

Designed by **VIVOSUN** in California.
Made in China



DWC Recirculating Drip Hydroponic System Kit (4-bucket)

USER MANUAL

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what
you
grow™

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Thank you for choosing VIVOSUN. We are committed to product quality and friendly customer service. If you have any questions or suggestions, please don't hesitate to contact us.

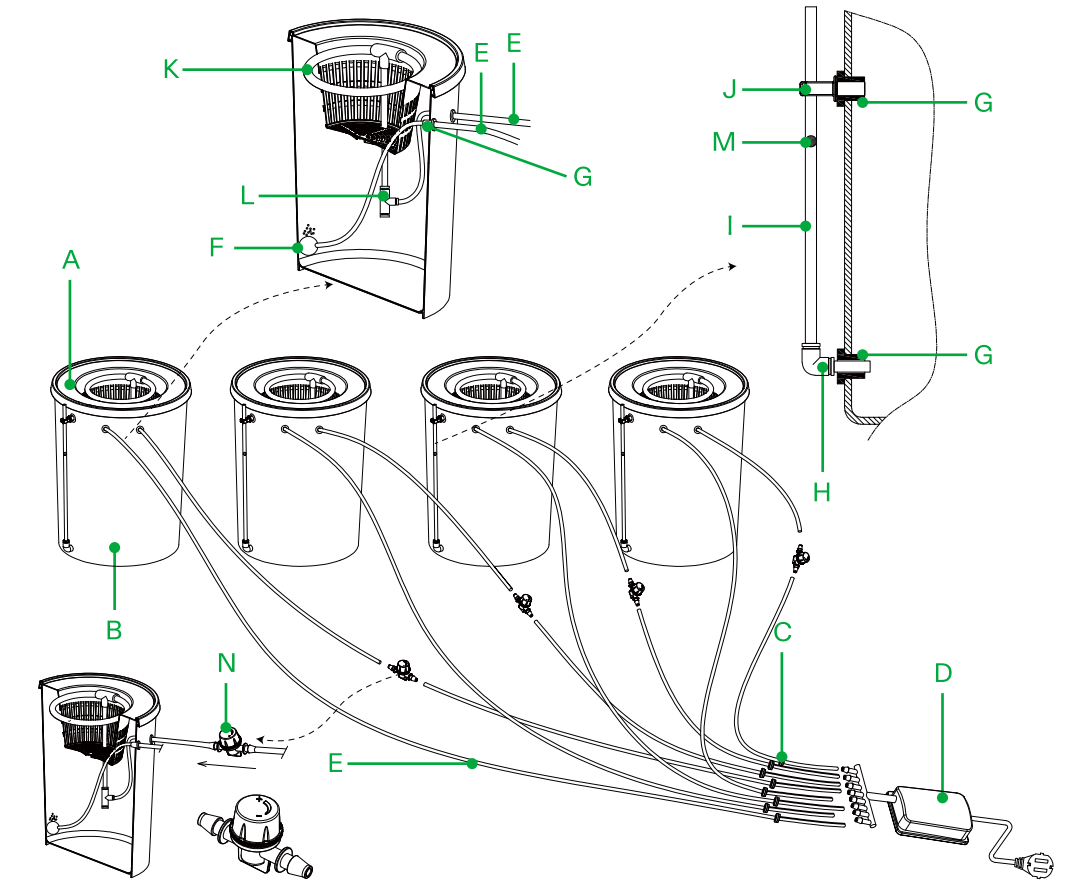
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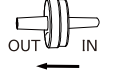
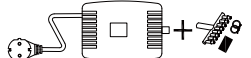
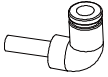
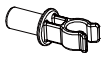
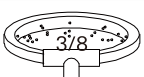
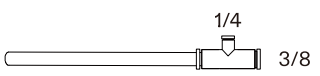
PRODUCT DESCRIPTION

This four-bucket system is an updated version of the Deep Water Culture (DWC) system. We've added a Top Feed drip function to the classic DWC bucket system. Each bucket operates independently with an air pump, which allows oxygen-rich nutrient water to recirculate efficiently. This promotes plants' rooting, growing, and blooming. It further enables plants to grow faster and stay healthier than they would in a classic DWC system. The 5-gallon bucket is the standard size for a single plant - it's easy to use, stable, and requires minimal maintenance. With four buckets, you can grow up to 4 different plants with different nutritional needs. The external 2-in-1 water level indicator makes monitoring nutrients, pH, and electrical conductivity, changing water levels quick and easy.

