start of the next flood cycle is also set by the grower on the attached timer. Flood and drain systems are excellent for plant growth because as nutrient solution is forced through the growing medium in the flood cycle it forces stale air out from the root zone. Fresh air is then drawn into the medium as the nutrient solution is drained back into the central reservoir.

ADVANTAGES:

- Eliminates water wastage compared to traditional hand watering methods.
- Can be used with a wide variety of mediums.
- Flood and drain cycles mean more efficient gas exchange at the root zone, leading to vigorous growth.
- Individual pots mean plants can be added or removed with ease and spaced how the grower desires. The IWS is the perfect system for unusual shaped grow rooms, where other systems cannot fit.

USEFUL TIPS:

- All the pots must be level with one another and the "brain", to avoid problems such as root rot, flooding or drying out due to uneven feeds.
- We strongly recommend setting up the system, complete with medium, and adjusting the settings on the timer, before you put your plants in.
- Mediums that saturate quickly, such as coco or soil, need a longer time between flood and drain cycles compared to mediums which hold less water, such as clay pebbles. In all mediums, as the plants grow and their requirements for nutrients and water increase you will want to leave the timing of the flood cycle the same but reduce the time between the start of each flood cycle.
- Different mediums need different inner pots; make sure you have the right pots for the medium you want to use. Whatever medium you use, be sure to put 2-4 inches of clay pebbles at the bottom to increase drainage and prevent water-logging of the root zone.
- Copper root control disks, placed in the base of the inner pot, prevent roots from growing into the pipes and causing blockages. If your setup allows it, turning the inner pot by 45° every few days prevents roots from growing down the feed pipes as easily, and promotes even growth. Root blockers are also available, these are filters that sit inside the sealing gland of each pot and stop roots growing into the feed pipes.
- For best results, remove the nutrient solution and replace it with freshly made solution on a weekly basis, with daily pH and EC checks. A Trimeter helps with this, as it gives a constant reading of pH and EC, so checking these values is as easy as simply looking at a screen.
- If your room is running hot, reduce your feed strength to account for the increase in water uptake (compared to nutrient uptake) and therefore prevent nutrient burn from the rising EC in the solution.
1. Homebox

The ultimate grow tent? The often copied Homebox is robust, water resistant and made of high quality laminated canvas - providing you with a totally light proof grow tent when securely zipped up so it's perfect for the corner of a bedroom. It also comes with all the necessary built-in fixtures and fittings for lamps, fans, filters and wiring etc. Available in 5 sizes (below).

**Homebox XS:** 0.6m x 0.6m x 1.2m  
**Homebox S:** 0.8m x 0.8m x 1.6m  
**Homebox L:** 1.0m x 1.0m x 2.0m  
**Homebox XL:** 1.2m x 1.2m x 2.0m  
**Homebox XXL:** 2.4m x 1.2m x 2.0m

**Homebox Corner Piece**  
NOT PICTURED  
**HOMEBOX CORNER PIECE**

2. Silverback Growtents

Great quality, brand new Silverback tents. These robust tents are waterproof, easy to put up, and easy to clean - all at an affordable price. These tents have 20mm steel poles with plastic corners, are completely light-tight and come with 3 air ducts.

**Silverback Tent:** 0.8m x 0.8m x 1.8m  
**Silverback Tent:** 1.0m x 1.0m x 1.8m  
**Silverback Tent:** 1.2m x 1.2m x 2m  
**Silverback Tent:** 1.4m x 1.4m x 2m  
**Silverback Tent:** 2.4m x 1.2m x 2m  
**Silverback Tent:** 2.4mx x 2.4m x 2m  
**Silverback Tent:** 3.0m x 1.5m x 2m  
**Silverback Tent:** 3.0m x 3.0m x 2m

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Order Online At: [www.hydroponics.co.uk](http://www.hydroponics.co.uk)

Mail Order Tel: 0845 872 0572
1. Secret Jardin Mark II

The new and improved Secret Jardin Mark II with silver lined 95% reflective walls, rigid structure, many well positioned ventilation and cable holes and easy access panels.

<table>
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<th>Size</th>
<th>Dimensions</th>
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<td>DR240w</td>
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<tr>
<td>DR240</td>
<td>2.4m x 2.4m x 2m</td>
</tr>
<tr>
<td>DR300</td>
<td>3m x 3m x 2m</td>
</tr>
</tbody>
</table>

SECRET JARDIN DR90 MARK II *TO ORDER  
SECRET JARDIN DR120 MARK II  
SECRET JARDIN DR150 MARK II  
SECRET JARDIN DR240W MARK II  
SECRET JARDIN DR240 MARK II  
SECRET JARDIN DR300W MARK II  
SECRET JARDIN DR300 MARK II  

2. Agrowtent

The Agrowtent is a new modular chamber for vertical growing. The tent’s interior measures 65½” (L) x 34” (W) x 83” (H). Available as a half tent with 14 x 1m Maxxima Rockwool slabs, or as a double tent with 28 slabs, which are supported using a new highly efficient structure. Double your planting surface with a dual system (two tents). The double tent still uses just one single light as well as the same ventilation and cooling system.

The sliding cool tube makes it easy to access the system. All plants are within reach with the system’s circular design. Due to the cover’s opaqueness and interior finish there is no light loss and maximum reflection of the light source. It is very sturdy and rigid, with thick tent poles for extra solidity. It also has wheels, making it very easy to move around. The tent has multiple openings and ventilation options. The double bottom reduces water damage and makes it easy to clean. The water tank can also be placed inside or outside - you decide!

Agrowtent Half Tent
- Agrowtent half tent with sliding Cool Tube
- 14 x 1 Metre Maxxima Slabs

Agrowtent Half Tent with Lights
- Agrowtent half tent with sliding Cool Tube
- 14 x 1 Metre Maxxima Slabs
- 2 x Ballast 600W
- 2 x Dual Spectrum Lamp 600W

Agrowtent Full Tent
- Agrowtent double tent with sliding Cool Tube
- 28 x 1 Metre Maxxima Slabs

Agrowtent Half Tent with Lights
- Agrowtent double tent with sliding Cool Tube
- 28 x 1 Metre Maxxima Slabs
- 2 x Ballast 600W
- 2 x Dual Spectrum Lamp 600W

Order Online At: www.hydroponics.co.uk  
Mail Order Tel: 0845 872 0572
1. NFT Gro-Tanks Complete

The Gro-Tank works in the following manner - nutrient solution in the tank is lifted by the pump onto the channel. Once there, it begins to flow down the channel, being drawn evenly across the entire width of the channel by the spreader mat. As the solution flows down the channel the plants will take what they need, anything not taken by the plants falls back into the tank in order to be re-circulated. The streamlined tank maximises headroom and floor space and is unobtrusive in the growroom. Comes complete with pump, delivery tube, spreader mat, pH test kit, acid, top plate and full instructions.

<table>
<thead>
<tr>
<th>Volume</th>
<th>Tank size (L, W, H)</th>
<th>Tray size (L, W, H)</th>
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</thead>
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<tr>
<td>GT205</td>
<td>20 ltr</td>
<td>695 x 385 x 185mm</td>
</tr>
<tr>
<td>GT424</td>
<td>45 ltr</td>
<td>1010 x 485 x 205mm</td>
</tr>
<tr>
<td>GT604</td>
<td>60 ltr</td>
<td>1525 x 485 x 190mm</td>
</tr>
<tr>
<td>GT901</td>
<td>80 ltr</td>
<td>2110 x 530 x 215mm</td>
</tr>
</tbody>
</table>

GT205 COMPLETE ZLJ3414
GT424 COMPLETE ZLJ3415
GT604 COMPLETE ZLJ3416
GT901 COMPLETE *TO ORDER ZLJ3417

2. NFT Gro-Tanks Square Complete

<table>
<thead>
<tr>
<th>Volume</th>
<th>Tank size (L, W, H)</th>
<th>Tray size (L, W, H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT100</td>
<td>100 ltr</td>
<td>1200 x 1060 x 215mm</td>
</tr>
</tbody>
</table>

GROTANK 100 COMPLETE SQUARE METRE VFF5768

3. Gro-Tank Spares

**Tanks**

- GROTANK 205 TANK ONLY VA22287
- GROTANK 424 TANK ONLY VA22288
- GROTANK 604 TANK ONLY VA22289
- GROTANK 901 TANK ONLY *TO ORDER VA22290
- GROTANK 100 TANK ONLY (SQUARE METRE) VA22291

**Trays**

- GROTANK 205 TRAY ONLY WDP7982
- GROTANK 424 TRAY ONLY WDP7983
- GROTANK 604 TRAY ONLY WDP7984
- GROTANK 901 TRAY ONLY *TO ORDER WDP7985
- GROTANK 100 TRAY ONLY (SQUARE METRE) WDP7986

**Gro-Tank Dripper Conversion**

To change NFT to Drip. (Not Pictured).

- GROTANK 205 DRIPPER CONVERSION KIT YFF9135
- GROTANK 424 DRIPPER CONVERSION KIT YFF9136
- GROTANK 604 DRIPPER CONVERSION KIT YFF9137
- GROTANK 901 DRIPPER CONVERSION KIT *TO ORDER YFF9138

**Gro-Tank Corriboard Covers**

To avoid light entering the root zone and causing growth of algae, which will poison the medium, reduce water flow and feed on nutrients that your plants could be using.

- GROTANK 205 LID CORRIBOARD WHITE/BLACK JS5725
- GROTANK 424 LID CORRIBOARD WHITE/BLACK MD5951
- GROTANK 604 LID CORRIBOARD WHITE/BLACK PH4138
- GROTANK 901 LID CORRIBOARD WHITE/BLACK *TO ORDER DPN3124
- GROTANK SQUARE METRE GT100 LID CORRIBOARD SILVER CXC7375

4. Gro-Tank Spares

All Gro-Tank compounds are available separately... call our store or visit our website for more details.

**Order Online At:** www.hydroponics.co.uk **Mail Order Tel:** 0845 872 0572

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**NFT Systems**

Nutrient Film Technique. A method for beginners, the principle behind NFT is unique and simple. NFT involves a very shallow film of nutrient solution constantly flowing over the roots of your plants with the aid of a pump.

The plants rest in a flat but sloping tray or channel using Rockwool cubes, and the nutrient solution is simply re-circulated around the system with the roots bathed by a constant flow of nutrient feed. A spreader mat ensures that all the roots are washed with the nutrient flow.

The system is easy and quick to install and provides fast growth rates. As the system is usually run on a constant basis, the management of NFT systems has to be more diligent than other types of systems. Care should be taken to monitor the pump. Excellent results - simple to set up and maintain. One of the greatest things about NFT systems is that you need very little growth media as the plants are fed directly from the nutrient stream! This takes the hassle out of crop changeover!
1. 2-Channel Multiduct Kit

For a larger growroom - these massive NFT systems are wide and long for a huge area of plants. They still fit though a normal door. Complete with 2 channel trays, stands, nutrient tanks, cover plate, supply tube, fittings, spreader mat and acid test kit.

<table>
<thead>
<tr>
<th>Multiduct</th>
<th>Volume</th>
<th>Tank size (L, W, H)</th>
<th>Stand Height</th>
<th>Tray size (L, W, H)</th>
<th>Trays</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Channel 6FT</td>
<td>123 litres</td>
<td>1200 x 700 x 240mm</td>
<td>280mm</td>
<td>1830 x 940 x 65mm</td>
<td>18 x 2</td>
</tr>
<tr>
<td>2 Channel 8FT</td>
<td>123 litres</td>
<td>1200 x 700 x 240mm</td>
<td>1 x 280mm &amp; 1 x 305mm</td>
<td>2440 x 940 x 65mm</td>
<td>18 x 2</td>
</tr>
</tbody>
</table>

2. Nutrient Tanks

Various sizes and shapes of nutrient reservoir tanks are available. If you need to know what shape these are please phone or email and we will try to fit your needs with a tank from our stock.

<table>
<thead>
<tr>
<th>Nutrient Tanks</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>50L NUTRIENT TANK</td>
<td>GVD8278</td>
</tr>
<tr>
<td>72L NUTRIENT TANK</td>
<td>GVD8264</td>
</tr>
<tr>
<td>90L NUTRIENT TANK</td>
<td>GVD8265</td>
</tr>
<tr>
<td>123L NUTRIENT TANK</td>
<td>GVD8279</td>
</tr>
<tr>
<td>300L NUTRIENT TANK WITH LID</td>
<td>GVD8281</td>
</tr>
<tr>
<td>500L NUTRIENT TANK WITH LID</td>
<td>GVD8282</td>
</tr>
<tr>
<td>200L NUTRIENT TANK</td>
<td>GVD8280</td>
</tr>
<tr>
<td>270L NUTRIENT TANK</td>
<td>JRT6156</td>
</tr>
<tr>
<td>500L NUTRIENT TANK WITH LID</td>
<td>GVD8283</td>
</tr>
</tbody>
</table>

3. 3-Channel Multiduct Kit

Basic - Complete with: Triple channel plastic tray, top plate, 50 litre nutrient tank, stand, supply tube, fittings, spreader mat and acid test kit.

Giant - (To double your growing capacity). This Kit contains two triple channel plastic trays, two top plates, a 123 litre nutrient tank, 2 stands, supply tube, fittings, spreader mat and acid test kit.

<table>
<thead>
<tr>
<th>Multiduct</th>
<th>Volume</th>
<th>Tank size (L, W, H)</th>
<th>Stand Height</th>
<th>Tray size (L, W, H)</th>
<th>Trays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>50 litres</td>
<td>1010 x 485 x 205mm</td>
<td>280mm</td>
<td>1600 x 860 x 50mm</td>
<td>1 x 2</td>
</tr>
<tr>
<td>Giant</td>
<td>123 litres</td>
<td>1200 x 700 x 240mm</td>
<td>280mm</td>
<td>1600 x 860 x 50mm</td>
<td>2 x 2</td>
</tr>
</tbody>
</table>

4. Multiduct Spares

Various spares and accessories for the Multiduct NFT tables. (Not Pictured).

Order Online At: www.hydroponics.co.uk

Hydroponic Systems... it's easy!
Drip Irrigation Systems

The nutrient liquids are pumped through tubing from a reservoir in these systems - then dripped through the growing medium from above down a feed pipe. The flow rate is reduced by a dripper to each individual plant. The excess nutrient may then be re-circulated from the nutrient tank. If the nutrient is allowed to drain away it is known as 'run to waste'. Use this excess nutrient to feed to your soil based plants or garden. It is possible to use this method to feed plants in individual pots giving maximum flexibility. Coco and clay pebbles are popular media used in drip irrigation.

1 Wilma Systems

One of the simplest systems for beginners with excellent results. The drip irrigation can be used with clay pebbles, coco, mapito, cellmax cubes or soil. For fewer plants just take out the pots you don’t want to use.

The 4, 8 and 16 Pot Wilmas use 11 litre pots. The 10 and 20 Pot Wilmas use 6.5 litre pots. The Wilma Versatile is supplied without pots and can be used with slabs of Rockwool, coco or other media - or your own design.

Wilma Spares

Pots
SQUARE POT 6.5L (FOR THE 10 & 20 POT SYSTEMS) WILMA POT 18L
SQUARE POT 11L (FOR THE 4, 8 & 16 POT SYSTEMS) WILMA TRAY 4 POT WILMA TRAY 8 POT
Trays
WILMA TRAY 4 POT WILMA TRAY 8 POT WILMA TRAY 16 POT
WILMA TRAY 20 POT WILMA TRAY FLAT TRAY (FOR 8/10 POT SYSTEMS)
Tanks
WILMA TANK 4 POT WILMA TANK 8/10 POT
WILMA TANK 16/20 POT
Wilma Big

The Wilma Big systems come with massive 18 litre pots.

Wilma Big Spares

Pots
WILMA POT 18L
Trays
WILMA TRAY BIG 4 POT WILMA TRAY BIG 8 POT
WILMA TRAY BIG 9 POT
Tanks
WILMA TANK BIG 4 POT WILMA TANK BIG 8 POT
WILMA TANK BIG 9 POT

Wilma Systems now come in two different sizes, the major difference being Pot Size...

<table>
<thead>
<tr>
<th>Wilma</th>
<th>Volume</th>
<th>Tank Size (L, W, H)</th>
<th>Tray Size (L, W, H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Pot</td>
<td>30 litres</td>
<td>670 x 570 x 190mm</td>
<td>595 x 580 x 80mm</td>
</tr>
<tr>
<td>B/10 Pot</td>
<td>70 litres</td>
<td>1160 x 590 x 210mm</td>
<td>1090 x 600 x 190mm</td>
</tr>
<tr>
<td>Big 4</td>
<td>50 litres</td>
<td>767 x 573 x 201mm</td>
<td>800 x 800 x 130mm</td>
</tr>
<tr>
<td>Big 8</td>
<td>100 litres</td>
<td>1600 x 673 x 254mm</td>
<td>800 x 800 x 130mm x 2</td>
</tr>
<tr>
<td>Big 9 &amp; 15/20 pot</td>
<td>140 litres</td>
<td>1200 x 1060 x 215mm</td>
<td>1200 x 1060 x 130mm</td>
</tr>
</tbody>
</table>

ATAClean

For constant use to keep your drippers free of clogs and tuning. Typical Dose: 1 ltr makes 10,000 ltrs of solution.

<table>
<thead>
<tr>
<th>ATACLEAN 1L</th>
<th>ATACLEAN 5L</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSK9651</td>
<td>ZSK9652</td>
</tr>
</tbody>
</table>

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. **Aquafarm**

Ideal for keeping a large plant or several smaller ones. Reliable for long term growing, easy to use and inexpensive. Plants are grown within a chamber filled with clay pebbles. The growing chamber is suspended above a reservoir filled with nutrient-enriched water. An air pump drives the nutrient solution up through the “pumping column” to a drip feed ring, where the nutrient then drips down through clay pebbles. This infuses the nutrient with oxygen and constantly bathes the roots, stimulating the plant to grow strong and fast. A series of these modules can be interconnected together with the controller supplying nutrient and water automatically to all the units. 18 inch square.

2. **Waterfarm**

Same system as the Aquafarm but a smaller unit ideal for smaller petite plants. 12 inch square.

3. **Aero Farm Aeroponic System**

Embrace the latest growing method! This simple and effective aeroponic kit can take you from cuttings to mature plants. High levels of oxygen at the roots mean fast and healthy growth and beautiful harvests. For beginners or experts.

4. **Flogro 500**

Similar kit to the Aquafarm, with drip feed irrigation from a ring and nutrient solution reservoir. Doubles as an Ebb and Flood system.

5. **IGS - Indoor Growing System**

Well-engineered, durable 20 pot system with a 90 litre reservoir tank and 19cm pots. Also includes a 2m tubular steel lamp support. 1 metre by 1.3 metres.

**Drip Clean**

For cleaning out the dripper line and dripper heads to ensure even distribution of irrigation among the plants. To be used constantly to prevent salt build up.

---

Order Online At: www.hydroponics.co.uk

Mail Order Tel: 0845 872 0572
1. NEF Tables
Available in a range of sizes from 70x60cm up to 2mx1m, these flood and drain tables allow complete control over feeding schedules and a highly oxygenated root zone to maximise growth. Low level design maximises headroom space. Comes complete with pump and fittings.

NEF TABLE COMPLETE 22 DFR2842
NEF TABLE COMPLETE 33 DFR2843
NEF TABLE COMPLETE 52 DFR2844

NEF Tables Spare Parts
Corriboard Lids
NEF 22 CORRIBOARD LID XVM2161
NEF 33 CORRIBOARD LID XVM2162
NEF 52 CORRIBOARD LID XVM2163

Tanks
NEF TANK 22 ZJW5181
NEF TANK 33 ZJW5182
NEF TANK 52 ZJW5183

Trays
NEF TRAY 22 YMB6342
NEF TRAY 33 YMB6343
NEF TRAY 52 YMB6344

2. Vegigator
The Vegigator is a flood and drain system. It enables you to take cuttings and seedlings to the next stage before moving them into a larger system. The Vegigator could also be used for the flowering stage. The top tray is interchangeable 6, 12 or 24 plants. Can fit into a 1.2 metre square grow room. Airpots or root pouches can be used with this system.

VEGIGATOR 6 POT VEG1006
VEGIGATOR 12 POT VEG1012
VEGIGATOR 24 POT VEG1024

2. Vegigator

Flood and Drain / Ebb and Flood
Nutrient solution is pumped from the reservoir to flood the plant bed while pushing stale air out of the root zone. The solution is then drained away by siphon or pump which draws fresh air, constantly refreshing the root zone. Plants grown using this method are either supported in pots or by filling the upper tray with clay pebbles but perlite or vermiculite could also be used. This continuous rinsing of the medium several times a day ensures that salt build-up is limited.

NEF
More NEF accessories are available - call our store or visit our website for more details

050 Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
IWS System

1a. IWS Complete Systems

The finest flood and drain system on the market? The IWS is an ingenious and easy-to-assemble system that can accommodate between 6 and 48 pots, all fed by a central reservoir. The IWS comes as a complete kit and can be used with a variety of growing media. This versatile and scalable system takes the hassle out of watering your plants manually and allows you the option to add or remove plants to suit your requirements.

IWS INTELLIGENT WATERING SYSTEM 6 POT UNAS786
IWS INTELLIGENT WATERING SYSTEM 12 POT UNAS787
IWS INTELLIGENT WATERING SYSTEM 24 POT UNAS788
IWS INTELLIGENT WATERING SYSTEM 36 POT UNAS789
IWS INTELLIGENT WATERING SYSTEM 48 POT UNAS790

IWS System Spare Parts

Humidity Dome IWS Size VFN8156
IWS Anti Syphon Valve AED1332
IWS Brain Pot Flood & Drain IBP203
IWS Elbow LBK973
IWS Inner & Outer Net Pot - Aqua TNP9598
IWS Inner & Outer Net Pot - Coco WDS622
IWS Inner Net Pot - Aqua YJT2457
IWS Inner Net Pot - Coco LKB3137
IWS Inner Net Pot - Regular XPL7987
IWS MJ 1000 Pump & Lead MJP9803
IWS Outer Net Pot - Aqua/Coco BAE2265
IWS Outer Net Pot - Regular BWE4473
IWS Pot Filters IWS5109
IWS Pot Tray XWS9944
IWS Root Control Disc Small JTSS650
IWS Root Control Disc Large JTSS561
IWS Sealing Gland HPS975
IWS Straights IWS9004
IWS Tank 220L With Pump AED1333
IWS Tank 36L With Pump IWS6500
IWS Tee ZPS913

1b. IWS Basic Systems

This basic system offers a more affordable alternative to the standard IWS. It is the same as the IWS Complete system but does not include the pot stands, root control discs or a remote timer. (Not Pictured)

IWS Basic System 6 Pot UNAS795
IWS Basic System 12 Pot UNAS791
IWS Basic System 24 Pot UNAS792
IWS Basic System 36 Pot UNAS793
IWS Basic System 48 Pot UNAS794

Future Garden Ebb & Flood Table

Perfect fit for a 1.2m square grow chamber. Complete with pump and reservoir. Use with clay pebbles. Promotes root health and excellent robust plants for great yields with constant renewal of oxygenated water reducing the risk of root rot. One large tray 120cm x 50cm, 10cm depth. Frame allows adjustable height up to 70cm, giving up to 59cm of clearance underneath for reservoirs.

Future Garden Ebb and Flood Complete FCB9346

Multiflow System

An Ebb and Flood system using pots sitting in individual 9 litre buckets, rather than a table, for more flexibility as the plants grow. The Multiflow system allows you the option to add or remove plants to suit your requirements. All the pots are connected to a central reservoir tank. The timer controls the flooding for 15 minutes and draining for 15 minutes, with a float switch in the master pot avoiding overfilling of the pots. The pumps are only doing light work so last a long time. Can be used with any growing media including clay pebbles, cellmax, coco fibre, perlite, vermiculite and mapito.

Multiflow System 12 Pot TAE7595
Multiflow System 24 Pot TAE7597
Multiflow System 36 Pot TAE7598
Multiflow System 48 Pot TAE7599

Looking for irrigation spare parts?

At Holland Hydroponics we stock a full range of pipes, taps and all sorts of other fittings for making your own or replacing existing irrigation systems.

See Growroom Essentials Turn to Pages 132 - 133

Order Online At: www.hydroponics.co.uk Mail Order Tel: 0845 872 0572

051
Hydroponic Systems

1. Air Pots
Air Pots are a reusable and recyclable plastic container. Whether you choose coco, soil or hydro, the Air Pot allows your plants to develop a remarkable radial root system that simply cannot be matched in any other growing container. The Air Pot actively enhances the quality of the root systems of plants. Improves oxygenation and nutrient uptake. Reduces transplant shock, faster growth rates, healthier plants and higher yields.

Air Pots
- Air Pot 3L
- Air Pot 6L
- Air Pot 10L
- Air Pot 15L
- Air Pot 20L
- Air Pot 45L
- Air Pot 3L Pack of 25
- Air Pot 6L Pack of 25
- Air Pot 10L Pack of 25
- Air Pot 15L Pack of 25
- Air Pot 20L Pack of 25
- Air Pot 45L Pack of 25
- Air Pot Fixing Only

Order Online At: www.hydroponics.co.uk
0845 872 0572

2. Oxypots
Ideal for one plant. A bubbler keeps the roots in aerated, moving nutrient solution for healthy fast growth in a simple foolproof set-up. Comes with a bubbler and clay pebbles.

- Oxypot Deep Water Culture System Complete
- Oxypot Net Pot / 5" Heavy Duty
- Oxypot Grommet

3. Polybags
Black plant pots made from tough flexible polythene sheet, provided folded flat. Convenient for storage when short of gardening space and lightweight. Polybags come singly or in packs of ten.

Polybags
- Polybag 151 5L x 10
- Polybag 151 5L Each
- Polybag 169 6L x 10
- Polybag 169 6L Each
- Polybag 201 10L x 10
- Polybag 201 10L Each
- Polybag 227 17L x 10
- Polybag 227 17L Each

4. Root Pouches
Root Pouches are degradable fabric plant pots made from 100% recycled materials.
Grey = 3-4 years life expectancy
Black = 4-5 years life expectancy

- Washable, reusable and durable
- Insulation from the winter cold
- Allows roots to cool in the summer
- Allows air and water to pass freely through
- Increased air supply to roots allowing for quicker/greater O2 uptake
- Great with drip systems
- Speeds up vegetative stage. Boosts plant growth

Root Pouches
- Root Pouch Grey 3.8L
- Root Pouch Black 8L
- Root Pouch Grey 12L
- Root Pouch Grey 16L

5. Troughs
For dripper hydroponics, a flexible, well-tested and simple method of cultivating in narrow troughs with plants single file along the trough. 1 metre trough - Rockwool or coco slabs available. 1.33 metre trough - Rockwool slabs only.

Troughs
- 1 Metre Trough
- 1.33 Metre Trough

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. **Net Pots**
   - NET POT 2" RAINFOREST
   - NET POT 3"
   - HEAVY DUTY NET POT 5" OXYPOT
   - HEAVY DUTY NET POT 8"
   - SQUARE NET POT 19CM
   - SQUARE NET POT 23CM
   - SQUARE NET POT 27CM

2. **Square Pots**
   - SQUARE POT 9.5 LITRE
   - SQUARE POT 11.1 LITRE
   - SQUARE POT 13.1 5 LITRE
   - SQUARE POT 15.5 LITRE
   - SQUARE POT 6.5 LITRE
   - SQUARE POT 11 LITRE

3. **Round Pots**
   - ROUND POT 2L
   - ROUND POT 4L
   - ROUND POT 7.5L
   - ROUND POT 10L
   - ROUND POT 13.5L
   - ROUND POT 15L

4. **Saucers**
   - TERRACOTTA SAUCER 5"
   - TERRACOTTA SAUCER 6"
   - TERRACOTTA SAUCER 8"
   - TERRACOTTA SAUCER 10"
   - TERRACOTTA SAUCER 12"
   - TERRACOTTA SAUCER 14"
   - SQUARE SAUCER BLACK 189MM FOR 6.5L POT
   - SQUARE SAUCER BLACK 285MM FOR 11L POT

5. **Autopot**
   - FDP3341
   - BLG2442
   - PJJ3661
   - DZG8121
   - PCS6961
   - AUT1002
   - AUT0112
   - DDL5387
   - HYD5731
   - AUT00201
   - AUT1003
   - AUT2500
   - CHZ9434
   - MHM6427
   - ZEB8891
   - BYL4277
   - RFT6472
   - MLH3712
   - ZFL7284
   - DFF8356
   - HTG2734
   - MEB5131
   - FBH8952
   - PDD2586
   - TOP1212
   - ZDC8513
   - FJS3911
   - RGB1641
   - KCE5684
   - HDZ6761
   - VGD3411
   - KWG1694
   - HBD4786
   - KBE9241
   - ZFL7284
   - DFF8356
   - HTG2734

6. **Root Pruning Pots**
   - ROOT PRUNING POT 3L
   - ROOT PRUNING POT 4.5L
   - ROOT PRUNING POT 7.5L
   - ROOT PRUNING POT 9.5L
   - ROOT PRUNING POT 12L
   - ROOT PRUNING POT 20L

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**Order Online At:** www.hydroponics.co.uk
**Mail Order Tel:** 0845 872 0572
Hydroponic Systems

1. Micro Jet Water Pumps
Supercharge your garden with an Oxy Pump! It not only pumps your nutrient solution to your plants but it also oxygenates promoting healthier roots.
Micro Jet 320: 320 litres per hour - 0.45 metre lift.
Micro Jet 450: 450 litres per hour - 0.70 metre lift.

