

# Hydroponic System from Hydro Harvest

## Materials List & Assembly Instructions

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### Materials (per tower)

- 1 – ½ inch conduit pipe 2 1/2 feet long,
- 1 steel plate (if towers will be positioned on a patio or deck)(optional)
- 1–¾ inch conduit 5 feet long. (customer provided if shipped, available at any homecenter's electrical dept.)
- 1 large ground pot
- 1 – length of 1 inch PVC pipe and 2 square plastic holders
- 4-5 vertical pots per tower
- growing medium: coconut core/vermiculite and perlite
- 2 nutrient packages per kit
- 3 empty plastic gallon jugs

### **\*\*\* AUTOMATIC UNITS ONLY\*\*\***

- 1 nutrient line (white with blue line)
- 1 yellow punch tool
- 1 black capillary line per tower
- Wire straps to secure capillary lines
- 1 – 2 inch piece pvc pipe/ or black figure 8 part
- 1 pump w' screw in nipple
- Stainless steel clamps for nutrient line
- Nutrient line valve to adjust flow of nutrients
- 1 digital timer
- 1 – 44gallon Rubbermaid brute (**FLAT** bottom) garbage can with lid  
\*This is the recommended container, as it doesn't allow light to penetrate it.
- 1 – ¾ inch nutrient line pvc tee per tower

**Before you begin** ( view the following video online) [www.hydroharvestfarms.com](http://www.hydroharvestfarms.com) “ How to set up towers. “ Select a location that will receive a minimum of 4-6 hours of sun. You'll want to locate a source for electricity for the timer (as waterproof as possible) and water to refill nutrient container.

- Before assembly of your towers, place the coconut core blocks into the nutrient reservoir and put a brick or heavy object on top of block before adding water to dissolve the block. Keep the coconut core submerged until you are able to break up the core with your hands then drain off the excess water. Then combine the core with the perlite provided. This is one type of growing media.
- If using vermiculite/perlite growing media combine equal amounts together to make growing media. Slightly dampening the media when mixing will reduce dust.
- If using groundcover: stretch out the cover and attach with sod clips. Take the ½” conduit pipe and place it on the groundcover and turn until it cuts a hole into the groundcover. Then using a wood block or bolt tap the pipe into the ground about 2/3rds of its length, taking care not to damage the top of the pipe.

### Assembling the Tower

- Next take the ¾" pipe and slide on top of the ½" conduit pipe. Then slide the ground pot over the pipe all the way down to the ground. Then place the first square plastic white plate on the pipe and slide down to fit snugly on the inside bottom of the ground pot. Then slide the one inch pvc onto the pole. This pvc pipe can be cut to determine the height of the vertical pots. Next add the second square plastic plate. Now slide your first vertical pot onto the pole. Fill but do not pack each pot with growing medium as you add each pot to the tower. After filling the last vertical pot, place the remaining growing medium in the ground pot. Clean reservoir thoroughly before using as nutrient reservoir.

### The following instructions are for automatic systems only

- Place the nutrient pvc tee snugly on the top of each conduit pole. Take the white nutrient line and thread through each tower; one end will attach to the pump that will be placed into the nutrient reservoir and the other end will be crimped and then capped off by the short 1 inch pvc piece.
- Cut two holes in the lid of the nutrient reservoir, one for the nutrient line and one for the electrical cord. Make holes as small as possible to exclude sunlight from the nutrient.
- Thread nutrient line through the lid of the reservoir. Connect the nutrient line to the pump and place the pump at the bottom of the nutrient reservoir. Cut nutrient line just above reservoir lid and install flow adjustment valve. Thread the nutrient line through tees at the top of each tower and cap the other end with short 1 inch pvc pipe or figure "8".
- Pull the electrical cord through the second hole in the lid in preparation for attaching to the electrical source.
- Take black capillary line and using the yellow tool provided; punch a hole into the nutrient line about 5 inches to the right of pvc tee. Make sure capillary lines are equal in length for each tower in the system. Slip one end of the capillary line into the nutrient line. Attach the other end to bottom part of the pvc tee with tape or electric wire strap. This way if you need to slide the pots off the pole, the feeding line will be attached to the pvc instead of the conduit pipe.

Now you will program the timer. Set the clock to the correct time. Then you need to press the “program” button. On the LED read out you will see #1 and “on”. Using the hour and minute buttons, scroll to 9 am then press the program button again and the timer will say #1 off. Then using the hour and minute buttons scroll to 9:04 am, press the program button again and it will go to #2 on. Using the hour and minute buttons scroll to 12 pm and press the program button again and it will read #2 off and so on. Follow same procedure for each nutrient feeding for 3 feedings of 4 minutes. During longer summer days you may want to schedule 4 feedings. Do not feed at night.