STRUCTURAL DIAGRAM



STRUCTURAL DIAGRAM

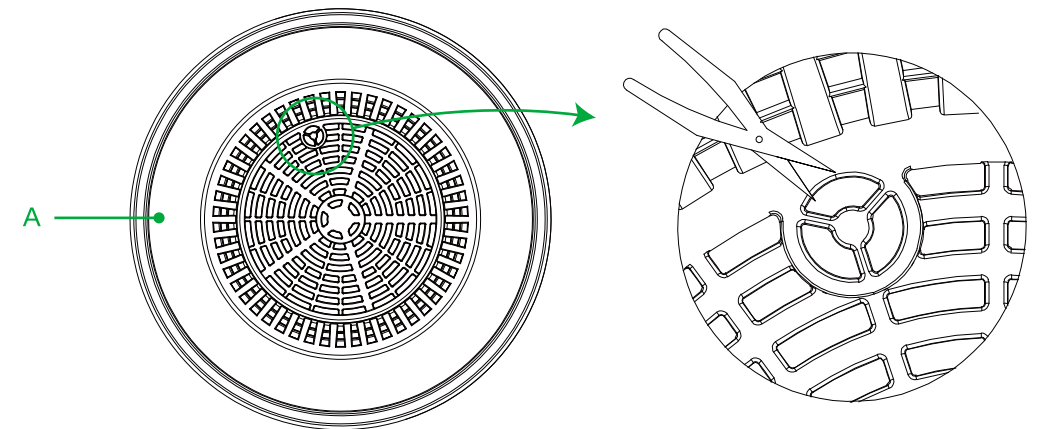
	Description	Picture	Quantity
A	Lid with 8" Grow Basket		4
B	Light-blocked Grow Bucket (5 gallon,φ30cm x 38cm)		4
C	Inline Check Valve		8
D	Air Pump (8pin, 15W max, 25L/min, 110-120V/60Hz, NEMA 1-15P)		1
E	Black Tubing-1/4" (6mm), 2m		1
F	Air Stone		4
G	Sealing Ring		16
H	Elbow Connector		4
I	Water Level Tube		4
J	Buckle		4
K	Drip Irrigation Ring-3/8"		4
L	Water Inlet Tube-3/8"		4
M	Red Floating Ball		4
N	Air Flow Regulator		4
X	Clay Pebbles		4

PRODUCT DATA

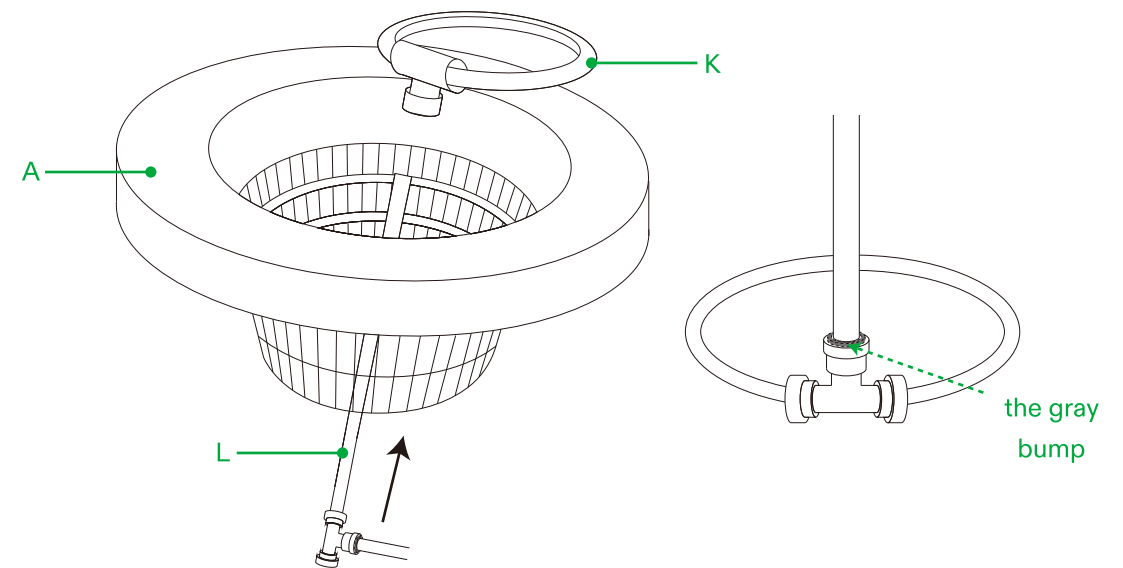
Bucket size/color	5 gallon(φ30cm x 38cm)x4, Black
Basket size/color	8 inch, Black
Irrigation method	DWC+Drip ring
Water level indicator	YES
Power input	15W max, 120V/60Hz
Power plug type	NEMA 1-15P
Air output	25L/min, adjustable
Noise	<40dB
Operating conditions	10°C~40°C
Storage conditions	-10°C~50°C

INSTALLATION

STEP 2 Install the drip irrigation assembly. First, cut the round hole at the bottom of the basket in **Bucket Lid #A**, as shown in figure.



