

## Mud, glorious mud

Growing a potential show winner is all about replicating the conditions of a mud pond, according to dealer of Champions **Mike Snaden**, from Yume Koi, who talks you through why this is the ultimate in luxury for Koi...



The last two years of BKKS National Show programs have included a cut-down version of a series of articles that I have written which focused on the challenge of growing inexpensive Go-Sanke tosei to over 80cm by five-years old. This year I hope to give you some insight into how such growth and condition was achieved with these Koi, one of which hit 80cm at three-years old – see pages 12 and 13 for photos.

### Hobbyists versus breeders

Nowadays, Koi keepers tend to place precedence on keeping water that looks good for viewing Koi rather than water that is good for raising Koi. Raising Koi to their full potential is usually best achieved with

May; during the summer Koi reside in the mud ponds. Once Koi are harvested in the autumn they are placed into these filtered indoor ponds and are usually not fed a single pellet of food until the spring. During the winter the heavy stocking rates and compromised filtration takes its toll on the Koi's condition, damaging the teri and tsuya (pigment lustre and shine). However, breeders are not concerned as they have a secret weapon – the mud pond! In spring they put their Koi back out to pasture, knowing that they will be fixed up again by autumn.

### Grass roots

Put a Koi into a filtered pond and it becomes a whole load of compromises,

distance the colour looked very deep but, in reality, the colour has lost its glow and become thin.

So now to Koi. Pigment cells stand up in healthy water like an anemone, gently wafting around, soaking up the healthy environment, with the cells increasing in density (teri). When a Koi is well-kept its colour will look very thick with soft but rich/high-resolution colour, like the bowling green. Put the Koi into bad water and the pigment cells start to lie down on top of each other like trampled grass to create a protective barrier. This causes the colour to become much darker or, as most people think, better. While this may be better for a Koi show, keeping a Koi in this prolonged environment will damage its teri, causing



The mud-pond environment is the equivalent of putting Koi out to pasture and can fix all manner of problems

techniques that are a far cry from those that most hobbyists use. All too often a hobbyist will travel to Japan and study a breeders' indoor filtered ponds before coming to the conclusion that their own pond is far superior. This is something that has always caused me some disappointment, as the purpose of these breeders' ponds has more often than not been completely overlooked. We have to remember that a breeder's filtered ponds serve a completely different purpose to hobbyists' ponds and that the way that Koi are kept in those ponds is also very different. These ponds are generally only really in use between October and November or April and

which ultimately lead to most Koi being in less-than-optimum condition. The biggest effect of a filtered pond can be seen in the appearance of the beni (red). To help understand this, imagine a bowling green – the grass is regularly mown and pampered and is a vibrant green in colour. Then, imagine the green without any care and being trampled by a herd of school children every day for a few weeks. The grass, from a distance, now looks darker green in colour. But, when you get close, you find that the grass is all flattened and when you rake it you see that it has lost its density, as beneath the dark-green blades the grass is brown and dead. From a

pigment cells to die off, which in turn can make the colour look redder but thin. In advanced stages the tips of some of the scales will lose pigment, causing them to look as if they are transparent. Eventually, the beni will fall apart.

Think of colour as a living thing in itself. You have to nurture it like your prized bowling green, but don't mow or roll it. Colour needs extremely good water to make the pigment cells stand up. It then needs plenty of light to make it thrive. But too much sun will burn and destroy pigment cells. You can control the light on a pond with shading, but this is just a compromise and will invariably mean that, much of >



## Mud, glorious mud

> the time, the Koi won't get enough light, so the colour can become pale or blotchy. Fortunately, Koi aren't as stupid as we think, as you'll realise later! So, onto the mud pond for this one.

### The mud-pond scenario

In a mud pond conditions are far, far different from in a filtered pond; it's a completely different environment altogether. The mud pond is generally filled with rain water that runs down off the mountains through minerally depleted soil and rock. Hence, Total Dissolved Solids (TDS) levels are typically 30–70ppm, pH levels of around 6.8–7.0, with GH and KH levels being lower than you would ever run in a filtered pond. Contrary to popular belief, mud ponds in Japan are devoid of minerals. Niigata is accepted as producing the finest rice in all of Japan but the soil is so lacking in minerals that rice is about the only thing that can be grown there! Anyway, mud-pond water is very

cells healthy and vibrant, if the water were clear the beni would quickly burn resulting in, firstly, the beni becoming too red and then disappearing altogether! But, with the turbidity of the water this doesn't happen. The Koi will be up at the surface in the morning and feeding heavily. When the sun becomes too strong they go down to get away from it. Then, in the evening, the Koi come up in search of food again.

