

The Impact of Housing Type on Broiler Chicken Health and Weight Gain Over 30 Days

Abstract

Housing conditions are a key determinant of broiler chicken productivity and welfare. This study evaluated the effect of ventilated wooden housing versus concrete floor housing on weight gain, health, and mortality in broiler chickens over 30 days. Forty broiler chickens were randomly divided into two groups of 20. Group A was housed in a raised, well-ventilated wooden structure with sawdust bedding, while Group B was housed on a damp concrete floor with poor ventilation. Both groups were fed the same commercial diet and had ad libitum access to water. After 30 days, Group A achieved an average final weight of 2.5 kg per bird, with 5% mortality, while Group B achieved 2.0 kg per bird, with 20% mortality. Birds in Group A displayed clean feathers, higher activity, and minimal footpad lesions compared to Group B. These findings demonstrate that proper housing with good ventilation and dry bedding significantly enhances broiler health and growth performance.

Introduction

Housing is a critical factor in broiler chicken production, directly influencing growth rate, feed efficiency, and mortality. Poor housing conditions, such as damp floors and inadequate ventilation, can lead to ammonia buildup, heat stress, and increased disease susceptibility, all of which reduce productivity. Broiler production in smallholder systems often relies on low-cost concrete pens that may compromise bird welfare. This study aimed to compare the impact of ventilated wooden housing and concrete floor housing on broiler weight gain and overall health.

Materials and Methods

A total of 40 broiler chickens (average starting weight: 0.85 kg) were randomly divided into two groups of 20 each and observed over 30 days.

- **Group A (Ventilated Wooden Housing):** Birds were kept in a raised wooden structure with wire mesh walls and sawdust bedding to allow airflow and maintain a dry floor.
- **Group B (Concrete Floor Housing):** Birds were housed on a ground-level concrete floor with limited ventilation, resulting in damp conditions.

Both groups received the same commercial broiler feed twice daily and had continuous access to clean water. Body weights and mortality were recorded weekly, and general health observations (feather condition, activity, and footpad lesions) were noted.

Results

Group A achieved an **average final weight of 2.5 kg per bird**, while Group B reached **2.0 kg per bird**, representing a **25% higher weight gain** in ventilated housing. Mortality rates were **5% (1/20 birds)** in Group A and **20% (4/20 birds)** in Group B. Birds in Group A were more active, had clean feathers, and showed minimal footpad lesions, whereas Group B birds were less active, had dirty feathers, and seven birds exhibited footpad dermatitis.

Discussion

The results demonstrate that housing type has a significant impact on broiler health and growth performance. Birds in ventilated wooden housing likely experienced lower stress, drier bedding, and reduced exposure to ammonia, which improved feed intake and weight gain. In contrast, birds housed on damp concrete floors showed higher mortality and footpad lesions, consistent with conditions that favor bacterial infections and stress-related growth suppression. These findings align with established poultry science principles that stress the importance of good ventilation, dry litter, and proper housing design for broiler production. Smallholder farmers can significantly reduce losses and improve productivity by adopting simple, well-ventilated wooden housing with sawdust bedding.

Conclusion

Proper housing with good ventilation and dry bedding enhances broiler growth, reduces mortality, and improves bird welfare. Farmers using concrete floor pens should consider adopting raised wooden housing to optimize broiler performance and health outcomes.