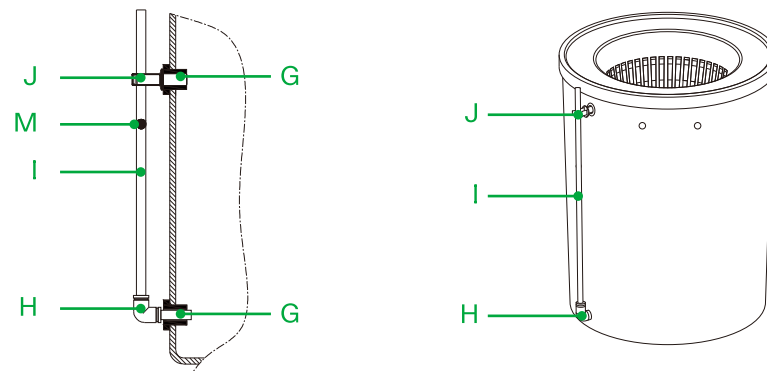
STEP 3 Next, pass **Water Inlet Tube-3/8" #L** through the round hole at the bottom of **Bucket Lid #A**. Then, connect it to **Drip Irrigation Ring #K**. (Please note that once #K and #L are connected, they are not easy to separate. To detach them, press the gray bump on #K and pull the ring out.)



INSTALLATION

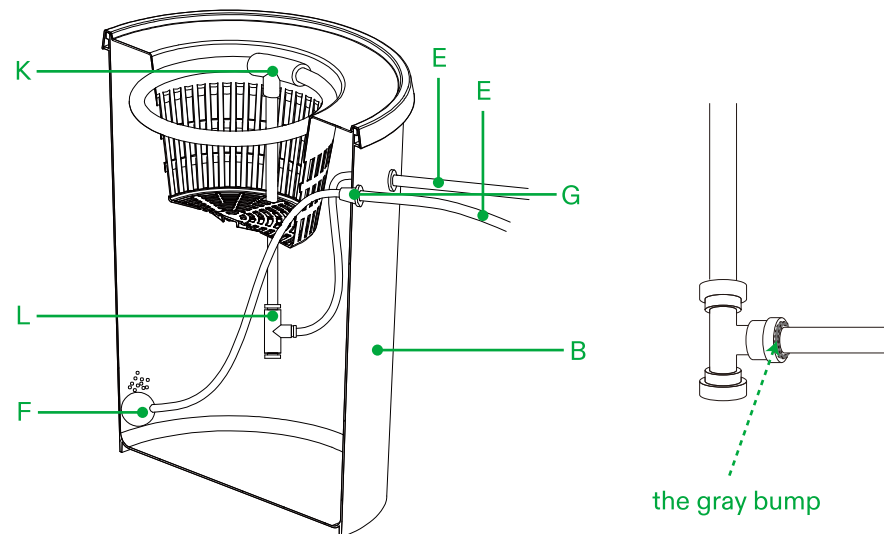
STEP 1

- Install the water level tube by inserting **Seal Ring #G** into the bottom of the barrel and top hole.
- Then, insert **Elbow Connector #H** into the lower hole and **Buckle #J** into the upper hole.
- Next, insert the **Water Level Tube #I** into the elbow connector and fix it on the buckle. Put the **Red Floating Ball #M** in the water level tube. (The water level tube can be cut to a shorter length if needed. However, the tube should be taller than the buckle.)

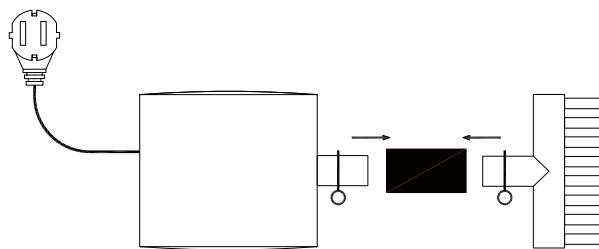


INSTALLATION

- STEP 4**
- Insert **Sealing Ring #G** into the 2 holes at the upper part of **Grow Bucket #B**. Cut **Black Tubing #E** into two sections of equal length. Insert one through either of the openings at the upper end of the **Grow Bucket #B** and into the tee side hole in the lower end of the **Water Inlet Tube-3/8" #L**.
 - Leave enough of **Black Tubing #E** in the bucket to keep **Water Inlet Tube-3/8" #L** upright so it can continually suck water downward. Then add water or nutrient solution to the bucket. Insert the second air tube through the other opening at the top of the bucket and connect it to the air stone. Keep the air stone under the surface of the water in the bucket. (Note: Once #E and #L connected, they're not easy to separate. To detach them, press the gray bump on #L and pull the tubing out.)

