Hydroponics Glossary

A | B | C | D | E | F | G | H | I | J | L | M | N | O | P | R | S | T | V | W | Z

A

(TOP)

AC (Alternating current) The normal electric power source we use in homes and industry, whose voltage alternates 50 to 60 times a second (50 Hertz-60 Hertz), between positive and negative - as opposed to DC power as is supplied by a car battery, which provides a continuous flow of power in one direction.

Acid A chemical substance that unites with an alkali (base) to form a salt, an acidic solution has a 'low pH' - below 7.0 pH - Phosphoric and Nitric Acid are used to decrease (lower) the pH value of a nutrient solution.

Active ingredient The chemical part within a spray mixture that actually performs the desired task.

Actual value Refers to the present CF or pH value within the hydroponic system

Additive Specialist materials added to the nutrient solution in order to enhance some aspect of plant growth or system operation - e.g. OGP, potassium silicate.....

Adjuvant Compound added to a spray to improve its wetting/spreading or sticking characteristics.

Aeration The process of introducing air to the growing media and/or nutrient solution in order to provide adequate oxygen to the root zone of plants (Also see oxygenation)

Aeroponics A hydroponic growing system where the plants roots are suspended in air and sprayed with a nutrient mist

Agitation The mixing or aerating of nutrient - generally in the holding tank by means of a pressurized jet of nutrient of via a stream of air introduced by a venturi

Aggregate A mixture of inert stone particles used in place of soil, to hold and support the roots and to assist in ion exchange (Also see media)

Air movement An essential component of all growing - the movement of air, supplies CO2 to the plants for the function of photosynthesis

Air pump A device to produce an air supply used to aerate nutrient and also used for pressurizing some dosing systems

Alarms Automatic protection systems devised to alert the grower, by giving warning of an undesirable growing situation

Algae Mainly aquatic one cell or multi cell plants that lack true stems, roots and leaves but contain chlorophyll and therefore require light to succeed

Alkali A soluble chemical substance which when mixed with an acid produces a salt. An alkali has a 'high pH' being above 7.0 pH. Potassium hydroxide (caustic potash) is the alkali used in hydroponics for raising the pH value of nutrient

Alkalinity The alkaline concentration of a nutrient solution

alkyl dimethyl benzalkonium chloride Quaternary ammonium compound used in a variety of proprietary products as an aid against bacteria and algae in both hydroponic and conventional growing systems

Alternator A device which produces alternating electric power. Most commonly found in hydroponic installations as petrol or diesel powered MG set (motor generator) for emergency power supply (Also see inverter)

Ambient The situation of the current surrounding area

Ampere Generally shortened to 'amp' is the measurement of the rate of current flow, of electricity (also see Volt)

Ammonium nutrient salt An alkaline salt not generally recommended for use in hydroponics, especially in NFT or other recirculated systems

Ammonium Molybdate One form of molybdenum salt which provides an essential constituent of a hydroponic nutrient (Also see molybdic acid)

Anion A negatively charged ion - one of the basic building blocks of nutrient solutions (Also see Cation)

Aphid Any of various, small, soft bodied insects aphididae, that feed by sucking the sap from plants

Aqueous concentrate Nutrients or other chemicals dissolved in water to form stock solutions

Artificial lighting Electric light bulbs and tubes used to replace or supplement the energy required for photosynthesis which is normally provided by the sun

Atmosphere The quality of the air or climate in a growing area

Automatic A devise or process which operates independently of the grower

Aztec Indians Claimed to be the oldest civilization to have developed a passive hydroponic growing system - the method is still used today

B

(TOP)

Babylon Historically the site of one of the early wonders of the world - The hanging gardens of Babylon - which are said to have been hydroponic

Backup Systems Emergency control, power or water supplies used in the event of failure of the normal mains supplies

Bacteria Micro organisms, usually single celled, occurring in a wide variety of forms. Usually found as free living saprophytes, bringing about natural decomposition or parasites, many of which cause disease

Bags Low cost media filled plant containers, usually made from plastic film

Ballast An electrical device for starting and regulating fluorescent and discharge lamps.

