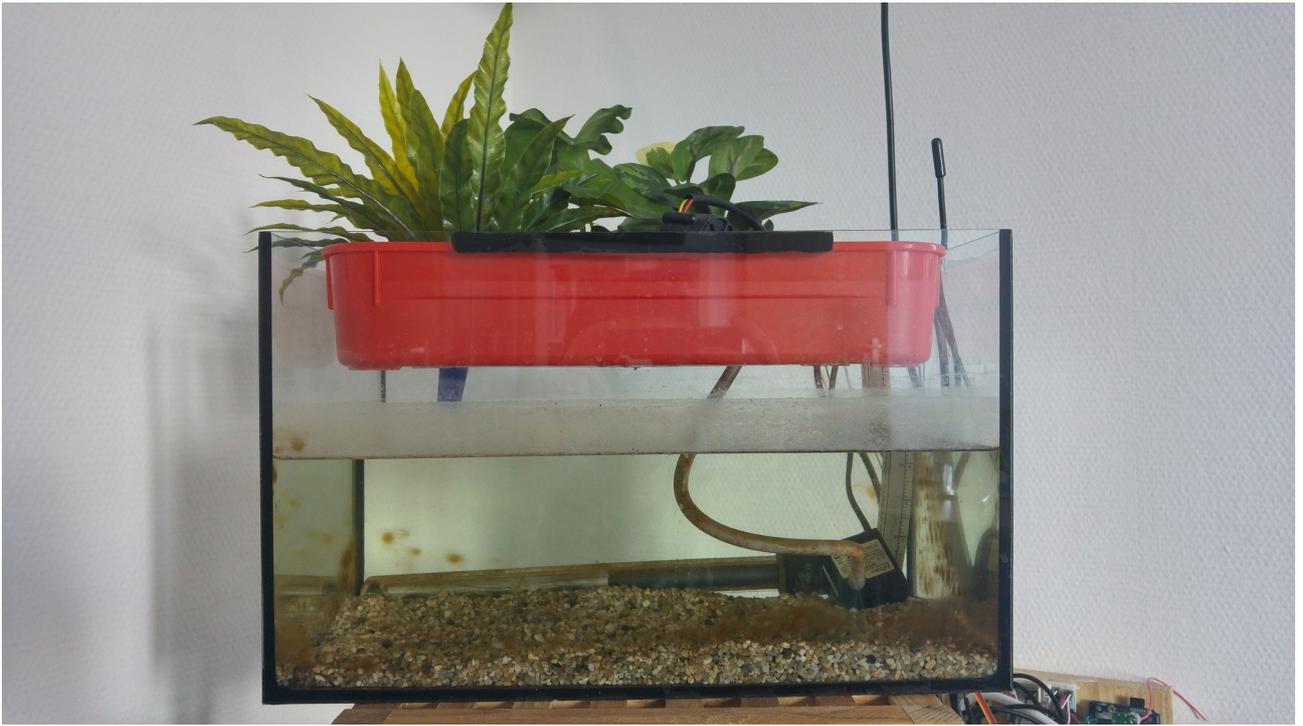


MINI Aquaponics System

Introduction

Aquaponics is the combination of Aquaculture and Hydroponics.

Hydroponics requires expensive nutrients to feed the plants as well as periodic flushing of the systems which can lead to waste disposal issues. Re-circulating aquaculture needs to have excess nutrients removed from the system which can ordinarily means that a percentage of the water is removed on a daily basis. That nutrient rich water then needs to be disposed of and replaced with clean fresh water. Aquaponics allows you to produce fish and plants in the one system with a large reduction in water use.

