mEAT quality

Practice Abstract

Outdoor range design for broiler chickens

APPLICABILITY

Theme/Keywords

Poultry Welfare, Outdoor Range, Broiler Chickens, Environmental Enrichment, Range Management

Context

Applicable in temperate and warm climates with adjustments for extreme weather.

Geographical coverage

Worldwide, with adaptations for local climate and predator presence.

Required time

1-3 months for initial setup and continuous assessment

Period of impact

Immediate to long-term welfare and health improvements observed.

Equipment

Shelters, perches, fencing, and rotational grazing setups.

Best in

Extensive, free-range and organic broiler production systems.

Problem

Sub-optimal design of the outdoor range leads to low use of that range and therefore poor welfare in broiler chickens.

Solution

Optimised design and management of outdoor ranges for broilers.

Benefits

Enhanced welfare, increased exercise, and improved health.

Practical recommendations

Recently, individual birds within the same flock have been observed to react differently to weather conditions. Therefore, it is essential to provide a variety of weather-protecting elements in the range. This approach ensures that all birds, regardless of their individual preferences, can find suitable protection and feel encouraged to use the outdoor space. Additionally, variations in genotypes among broiler chickens mean that their reactions to weather conditions can differ significantly. As a result, it is crucial to adjust the range design to provide the specific needs of different birds. This may involve implementing multiple types of shelters and shaded areas to accommodate these variations, ultimately promoting better welfare and increased outdoor range use for all chickens.

1. **Shelter and Cover:** Provide shaded areas and shelters within the range to protect chickens from predators and harsh weather conditions. This encourages more birds to venture outside.
2. **Enrichment:** Introduce environmental enrichments like perches, dust bathing areas, and vegetation to encourage exploration and natural behaviours.
3. **Range Rotation:** Implement a rotational grazing system to maintain vegetation and reduce parasite load.
4. **Access Points:** Increase the number of pop holes/access points to the outdoor area to reduce crowding and ensure more birds can go outside.
5. **Close Monitoring:** Regularly assess the range for potential hazards and the well-being of the chickens to make necessary adjustments.

Figure 1: Broilers entering shed through pop holes (Source: Compassion in World Farming)

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Figure 2 (left): Examples of chickens entering the barn through pop holes (Source: Lisa Quirin, University of Rostock). Figure 3 (left): Range with different plots and trees to provide shaded (Source: Katharina Rath, Naturland)

On-farm application

System approach

Implement range enhancements and monitor broiler usage and health outcomes qualitatively through behaviour observation and quantitatively via usage of metrics.

To effectively implement range enhancements and monitor broiler usage and health outcomes, a combination of qualitative and quantitative methods should be employed. Qualitative monitoring via behaviour observation - regularly observe and document broiler chicken behaviour in the outdoor range. This includes noting the frequency and duration of outdoor range use, social interactions, and specific behaviours such as foraging, dust bathing, and shelter usage. In quantitative monitoring use metrics like video tracking software to gather precise data on the number of birds using the outdoor range, how often they use it, and the duration of their outdoor activities. Health indicators - monitor key health indicators such as weight gain, feather condition, and incidence of footpad dermatitis. Finally environmental conditions - record environmental factors including temperature, humidity, soil pH, and predator activity to correlate with broiler behaviour and health outcomes.

FURTHER INFORMATION

Further readings

Refer to poultry welfare guidelines and specific case studies on range design.

Examples:

Dawkins, M. S., Cook, P. A., Whittingham, M. J., Mansell, K. A., & Harper, A. E. (2003). What makes free-range broiler chickens range? In situ measurement of habitat preference. Animal behaviour, 66(1), 151-160.

Dal Bosco, A., Mugnai, C., Rosati, A., Paoletti, A., Caporali, S., & Castellini, C. (2014). Effect of range enrichment on performance, behavior, and forage intake of free-range chickens. Journal of Applied Poultry Research, 23(2), 137-145.

Butterworth, A. (2018). Welfare assessment of poultry on farm. In Advances in poultry welfare (pp. 113-130). Woodhead Publishing.

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mEATquality: The *mEATquality* project aims to provide consumers with better-quality pork and broiler meat and animals with a high level of welfare by developing scientific knowledge and practical solutions together with farmers and chain partners.
The *mEATquality* project, an H2020 project, is coordinated by Wageningen Research (The Netherlands) and is a multidisciplinary team of 17 partners organisations representing 7 EU countries. The project is running from October 2021 to September 2025

Project website: www.meatquality.eu/

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