

MANUAL

AEROSPRING GARDENS



aerosping
urban grow technology
AEROSPRINGGARDENS.COM

Distributed by



CENTAUR
ASIA PACIFIC
Malaysia

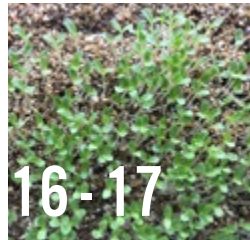
www.centaur-asiapacific.com | info@centaur-asiapacific.com

ASSEMBLY MANUAL & GUIDE



4 - 9

Introduction to your Aerosping Garden



16 - 17

How to start seedlings



22 - 23

Produce Performers



30 - 31

Organic Pest Control



10 - 13

Assemble your Aerosping Garden



18 - 19

What can I grow?



24 - 25

Maintaining your Aerosping Garden



34 - 36

Water Change Instructions



14 - 15

How to start growing



20 - 21

Grow plants that match your growing conditions



26 - 29

Gardening Care



39

List of edible plants you can grow

- 32 **IMPORTANT** Things to remember
- 37 **LIQUID NUTRIENTS** Guideline
- 38 **WATER PUMP** Impeller Change

Grow your own food



THE AEROSPRING GARDEN

The Aerospring is a patent-pending vertical aeroponic gardening system designed for urban home gardeners who want to grow their own herbs, salads and vegetables in limited space. It is ideally suited for apartment balconies, rooftop terraces and backyard gardens and designed and tested for use in Singapore's harsh tropical climate. If you have a larger outdoor area, a few Aerospring units could serve as your own urban farm and allow you and your family to be self-sufficient, never having to buy fresh herbs, salad and even some varieties of vegetables! With growing concerns about food provenance, growing your own is the better and healthier way to provide your home with farm to table fresh produce!

HOW DOES IT WORK?

Hydroponics & Aeroponics is the method of growing plants without soil, by providing all the nutrients a plant needs with water.

Plants are grown in individual pots and placed in the hexagonal vertical hollow columns. The roots of the plants grow out of the pots, these are suspended in the air within the column (aeroponics) and water is fed up from a bucket reservoir through a threaded system of pipes, in the centre of the pole. Nutrient-rich water droplets shower over the roots in the closed system, evaporation from the water lowers the pole's ambient temperatures and the better oxygenation benefits the plants' development and overall health. Water is recycled continuously, making the system completely sustainable. The cultivation technique of aeroponics uses less than 10% of water and space required by conventional soil based gardening. And because the plants enjoy a quicker uptake of the nutrients, produce typically grows 30 - 50% faster.

A vertical garden for everyone



IS THE PRODUCE ORGANIC?

In order to grow organically, you NEED soil. Organic fertilizers must have soil to con=plants cannot be nourished with mineral salts or any other refined substances, even if they are higher in purity than most organic fertilizers. Most of the mineral elements used in hydroponics begin as mined rock or mineral deposits, which are as natural as the earth itself. It's important to note that it is not the elements that are different in organic and hydroponic growing; it is how these elements are obtained and delivered to the plant.

Because the Aerospring grows plants aeroponically, utilizing water instead of soil, its produce cannot by definition be considered "organic". Aerospring Garden's liquid nutrients HexGrow uses highly refined minerals in its solutions, but leave no residue in cultivated produce.

The produce, grown by your own hands will be fresher, tastier and more nutritious than any store bought greens that has had to travel and transit before landing on your table. And the produce is definitely pesticide-free. Moreover, produce is grown in a sustainable system that recycles water and nutrients continuously.

Grow your own food

WHAT IS IT MADE OF?

The Aerospring modules, pipes and nuts are made of PC/ABS plastic, which is an extremely sturdy and durable food safe plastic and UV stabilized for years of use. The bucket and lid are made of HDPE, which is a high quality food grade plastic.

HOW MUCH SPACE DO I NEED AND WHERE CAN I PUT IT?

The standard Aerospring Garden measures 1.65m tall and 0.57m across the bucket lid at the top. The bucket base measures 0.47m. You should allow approx. 1 square metre of floor space to accommodate a unit. It's specifically designed for the smallest of apartment balconies to grow upwards instead of outwards. You will need full or partial sun in the mornings or afternoons to achieve the best food production with your Aerospring Garden.

If you have a rooftop, terrace or open garden space, which is basked in sun for many hours, you should choose a location that enjoys a few hours of shade. If this is not possible, it is recommended to place the Aerospring under cover of an awning, a shade net or to use large umbrellas to shade them during the most intense hours of sunshine. You should avoid placing the bucket in direct sunshine all day.

TIP: If you are placing the garden on tiles or concrete that gets very hot during the day, we recommend raising the bucket off the tiles, allowing for air flow under the bucket.