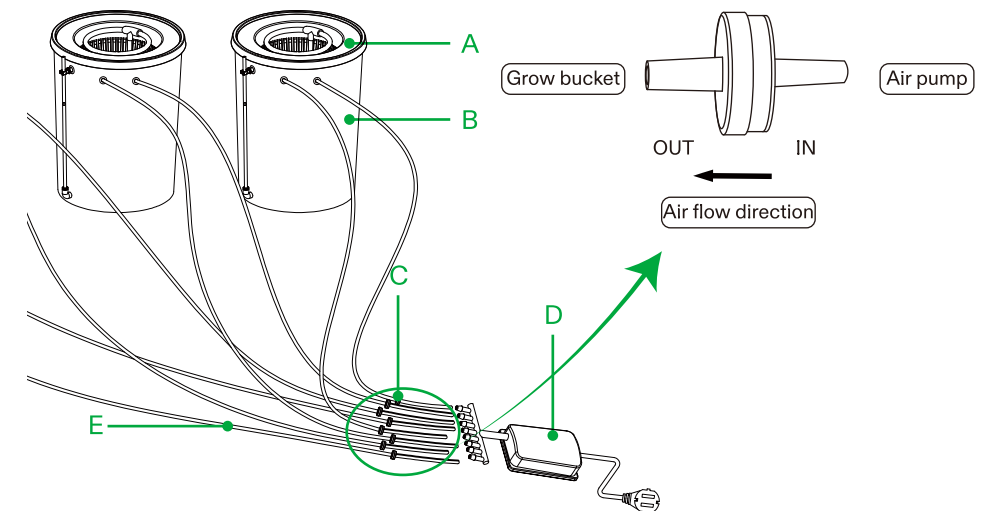


- STEP 5** Connect the air outlet of the air pump to a 8-outlet diffuser with a short tubing. Tighten the connection with clamps.

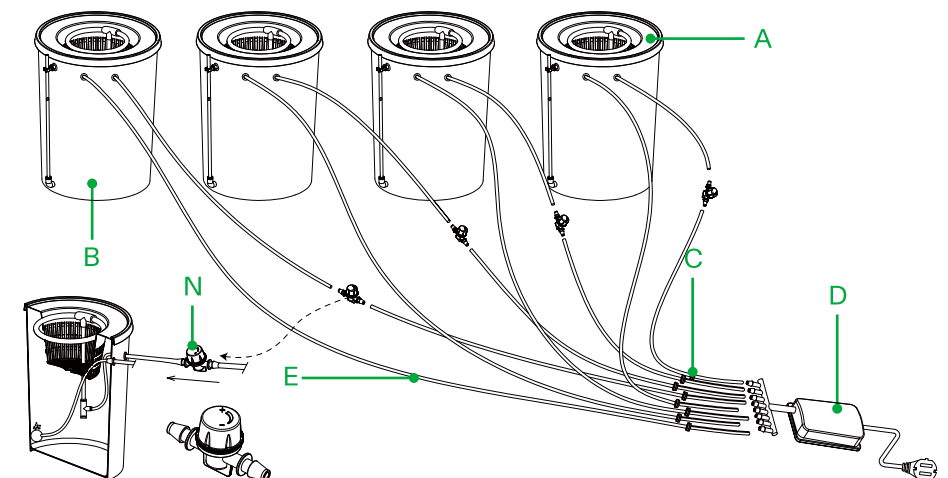


INSTALLATION

- STEP 6** Connect all the air tubes to the 8-outlet diffuser. Then cut the tubes near the diffuser and add the **Inline Check Valve #C**. Please pay attention to the air flow direction when connecting the air tubes to the valves.



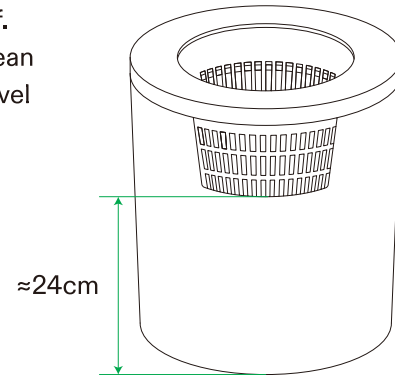
- STEP 7** Add **Air Flow Regulators #N** to adjust and balance dripping and bubbles from air stone on each bucket. Cut 4 pipes of THE DRIP IRRIGATION PIPE on each bucket and set regulators as the drawing shows. Rotate the cap of regulator to adjust air outlet for drip irrigation. Turn down (-) to add air bubbles from the air stone and decrease drip flow of each bucket.



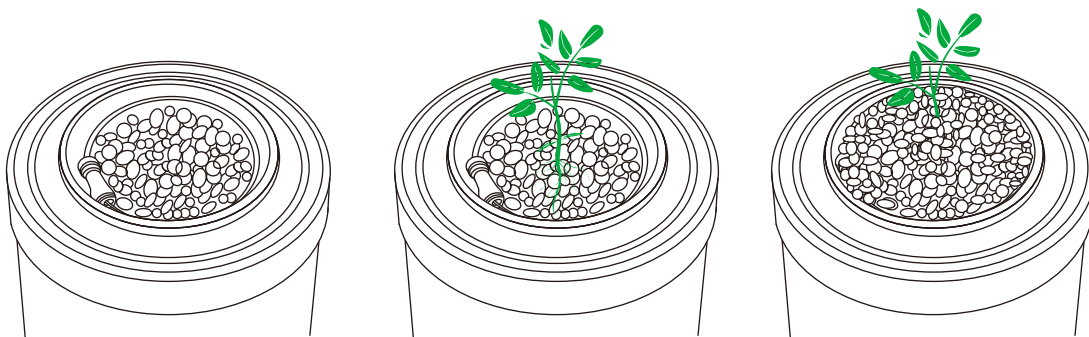
PLANTING STEPS

This hydroponic system is ideal for seedlings and cuttings with rooting started. It will boost the root development and promote rapid growth of your plants until harvest. If you start with seeds or cuttings, we recommend using VIVOSUN Germinations Kits to start rooting before transplanting to this system.

