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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: The substitution of chicken litter for feed in the commercial production of peneid shrimp in Honduras

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Abstract: The objective of this research was to determine the effects of substituting chicken manure for the common feed stuffs used in the first four to eight weeks of the growing period of shrimp. Economical evaluations of shrimp production was also considered. Twelve man made pond (2.2-3.0 ha) located at Granjas Marinas, San Bernardo, S.A., San Bernardo, Choluteca, Honduras were assigned to four treatments at random and seeded with young shrimp (average weight 0.8 g) at a rate of $5m^{-2}$ on September 7, 1988. The treatments tested were: 1) (STANDARD) the normal treatment used at Granjas Marinas San Bernardo which consisted in the application of chicken manure during the first eight weeks plus added feed, 2) (FEED) feed only, 3) (4WEEKS) chicken manure only during the first four weeks followed by feeding, 4) (8WEEKS) chicken manure only during the first eight weeks followed by feeding. After ninety nine days of shrimp cultivation, there was no increase in production using low rates of chicken manure (60 kg total solids/ha/week) during the first eight weeks of feeding. It was also found not to be economical to substitute feeding for low rates of fertilization with chicken manure, especially after the first two or three weeks of cultivation. The average weight of shrimp for treatments FEED 14.4, and STANDARD 14.1, was significantly greater than that observed for 4 WEEKS 12.2, and 8 WEEKS 12.1. The average shrimp production was 7-41% greater in STANDARD and FEED treatments (%)

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and 518 kg/ha respectively) compared to 4 WEEKS (476 kg/ha) and 8 WEEKS (368 kg/ha). However, there were no significant differences between treatments due to the high amount of variability caused by survival rate ($P < 0.01$). The total costs for FEED and STANDARD were significantly greater compared to 4 and 8 WEEKS. This was due to a greater feed utilization in the previous treatments. Estimated gains in FEED (L.3085/ha) and STANDARD (L.3026/ha) were 27-58% greater than 4 and 8 WEEKS (L.2389/ha, and 1947/ha respectively). This was due to the increased reproduction obtained with greater prices received for the larger shrimp obtained in FEED and STANDARD treatments. There was potential to significantly increase the estimated gains by substituting feed for fertilization with chicken manure at a higher rate of application (250 kg/ha/week) during the first four to eight weeks of cultivation.

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