2. Maxi Jet Water Pumps
Maxi Jet 500: 490 litres per hour - 0.95 metre lift.
Maxi Jet 750: 670 litres per hour - 1.5 metre lift.
Maxi Jet 1000: 1000 litres per hour - 1.5 metre lift.

3. Seltz Water Pumps
Seltz L20 700 litres per hour - 1.35 metre lift
Seltz L30 1200 litres per hour - 1.95 metre lift
Seltz L40 2800 litres per hour - 2.3 metre lift
Seltz L40 IMPELLOR ONLY
Seltz L30 IMPELLOR ONLY
Seltz L20 IMPELLOR ONLY

4. Clarke Water Pump
15,180 litres per hour - 10 metre lift.

5. Pico Water Pump
Pico 400: 400 litres per hour - 0.7 metre lift.
Pico 500: 500 litres per hour - 1.10 metre lift.

6a. Bio Filtre Pump & Microbial Treatment
Filter with live microbial purification. Not only purifies the water as it passes over the filter pads but releases helpful bacteria to colonise the roots of your plants, protecting against root disease, particularly against fungal rots. Also prevents waste build-up around the roots, in the medium and in the equipment. See Beneficial Micro-organisms in our Disease/Pest Control section for more details about the advantages of the helpful microbes.

6b. Sub Culture Bio Filtre Pump Refill
Microbe culture refills for Bio Filtre for hydroponics use, or can be used on their own in soil or substrate culture. Colonises roots and converts waste and dead material into plant food.

Water Pumps and Filters
Our premium quality water pumps are the heart of a successful, automated garden. You can be sure that your nutrient solution is efficiently pumped to your plants giving you peace of mind and flexibility when you are away from your growroom.
Hydroponic Systems

Air Pumps, bubblers and water heaters

For keeping the nutrient solution aerated in hydroponic systems - directly in the bubbler systems or indirectly in the reservoir tanks. Oxygen levels are very important for root health. All of our pumps are energy efficient and low on noise. Airline tubing and an airstone or air curtain will be needed for each air outlet. A check valve is only needed if the pump sits below the level of the water surface. Air pumps should always be sited above the level of the water that they are bubbling through. Water can flow back into the pump if it is below the water level. This will destroy the pump. Check valves can be used to prevent this.

1. Rena Air Pump
Lower noise, 1 year guarantee for all Rena brand.
PUMP | AIRFLOW | SUITABLE FOR TANK SIZE...
Rena 100 | 120 L/h | 100L
Rena 200 | 160 L/h | 200L
Rena 300 | 200 L/h | 300L
Rena 400 | 2 x 200L/h | 250-600L
Rena 600 | 2 x 200L/h | 600L

RENA AIRPUMP 100 NY3B18
RENA AIRPUMP 200 NY3B19
RENA AIRPUMP 300 NY3B20
RENA AIRPUMP 600 NY3B22

2. Newair Air Pump
Very quiet, compact and powerful.
PUMP | AIRFLOW | SUITABLE FOR TANK SIZE...
Nw1 | 60 L/h | 5-40L
Nw2 | 110 L/h | 40-100L
Nw22 | 200 L/h | 100-300L

NEWAIR AIRPUMP 1 j39594
NEWAIR AIRPUMP 2 j39595
NEWAIR AIRPUMP 22 j39596

3. Ario Air Pump
Bubbles directly from the pump, no airstones needed.
PUMP | AIRFLOW | SUITABLE FOR TANK SIZE...
Ari 2 | 180 L/h | up to 100L
Ari 4 | 200 L/h | up to 150-300L

ARIO AIRPUMP 2 (USE IN OXYPOT) NB88974
ARIO AIRPUMP 4 NB88975

4. Elite Air Pump
Quiet and durable. One outlet for up to 38 litres.
PUMP | AIRFLOW | SUITABLE FOR TANK SIZE...

5. Blue Air Pump
Super silent, high output, multiple outlet pumps.
V20 4 outlet, 1200L/h
V30 6 outlet, 1800L/h
V60 12 outlet, 3600L/h

6. Multi Outlet Air Pump
Do you need to supply oxygen to multiple tanks, but don’t want to clutter up your growroom with loads of airpumps? Then the Multi Outlet Airpump is for you! With 4, 6 or 8 outlet options there is a pump to suit every size of growroom.

6 outlet, 600L/h
6 outlet, 840L/h
8 outlet, 960L/h

1. AIRPUMP SILVER, 4 OUTLET ACO9610
2. AIRPUMP SILVER, 6 OUTLET ACO9620
3. AIRPUMP SILVER, 8 OUTLET ACO9630

7. Air Accessories
Various Air accessories including airstones, bubbler tubes and dividers.

8. Water Heaters/Chillers
Water heaters with adjustable temperature setting to keep the nutrient solution at the correct temperature, for efficient nutrient uptake and good root health.

Water Chillers – To cool nutrient solution that is too hot and reduce risk of root rot. Chilling water during high temperatures will help reduce stress of heat on the roots.

1. UNBREAKABLE WATERHEATER 100W KAH7955
2. UNBREAKABLE WATERHEATER 150W KAH7954
3. UNBREAKABLE WATERHEATER 200W KAH7953
4. UNBREAKABLE WATERHEATER 250W KAH7952
5. Waterntherm WATERHEATER 50W KAH7951
6. Waterntherm WATERHEATER 100W KAH7950
7. Waterntherm WATERHEATER 150W KAH7949
8. Waterntherm WATERHEATER 200W KAH7948
9. Waterntherm WATERHEATER 300W KAH7947
10. Waterntherm WATERHEATER 400W KAH7946

Water Coolers - To cool nutrient solution that is too hot and reduce risk of root rot. Chilling water during high temperatures will help reduce stress of heat on the roots.

1. WATER CHILLER HC150L/h TLX2676
2. WATER CHILLER HC300L/h ZE9379
3. WATER CHILLER HC600L/h SEH1346

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
Hydroponic Starter Kits

Hydroponic Kit 1

A great starter kit for those who would like to try hydroponics for no great outlay. This kit is suitable for 1 - 2 decent sized plants.

- 1 x 250w Lighting Unit
- 2m of Black/White Plastic
- 1 x GT 205 Grotank Complete Kit
- 3m of Chain & 1 x Ceiling Hook
- 1 x Strip of 8 3” Rockwool Cubes
- 1 each of:
  - Ionic Hydro Grow 1L, Bloom 1L and Boost 1L
  - 1 x Clone Kit

(Items may vary slightly from the picture shown)

Hydroponic Kit 1 ...............................................

Clone Kit: Includes propagator, 24 Rockwool seed/cutting blocks, 100ml Formulex, 50ml Clonex rooting gel, scalpel and instruction booklet on how to get seeds & clones off to a good start.

We Recommend...

If you want to have your lights come on automatically, you could add a power controller and timer to this kit...

SEE LIGHTING & ACCESSORIES
TURN TO PAGE 020 & 21

We Recommend...

By getting your pH and EC levels correct you will increase the health of your plants and the yield of your crop, try purchasing a pH and EC pen...

SEE pH AND NUTRIENT MANAGEMENT
TURN TO PAGES 077 - 079

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
Hydroponic Kit 2

Similar to Hydroponic Kit 1, however with a larger ‘Grotank’ and a more powerful lighting setup. This kit is suitable for 4 - 6 plants.

- 1 x 400w Compact Lighting Unit
- 4m of Black/White Plastic
- 1 x GT 424 Grotank Complete Kit
- 3m of Chain & 1 x Ceiling Hook
- 1 x Strip of 8 3” Rockwool Cubes
- 1 each of:
  - Ionic Hydro Grow 1L, Bloom 1L and Boost 1L
  - 1 x 1 Way Power Controller & 1 x Timer
  - 1 x Clone Kit

(items may vary slightly from the picture shown)

Hydroponic Kit 2 ................................. PVK1723

Clone Kit: Includes propagator, 24 Rockwool seed/cutting blocks, 100ml Formulex, 50ml Clonex rooting gel, scalpel and instruction booklet on how to get seeds & clones off to a good start.

We Recommend...

When your plant’s flowers get too heavy, they need extra support - Yoyo’s are the perfect solution...

SEE GROWROOM ESSENTIALS
TURN TO PAGES 128

We Recommend...

Try using root boosters such as cannazym, to provide healthier roots and therefore healthier plants...

SEE DISEASE AND PEST CONTROL
TURN TO PAGES 119
Hydroponic Kit 3

Similar to Kits 1 & 2, however with a much larger ‘Grotank’ and more a powerful and controlled lighting setup. Suitable for 6 - 10 plants.

- 1 x 600w Lighting Unit
- 5m of Black/White Plastic
- 1 x GT 604 Grotank Complete Kit
- 3m of Chain & 1 x Ceiling Hook
- 2 x Strip of 8 3” Rockwool Cubes
- 1 each of:
  - Ionic Hydro Grow 1L, Bloom 1L and Boost 1L
  - 1 x 1 Way Power Controller & 1 x Timer
  - 1 x Clone Kit

(Items may vary slightly from the picture shown)

Hydroponic Kit 3 ...............................................

Clone Kit: Includes propagator, 24 Rockwool seed/cutting blocks, 100ml Formulex, 50ml Clonex rooting gel, scalpel and instruction booklet on how to get seeds & clones off to a good start.
Hydroponic Starter Kits

1. Hydroponic Kit 4
Kit suitable for 1 mother plant as stock for cuttings.
- 1 x 250w Lighting Unit
- 2m of Black/White Plastic
- 1 x Oxypot Complete Kit
- 3m of Chain & 1 x Ceiling Hook
- 1 x pH Test Kit 6-7.6
- 1 each of:
  - Ionic Grow 1L, Bloom 1L and Boost 1L
  - 1 x Clone Kit

Hydroponic Kit 4 .........................  LFT3419
Clone Kit: Includes propagator, 24 Rockwool seed/cutting blocks, 100ml Formulex, 50ml Clonex rooting gel, scalpel and instruction booklet on how to get seeds & clones off to a good start.

WE RECOMMEND...
If you want to have your lights come on automatically, you could add a power controller and timer to this kit...
SEE LIGHTING & ACCESSORIES
TURN TO PAGE 020

2. Organic Kit 1
Kit suitable for 1 - 5 plants.
- 1 x 400w Lighting Unit
- 3m of Black/White Plastic
- 1 x 2 Foot Square Tray
- 5 x 7.5 Litre Pots
- 3m of Chain & 1 x Ceiling Hook
- 1 x Bio Bloom 1L  • 1 x All-Mix 50L
- 1 x 1 Way Power Controller & 1 x Timer

Organic Kit 1 .........................  KZW2549
(items may vary slightly from the picture shown)
Hydroponic Starter Kits

Tent Bundle Kits
A simple and affordable way to get started!

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572

Looking for grow tents? See grow systems go to page 044
1. **1.2m Tent Bundle Kit** (PICTURED)

- 1.2 x 1.2 x 2m Tent x 1
- 600w Light Kit x 1
- 6" Extract Kit x 1
- J Clips x 4
- 5" Ducting 5m x 1
- 5" Intake Fan x 1
- Rope Ratchets x 1
- 1.2m Tent Bundle Kit TEN1220

Also comes with Jubilee Clips, wire & plugs.

2. **1.4m Tent Bundle Kit**

- 1.4 x 1.4 x 2m Tent x 1
- 600w Light Kit x 1
- 6" Extract Kit x 1
- J Clips x 4
- 5" Ducting 5m x 1
- 5" Intake Fan x 1
- Rope Ratchets x 1
- 1.4m Tent Bundle Kit TEN1420

Also comes with Jubilee Clips, wire & plugs.

3. **2.4m Tent Bundle Kit**

- 2.4 x 1.2 x 2m Tent x 1
- 600w Light Kit x 2
- 6" Extract Kit x 1
- J Clips x 4
- 6" Ducting 5m x 1
- 6" Intake Fan x 1
- Heavy Duty Timer x 1
- Rope Ratchets x 2
- 2 Way Contactor x 1
- 2.4m Tent Bundle Kit TEN2412

Also comes with Jubilee Clips, wire & plugs.
Nutrients

Advanced Nutrients

1. Sensi Grow
Two-part liquid nutrient extensively field-tested to produce heavy yields using nutrient components not used by any other two-part nutrients, making an enormous difference to the growth rate compared with other available two-part nutrients.

2. Sensi Bloom
Two-part liquid nutrient designed for use after the Sensi Grow to provide heavy yields with their unique components and, of course, equally well tested.

3. Advanced Nutrients 3 Part
This 3-part nutrient range has been formulated as a response to GHE’s successful Flora series, and offers the same level of control with added micro-elements and hormones for spectacular harvests. Jungle Juice contains premium quality ingredients in consistent, stable mixes, with ‘pH perfect’ buffering compounds ensuring nutrient availability and reliable feeds without pH fluctuation.

4. Jungle Juice

Where to find more products from Advanced Nutrients...

1. Sensi Grow
- Grandma Enggys Fl1 & H2
- Page 087
- Bud factor x
- Page 088
- Bloom booster pro
- Page 090
- Bud blood
- Page 092
- Bud igniter
- Big bud
- Page 090
- Overdrive
- Page 092
- Hammerhead
- Page 097
- B92
- Page 098
- Vita boost pro
- Page 099
- Carbo load
- Page 099
- Bud candy
- Revive
- Page 100
- Final phase

2. Sensi Bloom
- Grandma Enggys Fl1 & H2
- Page 087
- Bud factor x
- Page 088
- Bloom booster pro
- Page 090
- Bud blood
- Page 092
- Bud igniter
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- Carbo load
- Bud candy
- Revive
- Final phase

Bud Blood

ARE YOU LOOKING FOR EXTRA RESULTS?
Bud blood is one of many in our range of growth enhancers and flower booster additives.

SEE NUTRIENT ADDITIVES
TURN TO PAGE 092

Order Online At: www.hydroponics.co.uk

Mail Order Tel: 0845 872 0572

062
1. Connoisseur A&B

Connoisseur works incredibly well in any type of gardening system including Rockwool, aeroponics, coco and soil. Connoisseur boosts yields while also increasing the resiliency and stress handling ability of your plants. By strengthening the plant cell wall both internally and externally, Connoisseur makes the plant pest and disease resistant and better able to withstand environmental stress. Your valuable plants will be better able to survive extreme conditions so you get bigger harvests.

Connoisseur contains exclusive ingredients including amino acids, metabolism co-factors and the most easily absorbed forms of all bloom phase nutrients that make your harvests bigger and better than they’ve ever grown before. Though Connoisseur contains everything your plants need for bloom phase growth and huge harvest production, when you combine Connoisseur with bloom phase additives such as Big Bud and CarboLoad you get even larger and higher quality yields than when using Connoisseur by itself.

ADVANCED NUTRIENTS CONNOISSEUR A&B 1L YHJ3527
ADVANCED NUTRIENTS CONNOISSEUR A&B 4L YHJ3528
ADVANCED NUTRIENTS CONNOISSEUR A&B 10L YHJ3529

2. Iguana Juice

Organic liquid mix based on fish, bat guano, seabird guano, krill, yucca, 70 minerals, worm casts and alfalfa. One-part, easy to use and fully soluble. Grow encourages strong branching, a large healthy root system, short internodes and fast growth that prepares the plant for a spectacular flowering cycle. N.P.K 3:1:3. Bloom also promotes optimal fruiting sites, flower site formation, shorter internodes and a beautiful, fresh, aromatic bouquet that only organics can produce. N.P.K 4:3:6.

ADVANCED NUTRIENTS IGUANA JUICE GROW 1L ZTN8888
ADVANCED NUTRIENTS IGUANA JUICE GROW 4L ZTN8889
ADVANCED NUTRIENTS IGUANA JUICE BLOOM 1L ZPP2122
ADVANCED NUTRIENTS IGUANA JUICE BLOOM 4L ZPP2123

3. Mother Earth

Organic Super Tea Grow, N.P.K 1.50:0.75:1.50, is for adding to hydro or solo in substrate systems. Also for revitalizing depleted soils outdoors. The best of what Mother Nature has to offer. A completely organic fertiliser for the whole growth cycle. Organic Super Tea Bloom, N.P.K 0.50:1.50:2.0, enhances fragrance, taste and oil production of flowers and fruits. A completely organic fertiliser for the whole flowering cycle.

ADVANCED NUTRIENTS MOTHER EARTH TEA GROW 1L TWJ7554
ADVANCED NUTRIENTS MOTHER EARTH TEA GROW 4L TWJ7555
ADVANCED NUTRIENTS MOTHER EARTH TEA GROW 10L TWJ7556
ADVANCED NUTRIENTS MOTHER EARTH TEA BLOOM 1L NNN5361
ADVANCED NUTRIENTS MOTHER EARTH TEA BLOOM 4L NNN5362
ADVANCED NUTRIENTS MOTHER EARTH TEA BLOOM 10L NNN5363

Get the perfect measure...

Nutrients and nutrient additives must be mixed to the manufacturer’s instructions. Limi too much or too little can make all the difference. Make sure your measurements are correct by using suitable measuring equipment.

SEE GROWROOM ESSENTIALS
TURN TO PAGES 126
Nutrients

B’cuzz Nutrients
Produced by the Dutch company Atami from the highest grade minerals prepared according to Good Manufacturing Practice with stringent quality control and frequent field-testing.

Where to find more products from B’cuzz...

B’cuzz Root stimulator
B’cuzz Bloom stimulator
B’cuzz Tabzz
Bloombastic
Page 084
Page 090
Page 091
Page 091

1. B’cuzz Coco Nutrition A&B

Professional bio-mineral nutrition without waste substances, stabilises the biological balance in all coco substrates.

Typical Dose: 1 ltr makes 333 - 1000 ltrs of nutrient solution.

B’cuzz Coco A&B 1L
B’cuzz Coco A&B 5L
B’cuzz Coco A&B 10L
B’cuzz Coco A&B 20L

2. B’cuzz Hydro Nutrition A&B

Bio mineral basis for hydroponic cultivation, composed of the purest and most valuable ingredients.

Typical Dose: 1 ltr makes 444 - 1000 ltrs of nutrient solution.

B’cuzz Hydro A&B 1L
B’cuzz Hydro A&B 5L
B’cuzz Hydro A&B 10L
B’cuzz Hydro A&B 20L

3. B’cuzz Soil Nutrition A&B

Professional bio mineral nutrients without fillers, stabilises the biological balance in the soil.

Typical Dose: 1 ltr makes 333 - 1000 ltrs of nutrient solution.

B’cuzz Soil A&B 1L
B’cuzz Soil A&B 5L
B’cuzz Soil A&B 10L
B’cuzz Soil A&B 20L

4. B’cuzz Boosters

Added to the “Nutrition” in varying proportions for different phases of the plant’s life. Completely water soluble, activates biological life in the substrate, contains micro-nutria in chelate form, enzymatic action on several fronts. Available for Soil, Hydro or Coco.

Typical Dose: 1 ltr makes 1000 - 4000 ltrs of nutrient solution.

B’cuzz Booster 1L
B’cuzz Booster 5L

Bloombastic Kit Box

Each box kit includes:

- 1 x Nutrient 1L (Coco Max A&B or Terra A&B or Hydro A&B)
- 1 x ATA Rootfast 50ml
- 1 x Bloombastic 250ml
- 1 x ATA Zyme 100ml

ATA Kit Box Soil
ATA Kit Box Hydro (not pictured)
ATA Kit Box COCO
ATA0001
ATA0004
ATA0002

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. ATA Coco Max A&B

Excellent Coco nutrient from Atami for use all the way through the plant’s life. Uses yellow DTPA iron as the iron source. Contains high levels of calcium and magnesium. Can be used with any Coco medium.

- ATA COCO MAX A&B 1L
- ATA COCO MAX A&B 5L
- ATA COCO MAX A&B 10L

2b. ATA COCO STARTER KIT 1L

- ATA COCO MAX A&B 1L
- ATA PK 13-14 1L
- ATAZYM 1L
- ATACLEAN 1L

ATA COCO STARTER KIT 1L

1c. ATA COCO STARTER KIT 5L

- ATA COCO MAX A&B 5L
- ATA PK 13-14 1L
- ATACLEAN 1L

ATA COCO STARTER KIT 5L

2. ATA Terra Max


- ATA TERRA MAX 1L
- ATA TERRA MAX 5L
- ATA TERRA MAX 10L

2b. ATA SOIL STARTER KIT 1L

- ATA TERRA MAX 1L
- ATA TERRA LEAVES 1L
- ATA PK 3-14 1L
- ATAZYM 1L
- ATACLEAN 1L

ATA SOIL STARTER KIT 1L

2c. ATA SOIL STARTER KIT 5L

- ATA TERRA MAX 5L
- ATA TERRA LEAVES 5L
- ATA PK 3-14 1L
- ATACLEAN 1L

ATA SOIL STARTER KIT 5L

ATA Terra Leaves


Typical Dose: 1 ltr makes 200 - 1000 ltrs of nutrient solution.

- ATA TERRA LEAVES 1L
- ATA TERRA LEAVES 5L
- ATA TERRA LEAVES 10L

Don't forget you can phone us free on: 0800 038 7100

For advice or if you simply want to check stock or prices.
Cyco Nutrients

1. Cyco Grow A&B

Gives support to a plant’s natural growth. It does this by supplying a range of primary, secondary and micro nutrients, which are needed to give a plant the best possible start in its early development and to aid in fighting environmental stresses. Nutrients found in Cyco Grow are balanced, easily absorbed and utilized. Grow A & B creates a base nutrient that supports growth, cell development and quality.

2. Cyco Bloom A&B

Cyco Bloom gives support to a plant’s natural growth. It does this by supplying a range of primary, secondary and micro nutrients, which are needed to give a plant the best possible start in flower development and aids in fighting environmental stresses and enhancing vigour.

3. Cyco ProKit

The Cyco ProKit is the perfect choice for all serious gardeners. This complete package of products, includes everything required from start to finish. The ProKit contains an easy to read growth and bloom chart for all mediums. Both Charts are based on a week to week colour coded system, making the ProKit one of the most user-friendly Kits available.

Contents of ProKit:

- 1x 1 Litre Cyco Grow A+B
- 1x 1 Litre Cyco Bloom A+B
- 1x 1 Litre Cyco Swell
- 1x 1 Litre Cyco Potash Plus
- 1x 1 Litre Cyco Silica
- 1x Cyco Zyme
- 1x Cyco B1 Boost
- 1x Cyco DR Repair
- 1x Cyco Uptake
- 1x 100 ml Cyco XL
- 1x Information Booklet
**1. Hydro Vega & Hydro Flores A&B**

Hydroponic professional Dutch nutrients. Vega for growth stage. Flores for flowering.

Typical Dose: 1 ltr makes 250 ltrs of nutrient solution.

- CANNA HYDRO VEGA A&B 1L
- CANNA HYDRO VEGA A&B 5L
- CANNA HYDRO VEGAS A&B 10L
- CANNA HYDRO FLORES A&B 1L
- CANNA HYDRO FLORES A&B 5L
- CANNA HYDRO FLORES A&B 10L

FOR HARD WATER...

- CANNA HYDRO VEGA A&B H/W 1L *TO ORDER
- CANNA HYDRO VEGA A&B H/W 5L *TO ORDER
- CANNA HYDRO VEGAS A&B H/W 10L *TO ORDER
- CANNA HYDRO FLORES A&B H/W 1L *TO ORDER
- CANNA HYDRO FLORES A&B H/W 5L *TO ORDER
- CANNA HYDRO FLORES A&B H/W 10L *TO ORDER

**2. Canna Roja**

Brand new to the UK in 2012, Canna Roja has been popular in mainland Europe for over a decade. Can be used with soil, hydro or coco and is boasted by Canna as being the most complete nutrient for growing as well as blooming. Enriched with red ferrochelate and made from top-quality fertilizer ingredients.

Typical Dose: 4ml per litre

- CANNA ROJA A&B 1L
- CANNA ROJA A&B 5L
- CANNA ROJA A&B 10L

**3. Canna Aqua Vega & Aqua Flores**

For use with Canna Coco substrate, with added Humic and Fulvic acids for their improvement of plant performance.

Typical Dose: 1 ltr makes 250 ltrs of nutrient solution.

- CANNA AQUA VEGA A&B 1L
- CANNA AQUA VEGA A&B 5L
- CANNA AQUA VEGA A&B 10L
- CANNA AQUA FLORES A&B 1L
- CANNA AQUA FLORES A&B 5L
- CANNA AQUA FLORES A&B 10L

**4. Canna Coco A&B**

Concentrated one-part liquid nutrients for use with soil growing. Full spectrum nutrient, for use in hand-watering or automatic irrigation systems.

Typical Dose: 1 ltr makes 200 ltrs of nutrient solution.

- CANNA COCO A&B 1L
- CANNA COCO A&B 5L
- CANNA COCO A&B 10L

**5. Canna Terra Vega & Terra Flores**

One-part certified organic nutrient for use with soil. Pure vegetable origin. SKAL certified.

**6. Canna Bio Vega & Bio Flores**

One-part certified organic nutrient for use with soil. Pure vegetable origin. SKAL certified.

**Order Online At:** www.hydroponics.co.uk  
**Mail Order Tel:** 0845 872 0572
1. Flairform TwinTech Fertiliser

TwinTech Fertiliser is a one-part fertiliser that satisfies and nurtures the unique demands of cuttings and seedlings. A rich formulation of the essential nutrients a young plant needs including the full spectrum of inorganic nutrients. Promotes maximum nutrient uptake by buffering root-zone pH below 6.5. Easy to use one-part formulation. N:P:K 1:1:3.

Typical Dose: 1 ltr makes 200 ltrs of nutrient solution.

2. Green Dream 1 Part Grow & Bloom

A revolutionary concept in one part nutrient mixes, this new formulation does not make the usual compromises with quality. Because some of the nutrients are in a solid state in a slurry the entire range of necessary minerals are present in a uniform, easy-to-measure concentrate. Highly pH buffered for easy maintenance of balance. Contains no chloride or ammonia that would affect plant health. Suitable for all substrates (coco, Rockwool, soil, clay, perlite, etc.). Typical Dose: 1 ltr makes 125 - 200 ltrs of nutrient solution (500 ltrs for soil).

3. Let’s Grow A&B & Let’s Bloom A&B

Growing Edge Technologies have been building hydroponic plant foods for over 25 years, trying the same formulae with different manufacturers’ salts, noting the different results. Now they only build their plant foods with these proven mineral salts, and with these formulas you will notice the difference! Built without pH stabilising buffers, allowing the grower to monitor the nutrient solution and fix a situation before it becomes a problem.

4. Holland Secret 3 Part

Formulated with Dutch expertise, yet perfected and produced in Canada, Holland Secret offers high quality and good value for money. This 3-part nutrient range boasts a sediment-free formulation that ensures no salt build-up, making it the ideal choice for aeroponics and drip irrigation systems which are prone to clogging.

5. House & Garden Range

House & Garden Bloom can be used all the way through from start to finish. Some of the nutrients in this range are only available if ordered in by request; we do not hold them in stock. Please phone us for availability and delivery times.
1. Ionic Grow and Bloom A&B

**Ionic Grow and Bloom Hydro**

One-part Grow and Bloom. A single pack nutrient, pH buffered, chelated minerals for easy absorption into the plant. Precision formulated with agricultural grade minerals. Simple to use. Also available in hard water formula.

Typical Dose: 1 ltr makes 142 ltrs of nutrient solution.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
<th>Code</th>
<th>Code</th>
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<tbody>
<tr>
<td>Ionic Grow Hydro 1L</td>
<td>IGM333</td>
<td>IGM334</td>
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<tr>
<td>Ionic Grow Hydro 2L</td>
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<td>IGM338</td>
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<tr>
<td>Ionic Grow Hydro 5L</td>
<td>IGM341</td>
<td>IGM342</td>
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<tr>
<td>Ionic Grow Hydro 20L</td>
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**For Hardwater**

<table>
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<tbody>
<tr>
<td>Ionic Bloom Hydro 1L</td>
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<tr>
<td>Ionic Bloom Hydro 2L</td>
<td>Bw5614</td>
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<tr>
<td>Ionic Bloom Hydro 5L</td>
<td>Bw5615</td>
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<tr>
<td>Ionic Bloom Hydro 10L</td>
<td>Bw5616</td>
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</table>

**Ionic Grow and Bloom Coco**

Formulated for the specific nutrient requirements of plants in Coco or Soil, very different from hydroponic nutrition.

Typical Dose: 1 ltr makes 285 ltrs of nutrient solution.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ionic Grow Coco 1L</td>
<td>CGM256</td>
</tr>
<tr>
<td>Ionic Grow Coco 2L</td>
<td>CGM256</td>
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<tr>
<td>Ionic Grow Coco 5L</td>
<td>CGM256</td>
</tr>
<tr>
<td>Ionic Grow Coco 20L</td>
<td>CGM256</td>
</tr>
</tbody>
</table>

2. Optimum Grow & Bloom A&B

Two-part general purpose formula for all types of hydroponic cultivation especially NFT, Flood and Drain.

Typical Dose: 1 ltr makes 285 ltrs of nutrient solution.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimum Grow A&amp;B 1L</td>
<td>ORG129</td>
</tr>
<tr>
<td>Optimum Grow A&amp;B 2L</td>
<td>ORG130</td>
</tr>
<tr>
<td>Optimum Grow A&amp;B 5L</td>
<td>ORG131</td>
</tr>
<tr>
<td>Optimum Grow A&amp;B 20L</td>
<td>ORG132</td>
</tr>
</tbody>
</table>

3. Europonic Grow & Bloom A&B

Formulated specifically for Rockwool cultivation. As with the Optimum, Europonic is a general purpose liquid nutrient, two-part A&B mix. Continually updated formula incorporating the latest scientific discoveries concerning plant nutrition and 15 years of company experience in formulation of nutrients.