- STEP 1** After the system is installed, keep the power off. Add a low concentration nutrient solution or clean water to the grow bucket. Increase the water level to a height of 24cm (approximately at the lower part of the basket)



- STEP 2**
- Put the washed clay pebbles into **Bucket Lid #A**, then place your plant in a suitable position.
 - Your plant's roots should sit lower than the height of **Drip Irrigation Ring #K**. Finally, lay a layer of clay pebbles above **Drip Irrigation Ring #K**.
- Note: Make sure the outlet of **Drip Irrigation Ring #K** is not blocked by any clay pebbles.



PLANTING STEPS

- STEP 3**
- Plug in the power. Check whether the **Drip Irrigation Ring #K** works normally. You may need to move some of the clay pebbles to check. Move the clay pebbles back to cover the ring after checking.

Note: It is normal if the water flow sprays intermittently.

- Check whether there are bubbles in the nutrient solution. Adjust the air pump output accordingly to get a larger spraying volume and more nutrient solution oxygenation.



- At the same time, observe whether the **Drip Irrigation Ring #K** outlet is blocked by clay pebbles. If it is, please remove the pebbles blocking the outlet.
- It is recommended to always keep the air pump on. Once the air pump stops operating or powers off, the drip irrigation system and nutrient oxygenation will come to a halt.
- After a period of normal operation, the clay pebbles will be fully moisturized to create an optimal growing environment for the roots.

GARDENING TIPS

(1) NUTRIENT AND WATER MANAGEMENT

A Regularly check the water level and replenish the water or nutrient solution in time.
Monitoring is necessary every 1-2 days, especially for large plants that are growing vigorously and consuming water at a rapid rate.

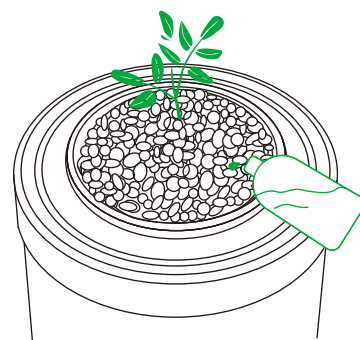
Recommended Water Level: Keep the water level at the bottom of the basket until the roots grow out of the basket. After the roots grow out of the grow basket, the water level can be lowered appropriately to give the roots sufficient breathing space. Keep the water level at a height of 20-24 cm to ensure the drip irrigation system can operate efficiently.

Check the water temperature regularly. The recommended optimal water temperature range is between 70 to 78°F (21~26°C).

It is recommended to change the nutrient solution regularly (depending on the crop and growth stage) to get the best results.

ADDING WATER

You can pour water directly on top of the clay pebbles. If your plant is young, you can try to open the cover. Be careful not to overfill when adding water. Water level can be seen visually by the floating red ball in water level tube.



GARDENING TIPS

DRAINAGE

1. Prepare something to catch water (e.g., a bowl or bucket) and place it under the bucket. Then, remove the top of the water pipe from the upper buckle, as shown in Figure 1.
2. Rotate the water pipe downwards and remove the Red Floating Ball #M, as shown in Figure 2.
3. Slowly rotate the water tube downwards to the proper position to start automatic drainage, as shown in Figure 3.
4. After the draining is complete, put the Red Floating Ball #M back into the water tube. Rotate it back to its original position and buckle it firmly in place, as shown in Figure 4.