Ball cock A float operated water valve to allow automatic replenishment of water levels in holding tanks (also used in WC cisterns etc)

Bark The dead covering of trees - granulated and composted and used as a media for growing plants such as orchids etc

Basil A popular herb for hydroponic production

Bat guano Bat faeces claimed to offer advantageous plant nutrition

Batching The practice of mixing a volume of ‘ready to use’ nutrient solution - generally done for ‘to waste’ systems

Biodegradable Capable of being decomposed by natural processes

Bleach Common household bleaches can be used to disinfect growing systems

Bloom The flowers or blossoms of a plant

Blossom booster A high phosphorus nutrient to encourage blossom production

Blossom end rot (BER) A condition seen in several crops, but mainly in tomato crops, caused by a calcium deficiency

Blue print Temperature The most desirable temperature for promoting growth and good health for a particular crop type

Bolt Rapid stretching or going to seed prematurely of a plant, exacerbated by low light and/or undesirable temperature conditions

Boron-Boric acid Boron is an essential micro nutrient and is commonly provided in the form of Boric acid

Botrytis A common fungal disease spread by airborne spores

Bottom heat The practise of providing heat beneath a growing container in order to promote root growth over top growth

Bottom watering The practice of providing nutrient to the base of a container to allow capillary action to provide for the plants requirements

Brassicas A family of cultivars including cabbage, cauliflower, broccoli and sprouts etc

Btu British thermal unit - a measurement of heat energy

Bud The protruberance on a plant stem which contains the undeveloped shoot, leaf or flower

Buffer A solution that maintains the relative concentrations of hydrogen and hydroxyl ions in a solution by neutralizing within limits, added acids or alkali’s i.e. producing a pH stable nutrient.

Buffer solution A stable solution of know pH value, used for calibrating pH meters

BulbThe protective, gas filled, glass envelope around a particular light producing source such as tungsten filament or gas discharge

Bulb A modified underground stem such as an onion or tulip. The bulb contains the food store for future growth of the undeveloped shoots contained within it

Bumble Bee A species of bee which are bred for release within green houses for performing pollination, commonly used in tomato crops

Burn Often called tip burn - usually caused by too high a conductivity level resulting in cell death occurring at the leaf tips and margins

C

(TOP)

Calibration The practice of adjusting meters and controls to known standards

Calcium An essential macro nutrient for plant growth

Calcium Nitrate The preferred raw material (salt) for providing calcium in a hydroponic formulation

Calyx Basically the plant structure from which the seed pod is developed

Canopy The top growth of a plant which receives most of the available light

Capillary mat An absorbent material used in gully systems to attract nutrient to the roots of a plant - made in both permanent and biodegradable types

Capillary system A passive hydroponic system, whereby the nutrient travels from the base of a container to the root zone of the plant by natural capillary action

Capillary (tube) A term used to describe a small bored supply pipe

Capsicum A member of the pepper family, commonly produced in recirculated hydroponic systems

Carbohydrate Hydrocarbons are the basic food supply produced through the process of photosynthesis

Carbon dioxide (CO2) A gas contained within the air we breathe. An essential for the production of carbon as contained within the carbohydrates, produced through the process of photosynthesis in plants

Carbon dioxide enrichment The practise of releasing CO2 gas around plants in order to enhance the photosynthetic process

Cartridge Common term given to replaceable or cleanable filter elements

Catchment Common term describing the drainage installation in a hydroponic system

Cation A positively charged ion - the opposite to anion - basic building blocks of nutrient and the way in which plants can absorb them

Cell The basic structure which forms all living tissue

Cell division The way in which living tissue grows by dividing the single cells into two and then to four, to eight etc etc

Centigrade Unit of measurement of temperature where freezing point at sea level equals zero degrees and boiling point at sea level equals 100 degrees

Centrifugal pump The most common type of pump used for moving nutrient around hydroponic systems

CF value Conductivity factor - a simplified scale for the measurement of nutrient strength (conductivity), adopted for use by growers, by the Glasshouse Crops Research Institute in the 1970s

Channel See NFT gully

Chelate An element which is formed into a special molecule in order to stabilize it. Best example is the element iron, which is prevented from turning to rust when in the chelated form

Chlorine An oxidizing chemical used to sanitize water supplies and systems

Chlorophyll Any of a group of related green pigments in plants that trap sunlight for photosynthesis

Chloroplast Chlorophyll containing cells

Chlorosis A condition where there is a lack of green chlorophyll, usually caused by a lack of light or a mineral deficiency or even a genetic disorder

Cloche A simple glass or plastic cover to protect outdoor crops

Clone The production of new plant material via cuttings from mother plants or from tissue cultured plant material

Co-extruded A process of extruding two materials bonded together to form one material e.g. Black and white plastic called 'Panda film' is a co-extruded product

