The AEVA

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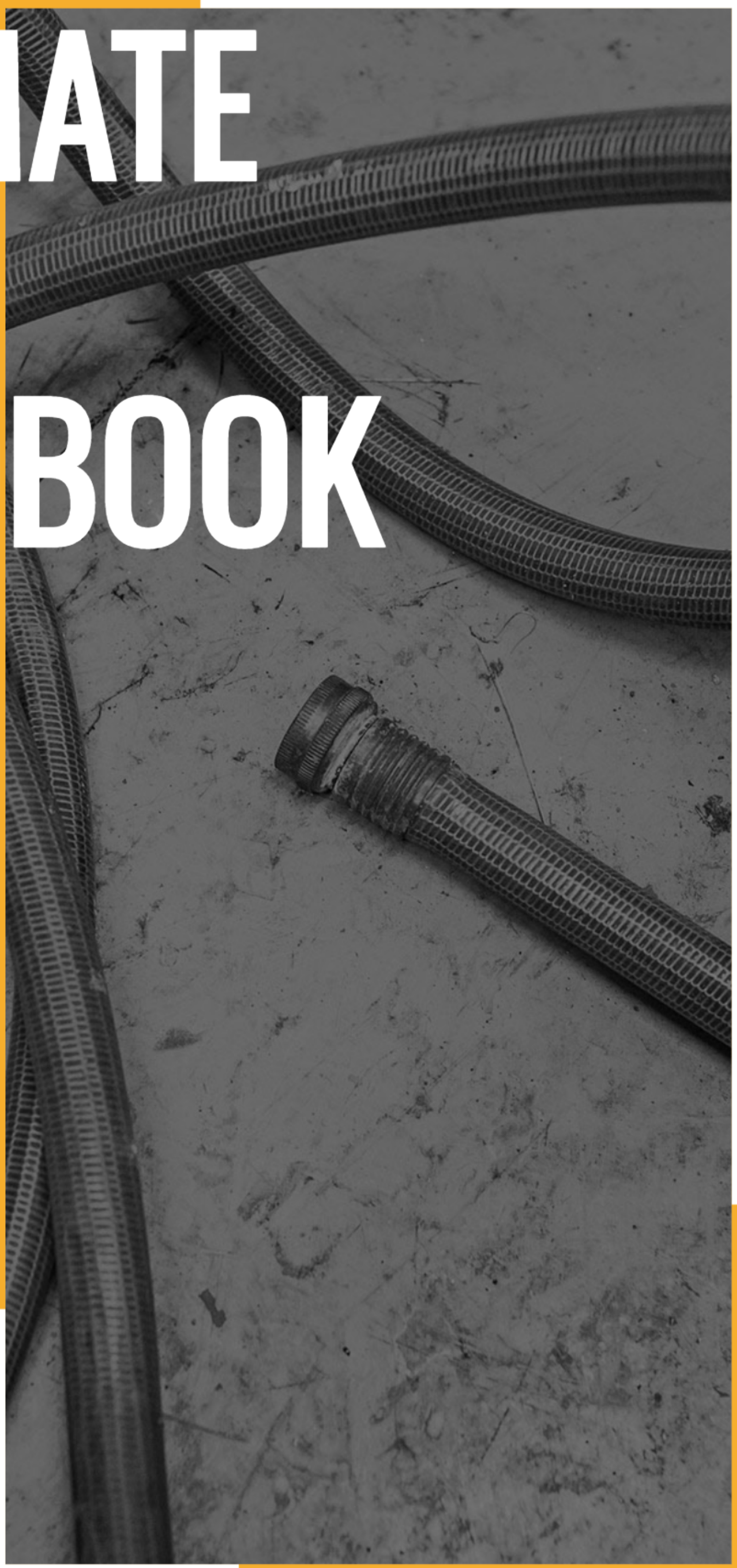
AEVA Operations Manual

BY JUST VERTICAL

THE ULTIMATE USER HANDBOOK



Welcome to the Food Revolution! You are embarking on a journey towards a healthier and happier home. We are so glad that you could join us.