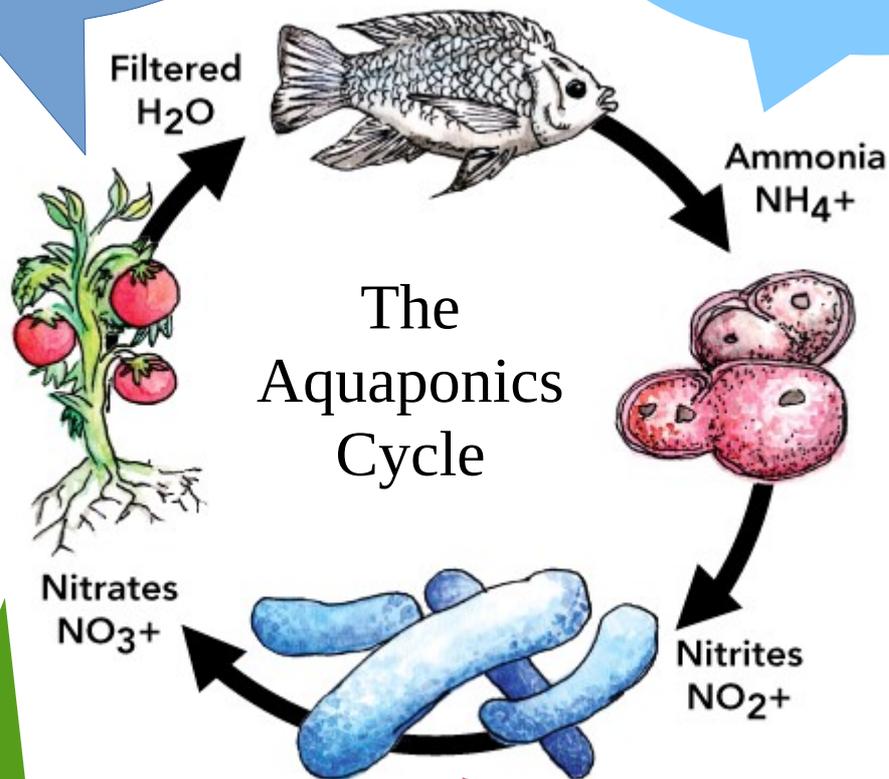


How does it work ?

Aquaponics recirculates water from a fish tank through a vegetable grow bed. Nutrients from the fish waste feed the plants, and the plants filter the water to keep the fish healthy. The two main components of the system are the fish tank and the grow beds with a small pump moving water between the two. The water passes through the roots of the plants before draining back into the fish tank. The plants extract the water and nutrients (fish waste) they need to grow, cleaning the water for the fish. This week I will do a report about aquaponics systems.

The plant roots help filter the water for the fish and also provides oxygen.

Fish are food and produce ammonia rich waste. Too much waste substance is toxic for the fish, but they can withstand high levels of nitrates.



Plants take in the converted nitrates as Nutrients. The nutrients are a fertilizer, feeding the plants.

The bacteria, which is cultured in the grow beds as well as the fish tank, breaks down this ammonia into nitrites and then nitrates.

Aquaponics System

Benefits:

- The main benefit from a system like this is the ability to grow fish and plants for consumption in the one system;
- Aquaponic systems use about 1/10 of the water used to grow plants in the ground;
- Relatively low energy consumption;
- Faster growth rates and yields;
- Eliminates the need for weeding and tilling of soil;
- No soil borne diseases;
- Plants are naturally fertilized;
- No pesticides or chemicals;
- The fish are a healthy source of protein;
- No waste water run off in recirculating systems;

What types of plants can be grown in aquaponics?

- Broccoli;
- Cucumber;
- Most varieties of lettuce;
- Most varieties of herbs;
- Peppers;
- Squash;
- Strawberries;
- Tomatoes;
- Watercress;
- Zucchini;

What fish can be grown in aquaponics?

- Perch;
- Tilapia;
- Catfish;
- Peruvian Pacu;
- Oscars;
- Koi;
- Goldfish and some varieties of aquarium fish;
- Freshwater prawns;

Manual of Mini Aquaponics Systems

Components:

- 1 Pump of Water;
- 1 Aquarium;
- 1 Flat Plastic Box;
- 30cm plastic tube
- 2L expanded clay;
- 1 Plastic funnel;
- 3 plants
(eg: Tomatoes, Squash, Watercress, ...);
- 1 Water Plant;
- several small aquarium fish (cold water!)
(eg: Koi);
- 1 Aquarium Snail (Optional);



Tools:

Drill with 6mm & 12mm drill

Instructions:

Wash gravel and spread in plastic box. With the drill to make 4 small holes around the plastic box to drain water and 1 hole in the middle for the water pump. In the corner of plastic box make a bigger hole for the funnel and also for water pump.

Fill the tank with 2/3 of water, use of water plant. Connect the water pump with the flow water sensor (Controls the amount of water passing).

Insert the funnel.

Ideally you should wait approximately 4 weeks to add plants to your system, but if you are eager to plant it, add just a few plants or seeds and increase plant density in a month or so when your system is well established. In the meantime fill the plastic box with clay, so that the plants have space to grow.

Turn on the water pump to a timer so, at least twice a day for at least 1hour, to run the system.

After 4-5 days, the fish can be used (very slowly fills the bag gradually (every 5-10 minutes) with some water from the aquarium). The fish is feeding through the funnel, in small quantities and have to consume everything.

Watch the first two to four weeks, to see if the water remains clean and the fish seem excited and happy. Once a month, remove the water pump and cleaned to removed any type of algae and the residue of the same.

Send us your photos and ideias, we look forward to your opinions!