Colorimetric A method of measuring chemical values whereby a chemical will turn a certain colour when brought into contact with the chemical of interest i.e. colorimetric tape can be used to measure the general pH value of a nutrient solution

Computer (Environmental) A purpose designed electronic device used to control the various parameters in a modern hydroponic growing installation

Condensation The process of water vapor turning into water droplets

Conductivity An electrical measurement of the total soluble salts contained within an aqueous solution

Conductivity meter A meter which measures the electrical conductivity of a solution

Contaminate (contamination) To make impure or to corrupt by exposing to some other unwanted chemical or agent

Cooper Allen The man who led the research team at GCRI that developed the NFT system

Cotyledons Commonly referred to as the 'first' or seed leaves

Courgette Also called zucchini - a marrow commonly grown in hydroponic systems

Cucurbit Any of the various vines of the family cucurbitaceae which includes cucumber, pumpkin and marrow

Cuttings Specific parts of plants, harvested to be used as mother material for the production of new plants - the production of clones

Cymbidium An orchid genus mainly produced in hydroponic systems for commercial production

D

(TOP)

Damping off The undesirable result of killing seedlings by fungal disease (usually pithium) caused by over watering of emerging seedlings

DFT Term describing the 'deep flow technique' where the plants roots are completely submersed in flowing nutrient

Deficiencies Poor health or low productivity caused through too low a concentration or the unavailability of an essential mineral element to the plant

Deionization The process of removal of all foreign ions contained within water i.e. removal of impurities by distillation

Desiccate The result of water removal from a fruit or plant

Desired value The nutrient CF, pH and/or temperature values required by a grower, which he sets on an automatic dosing controller

Dose (dosing) Term describing the addition of concentrated nutrient mixes, or pH correctors to return the nutrient contents of the growing system to the desired values

Dose 'on' time Term which describes the length of time dosing is allowed by the controller

Dose 'off' time Term which describes the length of 'standby' (dosing stopped) time, allowing materials to mix in the tank, before dosing recommences

Dosing bin A device designed to meter out a nutrient concentrate to a growing system

Dosing systems Systems that are usually automatic, which monitor the status of nutrient in a growing system and add new supplies of nutrient concentrates or pH correctors, as required to maintain the desired nutrient values

Double skin The practice of providing two layers of plastic to a greenhouse for thermal retentionsometimes provided with a pressurized air gap - air inflated greenhouse

Drainage pipe The term referring to the plumbing system devised to remove the surplus nutrient from the growing location

Drip feed The term used to describe a hydroponic system that provides small regular drops of nutrient to the top of the growing media, usually adjacent to the plants stem

Drowning The act of killing plants by immersing the roots in nutrient solution containing insufficient oxygen

E

(TOP)

Ebb and flow Also called 'flood and drain' whereby a growing bed is periodically filled with nutrient and then immediately drained

Ecosystem An ecological community, together with its physical environment - considered as a unit

EDTA The chemical abbreviation for chelated iron

Electric element (hydroponic) A resistive heating element of low watts density per surface area, usually contained within a stainless steel or glass enclosure used for heating nutrient solution, without causing chemical precipitation

Electrical backup An alternative supply of electricity to provide for failure of the normal mains power (also see MG set)

Emergency equipment (See MG set and Alternator)

Emitter A device designed to meter out nutrient - usually attached to the supply by a micro tube

Encarsia Formosa A parasitic wasp which are commercially bred for release into growing areas for the control of whitefly

End Cap Term describing the blanking cover fitted to the end(s) of an NFT gully

Environmental control Planned program and equipment provided to modify the growing environment to optimum conditions

Exhaust gas Waste gases produced by plants which are removed from the growing area and from nutrient holding tanks

Expanded clay Kiln fired clay balls which provide excellent media for most plants and that have a high ion exchange capability

F

(TOP)

Fahrenheit An imperial measurement of temperature whereby freezing point at sea level equals 32 degrees and boiling point at sea level equals 212 degrees. Largely used in the USA and to a lesser extent in the UK

Fan A device for moving air - supplying or extracting air

Fertilizer- nutrient In conventional growing the materials used for feeding plants are generally referred to as fertilizers and these may not be readily soluble - in hydroponics we refer to them as nutrients and all constituent parts of the formula must be 100% soluble in water

Fiberglass A useful material for the fabrication of hydroponic system nutrient tanks and growing beds

Film Plastic material used for greenhouse coverings and for the provision of disposable NFT gully's and floor coverings