The important changes the world needs only happens because of people like you. This book has everything you need to succesfully grow with the AEVA.

We believe in our product and have backed it with a 2-year warranty.

BY

Just Vertical

This book was written by all of our amazing engineers, scientists, and designers. If you have any questions please reach out to us (support@justvertical.com)

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Set-up

Setting up your AEVA is simple thanks to a little bit of work on our end, you'll need just a few minutes once it arrives to get growing. We've kept it quick for you because you have better things to do (like tasting our 10 different kinds of kale!)

Step-by-Step:
1. Choose a nice place to show off your AEVA. It needs to near an outlet and ideally has neutral light with a room temperature of 18 - 25 degrees celsius.

2. Unpack and make sure all your parts are inside the cabinet. you will find:

A. 1x power bar with a GFCI attachment
B. 1x 12L BPA-free water reservoir
C. 1x Submersible pump in your water reservoir
D. 2x Timers for lights and irrigation
E. 1x Just Vertical starter kit
F. 1x Wall anchor and screws

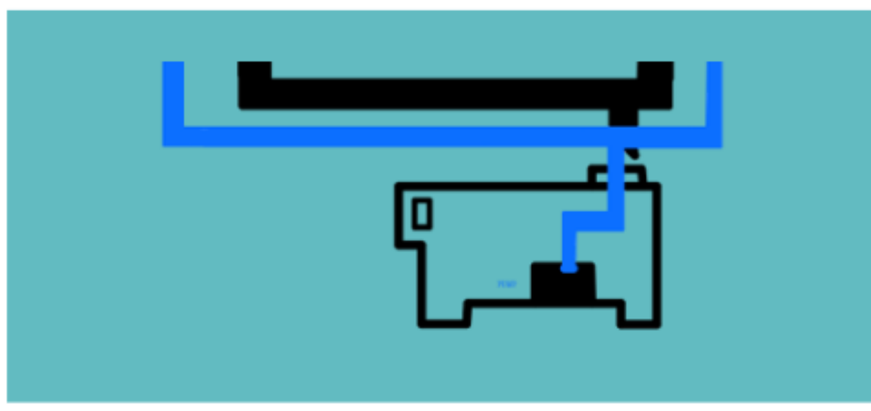
3. Set your light timer (the one with two outlets) to when you want your lights to turn on and off. Raising a segment or 'slice' of the timer will turn the lights off for that period of time. For the starter kit, 18 hours of light is ideal. If you want your lights on from 6AM to midnight raise the slices between 12AM and 6 AM.

4. Your irrigation timer (the one with one outlet) should be set to turn on for 15 minutes, then off for 60 minutes repeating throughout the day. This would be 1 slice down and 4 slices up all the way around. It doesn't matter what time you start at!

5. Make sure both timers are set to "timer on" and not "outlet on"

6. Check that your clear hose (which supplies the water) is firmly into the tee (give it an extra push just in case you are stronger than us!) and is running into the reservoir.

8. Make sure your reservoir is directly under the black drain as seen in this diagram.



8. Fill your water reservoir with cold tap water.

9. Plug your Aeva in and press the 'reset' button on the GFCI. Your AEVA should now come to life. If the lights and pump don't turn on, check that the power bar is switched on and the timers are in the right position (try turning the dial on the timers). If you still have issues please reference the troubleshooting section.

Planting Seeds

When you order seeds from Just Vertical you are getting the guarantee of seeds that we have tested ourselves. If any of our seeds don't germinate within 21 days we will replace them for free! Seeds are a living thing and sometimes they just don't germinate, so don't worry if a few don't come out right away!

Follow these steps each time you plant seeds:

1. Take your peat moss plugs and seed packets out of the box.

2. Open the seed package and insert 2-3 seeds into each peat moss plug. At the end all seeds should be used as you are given the right amount per plug.

