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The RainForest™

Modular Aeroponic System

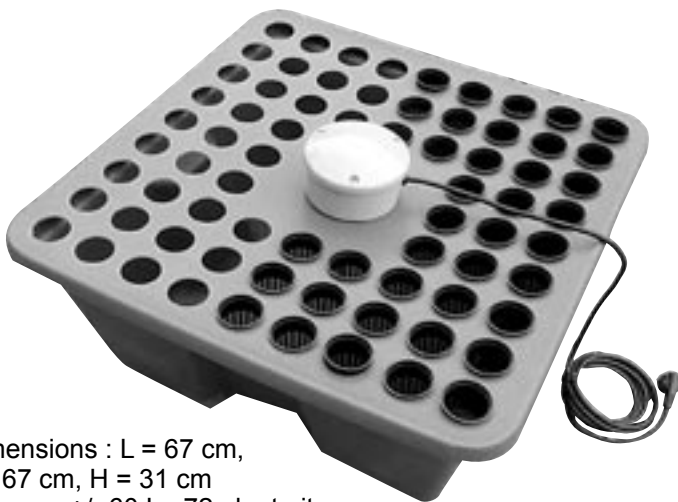
Thank you for purchasing the RainForest system. This is our most powerful hydroponic module, designed to maximize the amount of oxygen available to plant roots.

The RainForest is the fastest system to rapidly root cuttings.

With this unit, you can raise small plants to maturity, or start your plants and then transplant them to your garden or to another hydroponic system such as the AquaFarms, AeroFlos, or Dutch Pot systems.

You will be amazed by the diversity of plants that can be propagated from cuttings using the RainForest. These include fruit and trees, ornamental shrubs, vegetables, and flowers — many of which have never been propagated by cuttings before. Of course, easily-propagated plants will root quickly and grow phenomenally.

The RainForest secret is the patented Aero-hydroponic vortex, the method of delivering the nutrient solution. Oxygen-charged solution is sprayed through the air onto the cuttings and newly formed roots. This oxygen-rich nutrient solution constantly circulates within the RainForest reservoir, so that much more oxygen reaches the root boundary zone than with other hydroponic systems. The roots absorb optimal levels of both oxygen and nutrients, so that the entire plant thrives.



Dimensions : L = 67 cm,
l = 67 cm, H = 31 cm
Volume : +/- 60 L - 72 plant-sites

Your motor is guaranteed one year from date of purchase. It must not be opened or tampered with.

Date of purchase:

Dealer's stamp:

To operate your system successfully:

- Get a water analysis from your local water company: to use the fertilizer best adapted to your water (hard or soft), it is important to know its content.
- Keep the water temperature under 24° C. Ideally between 16 & 20° C and humidity between 65 & 75%/
Notice: for cuttings, keep your temperature between 24 & 25° C and your humidity level between 80 & 95%.
- Give your plants good lighting, excellent ventilation and adequate humidity.
- Always clean your system thoroughly between crops. See "maintenance and cleaning":
- Adapt your growing space to the plants you grow, as different plants have different needs.
- If you have questions about your water or about the development of your crop, please don't hesitate to contact us. We guarantee free technical support and advice to all our customers.

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Each Model RainForest module consists of:

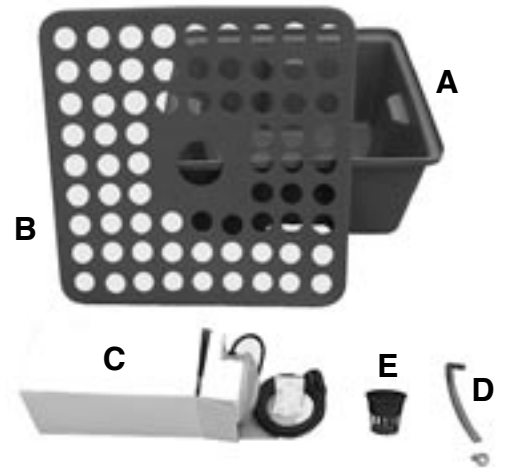
- A 1 reservoir
- B 1 cover
- C 1 motor housing with motor and spinner
- D 1 level tube with clip
- E 72 2" net cups
- F 1 sample 2" coco pot
- G 1 sample 2" coco cover
- H 1 set of detailed instructions
- I 1 Tripack Flora-series



F



G



Notice: The RainForest motor is equipped with a security switch that will turn it off in case of overheating.

