

Monitoring Laying Hens



Defining Egg Quality Standards

Background

The performance of laying hens undergoes significant physiological changes throughout the laying period. As the cycle progresses, egg numbers typically decrease while egg weight increases and shells become thinner. This development can compromise shell breaking strength and, consequently, marketability. In 2025, a study at Anhalt University of Applied Sciences compared two different genetic strains (organic vs. conventional) housed in a mobile poultry unit. To evaluate evolving quality parameters, five eggs per strain were analyzed weekly. The assessment included weight, shape index, albumen and yolk height/width, the presence of blood spots, shell color, nutritional composition, shell thickness, and calcium content.

Results

Both egg and shell weights increased consistently from Week of Age (WoA) 24 to 55. Average egg weight rose by approximately 17g, increasing from 52.6g (WoA 24) to 69.3g (WoA 55). Simultaneously, shell weight increased from 6.8g to 8.9g. While these increases are a natural physiological progression, they are accompanied by a higher risk of shell thinning. The average shell thickness was 0.3 mm. Initially, the conventional strain exhibited significantly thicker shells than the organic strain; however, these va-

lues converged over the course of the laying period. The lowest recorded value was 0.15 mm in an organic hen.

The thinner the shell, the more critical the shell calcium concentration becomes. While these specific analyses are ongoing, they will serve as a vital foundation for optimizing flock management strategies.

Internal quality metrics showed yolk color scores ranging from 7 (pale) to 15 (orange), with only marginal differences between the strains. Notably, blood spots occurred significantly more frequently in the conventional strain (1.2 vs. 0.4), with maximum counts reaching 13 and 4, respectively.

Outlook

Accompanying egg analysis provides crucial insights into product quality. Specifically, deviations from expected performance trends can act as an early-warning system for avian health issues. Future research will integrate Haugh Units as a primary metric for determining egg freshness.

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