

SUSTAINABLE FEEDS AND IMPROVED FEED MANAGEMENT FOR THE CONTINUED SUCCESS OF SHRIMP PRODUCTION

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In response to the increasing demand for shrimp, the shrimp aquaculture industry has continued to expand and intensify production. Presently, they are the third largest consumer of feeds in aquaculture. The Pacific white legged shrimp is the dominant culture species, providing an exceptional opportunity to improve feed formulations, expand the use of sustainable plant based feed formulations and improve feed management practices. This species is well equipped to utilize natural productivity across most production technologies but is it is also very tolerant of a wide range of feed formulations and ingredient matrixes. This provides an opportunity to use a range of sustainable or renewable ingredients such as soybean meal and corn by products as the primary protein sources, reducing or eliminating our reliance on wild fisheries as primary feed ingredients. Over the years, we have eliminated fishmeal from production diets and have demonstrated the use of these feeds under a range of production conditions. In conjunction with improved feed formulations, the farmers have the opportunity to embrace automated feed management and integrated monitoring systems to improve biological practices and the overall efficiency of production. The move from traditional hand feeding to automated feeding systems can be done across a range of technologies from very simple timer feeders to automated feedback control systems which manage feed inputs, aeration and water quality monitoring. Irrespective of the level of technology, moving from hand feeding to automated feeding has the potential to reduce labor costs, spread out nutrient loading and improve production performance of the shrimp. At our facility, we have slowly transitioned from hand feeding twice a day to the use of automated feeders and feedback controlled automated feeding systems. The application of these technologies has increase growth rates, feed inputs and total production. In general our traditional production cycle was 120 days to a 25g shrimp, 5,000 kg/ha with a FCR of 1.2. Presently, we are running 90 day production cycles to produce 34g shrimp with equivalent FCR and about 7,000 kg/ha. Should they chose to accept and invest in new technologies, the shrimp industry has an opportunity to transition from a farming system relying on educated guess work to one of data driven management. Such changes will ensure the sustainable production of shrimp for future generations.