

Title: Pullet and layer flock uniformity, persistency and longevity: an epidemiological, industry-based approach to improve feed efficiency

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Summary

Flock uniformity is widely recognised as being of major importance. Although uniformity is addressed in the production manuals for all of the major breeds of layer, there has been little scientific research conducted into ways of ensuring pullet flock uniformity and maintaining uniformity throughout lay. High flock uniformity is correlated with improved performance in terms of production performance and persistency. Maintaining flock uniformity makes it much easier to manage the flock and to achieve the best egg quality.

Many commercial layer flocks have birds that are too heavy, 100-300 grams above the body weight recommended by the breeder company, and there is wide variation in flock uniformity in commercial flocks. An increased incidence of overweight, obese birds is occurring in many flocks after 33 weeks of age.

The project reviewed previously reported data and consulted extensively with industry – egg producers, breeder companies, nutritionists and hatchery managers. Workshops were held to facilitate discussion of the issues involved. Studies were conducted on cage flocks that were performing well (“elite” flocks) as well as on eight commercial free range flocks. An experiment was conducted at the University of New England to test the results obtained with commercial flocks. Mathematical modelling was used to determine the energy requirements of a typical flock of commercial laying hens. Another study was conducted on-farm to test the findings of a study conducted in Europe and published in 2010.

The studies undertaken on commercial farm caged birds indicated that birds with very heavy pullet weights and heavy mature weights (2.5 kg) have a compromised peak production and lower persistency of production. Evidence from the intervention studies and the sequential feeding trial suggests that improved production performance can be achieved by lowering the average weights of flocks to the breed standard and slightly below.

The project has generated significant interest by elite producers in measurements of growth, uniformity and feed intake patterns. The biological and mathematical models described in this research provide a mechanism for significant and continuous improvements in feed efficiency in the medium-term.

Keywords

laying hens; flock uniformity; body weight; egg production; persistency of production; production performance; egg quality; hen age; layer production systems