Typical Dose: 1 ltr makes 285 ltrs of nutrient solution.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
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<tbody>
<tr>
<td>Europonic Grow A&amp;B 1L</td>
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<tr>
<td>Europonic Grow A&amp;B 5L</td>
<td>EMG130</td>
</tr>
<tr>
<td>Europonic Grow A&amp;B 20L</td>
<td>EMG131</td>
</tr>
</tbody>
</table>

4. Greenfuse Grow & Bloom

Growth enhancer to be used in conjunction with Ionic. Based on natural plant extracts. Grow helps build strong shoots and healthy leaves, for all stages of vegetative growth. Bloom helps build large, colourful flowers for all stages of the flowering stage.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenfuse Grow 300M</td>
<td>GFT012</td>
</tr>
<tr>
<td>Greenfuse Bloom 300ML</td>
<td>GFT013</td>
</tr>
</tbody>
</table>

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**Focus Range**

Our new Focus range includes Rose, Citrus, Olive and Chilli focus. For the best results with these plants indoors or in the garden use these nutrients specifically formulated for these plants grown in soil.

---

**Liquid Silicon**

Wetting Agent

<table>
<thead>
<tr>
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<td>Liquid Silicon 2L</td>
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<tr>
<td>Liquid Silicon 5L</td>
<td>LS0127</td>
</tr>
<tr>
<td>Liquid Silicon 20L</td>
<td>LS0128</td>
</tr>
</tbody>
</table>

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**Focus Range**

Our new Focus range includes Rose, Citrus, Olive and Chilli focus. For the best results with these plants indoors or in the garden use these nutrients specifically formulated for these plants grown in soil.

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**Greenfuse Root**

**Green Myst Fish Agra**

**Nitrozyme**

**Green Myst Humic**

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Order Online At: [www.hydroponics.co.uk](http://www.hydroponics.co.uk)

Mail Order Tel: 0845 872 0572
Nutrients

1. **Bio Bizz Bio Grow & Bio Bloom**
   - **Certified Organic liquid fertilisers for all types of soil**, though designed for use with pre-fertilised Organic Bio Bizz All-mix. Best for hand watering. OMRI and SKAL certified. Grow - Used throughout the life of the plant, with the Bloom added on top during flowering and fruiting. Promotes lush, healthy growth. Please ask us for a grow schedule. Bloom - Natural flowering and fruiting formula. Packed with naturally occurring minerals, micronutrients, amino acids, carbohydrates and hormones of vegetable origin to ensure exuberant flowers and fruit sets with excellent flavour.

   **Grow Typical Dose:** 1 ltr makes 166 - 500 ltrs of nutrient solution.
   **Bloom Typical Dose:** 1 ltr makes 250 to 500 ltrs of nutrient solution.

2. **Leaf Growth**
   - Sugar Peak brings the taste benefits of organic nutrients fused with mineral-based major plant nutrients for an easy-to-use one-part nutrient range, giving large yields without compromising flavour. Leaf Growth is crafted for energetic stem and leaf growth. N:P:K 3:1:5.
   
   **Typical Dose:** 1 ltr makes 166 - 500 ltrs of nutrient solution.

3. **Flowering**
   - Designed for the same high ambitions of Leaf Growth to effectively maintain flowering and fruiting plants. N:P:K 2:4:5.
   
   **Typical Dose:** 1 ltr makes 166 - 250 ltrs of nutrient solution.

4. **Catalyst**
   - A booster designed to sweeten produce and enhance aromas of flowers and culinary herbs. Used throughout all stages of plant development and can also be used as a foliar feed. A complex mixture of hormones, vitamins, sugars, amino acids, chelates, plant acids and micro-nutrients that promote healthy plant growth and higher yields.
   
   **Typical Dose:** 1 ltr makes 330 - 1000 ltrs of nutrient solution.

5. **Grand Finale**
   
   **Typical Dose:** 1 ltr makes 200 ltrs of nutrient solution.

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Mail Order Tel: 0845 872 0572
Plant Magic Plus bring you this amazing and unique new generation of plant nutrition - Oldtimer Organic. As well as having the correct proportion of NPK to ensure a healthy crop right through to harvest, this special formula will also feed beneficial fungi and micro-organisms ensuring a happy, thriving growing medium. EU organic approved ingredients containing beneficial secondary and micronutrients. 3-5-4

Coco Grow has been specially developed for use throughout the vegetative stage. Coco Bloom for use throughout the flowering stage. It promotes fast growing and healthy plants. A good source of Humate is used in this Coco range to stimulate the root growth, enhance nutrient uptake, and microbial activity.

Plant Magic's soil range has been specially developed to promote fast growing, healthy, strong fruit and flowers. Magnesium and calcium are vital in the uptake of important nutrients and trace elements as well as creating a healthy plant right through to harvest. This special blend contains humates, trace elements, magnesium and calcium all mixed at the correct proportions to ensure rapid, healthy growth. The Soil Grow has been developed to ensure that the microfauna (the beneficial micro organisms) can adjust its own pH more easily.

Hard Water is available to order only. If you are interested please call our store for details.

Plant Magic Plus products have been designed to naturally enhance the growth, development and overall health of plants.

Plant Magic Plus root stimulator page 084
Plant Magic Plus Catalyst page 086
Plant Magic Plus Boost page 087
Plant Magic Plus Bio Silica page Plant Magic Plus Evolution page 089
Plant Magic Plus bloom boost page 096
Plant Magic Plus Plant magic plus flush page 101

Where to find more products from Plant Magic Plus...

1. Oldtimer Organic Grow
2. Oldtimer Organic Bloom
3. Coco Grow or Coco Bloom
4. Hydro Grow or Hydro Bloom
5. Soil Grow or Soil Bloom

Taking the UK by storm

This exciting British company also makes great additives.

For more Plant Magic Nutrients.

See Nutrient Additives TURN TO PAGES 084 - 101
Pest and Disease Control TURN TO PAGES 118 - 125

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572

Nutrients

1. Oldtimer Organic Grow

Plants Magic Plus bring you this amazing and unique new generation of plant nutrition - Oldtimer Organic. As well as having the correct proportion of NPK to ensure a healthy crop right through to harvest, this special formula will also feed beneficial fungi and micro-organisms ensuring a happy, thriving growing medium. EU organic approved ingredients containing beneficial secondary and micronutrients. 5-3-3

PLANT MAGIC OLD TIMER GROW 1L LFR6723
PLANT MAGIC OLD TIMER GROW 5L LFR6724

2. Oldtimer Organic Bloom

Plant Magic Plus bring you this amazing and unique new generation of plant nutrition - Oldtimer Organic. As well as having the correct proportion of NPK to ensure a healthy crop right through to harvest, this special formula will also feed beneficial fungi and micro-organisms ensuring a happy, thriving growing medium. EU organic approved ingredients containing beneficial secondary and micronutrients. 3-5-4

PLANT MAGIC OLD TIMER BLOOM 1L LGV7731
PLANT MAGIC OLD TIMER BLOOM 5L LGV7732

3. Coco Grow or Coco Bloom

Coco Grow has been specially developed for use throughout the vegetative stage. Coco Bloom for use throughout the flowering stage. It promotes fast growing and healthy plants. A good source of Humate is used in this Coco range to stimulate the root growth, enhance nutrient uptake, and microbial activity.

Hard Water is available to order only. If you are interested please call our store for details.

PLANT MAGIC COCO GROW 1L YSM6424
PLANT MAGIC COCO GROW 5L YSM6422
PLANT MAGIC COCO BLOOM 1L YSM6423
PLANT MAGIC COCO BLOOM 5L YSM6421

4. Hydro Grow or Hydro Bloom

Plant Magic's hydro range been specially developed to promote fast growth, healthy fruit and flowers.

Hard Water is available to order only. If you are interested please call our store for details.

PLANT MAGIC HYDRO GROW 1L GH4258
PLANT MAGIC HYDRO GROW 5L GH4260
PLANT MAGIC HYDRO BLOOM 1L GH4259
PLANT MAGIC HYDRO BLOOM 5L GH4261
PLANT MAGIC HYDRO BLOOM 20L GH4262

5. Soil Grow or Soil Bloom

Plant Magic's soil range has been specially developed to promote fast growing, healthy, strong fruit and flowers. Magnesium and calcium are vital in the uptake of important nutrients and trace elements as well as creating a healthy plant right through to harvest. This special blend contains humates, trace elements, magnesium and calcium all mixed at the correct proportions to ensure rapid, healthy growth. The Soil Grow has been developed to ensure that the microfauna (the beneficial micro organisms) can adjust its own pH more easily.

Hard Water is available to order only. If you are interested please call our store for details.

PLANT MAGIC SOIL GROW 1L YSM6425
PLANT MAGIC SOIL GROW 5L PUN5050
PLANT MAGIC SOIL BLOOM 1L ZYX6247
PLANT MAGIC SOIL BLOOM 5L PUN5000
For the advanced grower, three-part nutrients (green, pink and cocoa-coloured solutions) needing some calculation. Variations on the same three parts are used throughout the life of the plant. With full instructions supplied by the manufacturer.

Typical Dose:

In veg:
1 ltr Gro + 1 ltr Micro + 1 ltr Bloom makes 1428 ltrs of nutrient solution.

In flower and fruiting:
1 ltr Gro + 2 ltrs Micro + 3 ltrs Bloom makes 2000 ltrs of nutrient solution.

In flower and fruiting in soil:
1 ltr Gro + 2 ltrs Micro + 3 ltrs Bloom makes 3333 ltrs of nutrient solution.

1. GHE Flora Gro, Flora Bloom, Flora Micro

GHE FLORA GRO 1L
GHE FLORA GRO 5L
GHE FLORA GRO 10L
SYW5787
SYW5788
SYW5789

GHE FLORA MICRO 1L
GHE FLORA MICRO 5L
GHE FLORA MICRO 10L
SYT7232
SYT7233
SYT7234

GHE FLORA BLOOM 1L
GHE FLORA BLOOM 5L
GHE FLORA BLOOM 10L
VRL6222
VRL6223
VRL6224

2. Vitalink Max Grow and Bloom A&B

Excellent British nutrients using the ultimate research and testing to give the best results. Highly recommended for NFT systems. VitalLink Grow and Bloom fertilizers use phosphites that give systemic resistance to fungal diseases (as good as many chemical fungicides) as well as being nutrients. A cleanser is included in the mix to prevent salt build-up and blocked dripper lines. Suitable for all systems or in soil.

Typical Dose: 1 ltr makes 250-500 ltrs of nutrient solution.

VITALINK MAX GROW A&B 1L
VITALINK MAX GROW A&B 5L
VITALINK MAX GROW A&B 10L
VITALINK MAX BLOOM A&B 1L
VITALINK MAX BLOOM A&B 5L
VITALINK MAX BLOOM A&B 10L

HARD WATER (HD) ALL “TO ORDER”

VITALINK MAX GROW A&B 20L
VITALINK MAX BLOOM A&B 20L

3. Vitalink Coir Grow & Bloom

Easy to use one part nutrient for use in coco substrate. One for the growth stage and one for the bloom and fruiting stage. We stock the soft water version, hard water nutrient is available to order. Includes Vitamin B1, humic and fulvic acids.


Bloom: N:P:K 2.5:2:2.3. Typical Dose: 1ltr makes 125 - 166 ltrs of nutrient solution

VITALINK COIR GROW COCO 1L
VITALINK COIR GROW COCO 5L
VITALINK COIR BLOOM COCO 1L
VITALINK COIR BLOOM COCO 5L

4. Vitalink Earth Grow & Bloom

Formulated with phosphite to make absorption of phosphorus easier and strengthening the plant against fungal disease. Easy to use, one part nutrient for all soil mixes. If not using one of our soil mixtures you may need to add some Garden Lime, see Nutrient Additives section (page 100).


Bloom: N:P:K 2.5:2:2.3. Typical Dose: 1ltr makes 125 - 166 ltrs of nutrient solution

VITALINK EARTH GROW 1L
VITALINK EARTH BLOOM 1L
VITALINK EARTH BLOOM 5L
VITALINK EARTH BLOOM 10L

VITALINK EARTH BLOOM SOIL 5L
Hesi Nutrients
The Dutch company with a great reputation for quality, well-engineered nutrients that are simple to use and give great results. A combination of passion, professionalism and scientific formulation of the most effective nutrients comes together to provide HESI value.

1. Hesi Starter Packs

Contains complex-binding substances that keep the trace elements stable even in the presence of the major essential elements, meaning they remain stable until absorbed by the plant. Hydro Growth has proportionally more nitrogen components than Hydro Bloom as the plant uses a lot more nitrogen for the production of new plant parts in the growth phase. Hydro Bloom contains a higher concentration of phosphorus and potassium components compared to the Hydro Growth. Plants have an increased need for phosphorus as well as potassium in the flowering phase in order to create strong and healthy flowers. During the first half of the bloom this need is satisfied 100% by Hesi Hydro Bloom. Use Hydro Bloom with Hesi PK 13/14 in the second half of the flowering phase.

2. Hesi Hydro Growth or Bloom

Hesi Coco has been stabilised by chelating compounds that protect the trace minerals and it is free of unnecessary pH buffers. Hesi Coco contains both organic and mineral nitrogen and has been enriched with vitamins and other natural elements both for the growth and the flowering. The EC of Hesi Coco may be lower than other coco nutrients because no buffer salts have been added, but these would only raise the EC and would have no nutritional value for the plant. Maximum dose: 5ml per ltr. Made with 100% organic nitrogen with no EC value because they are not salts, therefore young plants are loaded with a minimum of salts which creates ideal growing conditions. So, it appears that TNT-Complex has a low EC value, but it drives fast growth. TNT-Complex contains all the necessary nutrients and has been enriched with many other vital components (vitamins, amino acids, plant-active sugars) which guarantee successful growth. Never overdose with TNT-Complex, because this will cause the plant to grow too tall and it will then consume too much energy for the transport of nutrients from the roots to the tops at the end of the cycle.

3. Hesi Coco

Hesi Bloom Complex provides all the necessary substances to flowering plants for their extra needs during flowering. Apart from the nutrition (nitrogen, phosphorus, potassium, magnesium, calcium, trace elements, etc.) Hesi vitamins, Hesi Bloom Complex has also been enriched with vital components that stimulate the development of the plant in an optimal manner. The result of this is an exuberant bloom! In addition, Hesi Bloom Complex contains a pH corrector. The pH level of the feeding water is corrected to a slightly acidic value. The plant can absorb all the administered nutrients optimally around a slightly acidic pH value. Bloom Complex contains no unnecessary salts and is therefore fully absorbed by the plant.

4. Hesi TNT Complex

Hesi Bloom Complex

Order Online At: www.hydroponics.co.uk
What is pH?

pH is a measurement of how acidic or alkaline a solution is. It is measured on a scale; the lower the number, the more acidic your solution is. The higher the number, the more alkaline your solution is.

Why look after your plants pH levels?

Nutrients may only be absorbed by the plant’s roots within a certain pH range, so for best results ensure that the pH of your nutrient mixture is correct. This should mean that you do not encounter any nutrient deficiencies which slow growth and reduce yield. Keeping track of the pH levels in your medium or hydro tank also allows you to more accurately monitor the plant’s health and may help you to diagnose problems such as root disease more quickly and effectively.

What is the ideal pH level?

Different manufacturers of nutrients will advise you slightly differently on what is the ideal pH level for your plants.

At Holland’s, we would advise our customers that the ideal pH level of your nutrient solution is should generally be between 5.5 and 6.5. If you stick within these measurements you are providing the best possible solution for your plants to live on.

How to measure your pH levels...

There are many ways to measure your pH levels and the measurement method can depend on what type of growing medium you are using.

Hydroponics (Soilless):
If you are using hydroponics, you need to measure and adjust the pH when you create your nutrient mixture (in a bucket or in your tank). Monitor the pH of your tank regularly to quickly address any nutrient / disease issues. It is also worth noting when buying your growing medium whether it is pH balanced or not. If it is not, you need to rinse the medium and soak it in pH balanced solution before you use it to grow your plants.

Soil or Coco:
If you are using soil or coco, you should measure and adjust the pH of your nutrient solution before feeding it to your plants. Most brands of soil or coco will tell you the pH of the medium on the outer bag, but the pH is likely to change in the medium as the grow progresses. Probe pH meters are handy but will only test one small area of the medium and can damage roots. It can be helpful to flush the pot with pH adjusted water and test the water that drains out the bottom of the pot (run-off). Comparing the pH of the run-off to the water’s initial pH can give you an indication of the pH throughout the medium. For example, if you flush water through at pH 6.0 and the run-off measures at 7.0, the pH of the medium is likely to be around 8.0. To address this you could flush the pot with water at pH 5.0 until the run-off measures at the correct pH level (around 6.0).

USEFUL TIPS: How can I spot if my pH levels are wrong

- Yellowing and / or wilting of plant leaves
- Collection of salts on the top of the growth medium (signifying poor nutrient absorption)
- Speckles on plant leaves (signifying a deficiency)
- Excessive fungal growth in the nutrient reservoir or tank

How to adjust your pH levels...

Adjustment of pH is achieved by using solutions usually called ‘pH up’ or ‘pH down’. If your nutrient solution is too high, you can use pH down to correct it. If your pH level is too low, use pH up to correct it. Always adjust your solution one drop of pH up or pH down at a time, as it is very strong. Ideally, mix one drop of your pH up/down with a litre of water prior to adding it to your solution, for gradual pH adjustment. You should mix all your nutrients into the water before adjusting pH.

It is advisable to allow tapwater to stand for 24 hours before using it to mix your nutrient solution. This will allow the pH to stabilise and enables unwanted chlorine to evaporate from the water. Once mixed, the pH of your solution may also rise over the first 24-48 hours, so it is recommended to monitor the pH closely during this time if you are using a hydroponic system and adjust accordingly.

- pH up and down should always be stored separately.
- ALWAYS use protective eye wear and suitable gloves.
- DANGER – Never mix pH up and down together as this can cause adverse chemical reactions!!!

DANGER!

pH adjustment chemicals are highly corrosive, always use suitable eye protection and protective gloves...

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Mail Order Tel: 0845 872 0572
Methods to measure your pH

A. pH pens and meters
Electronic pH pens are handheld battery-operated devices which offer a digital readout of your pH level by dipping it into your nutrient solution.

We have a wide variety of pH pens at different prices – you basically get what you pay for. More expensive pH pens are more accurate and generally are physically more robust.

B. pH testing kits
The cheapest method of testing pH. Just add some drops of the test liquid to a sample of the nutrient solution within the vial (or test tube) supplied, swirl and compare the colour to the chart provided.

C. Soil pH meters
Soil pH meters are a handheld device with a long probe which you insert into the soil (or coco). The reading is given on a ‘needle’ meter.

D. Multi-meters
Holland’s also sell a variety of multi meters in handheld and wall mountable forms, which can measure a combination of pH, EC and temperature.

These meters are more expensive, but save the need to buy individual meters. Some meters can also sit in the reservoir at all times to keep a constant record of pH, EC and temperature.

Useful Tips:
Calibrating and maintaining your electronic pH testing & measuring equipment:

MAINTAINING:
If you don’t look after your pH testing equipment you risk incorrect measurement of the pH level.

At a bare minimum you should always rinse your pH meter with clean water. pH probes generally prefer to be kept moist and can be kept either immersed in pH Refill and Storage Solution or covered by a small sponge or piece of tissue that is soaked in storage solution and kept in the cap.

CALIBRATING:
Like any piece of electronic measuring equipment, pH meters need calibrating from time to time. For this, Holland’s supply solutions called ‘pH buffers’. These inexpensive solutions are used to check that the pH is still correctly read on the meter. If it is not, the buffer can be used to calibrate the pH meter, usually done by holding down the calibration button or turning a small screw whilst the probe is submerged in the buffer solution.
pH & Nutrient Management

pH levels and the concentration of the nutrient (EC/CF/ppm) are very important for the roots. If the pH is wrong, the roots will not be able to absorb the right minerals. If the concentration of nutrients is wrong the plant will run out of food reserves, and can even suffer from permanently damaged roots from extremely high nutrient concentrations.

1. Growth Technology pH products

**DOWN:** 81% Orthophosphoric acid solution. Used dropwise to alter the pH of the nutrient solution when the pH is too alkaline, too high. Most plants appreciate the pH being near 6, slightly acidic.

**UP:** 25% Potassium hydroxide solution - added in minute quantities to adjust the pH when the mixture is too acidic, too low. Suitable for all phases of the life of the plant.

50% Citric acid solution. To avoid changing the NPK ratios of nutrient mixtures citric acid can be used to lower pH. The organic acid also maintains pH levels stable for longer. Relieves root stress and enables mineral uptake.

2. Hesi pH products

**pH Minus (Down) - Grow:** 38% Nitric acid solution. To avoid adding more phosphorus during the grow phase, HESI provide a pH Down just for the grow phase with only nitric acid, so only adding nitrogen.

**pH Minus (Down) - Bloom:** 59% Phosphoric acid solution.

**pH Plus (Up):** 50% Potassium hydroxide solution.

3. Canna pH products

Canna pH Down - 'Organo'

**Down:** - 81% Orthophosphoric acid solution. Used dropwise to alter the pH of the nutrient solution when the pH is too alkaline, too high. Most plants appreciate the pH being near 6, slightly acidic.

**Up:** - 25% Potassium hydroxide solution - added in minute quantities to adjust the pH when the mixture is too acidic, too low. Suitable for all phases of the life of the plant.

Canna pH Down - Grow & Bloom:

**GROW** - 38% Nitric acid solution. Like HESI, to avoid adding more phosphorus during the grow phase, Canna make a pH Down just for the grow phase with only nitric acid, so only adding nitrogen.

**BLOOM** - 59% Phosphoric acid solution.

4. Canna pH Down - ‘Organo’

**PH DOWN, GROW, CANNA 1L**

**PH DOWN, BLOOM, CANNA 1L**

**PH PLUS (UP), CANNA 1L**

5. GHE pH products (liquid)

**GHE pH Down Liquid:** 15% Nitric acid/10.6% phosphoric acid mix. Also contains organic buffering compounds to give a longer-lived pH balance in the nutrient solution.

**GHE pH Up Liquid:** 20% Potassium carbonate. Containing carbonate helps buffer the solution for longer. With added silicate for robust, healthy insect and mould-resistant plants.

6. GHE pH products (powder)

Dry formulation for safer shipping. Contains nitrates, phosphates, magnesium, sulphur and some micronutrients. Perfectly soluble in water. Can also be used for cleaning out irrigation lines and systems.

**DRY PH DOWN POWDER, GHE 25G**

**DRY PH DOWN POWDER, GHE 500G**

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Mail Order Tel: 0845 872 0572
1. pH Test Kits and refill

**pH Test Kit**
Simple, easy to read colour test with liquid reagents, lasts for 200 tests. Narrow range pH 6 - 7.6 for fine adjustment or wide range pH 4 - 10.

**pH Test Refill**
Rather than replace a whole kit you can buy a single bottle of either reagent and carry on using the tube and chart from the kit.

2. Growth Technology pH Test Kit

**PH Test Kit, Growth Technology Wide Range**
PH Test Kit, Growth Technology Wide Range pH Test Kit 4-11. Simple to use liquid pH test kit including test vial, test liquid and colour chart. Just add some drops of test liquid to a sample of the nutrient solution, swirl and compare the colour to the chart. 20ml, up to 400 tests.

3. pH Pen Pro

**pH Pen Pro**
Constant monitoring, sits in the reservoir, visual alarm, digital readout and 2 year warranty. Resolution ± 0.1 pH.

4. Grochek pH Monitor

**Grochek pH Monitor**
Constant monitoring, sits in the reservoir, visual alarm, digital readout and 2 year warranty. Resolution ± 0.1 pH.

5. Bluelab Meter Cleaning Kit

**Bluelab Meter Cleaning Kit**
Recommended for extending the useful life of your TDS meters or truncheons. Regular servicing of the probes keeps them functioning at their best. Made by Bluelab but suitable for maintenance of any brand of meter.
1. Various pH Pens

- **TOP IMAGE - Horticare:**
  One-touch calibration. Automatic shut-off to save battery life. Accuracy ± 0.2 pH. Battery life 150 hours constant use (4 x 1.5V button).

- **BOTTOM IMAGE - pH Pal+:**
  This new pH pen is simple and reliable. It has a hold function and is quick and easy to calibrate with just one touch of a button. Water resistant. Sensor designed to withstand drop shock. Range 0 to 14pH. Accuracy ± 0.2 pH. Battery life 150 hours constant use (4 x 1.5V button).

2. Bluelab pH testing products

- **Top image - BlueLab pH Pen:**
  High quality, compact pH pen from BlueLab. High accuracy pens that look and feel great.

- **Bottom image - BlueLab Combo:**
  BlueLab professional handheld combo meter for pH/EC.
  - Easy to use
  - Accurate control
  - 13mm display screen
  - Push-button calibration
  - Portable and lightweight
  - Auto-temperature compensation

3. Trident pH/EC/Temp Meter

  The Essentials Trident Meter is an all-in-one conductivity, pH and temperature meter. The one-piece probe housing contains all 3 probes. Calibration of the pH and EC/CF/ppm is very easy due to the push buttons on the meter and calibration solutions. Temperature set in the factory. Displays in °F or °C, EC, CF or ppm. 1 year warranty on probe housing, 3 year on main unit. Light and portable. Auto turn-off function. Range: 0 - 14 pH, 0 - 4 EC (0 - 40 CF or 0 - 2800 ppm), 0 - 50°C (-32 - 122°F). Accuracy: 0.2 pH, 0.2 EC (2 CF or 100 ppm), 0.5°C. Battery life: approx. 50 hours of use (4 x AA 1.5V).

4. Nutradip Trimeter

  Combined pH, EC and temperature monitor for constant readings on the state of your reservoir. Automatic temperature compensation for pH and EC readings for consistent, accurate results. Mains power supply – no batteries. 2 years limited warranty on monitor. 6 months limited warranty on probes.

5. pH Buffers 4 and 7

  For calibrating your pH meter. These standard solutions are used to check that the fixed pH is still correctly read on the meter. This can then be easily corrected.

6. pH Probe Cleaner, Refill & Storage

  **pH Probe Cleaner:**
  Cleans salt deposit residues left by nutrients off the probe to ensure a correct reading.

  **pH Probe Refill & Storage:**
  Lengthens the life of the pH probe. Simply moisten some tissue paper with the solution and keep it on the probe, with the cover of the meter well-closed.
1. Grochek EC Monitor
   - Constant monitoring, sits in the reservoir, visual alarm, digital readout and 2 year warranty.
   - GROCHEK EC MONITOR *TO ORDER YwMB466

2. TDS4 Aqua-Pal Meter
   - Range: 100 - 19900 μS. Accuracy ± 2%. Battery life 100 hours constant use (4 x 1.5V button). Regular calibration will keep the meter more accurate for longer.
   - CF/EC, TDS4 AQUA-PAL YYB1825

3. Bluelab EC Truncheon
   - The perfect tool for measuring the strength of your nutrient solution. You’ll find one of these in every experienced grower’s garden. Easy to use, self calibrating, and reliable. Range 0.2 - 3.6 mS.
   - EC/CF TRUNCHEON, BLUELAB GRP6983

4. Conductivity Standard
   - For calibrating your CF meter, this standard solution is used to check that the fixed CF is correctly read on the meter. If your meter does not read the concentration of the solution, it can be simply corrected.
   - CONDUCTIVITY STANDARD 250ML CXV9549
   - CONDUCTIVITY STANDARD 1L CXV9550

5. Soil Meters
   - Our soil meters are essential knowledge in the palm of your hand. Instantly read the moisture content of your soil to take the guesswork out of watering. Soil pH meters also available. For best results, always wipe the probes clean after use and store dry.
   - SOIL MOISTURE METER G2C3957
   - SOIL pH METER SSB9562
   - SOIL 3-IN-1 METER HMK7184

6. Budget EC Pen
   - The Budget EC pen is an easy to use digital water meter. It measures electrical conductivity (EC) and has a thermometer to measure water temperature. It turns off automatically after 10 minutes to conserve batteries.
     - Easy to see large screen.
     - Hold function
     - Comes with a carry case to protect your meter!
     - EC Range: - 0-9990 μS (μS/cm)
     - Temp Range: - 0-80 degrees celcius
   - BUDGET EC PEN BUG5678

7. Batteries
   - Some of our products, such as the Green Eye Torch (see Growroom Essentials, page 100) and pH/EC testers, require batteries which we keep in stock.
     - BATTERY AA HRN7357
     - BATTERY AAA K2M1256
     - BUTTON BATTERY L1154 VDR1212

8. Soil pH Test Kit
   - Simple to use test kit to discover the pH of your soil or compost. Full instructions. 30 tests.
   - SOIL TEST KIT XwNA145

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Always check your environmental conditions first:

<table>
<thead>
<tr>
<th>Room Temperature</th>
<th>Room Humidity</th>
<th>pH levels</th>
<th>Cleanliness</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Temperature gauge" /></td>
<td><img src="image" alt="Humidity gauge" /></td>
<td><img src="image" alt="pH meter" /></td>
<td><img src="image" alt="Cleaning agent" /></td>
</tr>
</tbody>
</table>

- Is your room the correct temperature? Remember to take note of temperatures through the day and in the evening. Check this using a Max/Min thermometer.
- Are the humidity levels in your room correct for the plants you are growing? Too much water in the atmosphere can cause all sorts of issues from rot to pest problems. Use a hygrometer to keep an eye on humidity.
- In most cases nutrient deficiency is caused by incorrect pH. If you notice a problem with your plants, make sure to check and adjust the pH of your nutrient solution before adding extra feed. See our range of pH products.
- You should treat a grow room just like any other room in your house - if there isn’t a basic standard of hygiene then your plants don’t have a great chance in life. There are all sorts of cleaning products available from Hollands.