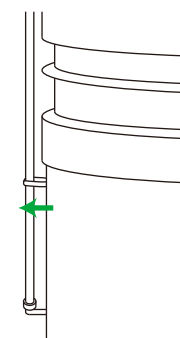


Figure 1

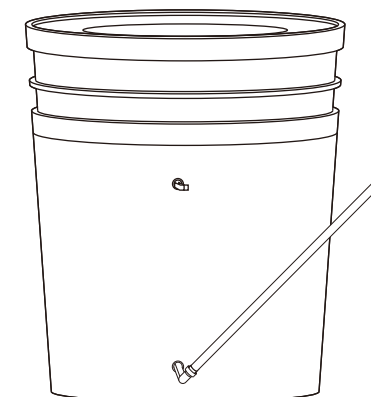


Figure 2

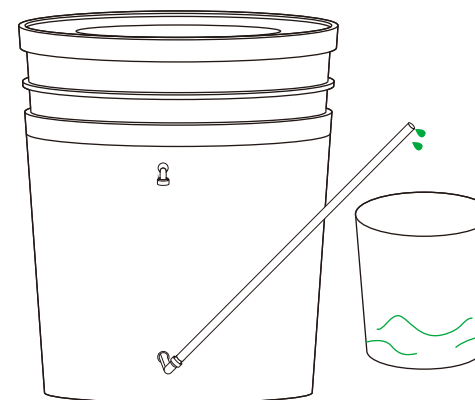


Figure 3

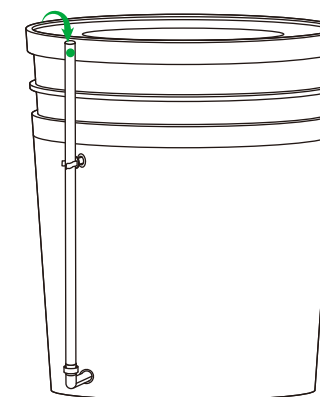
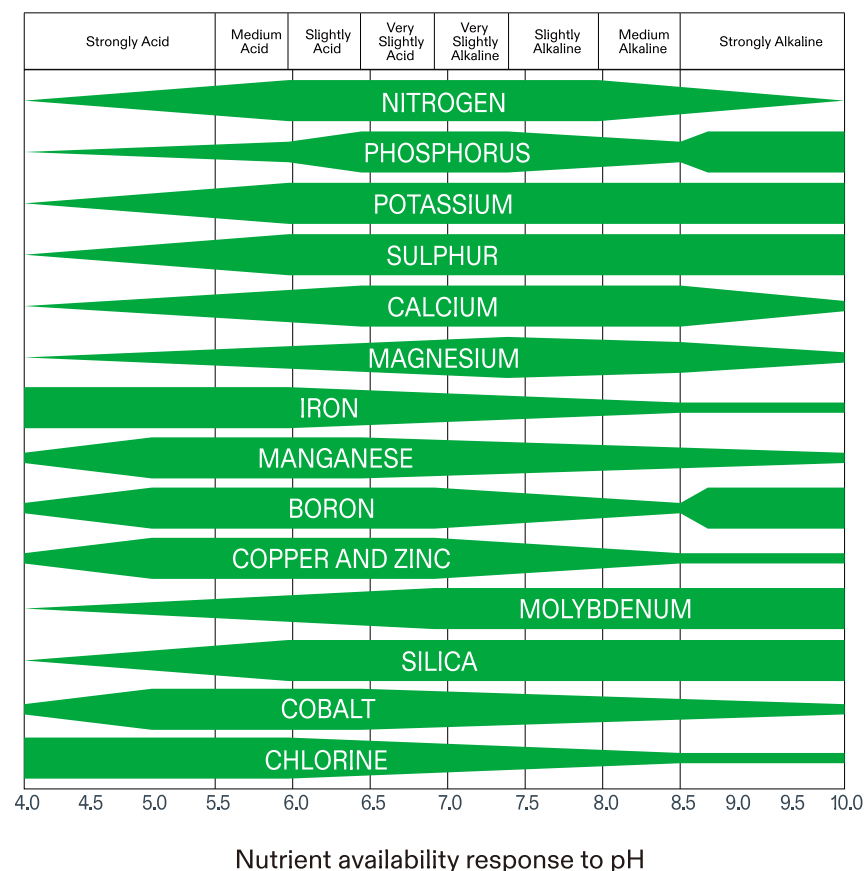


Figure 4

GARDENING TIPS

- B** Regularly monitor the pH of nutrient solution. Please keep the pH range of nutrient solution between 5.8 and 6.5. If the pH is too high or too low, please adjust it with a suitable acid-base regulator. A suitable pH range can promote the balance of each element in the nutrient solution.

Note: It is recommended to monitor the pH daily for the best results.



GARDENING TIPS

- C** Regularly monitor the electrical conductivity (EC) of the nutrient solution. The EC is used to measure the overall nutrient concentration. Adjust the appropriate nutrient solution concentration according to the type of plant and the different growth stage.
- Note:** It is recommended to monitor the EC daily for the best results.

EC Reference Values:

Grow Stage	Propagation	Vegetative	Flowering	Mother plant
EC values(mS/cm)	0.5-1	1.2-2.0	2.0-3.0	1.2-1.5

*The values above are for reference only. Please make adjustments according to the needs of specific plants.

pH AND EC CHECK

1. Prepare something to catch water (e.g., a bowl or bucket) and place it under the bucket. Then, remove the top of the water pipe from the upper buckle, as shown in Figure 1.
 2. Rotate the water pipe downwards and remove the **Red Floating Ball #M**, as shown in Figure 2.
 3. Slowly rotate the water tube downwards to the proper position. Take out a small amount of the nutrient solution, as shown in Figure 3.
 4. Next, immediately put the **Red Floating Ball #M** back into the water tube. Rotate it back to its original position and snap it firmly back into its buckle, as shown in Figure 4.
- Use the pH and EC testing equipment to measure the extracted nutrient solution.