3. Insert the now seeded peat moss plugs into the empty pods in the AEVA (seed hole facing out) and push them down as far as possible.

4. Place the germination domes on the plugs once they are in the AEVA.

5. Ensure that the reservoir is filled to its upper limit line (this is the top of the 'window' on the container).

6. If you are starting seeds for the first time simply fill the water up to the line and don't add any nutrients yet!

7. After two weeks add 20 ml of both the A and B 2-part nutrient. On larger bottles there is a built-in measuring stick while the smaller bottles hold 20 ml and you can use the cap to measure in 6 ml increments.

8. Now let the AEVA work its magic. Your domes will be ready to come off when the leaves of the plants start to touch them.

Helpful Tips

Running seeds under warm water before planting will help promote germination?

If you spray the germination domes once a day you have a better chance of promoting heathy germination.

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A NOTE ON NUTRIENTS AND HOW MUCH TO USE

Nutrients are the Food for the Plant

Using Nutrients

Using nutrients is an easy process. If you are starting from a brand new tank of water you put a little more, if you are just topping up you put in a little less. This is because some nutrients will always remain in the water from last time.

If you are growing leafy greens or herbs you will use Aqua Vega and add 30ml of A and 30ml of B to the 12L reservoir to start and then after that add 10ml of A and 10ml of B every two weeks

If you are growing flowering plants such as tomatoes or strawberries you will use Aqua either Vega or Flores nutrients and start by adding 30ml of A and 30ml of B to a fresh tank. and then after that adding 10ml of A and 10ml of B to the reservoir every two weeks. Keep an eye out for when you see your first flowers, at that point if you havent already you will need to use the Flores blend of nutrients.

Common Questions

Q: What are the 'nutrients'?
A: Nutrients are the basic building blocks of plant life made up of phosphorous, potassium, and nitrogen. These are the same elements you find in garden soil.

Q: How are they made?
A: Our nutrients are a mix of salts that are put into water. They are chosen together to provide the best base for plant growth. Each salt is made differently, our calcium for example is derived from limestone.

Q: Are these natural?
A: Yes, they are quite literally salt of the earth!

Q: Can I store both A & B in one bottle?
A: No you cannot. If you try they will start to bond to each other in the bottles. They are only meant to be mixed when ready for the plants.

Q: How should I store the nutrients?
A: Store your bottles in a dark area at room-temperature (in the AEVA's cabinet works).

Q: What is the recommended pH for plants?
A: The recommended pH is 5.5 - 6.5.

Q: I am monitoring TDS what should I aim for?
A: Lettuce & arugula (500-750ppm/1.0-1.5 mS/cm).
Kale and brassicas (600-1000ppm/ 1.2 -2.0 mS/cm).
Herbs (600-800ppm/ 1.2 - 1.8 mS/cm),
Flowering (600-1000ppm/ 1.2 - 2.0 mS/cm).

Pruning, Stakes, & Pollination

Pruning

Pruning is important to stop plants from overcrowding in your system. It also helps to keep them growing straight and proper. To prune your plants, use clippers, pruners, or your fingers to take off any yellowing or dead leaves (don't worry you will normally get a few of these per plant!). Next, if leaves are growing directly into the light bulbs take those off as they will 'burn'.

