

System maintenance

Water temperature

Different species of fish require different water temperatures and conditions. Information about fish requirements are in Appendix A. Water temperature fluctuations need to be kept at a minimum. A larger volume of water of 1,000L and more will offer stability and reduce sudden temperature changes in your system.

In summer on hot days the grow bed can heat up and the heat is then transferred to the water, when that water is passed back to the fish it can affect some fish.

In winter on cold days the grow bed can cool down and the water becomes colder, when that water is passed back to the fish it can affect some fish.

Water quality

Ammonia

High ammonia levels, from 2ppm, are toxic to fish. If the system is new or not fully cycled, or the fish are overfed, sudden spikes in ammonia levels, especially when temperature conditions are warmer than normal, can kill fish very quickly. Test for ammonia regularly if the system is new or if the fish have been overfed. Many people tend to overfeed their fish. Fish can actually go for a number of days without food.

Nitrate

Although high nitrate levels won't kill the fish, they will feel the impact of nitrates by the time the levels reach 100ppm, particularly if levels remain there for some time. Some fish can survive in higher levels of nitrate, but its best to research the nitrate levels the fish can tolerate. The resulting stress leaves the fish more susceptible to disease. A high nitrate reading means either to reduce the number of fish in the tank, or add more grow-beds and increase your number of plants to suck up the excess nutrients.

An aquaponics system in balance has low to nil nitrate readings and is a picture of lush vegetation. Plant growth will give a good indication of the health of the system.

pH level

An aquaponics system is a trade-off between the ideal pH range that the fish prefer (7-7.5) and the ideal range that the plants prefer (mid 6's). A pH around the mid 6.4 to 7 is the ideal range to keep both fish and plants happy. Outside these parameters, the fish health will begin to strain a little and the plants ability to take up the range of nutrients will be severely diminished. Monitor pH regularly to ensure the system is running at peak capacity.

On an established system, the water should be tested once every week to ensure any issues are caught before it kills fish, plants or bacteria.