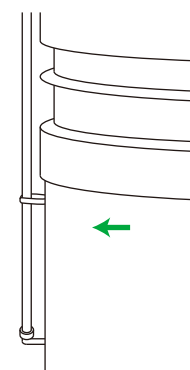


Figure 1

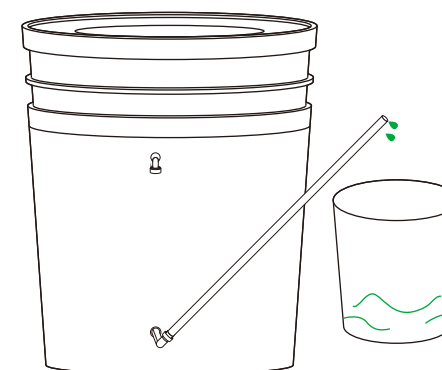


Figure 2

GARDENING TIPS

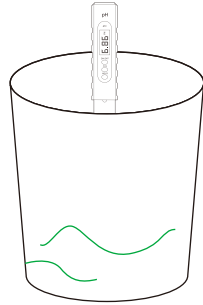


Figure 3

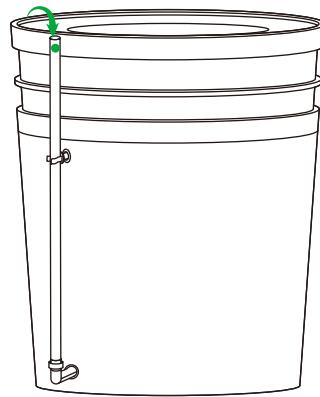


Figure 4

(2) ENVIRONMENTAL MANAGEMENT (LIGHTING, CO₂, TEMPERATURE AND HUMIDITY)

Set proper environmental conditions, including lighting, CO₂, temperature, and humidity, to make your plants grow faster, yield larger quantities, and stay healthy. The recommended environmental conditions are shown below.

Recommended Environmental Conditions				
	Propagation		Vegetative	Flowering
	Seed	Cutting		
Light intensity (umol/m ² /s)	150-350		300-600	600-1500
Light duration (hrs)	12-16		12-18	12 (Short-day plants)/ 14-18 (other plants)
Temperature-Day (F)	68-72	75-80	74-84	68-84
Temperature-Night (F)	68-72	70-75	68-76	68-78
Relative Humidity	85%-100%		55%-75%	50%-60%
CO ₂ (ppm) *	800		400-800	800-1400

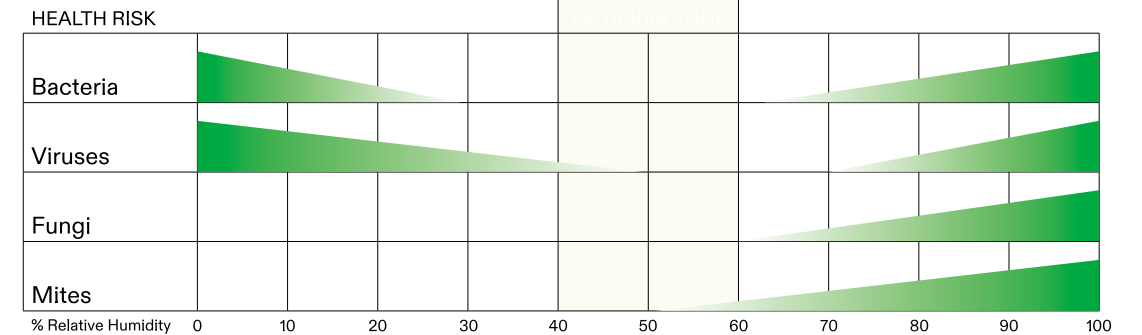
* Add CO₂ could improve growth especially under high light intensity

Please understand that this recommendation is for “average” plants and does not contain the optimal condition for every plant. Different plants may have different optimal environmental conditions.

GARDENING TIPS

For indoor growth, humidity plays an important role in controlling diseases and maintain plant health. You may need extra equipment such as a dehumidifier to control the humidity of your garden.

