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Industrial Engineering and Operations Manajement (Ieom) Student Chapter Uin Sunan Kalijaga Yogyakarta Developing A Protein Skrimmer In Shrimp Ponds at Ngombol Village Purworejo

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Abstract

The use of technology in one of the Vannamei shrimp ponds in Purworejo, Central Java is still done traditionally. One of the difficulties in pond management is the difficulty of dealing with waste problems. They used a protein skimmer, but it was deemed less effective due to the 24-hour consumptive use of electricity and inadequate pump capacity. The aim of this research is to find the best and most efficient way to use a protein skimmer. The design method used in this research is the Failure Mode Effect Analysis (FMEA) method to analyze the level of risk in shrimp farming supply chain management, the fishbone diagram and p-chart method for operations management, the Verein Deutscher Ingeniure (VDI) 2222 method to determine the design technical drawings, and using the Break Event Point (BEP) method for processing engineering economic data. After implementing the method and designing the protein skimmer tool, pH parameter testing, timer automation, use of a water wheel and shrimp condition will be carried out. Based on the research results, it can be seen that the design of the protein skimmer tool with the addition of pH checker automation and timer automation, as well as the use of a water wheel can be implemented well because it can produce a water pH suitable for shrimp survival, and has met the investment target of no more than IDR 1,287,000, and can charge 123 watts/5 hours. In this design, it is recommended to design a simpler tool, pay more attention to accuracy in measurements and calculations, and consider the placement of the battery so that it does not experience a short circuit. Apart from that, when testing the protein skimmer tool, it is necessary to redesign the microbuble storage area to be wider and separate from the main pipe.

Keyword

Waste, Protein Skimmer, Shrimp Ponds, Automation.