See Ventilation & Odour Control, See pH & Nutrient Management, See Nutrient Additives.

### Here is a reminder of the approximate values to aim for in each stage of your plants life cycle:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Propagation</th>
<th>Vegetative Growth</th>
<th>Early Flowering</th>
<th>Late Flowering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
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<td>18°C (night), 26°C (day)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>80-100%</td>
<td>65%</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>pH</td>
<td>Hydro/coco: 5.7-6.2 Soil: 5.8-6.5</td>
<td>Hydro/coco: 5.7-6.2 Soil: 6.0-6.8</td>
<td>Hydro/coco: 5.7-6.2 Soil: 5.8-6.8</td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td>0.2 - 0.8</td>
<td>0.6 - 1.6</td>
<td>1.0 - 1.8</td>
<td>1.0 - 2.0</td>
</tr>
</tbody>
</table>

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Mail Order Tel: 0845 872 0572
### Pest/Disease Issues

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Diagnosis</th>
<th>Remedy</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow-white spots on leaves, which yellow all over, then drop off.</td>
<td>Spider mite infestation. Check for tiny moving specks on the leaf underside and fine webs between branches. Spider mite thrive in hot, dry conditions.</td>
<td>Decrease temperature and raise humidity to slow their life cycle. Spray undersides of leaves with cold water, smash mites and eggs by pressing leaf between forefinger and thumb. Remove leaves with 50% damage or more. Spray with organic pesticide. Use smoke bombs. Predators are an effective form of control, but must be used independently of other methods.</td>
<td>Neem oil, Neem Repel, Nite Nite Spider Mite, SMC, Bug Clear, Canna Cure. Forte Fog fumers (smoke bombs). Spider mite predators. It is advised to order a large quantity to outnumber the pests, at least 100 for each plant.</td>
</tr>
<tr>
<td>Tiny black flies floating around the surface of the soil, can be noticed easily if you bang the sides of the pot, causing them to swarm out of the soil.</td>
<td>Fungus gnat (Sciarid fly). The larvae live in the soil and eat away at tender root hairs. They thrive in moist conditions such as soggy soil and algae-ridden hydro systems. It is advisable to use Nilnat as a preventative.</td>
<td>Feed Gnat Off or Nilnat into the medium. Don’t overwater, keep humidity down. Cover growing medium to prevent algae. Place sticky traps horizontally 5cm above the soil surface to catch adult flies. Apply predators.</td>
<td>Nilnat, Gnat Off, Sticky Traps. Sciarid Fly predators.</td>
</tr>
<tr>
<td>Stippled silvery white specks on the top of leaves, usually noticed towards the bottom of the plant. Can look similar to mite damage but without webbing.</td>
<td>Thrips. These sap-sucking insects are only 1-2mm long and look like a grain of rice. Check for them hiding under leaves by shaking the plant.</td>
<td>Thrips are difficult to control with sprays because they are frequently resistant to pesticides and hide in the soil. Predators are recommended.</td>
<td>Thrips predators.</td>
</tr>
<tr>
<td>Roots become brown, slimy and foul smelling. In hydro systems the pH of the nutrient solution drops, whilst the EC rises.</td>
<td>Pythium (root rot). This fungal infection thrives in warm, oxygen-poor water and soggy soil. Root disease can be prevented by using beneficial microbes such as Viresco. Change nutrient tank weekly and sterilise all equipment at the beginning of a grow.</td>
<td>Reduce water temperature in nutrient tank to 18-22°C (65-72°F), increase oxygenation, use Liquid Oxygen or Pytho bombs. Increase air movement and ventilation to reduce humidity to 40-50%, increase temperature to 25-28°C. Remove affected leaves and flowers immediately and separate badly affected plants from healthy ones. Spray flowers during the night with Bud Rot Stop or Citroshield. Fungal spores can be reduced by using an ozone generator. Do not touch healthy plants immediately after dealing with mould, spores are easily transmitted on clothes or tools.</td>
<td>Water chiller, air pumps/aerator. Biological: Root Rot Stop, Viresco, Guardian Angel, Tarantula, Biolink+, Rootgrow, Bio Magix, Canna Aktrivator, Plant Magic Granules</td>
</tr>
<tr>
<td>Flowering leaves may be malformed, grey and brittle. Grey, furry mould develops on leaves and branches towards the middle of the plant where air circulation is low. The largest and densest flowers will be attacked first, turning them to brown mush from the centre outwards. There may be a noticeable smell when infection is advanced.</td>
<td>Botrytis (Grey mould). This fungal infection thrives in humid (60-100%), cool (15-23°C) conditions with poor air circulation. It is common when many plants are crowded close together. Mould can be prevented from affecting harvested material by spraying a biological control such as Halo one week before harvest. Using micro-organisms such as Viresco or Halo throughout will reduce the chance of bud rot.</td>
<td>Increase air movement and ventilation to reduce humidity to 40-50%, increase temperature to 25-28°C. Remove affected leaves and flowers immediately and separate badly affected plants from healthy ones. Spray flowers during the night with Bud Rot Stop or Citroshield. Fungal spores can be reduced by using an ozone generator. Do not touch healthy plants immediately after dealing with mould, spores are easily transmitted on clothes or tools.</td>
<td>Bud Rot Stop, Halo, Viresco, ozone generators</td>
</tr>
<tr>
<td>White powdery coating on leaf surface. Leaves yellow and drop off as the infection advances.</td>
<td>Powdery Mildew. This is a fungal infection and thrives in similar conditions to Botrytis (see above). It can be prevented by regularly spraying Cannacure or Neem oil onto the leaves. Using micro-organisms such as Viresco or Halo throughout will reduce the chance of infection.</td>
<td>Improve environment (as above), remove badly affected leaves. Spray plants with PMT (Powdery Mildew Treatment). Citroshield or Neem Oil. Home remedy sprays include milk (diluted with water at a ratio of 1:8) or bicarbonate of soda (1 tbsp per gallon).</td>
<td>PMT, Cannacure, Neem Oil, Viresco, Halo</td>
</tr>
<tr>
<td>Green gunge building up on surface of soil, rockwool or in hydroponic nutrient tanks.</td>
<td>Algae. Although algae itself is not damaging to plants, it can harbour other diseases and provide a source of food for fungal infections such as Pythium. It occurs whenever moist media or water tanks are exposed to light.</td>
<td>Ensure that nutrient tanks and tubes are completely light-tight, NFT trays are covered by correx board and rockwool cubes have covers over them. Algae can be easily cleaned away and destroyed with a spray such as Block Clean.</td>
<td>Black/White sheeting, Block Covers, Corriboard, Block Clean.</td>
</tr>
<tr>
<td>Symptom</td>
<td>Diagnosis</td>
<td>Remedy</td>
<td>Product</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Red colouration on stems.</td>
<td>This is a sign of stress, often caused by a nutrient deficiency or seen during a change in the light cycle, after repotting, pruning, training or during periods of unstable temperature. It’s not always a bad thing; a small amount of stress can create healthier, stronger plants.</td>
<td>Check your environmental conditions. B vitamins are especially useful for helping plants during stressful times.</td>
<td>B Vitamin supplements: Cyco B1 Boost, Power Thrive, ATA XL, B-52, Superthrive, Canna Boost, Bio Heaven</td>
</tr>
<tr>
<td>Tip burn; tips and edges of leaves turn brown, usually noticed near the bottom of the plant (old growth) first. Edges of leaves may hook or curl under.</td>
<td>Overfeeding. The plant is depositing excess nutrients at the leaf tips. This is one of the most common nutrient problems and is best avoided by using cautious feeding dosages before building up to full strength. It is safer for the plant to be underfed than overfed.</td>
<td>Reduce concentration of nutrient solution. If in soil or coco you may benefit from flushing your medium with water and allowing it to dry out before reintroducing nutrient at a reduced level.</td>
<td>We strongly recommend using a digital EC pen to accurately manage the level of your nutrients.</td>
</tr>
<tr>
<td>Leaves yellowing all over, noticed near the bottom of the plant (old growth) first.</td>
<td>Underfeeding. Underfeeding. The plant is lacking necessary nutrients, usually nitrogen. There are many factors that affect uptake but usually the pH is wrong, feed is too weak, nutrients are incorrectly balanced or there is a problem with the root system.</td>
<td>If roots are healthy carefully increase concentration of nutrient solution. It can be incredibly beneficial to apply a foliar feed, which will ensure the plant receives nutrition regardless of the health of the root system.</td>
<td>EC pen. Cyco Dr Repair. Foliar feed: Nitrozyme, Green Up Solution, House and Garden Magic Green. Many base nutrients can be mixed as foliar feeds too if necessary.</td>
</tr>
<tr>
<td>Leaves drooping/ wilting. Plants are transpiring water at greater rate than they are able to take it up.</td>
<td>Temperature too high on the leaf surface. May see leaf edges curling upwards as well. If leaf tissue is firm but droops at the stem: overwatering - root system has been drowned, depriving it of oxygen. Lack of oxygen in the nutrient solution (hydroponics).</td>
<td>Raise lights away from plant canopy or cool the bulbs. Water plants. Soil or coco should be watered/fed once the top few inches of substrate have dried out. If in hydro, check that the pump is not faulty or clogged and that dripper lines are not blocked. Water less. Pots should be fully saturated when watered but only fed again once the top few inches of substrate have become dry. It is helpful to use clay pebbles or perlite to improve drainage and increase the air content of the medium. Keep nutrient tanks between 18-22°C. Water holds less oxygen when it is warm. Increase oxygenation in nutrient tank with an air stone.</td>
<td>Easy Gliders/ Rolls, Heat Shield, Air-cooled reflectors. Soil moisture meter. In hydro consider adding Perlite or Vermiculite to increase the water holding capacity of the medium. Soil moisture meter, Hydrotor, Perlite, Vermiculite, Diahydro: Soilox. Water chiller, water heaters, black white. Airpumps, liquid oxygen.</td>
</tr>
</tbody>
</table>
**Nutrient/ Environment issues**

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Diagnosis</th>
<th>Remedy</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaves broader than normal, curling <strong>down</strong> at the edges</td>
<td>High humidity.</td>
<td>Ensure there is no standing water on the grow room floor or sitting in saucers. Increase ventilation to reduce humidity.</td>
<td>Digital Thermometer/ Hygrometer</td>
</tr>
<tr>
<td>Leaves <strong>curling up</strong> at the edges</td>
<td><strong>Low humidity</strong>. Leaves may also be narrower than normal.</td>
<td>Use a humidifier or simply hang a sodden towel up in your grow room.</td>
<td>Digital Thermometer/ Hygrometer</td>
</tr>
<tr>
<td></td>
<td><strong>Wind Burn</strong>. Localised areas of low humidity caused by strong air movement.</td>
<td>Turn oscillating fans down, move them back away from the plants or point them at a wall. Air movement is ideal when all leaves are gently moving but not being directly buffeted.</td>
<td>Clip on fan</td>
</tr>
<tr>
<td>Leaves <strong>yellowing between the veins</strong>, starting from the centre of the leaf.</td>
<td><strong>Magnesium deficiency.</strong> Most common during early flower stage. Magnesium can be blocked out when pH is too low, soil is wet and cold, when calcium is lacking or when a strong PK additive has been used.</td>
<td>Check pH, raise above 6.5 in soil, 5.8 in hydroponics. If positive change is not noticed after a couple of days, add magnesium supplement. Magnesium can be effectively added as a foliar spray.</td>
<td>Sensi Cal Grow/ Bloom, Epsom Salts</td>
</tr>
<tr>
<td>New leaf growth dying or appears small and distorted. Leaves showing <strong>yellow and brown spots</strong> and appear crinkled.</td>
<td><strong>Calcium deficiency.</strong> Often appears hand-in-hand with Magnesium and Iron deficiencies.</td>
<td>Add calcium supplement.</td>
<td>Sensical Grow/ Bloom, Garden Lime, Canna Ca 15%</td>
</tr>
<tr>
<td>Leaves smaller than normal with <strong>blue-green tint</strong>, dark blotches appear later on.</td>
<td><strong>Phosphorus deficiency.</strong> This is aggravated by soggy soil.</td>
<td>Lower pH to 5.5-6.2 in hydro, 5.5-6.5 in soil. Feed with base nutrients or add supplementary phosphorus.</td>
<td>Canna Minerals P 20%</td>
</tr>
<tr>
<td>Plants appear vigorous and tall, but <strong>branches are weak, leaves dull and papery</strong>, older leaves yellow off with rust blotches and burnt edges.</td>
<td><strong>Potassium deficiency.</strong></td>
<td>Feed with base nutrients or add supplementary potassium. It is not advisable to provide potassium through a foliar feed.</td>
<td>Canna Minerals K 20%</td>
</tr>
<tr>
<td>Leaves turn <strong>lime green-yellow</strong>, resembles nitrogen deficiency except it may affect newer growth predominantly.</td>
<td><strong>Sulphur deficiency.</strong></td>
<td>Add fertiliser that contains sulphur.</td>
<td>Epsom Salts (Magnesium Sulphate)</td>
</tr>
<tr>
<td>Younger leaves turn yellow then white whilst veins remain green.</td>
<td><strong>Iron deficiency.</strong></td>
<td>Add or foliar feed fertiliser that contains iron. It is possible to use rusty water.</td>
<td>Cyco Dr Repair, Canna Minerals Fe</td>
</tr>
</tbody>
</table>

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Root Assistance

The importance of root health cannot be overstated. Healthy roots lead to massive harvests. Delicate but powerful, roots not only hold your plant in place, they absorb food, water and a host of supplementary substances. We stock a wide range of cutting edge root medicines and supplements so you can keep your plants' roots in tip top condition throughout their complete lifecycle. So look after your plants’ roots! You’ll be enjoying record yields as a direct result!

1. AU 60

Single substance liquid preparation to heal roots and increase resistance against further disease attack. Promotes rapid root regrowth. Helps heat tolerance, yield increase, and stronger plants.

2. B’cuzz Root Stimulator

Ensures explosive root production and induces an inhibiting effect on various soil diseases such as Pythium, Fusarium etc. 100% organic.

3. Canna Rhizotonic

Excellent root stimulator by foliar feed and soaking the rooting medium with the diluted liquid. Speeds up the rooting process and ensures the plants do not starve before their roots form by feeding through the leaf.

4. Canna Bio Rhizotonic

Now Rhizotonic is also available as “Bio” - an organically certified version with exactly the same dosage and advantages as the non-organic Rhizotonic.

5. Plant Magic Plus Root Stimulator

Apply to your rooted cuttings or seedlings to help stimulate the biological activity around their root zones. This leads to healthy, strong root development. Do not use with H2O2.

6. Bio Bizz Root Juice

100% vegetable based Root stimulator and provides explosive root growth, accelerated nutrient uptake, stronger plants resistant to disease and stress, including high EC values. OMRI and SKAL certified organic.

7. GHE Bio Roots

A comprehensive blend of micro minerals from organic sources. Can be used as a foliar feed against mineral deficiencies, as well as a micronutrient supplement in the nutrient solution.

Typical Dose: 1 ltr makes 200 - 500 ltrs of nutrient solution

8. Rootbastic

Great new product from the makers of Bloombastic. An NPK root boost highly rich in phosphorus. It's Rootbastic.

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Nutrient Additives & Growth Boosters

1. AU 60

2. B’cuzz Root Stimulator

3. Canna Rhizotonic

4. Canna Bio Rhizotonic

5. Plant Magic Plus Root Stimulator

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8. Rootbastic
Nutrient Additives & Growth Boosters

1. GreenFuse Root
   - Pure organic root stimulator based on plant extracts. 1ml concentrate per litre for hydroponics or any substrates
   - Typical dose: 500ml makes 1660 litres of nutrient solution.

2a. House & Garden Roots Excelurator
   - The most powerful root stimulator on the market. Ensures the explosive growth of the roots and gets rid of root sickness, mould and brown roots. Very concentrated but pricey.
   - Typical dose: 1 litre makes 1000 litres of nutrient solution.

2b. House & Garden Stimulator
   - (Not pictured) Encourages root development in the early stages of the plants life. Speeds up the process of splitting the cells in the plant resulting in efficient internal nutrient transport. Also guards against root disease.
   - Typical dose: 1 litre makes 200 litres of nutrient solution.

3. Hesi Root Complex
   - Root stimulating mixture of trace minerals, vitamins, sugars and amino acids. For cuttings, young plants and for healing plants that have suffered stress such as repotting or drought.
   - Typical dose: 1 litre makes 200 litres of nutrient solution.

4. Cyco XL
   - Super Phosphoric acid aids in root development and helps increase the uptake of iron, nitrogen and potassium. Cyco XL used in the early stages of growth (not recommended before week 3) will help with the uptake of the above mentioned elements and increase root growth dramatically. Cyco XL is strongly acidic and will lower the pH of your nutrient solution. Add it last to the mix, and adjust your pH to 5.6-6.0 before feeding to your plants.

5. Canadian Xpress Wilt Guard
   - To avoid problems with root rot fungi and associated wilting, add Wilt Guard to your nutrient solution at every solution change. Wilt Guard is a specialised form of potassium which is very readily assimilated in large amounts. Potassium is the element responsible for strengthening the osmotic pressure within the plant and for regulating water loss.

   - For prevention of root disease and repair of root injury (whether from rot or mechanical damage). Used continuously in the nutrient, Regen-A-Root maintains a healthy root system all the way through the life of the plant. Especially useful in bloom when the root is most stressed. Also induces resistance to disease.
Nutrient Additives & Growth Boosters

1. Alg-a-mic
A vitality booster based on cold pressed, concentrated seaweed. With micronutrients, vitamins, amino acids and hormones of vegetable origin, it is a wonderful soil drench or foliar spray for increasing plant health and disease resistance.

- BIO BIZZ ALG-A-MIC 1L
- BIO BIZZ ALG-A-MIC 5L

2. Bio Bizz Fish Mix
Typical Dose in soil: 1 litre makes 200 - 500 litres of nutrient solution.
Typical Dose for foliar feed: 1 litre makes 500 -1000 litres of nutrient solution.

- BIO BIZZ FISH MIX 1L
- BIO BIZZ FISH MIX 5L

3. Gro Storm
Gro Storm is a 100% organic plant additive. The seaweed/humic acid mixture helps promote increased plant vitality, absorption of minerals, improves growth yield and quality and increases resistance to environmental stress.

Typical Dose: 1 litre makes 1000 - 2000 litres of nutrient solution.

- GRO STORM 1L
- GRO STORM 5L

4. Green Myst Fish Agra
Extract from pure Atlantic fish, 100% organic.

- GREENMYST FISH AGRA 200ML
- GREENMYST FISH AGRA 1L

5. Nitrozyme
Maximises plant performance in the following areas – seed germination, propagation, foliar feed, soil cultivation and hydroponics. Quickens growth and improves survival rates in stressful times of the plant’s life. Contains powerful natural enhancers, exotic micro-nutrients and bio stimulants derived from marine plants. Particularly good for feeding mother plants for the weeks before taking cuttings to ensure optimal health of the material to be taken.

- NITROZYME 100ML
- NITROZYME 300ML
- NITROZYME 1L

6. Plant Magic Plus Catalyst
Seaweed extract for foliar or root feeding. Improves plant health, root growth, chlorophyll production, micro minerals and resistance against diseases and pests. Promotes friendly microbes in the soil.

Typical Dose for foliar feed: 1 litre makes 333 litres of nutrient solution.

- PLANT MAGIC PLUS CATALYST 125ML
- PLANT MAGIC PLUS CATALYST 250ML
- PLANT MAGIC PLUS CATALYST 1L

7. Alaska Fish Fertiliser
Deodorised fish extract. OMRI listed as suitable for use in Organic agriculture. N.P.K 5:1:1.

- ALASKA FISH FERTILIZER 4L

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Rich, fertile soil will contain a lot of organic matter, much of which is in the form of humic and fulvic acids. These components are very complex and difficult to imitate. Using the substances themselves will add many of the benefits of real soil cultivation to hydroponics and other soilless media, whilst keeping the many advantages of the automated systems. It is highly beneficial to add humic and fulvic acids to soil as they will be depleted over time. These acids improve Cation Exchange Capacity, meaning that your plants can take up more nutrients more easily.

1. **Grandma Enggy’s F1 and H2**
   - GHE Diamond Nectar
   - Plant Magic Plus Boost

2. **GHE Diamond Nectar**
   - Growth stimulant based on natural fulvic acid from Leonardite. New formulation with some humic acid, leading to a darker colour.
   - GHE DIAMOND NECTAR 500ML
   - GHE DIAMOND NECTAR 1L
   - GHE DIAMOND NECTAR 5L

3. **Dry Flower Humic / Fulvic Acids**
   - Dry Flower Liquid Black Humic Crystal (step 2 of 4) - Water treatment that enhances nutrient uptake at the root zone, promoting vigorous growth and increasing fresh weights.
   - Dry Flower Liquid Gold Fulvic (step 3 of 4) - Promotes better plant performance when fed through the roots, increasing the growth of isolated plant organs when applied as a foliar spray during flowering.

4. **Greenmyst Humic**
   - Pure humic & fulvic acids, 100% organic.
   - GREENMYST HUMIC 300ML
   - GREENMYST HUMIC 1L
   - GREENMYST HUMIC 5L

5. **Cyco Uptake**
   - Uptake from Cyco may increase micronutrient uptake.
   - CYCO UPTAKE 1L
   - CYCO UPTAKE 5L

6. **Plant Magic Plus Boost**
   - Powerful bio-stimulant containing humic acids to increase the activity of beneficial micro-organisms and soil bioactivity. This produces increased growth, yields and root development. Designed to be used with Plant Magic Plus Granules.
   - PLANT MAGIC PLUS BOOST 1.25ML
   - PLANT MAGIC PLUS BOOST 250ML
   - PLANT MAGIC PLUS BOOST 1L

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Nutrient Additives & Growth Boosters

1. Liquid Silicon
Also acts as a pH Up. 5% Potassium silicate. Recommended at 1ml per litre of nutrient solution.

2. Budlink
Want to add weight and bulk to your plants? Then add Budlink! Soluble silica supplement. Does not affect pH balance, unlike other silica supplements. Use at 2.5 - 5 ml per litre of nutrient solution.

3. Advanced Nutrients Rhino Skin
Replacing Barricade, this is Advanced Nutrients' new silicon supplement. Can be used in any medium. 1% Silicon, N:P:K 0.0:1.3. Protects plants against stress, heat and pests.

Typical dose: 1 litre makes 500 litres of nutrient solution solution.

4. Cyco Silica
Benefits include greater tolerance to Environmental stresses and improved growth rate. Contains 3% Potassium Silicate.

5 Essentials Silicon+
1.25% potassium silicate solution suitable for hydroponics. Used in the nutrient solution at 4 ml per litre. Never add directly to the tank, always dilute first.

5. Plant Magic Bio Silicon
Specially formulated for use in soil/compost/coco Bio-Silicon contains a unique blend of humic acids with silicate to ensure optimal availability.

Typical dose: 1 litre makes 1000 litres of nutrient solution. Foliar: 1 litre makes 2000 litres of spray.

6. Flairform Silikamajic
Formulated for stability, the indefinite shelf-life of SilikaMajic guarantees the full benefit of silica however long you leave it. 26% Potassium silicate. Highly concentrated

Typical dose: 1 litre makes 5000 litres of nutrient solution.

HOLLAND HYDROPONICS
Grow with us...
...it’s easy!

Silicon Supplements

<table>
<thead>
<tr>
<th>Liquid Silicon</th>
<th>Budlink</th>
<th>Advanced Nutrients Rhino Skin</th>
<th>Cyco Silica</th>
<th>Plant Magic Bio Silicon</th>
<th>Flairform Silikamajic</th>
<th>Diahydro</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIQUID SILICON 250ML</td>
<td>NXS1741</td>
<td>XNS1741</td>
<td>XNS1742</td>
<td>XNS1743</td>
<td>XNS1744</td>
<td>NXS1745</td>
</tr>
<tr>
<td>LIQUID SILICON 1L</td>
<td>XNS1746</td>
<td>XNS1747</td>
<td>XNS1748</td>
<td>XNS1749</td>
<td>XNS1750</td>
<td>NXS1751</td>
</tr>
<tr>
<td>LIQUID SILICON 5L</td>
<td>XNS1752</td>
<td>XNS1753</td>
<td>XNS1754</td>
<td>XNS1755</td>
<td>XNS1756</td>
<td>NXS1757</td>
</tr>
</tbody>
</table>

Adds strength and rigidity to the plant, toughens cell walls and increases disease resistance against fungi such as bud rot. A thicker stem and stronger branches means your plants can hold bigger heavier fruits. Silicon supplements should all be mixed with a small amount of water and then left for half an hour before mixing into the reservoir solution, to ensure proper dilution. Always check and adjust pH to the correct level before feeding.

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SEE GROWING MEDIA TURN TO PAGE 033
The leaf is very efficient in the absorption of some nutrients. Foliar feed sprays can be used to correct deficiencies quickly, whilst adding vital elements to the plant’s nutrition—especially when the roots have been stressed. Wetting agents help the nutrients enter the leaf.

1. **G.E.T. UMPH Power**
   - Is a fruit and vegetable quality enhancer. See G.E.T. Power to Bloom and use both together. **Typical Dose:** 1 litre makes 250 litres of foliar spray.  
   - G.E.T. UMPH Power 250ML  
   - G.E.T. UMPH Power 1L  

2. **House & Garden Magic Green**
   - Leaf strengthener from House & Garden. Booster for rooted or unrooted cuttings and growing plants. Results are obvious in two days. **Typical Dose:** 500ml makes 50 litre of foliar spray.  
   - HOUSE & GARDEN MAGIC GREEN 500ML  
   - HOUSE & GARDEN MAGIC GREEN 1L  

3. **Sugar Peak Briximus Maximus**
   - Plant food designed for foliar feeding. Helps flowering and fruiting plants in the last two weeks of bloom. Avoid spraying flowers or fruit. **Typical Dose:** 1 litre makes 62.5 litres of foliar spray.  
   - SUGAR PEAK BRIXIMUS MAXIMUS 500ML  
   - SUGAR PEAK BRIXIMUS MAXIMUS 1L  

4. **Vitalink Foliar**
   - Humic substances and amino-chelated calcium for a premium foliar feed. **Typical Dose:** 1 litre makes 10 litres of foliar spray.  
   - VITALINK FOLIAR 1L  

5. **Wetting Agent**
   - Growth Technology Wetting Agent – Non-Ionic, will greatly reduce the surface tension of water, thus when added to a foliar spray will dramatically increase the ability of the solution.  
   - WETTING AGENT 125ML  
   - WETTING AGENT 1L  

6. **Wet Betty & Wet Betty Organic**
   - The ultimate wetting agents, derived from Yucca schidigera and Quillaja saponaria. Not just helps your plants absorb the active substances in the spray but also encourages faster, bushy, branching growth. **Typical Dose:** 1 litre makes 500 litres of spray.  
   - ADVANCED NUTRIENTS WET BETTY 1L  
   - ADVANCED NUTRIENTS WET BETTY ORGANIC 1L  

7. **Plant Magic Plus Bio-Wetter**
   - Highly concentrated Yucca schidigera extract, very economical, so use more! **Typical Dose:** Foliar: 1 litre makes 667 litres of spray. **Soil treatment:** 1 litre makes 400 litres of nutrient solution.  
   - PLANT MAGIC PLUS BIO WETTER 125ML  
   - PLANT MAGIC PLUS BIO WETTER 250ML  
   - PLANT MAGIC PLUS BIO WETTER 1L  
   - PLANT MAGIC PLUS BIO WETTER 5L  

8. **Plant Magic Plus Evolution**
   - Significantly speeds up the plant’s vegetative stage. Improved photosynthesis leads rapid growth and improved root structure. Contains a wide range of bio stimulants, natural plant hormones, Polysaccharide sugars, vitamins, trace elements, amino acids and Humic and Fulvic acids. Can be used in any growing medium.  
   - PLANT MAGIC EVOLUTION 125ML  
   - PLANT MAGIC EVOLUTION 500ML  
   - PLANT MAGIC EVOLUTION 1L  
   - PLANT MAGIC EVOLUTION 5L  

Order Online At: www.hydroponics.co.uk  
Mail Order Tel: 0845 872 0572
Nutrient Additives & Growth Boosters

1. GHE Bio Bloom Booster
Enhances the uptake of calcium and other minerals, stimulates flowering and abundant harvests, increases size of leaves and improves photosynthesis. Made from entirely natural extracts with no synthetic compounds. Contains amino acids and essential oils. Once opened keep in the fridge.

Typical Dose: 60ml makes 300 ltrs of nutrient solution.