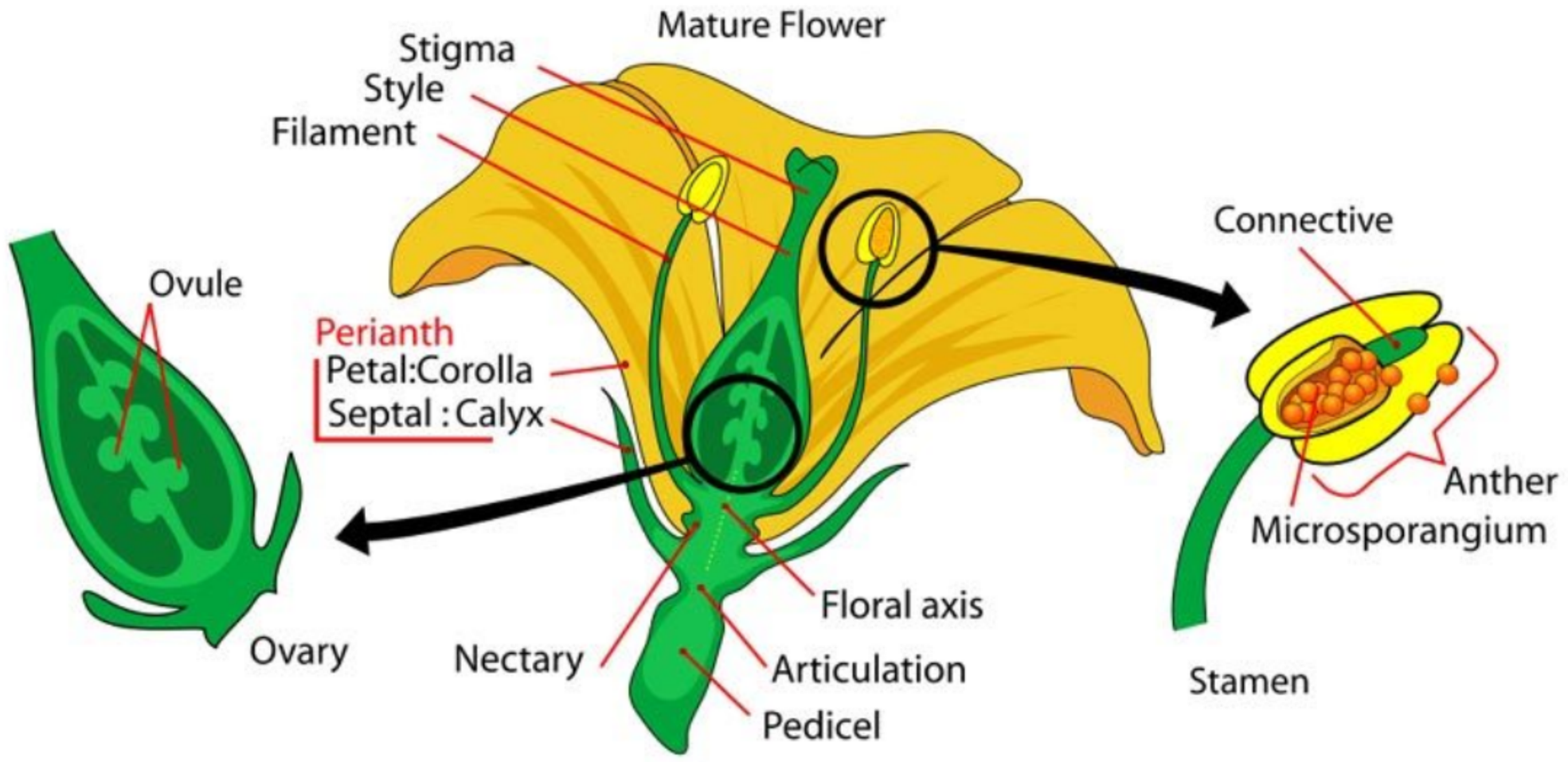
Stakes

Stakes are used when your plant has grown to about 6" (15 cm) in size. the plant support helps the plants to continue to grow in an upright position and makes sure no water can come out the front face of the AEVA. To install the plant stake, slide the stake in between the peat moss plug and the black pod. Then loosely tie the plant to the support.

Pollination

Only flowering plants require pollination. Pollination is how fruits and vegetables are produced from flowers. When you are gardening indoors there are no natural pollinators like bees to move pollen, so you have to improvise! The two common plants that are grown in the AEVA requiring pollination are tomatoes and strawberries. To pollinate these you have three options: by hand, vibration, or wind.

