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Enhancing Egg Production Efficiency in Small-Scale Open Shed Layer Farms: A Smart Data Monitoring Case Study with 950 Birds

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Abstract

Efficient management of egg production is essential for maximizing profitability in layer farming. Conventional monitoring methods often fail to detect early declines in productivity, leading to economic setbacks. This study investigates the use of a smart data-driven system to monitor egg production, identify low-yielding cages, and enhance farm management strategies. Utilizing Google Sheets and AppSheet, data from 950 layer hens housed in a cage system was systematically recorded and analyzed to detect production trends and abnormalities. A structured reporting system was developed to categorize underperforming cages on a weekly and monthly basis, with automated alerts for critical cases. Findings suggest that real-time data tracking enhances decision-making by allowing timely interventions such as feed optimization and health management. Additionally, the study highlights the impact of body weight on egg production, revealing that hens exceeding 2.0 kg tend to have lower productivity. Implementing strategies like controlled fasting and liver tonic supplementation contributed to improved egg yield. This research underscores the potential of technology-driven monitoring in enhancing farm efficiency, minimizing losses, and fostering sustainable poultry farming. Future advancements may include the integration of IoT-based automation for precise feed and environmental control.

Keywords: Layer farming, egg production, smart monitoring, low production detection, poultry management, open shed farm.

