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Effects of Feeding Regimens on Growth and Survival of Common Carp (*Cyprinus carpio*) from Post-Larval to Fingerling Stages

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Background: Common carp (*Cyprinus carpio*) is widely cultured due to its adaptability and economic value, and optimizing feeding regimens during the early post-larval to fingerling stages is essential for improving growth, survival, and feed efficiency. Feeding rates in carp aquaculture typically range between 3–5% of body weight per day, as recommended by FAO and ICAR guidelines, with practices varying regionally—for example, 3–5% in Nepal and up to 5% in Singapore (FAO, 2014; ICAR, 2010). Studies on carp and related species, such as *Catla catla*, indicate that growth and feed conversion are optimized within this range (Das et al., 2012). Therefore, the present study compares 3% and 5% body weight feeding ratios, representing the lower and upper limits of common practice, to evaluate their effects on growth performance and survival of common carp fingerlings.

Objective: This study aims to determine the optimal feeding regimen for Common Carp from post-larvae to fingerling stages by evaluating the effects of 3% and 5% body weight feeding ratios on growth performance and survival rates.

Methods: A comparative experimental design was conducted at a controlled aquaculture facility. Post-larvae (n=500,000, mean length 1.2 cm, weight 0.01 g) were divided equally into two 690m³ concrete tanks (250,000 PL/ tank) with mud bottoms. Tank R8 received feed at 3% body weight of carp, and R9 at 5%, thrice daily up to 60 days. Growth (length, weight) and survival were measured weekly. Water quality (temperature, pH, dissolved oxygen) was monitored. Data were analyzed using one-way ANOVA and regression, with significance at P<0.05.

Results: At 60 days, fry fed at 5% body weight per day (R9) reached a mean length of 2.5 ± 0.2 cm and weight of 0.37 ± 0.04 g, compared to 1.9 ± 0.1 cm and 0.18 ± 0.02 g in those fed at 3% (R8), corresponding to length and weight increases of 28.5% and 111.1%, respectively (P = 0.001). The mean weight gain was 0.19 g in R9 versus 0.09 g in R8. Survival was 76.0% (190,000/250,000) in R9 and 80.0% (200,000/250,000) in R8 (P = 0.042). Cumulative feed input over the trial was approximately 450 kg in R9 and 270 kg in R8, reflecting the different ration levels. Although fry in R9 showed significantly higher early growth, these advantages diminished at the fingerling stage, where differences were reduced to 5.9% in length and 11.5% in weight (P = 0.031).

Conclusion: A 5% feeding regimen enhances early growth but becomes less efficient at the fingerling stage, as additional feed does not translate into proportional growth gains, while 3% supports higher survival. Stage-specific feeding adjustments are therefore recommended to optimize growth and sustainability in carp aquaculture.

Keywords: Aquaculture, Common Carp, Feeding Regimens, Growth Performance, Survival Rates