

Understanding Aquaculture Farmers' Readiness for Technological Innovation in Malaysia: Enhancing Business Performance and Smart Management

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ABSTRACT

The contribution in supporting national food security, economic development, and the sustainability of a good seafood supply came mainly from the aquaculture sector. As demand continues to increase, aquaculture farmers in Malaysia are required to enhance their productivity, efficient operations, and effective management within their businesses. The main key challenges faced by the industry are water quality management, particularly ammonia levels, which directly affect the aquatic health and the production outcomes. This scenario can cause overall business performance, and management planning will not be smooth according to daily planning. Traditional monitoring methods, which are relied heavily upon by aquaculture farmers in Malaysia, are often time-consuming, less responsive to rapid environmental changes, and yield infrequent results (Rodríguez et al., 2025). Although in recent years, technological innovation has been recognised in transforming aquaculture into a data-driven industry (Zhang & Gui, 2023). The development of digital tools such as smartphone-based ammonia detection applications offers significant real-time decision-making in improving the water quality management as well as enhancing productivity.

JEL Codes:

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