To pollinate by hand use a small brush (toothbrush, paintbrush, makeup brush, etc) to move the pollen within the flower from the male to female portion by brushing the middle of the flower then the sides. Vibration pollination works shaking the pod gently so that the pollen comes loose. Wind pollination can be done by setting up a small fan nearby to generate air movement causing the pollen to move around. This should be done once a day for 3 days and then leaving a day of rest before repeating. See below for all the parts of a flower!



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Harvesting

Common Leafy Greens & Herbs

When harvesting there are three rules to follow:

1. Taking more than 1/3 of the plant at once can shock and kill it so be careful.
2. If the main stem is going 'woody' then the plant is bolting and it is time for a new one.
3. If your plant is growing flowers and the stem is becoming solid wood it is time to replace it.

Arugula Arugula is ready to harvest 3-4 weeks after germination. You can harvest continually by taking only a few leaves at once or take the whole plant at once.

Lettuce Lettuce is another fast growing plant ready for harvest 3-4 weeks after germination. You can harvest continually by taking only a few leaves from the outside or you can take the whole plant at once.

Kale Kale is meant to be harvested by leaf starting with the leaves closer to the base of the plant.

Spinach Spinach can be harvested as baby spinach for a softer flavour in which case you can harvest by leaf. However, if you want mature spinach we recommend you take the whole head at once.

Basil Basil can be harvested many times throughout its life and responds well to being trimmed. Cut basil from the top canopy of the plant to encourage fuller growth.

Mint Mint tends to get fresher the more it is harvested and should be continually harvested once it is a 3 or more inches long. Harvesting mint is like cutting hair so trim it from the base making sure to leave it about 2 inches of growth to come back from.

Cilantro Cilantro (also known as coriander) is ready to harvest when it is 6 inches tall. To harvest just pick off what you need or cut off a bunch at once. Enjoy the fresh tacos!

Rosemary Rosemary is a slightly slower growing herb that is ready around 6 weeks of growth. Each time you harvest you can take about 2 inches off each branch.

Lemongrass Lemongrass is a tropical plant with an elegant citrus flavour. It will be ready for first harvest when the steams are about half an inch thick. To harvest snip entire stalks closest to the main stem first as they have the best flavour.

Parsley Parsley will take approximately 10 weeks after germination to fully develop and should be regularly pruned as it grows. To harvest cut the stalks from the outside in and as close to the base of the plant as possible.

Dill Dill will take approximately 8 weeks to fully mature after germination. You can continuously pinch leaves off from the outside, or if you have a large plant feel free to take the entire stalk.