The system requires an electrical outlet to power the water pump all the time. A 5m long waterproof cable allows you to plug it in from inside your apartment should you not have an electrical outlet on your balcony.



WHAT ARE LIQUID NUTRIENTS? WHAT ABOUT BUGS AND MOSQUITOS?

Liquid Nutrients act as "Plant Food" when growing in water. The liquid nutrient kit includes 1 litre A & B formulations. Part A is designed to enhance plant growth and development. Part B provides trace elements required during the flowering period and for the plant to thrive.

Hexgrow Liquid Nutrients consist of a base N-P-K compound micronutrient fertilizer produced by German fertilizer supplier Compo. Macro nutrients like nitrogen, phosphorus and potassium and trace elements like calcium, magnesium, sulphur, manganese, boron, copper, iron, cobalt and zinc make up some of the elements in this plant food.

Lunch is served. A ladybird about to feast on aphids, it's favourite food.

Grow your own food

Bugs are a fact of life and you must maintain your garden by keeping it free of common invaders like aphids, whitefly and mealy bugs. We prefer to use natural products to help combat any infestations we may have from time to time. This is how we keep our produce pesticide-free! More on organic pest control on page 28-19.

The Aerospring has been carefully designed to keep the system as closed as possible and to keep mosquitos out. If you live in a region prone to mosquito-borne diseases, we recommend placing a Bti (Bacillus Thuringiensis Israelensis) mosquito dunk into the water bucket every month as a precaution. Bti is a natural, biological enemy of mosquito larvae. It's completely safe, non-toxic to humans and other animals but effective at eliminating and preventing mosquito larvae. As the dunk slowly dissolves, it releases a bacterium which is toxic to all species of mosquitos. Bti has been approved for production in organic gardening under US National Organic Program guidelines.

More information:

<http://www.planetnatural.com/wp-content/uploads/2013/04/mosquito-dunks-faq.pdf>

<http://www.tastefulgarden.com/store/pc/Insect-Information-d10.htm>

<http://www.apartmenttherapy.com/how-to-make-natural-garden-pesticides-169168>

WHERE TO PLACE YOUR AEROSPRING GARDEN

Your Aerospring is designed to fit in the smallest of spaces and fits almost anywhere. Allow for about 1 sqm of space to accommodate for growth and access to your Aerospring. Always consider these factors which impact the growth of your crops on your Aerospring:

A vertical garden for everyone

Sunlight

Some plants need more sunshine than others, some less, so some experimentation with placement and shading may be necessary. Sunshine is a major key element to plant health and growth and you should not place the Aerospring in an area without access to it. In warmer climates, 2-4 hours of direct sun is typically enough, whereas in cooler climates like Europe, longer exposure to direct sunshine may be advantageous.

The Aerospring's plant cup design allows you to easily move your plants around to achieve a balanced growth. If one side of your pole receives more sunshine, you can either rotate the garden by hand (use the specially designed Wheelbase) or carefully swap the plants from the shaded side to the sunny side every couple of days. Ensure that the root system of each plant is safely tucked into the module when you move the plants.

Water

Instead of soil, the Aerospring uses water and dissolved nutrients to grow your garden. You will need to fill the bucket with water, so try and place it in an area where you can easily fill and drain the bucket.

Electricity

The Aerospring needs to be permanently plugged into a power socket. The low wattage water pump feeds water up the pole and showers back into the hexagonal columns. It is equipped with a 5 metre long cable to allow it to be plugged in from the interior of your home. A separate timer adaptor that triggers periodic watering, (included with the Aerospring Pro) can be used to adjust the watering schedule based on your climate. You can also find mechanical timers at hardware stores and opt to schedule watering at 15 minute on/off intervals.

Other considerations

Place the Aerospring in a secure area, away from the edge of the balcony if on a high floor and prevent children from climbing or standing on the vertical garden.

Grow your own food

ASSEMBLY

CONTENTS IN THE BUCKET

- A. 9 OR 12 HEXBODY MODULES
- B. 9 OR 12 PIPES & 1 TOP NUT
- C. 75L HEXAGONAL BUCKET & LID
- D. SHOWER LID WITH COVER
- E. WATER PUMP (IN BOX) & 2 SPARE IMPELLER PARTS
- F. SEEDLING KIT WITH ROCKWOOL CUBES, & VERMICULITE
- G. 27 OR 36 PLASTIC PLANT CUPS
- H. LID ACCESS PORT
- I. 1M FOOD GRADE EMERALD GREEN WATER PUMP HOSE WITH MALE & FEMALE QUICK CONNECT FITTING
- J. WINGNUT SCREWS, NUTS & WASHERS
- 1L HEXGROW LIQUID NUTRIENT SET WITH MEASURING CUP

