REVIEW OF TECHNOLOGICAL, ECONOMIC, AND WELFARE ASPECTS IN EGG PRODUCTION SYSTEMS

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Abstract

Egg production systems represent a complicated interaction between welfare concerns, financial limitations, and technical advancements. This review evaluates the effects of technical developments in housing, feeding, and monitoring systems on production and egg quality by synthesizing existing research in these areas. Economic factors are thoroughly assessed, including cost effectiveness, market trends, and consumer-driven premiums for organic and cage-free eggs. The review also looks at welfare criteria and how they affect system design, with a particular emphasis on the behavioral and physiological effects on laying hens. According to comparative study, alternative models provide better welfare results but come with hefty investment costs, while conventional systems continue to maintain higher economic efficiency. For the future of egg production, the study emphasizes the necessity of integrated approaches that incorporate ethical considerations, sustainable economic strategies, and technical advancements.

Key words: *Egg production systems, technological innovation, economic efficiency, animal welfare, sustainability*