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Harvesting

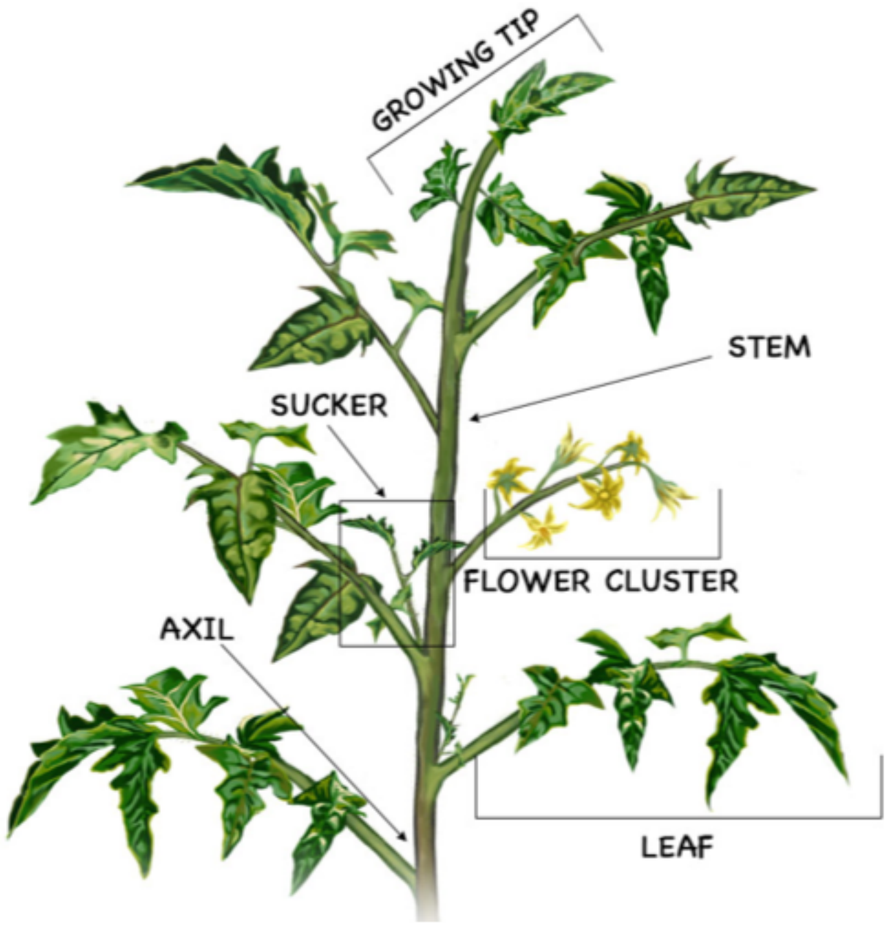
Strawberries & Tomatoes

Cherry Tomatoes

Cherry tomato plants take a bit more care and patience throughout their life cycle. These plants generally take 6- 8 weeks before producing ripe tomatoes.

Throughout the growing process you will want to regularly prune the plant cutting back some of the excess foliage. This will encourage the plant to produce tomatoes.

When pruning you should look for suckers that should be taken off (see diagram) these grow out of the elbow of the main stem and its branches. The flowers you see will eventually become tomatoes so make sure to take good care of them! When flowers emerge switch your light cycle to 12 hrs on/ 12hrs off.



Make sure to regularly pollinate the flowers and soon you will see green tomatoes. You will know they are ready to harvest when they turn to a bright red colour.

Strawberries

Strawberries can sometimes be a test of your patience. These plants can take several months (or even longer) before they begin to produce fruit.

Fortunately, once established strawberries can continue to produce fruit for a very long time!

With strawberries as soon as you see flowers ensure that you are regularly pollinating them and that you are using the Flores nutrient blend and you change your light schedule to 12hrs on/ 12 hrs off.

Looking for Something Else?

If there is something not on this list that you need help with feel free to reach out to us: support@justvertical.com

Troubleshooting (Hardware)

Despite our best efforts sometimes things still can go wrong with the AEVA.

Lights are not turning on:
1. Are the light bulbs in their socket and turned towards the towers?
2. Are the cords at the bottom of the lights fully inserted?
3. Are they manually turned off with the rolling clicker that is halfway up the light cord inside the cabinet?
4. Are the lights plugged into the timer?
5. Is the timer plugged into the power bar?
6. Are the pins in the timer in the correct position? Try switching to 'outlet on' mode
7. Is the power bar turned on? There is a switch on it.
8. Is the power bar and GFCI plugged into the wall?
9. Try pressing the reset button on the GFCI and checking the power bar again
10. Try plugging the power bar directly into the wall. If it turns on only without the GFCI the GFCI is detecting water has spilled onto your electronics somehow.
11. Check there is power to that outlet in your home.

Only one light is turning on:
1. Run through all steps as if both lights aren't turning on.
2. Switch the bulbs to see if the bulb is burnt out
3. Switch the cords to check that the cords are not damaged.

Light is flickering:
1. Check that the wires at the bottom of the light are firmly inserted.
2. Try rotating the bulb more towards centre.