Filters Devices for removing foreign particles from water and nutrient. In aggressive locations filters can also be used to remove sand and grit from an air circulation system

Float switch A device that measures liquid level and when operated sends a signal to other equipment i.e. a fresh water make up valve

Float valve See ball cock

Flood and drain See ebb and flow

Flower netting A net of mesh size to suit various flower crops to provide support for the stems e.g. carnation crops

Fluorescent light Low power consumption light source generally used for providing extra light for propagation purposes

Flushing The practice of periodically washing out growing beds and systems with fresh water

Foliar-nutrient A nutrient formula specially devised to be sprayed directly onto the leaves of a plant - often used when emergency remedial action is required due to a deficiency in the crop

Food grade All nutrient raw materials are graded as to their purity - food grade rating means that it is safe for use in food products for human consumption

Foot valve A non return valve usually placed at the bottom of a suction pipe to prevent back flow

Formula The word given to a recipe containing a mixture of several nutrient elements

Free flow agent A material added to a powder to aid in keeping it in a lose flowable condition - sometimes referred to as an 'anti cake' agent

Fungicide A chemical used to combat fungal infection

Fungus (fungi) Organisms that lack chlorophyll are generally parasitic or saprophytic. Their wide range includes yeast's, moulds, mildews, toadstools - generally any soft spongy growth

Fusarium wilt A disease commonly found in conventional soil grown crops - to a much lesser extent in clean hydroponic systems

G

(TOP)

Gases See exhaust gas

G.C.R.I. Glasshouse Crops Research Institute (Little Hampton UK) credited with the birth of the modern hydroponic era

Germination The process of a plants emergence from seed

Glasshouse A structure covered with glass, which is designed to protect plants from the excesses of the outdoor environment

Gravel See media

Growpots Usually injection molded plastic pots used for starting plants in a hydroponic system

Grow bags See bags

Gully See NFT gully

Gully gradient The advised slope of an NFT gully to provide good drainage and the desirable 1 mm film of nutrient

H

(TOP)

Heat exchanger A device to transfer heat - in hydroponics this is often a pipe system which isolates hot water from the nutrient being heated

Heat pump (hydroponic) A devise based upon refrigeration principles that can extract heat from the air/water or ground and transfer it to water or nutrient

HPS lights High pressure sodium lights used for artificial or supplementary lighting for photosynthesis

Humidity The measure of water vapor in the air

Hybrid A new variety of plant produced by combining plants of different genetic makeup

Hydrocarbon See carbohydrate

Hydroponics The art of soilless cultivation

Hydrogen The gas that is released from water, through photosynthesis, which is then combined by the plant, with the carbon molecule obtained from CO_2 to produce carbohydrates

Hydroton See expanded clay

Hygiene trays Plastic trays designed for plant propagation use

Hygrometer Instrument for measuring humidity

I

(TOP)

Incandescent The emission of visible light by a hot object, as in the common electric filament light bulb

Inert Exhibiting no chemical activity

Injection pump A positive displacement pump, usually in the form of a piston moving within a cylinder that is used to move measured volumes of liquid i.e. dosing nutrient concentrates

Insecticides Formulations designed to control insect infestation

Integrated pest management (IPM) A program devised to provide the most ecologically sound and effective combination of control methods to combat pests, which includes the use of predator insects

Inverter An electronic device used to convert power from a storage battery (car battery) to provide mains voltage AC output - used for emergency power supplies

Ion exchange resin Material which will remove mineral contaminants from water (used to deionize water)

Iron chelate See chelate

Irradiation level The intensity of artificial light required by a plant for effective photosynthesis to occur

J

(TOP)

Jif A trade name describing a liquid scouring preparation generally used in the home for cleaning porcelain and enamel products - also know by several other trade names including ‘soft scrub’ in the USA. Used for cleaning the surface of measuring probes

Jiffy's Pots made from compressed peat, which are used for plant propagation

L

(TOP)

Layflat A tube fabricated from plastic film that carries air within a greenhouse and will collapse to lie flat on the ground when not in use

Lettuce A very popular crop for hydroponic production - usually grown using the NFT method

Light The essential energy that provides for plant growth

M

(TOP)

Magnesium Sulphate (Epsom salts) The most popular salt for the provision of the essential macro nutrient magnesium

Major elements (macro elements) The major elements for plant growth include Nitrogen, Calcium, Potassium, Phosphorus, Magnesium, iron and Sulphur

Manganese Sulphate The common raw material used to provide the essential element Manganese

