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Investigating Quality Challenges in Chicken-Based Pet Food Production: A Case Study in Thailand

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Abstract

Presently, the hermetically sealed pet food industry is experiencing significant growth in Thailand, driven by the increasing popularity of pet ownership and heightened owner concern for the nutritional quality of their pets' food. Pet food manufacturers are deliberately elevating the quality of pet food by meticulously selecting high-quality raw materials comparable to those used in human food. Among these raw materials, chicken products have gained prominence, prompting a focused investigation into challenges related to chicken-based hermetically sealed containers. The study unveiled a predominant issue in the sourcing process concerning the quality of incoming raw chicken, primarily attributed to temperature abuse. Employing analytical tools such as why-why analysis, fishbone diagrams, and causal loop diagrams, root causes were diligently identified. The investigation underscored several contributing factors, including the absence of delivery planning, inadequate temperature records during raw material transport, and the lack of temperature monitoring from suppliers to the manufacturer. To address these concerns effectively, recommended measures include the implementation of a data logger with IoT technology for real-time temperature monitoring. This proactive measure aims to curtail the problem of returned raw materials due to time-temperature abuse, potentially reducing production loss by approximately 523,500 Baht per incident. Simultaneously, suppliers can benefit by mitigating issues related to returned raw materials, transportation costs, and handling costs, amounting to a potential savings of about 526,000 Baht per incident. The resolution of these challenges necessitates collaborative efforts between manufacturers and suppliers, fostering a mutually beneficial, win-win scenario.

Keywords: cold chain, IoT, pet food industry, root cause analysis, temperature abuse