GHE BIO BLOOM BOOSTER 30ML XNG5516
GHE BIO BLOOM BOOSTER 60ML XNG5515
GHE BIO BLOOM BOOSTER 250ML XNG5514

2. Bio Bizz Topmax
100% vegetable based organic bloom stimulator encouraging fast cell division during flowering. Produces more tissues and increases the production of transport sugars in blooms, resulting in larger flowers and fruits with enhanced flavours, oils and aromas. OMRI and SKAL certified organic.

BIO BIZZ TOPMAX 500ML ECP2733
BIO BIZZ TOPMAX 1L ECP2734
BIO BIZZ TOPMAX 5L ECP2735
BIO BIZZ TOPMAX 10L ECP2736

3. B’cuzz Bloom Stimulator
High quality bloom stimulator promotes flower production. 100% organic

BCUZZ BLOOM STIMULATOR 500ML XVTT2248
BCUZZ BLOOM STIMULATOR 1L XVTT2249
BCUZZ BLOOM STIMULATOR 5L XVTT2250
BCUZZ COCO BLOOM STIMULATOR 500ML JLN1384
BCUZZ COCO BLOOM STIMULATOR 1L JLN1385
BCUZZ COCO BLOOM STIMULATOR 5L JLN1386

4. Advanced Nutrients Nirvana
Is a 100% organic bloom booster that provides building materials that promote blooming. Designed specially for use with all growing mediums, and developed for use with any and all hydroponic systems, aeroponic, drip irrigation, NFT, flood and drain and continuous liquid feed growing systems.

ADVANCED NUTRIENTS NIRvana 1L NR1001

5. Advanced Nutrients Bud Factor X
Contains bio-active ingredients which enhance inherent qualities in plants, maximising the plants potential.
• Optimises essential oils
• Optimises aromatics and taste
• Plants growth enhanced for maximum harvest.

BUD FACTOR X 1L THC7919

6. Bloom Booster Pro
Improved upon the original Bloom Booster, Bloom Booster Pro is the ideal mixture for producing monster blooms. With added magnesium, thiamine and urea. N.P.K 0.50:30

BLOOM BOOSTER PRO 1.3KG WSC4186
BLOOM BOOSTER PRO 5KG WSC4190
BLOOM BOOSTER PRO 1KG WSC4187
BLOOM BOOSTER PRO 2.5KG WSC4189

Bluelab EC truncheon
Adding powerful PK boosters will increase your EC levels considerably. Monitor your levels using this handy Bluelab EC Truncheon.

SEE pH & NUTRIENT MANAGEMENT - TURN TO PAGE 079
1. **G.E.T. Power to Bloom**

Powerful booster with a unique formulation. Used at the 3rd and 5th weeks of flowering. For maximum results follow each application 4 days later with Umph Power foliar feed. N:P:K 0:39:30.

**Typical dose:** 100g makes 1,000 litres of nutrient solution.

2. **B’cuzz Tabzz**


3. **Alaska Morbloom**

To stimulate budding and blooming, promote vigorous root growth, for beautiful flowers and foliage and natural flavours in fruits and vegetables. N:P:K 0:10:10.

**Typical use:** 1 litre makes 83 litres of solution.

4. **Monster Bloom**

The name says it all! Contains superphosphates & buffers to intensify flowering. N:P:K 0:50:30.

5. **Blossom Blood**

The original deep red bloom booster for the start of flowering from Rambridge. Use for the first two nutrient tank changes at the start of flowering.

**Typical dose:** 100 grams makes 1,000 litres of nutrient solution.

6. **Blossom Blaster**

Powdered booster for larger flowers. Recommended at 1 gram of powder to every 10 litres of nutrient solution. Only used twice, when flowers appear and two weeks later. Based on monopotassium phosphate. N:P:K 0:39:25.

**Typical Dose:** 100g makes 1,000 litres of nutrient solution.

7. **Bloombastic**

Biological/mineral formula premium bloom booster. Use for the last 4 to 6 weeks. Can be used as a replacement at the same rates as PK 13/14 in any schedule that uses a PK 13/14 for the perfect boost. NPK: 0:20:21.

**Typical dose:** 1 litre makes 1,000 to 2,000 litres of nutrient solution.

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**Nutrient Additives & Growth Boosters**

**Syringes**

Sturdy, Reliable great for measuring small amounts.
Nutrient Additives & Growth Boosters

1. **Green Sensation**
   Green Sensation is a bloom stimulant for the final 4-6 weeks of flowering. Helps the plant to recover from stress.
   **Typical Dose:** 1 litre makes 1000 litres of nutrient solution.
   **GREEN SENSATION 250ML**  TODO     TODO     TODO
   **GREEN SENSATION 500ML**  TODO     TODO
   **GREEN SENSATION 1L**     TODO     TODO

2. **Buddy**
   Boosts energy production, boosts flowering. The phosphate content protects against fungal diseases without the use of fungicides. Used from the fourth week.
   **Typical dose:** 1 litre makes 1000 litres of nutrient solution. N.P.K 0:3:6.6.
   **VITALINK BUDDY 1L** VX8728

3. **Ton O Bud**
   Powerful PK booster, derived from monobasic potassium phosphate. Use with any medium, soil, rockwool, clay, coco, etc.
   **Typical dose:** 100g makes 200 litres of nutrient solution. N.P.K 0:49:32.
   **TON O BUD 500G** GZ01211

4. **Advanced Nutrients Bud Blood**
   Promotes larger, denser flowers and fruit. Applied in the first week of flowering only, it triggers your plants to produce more flowering sets in quicker time.
   **Typical Dose:** 100g makes 200 litres of nutrient solution. N.P.K 0:39:25.
   **ADVANCED NUTRIENTS BUD BLOOD 40G** SYC7458
   **ADVANCED NUTRIENTS BUD BLOOD 300G** SYC7459
   **ADVANCED NUTRIENTS BUD BLOOD 500G** SYC7461
   **ADVANCED NUTRIENTS BUD BLOOD 2.5KG** SYC7460

5. **Advanced Nutrients Bud Ignitor**
   Bud Ignitor helps plants bloom faster and promotes flowering. It is essentially the liquid replacement for Bud Blood powder.
   Use during the first 2 weeks of the flowering stage.
   **N.P.K 0:1:2.**
   **ADVANCED NUTRIENTS BUD IGNITOR 1L** DNA0001

6. **Cyco Potash Plus**
   Potash Plus strengthens plants and aids in water retention which improves yields and transportability. It will also help in the development of a plant to produce large healthy flowers and aids in achieving a full yield and quality. Use during the first 4 weeks of the flowering stage.
   **N.P.K 0:4:6.**
   **CYCO POTASH PLUS 1L** CPP1001
   **CYCO POTASH PLUS 5L** CPP1005

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**Nutrient Additives & Growth Boosters**

1. **Advanced Nutrients Big Bud**
   Top selling Big Bud is a phenomenally powerful flowering and yield enhancer that promotes fuller flowering growth and larger yields. This recipe of phosphorus, potassium, magnesium and amino acids has proven to be a winning formula for countless growers through rigorous testing over many years. For the ultimate bloom boosting regime, combine with Advanced Nutrients' Bud Blood and Overdrive. Big Bud is available as a powder or a liquid.

2. **G.E.T. Let's Flower**
   Let's Flower from G.E.T. is the perfect complement for the Lets range. Use in the 1st half of flowering. Promotes flower production.

3. **Beastie Bloomz**
   A powdered nutrient which is a heavyweight blossom builder with phosphorus, potassium and a full spectrum of chelated micronutrients for faster, more efficient uptake by the plant. Also contains kelp and 1.5% humic acid. For 3 and 4 weeks of flowering in hydroponics, aeroponic, soil or coco. N:P:K 0:50:30.

4. **Overdrive**
   Just like fattening up a turkey before Christmas, Overdrive is a flower enhancer that adds extra girth and weight to your plants in the crucial final phase of flowering. Overdrive has a complex array of phosphorus and potassium sources, as well as hormones and catalytic agents, all vital to healthy, bountiful flowering. Highly recommended!

5. **House & Garden Top shooter**
   Flower expander making solid, large high quality blooms. With polarised potassium compounds, vitamins and herb extracts. Use during the last 3 weeks.

6. **Shooting Powder**
   Foaming bloom expander. Can be combined with any brand of basic nutrients. One handy-sized sachet will provide 100 litres of solution. The most popular of the House & Garden brand. High-quality additives. N:P:K 0:39:25.

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Order Online At: [www.hydroponics.co.uk](http://www.hydroponics.co.uk)  Mail Order Tel: 0845 872 0572
1. Cyco Swell

Cyco Swell is a premium grade PK additive that provides maximum size and quality gains during the last few weeks of flowering. Also contains magnesium which ensures consistent PK uptake. NPK: 1:5:3

2. G.E.T. Let’s fruit

The Let’s Series is specifically developed to increase plant vigour and help reduce the yield robbing effects of stress on any crop.

Stress is not limited to water, nutrients, or environmental conditions. Normal plant growth (germination, cell division, branching, leaf production, flowering set) are some of the major stress factors governing a plant. Most plants go through similar types of stress that result in lack of yield and/or quality. Increasing health and vigour enhances the plant’s ability to overcome stress. This complete formulation of instantly assimilated primary and secondary plant nutrients ensures maximum production during the last few weeks.

3. Cha Ching

Powder Nutrient to aid essential oil promotion in culinary herbs. With a full spectrum of chelated micronutrients, kelp and humic acid. For the final weeks of flowering in hydroponics, aeroponics, soil or soilless media. NPK: 9:50:1.

4. GHE Ripen

Mineral mix to force early ripening and maturity, to bring forward the harvest and enhance medicinal properties and flavour in herbs.

Typical Dose: 1 litre makes 200 litres of solution.

New label coming soon!
Nutrient Additives & Growth Boosters

1. Canna PK
The original. Phosphorus (P) promotes a healthy, vibrant root system and floriferous flowering. Potassium (K) prompts the flowering of the plant, helps the strength and builds a strong flowering structure.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canna PK 13/14 250ML</td>
<td>HKX8219</td>
</tr>
<tr>
<td>Canna PK 13/14 1L</td>
<td>HKX8217</td>
</tr>
<tr>
<td>Canna PK 13/14 5L</td>
<td>HKX8218</td>
</tr>
</tbody>
</table>

2. House & Garden PK 13/14
Pk 13/14 flowering stimulator from House & Garden. Provides the plant over a period of time with a large amount of phosphorus and potassium. For increased floral and fruit production.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUSE &amp; GARDEN PK 13-14 1L</td>
<td>QF2541</td>
</tr>
</tbody>
</table>

3. ATA PK 13/14
High quality PK 13/14. Use with the ATA range for soil, hydro and coco.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATA PK 13-14 1L</td>
<td>JNBY971</td>
</tr>
<tr>
<td>ATA PK 13-14 5L</td>
<td>JNBY972</td>
</tr>
</tbody>
</table>

4. HESI PK 13/14

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HESI PK 13/14 1L</td>
<td>YD02563</td>
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</tbody>
</table>

5. HESI Phosphorus+
PK 8/4, for when you need to add more phosphorus without adding too much more potassium. Typical dose: 1 litre makes 400 litres of nutrient solution.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>HESI PHOSPHORUS + 1L</td>
<td>KCG9295</td>
</tr>
</tbody>
</table>

6. House & Garden Top Booster
Excellent flowering stimulator based on phosphorus potassium and chelated iron, the most necessary elements for supercharging the flowering.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP BOOSTER 1L *TO ORDER</td>
<td>GP3265</td>
</tr>
</tbody>
</table>

7. Ionic Boost
A single pack nutrient flower booster with potassium and phosphate. Buffered for pH, with chelated minerals for easy absorption into the plant. Precision formulated with agricultural grade minerals. Can be used throughout the last 5 weeks of the flowering period. NPK 0:8.5:6.2.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>IONIC BOOST 1L</td>
<td>JLE7321</td>
</tr>
<tr>
<td>IONIC BOOST 2L</td>
<td>JLE7322</td>
</tr>
<tr>
<td>IONIC BOOST 5L</td>
<td>JLE7323</td>
</tr>
<tr>
<td>IONIC BOOST 20L</td>
<td>JLE7324</td>
</tr>
</tbody>
</table>

Having Problems?
Info sheets & grow schedules are available or one of our expert staff would be happy to help. Pop in store or give us a ring on our free phone number 0800 038 7100 for advice.
1. Plant Magic Bloom Boost
It is a PK 13/14 Booster that encourages faster growth. To maintain a balanced nutrient profile Bloom Boost also contains some elements of Nitrogen. It is advisory not to use this product as it is NOT 100% organic if you are following an organic regime. It can be used in hydro, coco and soil.

2. Bud Storm
Produces large, vibrant and robust blooms of optimum quality and size. Readily absorbed by the roots. For use in hydroponics, soil or coco. Use in conjunction with regular nutrition, throughout the flowering phase. N:P:K 0:13:11.

Typical dose: 1 litre makes 1000 - 2000 litres of nutrient

3. Advanced Nutrients Hammerhead
Recently developed from extensive testing of the effects of different PK (phosphorus/potassium) supplements. Hammerhead blows PK 13/14 out of the water then chews it up when it falls back in! Despite the reasonable price only the purest ingredients are used for the optimum plant response.

Boost Products
Confused over additive terms? The term “Boost” is used to describe many products particularly flowering additives. For example Plant Magic Bloom Boost is a P/K additive used to increase flower & fruit size mid way through the flowering period, however other companies may use the term “Boost” to describe other products such as soil conditioners or vitamin supplements such as Canna Boost Accelerator. If you need any advice please pop into one of stores or you can give us call on our free phone number 0800 038 7100 and one our expert staff would be happy to help.
Nutrient Additives &
Growth Boosters

Vitamin Boosters

1. Bio Nova X-cell
Growing and flowering stimulant for all crops. A sophisticated combination of various vitamins, natural growing and flowering stimulators, amino acids, bacteria, trace elements, enzymes, humic acids and kelp. Promotes metabolism in the plant on many levels, including photosynthesis, production of carbohydrates and synthesis of hormones. Yield can be raised by 10-25%.

2. Advanced Nutrients B-52
B vitamin supplement for the flowering stage. Raising the plant’s metabolism and nutrient uptake with naturally occurring hormones and vitamins. Can be used in any medium and as a foliar spray. Full of B vitamins, seaweed extract and minerals.

Typical use: 1 litre makes 1000 - 2000 litres of nutrient solution.

3. G.E.T. Power Thrive
Seaweed extract and powerful bacterial plant ally combined in one bottle. Promotes explosive root formation and guards against root disease, helping total plant health and vigour. Seems expensive but provides visible growth and harvest boosting that we recommend without reservation.

Typical Dose: 1 litre makes 250 litres of nutrient solution.

4. Superthrive
50 different vitamins and hormones. Add to any fertilisation nutrient solution and see the difference. Miracle additive that has the loyalty of many growers for its excellent results. 65 years of sales prove that it is an excellent product for stressed plants, transplants, recovery from disease or just boosting production. Add at one millilitre per 4 litres of nutrient solution during stressful periods, or add a drop per 4 litres at all times.

5. Cyco B1 Boost
This Vitamin B1 Booster speeds plant metabolism, increasing photosynthetic activity and nutrient uptake. Use as a stress relief solution or all the way through.

6. Bio Bizz Bio Heaven
Amino acids and non-mined humic acids in an organically certified bloom booster. In a class of its own (with the Canna Boost Accelerator).

Typical Dose: 1 litre makes 200 to 500 litres of nutrient solution.

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Nutrient Additives & Growth Boosters

1. Canna Boost Accelerator
Very different from any other flower booster except Bio Heaven, the amino acids in Boost Accelerator are absorbed directly by the roots and act like bodybuilding shakes for your plants.

Better yields. Suitable for use with all growing mediums and substrates. Even higher yields in combination with PK 13/14. Better ripening and strengthened immune system. Fuller, more powerful taste.

Typical Dose: 1 litre makes 500 litres of nutrient solution.

2. Canna Bio Boost
Organic booster to improve taste and quality as well as yield. Recommended for the finest harvests. Not a nutrient but a fermented plant extract including tropical rainforest herbs, containing some fruit acids that act as natural chelaters of minerals and oligosaccharines - a group of the newest naturally occurring plant growth regulators to be discovered. SKAL certified.

Typical Dose: 1 litre makes 1000 litres of nutrient solution.

3. ATA XL
Contains a complete range of vitamins and growth enhancers. Excellent value for money. For any medium.

Typical Dose: 1 litre makes 1000 litres of nutrient solution.

4. Super Vit
Vitamin and amino acid supplement for plants. 25 different plant-active Vitamins. Any growing medium. Stimulating the production of growth and flowering hormones which results in vital plants with profuse production.

Typical dose: 50ml makes 3250 litres of nutrient solution or foliar spray.

5. Advanced Nutrients VitaBoost Pro

6. VitaMax Plus
Increases plant growth, contains over 60 minerals, vitamins, micro elements, calcium, special enzymes & a wide profile of B vitamins which help with plant stress.
1. Advanced Nutrients Carbo load
Flowering and fruiting yield enhancer, based on sugars and complex carbohydrates. Also feeds friendly fungi and bacteria. Available as a liquid or dry powder.

**Liquid typical dose:** 1 litre makes 1000 litres of nutrient solution.

**Powder typical dose:** 600g makes 2000 litres of nutrient solution.

2. Advanced Nutrients Bud Candy
Advanced Nutrients have combined the benefits of their Carbo load and Sweet Leaf (discontinued) supplements so you can have the best of both in one bottle. Used from weeks 1 to 6 of flowering.

**Typical dose:** 1 litre makes 500 litres of nutrient solution.

3. ATA Flavor
Flavour enhancer based on sugarbeet molasses. Can be used to add potassium - N:P:K 1.5:1:9. For use from the fourth week of flowering. Not for use with irrigation systems, only for manual feeding.

**Typical dose:** 1 litre makes 70 - 400 litres of nutrient.

4. Plagron Bat Guano
A classic and much-admired natural fertiliser and growth booster for mixing with the soil. One of the richest sources of phosphorus for organic gardeners. N:P:K 6:15:3

Milder than new bat guano due to centuries of aging in the bat caves with a much reduced odour. Still strong with an N:P:K 3:10:2, contains a wide range of micronutrients and organic compounds including natural chelates to help mineral uptake in the plant. Suitable for organic growers. Can be mixed into soil or fed in as a tea.

5. House and Garden Bud-XL
Bud XL moves sugars from the leaf to make sweeter and tastier fruits. Also makes the flowers more robust and bigger.
1. **Cyco Dr Repair**

Dr Repair contains nitrogen and EDTA chelated iron to address leaf chlorosis (yellowing), often caused by iron deficiency. Can be used at 5ml per litre to treat a deficiency, or at 1ml per litre all the way through to prevent a deficiency occurring in the first place.

2. **Advanced Nutrients Revive**

Repairs damage and stress, also corrects common nutrient deficiencies. Can be used in a regular feeding programme, but especially useful in aiding failing plants to recover from all types of trauma.

3. **Advanced Nutrients Sensical**

Sensi Cal calcium and magnesium deficiency cure with not only calcium chelate and magnesium but also full spectrum chelated microminerals (iron, Manganese, zinc, copper, boron, molybdenum and cobalt) to keep the balance necessary to avoid interference between the different minerals which can reduce uptake. Sensi Cal is available in specific formulations your for either grow or bloom stage.

4. **Epsom Salts**

Magnesium deficiency corrector for foliar or root application. Pure magnesium sulphate hydrate crystals.

5. **Garden Lime**

For pH Up and calcium deficiencies in soil.

6. **Dry Flower Green Up 1 of 4**

For adding to nutrients, reduces yellowing in clones and plants under lights, avoids growth checks and induces aggressive vegetative and root growth in young plants.

7. **Canna Minerals Trace Mix**

Adds trace minerals: iron, molybdenum, copper, manganese, boron and zinc. For mineral deficiency or as a bloom stimulator.

**Typical Dose**: 1 litre makes 1000 litres of nutrient solution.
flushing

Don’t fall at the last hurdle! For the best possible aroma and taste it’s important to flush out any excess nutrients in your plants before harvesting. Many growers do not use any nutrients during the final few days of flowering, and instead deploy a clearing solution for the best possible finish.

1. Advanced Nutrients Final Phase
Flushing promoter, for use just before harvest to avoid bad tastes and eliminate nutrient residues.
Typical Dose: 1 litre makes 500 litres of solution.

2. Dry Flower Clearing Solution 4 of 4
Clearing Solution that ensures all excess nutrients are used and ‘cleared’ from the plant ensuring a fresh natural taste.
Typical Dose: 1 litre makes 200 litres of solution.

3. Final Flush
Helps eliminate excess fertiliser salts which can leave a bitter taste. Use with water in the last week of flowering.
Typical Dose: 1 litre makes 500 litres of solution.

4. Canna Flush
Customer demand led to the release of Canna Flush in 2009. Canna’s usual dependable science-based botanical formulation.
Typical Dose: 1 litre makes 250 litres of solution.

5. G.E.T. Let’s Rinse
Fast acting sugars, starches and selected minerals to keep growth going to the last moment without compromising taste.
Typical Dose: 1 litre makes 1000 litres of solution.

6. Plant Magic Plus Flush
Using this flush from Plant Magic Plus will enhance both flavour and aroma, removing metallic tastes. Any residues of excess nutrient are used up as well as aiding the plant to mature by giving a boost of plant hormones. Salts are used in the correct balance to aid with the removal of salt residue and also nutrient build up in the root zone. This then aids sugar production.
Why is ventilation so important?

Ventilation is one of the key elements to a successful grow room. By providing your plants an abundance of fresh air (intake) you are guaranteeing a constant supply of carbon dioxide (CO₂) which is necessary for plant growth.

Unfortunately there is no definite answer to this question. We have, however, produced a simple, generalised formula as a rough guide to calculating the size fan you would need based on the size of your room or tent and the number of lights within it.

How do I know the right amount of air to extract from my room?

Ventilation is also an important method for maintaining an optimal temperature and humidity for plant growth. Most indoor gardens use HID lighting, which can over-heat a grow room in no time unless adequate ventilation is used to remove the hot air. Advanced grow rooms can even include air conditioning to keep temperatures down and dehumidifiers to control air moisture, as well as added CO₂ to boost the plant’s growth rate.

To calculate how much air needs to be moved:

1. First you must work out the volume of the space by multiplying its length by the width, by the height (preferably in metres). This will give you the volume in m³ (metres cubed).
2. We recommend that the all the air in your room/tent should be changed at least 12 times per hour (every 5 minutes) for optimal plant growth. So, if the volume of your space is multiplied by 12, we will know how many metres cubed of air we need the fan to extract in every hour, which can be easily compared against each fan’s rating for air movement, which is usually written in m³/hr.
3. If no heat was being added to the room, this figure would suffice. However, you must take into consideration the heat generated by HID bulbs. Therefore the last step is to multiply this figure by the number of lights you have in the space (assuming you are using 600w HID lights).

Here is an example:

\[ L = 2.4 \text{ m} \]
\[ W = 2.4 \text{ m} \]
\[ H = 2 \text{ m} \]

Here is the calculation:

\[ 2.4 \text{ m long x 2.4 m wide x 2 m high} = 11.5 \text{ m}^3 \]
\[ 11.5 \text{ m}^3 \times 12 = 138 \text{ m}^3/\text{hr} \]
\[ 138 \times 4 \text{ (lights)} = 552 \text{ m}^3/\text{hr} \]

So... you need to select an intake fan that moves around 552 m³ per hour.

Although this may seem excessive at first, it is much better to overestimate the size of fan needed than to find your ventilation is inadequate half way through growing. You will be grateful for the extra headroom during spells of hot weather or in case you would like to add more lights to the space. Fan speed controllers can be used to turn fans down, but if your fan turned out to be too small, you’d not only have to buy a bigger fan but most likely a new carbon filter and ducting too!

You can match this to any of the fans in our catalogue – all flow rates per hour are given for each fan, making it easy for you to find the right one for you. For example, you might choose a 6” TT fan as your intake, which shifts 552 m³/hr. This means you will need an 8” RVK A1, which moves 750 m³/hr.

Since this figure tells us how much air needs to be brought in and out of the space per hour, it is best to choose an intake fan that roughly matches this number. You should then choose an extraction fan that is one size bigger than the intake. This ensures that you will achieve negative pressure in the space, which means there is slightly more air being taken out than is being brought in. If you growing in a tent you should see its sides suck inward a little, which is a good thing: it helps the fans work efficiently and keeps smells contained. Imagine blowing more air in to a tent than is being extracted; it will inflate, pushing air out of any gaps thus causing an odour issue.

Here is the formula:

1. \[ L \times W \times H \]
2. \[ \times 12 \]
3. \[ \times \text{no of lights} \]
4. \[ = \text{m}^3 / \text{hr} \]

NOTE: These are only rough guidelines; ask a member of staff for more information if you need to. This formula may not be applicable to small spaces, but it is not advised to use a 600w light in any less than a 1m x 1m x 2m space anyway.
What else can I do to maintain the right conditions in my room?

**Oscillating Fans:**
These are important both to promote growth, stem strength and prevent disease. Even though the ambient humidity of your room may be fine, if the air is still it means that localised pockets of high humidity will be present in the foliage. This slows growth and encourages diseases such as Botrytis (bud rot). In an ideal situation, every leaf on your plants should have air passing over them causing them to quiver gently, without being directly buffeted. Good air movement will force the plant to react by strengthening its main stem and branches, allowing them to hold more flowers or fruit.

**Heaters:**
Night time (dark period) temperatures must be managed to keep plants healthy. Low temperatures can stunt plant growth and provide the right environment for powdery mildew or bud rot. Whilst lights usually keep the space heated during the day, a heater can be used on a timer so that it activates when the lights turn off. Tube heaters are ideal for this as they are very efficient and can be left on all night long. Fan heaters are more powerful, but use a lot of electricity and dry out the air, which may be useful or detrimental depending on your conditions.

**Temp & Humidity Gauge:**
By constantly measuring the temperature and humidity levels inside your garden, you will be best able to replicate your plant’s natural growing environment. By using a unit which measures the minimum and maximum levels that your temperature/humidity have reached, you will be able to see the full range and control your grow room better.

**Carbon filters:**
One of the simplest and most efficient methods to control any gardening odours, from such things as growing mediums, fertilisers and vegetation. They are attached to the extraction fan which then constantly draws air through the filter. Carbon filters may not operate correctly in high humidity (over 70%RH), so if you have odour issues and high humidity you may need to look into getting a dehumidifier or another method of smell control.

**Other factors which affect ventilation:**

**Air-cooled lighting**
Less ventilation will be required if you use air-cooled lighting since there is less heat from the lights to deal with.

**Time of Year**
More ventilation will be required in summertime than during winter. If you plan to grow all year round, bear this in mind.

**Room position**
Is your room in a house that will be heated? Is the room insulated? Is it near the top of the house (hotter) or the ground floor/basement (cooler)? Is it on the South facing side of the house (hotter) or the North facing side (cooler)? Does the room have several external walls (cooler)? All these factors will affect the temperature of your room and to what extent it retains heat.

**Using CO2 in your room**
Using added CO2 in your room requires slightly less ventilation so that the correct concentration can be reached without the CO2 being sucked straight out. Therefore when adding CO2, you want to have the minimum ventilation possible whilst still maintaining correct temperatures. Plants can function at slightly higher temperatures when there is a greater concentration of CO2 in the air, but you should still aim to keep the temperature below 30°C. A fan speed controller with built in thermostat is ideal for this purpose.

**Other tips**
- If you are suffering from low levels of humidity, try hanging a sodden towel in your grow room, in front of an oscillating fan.
- If you are suffering from high levels of humidity, make sure there is no water sitting around in saucers and that plants are not over-watered.
- Make sure to check humidity readings during your night time (dark period) too; this is often when mould may strike.
- If you are suffering from excessively high temperatures, consider using a water chiller to control the temperature of the nutrient solution in your reservoir, and cover any black equipment with reflective material. Plants in hydroponic systems can handle excess heat better when their root zone is kept cool.
- Air-cooled lighting will also really help if the temperature is too high in your room.
- During winter the fresh air being pulled through your intake may be very cold and could shock plants. Try taking intake air from a source that is indoors, or run your intake ducting around the grow room to allow the air within it to warm up a little before exiting.

**Useful tips**

**How can I spot if my ventilation setup is wrong?**

**Not enough air movement:**
- Temperatures too high.
- Humidity too high.
- Mould, mildew or bud rot
- Slow growth
- Wilting leaves

**Too much air movement:**
- Temperatures too low.
- Humidity too low.
- Wind burn on leaves
1. Futuretech Airforce Cylinder Fan
These high quality, powerful fans are built into a silencer housing. They move large amounts of air and also come in varying spigot sizes for extra compatibility. These fans work with all good speed controllers.

**Airflow**
- 250/250mm 10 inch 1500 m³/h
- 250/280mm 10 inch 2400 m³/h
- 315/280mm 12.5 inch 2400 m³/h

**Futuretech Airforce Cylinder Fan**
- 250/250mm DRL9731
- 250/280mm DRL9729
- 315/280mm DRL9730

2. UPA Acoustic Box Duct Fans
Remarkably silent high-performance fans engineered for high volume extraction with the minimum noise. Be kind to your neighbours and yourself - live without the hum.

**Upflow**
- 200mm 8 inch 650 m³/h 180 watt
- 250mm 10 inch 1250 m³/h 200 watt
- 315mm 12 inch 2100 m³/h 373 watt

**ACOUSTIC METAL BOX FAN UPA 6”** CMC2954
**ACOUSTIC METAL BOX FAN UPA 10”** CMC2955
**ACOUSTIC METAL BOX FAN UPA 12.5”** CMC2956

3. Vents Acoustic Box Fans
Premium quality acoustic fans at competitive prices. Insulated units capable of high volume air movement at low decibel levels.