Media Inert materials such as gravel, expanded clay stone chip, perlite, scoria, pumice vermiculite etc which are used where necessary to support the roots of the plants and to provide conditions for optimum ion exchange

Mercury Vapor A type of light source used for artificial or supplementary light for photosynthesis

Metal halide A type of light source used for artificial or supplementary light for photosynthesis

MG set Motor generator used to provide back up electricity supply during mains failure

Micromho, microseimen Scientific scales for the measurem ent of electrical conductivity

Molybdenum A micro element essential to plant growth

Molybdic acid A salt which can be used in nutrient solutions to provide the essential element Molybdenum

N

(TOP)

NFT Gully An enclosed fabrication designed with a flat base upon which the roots of a plant sit and under which a film of nutrient flows.

Nitric acid A dangerous acid to use. Should be used with extreme care and only when additional nitrogen is required in the formula without the addition of any other element

Nitrogen An essential macro element

Non return valve A valve designed to prevent back flow of liquid

Nutrient film technique Hydroponic growing system whereby the plants are bare rooted into a gully through which flows a thin film of nutrient solution

Nutrient tank Usually refers to the main holding and nutrient status adjustment tank within a hydroponic system

O

(TOP)

Oxygen (Oxygenation) Essential gas for all living things. Is produced by plants as a by product of photosynthesis and is an essential gas for the root zone of all plants

Ozone Ozone is an oxidizing gas O3. In nature ozone is continuously produced in the air by the action of lightening and this ozone sterilizes the atmosphere. In hydroponics, ozone generators are used to sanitize both water and nutrient supplies

P

(TOP)

Panda film The trade name given to co-extruded black and white plastic film used for NFT gullies and for green house

floor coverings

Parts per million Scientific measurement of chemicals within a solution

Pathogen An agent that causes disease

Peat pot See jiffy

Perlite A commonly used media, particularly for propagation

pH value The measurement of acidity (below 7.0pH) or alkalinity (above 7.0pH) of a solution

Peristaltic pump A type of pump which moves liquid by mechanically squeezing a flexible tube and pushing liquid along the inside of the tube

Petroleum Jelly A gelatinous semisolid obtained from petroleum and used as a lubricant (also used for medicinal purposes) commonly marketed as 'Vaseline'. An ideal product for use on PVC threads, 'O' rings, etc

Phosphoric acid The preferred acid for use in pH correction of nutrient solutions

Phosphorus An essential element supplied in part by the addition of potassium phosphate to the formula and topped up during growth by the addition of phosphoric acid during pH correction

Phostric acid A mixture of phosphoric and nitric acid where a higher addition of nitrogen is desired

Photo morphogenesis The formative effect of light upon plants

Photosynthesis The conversion by a plant of radiant energy into chemical energy

Photoperiodism The way in which plants react to daylight length

Phytopthora A pathogen that attacks the roots of plants

Phytotoxicity A substance that is poisonous to plants i.e. some plastics are phytotoxic

Pithium A pathogen that attacks the roots and stems of plants - is the disease that is commonly called 'damp off'

Plasticizer The component which makes plastics flexible - is highly toxic to plants therefore reground plastics which require high levels of plasticizers to make them usable should generally be avoided for use in hydroponic systems

Pollination bumble bees See bumble bees

Pollination The act of fertilizing a plants flower

Polycarbonate, Polypropylene, Polystyrene, Polythene All plastics that are useful for hydroponic use

Ponding The undesirable result of poor nutrient drainage in a growing system, leading to root death and poor plant health

Potassium Hydroxide (Caustic potash) The alkali used for raising the pH

Potassium Nitrate The preferred raw material for providing the macro elements potassium and nitrogen

Potassium Phosphate The preferred raw material for providing the macro elements potassium and phosphorus

Potassium Sulphate A raw material used to provide the macro element potassium

Potassium An essential macro element

ppm Parts Per Million – this is not true measure when measuring the conductivity of a nutrient solution. ppm has many different scales, bluelab products use 500(TDS) and 700(KCl) scale for those that are reluctant to change to EC or CF. This can be calculated by multiplying EC by the scale required. eg. 2.5EC x 500 = 1250ppm

Precipitation A chemical action caused through bringing two chemicals together in a strong solution or powder form, resulting in the creation of a new combination of salts - this is undesirable since it can destroy the nutrient formula and is the reason why all good nutrient formulas are supplied in two separate parts, usually named part A and part B

Probe Conductivity and pH Probe Purpose designed probes for immersion into the nutrient to take measurements

