

**ORL-B&G-05****How to Produce Excellent KOI CARP: A Case Study of Hokuriku District of Japan**

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One of the most iconic fish in Japan is Koi carp (*Cyprinus carpio*), also known as Nishikigoi. Koi carp is a freshwater fish that was improved for ornamental purpose by artificial selection from common carp and famous fish in Japan. Koi carp has been loved in Japan and is very closely associated with the Japanese cultural identity. Nowadays it is very popular in all over the world and is characterized by strength and success. Koi carp stands for basically anything that is good; luck, prosperity, vitality, and longevity. Common carp was first introduced in the early 19th century as a source of food in Japan. It was only after some period of time that people started to cultivate the fish and also started breeding the fish. It is said that the origin of Koi carp was the cultivation of a mutant variety as an ornamental fish. Some of the most well-known types of koi carp, based on their physical appearance: Taisho-sanshoku ( white with black and red patches), Kohaku ( white with red patches), Showa-sanshoku ( black with red and white patches), Koromo ( black mesh-pattern on red colored scales), Bekko ( white, red, or yellow with black patches), Mujimono ( non-metallic and solid-colored), Asagi ( light blue with red and white underbellies), Hikari-mujimono ( metallic and solid-colored), Hikari-moyomono ( metallic with two or more colors).

To produce excellent Showa-sanshoku, the selected brood fish were reared and managed in brood ponds with high water quality and fed with nutritious pellet feed. At the time of breeding the selected and ripened brood were brought in the hatchery and kept in the spawning tank at the ratio of female : male ratio 1 : 2 or 2 : 3 with fiber as a adhesive of eggs. The fry was reared in fry pond fertilized with dried chicken dropping. The additional feeding of fry was done by live moina zooplankton. Since Koi carp produce tens of thousands of offspring, of which only a small percentage have carried the proper coloration and pattern necessary to be considered Koi carp, the rest of the offspring have brown, black, grey or mottled in color and have little to no real color pattern. Therefore, undesirable offspring were culled and only the fish that show the desired coloration and pattern was reared. On the basis of coloration and pattern (Showa-sanshoku Fig. 1), finally less than 1 % best matching colored were selected, other were discarded. first fry sorting was done after one week (Fig. 2), second sorting after 3 months later and third sorting after 6 months later. The selected were reared in larger ponds to produce excellent fish.



Figure 1. Koi carp (Showa-sanshoku )



Figure 2. Fry of Showa-sanshoku (Black fry are selected)