



FLORABLEND®

FloraBlend is a Vegan Ferment Tea that is made from a proprietary blend of plant materials, plus seaweed, rock powders and micronized leonardite. FloraBlend is produced with a diverse mixture of highly bioactive microorganisms that are fed a feast of select food sources in a hyper oxygenated environment. These beneficial microorganisms multiply rapidly consuming these food sources and through bioconversion processes, new organic compounds are formed. These organic compounds are enzymes, metabolites and organic acids, which energize plants metabolic processes.

These highly soluble organic compounds increase and promote healthy root structures, build the plants immune system and provide carbon building blocks for plant processes responsible for color and flavor of fruits and vegetables.

FLORANECTAR®

Our scientists have formulated FloraNectar to optimize the greatest transference of sweetness and aroma into your fruits and flowers. Flora Nectar contains all-natural raw cane sugar, molasses, malt syrup, select plant based esters, L-amino acids, organic acids, vitamins and essential minerals.

As a result, FloraNectar ensures optimal metabolic rates during the flowering and fruiting phase when nitrogen levels have been reduced. FloraNectar also promotes a sturdier plant structure during the vegetative phase when high levels of nitrogen are present. FloraNectar fulfills the additional energy requirements of your plants throughout all phases of growth and during stressful times of transition.



POWERGROWER® 8-PACK

The PowerGrower 8 pack is eight PowerGrower modules connected to one GH PowerGrower Controller. The Controller is an integrated 17 gallon reservoir and a 17 gallon controller unit. The controller will maintain the nutrient levels in each module while the reservoir actively recirculates the nutrient to keep pH and PPM levels consistent. This ensures optimized plant growth and provides the grower with a lower maintenance garden. The newly engineered plumbing design ensures uniform delivery of nutrients to each individual chamber.



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WaterFarm

Assembly Guide



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WATERFARM PARTS:

- 1) Clay Pebbles (not included with WaterFarm Controller 8-Pack or Modular units)
- 2) Flora Series Nutrients (8oz bottles)
- 3) 4 Gal Reservoir (deep chamber for water)
- 4) 2 Gal Growing Chamber (shallow pot with perforated bottom)
- 5) Elite 800 Air Pump
- 6) Drip Ring Assembly (circular plastic ring attached to tee)
- 7) DLT Clip
- 8) Air Line (clear tubing)
- 9) Pumping Column (2-piece white tube with air inlet at bottom)
- 10) Pumping Column Support Tube (tube with bevel facing down)
- 11) Drain Level Tube (translucent blue tube fitted to barbed elbow)

STEP 1

Insert black DLT Clip into Reservoir as shown.



STEP 2

Install the blue Drain Level Tube by inserting the elbow through the rubber grommet from the outside while supporting the grommet from the inside. The Drain Level Tube is supported by the DLT Clip for normal operation and rotate the Drain Level Tube level with the bottom of the Reservoir to drain the system.



STEP 3

Place the Growing Chamber on the Reservoir.



STEP 4

Push the beveled end of the **Pumping Column Support Tube** into the large hole in the bottom of the **Growing Chamber**. Push the Pumping Column Support Tube down until it barely touches the bottom of the **Reservoir**.



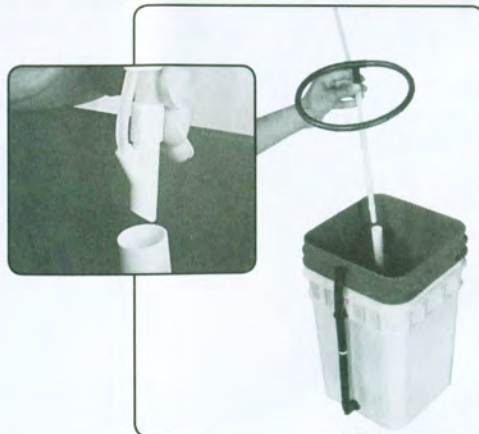
STEP 5

Attach the **Drip Ring** to the end the **Pumping Column Assembly**. Ensure that the holes in the ring itself are facing downwards.



STEP 6

Push the entire **Drip Ring Assembly** down into the **Pumping Column Support Tube**. Being careful not to catch the tube clamps on the support tube. Push the assembly into the tube until it barely touches the bottom of the reservoir.



STEP 7

Move **Drip Ring** out of way and fill growing chamber with rinsed **Clay Pebbles** or your favorite growing media.