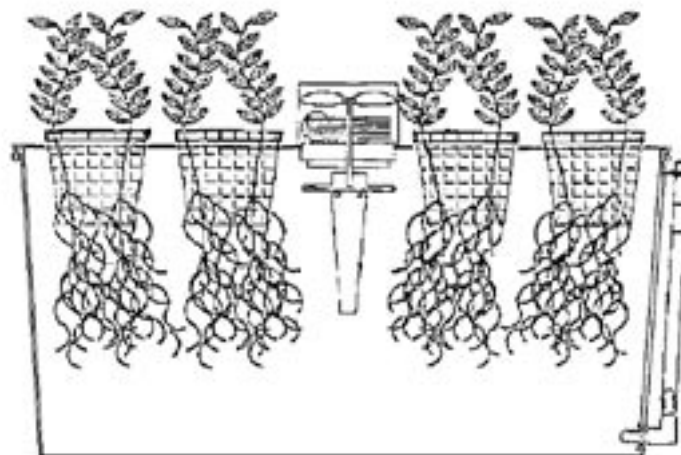
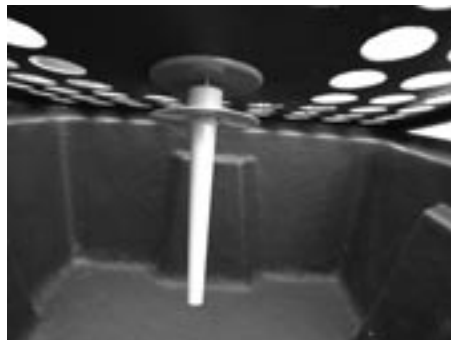
It is very simple to set your unit.



I



H



** Like the AquaFarm, the WaterFarm and the Controller, the RainForest is now available in recycled plastic. Inquire with your dealer or contact us directly.

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Note : You may sometimes receive units with a different shade of colour, or maybe even with a slight manufacturing defect: to fulfill our ecological commitments, our systems are built with recycled plastics, a process that may cause eventual flaws. But we choose heavy-duty, long lasting plastics, and make sure that the imperfections encountered do not affect the efficiency of the unit.

Those systems include UV and light barriers to prevent algae growth in the systems and to protect your nutritive solution from sunlight.

LOCATION

Plants can be grown about anywhere using a RainForest system. Greenhouses, patios and indoors under lights are wonderful locations. In fact, anywhere with light, warmth and fresh air.

But remember to place it in a secure spot, this is water culture and leaks may happen anytime ...!

ASSEMBLY

Plants can be grown about anywhere using a RainForest system. Greenhouses, patios and indoors under lights are wonderful locations. In fact anywhere with light, warmth and fresh air.

But remember, this is water culture and leaks may happen anytime ...!

1. Place your RainForest in a level, flat place.
2. On one side of the reservoir, insert the rigid end of the drain/level tube through the grommet into the reservoir (you may have to use a little oil or dish washing soap to get the tube through the grommet). On the side, you will find a small hole to insert the clip. Gently push the upper part of the drain/level tube into the clip.
3. Add the nutrient solution (2/3 of reservoir) and adjust the pH as described under "The Nutrient Solution".
5. Put the cover on the reservoir and insert the motor in the lid.
6. Briefly plug-in the motor to be sure the power source and motor are operational:
 - . the spinner must turn smoothly
 - . the sprayer should deliver a strong spray into the "air gap" where the growing cups normally hang
 Unplug the motor.
7. Prepare your cuttings.

GROROX™ : THE CLAY PEBBLES

Clay pebbles are a clean substrate, reusable and recyclable. Well chosen, they are one of the components of your success. Before using Grorox, it is important that you wash off all dust and residues.

There are different qualities of rocks, the best ones are neutral (which don't influence your solution's pH).

Before use:

- It is important to wash your rocks correctly to get rid of the dust and other particles and residues.
- It is best to check the rock's pH. Put some pebbles in a glass of distilled water. Stir well and let it rest. Measure the pH. If it is high (7 or higher), soak them overnight in an acidic solution (use our pH Down liquid or powder). Then rinse thoroughly to wash the acid off and remove any sand or other particles. If it is neutral (7.0), soak them in plain tap water and rinse well.

After the crop:

- With good quality Grorox you only need to wash your pebbles well with plain tap water.
- If needed, specially if you had a disease or an insect infestation, it is recommended to disinfect thoroughly. Soak in pH Down (liquid or powder) overnight and rinse thoroughly (see labels).

A big advantage using Grorox is that, unlike rockwool, they are totally harmless to our environment. They are completely bio degradable and can be used several times, crop after crop. They can then be recycled into your garden where they will help lighten your soil.

COCOTEK™ : THE POTS

New: We chose a new line of 100% natural coconut fiber pots. Inquire about the CocoTek line with your retailer or directly with us.

The coconut pots exist in various sizes. Use the Ø 5 cm in your RainForest.(fig. 1). You can use them with your choice of substrate (fig. 1 bis) (clay pebbles, lava rocks, perlite, vermiculite, coconut substrate, etc... or with your own mixes.

You can choose no substrate at all, and use a coconut cover alone (fig. 1 ter).

