What are pond pH, KH and GH and why are they important for fish.

What are pond pH, KH and GH and why are they important for fish.

Every pond owner knows that water quality is key for the health of fish. It is easy to think if the water is clear, it must be health. The truth is water turbidity is only half the story. It is easy to get bamboozled with chemical jargon and end up feeling like you need a chemistry degree to keep fish.

The truth is if you can keep a few factors in check your fish should flourish.

pH level

The pH level of the water in a pond is by far the biggest factor that most Koi owners will need to control to maintain the health of their fish. High pH levels mean that the water is to alkaline, pH levels being too low mean that the pond water is too acid. So, what are the dangers of the wrong pH level.

Low pH levels lead to a condition known as acidosis. A fish suffering from acidosis will typically isolate themselves and rest near the bottom of the pond. In more extreme cases blood streaks will appear in the fins. If the situation is not rectified severe acidosis will need to death. If caught early the effects of acidosis can be reversed by adjusting the pH level.

High pH level will lead to alkalosis. Alkalosis has many of the same symptoms acidosis, the main difference is that Alkalosis is much harder to reverse.

GH and KH levels

While pH is reasonably widely understood GH and KH are often the source of greater confusion. Both GH and KH relate to the hardness of pond water. KH stands for carbonate hardness (K coming from the German "Karbonathärte") This forms a major part of the overall general hardness of the water (GH). While we are all familiar with the idea of hard and soft water in our homes we are less familiar with the effects it can have on a pond and the fish living in it.

The KH level of a pond is incredibly important for the health of your fish. KH level indicates the amount of calcium carbonate ($CaCO_3$) in the water. Calcium carbonate acts as a buffer stabilising the waters pH level. On the surface of it a pond owner would expect the ponds pH level to stay reasonable stable, but the pH level can be influenced by a range of factors including acidity in the rain and plant photosynthesis. Calcium carbonate is the best protection against an unexpected and potentially harmful pH crash.

The GH level will include the KH level along with other components such as calcium and magnesium levels. While the KH level is the most important factor to monitor a high GH level can also indicate raised levels of poisons heavy metals.

Balanced levels for a healthy pond

It is vital to keep the PH, KH and GH levels in-check if you are planning to use any kind of bacterial treatment. Bacteria have the ability to help with everything from blocking pathogens to controlling algae. While bacterial treatment are extremely effective they can be dependent on water quality. Putting a bacterial treatment into a pond that is not in balance is akin to trying to bake a cake in an oven at the wrong temperature. The recipe could be great but without the correct environment the results will leave a lot to be desired.

What are pond pH, KH and GH and why are they important for fish.

Envii Pond equaliser

While keeping your pond in balance is important, the solution is easier than might think. Rather than spending hours sampling and resampling the pond water simply deploy Envii Pond Equaliser. Pond Equaliser is formulated to keep the pond in health balance without the rigmarole of constant testing. We would recommend treating any pond with Envii Pond Equaliser prior to using any bacterial treatment to insure the best results.