Propagating The act of producing new plants from seed or cuttings

PumiceSee media

R

(TOP)

Raw materials The term used to describe the mineral salts used to make up a nutrient formula

Regrind The term used to describe recycled plastic products

Replenisher A nutrient formula specifically designed to replace the components removed from the nutrient formula in a system, during plant growth

Reservoir A nutrient or water holding tank

Reverse Osmosis water treatment A method of purifying contaminated water supplies

Rockwool An inert material manufactured by spinning fine threads of molten basalt rock and compressing them into blocks to form a planting media

Root exudants The waste products of the plant discharged through the roots

Root hairs The fine roots branching off the main roots that do most of the actual translocation of water and nutrition

Rooting hormone Gibberellic acid in a powder or liquid form that encourages the formation of new root material - specifically when propagating from cuttings

Rooting medium See media

S

(TOP)

Sand filter A swimming pool type filter used to remove suspended solids from recirculated nutrients

Saprophyte An organism that lives on and derives its nourishment from dead or decaying organic matter

Sclerotinia A disease pathogen that attacks the roots of plants

Scoria See media

Seed leaf The first leaves or cotyledons of an emerging seedling

Shroud The protective (essential) vented cover fitted to the tip of a DIP type CF probe

Silica An additive that promotes health and quality in hydroponic crops such as cucumber

Silicon sealant (RTV) Commonly used for sealing pipe joints etc - make sure you always use natural cure - other types can be poisonous to plants

Slope pH The term used when calibration a pH meter to values either side of 7.0pH

Sodium silicate See silica

Solarimeter A device which measures the quality and quantity of light being received from the sun, at a growing location

Solenoid valve An electrically operated valve

Starter nutrient A formulation specifically designed to initially fill a system - further 'make up' additions can then be carried out by adding a 'replenisher' formula

Stock solution Term describing the A and B liquid nutrient concentrates used for addition by a dosing system to maintain a growing systems desired nutrient values

Supplementary light Electric lights placed over crops to lengthen the growing day - also to stop plants from stretching during low light periods

Suspended solids Term describing solid particles of matter contained within water or nutrient - can be removed by filtration

Systemic Refers to the internal activities in a living thing. In plants some diseases will invade the whole of the internal system of the plant - also some remedies can be introduced into a plants system and therefore their action is described as being a systemic remedy

T

(TOP)

TDS 'Total dissolved solids' Scientific expression of the total content of inorganic materials dissolved into water -

often incorrectly used as a method of measuring the strength of nutrient solution - nutrient strength should always be measured with a conductivity meter. TDS is also known to represent the 500 ppm scale

Temperature differential Refers to the difference between temperatures - generally referring to those temperatures between the inside and outside of a heat exchange tube or the inside and outside of the walls of a green house etc etc

Thermo siphon The movement of warmer liquid flowing to the highest point in a plumbing system and the colder liquid falling to the lowest point in a plumbing system

Thermostat A switching device which is controlled by temperature

Thinwall pipe (LDTP) Low density thinwall pipe - low cost product that is designed to carry water and nutrient at very low pressures

Timer A switching device which is controlled by the progress of time

Tip burn See burn

Tomato The most commonly cultivated greenhouse crop in the world, the great percentage of, in the western world, being grown by hydroponic methods

To waste A term describing hydroponic systems where any excess nutrient applied to a plant is not collected and reused, but is allowed to drain away to waste

Trace elements (micro nutrients) Essential elements required for growth that are found in very small quantities within a nutrient formula e.g. zinc, copper, boron, molybdenum

Translocation The term describing the movement of water and chemical ions throughout a plant (i.e. transfer from plant cell to plant cell)

Transpiration The way in which a plant sweats water vapor in order to create its own micro climate

True leaves The leaves that emerge after the first 'seed leaves - cotyledons' appear

V

(TOP)

Venturi A passive device that is used in hydroponics to inject air (oxygen) into the nutrient solution

Vermiculite See media

Vine ripe Term describing fruit being kept on a plant until fully ripened

Volt Voltage is the electrical measurement of pressure - the higher the voltage the higher the pressure

W

(TOP)

Waste gases The waste products exuded from the plants roots

Water meter A device that measures the volume of water flowing through a pipe

Water molecule The combination of two atoms of hydrogen and one atom of oxygen, forming one unit (molecule) of water

Z

(TOP)

Zinc Sulphate Most commonly used form of adding the essential element zinc to a nutrient formula