

Basic Hydroponics System

by 'Buds'

Parts List:

1 bucket with lid - 3 Gallon or larger
1 aquarium air pump - Elite 802
2 feet airline
1 air stone (4" or smaller)
1 3" or 4" plant pot
2 cups gro rock or Rockwood or gravel (clean)
Hydro Nutrient (more on what kind later)



OK, guys here it is. These instructions and details only apply to my conditions and circumstances. So some tweaking and alterations to some things may need to be made to make it work as well for you as it has for me.

In a nutshell - the plants basically hang in a nutrient rich solution with air pumps supplying much needed air to the plants roots. I've made a few modifications to the system and they make it really easy to set up.

The plants are started in the medium of your choice, rockwool (use small cubes), vermiculite, peat, etc. and transferred later to the pots.

As you can see in pic 'buckets' we will be using pails of various sizes and shapes. We use the lids of the buckets or you can cut one from plywood (not treated wood, just plain old 1/4" or thicker plywood). Almost any kind of container can be used. We prefer to use 3 gallon black buckets (purchased at a grow-store) or 5 gallon (20 liter) white buckets. You can use the 36 liter Rubbermaid tubs too. Just use the lid and cut 2 - 4 holes (two pots is best - four plants are just a little too much if you grow big plants). Other containers will work, and we've even taken to using smaller than 3 gallon pails for plants



that still often yield 2 oz each. So you can experiment, just don't use anything smaller than 3 gallons to start - after your experience grows you can play. Make sure the containers are very clean and sterilize if possible. Bleach and water works well. And don't use transparent or see-thru ones, algae will be a problem. With white buckets some algae does build up but never enough to notice or worry about.

Depending on the size of pots you will use, you will need to cut a corresponding hole in the lid to accommodate the pot. It is probably best to use 3" or larger pots (depending on the size of plant you wish to grow). You can purchase hydro pots at the hydro store or just use regular green plastic ones you can buy in hardware store. You may want to cut a half dozen or so slits in the pots to allow more roots to come out, but it is not necessary.



You will also need to drill or cut a small hole for the airhose to come through. Make it tight if possible so that you can make sure the airstone stays off the bottom of the bucket.

Once you have the lid done, you can set it up. Put airline through lid (keeping off bottom) attach airstone and airpump. Place lid on bucket. and fill bucket with nutrient solution (more later). Make sure airpump is running and you should see lots of bubbles coming through solution. Watch for bum airstones - about the only maintenance feature of this system that is

This is the kind of aquarium pump that is



used.

Elite 802 has two outputs to run two buckets, or one Rubbermaid.

not perfect.

You are better off to start plants and have them either root-ready from cloning or a good set of roots from seed than to just plant them in rockwool in this system. Plants should have a well established root mass before placing in this system with full strength nutrient. Wait for the time when you would transplant them (in soil) to a larger pot and you can transplant your soil plants to hydro - just clean off the roots as well as possible (in lukewarm water) and place in system.

Take your pot and put a layer of rockwool or gro-rock on bottom, and holding plant in one hand so that roots just lay over rock, fill the pot with rock or rockwool to the top and make sure plant stalk is in the middle of pot for better support.

This pot can now be placed in hole in bucket lid. Make sure that the nutrient level in the bucket is at least 1" or 2" above bottom of pot, so that the roots you placed in the pot are sitting in the nutrient (Very Important) Otherwise your plant will dry up and die. It is also a good thing if you can position the airstone directly underneath the pot so all the bubbles hit the roots directly (A good thing!).

You are off and running. The system needs very little care for the first 3-4 weeks. So you can sit back and watch these babies grow. There are several small points that need to be made now. One of them is nutrient. I simply use a store-bought Hydro Nutrient solution that works for us. There are many different kinds, but I believe most of them will work. In the past we have simply added nutrient-mixed solution to the bucket when it got low. When you change your timer, or move the plants to the flower room, dump out the old Vegetative nutrient and replace with a full bucket of fresh Flower nutrient. Keep adding Flower food until about 2 weeks before harvest and replace with straight clean water. This works for us and I make no claim that it will work for everyone. You should test the nutrient you use. If it is a hydro nutrient, then you can start the plants out on a 50% solution and if all goes well for the first week or so, you can probably boost it up to 75% and go from there. If you could raise temp of water in buckets, yes it would definitely benefit the plant. I'm actually not aware of the temperature of the nutrient in the individual buckets.

[[Note from Makka]- I find , with my limited but fairly successful experience, that root zone temps do affect growth. I use submersible aquarium heaters set at 20 celcius (68F) in hydro setups,. Or in winter only, heat mats under some pots. Another point of interest is day/night air temp ratio. Try and keep dark temperature within 10 degrees of day (lights) temp. Eg 20C (68F) celcius min. - 30C (86F) max. The closer these two temps, the shorter the internodal distance, resulting in shorter bushier plants. Warming the water they grow in will usually give better growth. Obviously real cold is not good. I guess it depends..is there a foot of snow outside, I'd like my feet warm. But in the summer.... well... Anyway, thats just my observation, although several of the best books, have similar opinion. Good Growing, keep up the good work..... cheers... makka]

The other point is about airstones. They make your plant live and they can kill them too! Check your airstone often, they will plug up and a dead airstone means a dead plant. Some say "never use airstones" I've never not used them. I've been using this system for over 12

years now and have always used airstones. They give my plants a real nice diffused air and I am not convinced that a airline from an airpump without an airstone will give the plant as much air as it could use. It does however keep the nutrient from going bad, but the plants love the thick blanket of air they get at the roots. So check them often!! One airstone is usually enough for a 3-5 gallon bucket. The airpump is on all the time. this helps prevent them from plugging up and gives maximum air.

As for ph, ec, etc. I Do Not Check These! I don't have to! We use plain tap water. Can't recommend this to everyone, but again, it works for us. For some reason, we've never had to deal with ph etc. It just doesn't factor in here for some reason. I've grown at least a dozen or more different strains using this system and never had a problem that was related to ph. It was usually either giving plants too much or not enough nutrient that was the problem.

With this system it's better to flower the plants small. You can do really big plants, but they require more maintenance and food as well. As an example, all plants grown in this system yield about 2 oz each. I've personally had plants as big as 4 oz. in a 20 liter pail. And Rubbermaid containers should yield at least 3-4 oz. Just my experience with our strains. No I don't bull#\$%@ either.

There is not much else I can say about this system except that it works! I didn't believe it until I saw it. I had the idea in my head but had never seen it work. Till a friend turned me on to it. First crop got 1 lb under 1000 watts MH. From 4 Rubbermaid's. That convinced me. So you can experiment, try a kiddies pool with a plywood lid - 6 to 8 plants and 6 airstones and WOW. Or try 4 Rubbermaid's under 1000 watts. Best of all just experiment.

Another look at the bucket with young



plant

This plant was just placed in flower two weeks



ago.

See roots hanging into bucket. Time to feed her.

Nice white roots. Just what you

OK, so here's a pic of one of the developing



want!

Note small amount of algae on bucket.
Plant has been in flower for 4 weeks now.



buds.

It has been in flower for about 4 weeks now.



And ... here's
one of the
girls, she has
about 4 or 5
weeks left to
go. Wish my
digital cam was
better, for a
better
detailed photo.