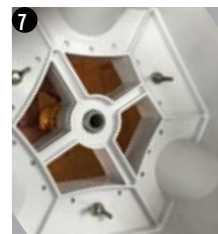
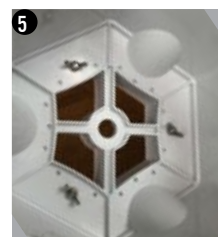
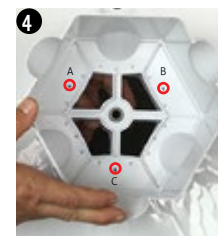


1. Place bucket in your preferred spot. This should be an area of your balcony space that receives ample sunlight.

Make sure the bucket is placed on a level surface.

2. Hold the lid with one hand and take one of the Hexbody modules in the other.

A vertical garden for everyone



3. Line up the interior crosses of lid and the Hexbody and slot into lid.

4. LOCATE the holes (A, B & C) in the base of the Hexbody attached to the lid and insert supplied screws.

5. Secure the three stainless steel wingnut screws with washer and nut underneath.

6. Pull the male quick connect fitting apart from the hose's female quick connect. Insert the threaded pipe end of the male quick connect through the centre hole from the underside of the lid.

7. Hold inserted fitting and lid together in one hand and have a threaded pipe handy in the other.

8. Screw the first threaded pipe in, thus securing the male quick connect fitting below with the lid.

9. Tighten the threaded pipe with the fitting securely. Your first Hexbody module should now be fastened tightly to the lid.

10. Unbox and prepare the pump by locating the smallest nozzle in the box to screw into water output of pump.

Grow your own food

11. Insert the end of the water hose into the water pump nozzle.



12. Place pump in the bucket. The final position of the water pump should be slightly off centre, towards the edge of the bucket.



13. Lead the power cable of the water pump underneath the arched lip of the lid as you put the lid on the bucket. Reach into access port with your hand and find water hose connected to the pump. Reach your hand through the access port in the lids and click the female quick connect fitting into the male quick connect fitting on the underside of the lid. Make sure you hear it click securely.



14. Align the second module on top of the base Hexbody and screw together with the lower pipe. This starts connecting the Hexbody modules to become your Aerospring pole, so continue stacking and screwing pipes together



until the last module. Make sure that each Hexbody module fits snug into each other.

15. Fill the bucket with water through the access port as you continue to stack the Hexbody modules. Fill with clean tap water until almost full but leave approximately 5cm buffer from the top. Affix the shower lid onto the final piece of the Hexbody module.

WARNING - DO NOT OVER-TIGHTEN THE THREADED PIPES!

Overtightening the pipes puts undue pressure on the system and may damage the lid. You should be able to loosen each of the pipes without too much effort.

A vertical garden for everyone

16. Secure the shower lid by tightening the plastic nut onto the final threaded pipe firmly, but again, without over tightening it.



Snap the cover onto the shower lid.

17. DO NOT switch the water pump on until the water bucket is filled. In the mean time, start placing seedlings into plant cups.

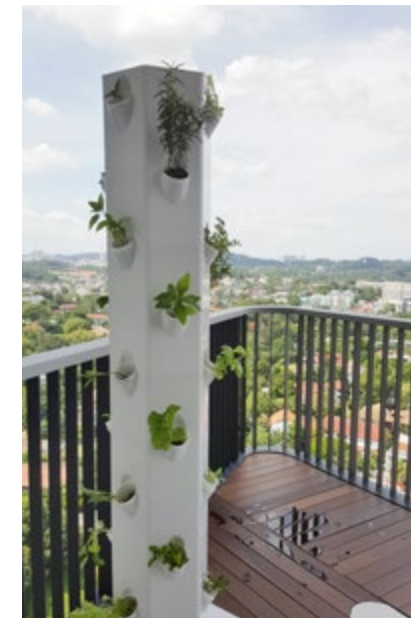


18. HexGrow Liquid nutrients comprise of A & B Solutions. DO NOT mix these two solutions together.

19. Add 200ml of HexGrow A to the water in the bucket.

20. Then add 200ml of HexGrow B to the bucket.

Mix the water with a large spoon or utensil so that the nutrient solution is well dispersed. Close the access port with the lid. Then switch the water pump on and start growing with your Aerospring!



SO HOW DO I START GROWING?

GROWING SEEDLINGS - HYDROPONICALLY

You don't need prior gardening experience to start vertically growing with the Aerospring. But if you do have green thumbs, you'll be amazed at what and how much can grow in a short space of time and space!