**Airflow**
- 100mm 4 inch 400 m³/h
- 125mm 5 inch 530 m³/h
- 150mm 6 inch 730 m³/h

**VENTS ACoustic BOX FAN 4”** YPY2954
**VENTS ACoustic BOX FAN 5”** YPY2955
**VENTS ACoustic BOX FAN 6”** YPY2956
**VENTS ACoustic BOX FAN 10”** YPY2957

4. Vents KSA-U Acoustic Fan
Same as the Vents Acoustic Box Fans but with a built in fan speed controller. Please note this product comes without a 3 pin plug.

**Airflow**
- 100mm 4 inch 400 m³/h
- 125mm 5 inch 530 m³/h
- 150mm 6 inch 730 m³/h

**VENTS KSA-U 100MM** VEN3009
**VENTS KSA-U 125MM** BM1311
**VENTS KSA-U 150MM** BM1312
**VENTS KSA-U 200MM** BM1313
**VENTS KSA-U 250MM** BM1314

5. ISO Acoustic Fan
Heavy duty, sound proofed box fans made from galvanised steel. Supplied with 2.5 metres of cable.

**Airflow**
- 125mm 5 inch 360 m³/h
- 160mm 6 inch 360 m³/h
- 200mm 8 inch 680 m³/h

**ISO ACOUSTIC BOX FAN 5”** JDB8668
**ISO ACOUSTIC BOX FAN 6”** JDB8669
**ISO ACOUSTIC BOX FAN 8”** JDB8870
**ISO ACOUSTIC BOX FAN 10”** JDB8871
**ISO ACOUSTIC BOX FAN 12.5”** JDB8872

6. Heavy Duty Chrome Fan
Chrome-plated industrial floor-standing fans for 24 hour/7 day operation with powerful motors for shifting a lot of air.

**Chrome Fan 12”** MEN1646
**Chrome Fan 18”** MEN1645

### Ventilation
Plants are breathing all the time. During the “day” they breathe out oxygen and water and breathe in CO2. This changes the composition of the air inside the growroom. If you do not change the air regularly the plant will run short of CO2 and will not be able to make its food. Too much water in the air can reduce the nutrient uptake from the roots, encouraging fungal and other diseases. The heat produced by lights in a small volume can also be reduced by taking the heated air out fast, and dragging in cooler air from outside. When using a lot of lights in a small volume room, the air should be changed faster to avoid overheating the plants. See our Lighting and Accessories section for the Air-Cooled reflectors, the most efficient setup for removing the heat from lamps. Oder can also be controlled by removal of the air, and a carbon filter scrubbing the odours out of the air will avoid upsetting your neighbours. An oscillating fan should also be used to mix the air up around the plants. This also helps the plants by strengthening their stems. We recommend that you change the air in your room completely at least 12 times per hour. This means that the capacity of your extractor fan in metres cubed per hour (m³/h) should be 12 times the volume of your room (height in metres x length x width) in metres cube.

For more information about calculating your room size for Ventilation and CO2 please turn to page 102.
1. Oscillating Fans / Clip on fan

The air inside the grow space must be mixed around to ensure that the air being extracted is that of the whole contents of the room. Air should also be directed onto the plants to ventilate amongst them to keep humidity down and CO2 up, even where dense foliage stops normal air movement. The constant buffeting by flows of air encourages thick, tough stem development through the constant gentle movement while the plants are growing. This persistent exercise results in very important load support capacity when a heavy harvest is weighing down the plant later in the season.

Clip on fan: 6” 3 speed fan. Lightweight with strong dog clip to allow the unit to be placed in virtually any position within your grow room.

2. SMS Controllers

The SMS Smart Controller automatically finds the correct running speed of your fan. It reduces fan noise and gives more accurate temperature control. A constant temperature is maintained because the smart controller automatically finds the correct running speed of your fan. No wiring is needed as this controller is plug and play. Simply plug your fan in; set the temperature you desire and the smart controller’s software will calculate the fans correct running speed to accurately maintain your desired temperature. Smooth fan speed adjustment and adjustable ideal speed. It is accurate to +/- 1 degree and comes with a temperature sensor on a 2m lead. Max load is 5A.

3. RVK In-line Duct Fans & Accessories

Heavy duty robust fans. 1 yr guarantee. Recommended.

4. SMS Smart Controller

The SMS Smart Controller automatically finds the correct running speed of your fan. It reduces fan noise and gives more accurate temperature control. A constant temperature is maintained because the smart controller automatically finds the correct running speed of your fan. No wiring is needed as this controller is plug and play. Simply plug your fan in; set the temperature you desire and the smart controller’s software will calculate the fans correct running speed to accurately maintain your desired temperature. Smooth fan speed adjustment and adjustable ideal speed. It is accurate to +/- 1 degree and comes with a temperature sensor on a 2m lead. Max load is 5A.

Order Online At: www.hydroponics.co.uk  Mail Order Tel: 0845 872 0572

105
1. TT Fan

These fans have two speed settings, they can be easily wired for either speed. They are unwired so you may need to order cable and a 13 amp plug.

<table>
<thead>
<tr>
<th>Size</th>
<th>Airflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>100mm</td>
<td>145/187 m³/h</td>
</tr>
<tr>
<td>125mm</td>
<td>220/280 m³/h</td>
</tr>
<tr>
<td>150mm</td>
<td>467/552 m³/h</td>
</tr>
</tbody>
</table>

Vents TT Fan 100mm 4”  BK9292
Vents TT Fan 125mm 5”  BK9295
Vents TT Fan 150mm 6”  BK9296

2. Diamond Extraction Kits

Save money by buying everything you need for odour control in one package. These extraction kits feature a high quality Diamond filter, fan and 10m of Aluminium ducting. If you are unsure of the size of extraction kit you need for your set up please ring or email our staff for advice. The Fans are unwired so you may wish to order electric cable and a 13 amp plug.

DIAMOND EXTRACTION KIT 100/300MM FILTER/FAN/DUCT'  DAI1300
DIAMOND EXTRACTION KIT 125/300MM FILTER/FAN/DUCT'  DAI1353
DIAMOND EXTRACTION KIT 150/300MM FILTER/FAN/DUCT'  DAI1503
DIAMOND EXTRACTION KIT 200/600MM FILTER/FAN/DUCT'  DAI2006
DIAMOND EXTRACTION KIT 250/750MM FILTER/FAN/DUCT'  DAI2506
DIAMOND EXTRACTION KIT 315/750MM FILTER/FAN/DUCT'  DAI3156

3. RVK Extraction Kit

Massive savings when bought as a complete unit. Includes A1 RVK fan, top quality filter that lasts up to 18 months and 5m aluminium ducting. The RVK Fans are unwired so you may wish to order electric cable and a 13 amp plug.

RVK EXTRACTION KIT 100/300 FILTER/A1 FAN/DUCTING  REX1000
RVK EXTRACTION KIT 125/300 FILTER/A1 FAN/DUCTING  REX1001
RVK EXTRACTION KIT 150/300 FILTER/A1 FAN/DUCTING  REX1002
RVK EXTRACTION KIT 200/600 FILTER/A1 FAN/DUCTING  REX1003
RVK EXTRACTION KIT 250/750 FILTER/A1 FAN/DUCTING  REX1004
RVK EXTRACTION KIT 315/750 FILTER/A1 FAN/DUCTING  REX1005

4. Aluminium Ducting

For air extraction and introduction, flexible accordion pleated airtight tubing. Available in 5 or 10 metres.

ALUMINIUM DUCTING 5M 4’’  TKY5356
ALUMINIUM DUCTING 5M 5’’  TKY5359
ALUMINIUM DUCTING 5M 6’’  TKY5360
ALUMINIUM DUCTING 5M 8’’  TKY5361
ALUMINIUM DUCTING 5M 10’’  TKY5357
ALUMINIUM DUCTING 10M 4’’  TKY5358
ALUMINIUM DUCTING 10M 5’’  UML132
ALUMINIUM DUCTING 10M 6’’  UML135
ALUMINIUM DUCTING 10M 8’’  UML136
ALUMINIUM DUCTING 10M 10’’  UML133
ALUMINIUM DUCTING 10M 12.5’’  UML134
ALUMINIUM DUCTING 10M 80MM  HPK3489
ALUMINIUM DUCTING 10M 100MM  YWI3124

5. Acoustic Ducting

Like the aluminium ducting, but also reduces fan noise by a fibre insulation lining between two layers of tube. Also insulates hot air exhaust until it is out of the room. Available in 10 metres only.

ACOUSTIC DUCTING 10M 4’’  RY2048
ACOUSTIC DUCTING 10M 5’’  RY2051
ACOUSTIC DUCTING 10M 6’’  RY2052
ACOUSTIC DUCTING 10M 8’’  RY2053
ACOUSTIC DUCTING 10M 10’’  RY2049
ACOUSTIC DUCTING 10M 12.5’’  RY2050
### Straight Connectors
- CONNECTOR 4”
- CONNECTOR 5”
- CONNECTOR 6”
- CONNECTOR 8”
- CONNECTOR 10”
- CONNECTOR 12.5”

### 90 Degree Bends
- BEND 90° 4”
- BEND 90° 5”
- BEND 90° 6”
- BEND 90° 8”
- BEND 90° 10”
- BEND 90° 12.5”

### FAST Clamps
- FAST CLAMP 4”
- FAST CLAMP 5”
- FAST CLAMP 6”
- FAST CLAMP 8”
- FAST CLAMP 10”
- FAST CLAMP 12.5”

### Plastic Wallplate & Header
- PLASTIC WALLPLATE & HEADER 150MM

### Jubilee Clips
- JUBILEE CLIP 100MM
- JUBILEE CLIP 125-150MM
- JUBILEE CLIP 200MM
- JUBILEE CLIP 250MM
- JUBILEE CLIP 315MM
- JUBILEE CLIP 250-315MM

### Wall Flanges
- WALL FLANGE 4”
- WALL FLANGE 5”
- WALL FLANGE 6”
- WALL FLANGE 8”
- WALL FLANGE 10”
- WALL FLANGE 12.5”

### Tee Pieces
- TEE PIECE 4”
- TEE PIECE 5”
- TEE PIECE 6”
- TEE PIECE 8”
- TEE PIECE 10”
- TEE PIECE 12.5”

### Y Pieces
- Y PIECE 4”
- Y PIECE 5”
- Y PIECE 6”
- Y PIECE 8”
- Y PIECE 10”
- Y PIECE 12.5”

### Reducers
- REDUCER 4”<5”
- REDUCER 4”<6”
- REDUCER 5”<6”
- REDUCER 6”<8”
- REDUCER 8”<10”
- REDUCER 8”<12.5”

### Plastic Multi Reducer
- PLASTIC MULTI REDUCER 130-180MM

### Silencers
- SILENCER 100/300mm
- SILENCER 100/600mm
- SILENCER 125/300mm
- SILENCER 125/600mm
- SILENCER 150/300mm
- SILENCER 150/600mm
- SILENCER 200/600mm
- SILENCER 250/600mm
- SILENCER 250/900mm
- SILENCER 315/600mm

### Plastic Reducers
- PLASTIC REDUCER 100>50MM
- PLASTIC REDUCER 100>75MM
- PLASTIC REDUCER 125>100MM
- PLASTIC REDUCER 125>125MM
- PLASTIC REDUCER 150>125MM
- PLASTIC REDUCER 200>150MM

**Order Online At:** www.hydroponics.co.uk
**Mail Order Tel:** 0845 872 0572

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**These cylindrical acoustic baffles are just the job for reducing the noise output from your duct fan across all frequencies of sound.**

Like a car exhaust silencer, they muffle the noise when venting air with fans. When placed in-line with ducting after the fan the air leaving the fan is treated. Can also be placed before the fan to reduce noise in intake ducting.
1. Diamond Filters

Diamond filters set a new standard of quality, featuring superior airflow and reliability compared to their rivals. These filters contain Diamacarb carbon, which has been specially formulated for the best odour removal. These filters offer up to 18 months odour control, making them excellent value for money.

<table>
<thead>
<tr>
<th>Diamond</th>
<th>m3/hr</th>
<th>Diamond</th>
<th>m3/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/300</td>
<td>310</td>
<td>200/600</td>
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<td>315/750</td>
<td>1750</td>
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<tr>
<td>150/600</td>
<td>900</td>
<td>315/750</td>
<td>2500</td>
</tr>
</tbody>
</table>

Diamond 100/300mm
Diamond 125/300mm
Diamond 150/300mm
Diamond 150/600mm
Diamond 200/300mm
Diamond 200/500mm
Diamond 250/500mm
Diamond 315/500mm
Diamond 315/750mm

2. Fresh Air Budget Filters

Another quality filter at budget prices! Offers up to 12 months odour control.

<table>
<thead>
<tr>
<th>Fresh Air</th>
<th>m3/hr</th>
<th>Fresh Air</th>
<th>m3/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/250</td>
<td>175</td>
<td>200/500</td>
<td>760</td>
</tr>
<tr>
<td>125/500</td>
<td>350</td>
<td>250/750</td>
<td>1080</td>
</tr>
<tr>
<td>150/500</td>
<td>480</td>
<td>315/750</td>
<td>1300</td>
</tr>
</tbody>
</table>

Fresh Air 100/250mm
Fresh Air 125/500mm
Fresh Air 150/500mm
Fresh Air 200/500mm
Fresh Air 250/750mm
Fresh Air 315/750mm

3. Industrie Budget Filters

Budget-price quality filters. Up to 12 months odour control.

<table>
<thead>
<tr>
<th>Industrie</th>
<th>m3/hr</th>
<th>Industrie</th>
<th>m3/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/400</td>
<td>280</td>
<td>200/500</td>
<td>760</td>
</tr>
<tr>
<td>125/400</td>
<td>300</td>
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<td>600</td>
<td>250/750</td>
<td>1080</td>
</tr>
<tr>
<td>150/800</td>
<td>760</td>
<td>315/750</td>
<td>1300</td>
</tr>
</tbody>
</table>

Ind Filter 100/400mm
Ind Filter 125/400mm
Ind Filter 125/600mm
Ind Filter 150/800mm
Ind Filter 200/500mm
Ind Filter 200/900mm
Ind Filter 250/750mm
Ind Filter 315/750mm

4. Rhino Carbon Filters

Alternative to Diamond Filter. High quality, long lasting filters. Offering up to 18 months of odour control.

<table>
<thead>
<tr>
<th>Rhino</th>
<th>m3/hr</th>
<th>Rhino</th>
<th>m3/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>125/300</td>
<td>500</td>
<td>250/600</td>
<td>1420</td>
</tr>
<tr>
<td>150/300</td>
<td>600</td>
<td>250/1000</td>
<td>1900</td>
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<tr>
<td>150/600</td>
<td>900</td>
<td>315/1000</td>
<td>3250</td>
</tr>
<tr>
<td>200/600</td>
<td>1125</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rhino 125/300mm *TO ORDER
Rhino 150/300mm *TO ORDER
Rhino 150/600mm *TO ORDER
Rhino 200/600mm *TO ORDER
Rhino 250/600mm *TO ORDER
Rhino 250/1000mm *TO ORDER
Rhino 315/1000mm *TO ORDER

5. Carbon Filter Stand

One size fits all carbon filters. For raising your carbon filter. Dimensions 65cm x 60cm x 1275cm (without filter).

Carbon Filter Stand

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. Citrus Magic Air Fresheners

Real citrus peel oils in aerosol spray form. Effective as odour neutralising sprays. Fresh and uplifting.

- **CITRUS MAGIC 3.5 FL OZ CITRUS BLEND**
- **CITRUS MAGIC 3.5 FL OZ GRAPEFRUIT**
- **CITRUS MAGIC 3.5 FL OZ LEMON**
- **CITRUS MAGIC 3.5 FL OZ LIME**
- **CITRUS MAGIC 7 FL OZ CITRUS BLEND**
- **CITRUS MAGIC 7 FL OZ ORANGE**

2. Air Revitaliser Unit

Helps provide fresher, cleaner air. It will remove smells through ionisation whilst adding humidity and a pleasant aroma to the air. It has adjustable speed settings and a switchable LED base plate.

- **AIR REVITALISER UNIT**
- **PUREAIRE FRAGRANCE GREEN APPLE**
- **PUREAIRE FRAGRANCE PAMPLEMOUSSE**
- **PUREAIRE FRAGRANCE ROSE**
- **PUREAIRE FRAGRANCE SANDALWOOD**
- **PUREAIRE FRAGRANCE SERENITY**
- **PUREAIRE FRAGRANCE SHANGHAI**
- **PUREAIRE FRAGRANCE THAI JASMINE**
- **PUREAIRE FRAGRANCE THAI LOTUS**
- **PUREAIRE FRAGRANCE TOKYO SAKURA**
- **PUREAIRE FRAGRANCE ZEST**

3. Vaportek Aromaimage

2 speed round air purifier. Air cleaning with essential oils to absorb the smell in the machine and then the vapours neutralise the odours in the air. Exclusive adjustable odour control. Does not need to be smelly, if you can smell the oils from the cartridge the speed of the circulating fan can be turned down. Comes loaded with a cartridge and ready to plug in for instant results. Each fresh cartridge will last between 90 and 120 days before replacements are required. Good for a room up to 10’ x 10’ x 8’ (23 m³).

- **VAPORTEK 2 SPEED ROUND UNIT**
- **VAPORTEK 2 SPEED ROUND CARTRIDGE**

4. Vaportek Optimum 4000

Same as the Aromaimage but rectangular and larger capacity. 10 settings, sufficient deodorising power for a room up to 33’ x 33’ x 10’ (300 m³).

- **VAPORTEK OPTIMUM 4000**
- **VAPORTEK 4000 CARTRIDGE CITRUS**
- **VAPORTEK 4000 CARTRIDGE NEUTRAL**

5. Pyramid Ioniser

Releases positive ions into the atmosphere, attracting odour molecules and neutralising them. Takes the dust out of the air onto nearby walls. Ideal for tobacco smells and small odour problems up to a 5m radius.

- **PYRAMID IONISER**

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. Ona Range

A complex formula using essential odour technology to destroy a wide spectrum of organic and non-organic odours. Environmentally safe. Simple to use odour control for small areas. No mains electricity, just passive odour absorbing in the container and neutralising in the air.

**Ona Block**
Simply open the lid and place in room or vents. Lasts from 1 to 3 months approx. It is recommended to have air circulating over the tub.

**Ona Breeze** (Not pictured)
35 cubic feet per minute fan unit - Evenly distributes the Ona gel and provides odour neutralization for a small room for 3 - 6 weeks. 59 m³/h.

**Ona Gel**
Formulated to evaporate a consistent amount of odour control, open the lid and place in the desired location. Regulate strength by exposing more or less surface area.

**Ona Gel**
Formulated to evaporate a consistent amount of odour control, open the lid and place in the desired location. Regulate strength by exposing more or less surface area.

**Ona Mist Dispenser**

2. Ona Mist Dispenser

3 time release settings for operation every 7½, 15, or 25 minutes. Operates on 2 batteries.

**Ona Spray**
125ml polar crystal
**Ona Spray** 250ml fresh linen
**Ona Spray** 250ml pro

**Ona Gel**
1L fresh linen
**Ona Gel** 4L fresh linen
**Ona Gel** 4L pro

**Ona Block**
Simply open the lid and place in room or vents. Lasts from 1 to 3 months approx. It is recommended to have air circulating over the tub.

3. Koo Fresh

Large and powerful aerosols, eliminate strong odours for a short period of time in the same way as a neutralising air freshener.

750ml

4. True HEPA Air Cleaner

Dust & odour filter with built-in ioniser. Five stage filter designed to remove unwanted smells and particles from the air. Eliminates 99.97% of particles larger than 0.3 microns, including pollen and fungal spores. Essential for breeding programmes to avoid stray pollen mating with the wrong plant. Carbon filtration eliminates odours and multi-catalyst filters absorb nasty gases and smoke. Built in run timer, twin motors & three speeds. Total coverage for 20 m³ of floor space at 4 air changes per hour. 40 watt.

**Sure Air Spray / Gel**

SureAir doesn’t just mask odours it neutralises them. It is a complex formula utilising essential oils that neutralises a large range of organic and non organic odours.

**Sure Air Spray / Gel**

Express
Ozone

It is not recommended to use ozone generators in spaces that are occupied by people or animals. It degrades into harmless oxygen as it contacts airborne particles, so it is safe to enter the room 30 minutes after the unit has switched off. If you can still smell ozone strongly, or experience any shortness of breath or coughing, leave the room and ensure it is properly ventilated. Please follow all the Manufacturer’s instructions when using ozone.

1. Uvonair Ultra Violet Ozonator

For air deodorising and air purification. It will eliminate local odours and will suppress disease organisms, providing a safe and healthy environment for plants. Compact and portable (with electric plug) for use within the room, not in the exhaust ducts. No maintenance except for changing the bulb. 1 year warranty.

1000: For rooms up to 1000 cu. ft. (30m³)
3000: For rooms up to 3000 cu. ft. (100m³)
5000: For rooms up to 5000 cu. ft. (150m³)

UVONAIR 1000 YED7956
UVONAIR 3000 YED7957
UVONAIR 5000 YED7958
UVONAIR 1000 SPARE BULB MPK1728
UVONAIR 3000 SPARE BULB MPK1729
UVONAIR 5000 SPARE BULB MPK1730

2. Uvonair CD Units

Fits into the exhaust duct, producing high levels of ozone to completely eliminate exhaust odours. Ozone production can be adjusted according to the level of smell reduction required by a switch on the side of the unit. The coronal discharge generators are maintenance-free. Can be used after the carbon filters to add extra insurance.

Uvonair CD800: Ideal for rooms up to 20,000 cu. ft. (600m³).

3. UVONAIR CD800

Ultraviolet ozone production rather than the coronal discharge generators of the other in-duct generators in the range. The UV-80 will need its bulbs replaced occasionally. Ideal for rooms up to 5000 cu. ft. (150m³).

UVONAIR 80H YED7959
UVONAIR 80H SPARE BULB MPK1731

4. Ozone Tester

Simple test kit to check how much ozone is in the growroom.

ECO BADGE OZONE TESTER (ALSO COMES WITH UVONAIRS) TR86549

5. Plug in Ozone Generator

Plug in Ozone Generators are environmentally friendly. Doesn’t mask odours; it kills them! Simply plug in and switch on using the red button. On for one minute, off for seven minutes. Built in timer. Ideal for lounges, kitchen, bedrooms etc. for controlling any odour.

PLUG IN OZONE GENERATOR CPF4721
CO₂ Enrichment

Carbon dioxide (CO₂) is essential to plant growth. It becomes depleted in a growroom because the fast growing plants are using it up, within an hour in some cases. This causes growth to slow down and yield to be adversely affected. However, by keeping the grow room rich in CO₂ you can achieve an increase in growth rates of up to 40% or more. The plant can use a lot more than the usual concentration of CO₂ in the atmosphere; normally there is only 300 ppm in the air. Up to 1500 ppm will be used by the plant for faster growth and more efficient production leading to heavier harvests. CO₂ supplementation will only help if the plant is provided with all its other needs. A perfectly healthy plant will be able to use the added CO₂, but nutrient deficient or diseased plants will not. If humidity levels are controlled, less ventilation is necessary. Do not turn on CO₂ until about one hour after the lights come on as it is only used by the plant when photosynthesising in the light.

1. Unis CO₂ Controller

The Unis Controller allows your CO₂ regulator to release the right amount of gas for the size of your growroom. Use in conjunction with a timer to ensure no CO₂ is released during your plant’s night period.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIS CO₂ CONTROLLER RXG9722</td>
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</table>

2. Evolution CO₂ Controller

The Evolution CO₂ controller utilises the latest microprocessor and infrared technology to monitor & control the levels of carbon dioxide in your growing area.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ CONTROLLER &amp; REGULATOR</td>
<td>DHY9258</td>
</tr>
<tr>
<td>CO₂ BOTTLE REGULATOR</td>
<td>Mv26113</td>
</tr>
<tr>
<td>CO₂ CONTROLLER</td>
<td>CYN7422</td>
</tr>
<tr>
<td>CO₂ WASHER METAL</td>
<td>CDR9813</td>
</tr>
<tr>
<td>CO₂ WASHER RED</td>
<td>DXF7699</td>
</tr>
</tbody>
</table>

3. CO₂ Testing Kit

A manual tester for CO₂ levels, contains an air syringe with 3 glass test tubes. For checking if you are reaching the desired levels (and not exceeding those levels) with your CO₂ supply equipment.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>CO₂ TEST KIT</td>
<td>VVT8571</td>
</tr>
<tr>
<td>CO₂ TEST TUBE EACH</td>
<td>XYW1533</td>
</tr>
<tr>
<td>CO₂ TEST TUBES X 10</td>
<td>XYW1534</td>
</tr>
</tbody>
</table>

4. CO₂ Analyser

Add-on unit for Ecotechnics CO₂ Controller. Constantly monitors CO₂ levels inside grow rooms for more accurate environmental control, readout in ppm. Most plants thrive at 1500 ppm, more than 4 times normal levels in the air.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>EVO CO₂ ANALYSER</td>
<td>CVB8435</td>
</tr>
</tbody>
</table>

5. CO₂ (Carbon Dioxide)

The cheapest source of pure CO₂ per m³.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>CO₂ BOTTLE AND GAS KIT</td>
<td>KHS2238</td>
</tr>
<tr>
<td>CO₂ BOTTLE REFILL</td>
<td>NXY5335</td>
</tr>
</tbody>
</table>

CO₂ IS ONLY AVAILABLE IN STORE...

MANCHESTER
HUDSDERSFIELD
BURNLEY

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. No Mercy CO₂ Tablets

Solid No Mercy carbon dioxide tablets designed to be put in your nutrient tank. Recent research suggests that CO₂ maybe absorbed by the root system, boosting plant growth. The CO₂ tablets may also be placed in a bucket in your grow room to provide supplementary CO₂ to be absorbed by the leaves. For best results use while your lights are on. **Warning - may affect pH of nutrient solution.** 60 tablets per pack.

- **CO₂ TABLETS X 60**  
  - Code: HW84538

2. Supernatural Excellofizz

Tablets for producing CO₂ for the air of the growroom, not the reservoir. Includes eucalyptus oil for disinfection, pest repellent properties and pleasant smells. Each puck will produce enough CO₂ gas to raise the levels of a 12 ft x 12 ft x 8 ft room to 2000 ppm. 15 pucks and dispenser tub.

- **EXCELLOFIZZ X 15**  
  - Code: PH3577

3. CO₂ Delivery Tube

Gas tubing designed to release the CO₂ around your plants as directly as possible. Punch small holes in the tubing where the CO₂ needs to be released from.

- **CO₂ TUBING 1M**  
  - Code: WGG1285

4. Growth Gas Generator

Produces generous amounts of CO₂ by burning propane. Heating is kept to a minimum by short burn times. 1000 ppm of CO₂ can be produced in a 5m square grow room in 3 minutes of every hour.

- **GROWTH GAS GENERATOR**  
  - Code: FAE8173

5. CO₂ Boost

A source of CO₂ unlike any other! 100% organic and easy to use. All natural compost ingredients means the CO₂ is created naturally. Simply insert the pump into the bucket and the CO₂ is released. Lasts for at least 60 days on constant use. If used with a timer to coincide with your lights it should last 75-90 days. Should be used on a timer in areas of 2m³ or smaller to minimise the CO₂ output, as CO₂ can be harmful. Once activated has a maximum life of 90 days.

- **CO₂ BOOST KIT**  
  - Code: FZZ3633

- **CO₂ BOOST REFILL ONLY**  
  - Code: GEP8854

6. Extra Slow CO₂ Tabs

Fizzy CO₂ tablets with extra slow and gradual release of carbon dioxide. They provide plants with the greatest quantity of CO₂ they can absorb through their leaves. Can be used in the nutrient tank but we recommend using the CO₂ in a separate bucket of water in your growing environment.

- **EXTRA SLOW CO₂ TABS X 60**  
  - Code: EXT1234
Ventilation & Co2

1. Primair Fan Speed Controller
Can control two sets of fans (exhaust and intake or all exhaust as you prefer) with minimum speeds set for both. Simply set the desired maximum temperature and place the probe where you want the temperature read, usually among the plants. When the temperature gets higher than set, the fans will start up and continue changing the air until the temperature is lower than the preset. Capacity for 2 x 460 watt fans. Idling speed of the fans can be set from off to gentle ventilation. 12 month guarantee.

2. Fan Speed Controller
Controls the speed of exhaust fans. 1.5 amp model and 5 amp model.

3. Temp/Humidity Digital Fan Speed Controller
The ultimate environmental control unit from Ecotechnics. Can control 2 fans and a heater unit.

4. Trade Air 3 Fan Speed Controller
Thermostatically regulated single fan speed controller.

5. Aquarium Thermometer
For testing nutrient temperatures.

6. Digital Thermo-Hygrometer
The choice of the professional. Accurate measurement of temperature and humidity (including minmax and memory function). Option of purchasing with remote probe to facilitate accurate temperature readings at key positions within your growroom. Battery operated.