OPTIMAL RELATIVE HUMIDITY FOR PLANT HEALTH



CAUTIONS

- Please read the instructions and warnings carefully before installing and operating the product. Keep this manual for future use.
- The final growing results are related to the crops grown, the environment, the lighting, and the experience of the grower, etc.
- The product is designed for indoor use. Please do not use it outdoors.
- Do not hold strong acids, alkalis, or corrosive liquids in the barrel. Do not use it near high-temperature heating objects, in environments with high temperatures and high humidity, or in environments below 4°C.
- The optimal input voltage of the air pump is 110-120V.
- Never cut, extend, or replace the wire.
- The power cord should not be close to high-temperature objects.
- If you find the wire is broken, please immediately contact our customer service to replace the air pump.
- This item is an external air pump. Please place it on a flat surface far away from the water. Don't put the pump or its power cord into water, cleaning solutions, or in a humid environment. Do not use it near flammable and explosive items.
- Please first power off the product before adding water. Power off the product when it's not in use.
- Please pull out the plug directly when the power is off.
- Do not touch or move the air pump while it is working.
- If you find that the air pump stops working or if it has other problems, please immediately disconnect the power and contact our customer service. Do not dismantle the machine without permission.
- This is a customized air pump. Please do not replace it with air pumps from other brands.
- Do not block any air outlet holes with objects while in use.
- Do not exceed the maximum capacity of the barrel. Cut off the power immediately if water leakage occurs.
- Please place the bucket on a flat surface to prevent tipping. To prevent it from falling, please do not place it in a high place.
- Do not sit, stand, or place heavy objects on the product.
- It is recommended to use VIVOSUN approved supporting parts (e.g., timer, air pump, and others.). Product problems caused by the unauthorized use of non-recommended accessories or components are not covered by the warranty.
- This product may only be used for planting. We do not recommend using it for other applications.

WARNINGS

- This product has electrical components. Please place it out of the reach of children when in use and prevent children from falling into the bucket.
- It contains small parts such as clay pebbles. Please place it far away from children. The product is not intended to be used by persons (including children) with reduced physical, sensory, or mental capabilities. It is not intended to be used by persons who lack experience and knowledge unless they are under the supervision of or have been given instruction by professionals.

WARRANTY TERMS

We offer a 1-year warranty from the date of purchase to account for potential manufacturing defects on this product. If you need warranty assistance, please contact us as soon as possible. Misuse, abuse, or failure to follow instructions are not covered by the warranty. Damage caused by electrical surges, unauthorized modifications, or use for non-horticultural purposes is not covered by this warranty. We reserve the right of final interpretation of this warranty structure. Please contact us if you have any questions about our warranty policy.

PROBLEMS & SOLUTIONS

1. The air pump does not work after it's powered on.
 - (1) Confirm whether it's connected to the correct voltage (110-120V).
 - (2) Check whether the plug is connected.
 - (3) Check whether the adjustment knob is open.
2. No bubbles are produced in the barrel, and no water flows out from the upper drip irrigation ring while the pump is on.
 - (1) Check whether the adjustment knob is open.
 - (2) Check if the air outlet and the tube are tightly connected.
 - (3) Check if the inline check valve and the air tube are tightly connected in the correct direction.
 - (4) Check whether the air tube and the drip irrigation water pipe are connected tightly.
 - (5) Check whether the air tube and bubble stone are tightly connected.
3. There are bubbles in the barrel, but no water flows out from the upper drip irrigation ring when the air pump is on.
 - (1) Check whether the upper water pipe is tightly connected to the air tube and the drip irrigation ring.
 - (2) Check whether the water inlet at the lower end of the drip irrigation upper pipe is submerged.
 - (3) Normal operation of drip irrigation requires the water level in the barrel to reach and maintain a certain height.
4. Is it normal for the air pump to shake when it works?
 - Yes. When the air pump is working, it will vibrate and shake according to the magnitude of the air output. This is a normal phenomenon. If you find that the shaking is too intense (e.g., the air pump moves in a non-smooth plane), please contact customer service.

PROBLEMS & SOLUTIONS

5. After filling the bucket with water, I found that the elbow connector at the lower end of the water pipe was overflowing with water.
 - (1) Check whether the water tube and elbow connector are tightly connected; you can push the water tube down into the elbow connector and then pull up.
 - (2) Check whether the seal ring, barrel, and elbow connector are tightly connected.
6. The clay pebbles look dry in the process of planting.
 - First, please check whether there is water flowing out of the drip irrigation ring. Then, check the bucket's water level and the adjustment knob.
There are many potential reasons for dry pebbles, such as a clogged water outlet, low water level in the bucket, or low air pump output.
7. The green algae grows on the clay pebbles.
 - Since the clay pebbles can absorb water, when they are exposed to sunlight, green algae may grow on them. To avoid this, add an attachment to create a shade above the pebbles.
8. White precipitation appears on the surface of clay pebbles during the planting process.
 - It can be regarded as a normal phenomenon because some elements such as Ca Mg in the nutrient solution will remain on the surface to form white precipitation.
9. I found fungi, powdery mildew, and mites on my plants.
 - Please refer to the Environmental Management section of the manual to use a suitable HVAC system to maintain the appropriate temperature and humidity according to the different growth stages of the plants.

PROBLEMS & SOLUTIONS

10. Slow rooting of cuttings or failure to root.

- It is not recommended to put the cuttings into this product directly to root. Please put the cuttings into this product after they have roots to accelerate the root growth. When using this product, please use a suitable nutrient solution and keep the water temperature, pH, and EC within the appropriate range to promote healthy growth.

11. If I sowed seedlings in rock wool, can I transplant them to this product?

- Yes, you can put the seedlings directly into the grow bucket of this product and fill it with clay pebbles. This can accelerate rooting and growth.