If you use plastic net pots, you can use them as usual with clay pebbles, or line them with the coconut lining pots to diversify your substrate, or, of course empty, with the coconut cover (fig. 2, 2 bis et 2 ter).



Fig. 1



Fig. 1 bis



Fig. 1 ter



Fig. 2



Fig. 2 bis



Fig. 2 ter

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TO SART CUTTINGS IN THE RAINFOREST

Your RainForest holds 72 cuttings.

Always use fresh, clean cuttings that are free from disease and/or soil contamination. Soft green stems work best; woody stems are slower. Don't forget to adjust your environment to the different plants you are growing (climate, temperature, humidity, spacing, etc ...) as their needs differ from plant to plant.

If you start several cuttings in one cup, plan to separate them soon after roots have formed and before they become tangled.

1. Put one cutting in each cup and cover it with clay pebbles.
Trim each cutting to the correct length. Cuttings should extend 2-3cm below the cup. Each cutting should have a leaf node very near the bottom end of the cutting. Cut side-ways and delicately scrape one side of the stem to facilitate root growth. Leave 3-4 leaves for photosynthesis above the cover. Remove all leaves from the portion of the cutting that will be below the cover. The first roots will form at the lowest node on the cutting.
2. Insert the cups in the holes in the reservoir cover. Cover any unused hole to prevent water loss by spray as well as algae growth.
3. Place the RainForest in a warm, well-lit location. The optimum temperature for starting cuttings is 20-24° C (70-75° F). Keep the plants in bright, indirect sunlight, or use color-corrected, or sunlight-simulating lamps placed close to the cuttings. Fluorescent lamps are best; if you are using Metal-halide or high pressure sodium place them well above the cuttings so that they don't burn.
4. If using artificial lights, set the light timer to simulate a normal day/night cycle. If using a motor timer, connect and set the timer. Plug in the sprayer motor.

It may happen that your motor shuts off if it gets too hot. It will go to work again as soon as temperature gets back to normal.

If this keeps happening, you may have a problem with your motor. Don't open it. Just call us. We will either fix it or replace it for you, depending on the length of time you have been using it. Our motors are guaranteed one year from date of purchase.

5. As your plants grow, maintain the appropriate level of nutrient solution in the reservoir. Keep the nutrient level high enough until multiple roots have developed and hang down below the growing cup. Once roots are well developed, you may safely allow the nutrient level to drop lower. See "Maintaining Your RainForest" for details.
6. After the cuttings have developed roots, you can either keep your plants to grow in the system, or transplant your cuttings into any other unit. Plants brought up in a RainForest are extremely healthy and will thrive in soil, rockwool and hydroponics.

TRANSPLANT YOUR PLANTS.

When transplanting, carefully separate or cut apart tangled roots. If there is a large root system, do not try to salvage the cup but cut into the bottom of the pot and liberate the roots. For short-lived plants, such as annuals, transplant the plant in its cup. For plants whose enlarging roots might be choked by the cup, cut the cup apart and remove it from the roots in sections.

THE NUTRITIVE SOLUTION

The RainForest reservoir contains +/- 60 litres of solution. You can mix your solution directly in the reservoir or in any other container. You can prepare a solution in a large container and keep it to top-off the system when needed. In hydroponics it is important to know the quality of your water. Get a water analysis from your local water company and don't hesitate to contact your dealer, or us directly, if you need help to interpret it.

For your cuttings and in small units like the CuttingBoard and the WaterFarms, you can use 1/2 tap water and 1/2 rain or demineralised water.

Two nutrients systems, Flora-series and One Part are adapted to your system. You will find detailed application charts on the labels. Other products are available to help you optimise your crops: Diamond Nectar, Ripen, Mineral Magic and the pH regulators.

Flora-series has been specially formulated to allow you to closely monitor your plant's growth at all stages. The following formula is one favoured by many growers, in BC (Canada), in the US and in Australia. It is used for fast flowering annuals with amazing results on crop quantity and quality.

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	FloraGro	FloraMicro	FloraBloom
Cuttings	1	1	1
Vegetative stage	3	2	1
Fruiting and Flowering stage	1	2	3

EC range for your hydroponic mixes :

Cuttings	0.4 to 0.8 EC
Vegetative stage	1.0 to 1.3 EC
Fruiting and Flowering stage	1.0 to 1.8 EC

This range is a starting solution in hydroponics. In soil use an approximate 1/2 strength dilution and use every other watering.

Last days before harvesting add only water with adjusted pH, or use Ripen.

Before mixing, adjust your water to a pH of 5.5 to 6.5. After mixing, readjust if needed. Use our pH Up and Down solutions. These formulas are adapted to our nutrients. They are very economical too, as you use the same formula for the vegetative as well as the flowering stages of your plants.

