The present *thesis* entitled, "Effect of different management regimes on the survival and growth of exotic ornamental fish, koi carp (*Cyprinus carpio* L.), under tropical conditions" embodies a study of standardization of culture technology for exotic ornamental fish, koi carp (*Cyprinus carpio* L.), under tropical conditions in India. This thesis consists of 175 pages. The main findings of the *thesis* are summarized as follows:

- ✓ An application rate of 0.26 kg/ m^3 every 10 days, appeared to be the most suitable for manuring koi carp tanks with either cow dung or poultry excreta. Higher application rates reduced water quality, depleted the plankton population and caused adverse impact on fish growth.
- ✓ A water exchange regime of 100 L (5% of water volume) every day appeared to be the most effective for koi carp tanks (capacity: 2000 L) manured with poultry excreta. No water exchange (NE) resulted in water quality deterioration, depleted the plankton population and caused adverse impact on fish growth.
- ✓ A stocking density of 0.3 fish/ L appeared to be the most effective for stocking koi carp fry in tanks. The productivity was measured in terms of number of marketable fish, which favoured a density of 0.3 fish/ L, compared to higher or lower stocking densities.
- ✓ Raising koi carp larvae in culture tanks or ponds with a regular supply of exogenous zooplankton appeared to be a better alternative compared with the conventional system of direct application of poultry manure or cow dung, through maintenance of better water quality and greater abundance of zooplankton in the system.
- ✓ Winter (temperature range 16^0C - 25^0C; average 18.58^0C) appeared to be the most unproductive season for culturing koi carp in Jalpaiguri district of West Bengal, India.
- ✓ Due to differences in their basic nature, as also the differences in the size of the culture tanks and ponds employed, it was not possible to derive conclusions about which system was more productive. However, from the experimental results, earthen ponds appeared to be better alternative to concrete tanks for manure application through maintenance of better water quality due to their higher assimilatory capacity and greater abundance of plankton.

- ✓ As evident from the electivity index, koi carp larvae showed a positive selection for cladocerans while electivity towards copepods was generally negative although the copepods were more abundant in the environment of the manured ponds, compared to cladocerans. Rotifers and phytoplankton was also avoided.

- ✓ Average counts of heterotrophic bacteria in the water of poultry excreta or cow dung-manured ponds were significantly higher than the live-food or control treatments. The development of *Aeromonas* sp. and *Pseudomonas* sp. were also higher in the manured treatments. Significantly lower abundance of *Aeromonas* sp. and *Pseudomonas* sp. in the live-food treatment considerably lowered any possibility of occurrence of bacterial disease.

- ✓ Koi carp and goldfish tended to swim at different depths in absence of food under monoculture conditions. However, species-specific changes in depth were observed in response to addition of food and polyculture conditions. The two species exhibited considerable variation in the extent and type of aggression displayed, with koi carp being the more aggressive species and the impact of aggressive behaviour of koi carp was conspicuous by the increased level of attack on goldfish in different polyculture trials.

- ✓ Goldfish showed significantly better weight gain and survival in monoculture compared to polyculture, while the koi carp recorded no significant differences in the growth parameters between the monoculture and polyculture treatments. Both koi carp and goldfish exhibited similarities in food preference under monoculture conditions. However, in polyculture treatments, the food selection of goldfish significantly altered. Keeping in view of the dietary similarities of koi carp and goldfish, and the aggressive nature of koi carp in polyculture, it is suggested to refrain from polyculture of goldfish and koi carp until further documentations relating to stocking and management of polyculture of ornamental carps are available.

Overall, the information presented in this *thesis* should help farmers to overcome some of the difficulties encountered with the commercial production of koi carp in India.