

# The three elements of aquaponics

An aquaponics system actually contains three vital living parts; fish, plants and bacteria. The system relies on each of these living organisms to be balanced to be successful. This means that each is as important as the other and all must be maintained to create a balance.

Aquaponics is a 1- 2 - 3 closed system.

1. Fish grow and produce waste and ammonia. The bigger the fish grow, the more waste is produced.
2. The bacteria, usually found in the bedding material or growing material of the plants, convert the fish waste and ammonia into nitrites and then nitrates.
3. Plants absorb the nitrates to grow strong and healthy. By absorbing these trace elements, the plants clean the water as it goes back to the fish.

This process is very simple and natural. It is what happens in nature every day. Fish in the rivers eat insects, bugs and algae. They produce waste that is broken down by bacteria in the mud banks and submerged trees and even in the river bed. The nitrate rich water is then used by the plants that grow along side and near the river. This is why plants that grow near rivers are always green and healthy.

Understanding this 1- 2 - 3 process is vital to setting up and maintaining a balanced aquaponics system.