Any seedlings placed in the Aerospring must first germinate outside of the system. Germination depends on the seed/plant you wish to grow, and it can take anything between 48 hours and 3 weeks for seeds to sprout. Only insert the seedlings into the system when roots start growing out of the rock wool cubes. The plant will typically be 5-10 cm tall at that stage and the true leaves will have emerged as well.

You'll need to ensure that the seedlings receive sufficient sunlight after they start sprouting. You can either place them in partial sun for a few hours a day or under fluorescent or LED lights (use a desk lamp) to encourage the plant to grow and root.

When you first set up your Aerospring and fill it with seedlings, only dose with **200ml-250ml** each of HexGrow A&B Liquid Nutrient solutions. You should dose **300-350ml** from the second



month onwards. Rockwool is a fantastic hydroponic growth media offering excellent water and air holding capacities.

Soak a slab or individual rockwool cubes in water for 30 mins before sowing seeds. Fill a tray or bucket or



solid tray with water. Consider adding a capful of pH down if you have high pH tap water. Take care when handling dry rockwool cubes, as the fine fibres could cause itchiness.

Carefully place seeds into the pre-cut opening in the rockwool cubes. Don't place them too deep into the openings, just below the surface is ideal.

Lightly fill each seed hole with the vermiculite included. For smaller seeds, such as lettuce or mint, only fill the hole half full with vermiculite. This will keep enough moisture around the seed for good germination. Spray a little water over each cube to wet the vermiculite.

Make sure the rockwool cubes are moist every day, especially if there are roots growing through the cups, but don't sit them or saturate in water. After the seeds have sprouted through the vermiculite, move them into some sunlight. Maintain mois-

ture of cubes throughout entire germination process.

After 1-3 weeks, you should have healthy seedlings with a solid root system growing from your rockwool cubes. The seedlings are now ready to be placed in the Aerospring and will continue to grow to maturity in the system.



Grow your own food



HOW TO START SEEDLINGS

GRODAN ROCKWOOL CUBES

The Aerospring is supplied with a seedling starter kit, which contains rockwool cubes and vermiculite. Due to international restrictions about importation of seeds, we cannot supply these in the box. We however offer a coupon code for discounted seeds online or you can buy your own from any garden centre.

Find a plastic container (Tupperware works), place your seeds in the moistened rockwool, then place the rockwool cubes in the container and watch your seedlings sprout! A fun activity to engage the kids with!

Thoroughly wet and soak the rockwool starter cubes for 30 minutes. Place in a tupperware or similar plastic container. Each variety of seed requires a different amount of seeds per cube.

A vertical garden for everyone

Thin out any extra sprouts so that there is only ever 1-2 seedlings in each cube.

- For lettuces, place 6-12 seeds into cube
- For herbs, place 3-6 seeds into cube
- For vegetables with larger seeds, eg. tomatoes, cucumbers and chillies, place no more than 1-2 seeds per cube



PROPAGATE WITH CUTTINGS



Cut an existing mint stalk about 10 cm long. Remove lower leaves by peeling them downwards along the stalks. Place the stalk in a jar of water and wait for roots to form. This should happen in 3-7 days. Change the water every two days.

Once it properly develops roots, transplant to a cube by placing the rooted cutting between a sliced rockwool piece. Sandwich the cutting and place in a white cup.

If you live in a region with less humidity, place a transparent plastic bag (like a ziplock bag) over the cutting and container to retain moisture in.

Grow your own food

WHAT CAN I GROW?

START AN EDIBLE GARDEN, AT HOME AND ON YOUR BALCONY. EAT WHAT YOU GROW.



1. Tuscan Kale
2. Basil, Thyme, Oregano, Parsley & Sage
3. Bolloso Basil
4. Mint
5. Telegraphic Cucumbers

Aerospring Gardens has grown a large variety of edible plants over the last couple of years and has found that European herbs, salads and some vegetable varieties yield the best results.

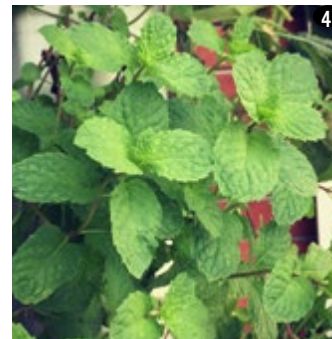
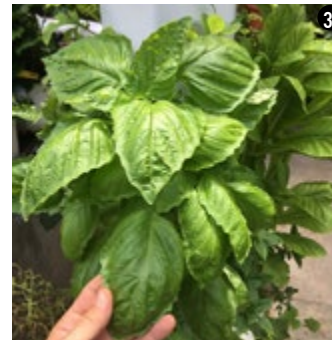
See page 22-23 for a selection of the star produce performers which have been suc-

cessfully grown in an AeroSpring Garden.

