

DIY Build A Four Plant Hydroponic Garden (Drip)



Status

- Complete - updates will be posted on the progress of the garden.

Introduction

This How-to describes building a 4 plant hydroponic garden. The method being used is a top fed drip system. The nutrient solution flows out the ends of 1/4 inch tubing.

Parts List

- A square bucket with lid. (my container is from cat litter. approx 5 gallons)
- A 105GPH fountain pump
- 5 feet of 1/4 inch drip tubing

- 3 1/4 inch barb tees
- 6 small zip ties
- 4 net pots
- 1 pound of expanded clay rock
- An Air pump
- Small air stone

Construction

Start by collecting all the required parts.



Our bucket before we get started



The net pots we are using

The major part of this project is cutting the holes in the lid. Below you'll see the holes drawn on the lid for the net pots.



Lid marked up showing where the net pots will go.



Close up view.

The picture below shows the constructed garden. a 1/2 inch hole needs to be drilled in the center. You can see the tee centered above it. This hole also acts as a drain hole. A one inch hole needs to be drilled for the pump power cord. The 6 zip ties require 2 small holes each. The main tubing connecting the pump should be cut so the pump just rests on the bottom of the container.



The completed garden before planting.

Nutrients

I used the following items for a home made hydroponic solution. I found this formula on several websites on the internet.

- Miracle-Gro for tomatoes
- Epson Salt
- Calcium nitrate

See the info below for mixing instructions

- Miracle-Gro for tomatoes: 1 teaspoon per gallon
- Epson Salt: 1/4 teaspoon per gallon
- Calcium Nitrate: 1/4 teaspoon per gallon

The other item to be concerned with is PH. My city water comes complete with dissolved solids. The big one being calcium. I will be changing my water as follows.

- Replace the nutrient every 2 weeks.

Buy The Meters

After having the garden for 2.5 weeks my meters arrived in the mail. If you don't want to buy a couple of meters then buy hydroponic nutrients. Some mixes have a buffer in them to control ph.

You'll need one or more meters that take the following measurements:

* PH

- EC
- temperature

My city water has an EC value of 450uS and a ph of 7.5. After mixing the nutrient solution the EC value was 2100uS and a ph of 6.4. Miracle-Gro can be used to help control ph.

Planting

We planted the following Plants.

- Cilantro
- Sweet Basil
- Sweet Marjoram
- Rue

The plants were bought at Home Depot. The plants were removed from their containers and the dirt rinsed off. Don't buy plants that are root bound.

Conclusion

This garden should provide years of fun. This a great starter setup. Good Luck with your garden. Below is a picture of 4 buckets ready to go.



The First Garden

Here are some pictures of our first use of the garden.



The garden with its new plants on 5/27/07



The garden one week later. 6/3/07





The garden at 2 weeks. 6/10/07
On 6/14/07 the EC and PH meters didn't lie. It was time to change the nutrients.





The garden at 3 weeks. 6/17/07

6/22/07 the plants had to be harvested. Mold took over the grow rocks. As soon as some cuttings root I'll go another round. My new meters told me that my PH was also high.

The Second Garden

We have 4 of these gardens going now (7/23/07). We are growing 6 different varieties of basil. We have done everything correctly this time. The plants are growing with no signs of problems. We did the following to get this garden right.

- Bought PH and EC meters
- Used PH Down to get the PH between 5.8 and 6.4
- Set toe EC to 1500 for growing basil
- Rooted cuttings to use in the garden
- Used rockwool cubes and rooting hormones for the cuttings
- Gardens are indoors
- The nutrient solution is Miracle-Gro for Tomatoes, Calcium Nitrate, and Epson Salt

Here are some pictures



The picture is bad but here is the newly rooted cuttings placed in one of the gardens. This is the start.



The garden at 1 week.



The garden at 2 weeks.