

# **Aquaponics Systems | Integrated fish and vegetable farming | Aquaponic Farming for Beginners**

Aquaponics is the growing of plants with a soilless media where the fish eats and provides wastes to become a perfect fertilizer for growing plants. It also allows one to harvest both fish and vegetables.

Aquaponics mimics a natural ecosystem exchanging the waste by products from the fishes into fertilizer for the plant and to clean and safe water for the fish. To grow a plant in soil it is necessary to reapply compost or fertilizer. Applying too much synthetic fertilizers or composted manure creates salinity rendering the soil too hot to grow crops killing soil microbes. Overwatering soil can result in flooding, run-off and soil compaction. Too little water, drought and water shortages can wreak havoc on plant growth and can easily result in plant death as well.

## **Hydroponics and aquaponics**

The disadvantage of a hydroponics system is; it needs close monitoring during the first month and once established the pH and ammonium levels need to be checked. Water needs to be discharged periodically as the salts and chemicals build up in the water becoming toxic to the plant. They are also prone to diseases such as Pythium and root rot.

In aquaponics, there is no need to replace water, only if it evaporates. It eliminates weeds and small animal access to the garden, uses less water than hydroponics and no harmful chemicals, herbicides and pesticides can be used.

# Aquaponics techniques

Deep water culture uses a raft that is floating on a channel filled with fish water, filtered to remove solid waste and the plants dangle in the water. Media based aquaponics is the growing of plants in inert media where there is conversion of ammonia to nitrate and removal of solid waste in the same cycle.

Nutrient Film Technique works by flowing water through a narrow trough and plants placed in drilled holes in the pipe and the roots dangle freely. Vertical aquaponics plants are stuck on top of each other in a tower system. Water flows through the top of the tower and flows through a material that the plants and roots absorb water and nutrients.