Check in at www.aerospringgardens.com and our Facebook page www.facebook.com/aerospringgardens regularly to see what new varieties we are growing. There is also a closed Facebook group exclusively for AeroSpring Gardeners (www.facebook.com/aerospringgardeners), which serves as a forum to post, ask questions and show off your gardening successes. You will need to send a request to join this group separately.

If you cook at home or enjoy mint or thyme in your cocktails, you'll be able to savour the freshest herbs and greens, grown right on your balcony!

A vertical garden for everyone



Over time, the AeroSpring vertical gardening system will save you money buying imported herbs and greens, reduce your carbon footprint and provide you with a new, enriching hobby! Gardening is something you could involve all members of the family in and may encourage your children to eat more greens! Share your excess produce with neighbours or bring fresh herbs and homegrown cucumbers to dinner parties and the office!



Grow your own food



GROW PLANTS THAT MATCH YOUR GROWING CONDITIONS

Taste Preference?

What herbs do you like to cook with? What produce do you buy at the store? The Aero-spring grows herbs and leafy greens best and almost any kind of herb suitable for growing in warmer climates has been a success. Growing

a variety of herbs and greens for cooking and making cocktails with, has yielded the best results.

Cost & Availability of Produce

Are you tired of paying for expensive imported herbs that are never

fully used? Is it difficult to get dill & fennel? Be it for lowering your grocery bill, making sure you have your favourite herbs handy or for your own peace of mind about where your food comes from, there's a solution: grow your own! Pretty soon, you'll

A vertical garden for everyone

find yourself with more herbs than you know what to do with and impress friends with your gardening prowess!

Growing conditions

Once you have figured out what you would like to grow and eat, refine the list by looking at your own growing conditions. How much sunshine do you get, how intense is the sun when it shines? Keep in mind that not everything will thrive under your growing conditions! Basil and Mint enjoy a lot of sunshine and are easy to cultivate in warm climates. Salads and other delicate herbs will need some sunshine but they also need to be in the shade during the hottest hours of the day.

If you want to grow tomatoes and cucumbers, you'll not only need an abundance of sunshine, but a little vertical space for them to spread out. Creepers need a support system like a trellis for the vines and tendrils of the plant to rest on as it



bears you fruit!

Check the germination temperatures and growing needs of individual plants before embarking on your growing journey. There are many online resources that indicate ideal growing temperatures of most plants.

Arranging your Plants

Now that you have decided what you want to grow and eat, you need to determine how many of each of the plants you need and of course where to put them on your Aerospring.

It's a good idea to design your Aerospring planting arrangement like a pyramid. Larger plants, such as cucumbers and tomatoes, should always be started at the lowest level of the hexagonal vertical sections (and avoid planting more than 2 of these, as their root systems might overcrowd otherwise). Put plants like basil, mint and other herbs at the top of the pole. Leafy greens like kale, arugula and lettuce should be placed around the middle of the pole. You can easily move your plant pots around in the Aerospring so as to ensure that all your plants have enough room to grow.

Grow your own food

PRODUCE PERFORMERS

HERBS, LEAFY GREENS, PEPPERS AND VEGETABLES FROM YOUR BALCONY GARDEN!

1. Sweet Genovese Basil

2. Assortment of Chili Peppers & Habaneros



1



2

“ MORE
BASIL THAN
FAWLTY
TOWERS “

A vertical garden for everyone

Basil

Add this fragrant herb to dishes within the last 5-10 mins of cooking time for fullest flavour.

FULL SUN, PARTIAL SUN
| G: 2-3 DAYS

Chili Peppers

Cultivate rare and difficult to source peppers and the spiciest chilies from around the world.

FULL SUN, | G: 10-14
DAYS

Kale

Juice, Salad or as plain Kale chips, this healthy collard green grows well in full sun or partial sun.

FULL SUN, PARTIAL SUN
| G: 3-5 DAYS

Mint

This herb is a universal favourite. Use in drinks, make minty water and add to salads, prefers partial sun.

PARTIAL SUN | G: 10-14
DAYS

3



4



3. Peppermint

4. Tuscan Kale

5. Mustard Leaf

Mustard

Add this spicy leafy green to stir-frys or raw to salads for a spicy kick.

FULL SUN, PARTIAL SUN
| G: 3-5 DAYS

Parsley

A staple herb in any pantry, both fresh and dried, add as a garnish or toss in salads. Prefers partial sun.

PARTIAL SUN | G: 7-14
DAYS

Celery Leaf

Celery leaves make a great addition to stir-fries and soups.

FULL SUN, PARTIAL SUN
| G: 7-10 DAYS

Cucumbers

Rich in water, these low-calorie veggies contain many nutritional benefits, including hydrating properties and valuable nutrients.