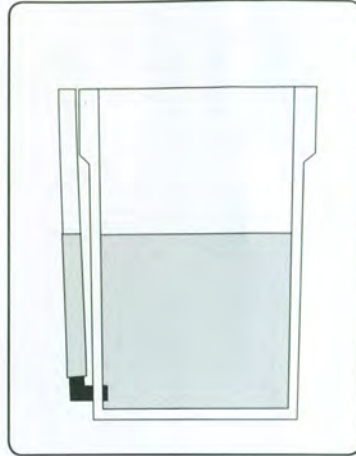
STEP 8

Securely attach the **Clear Airline** to the flexible tubing of the **Pumping Column** and the other end to the **Air Pump** outlet nipple. If you're using your WaterFarm outside, use only extension cords and outlets designed for outdoor use.



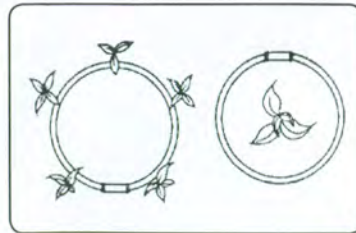
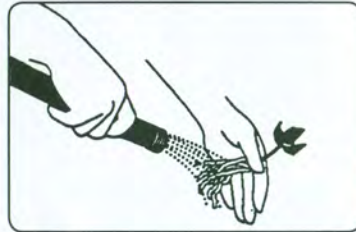
FILLING

When filling the system with a nutrient solution it is best to mix the nutrients in a known volume of fresh water. Then pour into the WaterFarm until the water level reaches the white line on the Drain Level Tube. The system holds approximately 2 gallons of nutrient and will sustain small plants one to two weeks and may only last a few days with larger plants.



PLANTING

To prepare a seedling or a plant for transplanting, remove all soil and/or organic material from around the roots. Plants must be sturdy with established roots before transplanting into the WaterFarm. Choose seedlings because it's more difficult to successfully transplant older plants. If your plant has been growing in soil or peat moss, gently remove the plant from its pot and carefully rinse as much soil as possible from the roots before transplanting. Although this method of transplanting from soil to hydroponics is somewhat risky, as soil may contain disease organisms that proliferate in the rich hydroponic solution, we have had success using this transplant method and encourage you to try it. Or, you can avoid these problems by starting plants from cuttings in one of our RainForest Systems.



If you plan to grow several small plants in the WaterFarm, place your plants just outside the drip ring, near the drip holes. If you prefer a single large plant, place it in the center of the drip ring. Gently add Clay Pebbles around the plant roots until thoroughly covered.

PLACEMENT

Abundant light, proper temperature and adequate ventilation are crucial for fast growth, healthy plants and higher yields. Place the WaterFarm in a warm, well-lit, well-ventilated location, such as an outdoor garden, sunlit window, patio or greenhouse. Keep your WaterFarm away from areas where the inevitable dripping that occurs during filling, draining and pH adjustment could cause water damage.

OPERATION

For moisture-loving plants, operate your WaterFarm pump continuously. Plants preferring drier conditions grow best when the pump runs for 1/2 hour on and 1 hour off during daylight hours; off at night (a simple timer will turn the pump on and off for you automatically). Use mild to normal strength nutrient solution and avoid strong or aggressive nutrient. As your plants consume nutrient solution, the level in the reservoir will drop. Top off with half strength solution or plain water (the pump is more efficient when the reservoir is full). It is necessary to change the water and nutrients every one to two weeks depending upon the size of your plants and their rate of growth; with bigger plants change more often. Simply empty the reservoir by rotating the blue drain level tube 90 degrees so water drains on the ground, or indoors in a pail. When changing or topping off solution, pour directly over the Clay Pebbles (rather than into the reservoir itself) to flush out excess salts.

PREPARATION FOR REPLANTING

After harvesting and before replanting your WaterFarm, dismantle the system and clean all parts with hot water. Rinse Clay Pebbles in very hot water and soak overnight. It is a good idea to dis-assemble and wash the drip ring assembly and pumping tube from time to time in hot water.

TROUBLE SHOOTING

If white salt deposits form on the clay pebbles:

1. Try using a milder nutrient solution and topping off with plain water only.
2. Occasionally drain your system, refill with plain water and run the pump overnight. After the overnight rinse, empty reservoir and refill with fresh nutrient.

If plants are not growing well and you suspect "hard" water:

1. Use FloraMicro Hardwater in place of FloraMicro.
2. Try distilled or purified water. You should see a significant improvement in plant health and growth within one week.
3. Collect rainwater for use in your WaterFarm.