### 'The cesspit'

It is very difficult to emulate mud-pond conditions in a filtered pond so the best we can do is to compromise and get as close as we can. Whereas reasonably good results can be had when keeping Koi with this aim, it is

osmosis water and untreated mains water, generally with a KH of around 30ppm and GH as low as feasible. No clays or any other water additives are added, ever! The

pH generally runs at around 7.2–7.3. This pond is filtered with a bakki shower and has no UV units. The water is pumped directly over the showers with no prefiltration and two big, 1m air rings are situated around the bottom drains which stops most of the fish waste from going directly down the drains without getting broken up to some

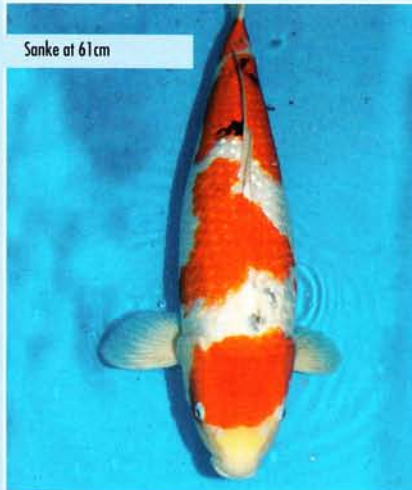
degree, resulting in particulate matter being suspended in the water. This particulate matter resembles fine algae, which quickly settles out and offers the Koi some shade

*I am not advocating that you turn your pond into a murky mess but, as far as Koi are concerned, water clarity is not very important*

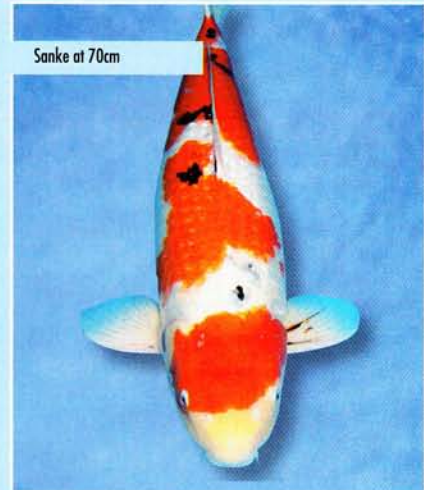
Sanke at 25cm



Sanke at 61cm



Sanke at 70cm



seldom clear and is usually very turbid, and to some degree green. In the height of summer temperatures often run up to around 32°C. As you can imagine, for such a large body of water to reach such temperatures, the ambient temperatures and sunlight have to be incredibly hot and strong during the day. To summarise these conditions: we have water that is soft and delicate to the pigment cells so that they all stand up and soak up the sun's rays, which makes the beni reach its most desired condition with its best teri. But, luckily, this is where the Koi 'not being stupid' comes into play. As much as the Koi need the sunlight to make their pigment

most important to remember that to keep good teri on your Koi is one thing, but damaged teri is almost impossible to fix without a mud pond. I will use our 4,400-gallon growing pond as an example of an attempt at an emulated mud-pond environment. When people visit Yume Koi we often get asked why this pond looks so dirty. But, nowadays, it seems that people are starting to realise why we keep this pond the way we do. I affectionately call this pond 'the cesspit' and its results, to my mind, are almost magical. I try to run this pond with as low a TDS level as possible, somewhere between 100–130ppm. The water is softened using a mix of reverse-

– in our case this happens too much as this pond doesn't enjoy mud-pond sun levels. So we supplement with 400W metal halide lamps. If you are raising Koi in heated water it is important that the elevated temperature is complemented by elevated levels of sunlight. The murky water then gives the Koi the option to get away from this 'sunlight' if they wish. It is important to make sure that the water isn't murky because it's dirty. Dissolved fish waste will cause the water to become brown/yellow. Good water should have no discoloration, or be perhaps a little green if no UV unit is used. A TDS meter will help determine the 'dirtiness'.

