

The Importance of Technology in Developing Tools to Increase the Sustainability of Shrimp Culture Systems

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ABSTRACT:

Over the past 20 years the cost of shrimp production has been reduced through the application of technology. At the same time, lower prices have driven increased consumption, increasing the demand for additional supplies of shrimp. However, our coastal water environments have deteriorated, climate has changed and become more extreme. All these factors have resulted in a shrimp culture industry constantly battling "sustainability issues" to maintain profitability and the growth of shrimp production that is being demanded. Gone are the days when the industry could move on and develop new and underexploited areas leaving behind "sustainability issues". Today shrimp health (aquaculture animal health) is the number one factor in determining if a system remains sustainable. These challenges to shrimp health require the creative utilization of the new technologies that have been developed to develop new models of shrimp as an organism and the culture systems.

This talk will overview some the technologies that are being used and will be essential in the future to maintain the sustainable growth of the industry to satisfy the increasing demand for shrimp in the marketplace. The creative application of selective breeding based fully or partly on genomics and epigenetics will become essential to improving pond productivity. The application of rna-sequence studies will become fundamental to understanding disease and tolerance mechanisms of disease. The application of vaccines will become key in fully appreciating the importance of pathogen free fish and shrimp stocks and the development of alternative feed ingredients for both omega 3 fats and proteins will be necessary, so we don't create more issues than we solve in terms of food security. Finally, powerful problem-solving tools and advanced management will be enabled using artificial intelligent computers combined with analytics.

KEYWORDS:

Shrimp, health, sustainability, biotechnology, new technologies.