There is no water being delivered to the plants:
1. Is there water in the reservoir above the minimum line?
2. Is the pump running?
3. Is the pump plugged into the timer?
4. Is the timer plugged into the power bar?
5. Are the pins in the timer in the correct position? Try switching to 'outlet on' mode
6. Is the power bar turned on? There is a switch on it.
7. Is the power bar and GFCI plugged into the wall?
8. Try pressing the reset button on the GFCI and checking the power bar again
9. Try plugging the power bar directly into the wall. If it turns on only without the GFCI the GFCI is detecting water has spilled onto your electronics somehow.
10. Check there is power to that outlet in your home.
11. Try turning the system off for 5 minutes and then turning it back on.
12. Check that the supply line is connected to the pump.
13. Turn the pump off, reach your hand in to remove the filter at the front and clean it.

Water is leaking out the front face:
1. If the plant is drooping put in a plant stake.
2. Push the plug further down into the pod.

Water is leaking from an inside pipe:
1. Check the supply line is securely in the tee.
2. Check that the reservoir is directly underneath the black drain pipe.

Troubleshooting (Pests)

Pests, though rare, can happen in indoor gardening. These are easily solved with some common household items.

Aphids (white and green-peach). These aphids eat leaves and suck sap from the stem. They are visible throughout their life cycle. They can be found laying their eggs on wet roots or other plant material. They are usually found on the underside of leaves or stems. In nature they are controlled by ladybugs or aphidoletes. In your home you can remove them with a natural dish soap and warm water. Spray the affected areas and let sit for 15 mins then wipe off the plant. Alternatively, you can spray with an insecticide.

Spider Mites. Spider mites cause leaves to look yellow or bronze in colour. These are typically controlled in nature by other mites. Spider mites are commonly found in dusty conditions, keeping humid clean air helps prevent them. To control spider mites use a natural dish soap and let sit on the leaves for 15 minutes before wiping them off. Alternatively, you can spray with an insecticide.

Fruit flies & Fungus Gnats. These flies like to lay their eggs in dark, wet conditions. They are only visible in the adult stage of their lives when they are flying around plants. They like to eat dying leaves to be sure to prune your plants to avoid them. They are best controlled with a nematode spray which is prepared by soaking a nematode sponge in warm water and then spraying directly on and around the plants. Alternatively, an insecticide can be used or yellow sticky traps can be placed to catch them. To avoid more of them make sure to sterilize and wipe down the face of the unit.

Algae and Mold control. To avoid algae or mold wipe down all front faces of the aeva and around the pods to limit algae growth. Algae likes to grow in cold wet conditions and in warm water.

Troubleshooting - Plants

Are your plants growing slower than expected? There could be one or more issues affecting this. First make sure your expectations are reasonable and in line with what plants are capable of (our system is amazing but not a miracle worker).

The most common issues we find are:
1. Temperature: If your plants are exposed to extremely hot or cold air (under heating vent or next to a door in the winter) this could be stunting plant growth.