If nutrient solution stops flowing from the drip ring:

1. Check to ensure that pump is plugged in and reservoir is filled with nutrient solution.
2. Disconnect air line from the air inlet and check whether the air is coming through (put end under water and look for bubbles if you are not sure). No air flow could mean that the pump is broken and must be replaced or that the air line is loose or blocked. Try cutting an inch off each end of the line to provide a tighter fit.
3. Blow into the air inlet to check whether it is clogged, and rinse the pumping column in hot water. This type of clogging is usually an indication that you have hard water or too strong a nutrient solution.
4. Check whether emitter holes in the drip ring are clogged. To clear, dis-assemble drip ring by pulling it apart at the tee, rinse drip ring and tee in hot water and clear the holes with a toothpick.



GENERAL HYDROPONICS

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For example, imagine a hydroponic system in a cool, spring greenhouse with 24 strawberry plants and a nutrient capacity of 20 gallons. Typically, such a system would require about 5 gallons of added water each week. After four weeks the plants will have transpired 20 gallons—the capacity of the reservoir. You need to completely drain and replace the nutrient every four weeks in this example.

Nutrient Pathogens

The problem of pathogens or disease in the nutrient solution can be a serious one. It is not uncommon for this to be a regional and seasonal problem. For example, in Holland during the winter, fungi thrive in the cool and damp environment, the air is full of spores. All kinds of soil-borne diseases become endemic in the Dutch winter and growers have to work hard to avoid infestations. One of the reasons Dutch growers adopted hydroponics so readily was to avoid soil-borne diseases.

Keep your growing area clean. Never allow soil to get into the nutrient stream. If soil is accidentally kicked into the reservoir, the entire crop can be at risk. Some growers will place a sponge-mat, soaked with disinfectant, at the doorway of the greenhouse. Everyone who enters must clean their shoes on this mat before entering. This is an effective and practical way to prevent disease organisms from entering the greenhouse and endangering the crop.

If an infected plant is introduced into a hydroponic system, the disease can race through the entire crop. By the time a problem is noticed, it may be already out of control. Plant diseases are beyond the scope of this article, but the best advice is to avoid problems by working clean, planting only healthy disease free plants, and closely monitoring the crop.

If you see evidence of disease in a single plant, remove and destroy it quickly before the disease spreads. Watch the crop closely and destroy any other plants that show signs of disease. It is better to lose a few sick plants than to risk an entire crop.

If you do encounter disease problems, it is a good idea to completely drain and renew your nutrient after removing the sick plants. If it is possible there is nothing better than to flush the system by running fresh water without nutrient for a day. Then drain and refill with fresh nutrient. Flushing between every three or four nutrient changes can help maintain cleanliness in the root zone and in the hydroponic system. Periodic flushing is especially helpful for gravel systems to remove salt accumulation in the medium.

To the Limit

To some hobby growers, especially those who come to hydroponics from the “U-plant-em-and-pray” school of outdoor gardening, the techniques described above might seem too difficult and time-consuming. Remember, hydroponics offers great control over the health and quality of plants to the grower with the interest and the skill to exercise that control. That’s what this article is all about—pushing it to the limits. Remember, too, that it is possible to produce a hydroponic garden that will out-perform any soil garden by simply following the manufacturers’ instructions on system operation and nutrient changes, and paying attention to the condition of your plants. But even the most casual grower can benefit from an understanding of a few basic concepts.

Quality water is a great advantage, poor water is a challenge. Use only the highest quality plant food—designed specifically for hydroponics. Low grade plant foods and common fertilizers offer your plants poor and incomplete nutrition, cause pH drift, and sometimes contain impurities that can become toxic to hydroponic plants. Only high-quality plant food can grow superior plants. Healthy plants grow faster, generate higher yields and are resistant to disease and insect infestation. When you mix fresh nutrient always measure carefully.

Keep notes on your observations of EC drift, pH drift, total water usage, temperature range, and comments on crop health and progress. Keep an eye on pH, and an especially close watch on nutrient strength (PPM, EC, dissolved solids). Look out for diseases and remove and destroy sick plants immediately.

To control your nutrient temperature, use high quality aquarium heaters to warm nutrient in the winter, and look for “chillers” to cool your nutrient in the summer if high nutrient temperature becomes a problem. The aquaculture or fish farming people have developed excellent chillers. Fish don’t like water that’s too hot or too cold either.

Don't be overwhelmed or intimidated

Plants can tolerate quite a lot of stress and still produce well. On the other hand, the grower who knows the questions, and how to find answers, is the one who will have consistently good crops. It is far easier to avoid problems through knowledge and proper technique than to fix them after they arise.