**Important: make sure the mode is set to the AUTO position from the OFF position.** Place a measuring cup under a black capillary line on the tower farthest from the pump to “catch” the nutrient. Run the pump for 1 minute exactly. You should have approximately a cup of liquid. If so, running for 4 minutes will put a quart of nutrient in each tower every time you feed. If significantly more or less you may have to adjust the time and / or flow at each feeding. Call the farm if you have questions or need help. **Tip: use only water for the first 3-4 days until you are certain your timer is correctly programmed.** Then add nutrient. This will prevent wasting nutrient in case you haven’t set up the timer correctly.

- If feeding manually, feed once in the morning, once in the afternoon or early evening. If home at mid day an additional feeding is recommended (optional) it’s not necessary to feed at night, the plants won’t use the nutrients.

The following instructions apply to automatic and manual users

#### **Mixing the nutrients:**

- Pour entire blue pouch in one gallon water
- Pour entire white pouch into different gallon of water
- You’ve now made two liquid concentrates. Label them carefully.
- If you’re making a gallon of nutrient, put a tablespoon of each of the mixes (blue and white) into one otherwise pure gallon of water.
- **The basic rule: one tablespoon of each per gallon.**
- But if you’re making large quantities, put an ounce of each for every two gallons (just for the record, two tablespoons equals an ounce)
- For 44 gallons (the capacity of the Rubbermaid brute), put 22 ounces of **each** (blue and white) (use measuring cup) one after the other.
- Store nutrient concentrates in a dark place to prevent algae. **MAKE SURE YOU HAVE LABELED THEM.**

**For Nutrients on-line go to**

**[www.hydroharvestfarms.com](http://www.hydroharvestfarms.com)**

John and Terrie are delighted you have chosen to take this journey to begin your own hydroponic garden. They are committed to providing ongoing support to all their hydroponic garden customers. Please don't hesitate to call John on his cell phone (941-915-7208) if you have questions.

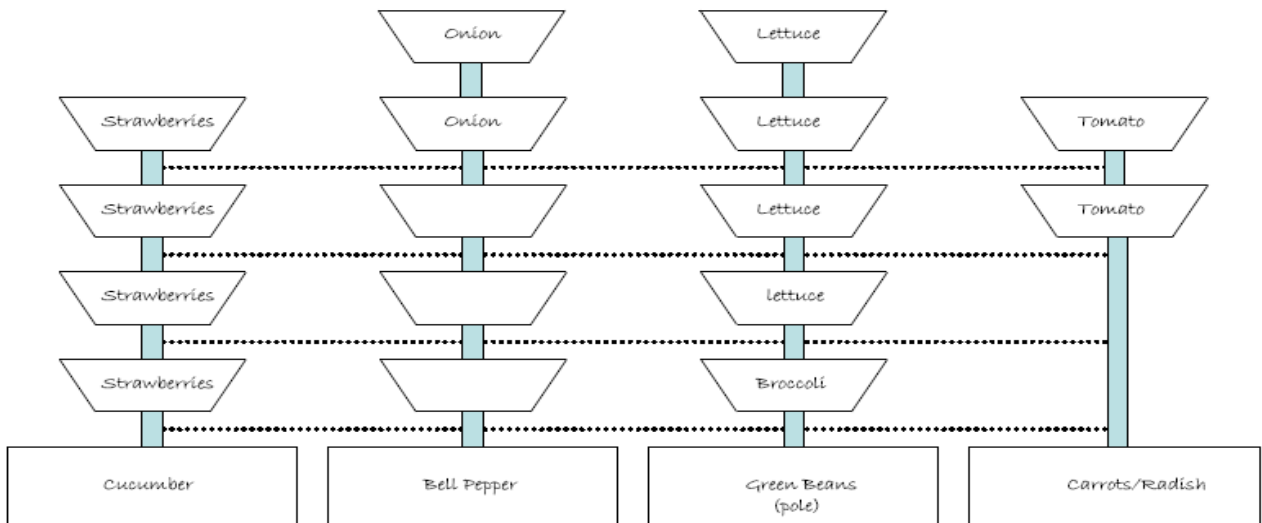
**We'd love to have photos of your garden!**  
**If your grandkids (or kids) are in your garden photos\*\*\*\***  
**EVEN BETTER!**  
**E-mail them to:**  
[john@hydroharvestfarms.com](mailto:john@hydroharvestfarms.com)

**For supplies or additional equipment,**  
[www.hydroharvestfarms.com](http://www.hydroharvestfarms.com)

**or call**

**813-645-6574**

Hydroponic System Layout



Example layout of a sweet sixteen garden. Pots can be relocated depending on what is being grown.