FULL SUN | G: 4-7 DAYS

5



Grow your own food

MAINTAINING YOUR AEROSPRING GARDEN

GARDENING MADE EASY. NO SOIL, NO MESS.

The Aerospring Garden takes over most of the important tasks associated with growing so you can enjoy your garden without too much effort. You can even go away for a long

weekend and not worry about watering the plants. You need only ensure that your unit is plugged in, that there is sufficient water in the bucket and that the unit is filled with seedlings



and plants. As the plants grow larger and mature, they will take up more water and you will need to check water levels more frequently and regularly. Always ensure there is enough reserve of water in the bucket if going away for

a few days though.

Should you need to top your bucket up before the next water change, observe this guide to ensure a balance of liquid nutrients in the water if you do not have an EC Meter:



“ ANY-BODY WHO WANTS TO RULE THE WORLD SHOULD TRY TO RULE A GARDEN FIRST “

Top a known amount of water into the bucket. Add 3-5ml of both A & B HexGrow per litre of top up water. Note that you should wait 7 days between nutrient top ups. So even if you top up water several times a week, only add nutrients to the top up once a week.

However, over time this method can create an imbalance of the different mineral concentrations in the

bucket, which is why you should change all the water out every 4 to 6 weeks.

We recommend the use of an EC Meter in order to regulate your nutrient level in your bucket accurately from month 3 onwards. Our webstore carries a range of meters for every budget. We also recommend checking your pH once a week, either with a meter or kit testers.



A vertical garden for everyone



GARDENING CARE

THINGS TO WATCH OUT FOR ON YOUR VERTICAL GARDEN

Harvest any herbs, salad and vegetables regularly and trim any wilting or dead leaves. Check the underside of all your plant's leaves for bugs. Inspect the roots of your plants regularly to ensure it is free of disease or rot. If they are soft, brown and easily break apart when you touch or pull on them, you may have a problem. Healthy roots should be white or tan coloured and succulent when you tug at them.

Tomato plants need to be "pinched" and pruned and cucumber grow points need to be "nipped" so the plant diverts its energy to flowering and fruiting. Tomato and Cucumber plants also require support for their vines via a trellis and need to be guided around them. You may need to "hand pollinate" flowers if natural pollinators like bees haven't come to visit your garden.

Rotate some of your plant pots or the Aerospring itself, so that all your plants enjoy a sufficient dose of sunshine across the week. Replace or treat any plants affected by bugs or disease.



" DESPITE THE GARDENER'S BEST INTENTIONS, NATURE WILL IMPROVISE "

A BUG'S LIFE

All creatures great and small need to eat, and in the process of feeding, bugs can wreck havoc to your garden, even completely destroy it. As with all things in nature, there is a balance.

Scale insects suck sap out of plants and are probably the most common to be found in the everyday edible garden. Aphids, Whitefly, Mealybugs, Scales, Spider mites, Thrips and Leafborers are the names of the most notorious members of this family of sap suckers. Caterpillars are also worthy adversaries. Moths and butterflies can visit your Aerospring Garden and deposit offspring, which can consume 3 times their own body weight in a day. Holes in leaves and coffee grain-sized black residue on the lid are a dead giveaway, that you have a hungry caterpillar or a grasshopper. Shriveled Basil growing tips could mean you have aphids curbing the growth of the plant. If you see tiny white flies clustered under your chilies and mint, you have whitefly.



When you are in the garden, pay careful attention to the leaves, especially the underside of them, the top shoots and the stem of the plant. Damaged or curling leaves are an indicator that a plant may be infested with bugs, so look closer for eggs, larvae and adult insects, which vary in colour according to species and host plant. Check the junctions at stems, as mealybugs park their tiny eggs in those nooks. Look for bronze stippling and white or yellow leaf spots too. If a plant is severely infected, consider disposing of it and starting afresh as it may infect other healthy plants around the pole. Cut away any dead, drying, infected or wilting leaves on plants, cutting close to the stem.

If you detect an initial infection, use a garden sprayer to spray the plant with a mist of water, ensuring that as many of the insects or larvae are removed from the plant. Carefully remove the affected plant (except for large plants like cucumber and tomatoes) from the pole and gently spray it from top to bottom, between the stem junctions and underneath the leaves, giving it a good wash in the early morning before the plant is exposed to any harsh sunlight. You want to do this outside sunlight hours because tiny water droplets act like magnifiers in direct sunlight and cause leaf burn. Try and wash as many bugs off when spraying the plant. Place the plant and its roots carefully back into the pole after the wash.