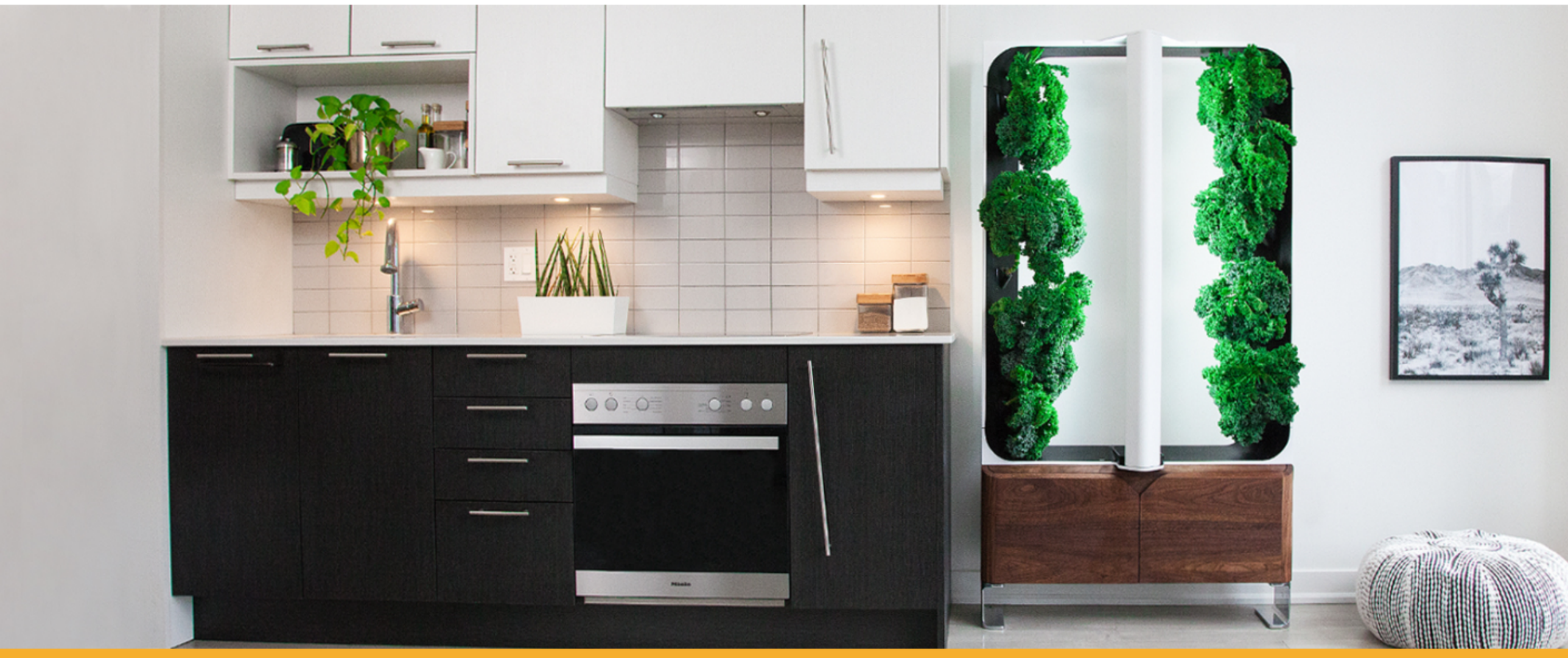
2. Air flow: If your plants are not getting any air flow this can also stunt plant growth, ensure there is adequate air flow around your plants.

3. Nutrients: Having too high a concentration of nutrients in your reservoir can cause tip burn on your plants. This is exhibited by browning or yellowing of the leaves. It could also cause wilting or weakening of the plant. If a large quantity of nutrients were accidentally added to your reservoir it is recommended that you empty your reservoir and add fresh nutrients.

4. Nutrient deficiencies can be indicated by poor plant health. Indicators of these could be plant wilting, yellowing of leaves, browning of leaves, etc. Please refer to the nutrient section for correct dosing.

5. If you are running your AEVA on well water or otherwise irregular water test the pH level of the water source. A pH outside of the normal range could negatively affect your plant growth. Heavy metals in the water especially can stunt growth.

At the end of the day plants are living, breathing, complex beings and sometimes do weird things. We are here to help, please consult our many resources at www.justvertical.com or reach out to us at: support@justvertical.com.



THANK YOU!

Thank you for reading through the AEVA manual and we hope that you are just as excited to grow as we are. If you have any quesitons or concerns please reach out to us via email: support@justvertical.com or through our instant chat bot on www.justvertical.com

WANT MORE GREAT CONTENT?

We have tons of great articles and additional information available on our website at www,justvertical.com. There you can learn about the importance of each nutrient, more about integreated pest management, and how you can grow your plants even faster!

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We all know what the right thing to do is. We just need to empower ourselves and others to do it

- From the Just Vertical Manifesto

Growing together
Growing for future generations