# SHINGOI-BKKS NATIONAL SHOW 2007

This 4,400-gallon pond is run at 24°C during the summer. It is possible to run at higher temperatures but you have to be careful doing so as you need to find a balance between growth, metabolism and oxygen levels. If you overfeed Koi at low temperatures they don't grow and simply get fat. If you get the balance of temperature and food right, your Koi will grow well without becoming obese. But at temperatures that are too high the metabolic growth rate becomes extremely high, while the Koi's appetite becomes lower. So, your Koi will not have a decent body shape. In Japan, when mud ponds get up to 32°C, the Koi's appetite lessens. August and September are generally slightly cooler so are much better for putting weight back on and getting good growth.

## Koi genes

As if temperature and feeding weren't complicated enough, genes play an important role. When growing Koi you

set well apart. The body should have good length and the backbone should be strong. Ideally, the thickest part of the body should be around the front of the dorsal fin, rather than further forward.

## 2 Sashi

Sashi is important as both an indication of quality and also of future development. No sashi is an indication that the beni exists only in the area of the scale that is exposed to oxygen. More than one scale of sashi should be avoided as it is unlikely that it will recede and, if coupled with soft beni, the Koi will have a high likelihood of developing secondary hi later on.

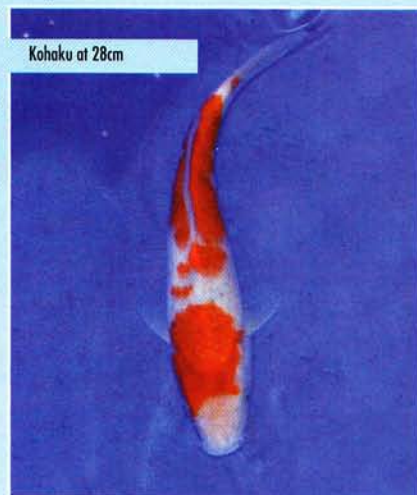
## 3 Kiwa

Look for maruzome kiwa (scalloped), rather than kamisori (straight-cut) kiwa, as it is much more desirable and will look far more refined when the Koi grows. If there is some kamisori kiwa present it should be well-defined. In the case of maruzome

is also very unstable when you start to grow the Koi and suffers greatly from teri damage. This is even more of a problem with Showa so be careful. Sanke beni can be somewhat misleading when buying tosaï at a very small size so be prepared to take a gamble. But, in the case of Kohaku, it has to look high-quality, even if yellowish, in order for it to turn out well later on.

## Growing-on rules

Once you have obtained a Koi that you wish to grow on, a large part of the challenge is to prolong its colour development as long as possible. Colour that peaks later in life will always end up much more beautiful than colour that has been forced early on. Use colour foods only in moderation; this will pay dividends. Please don't misunderstand me, I am not advocating that you turn your pond into a murky mess, but want to help you realise that, as far as Koi are concerned, water clarity is not very important. If you decide to



can only feed for 'the majority' – you can't possibly cater for all of your Koi. Some Koi will get big while others won't and will get fat instead. Although genes are important, so is the individual Koi's credentials. In order for a Koi to get big it has to have good head shape and proportions as well as body type. These points are all crucial if you wish to grow jumbo Koi. Growing jumbo Koi is a fine art and you must pay great attention to fine details when buying small Koi to grow on:

## 1 Head and body

The head should be long and broad with good length in the nose; the eyes should be

kiwa, pay particular attention to just how apparent it is. In an ideal world it should subtly follow the outline of the scales. If it appears to be somewhat exaggerated, by following the scales in more of a 'petal' style and cutting back in on itself between each scale, there is a big chance that the Koi will lose its colour later on. In this instance it is likely that the sashi is also too tight and that the beni is too hard – a particularly bad combination for the future.

## 4 Beni

A very thick, glossy orange is desired; an orange that lacks sheen and is uneven will never be good. Colour that is too red

venture down the same route, do so a little at a time and try to gauge the results over a period of perhaps 12 months, as opposed to 12 weeks.

Preparing a Koi for a show is an entirely different method of keeping Koi altogether, unless the Koi you have chosen is one you have grown big and finished up late to try to win Grand Champion. So, when you buy a Koi, it is a good idea to decide what you have in mind for it and to keep it accordingly. It is my strong opinion that, from 2008 onwards, we will start to see Grand Champion Koi that have been grown from tosaï or nisaï in the UK. Watch this space...