1 Primair Fan Speed Controller
2 Fan Speed Controller
3 Temp/Humidity Digital Fan Speed Controller
4 Trade Air 3 Fan Speed Controller
5 Aquarium Thermometer

Temperature and Humidity
Be the master of your growroom environment with our extensive range of temperature and humidity controls. Maintaining the temperature of your growroom and nutrient solution is the key to maximum growth and huge harvests. A Min/Max thermometer is an essential tool for recording the temperature range in your growroom. Or go one step further with a full environmental control unit. These ingenious devices are reliable and amazing value for money. They remove the guesswork out of gardening and take your growroom to the next level!
1. **Bath Thermometer**
   - For testing nutrient temperatures.
   - *Bath Thermometer* LYW8576

2. **Short Wall Thermometer**
   - A basic thermometer.
   - *Short Wall Thermometer* CYY2826

3. **Propagation Thermometer**
   - For leaving in the propagator.
   - *Propagation Thermometer* RBY5576

4. **Min/Max Thermometer**
   - Non-digital (red spirit thermometer), records the maximum and minimum temperatures from the last time you read and reset it with the magnet provided. Indispensable for the grow room to check that too much heat or cold are not slowing your plant growth. Hung or wall mounted.
   - *Dial Thermometer, Min/Max* FNC6721

5. **Humidity Dial Meter**
   - Great value for money humidity dial. Allows accurate measurement of humidity.
   - *Humidity Dial Meter* ZFF3396

6. **Fan Heater With Thermostat**
   - Ideal for use in your growroom during the winter and when room temperatures drop below what is desired. Built-in thermal fuse for extra temperature control. As well as having 2 heater settings, it can also be used as a fan to circulate air in your growroom. Has an overnight cut-off setting for safety.
   - *Fan Heater With Thermostat* PEH8353

7. **Green House Tube Heater**
   - 2ft greenhouse heaters providing low cost ambient heating and frost protection in growing tents. These 80w greenhouse Heaters are designed to use far less electricity than fan heaters, providing a constant background heat, thus avoiding sudden temperature fluctuations and variations in humidity. High quality, easy to clean seamless tube with IP55 compliance rating, which ensures resistance to sprinkled and sprayed water making them safe to use in all growing environments.
   - *Tube Heater 2ft Green House* HEA11001

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**Acoustic Ducting For reducing fan noise**

See Ventilation and CO2

Turn to pages 132 - 133
SPIDER MITE

**DESCRIPTION:**
Spider mites are small mites from the Tetranychidae family.

**IDENTIFYING THE PEST:**
Spider mite are less than 1mm in size and vary in colour; red, green or yellow. The most common is the two spotted mite.

You can usually tell you have spider mites by webbing around stem and leaves or discolouration of leaves.

**DAMAGE CAUSED BY THE PEST:**
Spider mites suck plant juices with their needle sharp mouthparts, attacks can cause leaves to look mottled and yellow, dusty, or distorted and can also cause leaves to dry out and drop off.

If left uncontrolled infestation can kill plants.

**PEST LIFECYCLE:**
Mites multiply very quickly. Most eggs are female and adult females lay about 100 eggs, with eggs hatching in just 3 days after they are laid.

The whole life-cycle takes approximately only 2 weeks.

High temperatures will increase the mite lifecycle rapidly so reducing temperatures while combating the infestation may increase chances of eradication.

THRIC

**DESCRIPTION:**
Thrips are tiny slender insects from the Thysanoptera family.

**IDENTIFYING THE PEST:**
Thrips are thin, black insects with feathery wings. Usually cigar shaped. They do range in size from 0.5 to 14 mm in length but usually about 1 mm in length.

These are generally hard to spot, unless disturbed then these pests will hop or fly away quickly. However the larvae they lay in soil are easier to spot appearing as little worm like insects.

**DAMAGE CAUSED BY THE PEST:**
Again like the spider mite thrips suck plant juices with their sharp mouthparts, also piercing the cells wall.

Obvious signs of thrip damage are silvery streaked areas on the leaves or dark spots on the flowers.

**PEST LIFECYCLE:**
The rate at which thrips move through their development cycle is highly dependent on environmental conditions such as the temperature and quality of their food source.

Thrips begin their lives as eggs which may take from as little as a day to several weeks before hatching. The females lay the eggs in the plant tissue on the underside of the leaves (this is very visible looking like lumps).

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**HOW TO CONTROL THE PESTS:**

If you are unfortunate enough to get infested by any pests there are a number of products on the market which will help cure, or at least keep at bay, major infestation. There are many different sprays available for spraying onto the plants, organic pest sprays and predatory insects are also available.

Smoke bombs and sulphur are also commonly used to help prevent or cure pests. As the saying goes prevention is always better than cure, so if you can follow the simple steps above you hopefully will not have to use anything to cure a pest problem.
**FUNGUS GNATS/SCIARID FLY**

**DESCRIPTION:**
Fungus gnats are small, short lived flies from the Sciaridae family.

**IDENTIFYING THE PEST:**
Fungus gnats are small dark flies ranging from 2 – 5mm in size. It is very hard to spot if you have these as they generally live in the soil.

**DAMAGE CAUSED BY THE PEST:**
You can usually spot small movement of the soil or little flies running around the top of the plant pot.

**PEST LIFECYCLE:**
Fungus gnats (also known as Sciarid fly) are attracted to moist organic matter; therefore overwatered plants will attract these pests. Although the adult Fungus gnats do not feed off your plant the larvae which they lay are very harmful to your root zone, as they gradually eat away at your roots.

**HOW TO CONTROL THE PESTS:**

- Thoroughly cleanse the area before putting the plants in, the best thing for this would be a deep clean with liquid oxygen (hydrogen peroxide) followed by a fumer left inside the room to smoke for approximately 2 hours.
- Make sure your intake fan has either a carbon filter attached, an air sock or a tight mesh covering the opening of your fan to stop all unwanted pests and dirt from entering your grow room.
- Ideally a pair of overalls should be put on before entering your grow room, to ensure any pests that may be present on your clothes don’t get into your room. (If you have walked through the garden or any other place where plants grow you may have picked up pests on your clothes).
- From the moment your plants appear it is good practice to spray neem oil all over a couple of times a week until the flowering stage, this acts as a wax like coating which inhibits most insects.

**Whiteflies are tiny insects found on the underside of your leaves from the Aleyrodidae family.**

**WHITEFLY**

**DESCRIPTION:**
Whiteflies look tiny moths with powdery white wings.

**IDENTIFYING THE PEST:**
Their eggs and larvae are yellowish-green. These are barely visible without a magnifying glass.

**DAMAGE CAUSED BY THE PEST:**
Whiteflies suck the plant juices, causing the leaves to turn yellow and appear limp. They secrete honeydew, a sticky substance which attracts sooty mould.

**PEST LIFECYCLE:**
Whiteflies suck the plant juices, causing the leaves to turn yellow and appear limp. They secrete honeydew, a sticky substance which attracts sooty mould.

- They are also well known to carry and spread disease from one crop to another.
- Usually the whiteflies live for one month only.
- The female adult will lay up to 200 eggs on the underside of the leaves and will feed for approximately 2 weeks before becoming adults and starting the process over again.

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
1. Liquid Oxygen
17.5% hydrogen peroxide solution. Oxygenates your nutrient solution and disinfects the entire system as a cure or regularly as a preventative. Will kill most bugs including viruses, bacteria and fungi. Can also be used to disinfect rooms between crops. Promotes root growth and can help stimulate protein production. Not to be used with enzymes or Micro organisms.

2. Pythoff
Pythoff Hydroponic System Sterilising Agent. Based on monochloramine, this powerful steriliser will kill all pythium (as well as other disease-causing bacteria and fungi) when used to treat the nutrient and hardware. Its better penetration and stability ensures that it cleans inside equipment more effectively than Liquid Oxygen and keeps sterilising longer. Not to be used with enzymes or Micro organisms.

3. UV Water Steriliser
6w for tanks up to 100 litres. Reduces harmful bacteria levels and kills algae that causes green water in your aquarium. 16w Vecton 2 for aquariums up to approx 300 litres.

4. Microbial
Hydro-Masta Microbial. Fungal, mildew, mite and insect control with cleaning and disinfection of the grow room and roots.

5. Guardian Angel
Used as a nutrient additive to prevent plant and root disease, an enzyme based product which is also great as a preventative measure against bacteria and fungus that can cause root rot like pythium. Great for hot weather/ nutrient root problems. Very popular and effective treatment.

6. Ionic UV Balance
For use with UV water sterilisers. With repeated exposure to intense UV light, nutrient solutions can lose some of their microminerals. UV Balance replaces the microminerals without upsetting the balance of other minerals in the nutrient solution.

7. Root Rot Stop
100% natural. A concentrated naturally-occurring bacteria to promote root and plant health. Can help guard against pythium and other root diseases. Can be used in hydroponics and similar systems.

8. Block Clean Spray
Prevents and destroys green algal build-up on exposed Rockwool, and other moist media. Harmless to plants and animals, just spray directly onto the block.

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Mail Order Tel: 0845 872 0572
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<tr>
<td>House &amp; Garden Multi Enzym accelerates and simplifies the growth process and strengthens the plant’s immunity. Breaks down the waste into easily assimilated organic nutrients.</td>
<td>100% natural multi-enzyme preparations with more than 14 different vitamins. Speeds up the breakdown of dead plant remains and encourages full nutrient absorption by completely rinsing old nutrient solution from the medium. For use in soil, hydro or coco. Typical Dose: 1 ltr makes 500 ltrs of solution.</td>
<td>Sterile, bacteria-free medical grade enzyme for all stages of growth. Resistant to hydrogen peroxide (Liquid Oxygen). Stable solution with a long shelf life. OMRI certified organic.</td>
<td>Cellulase enzymes from Trichoderma viride but this purified extract is microbe-free. Breaks down the cellulose in dead plant tissue. Avoids rots by keeping the medium clean and the nutrients free-flowing. Typical Dose: 1 ltr makes 500 ltrs of nutrient solution.</td>
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<tr>
<td>Advanced Nutrients Sensizym. Complex concentrated mixture of 80 enzymes for full spectrum cleaning and purifying activity. Also improves plant and root development.</td>
<td>The original. Cannazym with 15 different kinds of enzymes for fast breakdown of root remains to minerals and sugars. Added vitamins and extracts of desert plants increase root health and induce the plant’s natural defences against pathogenic attacks.</td>
<td>Contains Amylase, an enzyme which accelerates the breakdown of starch (plant matter) into sugars which feed beneficial micro-organisms and the plant alike. Reduces the risks of root disease and enhances growth in all mediums. Unlike most of its competitors, Cyco Zyme has a virtually unlimited shelf life, ensuring long term effectiveness.</td>
</tr>
</tbody>
</table>
1. Tarantula
Advanced Nutrients Tarantula, 57 microbial allies for hydroponic or soil application. 1.4 billion live symbiotic bacteria and fungal spores in every gram. Includes species of Bacillus, Streptomyces, Actinomycetes and Pseudomonas. The usual benefits of microbial allies but especially strengthens against stress. For soil or hydroponic systems.

2. Biolink+
Friendly fungi and bacteria, aids the plant against attack by root diseases and boosts the capacity for growth.

3. Rootgrow & Rootgrow+
Soil fungi for a different kind of boost and defence against root diseases. 100% UK fungi. Rootgrow Plus is for plants with a higher demand for nitrogen.

4. Piranha
Contains 26 beneficial fungi including Trichoderma. These colonise the roots forming mycorrhizal protection against root rot and other fungal diseases. Also stimulates growth, health and production. Can also be used as a foliar spray against fungal rots such as Botrytis (Bud Rot). Piranha is now also available in a liquid.

5. Vitalink Bioplus
A mixture of natural plant hormones, vitamins and plant-friendly beneficial microbes all designed to stimulate rapid root development and to help reduce stress from transplant shock. Do not use with hydrogen peroxide.

6. Canna Aktrivator
Canna Trichoderma harzianum - The fungal rot protection. One application to the rooting medium should provide the fungal ally around your plants’ roots for the rest of their life, though more applications will ensure high levels of protection. Your fungal friend will not allow the pathogenic rot fungi to enter the roots. If you need to disinfect your plants and system, with hydrogen peroxide for example, just add some more Trichoderma spores after the disinfectant is cleared from the system. Patented world-wide and approved by RHP compost regulations. 10g powder.

7. Plant Magic Essence
Essence is a highly concentrated bio-culture. Simply activated by bubbling with warm water and molasses (supplied with starter kit), the mixture becomes the ideal protective foliar feed. When they have colonised the leaf surfaces and stems, the micro-organisms form a line of defence against airborne diseases. To ferment the Essence you will need: a small air pump, air stone and plastic container. Kit contains 25g Essence, Molasses and 125ml Plant Magic Catalyst.
1. **Plant Magic Plus Granules**
Granules are for applications to the rootzone with mycorrhizal fungi and over 20 strains of beneficial microorganisms. Stimulating root action, protecting against root rots, improving stress tolerance and enabling the uptake of more nutrients, just mix into the growing medium. Recommended to be used with Plant Magic Plus Boost.

2. **Vitalink Bio Pac Liquid**
Beneficial bacterial booster. Maintains healthy roots, improves nutrient availability, and restores natural biological activity in the medium. Can also be used for pre-soaking propagation media to speed up growth and root development.

   Typical Dose: 1 ltr makes 20 ltrs for propagation. 1 ltr makes 3333 ltrs for weekly tank change.

3. **Bio Defence**
Plant booster to avoid damage by harmful insects and fungus attack. Parts one and two are mixed separately and sprayed on simultaneously.

Disease & Pest control
The beneficial micro-organisms in these products will live in soil in symbiosis. The addition of a sugar solution such as liquid Carbo Load will help maintain the micro population ensuring healthy growing medium and root zone.

4. **Voodoo Juice**
Microbial root coloniser, to help nutrient intake and boost root growth with up to 90% more root mass. Includes a nitrogen fixer to add to the nitrogen content of the medium. Strengthens the plant against disease and increases yield. 50 billion microbes in every litre.

5. **Scorpion Juice**
Enhances the plant’s natural defences by a form of vaccination. The active substance is recognised by the plant as an attacking pest, though it does no damage to the plant. The plant responds by becoming tougher against pest attack in generalised ways like having thicker cell walls and producing its own insecticide and fungicide chemicals.

6. **Viresco Hydroponic & Viresco Dry**
Viresco contains a mixture of beneficial soil micro-organisms, enzymes, humic acids, fulvic acids, polymers and chelated micro-nutrients. By vastly increasing microbial activity in the medium, Viresco enhances growth and makes the plant more resistant to stress, resulting in healthier, bigger yielding plants. Viresco suppresses fungal diseases such as Pythium (root rot) and has also been found to discourage leaf pests. Viresco corrects nutrient imbalances and improves nutrient uptake and utilisation to such an extent that it is recommended to reduce fertilisation rates by 30%, thereby saving money on costly nutrients. Do not use Viresco with chemical pesticides or fungicides.

   - **Viresco Hydroponic** each 50g pack should be used in 1000 litres of solution.
   - **Viresco Dry** is bulked out with fine-grade granular humate, and should be mixed into soil/coco in its dry form; the microbes will become activated once the medium has been watered. Each 300g pack will treat approx. 1500 litres of medium.

**SEE NUTRIENT ADDITIVES - TURN TO PAGE 099**
1. **Spidermite Control**

   One of our most popular miticides. Based on plant extracts. Kills eggs as well as adults. Typical Dose: 100ml makes 4 ltrs of spray.

2. **Nite Nite Spidermite**

   Another great pest control product from Hydrogarden. Physically coats the spidermite, stopping them from breathing. Also affects eggs. All natural ingredients. Typical Dose 250ml makes 5 ltrs of spray.

3. **Bug Clear Gun**

   General insecticide based on a pyrethroid, kills aphids, whitefly, caterpillars, spider mite and ants. 0.04g/l bifenthrin. Ready to use spray.  
   (Not for use on consumables)

4. **Spray Safe**


5. **Organic Pest Control Spray**

   Potassium soap-based insecticide for controlling all small insect and mite pests, especially greenfly, spider mite, whitefly and scale insects. 2% fatty acids. Ready to use spray bottle.

6. **Canna Cure**

   The first Canna product that prevents and controls plant pests and mildew. It works by creating a second natural skin on your plant, making sure that your plant can still breathe and is able to get enough nutrients. Pests stick to it and can’t make direct contact with the leaves, causing them to die. Biodegradable and non toxic, can be used from the beginning of growth to harvest. As a preventative measure use once a week, applying thoroughly to the upper and lower leaf surface. Available in a ready to use spray or concentrate.

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Mail Order Tel: 0845 872 0572
**Disease & Pest Control**

1. **Hotbox**
   - Killing insects and spider mites and preventing fungal diseases of all kinds, the Sulphur Vapouriser will keep 100m² of growing area healthy. The sulphur is not burnt so the nasty smells of sulphur oxides are not produced. The Hotbox keeps the sulphur at the exact temperature necessary for vapourising the sulphur but not burning it. Harmless to plants. Shut off fans and tape up all leaks in flooring, doors and windows. In bad infestations can be used for up to 12 hours a night. Typical Dose: 1 gram sulphur per hour.

2. **Fortefog Fumers**
   - Permethrin-based insecticide foggers. For destroying all insects and mites in a growroom. Often pests will hide in nooks and crannies around the room, especially when there are large numbers on the plants. The smoke from these "candles" will seek them out. Turn off extractor fans, cover the carbon filter, tape over all gaps in flooring, doors and chimneys. Place the fumer on a heat-resistant base and light the fuse. Leave for several hours or overnight before entering the room again.

3. **PMT Powdery Mildrew Treatment**
   - Powdery Mildew is a fungal disease that first appears as white dusty spots and if left untreated will cover and kill whole leaves and spread quickly over an entire crop. PMT uses a strategy known as induced resistance and stimulates the plant’s natural defences, encouraging it to defeat the disease. If you see any signs of Powdery Mildew use PMT right away to ensure the infection does not take hold. It is highly recommended to use PMT as a preventative treatment; spray from the second week of grow onwards to protect your crop from both Powdery Mildew and Botrytis (bud rot). PMT is non-toxic and can be used right up until harvest. Makes 10 litres.

4. **Bio Bizz Leaf Coat**
   - Ready to use organic spray barrier to protect leaves against all insect plagues and fungi, made from natural latex, plant waxes, seaweed (kelp) and fish oil. Covers the leaf with a thin rubbery coating that deters the feeding of insects but does not affect the plant. Can be used every time the plant is watered for the whole life of the plant until flowering starts. Breaks down a fortnight after the last application.

5. **G.E.T. Neem**
   - Neem oil is a naturally occurring pesticide found in the Indian Ayurvedic tree. Used as both a preventative and a cure it is effective against all commonly found grow room pests. Should be applied as a foliar spray at regular intervals during veg and early flowering. Typical Dose: 1 ltr makes 142 to 333 ltrs of spray.

6. **Neem Repel**
   - 100% natural organic concentrate with the power of Neem used as a preventative against many insect, mite and fungus pests. Typical Dose: 250ml makes 12.5 ltrs of spray.

Order Online At: www.hydroponics.co.uk  Mail Order Tel: 0845 872 0572
Fungus gnat (Sciarid Fly) are commonly seen flitting about the surface of the medium around the plant’s base. The adult fly lays eggs in the medium that turn into tiny white/yellow maggots that can devastate a plant’s roots. Nilnat contains microscopic crystals which are eaten by the maggots and then swell up, perforating the gut wall and killing the maggot. If you see adult flies apply Nilnat immediately. Use of Nilnat as a preventative is highly recommended; by the time you notice flies, significant damage may already have been done to your roots. Non-toxic and can be used right up to harvest. Makes approx. 2000 litres.

Biological control against bud rot. Friendly bacteria called bacillus subtilis are sprayed on to the flowers during the night period and prevent the spores of bud rot colonising the surface of the plant. Any other spray would be a bad idea during flowering but these bacteria eliminate the fungus rot.

Typical Dose: 250ml makes 12.5 - 16.6 ltrs of spray.

Sticky traps may be enough to control small infestations of flying insects but are essential in the grow room to discover the insect pests so they can be destroyed before they do too much damage. Regular inspection of the plants themselves with a magnifying glass or pocket microscope is also advisable for detecting non-flying pests.

SEE GROWROOM ESSENTIALS TURN TO PAGE 128

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
Disease & Pest Control

We have illustrated the pest themselves - not the predators. These illustrations can help you identify the pests on your plants. *Please Note: There are different species of pest from the same families, these are just one variation of pests illustrated and colours and markings may vary.

Pest Illustrations

1. Spidermite Predators
2. Sciarid Fly Predators
3. Thrips & Other Predators

1. Spidermite Predators

Spidermites are a very serious problem with many food crops. A tiny relative of ticks, scorpions and spiders, they eat exclusively plant material and breed very fast. The first signs are little spots in clusters on the leaves. Webs may be seen on the plant after the infestation is well-established. Look under leaves and around the ends of branches for tiny creatures travelling along the threads. Spidermite can kill many different sorts of indoor and greenhouse plants. Our usual Spidermite Predator is Phytoseiulus, a fast-moving predator mite that looks quite similar to the spidermite and has as big an appetite for eating mites as the spidermite has for eating plants. They will survive and breed (faster than the spidermite) for a while if the temperatures are over 20°C in the plant room giving protection against re-infection for a time.

Small pack of 200 tiny predator mites. To spot treat a couple of specimens.

Medium pack of 1000 tiny predator mites. To treat room where red spidermite has been detected but not yet in high numbers.

Large pack of 2000 tiny predator mites. To treat high populations, very large rooms or for fast wipe out and overkill by outnumbering the enemy.

PREDATORS, SPIDERMITE (200) *TO ORDER
PREDATORS, SPIDERMITE (1000) *TO ORDER
PREDATORS, SPIDERMITE (2000) *TO ORDER

2. Sciarid Fly Predators

Sciarid Fly (Fungus Fly) are tiny black flies the size of a midge. The grubs live in the growing medium and eat roots and rotted vegetable matter. They especially like the tender rootlets that are the most important to the plant and the grubs are quickest at killing seedlings and cuttings. The adults are often seen flitting annoyingly around the plant just above the soil. Yellow sticky traps will warn of an infestation by catching some of the adults - if they are placed low down amongst the plants, near the growing medium. The predator we sell is yet another mite that lives in the soil and eats the sciarid grubs. With food to eat the predators can survive for 4-5 months. Without food they can wait several weeks lying in ambush for any new invaders. 10,000 in 500ml.

PREDATORS, SCIARID FLY (10,000) *TO ORDER

3. Thrips & Other Predators

3a. Thrips

Sap-sucking insects only 2-3mm long, thrips tend to start low down in the plant around the veins of the leaves and among the growing medium. Leaves and buds can be distorted or torn by the feeding and mottled or flecked patches may be seen on the leaf. Thrips are often difficult to control with chemical sprays because they are frequently resistant to pesticides and hide in the soil and around the room. The predator we sell for thrips is another predatory mite like the spidermite predator and equally voracious.

PREDATORS, THRIPS (25 SACHETS) *TO ORDER

3b. Other Predators

(Not Pictured). We have a wide range of other predators available. Let us know what pest you are suffering from and we will do our best to find its nemesis. Aphids, chafer grubs, leatherjackets, mealybugs, scale insects, slugs, vine weevils and whitefly all have their enemies who we can call on at any time to defend us.

PREDATORS, LEAFMINER *TO ORDER
PREDATORS, NEMATODE *TO ORDER

Order Online At: www.hydroponic.co.uk
Mail Order Tel: 0845 872 0572
**Growroom Essentials**

Life is so much easier in the growroom with these incredibly useful aids. No experienced grower would be without them!

## 1. Syringes
For measuring any small volumes of liquid (nutrient concentrate, pH Down, pH Up, supplements, etc.) with precision and sterility.

- **Syringe 10ml**
- **Syringe 100ml**
- **Syringe 250ml**
- **Syringe 500ml**
- **Syringe 1000ml**

## 2. Jugs
For easy measuring of large quantities of concentrates or small amounts of diluted nutrients ready for the plants. Available with clear writing or blue writing.

- **Jug Blue Print 500ml**
- **Jug Blue Print 1L**
- **Jug Blue Print 2L**
- **Jug Clear 500ml**
- **Jug Clear 1L**
- **Jug Clear 2L**
- **Jug Clear 3L**

## 3. Hose Clips
For a tight, reliable connection where hose or supply pipe is joined to high pressure pumps.

- **Hose Clip 10-16mm**
- **Hose Clip 13-32mm**
- **Hose Clip 20-25mm**
- **Hose Clip 22-35mm**

## 4. Funnel
For when you need to transfer liquids into narrow-necked bottles safely and securely.

- **Funnel**

## 5. Single Zipper (Approx 210cm)
The ideal method for making permanent doorways in plastic sheeting. Zippers don’t distort or tear the plastic even with long term use, unlike Velcro. Opens and closes from either side. Self-adhesive, easy to install.

- **Single Zipper**

## 6. Cable Ties
Keep cables in your growroom under control with these quick and easy cable ties.

- **Cable Tie 4”**
- **Cable Tie 6”**
- **Cable Tie 12”**
- **Cable Tie 14”**
- **Cable Tie 16”**

## 7. Plant Labels
White plastic labels so you don’t forget what you have planted where.

- **Plant Labels 5cm x 3cm**

## 8. Plant Ties
Ideal for tying plants.

- **Plant Ties x 10**

## 9a. Pipettes
For quick measurements of small amounts of liquids.

- **Pipette 3ml**
- **Pipette 5ml**

## 9b. Measuring Cup
For quick measurements of small amounts of liquids.

- **Measuring Cup 60ml**

## 10. Velcro Tape
Self-adhesive Velcro is the simplest way of closing plastic tent flaps securely, fixing light objects in place and keeping tools ready to hand.

- **Velcro 2m**

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Order Online At: [www.hydroponics.co.uk](http://www.hydroponics.co.uk)  
Mail Order Tel: 0845 872 0572
1. Bendz
Plant training device. This handy little device helps to bend your plant’s branches so that they can receive more light than if they grew naturally. Bendz are clipped easily to the branches, which then change the direction they are growing. Clip on more to sculpt the shape of your plant to provide maximum light penetration and increase flower development. After a week or so you can remove the Bendz and the bend will remain. Reusable.

2. Staple Guns
Our heavy duty staple gun is great for people with larger grow rooms. Our budget staple gun is just the job for quickly and neatly securing reflective sheeting and other similar materials.

3. Cotton Twine
Many uses around the growroom, including plant support, training and stretching the branches of the plants and temporary fixtures (suspending thermometers/humidity meters where they are needed, for example).

4. Capillary Matting
Just the job for keeping your plants watered if you need to be away from your growroom for a while. Also can be used to ensure that a plant is not sitting in its own drained water by raising it up higher.

5. Heat Sealable Pouches
Many uses around the growroom, including plant support, training and stretching the branches of the plants and temporary fixtures (suspending thermometers/humidity meters where they are needed, for example).

6. Pea Netting
Attached to a frame around the growing area or fixed to walls, pea netting can provide plant support over a wide area. 1.8 metres wide.

7. Various Tapes
- **Duct tape** has many uses around the grow room, such as hanging reflective material, fixing cables in place, joining ducting to silencers, fans, carbon filters, etc.
- **Aluminium tape** has a higher resistance to heat.
- **Carpet tape** is double-sided and is used for joining sheets where structural strength is not needed.
- **Highly Reflective Tape** is used inside the growing area where you want as much light as possible to be reflected.

8. Bamboo Canes
For supporting plants. Can be made into ‘wigwams’ of three canes each pushed into the compost around the edge of the pot and leant together and tied at the top with string. This provides a more solid support than a single cane and is especially good with climbing plants like beans. Length 1m approx. Pack of 5.

Order Online At: www.hydroponics.co.uk  Mail Order Tel: 0845 872 0572
Sprays

Sprays are useful for increasing humidity or foliar feeding. Various pesticides and fungicides are also applied by sprays. When spraying water onto plants under grow lights avoid spraying when the lights are lit, or, if unavoidable, at most ten minutes before the lights go off. We also stock hose lances which can be used for easily watering large numbers of plants.

1. Gold Spray Lance
Hose-fitted shower-type spray head with hose connector. Telescopic to 1.45 metres.

2. Hozelock Spray Mist
Houseplant sprayers for light use. Creates a fine mist for foliar feeding or applying insect spray.

3. Hand Pressure Sprayers
Pump action heavy duty sprayers for when you have a lot of plants to spray, saves the finger and wrist pain from hand sprayers.

4. Watering Can
Classic garden accessory with removable sprinkler head. 6.5 litre.

5. Yoyos
Yoyos are perfect for supporting plants.

6. Gloves
Should be worn whenever handling gels, pH adjusters, hydrogen peroxide, enzymes, pesticides or hazardous agricultural chemicals.

