

Effects of Stocking Density of Tilapia to Shrimp Culture on the Rice Fields in the Mekong Delta, Vietnam

Tran Ngoc Hai, Nguyen Thanh Phuong and Tran Minh Nhut

Alternative rice-shrimp culture system is one of the important farming systems in the Mekong Delta of Vietnam. This study on different stocking densities of fish and shrimp on rice field was conducted in Bac Lieu province, Mekong Delta to examine its impact on water quality, farm production and income and on species diversity and farming systems. A total of 18,500 m² plots were designed on a rice field for a factorial experiment with two densities of shrimp (3 and 5 postlarvae/m²) and three densities of tilapia (0, 0.25 and 0.5 individuals/m²). During culture, shrimp were fed with pellet feed (35% protein) at a feeding rate of 3-8% body weight daily. Treated water was supplied regularly to maintain water level of 0.4-0.6 m on the field. Results showed that water quality parameters in different treatments were not significantly different from one another, but changed with time. However, except for the rather low salinity, most of the parameters were still in acceptable ranges for shrimp culture. Treatments with high density of shrimp (5 postlarvae/m²) reduced the survival rates of shrimps but increased the yield. Meanwhile, high stocking density of tilapia reduced shrimp yield. However, the treatment with 5 shrimps/m² and 0.25 tilapia/m² was considered the best treatment for application to practice.

Keywords: integrated aquaculture, shrimp culture, tilapia culture, alternative rice-shrimp system