

# What is Aquaponics and How Does it Work?

Aquaponics is a method of growing plants in water and using this as a habitat for rearing fish while hydroponics is only growing plants in water which often gets pumped out of the system.

In aquaculture, toxic nutrient accumulation from the fish, fish food and fish waste meaning water needs to be constantly siphoned off and replaced with a clean supply. In aquaponics both problems are solved in a mutually beneficial way. Water is saved from the continuously cycling of fish to the plants and back to the fish. The plants are able to use up the toxic nutrients making the recycling water safe for the fish.

## Aquaponics process

The nitrogen cycle starts with ammonia, a waste product from the respiratory cycle of the fish as well as decomposing fish food and waste and converts the toxic waste products into less toxic waste nutrients that the plants can use.

Bio- filters can be made of any organic substance like gravel or a hydroponic substrate and are included in an aquaponic system to provide a place for the beneficial bacteria to live and proliferate. Bio- filters provide a large dark and wet surface area on which the nitro ammonia and nitro bacteria survive.

## Equipments needed

Fish tank can be made from a variety of materials such as stainless steel, lined wood or plastic. The size of the container will depend on the number of fish you want to stock.

Media beds are made from gravel and hydroponics substrate,

raft beds for floating trays, bio- filters, water pumps to circulate water throughout the system and an electric system.

## **Tips for starting aquaponics**

Start small and slowly progress. Choose fish and plant species wisely and use complimentary fish and plants species.

Test your water regularly, fish are extremely sensitive to nutrients and pH fluctuations and take daily or weekly water readings.