7. Water Carrier
Just for carrying water. Collapsible to save space when not in use.

8. Canna Spanner
For getting Canna 5 and 10 litre bottles open without any strain this spanner is essential.

9. Water Sealant
Easily applied to any join, this silicone sealant is a reliable guard against water leaks. Plant safe.

Order Online At: www.hydroponics.co.uk
Mail Order Tel: 0845 872 0572
**Growroom Essentials**

1. **Blue Chikamasa Pro Scissors**
   - New blue trimming scissors. Spring loaded for fast opening.
   - **BLUE CHIKAMASA PRO SCISSORS** ZAR3237

2. **Mundial Red Dot Scissors**
   - Lightweight and durable, 4 ¼".
   - **RED DOT SCISSORS** TFX6349

3. **Darlac Softies Scissors**
   - Soft handled scissors for comfort.
   - **SOFTIES SCISSORS** JER794B

4. **Fiskars Multi Purpose Trimming Scissors**
   - High quality trimming scissors with comfort grip handles. Spring action, easy slide safety lock.
   - **FISKARS TRIMMING MULTI PURPOSE SCISSORS** EDC3861

5. **Precision Curved Pruners**
   - The curved blade allows for trimming with greater precision.
   - **PRECISION CURVED PRUNERS** PRE1200

6. **8 Tier Drying Rack**
   - Large capacity hanging drying rack. Collapses neatly for storage.
   - **DRYING RACK 8 TIER** DFG7537

7. **Stackable Drying Rack**
   - It’s harvest time! Our neat and tidy stacking drying rack will help you keep on top of your crop.
   - **DRYING RACK STACKABLE** WYN7726

8a. **Nutrient Bottle Tap**
   - Fits jerry can style bottles.
   - **NUTRIENT BOTTLE TAP** XXL8827

8b. **Growth Technology 20L Bottle Tap**
   - Takes the strain out of using the economy size 20 litre containers of ionic nutrients.
   - **GROWTH TECHNOLOGY BOTTLE TAP 20L** YPP9667

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Order Online At: www.hydroponics.co.uk  
Mail Order Tel: 0845 872 0572
Growroom Essentials

1. A&B Bucket Set
Labelled buckets so you don’t muddle your nutrient solutions. Graduated inside the bucket for measuring up to 10 litres.
BUCKET A & B PAIR, 2 X 10L
SCE5625

2. 20 Litre Bucket & Lid
For mixing small amounts of nutrients, wet storage in a dry area or dry storage in a wet area. Can also be used for DIY deep water systems.
BUCKET 20L WITH LID
VVD7223

3. Gorilla Tub With Handles
Big (42 litre) durable but flexible bucket for moving heavy, bulky or difficult items, mixing soil, building materials, etc.
GORILLA TUB WITH HANDLES
BP93198

4. 14 Litre Bucket With Handle
Builder’s style, heavy duty bucket with wire handle. No lid.
BUCKET 14L WITH HANDLE
CB9477

5. Block Covers
Ready cut black and white plastic squares for covering your Rockwool (and other media) blocks so they don’t get green algae growing on the tops at your expense. Essential for preventing pest problems and root diseases. 4” square and 6” square available.
BLOCK COVERS 40 PACK 4”
N2G4473
BLOCK COVERS 40 PACK 6”
N2G4474

6. Batteries
Some of our products require batteries which are available directly from us.
BATTERY AA
HRN7357
BATTERY AAA
K2M1256
BUTTON BATTERY LR1154
VDR1212

7. Green Eye Torch
Wonderful new tool for looking at your plants during the night period. The LEDs are pure green spectrum, so precise that the plant does not notice the light. So you can inspect your growroom, change pumps and timers, whatever you want to do - without disturbing the light cycles of your plants.
GREEN EYE HEAD TORCH
XMG4341

For Larger Storage Needs...
See our range of nutrients tanks
SEE HYDROPONICS SYSTEMS - TURN TO PAGE 047

Order Online At: www.hydroponics.co.uk
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Irrigation Systems

How to build a custom irrigation system:

1. When designing an irrigation system the first thing to consider is the pump you will use. Choose a pump based on the lift (the maximum height the pump will have to move the water) and the volume of water you need to move.

2. Next choose the supply pipe that will transport the water from the pump to the dripper line. Hollands stocks supply pipe in 12 mm, 16 mm and 20 mm diameter. Reducers can be used to change the pipe diameter if the size pipe that fits the pump is different to the size of pipe you want to use in the rest of the system.

3. Tees (A), elbows (B) and X-connectors (C) can be used to change the direction of the supply pipe or split it up into different paths. Stop ends (D) are used to block the end of the pipe. To make it easier to insert these fittings, soak the pipe in hot water for a few seconds to soften the plastic.

4. The drippers which sit in the plant pot and supply the water to the plant are linked to the large diameter supply pipe via smaller diameter dripper line. To attach the smaller diameter dripper line to the large supply pipe several options are available. Insert nipples (A) allow the attachment of a single dripper line. If you want to have more drippers coming from a single point you can either use a 4-way manifold (C) which attaches into the larger diameter supply pipe in the same way as an insert nipple, or an 8-way manifold (B), which screws into a female BSP Tee and the supply pipe attaches to the arms of the tee. An orange hole punch (D) is a useful bit of kit to put holes in the supply pipe that the insert nipple and 4-way manifold can fit into.

5. Drippers fit on to the end of the smaller diameter dripper line and are what finally supply the nutrient solution to the plant. Arrow drippers (A) have the flow limited to 2 L/h and are suitable for use with soil and coco. Flood drippers (B) are not limited and are suitable for mediums which hold very little water such as clay pebbles. Octamitter drippers (C) are another style of dripper, these are adjustable, allowing you to set the flow rate between 0 to 40 L/h.

6. The final thing to consider is if you want the system to be recirculating (A) where the excess nutrient solution that comes out of the bottom of the plant pots is returned to the nutrient tank, or run-to-waste (B) where the excess nutrient solution that comes out of the plant pots is discarded and never returns to the plant.

Order Online At: www.hydroponics.uk
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Automatic watering is great for ensuring your plants get fed with the least effort for you. These irrigation fittings are compatible with many existing systems we sell as well as allowing you to custom build a watering system perfect for your individual room. If you need any assistance with designing a system please ask our expert staff for advice.

Irrigation fittings

1. Pipe & Drip Line
   - FlexiPipe (16mm) Snugger Fit
   - Dripper Line (19mm) Per Metre
   - Inlet Tube (19mm) Per Metre
   - Supply Pipe (12mm) Per Metre
   - Supply Pipe (16mm) Per Metre
   - Supply Pipe (20mm) Per Metre
   - Pipe Clamp (Ideal for 16mm Pipe)

2. Barbed Tee and Y Pieces
   - Barbed Tee (12mm)
   - Barbed Tee (16mm)
   - Barbed Tee (20mm)
   - Barbed Double Inlet Y-Piece Blue (6mm)
   - Barbed Tee Reducer (16mm-12mm)
   - Barbed Tee Reducer (16mm-12mm)
   - Barbed Double Inlet Y-Piece Blue (6mm)
   - Barbed Tee Reducer (16mm-12mm)

3. Barbed Elbows
   - Barbed Elbow (12mm)
   - Barbed Elbow (16mm)
   - Barbed Elbow (20mm)
   - High Pressure Elbow (20mm)

4. Barbed Reducers
   - Barbed Reducer (20mm-12mm)
   - Barbed Reducer (12mm-16mm)
   - Barbed Reducer (16mm-12mm)

5. Barbed Stop Ends
   - Barbed Stop End (12mm)
   - Barbed Stop End (16mm)
   - Barbed Stop End (20mm)

6. Threaded Inlets
   - Threaded Single Inlet (16mm) Female BSP
   - Threaded Single Inlet (16mm) Male BSP
   - Insert Nipples
   - Threaded Single Inlet (16mm) Male BSP
   - Threaded Single Inlet (16mm) Female BSP

12 & 13. Manifolds
   - 12. Manifold & Nipple 4 Outlet
   - 13. Manifold (16mm) 8 Outlet

14. Barbed Tee Reducer
   - Barbed Tee Reducer (16mm-12mm)

15. Barbed 4-way Cross Connector
   - Barbed Cross 4 Way Connector (16mm)

16. Threaded Socket 16MM - 16MM
   - Threaded Socket 16-16MM

17. Threaded Elbow
   - Threaded Male Elbow (16mm) Male BSP

18. Hole Punch
   - Hole Punch

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Mail Order Tel: 0845 872 0572
Irrigation

20. Plant Pot Dripper
Self-regulating dripper designed to allow through 2 litres per hour. To be placed at the end of a dripper line.

21. CNL Compensating Dripper
High quality pressure-compensating in-line dripper designed to allow through 8 l/h regardless of the pump pressure, up to 4.0 bar.

22. Woodpecker Dripper
Like the plant pot dripper except that it may be placed in-line or inserted directly into supply pipe. 2 l/h flow rate.

23. Octa-Mitter On Stake
Flow rate can be adjusted between 0 – 40 l/h by turning the head of the dripper. Also available on its own see no. 24.

24. Octa-Mitter Dripper
Dripper to be used with high pressure systems.

25. High Pressure Dripper
Dripper to be used with high pressure systems.

26. Flood Dripper
Ensures a constant delivery of nutrient solution without regulating the flow rate at all. Suitable for re-circulating systems with a freely draining medium such as clay pebbles.

27. Arrow Dripper
Dripper stake with a slow flow rate of 2 l/h. Suitable for re-circulating or drip irrigation systems with more water-retentive mediums such as rockwool, coco or soil. With these drippers it is advised to use a hydroponic cleansing agent such as ATA Clean to prevent blockage by mineral deposits.

28. Pipe Stakes
Useful for securing pipes in place or elevating them above the surface of the medium. Available in 5mm size, for dripper line, or 13mm size for 12mm supply pipe.

29. Inline Filters
Strongly advised for any irrigation system to prevent nuisance blockages in the dripper line. Can be easily unscrewed and cleaned. Available for 16mm and 20mm supply pipe.

30. Barbed Non Return Valves
Stops any back flow of nutrient solution along the piping.

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Assembled Arrow Dippers x4
Four arrow drippers attached to a manifold with nipple, ready to be inserted into supply pipe. Each dripper is attached with an 80cm length of dripper line.
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Expert advice at your fingertips for gardeners with all levels of experience. Why not get the edge over your friends by grabbing one of our amazing range of practical guides to the fascinating world of indoor growing and hydroponics?

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Covers all aspects of high-tech indoor gardening with chapters on lights, soil, water and fertiliser, hydroponic gardening, air, pests, stages of growth and propagation. Extensively illustrated with line drawings and b&w photos.

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356 pages
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NYP2380

2. Hydroponics Indoor Horticulture

Compact, glossy and the best introduction to and explanation of hydroponics. Clear simple guide to systems, pests and diseases and every aspect of control of the growth and environment of the plants. Many colour photos and illustrations.

Jeffrey Winterborne
256 pages
HYDROPONICS INDOOR HORTICULTURE
PTX3166

3. The ABC of NFT

This is the book that launched Nutrient Film Technique back in the late seventies and it has been indispensable to commercial growers the world over. Thoroughly updated. Everything you need to know about NFT systems and more. Essential information for the dedicated NFT grower, whatever their crop. Also useful for those interested in other hydroponic techniques for its thorough explanations of the processes common to all techniques. Illustrated with b&w photos, excellently helpful line drawings and lots of tables. The most comprehensive guide to NFT you could ever want.

Dr Allen Cooper
171 pages
ABC OF NFT
RYE5893

4. Hydroponic Tomato Production

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Jack Ross
207 pages
HYDROPONIC TOMATO PRODUCTION
LOG1136

5. Integral Hydroponics Edition 2

Information dense but easily readable guide for a good foundation in everything from seed through pests to harvest. Line drawings and b&w photos. Recommended by us for beginners and the forgetful.

G Low
128 pages
INTEGRAL HYDROPONICS EDITION 2
JD2971

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CJ Molyneux
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Lon Dalton/Rob Smith
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HYDROPONIC GARDENING: DALTON/SMITH

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John Mason
172 pages
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G Reinders/Marseene Mainy
168 pages
HOW TO SUPERCHARGE YOUR GARDEN NYP2379

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Steven Carruthers
56 pages
LIGHTING IN HORTICULTURE HYDROPONICALLY SPEAKING APR8293

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Simple booklet on how to take cuttings for the best results.
Steven Carruthers
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CLONING HYDROPONICALLY SPEAKING GAL7524

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Jack Ross
160 pages
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Growth Technology
40 pages
GROWTH TECHNOLOGY GROWERS GUIDE UWC1967

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George F Van Patten / Alyssa F Bust
128 pages
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96 pages
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168 pages
GARDENING INDOORS WITH H.I.D LIGHTS PTD9242

**Aerogarden**

**Perfect for hobby indoor growing...**

All-in-one hydroponic system for growing small plants anywhere, anytime. 2 x 26W full daylight spectrum compact fluorescent lamps provide all the light the plants need to grow so the beautifully-designed unit can be placed anywhere in your home. The Plug & Grow™ pre-sown seed system is supplied with individual humidity domes. Just put in place and start the Aerogarden. All you need to do is add water and new nutrient tablets when the lights on the front of the Aerogarden indicate the water or feed levels are low. Nutrient tablets keep the pH balanced and supply everything the growing plants need. Built-in timer turns lights on and off as pre-programmed into the unit for each type of plant. Plants are constantly drip fed from the reservoir.

Various seed packs are available, each with a selection of plant varieties for extra interest.

No dirt, no weeds, no mess, no gardening experience needed - just great results!

**AEROGARDEN & STARTER HERB KIT, BLACK** SFM4236
**AEROGARDEN & STARTER HERB KIT, WHITE** SFM4237
**AEROGARDEN SEED KIT - CHERRY TOMATO** W2K5430
**AEROGARDEN SEED KIT - CHILLI PEPPERS** W2K5432
**AEROGARDEN SEED KIT - GOURMET HERB** W2K5429
**AEROGARDEN SEED KIT - SALAD GREENS** W2K5431
# Nutrient & Nutrient Additive Finder

**DESCRIPTION HERE**

NUTRIENTS ARE FOUND ON THE S IN LARGER TEXT

NUTRIENT ADDITIVES ARE FOUND ON THE S IN SMALL TEXT

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**Additive Finder**

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**LITIGATION**

Can I use a 600w lamp with a 400w ballast?

No. Unfortunately the wattage of the lamp must correspond to the wattage of the ballast in every case. You can’t use a lamp of higher or lower wattage than the ballast because the ballast is designed to drive a lamp with exactly those electrical characteristics.

**PROPAGATION**

What is the best to help my cuttings root?

We have put together a Clone Kit, see 22, which contains everything that we believe is essential for producing the healthiest cuttings or seedlings. Complete with instructions.

**GROWTH MEDIA**

What is the difference between B'cuzz and Canna Coco?

Both are quality Coco, we recommend both equally. For the best results you should use the nutrient from the same brand as the medium.

**HYDROPONIC SYSTEMS**

How often should I change the nutrient solution in my reservoir?

Once a week is usually right, unless you have a small reservoir supplying a lot of mature plants, when you will need to change it more regularly. After a week the balance of nutrients is usually so changed that the plants may be slowed down. The balance of nutrient in the fresh solution is perfect for plant nutrition and the longer you leave it the less perfect it becomes. When the plants are fully mature you might change the solution more often, or change the system to run-to-waste if the particular system can be reconfigured.

**NUTRIENTS**

Is the price for an A&B quoted for each bottle (A or B) or the pair of bottles (A and B)?

The price is for the pair of bottles (A and B). You have to use an equal amount of each nutrient every time you make up the nutrient solution to make the balanced nutrient for the plants. If you use only one but use the other at another time the plant will suffer. This is because the pH may be far out but also the plant needs the balance to be able to take in all of the nutrients. We don’t sell any A&B nutrients as a separate A or separate B.

**PH & NUTRIENT MANAGEMENT**

Is it essential to check and adjust my pH and nutrient concentration (EC or CF)?

Yes. The roots of all plants are sensitive to the exact pH of the nutrient solution. If it varies too far from the ideal, the root will not be able to absorb the minerals it depends on to grow. If the pH gets too inaccurate it can burn the fine hairs on the root, stopping the plant from absorbing any more nutrition until it grows some more. The concentration of the nutrient in the solution is also important - it tells you when the plants are growing happily and absorbing the nutrients and when they are drinking the water faster than the nutrients. Again if the concentration of salts is too high, the roots may be damaged. If the concentration is too low the plant can suffer from lack of minerals and stop growing. The only time you don’t need to check pH and EC is when using pure Organic nutrients using ‘run to waste’ methods. These contain large amounts of plant acids that balance the pH naturally. If you make them up as recommended on the bottle (and always shake the bottle thoroughly first) the concentration will be perfect.

**GROWTH BOOSTERS**

What is the best boost for my plants?

That depends on the basic nutrient you are using. Usually it is best to use the same brand of booster as the nutrient you are using. This is because the nutrients are designed differently by different manufacturers. They don’t tell what their secret recipes are, so it is usually best to use the boosters that are designed to fit by the people who know. For example, Canna use higher levels of P and K in their basic nutrients than other brands, so they only recommend using PK 13/14 boost for a week, though other brands tell you to use it throughout the whole flowering period. The Canna Boost Accelerator could probably be used to great effect with most other brands of nutrient, though some others have boosters based on amino acids like Bio Bizz Bio Heaven. Using the two together at full dose would not get you any better result. Please ask our staff for information in specific boosters you might be interested in.

Can I use Bud Blood/Big Bud/Overdrive with any nutrient that is not made by Advanced Nutrients?

You can, but you will have to experiment with the levels needed. If that other brand recommends lots of PK boosters with the nutrient, then you can probably swap one for the other. However, you should be careful, as too much PK can interfere with the absorption of the other minerals that the plants require. If you like one brand, we often recommend that you use everything from that brand. Again, we would recommend that you ask a member of staff for individual cases.

When do I flush?

If you know when you are ready to harvest, you can start flushing one to two weeks before.

**VENTILATION & CO2 MANAGEMENT**

Do your fans come wired?

Some do, some don’t. Please ask when buying the fan. We do have plugs and electric cable at reasonable prices but we don’t always remember to ask if you need them as many customers already have these at home.

How much air movement do I need to have in my room to keep my plants growing well?

There is no definite answer to this question; the air needed to be changed will depend on a number of factors. We have, however, produced a simple, general formula as a rough guide to calculating the size fan you would need based on your room size and number of lights.

To calculate how much air you need to move inside your room to ensure healthy plants, you need to know the volumetric size (m³) of your room.

To calculate the volume of your room: Length x Width x Height = Volume m³. For example: A room 4m in length, 3m in width and 2m high would have a volume of 4 x 3 x 2 = 24m³.

To calculate how much air needed to move: We recommend that for optimal results, the air in your room should be changed at least 12 times per hour. To work out the size fan to do this, you need to calculate: Volume of your room (m³) x 12 = How many m³ per hour needed to be changed in your room. For example: 24m³ x 12 = 288m³ per hour.

So, you need to select a fan that moves over 288m³ per hour. For example, you might choose an RVK A1 6”, which shifts 420m³ per hour, because the 5” RVK A1 only moves 225m³ per hour. You can check our Ventilation section to find the right fan for you based on the size of your room.

**PLEASE NOTE:** This is a very general rule and is a basic formula using a room that has one light. For more specific conditions, see some of our suggestions below.

If you use Co2 in your grow room: If you use Co2 in your room, the amount of air movement is reduced to about 8 changes per hour: Volume (m³) x 8 = How many m³ per hour needed to be changed with Co2 in your room. For example: 24m³ x 8 = 192m³ per hour.

If you use more than one light in your room:

For multiple lights in your room, we recommend that you move up one fan size per extra light in your room (unless you use air-cooled lighting). For example, If you use an RVK A1 6” with one light, for two lights it might be best to use an RVK L1 5”, which moves 680m³ per hour.

For an extreme number of lights in your room, we would recommend increasing your fan size drastically and, if possible, take further measures to reduce the temperatures in your room, such as using air-cooled lighting, using water chillers to cool the water in your reservoir, and coating any black equipment with reflective material.
ORDERED BY:
Name: Mr/Mrs/Miss/Ms
Address:
Postcode:
Daytime Tel No*:
Email:**

DELIVER TO: (If different to ‘Ordered by’)
Name: Mr/Mrs/Miss/Ms
Address:
Postcode:
Daytime Tel No*:

Please note: if using a credit or debit card we can only deliver to the cardholders address.

Code | Product Name | Price £ | Qty | Total £
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Goods Total £
Delivery to your Door £5.95
Heavy Item Surcharge
Regional Surcharge
Grand Total £

Credit / Debit Card Payment
To ensure you receive your order directly and as soon as possible, please pay for your order in advance by using one of the following methods...

Please Debit My:
- [ ] Mastercard
- [ ] Visa
- [ ] Visa Electron
- [ ] Switch/Maestro

Card Number:

Valid from: [ ] [ ] [ ] [ ]
Valid to: [ ] [ ] [ ] [ ]

Issue Number: (Switch Only): [ ]

Security Code: [ ] [ ] [ ]

Last 3 digits of the number on the signature panel.

Signature: ____________________________
Name: (As it appears on card)

Other Payment Methods

I enclose...
- [ ] Cheque
- [ ] Postal Order
- [ ] Cash

To the sum of £
Payable to: Holland Hydroponics
Post to: Holland Hydroponics Ltd, 17 Rondin Rd, Ardwick, Manchester, M12 6BF

PLEASE READ OUR TERMS AND CONDITIONS ON PAGE 112

FOR OFFICE USE ONLY

Payment processed by: ____________________________ Date: ____________________________

Authorisation Code: ____________________________

Picked by: ____________________________

Carriage: ____________________________

Checked by: ____________________________

Packed by: ____________________________

Consignment Number: ____________________________ Date Sent: ____________________________

Receipt Number: ____________________________
**Terms and Conditions**

**5 Easy Ways To Order From Holland Hydroponics...**

**POST:**
Holland Hydroponics Ltd
17 Rondin Road
Ardwick
Manchester
M12 6BF

If you need extra blank order forms please ask us for them or print them from our website.

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**WEB:**
www.hydroponics.co.uk

**EMAIL:**
sales@hydroponics.co.uk

**FREE PHONE:**
0800 038 7100

**FAX:**
0845 872 0571

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**Easy ways to pay**

Payment can be made separately from your order but please make sure that both payment and order contain your personal details.

- **Cash:** We always welcome cash. Cash can only be sent securely by Post Office Special Delivery Next Day (silver label). Package the cash well and it will be insured according to Post Office terms and conditions. We can return small change in your mail order.

- **Postal Orders:** As good as cash. Orders are sent out immediately on receipt of POs. Please make Postal Orders payable to Holland Hydroponics Ltd.

- **Credit and Debit cards:** We accept all major credit and debit cards. You can send your card details by phone, post or place your order online through our secure e-commerce site. Holland Hydroponics only ship goods to the cardholder’s address.

- **Cheques:** Will be cleared instantly, no long waits for cheque clearing. When your cheque is cleared your order is sent out. Please make cheques payable to Holland Hydroponics Ltd.

- **Direct bank deposit:** Please phone 0845 872 0572 or free phone 0800 038 7100 to place your order and we will give you the exact amount needed to pay in. Please ensure that the exact amount is paid in to avoid any delays in sending your order out. Cash can be paid into our deposit account at any branch of HSBC Bank. Just quote Account Name: Just quote: Account No. 31400584. The deposit should show in our account within 24 hours. As soon as we have confirmation we will get your order dispatched.

**Delivery options**

**Cost:** We charge a basic flat rate of £6.95 for all parcels except for those exceptions listed in this table.

- **Scottish Highlands, Scottish Islands & Northern Ireland:** A surcharge is necessary due to extra delivery costs, this will be a maximum of £18.00 as well as the normal cost for delivery £6.95. For Eire a surcharge of £23.00 will apply, as well as the normal cost for delivery £6.95. For small items (less than 1kg): If you place a small order then we may be able to send them by Post Office recorded delivery to save a lot of money although this can take up to 5 working days for your order to reach you. Please call 0845 872 0572 if you would prefer this delivery method.

- **Isles of Man, Scilly and Wight:** Please call us for a price for delivery.

- **Rapid dispatch:** We aim to send your order right away. We will normally send your order to you by a Next Day delivery service by courier or Post Office but please allow 2 working days. If your order is going to take longer for any reason or goods are not in stock we will contact you.

- **Urgent:** If your order is urgent please tell us and we will advise you when we can get it to you and do our best to get it to you quickly. If you want to order but don’t want the items sent immediately (if you are going on holiday but want the goods when you return, for example) please phone us on 0845 872 0572 or free phone 0800 038 7100 or make your instructions clear on your order.

**Heavy items:** Very heavy items will be charged an extra £5.00, or £10.00 to Eire, Scottish Highlands and Islands, Northern Ireland and Isles of Man, Scilly and Wight. Some very heavy items may be charged at a higher rate, we will ring you to advise but if in doubt please ring us before placing your order.

- **Multiple, Heavy and Bulky Items:** Ordering heavy, bulky or multiple items of some products may incur an extra charge that is not calculated by the website. If you are placing a large order, especially with bulky or heavy items, please phone us and a member of staff will be able to tell you how much it will be for carriage. We always try to keep the carriage as low as possible.

- **Deposit Collection:** If paying by cash, postal orders or bank deposit you can arrange to collect your order from the courier depot for a flat rate of £3.95. We cannot accept credit cards or cheques for this service. All you need to collect the order is a reference number from us.

- **Morning delivery:** If you would prefer to have your delivery made in the morning please specify when you make your order. There is a delivery surcharge of £3.00 for this service. However, we cannot be held responsible if the courier does not deliver in the specified time slot.

- **Saturday Delivery:** Only available in England, Wales, Southern and Central Scotland. Delivery is before 12 noon. This option incurs an extra charge of £24.00.

**PLEASE NOTE:** Parcels must be signed for by someone at the delivery address. Please do not ask us to leave parcels, again due to card security. In case of difficulty please contact us and ask about morning or Saturday deliveries, which will incur an extra charge.

**Money Back Guarantee**

Your satisfaction is important to us and we always aim to provide the best service and products possible. If you are not completely satisfied with any item you have bought from us, return it to us unused and in the original packaging and condition in which you received it with the receipt within 30 days of purchase and ask for a full refund.

All of our electrical and digital items have a manufacturer’s guarantee; faulty items may have to be referred to the manufacturer for inspection before a new product is given out. We will not be held responsible for any damage caused by you (the customer). Faulty lamps (bulbs) will only be exchanged if returned with original OUTER wrapper. All electrical products come with a one to five year manufacturer’s guarantee, please contact Holland Hydroponics on 0845 872 0569 for the exact guarantee on any product. We operate an exchange policy, please contact us for full details. All lighting units are tried and tested twice before leaving our premises.

**Remittance terms**

All goods remain the property of Holland Hydroponics until paid for in full. We do not offer a credit facility. These terms and conditions will not affect your statutory rights.

**Privacy**

Holland Hydroponics takes your privacy protection very seriously. We will only contact you (by email, phone or letter) to clear up card, product or delivery details, to reply to your questions by email or because you have given your consent to receiving our newsletter.

We only ask for your personal details for credit card processing and correct addresses for delivery. Goods will not be delivered to any address other than the registered address of the card holder. All orders are sent out in plain new boxes where possible or plain packaging. Your details will be treated in accordance with the Data Protection Act (1998).

Your details will only be seen by those staff processing the order. We never sell or reveal your personal details (whether emails, card details, addresses or purchases) to any other businesses.

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**Order Online At:** www.hydroponics.co.uk

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**Your satisfaction is important to us and we always aim to provide the best service and products possible.**
BURNLEY STORE
BY ROAD (via M65): Leave the M65 at junction 10. At the first roundabout take exit onto A671 (signposted Burnley). At the second roundabout take exit onto A679 (Burnley Centre) passing a Little Chef. At traffic lights bear right onto Trilogy Street and continue passing a McDonald’s on the right hand side. At roundabout take 3rd exit onto Manchester Road A682 for 1 mile. At crossroads continue through traffic lights onto A682 (signposted Rawtenstall). Take left onto Summit Works. BY TRAIN: The nearest train station is Burnley Manchester Road Station which is on the Leeds / Blackpool link. Exit onto Manchester Road and head up the hill for 1 mile (X43 and X44 buses are available). At cross roads continue through the traffic lights. Take left onto Summit Works.

DETAILS
Holland Hydroponics (Burnley Shop)
Unit 6, Summit Works
Manchester Road
Burnley
BB11 5HG
Tel: 0845 872 0590
Fax: 0845 872 0589
Email: enquiries@hydroponics.co.uk

MANCHESTER STORE
BY ROAD: Head into central Manchester and get onto the inner ring road. Follow signs for Ashton under Lyne A635. Turn onto Ashton Old Road (A635) and continue for 1½ mile until you see an overhead railway bridge. Turn right onto Rondin Road just before the bridge and follow it to the end. Holland Hydroponics car park entrance is on the left at the end of the road. BY TRAIN: The nearest train station is Manchester Piccadilly. Leave the train station via Fairfield Street exit. Turn left heading under the railway arches. Continue up the hill for approximately half a mile. Rondin Road is the right hand turn before passing under the red railway bridge. Continue to the end of Rondin Road. Holland Hydroponics is on the left hand side.

DETAILS
Holland Hydroponics Ltd (Manchester Shop)
17 Rondin Road
Ardwick
Manchester
M12 6BF
Tel: 0845 872 0570
Fax: 0845 872 0571
Email: enquiries@hydroponics.co.uk

HUDDERSFIELD STORE
At Junction 25: Take the A644 exit to Brighouse/Huddersfield/A62. At the roundabout, take the 1st exit onto Wakefield Rd/A644 heading to Huddersfield/A62/Dewsbury/Mirfield. At roundabout with traffic lights, take the right turn onto Cooper Bridge/A62. Continue to follow Leeds Rd/A62 for approx 3.8 miles. Take the right turning immediately after KFC and opposite Arnold Clark. Arrive at Holland Hydroponics Express Store (right).

DETAILS
Unit 4
Leeds Road Trade Park
Leeds Road
Huddersfield
HD2 1YR
Tel: 0845 872 0570
Fax: 0845 872 0571
Email: enquiries@hydroponics.co.uk

ORDER ONLINE AT: WWW.HYDROPONICS.CO.UK
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