Follow by spraying affected plants with insecticidal soap sprays or horticultural oils like neem oil. Spray just one leaf first and wait half a day to see how it reacts before applying to the entire plant. If the leaf looks fine, apply the spray to your plants every three to five days, as a single application may not kill or remove them all. Repeat this process if it has rained and keep checking between sprays to see if you are winning the war against bugs.

“ ON EVERY STEM, ON EVERY LEAF, AND AT THE ROOT OF EVERYTHING THAT GREW, WAS A PROFESSIONAL SPECIALIST IN THE SHAPE OF GRUB, CATERPILLAR, APHIS, OR OTHER EXPERT, WHOSE BUSINESS IT WAS TO DEVOUR THAT PARTICULAR PART “

1. Hungry & magnificent adult grasshopper

Grow your own food

ORGANIC PEST CONTROL

TRIED AND TESTED HOME CONCOCTIONS TO BATTLE BUGS

To start a simple 2% insecticidal soap spray, use a pure liquid soap like Dr Bronners Castile soap or Meyers natural soap. Don't skip this step and use dishwashing liquid or handwash, because it's the fatty acids contained in natural soaps that do damage to the soft cell bodies of the bugs. Mix 1 tablespoon of liquid soap with a litre of water in a clean spray bottle, (add optional drop of lemon or orange essential oil), shake and spray affected plants, coating the underside of the leaves and the stalks with your hands.



1. Hungry caterpillar devouring red amaranth leaf

2. Aphids on a cucumber leaf

You can make a stronger variation of this spray by pureeing 10 chilies, 3 cloves of garlic and a litre of water. Strain the mixture and add to a litre of basic soap mixture. Separate and store in fridge for up to two weeks but be careful when preparing and applying this solution.

Neem oil is a non-toxic, plant derived horticultural oil which you can get in concentrate and mix with water from any

garden centre. It's widely used as an organic insecticide, fungicide and miticide, so it offers quite a broad spectrum of protection and treatment for plants. Neem oil deters insects from feeding on your plants, acts as a repellent and interferes with the insect's hormone systems. Some plants don't react well to neem oil however, so always spray a test patch on a leaf before treating the entire plant.

A vertical garden for everyone

IMPORTANT

THE AEROSPRING GARDEN GROWS BEST OUTDOORS.

EDIBLE PLANTS NEED AN ABUNDANCE OF SUNSHINE & FRESH AIR TO THRIVE.

- Make sure the Aerospring is always plugged in and never switched off! Because the roots are suspended in air, they will dry out in a matter of hours if it doesn't receive its scheduled shower of nutrient rich water. If your power mains have tripped, ensure the water pump in your Aerospring is flowing after fixing a power trip. If you are without power for many hours, you can use the measuring cup to scoop water from the bucket and water the system from the top every hour until your power comes back on.
- Top up the bucket with water on extremely hot days or if you are growing a very thirsty plant e.g. cucumbers or tomatoes. The water pump should always be completely submersed, never let the water levels drop below the pump.
- Every 4-6 weeks, the water in the Aerospring bucket should be emptied, and re-filled with water. Follow instructions in the water change guide on Page 32-33.
- After refilling the bucket, dose with liquid nutrients. For the serious gardener, it is recommended that you purchase a pH/EC-measuring device to ensure optimum levels of nutrients in your bucket if you have to top your water up frequently.
- Check the water pump and remove any root debris from the filter monthly. Add Bti mosquito dunks/liquid monthly or granules/liquid to the water fortnightly.



Tuscan Kale,
ready to harvest.

- Use a sponge or cloth to scrub between joins of Hexmodules on the pole every now and again.
- Everyone's growing conditions are different. Adjustments to the Aertimer (included with the Aerospring Garden Pro) settings should be made based on the growing environment, type of crops grown and position of your Aerospring.
- Observe if your Aerospring is receiving enough or too much sunshine and adjust its position accordingly if required. Remove any dead plants from the pole and replace with an empty cup until you can replace with a new seedling.
- **TIMER USERS:** Override the timer and keep the water pump on continuously should your conditions be too hot. Return to timer setting at night when temperatures cool.



1. Disconnect quick connect fitting by pulling downward on the connector

2. Lead water hose out and switch pump on



WATER CHANGE

You will need to change the water in your Aerospring bucket and re-dose nutrients once every 4-6 weeks, but we've designed a quick and easy way to do this on your balcony without any mess! Try and do this during cooler hours to minimise plant stress. If your water is noticeably chlorinated, you may want to employ a KDF chlorine filter, as chlorine has an adverse affect on plant health.

Consider giving your system a full clean every 6 months. Remove all plants, disassemble the system, stack the hexbodies in threes - include pipes, pump and hose - fill with clean water and soak all parts in a light solution of disinfectant eg. H2O2 for a few hours. Rinse and scrub all parts clean, re-assemble and re-insert only healthy perennial plants.



