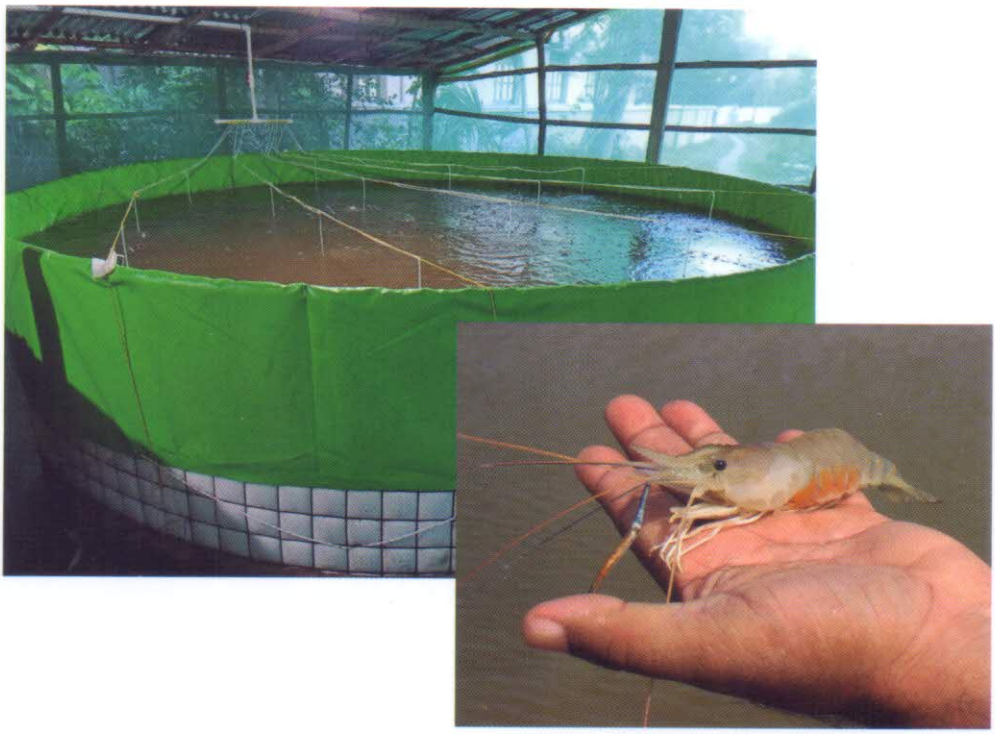
Effect of Stocking Densities on Growth Performance of the Freshwater Prawn (*Macrobrachium rosenbergii*) in Biofloc System

Md. Ashraful Alam
Macksood Alam Khan, PhD



Rural Development Academy (RDA), Bogura

Acknowledgement

At first, we express our gratefulness to the almighty ALLAH, the creator and sustainer of the universe, for giving us the opportunity and ability to complete the research work. We want to express our deep and sincere gratitude to Mr. Khalil Ahmed, Director General (Additional Secretary), for allowing us to research and provide invaluable support throughout this research. We also express our heartfelt gratitude and sincere appreciation, and profound indebtedness to him for his valuable suggestions and kind cooperation to complete the research work. We are also grateful to Director of Research and Evaluation Division, for providing financial support in materializing this study. It is also a great pleasure to provide thankful gratitude and sincere appreciation to colleagues for their cordial support in the research work.

Last but not least, we are so grateful to our parents, who brought up with their love and blessings and encouraged us with valuable advice, cooperation, and countless sacrifice in all respect throughout research work.

Cordial cooperation, close collaboration, fruitful advice, and guidance were received from many other persons from the start to the end of this work. The authors are immensely grateful to all of them and regret our inability to mention everyone by name.

The Authors
September, 2022

Executive Summary

The study was conducted to evaluate the growth performance of the freshwater prawn (*Macrobrachium rosenbergii*) in biofloc system under three different treatments (T-1=50 prawn/m^2, T-2= 70 prawn/m^2 and T-3= 90 prawn/m^2) with three replications in 09 rectangular experimental aquaria with 100 L water volume for 180 days. Before stocking in the experimental aquarium mother tank was used to nurse 12 days post-larvae for 40 days. Temperature, dissolved oxygen and pH were monitored daily while total ammonia nitrogen (TAN) concentration was measured three times per week and nitrite (NO_2), alkalinity and hardness were monitored weekly. The growth performance i.e. weight gain, specific growth rate (SGR), feed conversion ratio (FCR) and survival rate was evaluated at the end of the experiment. The plankton densities present in the experimental unit were also monitored. Water quality parameters were within the optimum range except for the alkalinity. Initial average body weights of *M. rosenbergii* were 0.93± 0.03, 0.92± 0.02 and 0.95 ± 0.03g in T-1, T-2 and T-3, respectively. The highest weight gain, SGR (%), efficient FCR and survival rate were 35.35±8.541, 2.04.±0.079, 1.91±0.104 and 74.00±9.568 found at the lowest density (T-1). In contrast, the highest planktonic densities (46.8×104 cells/Liter) were found in the T-3. The results suggested that the lowest stocking density (50 prawn/m^2) showed better results for biofloc aquaria culture for freshwater prawns (*M. rogenbergii*).

Keywords: *Biofloc, Freshwater prawn, Plantonic density, Water quality, Growth performance*