

A stylized white graphic on a blue water background. It features a fish-like shape on the left and a plant-like shape on the right, both with smooth, flowing lines.

**Quick**

# **Aquaponics Farm**



**W**hen it comes to growing food, most people would think of a garden, and that's just limited to raising fruits, vegetables, and roots. But what if you could grow plants and raise fish at the same time?

Introducing aquaponics! It's the latest trend in farming that involves a combination of aquaculture and hydroponics. Aquaponics has proven to be one of the most sustainable ways to grow food that requires little to no effort to maintain.



## How Does It Work?

Building your own aquaponics system couldn't be easier, but it's important to understand the basics of it first. In aquaponics, plants absorb nitrates from fish waste to help them grow and then return the favor by cleaning and filtering the water of the fish tank, creating one continuous cycle.

Every aquaponics system includes three main components, namely:

### Plants

Plants are essential to any aquaponics setup, as they clean and oxygenate the water. They also filter the water and absorb the nitrates. It is recommended to use plants that are easy to grow and well suited to your location such as tomatoes and lettuce.



### Fish

Fish go hand in hand with plants because their waste fertilizes the plants, thus filtering the water before recirculating back to the fish. You can choose almost any type of fish to raise in your fish tank, but some of the most commonly raised in aquaponics

systems are goldfish, trout, and salmon. Other aquatic animals such as shrimps can also do the job.

## Bacteria

Bacteria are used to help the plants and fish thrive in your setup. They convert fish wastes into nutrients for the plants to absorb. The water from the fish tank fed to the plants contains a lot of ammonia from fish wastes that are converted by the bacteria into nitrites and nitrates through nitrification.



## Why Choose Aquaponics?

- Aquaponics lets you grow your own food long-term with little waste, time, or expense compared to regular fishkeeping.
- It uses less water than traditional gardening since water is recycled.
- Growing food with aquaponics is all organic! There's no need to use harmful chemicals or fertilizers.
- Aquaponics systems do not require extensive land areas and can be set up anywhere; from your backyard to even in your bedroom.

## Which System Is Best For You?

### 1. Media-Based Aquaponics Set Up

The media-based setup is the most common aquaponics system in the fishkeeping community. Using this system, plants are grown in a certain type of media such as clay pebbles, and the media bed normally sits on top of or next to the fish tank. A pump then draws the water from the tank before it is returned back to the fish fully filtered. This setup uses very few components, and no additional filtration is needed, making it easy to maintain.

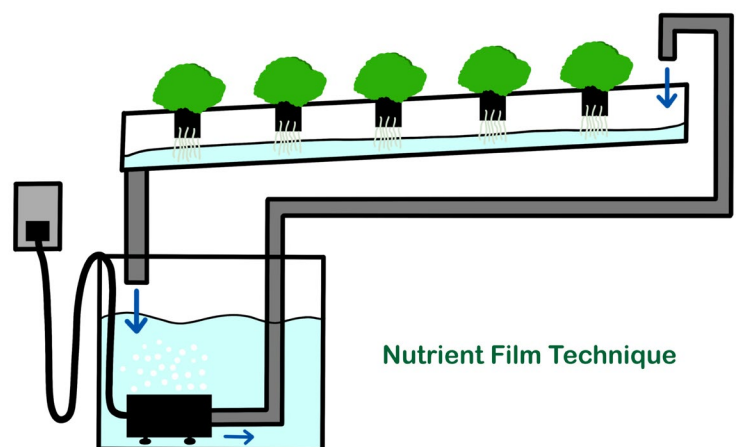


## 2. Deep Water Culture Set Up

The deep water culture system a.k.a. the raft system uses a floating foam raft. It lets the nutrient-rich water circulate through the long canals, usually at a depth of about 20 cm, while rafts float on top. The plants are grown on the raft boards supported within holes by net pots. Plant roots hang down in the nutrient-rich, oxygenated water, where they absorb oxygen and nutrients to grow rapidly.

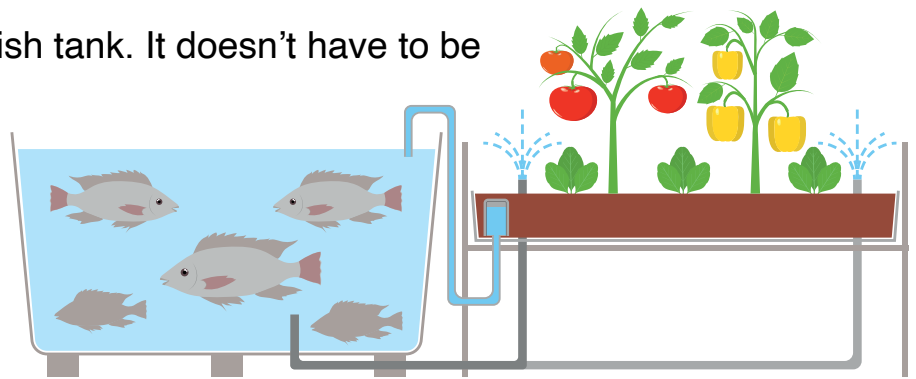
## 4. Nutrient Film Technique (NFT)

No, not the NFT that you're thinking of. The Nutrient Film Technique (NFT) is a hydroponic growing technique that works well in some environments. This simple yet effective method involves drawing the water from the fish tank through a narrow, cylindrical tube, which has holes drilled into the top. The roots are then dangled through the holes where they draw nutrients from the water. If you're planning to set your system in a small space, NFT is perfect as it can run across walls or hang from ceilings.



# How to Build Your Aquaponics System

1. First off, you'll need a fish tank. It doesn't have to be new. If you have an old one that you no longer use, you can repurpose it for your aquaponics setup. The size of your tank should range from middle to large, depending on the number of species you'd want to keep. Then, set the tank up as you would a normal fish tank.



2. After prepping your tank, it's time to build your grow bed! It can either be built above or to the side of your fish tank. You can either use a heavy duty plastic tray or a simple wooden crate for your bed. Assuming that you're going with the media-based setup, you then need to fill it with the media of your choosing. Make sure to stick to a ratio of 1:1 between the size of the fish tank and the size of the grow bed to maintain the same volume.

3. Once you've dechlorinated the water and cycled it for around 4-6 weeks, you can now add the fish and the plants. And that's it! You finally made your very own aquaponics setup.

## Maintaining Your Setup



No worries, maintaining your aquaponics setup is pretty simple and requires little attention from you. But of course, you don't need to be totally careless. Here are some things that you should still monitor to keep your setup running:

- Always feed your fish daily. A simple flake food and some occasional treat would suffice. Just avoid adding any live food to your fish as they might contract some diseases from it.



- Test the tank water every week or two for pH levels, ammonia, nitrites, and nitrate levels. The pH level should be neutral around 6.8 – 7.0, which is ideal for the fish, plants, and bacteria. Otherwise, you can raise it by using pH-up products containing
- Monitor your fish tank temperature to check if it is within the ideal range for your fish to ensure your fish are healthy.
- Lastly, tend to your plants like how you would in a regular garden and check for plant diseases and insects. We recommend planting new crops after harvesting to keep the balance of your setup.