STEP BY STEP INSTRUCTIONS

- Switch pump off at the mains.
- Reach into access port with your hand & unclick the quick connect fitting and hose connecting the water pump to the underside of the hexmodule lid.
- Lead the 1 meter hose, still attached to water pump, out of access port.
- Ensure the hose is pointing downwards
- before restarting the pump.
- Lead hose to drain pipe, grass or potted plants. Switch pump on. The remaining nutrients in the water can be recycled for your soil based plants
- Switch the pump off again before bucket completely drains out. A little left over water in the bucket is ok to leave.
- Pull the water pump out through the access port and give it an inspection internally after opening the front cover.
- Refill the bucket with water in the mean time.
- Check for any roots or debris in or around the impeller shaft, filter and intake. Rinse the filter sponge under a tap.

Grow your own food



- Inspect the integrity of the impeller every couple of months and replace if necessary. Two spare impeller parts are included with every pump (see water pump maintenance guide on page 38).
- Place the water pump back into the bucket after inspection.
- Reach through the access port and guide the hose back to the un-

derside of the lid's male quick connect. Connect and click it securely in place.

- Reach back into the water and ensure the pump is standing upright on its suction cups. Switch the pump back on and make sure that water flows up through the system.
- If everything is in order, dose the bucket with 250ml – 350ml of

A & B Hexgrow solution each separately from month 2 onwards. Mix the water and nutrients well in the bucket, use a plastic utensil to stir it up.

- Drop another Bti Mosquito Dunk into the bucket (optional). Close the access port.

• **Grow on!**

A vertical garden for everyone



LIQUID NUTRIENTS GUIDELINE

HexGrow Liquid Nutrients is a specially formulated plant food that contains essential elements for plant growth and development. This two part formulation of A & B solution is ideal for hydroponic & aeroponic growing but can also be used for soil gardening by diluting the solution 1:100. Always use the A solution in combination with the B solution.

LIQUID NUTRIENT DOSAGE:

Seedlings (2-4 weeks from seed)

- Dose 200-250ml of HexGrow A and HexGrow B

Developing & mature plants (Month 2 onwards)

- Dose 300-350ml of HexGrow A and HexGrow B

Grow your own food

WATER PUMP MAINTENANCE & SERVICING

1. Remove the filter cover

2. Twist the pump inlet front cover plate 45 degrees counter clockwise off the seal, then lift the cover plate off exposing the shaft housing

3. Grab the impeller blade with fingers and lift it from housing, there's a slight pull from the magnet

4. Ensure the metal shaft is seated along with the rubber stopper in the shaft housing

5. Slide the new impeller into the centre of the shaft housing, with the metal shaft in the centre.

6. Ensure that there is a rubber stopper at both ends of the metal shaft, both inside the shaft housing and the one exposed towards you.

7. Place the front cover back over the pump inlet and twist it clockwise securely in place, ensuring the seal is locked.

8. Snap the filter cover back on the pump and place into bucket again. Ensure the hose is connected to the quick connect fitting and hose connecting the water pump to the underside of the hexmodule lid.

Switch pump on. **Grow on.**



A vertical garden for everyone



GROW YOUR OWN FOOD

EDIBLES SUITABLE FOR THE AEROSPRING GARDEN

herbs

Mint
Thyme
Rosemary
Basil
Thai Basil
Coriander
Dill
Parsley
Tarragon
Oregano
Sage
Indian Borage
Stevia
Lavender
Chives

"LIFE BEGINS THE DAY YOU START A GARDEN"

1. A Folio di Lat-tuga Basil

2. Dill

leafy greens

Butterhead Lettuce
Leaf lettuce
Kale
Arugula
Mizuna
Mustard Greens
Mustard Spinach
Red leaf Amaranth
Chard
Bok Choy

vegetables

Chillies
Peppers
Capsicum
Tomatoes
Melons
Cucumber
Spring Onion
Passion fruit

ABOUT US

A little over 4 years ago, we had a dream: to grow tasty heirloom tomatoes on our little apartment balcony in Singapore and save ourselves some money. Since then, we have grown all of our own herbs, leafy greens and some vegetables in a patent-pending system we developed in an effort to take back control over what we eat and do it sustainably.

We're not farmers, just ordinary urban dwellers who wanted to grow our own food in limited space and we developed a love for gardening in the process. The Aerospring Garden is our gift to all brown thumbed gardeners of the world, and we hope to change people's perception to growing and urban farming by providing a system that takes the guesswork out of the equation.

We hope you enjoy growing with our vertical garden and become as passionate about gardening as we have!



V4.0 - 07/17

Distributed by



www.centaur-asiapacific.com | Info@centaur-asiapacific.com