Quality control

HOCHSCHULE ANHALT University of Applied Sciences



Evaluation of Egg Quality

Background

Egg quality parameters undergo distinct physiological shifts throughout the laying period. While egg production volume declines, egg weights increase, whereas albumen height tends to decrease with hen age. Freshness is internationally standardized in Haugh Units (HU) based on egg weight and thick albumen height. According to USDA standards, HU >72 is classified as Grade AA, and 71–60 as Grade A. Eggs below 60 HU are barred from commercial retail. In 2025, eggs from a mobile housing system at Anhalt University of Applied Sciences were sampled weekly and analyzed exactly 1 day post-laying to evaluate product quality.

Results and key findings

Egg weight increased progressively from 52.6 g (week of age [WOA] 24) to 69.3 g (WOA 55). Mean albumen height was 6.8 mm, decreasing non-linearly from 8.1 mm (WOA 21) to 4.9 mm (WOA 55), appearing to correlate with flock health. Internal freshness decreased non-continuously with advancing age. The overall mean freshness was 79 HU, fluctuating between 100 HU at onset and 62 HU at the end of the cycle. The direct correlation between albumen height and Haugh Units is demonstrated in Figure 1.

Outlook and further research

HU fluctuations within the laying period were primarily caused by poultry red mite (Dermanyssus gallinae) infestations. This indicates a direct physiological link between albumen quality and animal health, which forms the core focus of ongoing research.

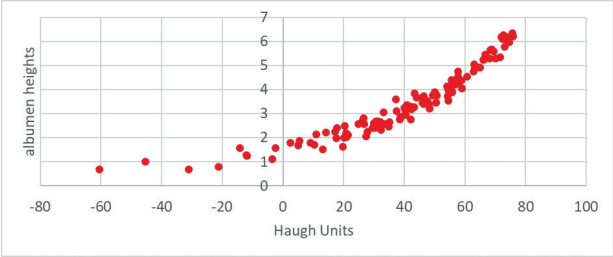


Figure 1: Correlation between albumen height and internal freshness (Haugh Units)

Kontakt

Prof. Dr. Kathleen Schlegel
Department Agriculture, Ecotrophology and Landscape Development

kathleen.schlegel@hs-anhalt.de
+49 3471 355 1291
www.hs-anhalt.de