For measuring, use a 10 or 20 L bucket and a graduated syringe. It is easy to use the cap of your 1litre bottles too: 1 cap = 10 ml.

Example: For 20 Litres of pure water:

1 cap FGro + 2 caps FMicro + 3 caps FBloom = +/- 1.00 to 1.50 EC, depending on the quality of your water

Our nutrients are extremely concentrated. Very little is needed for your crop: To avoid any precipitation when you mix your solution, make sure to rinse your measure after pouring each component and never mix the components together.

City water is often quite hard. It is recommended to change your solution every 10 to 15 days.

MAINTAINING YOUR RAINFOREST.

Maintain the solution level.

- Always keep your water level high enough so that the stems are immersed at all times, until the roots are large enough to dip into the solution.
- Nutrient solution is lost through evaporation and plant transpiration. Large, fast-growing plants can lower the reservoir solution level very quickly so you should check the reservoir daily, or use a controller.
- Under warm, dry conditions, add plain water (with adjusted pH) as needed to maintain the correct solution level; under cool, humid conditions, add very mild nutrient solution instead. Stir well and adjust the pH level whenever you add water or solution to the system.
- For cuttings, water and room temperature should be kept between 18° and 24° Celsius. Humidity between 65% and 70%.
- Check and adjust your pH and EC levels regularly.

Clean the System.

Deposits of salts and plant debris will gather on your system. It is very important, for the long life of your unit, to regularly clean the different parts.

In between crops, drain and dismantle the RainForest system. Thoroughly clean the reservoir, drain/level tube, cups, lids, and pebbles with a dilute chlorine bleach solution (1/2 cup per 4 liters) or pH Down liquid or dry (pH 4.0). Rinse well and reassemble. This disinfects the system and reduces the rate of algae and disease.

Gently clean the motor.

If the motorized sprayer stops unexpectedly, immediately:

1. Check that the power cord is properly plugged in and there is power to the socket. Your motor may some times heat. There is a self shunting element in the motor to turn it off in case of overheating. Normally your motor must come on again after a few minutes.
2. Unless the motor can be restarted within a few minutes, add enough nutrient solution, or plain water, so that the bottoms of all growing cups are submerged. This will help prevent crop loss. If the worse comes to the worse, go to the closest aquarium shop and buy an air stone. Place it at the bottom of the RainForest until your motor is replaced.
3. If the problem seems to be in the motor, contact General Hydroponics. We may help you find the problem, reprepare or replace your motor. It is guaranteed one year from date of purchase.

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Regularly clear nutrient deposits or bits of plant matter from the knob and spinner:

1. Turn off the system and remove the motor housing from the cover.
2. Rinse well in running water to clear the salt build-up.

TROUBLESHOOTING

Often, in case of trouble, you will tend to blame the nutrients. But quality nutrients are seldom the reason. There are several essential parameters to keep you plants happy. Most importantly:

- 1 - Your nutrient solution should be kept as cool as possible, ideally around 18° C. As much as possible, do not let it exceed 24° C, except for cuttings and seedlings where you generally need stability around 24 to 25° C. In summer, when using lights in an enclosed space, and in order to avoid extreme temperatures, you could turn your lights on at night to take advantage of the cooler air. The hottest days are a good time to turn off your room, clean it thoroughly and wait for a cooler season ...
- 2 - The grow room should be well ventilated. Outside weather allowing, continuous ventilation will eliminate excess humidity and bring in the much-needed CO₂ to your plants. Always keep your humidity level around 65 - 70% for adult plants, and between 80 to 95% for cuttings and seedlings. Circulation fans will homogenate the air in the room, eliminating pockets of hot, humid air.
- 3 - If plants are not growing well and you suspect "hard water":
 1. IT IS IMPORTANT TO HAVE A WATER ANALYSIS FROM YOUR WATER COMPANY. If you need help, please call your supplier, or contact us directly, we will be glad to advice you.
 2. Collect rainwater or try distilled or purified water. You should see a significant improvement in plant health and growth within one week.
 3. Inquire about our Hard Water formulas.
 4. Call us, we will be happy to help you.

Plants, like all living organisms can be infected with a variety of diseases.

The best way to avoid sick plants is to maintain clean conditions and correct environmental factors (light, temperature, humidity, ventilation, etc.) for a given crop. Start with clean seeds and cuttings.

Before you suspect plant disease, use Mineral Magic, it will help you prevent algae or fungi growing in your system.

Thank you for selecting the RainForest hydroponic system. General Hydroponics guarantees technical support and advice. If you have questions on your plant's growth or on the way our systems and nutrients work, please call, fax, or send us an E-mail. We welcome your suggestions and comments.

TO INQUIRE ABOUT OUR LATEST PRODUCTS CHECK OUR INTERNET WEB PAGES.

www.eurohydro.com

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