

Egg Weight

Aviagen Turkeys Ltd ®



Objectives

- How egg weight changes with the age of the breeder flock.
- Variation in egg weight.
- Minimum egg size.
- Factors than can affect egg size.

Egg Weight and Breeder Flock Age

- The average egg weight of a flock increases through the first laying cycle. A typical egg weight curve through lay is shown in Figure 1. As the flock ages the average egg weight initially increases, especially in the first 14 days, but then plateaus towards the end of lay. If the flock is then brought into lay for a second cycle the average flock egg size will be maintained at a similar weight to the end of the first cycle.
- The average flock egg weight is determined by the age of the breeder hen, not by the time following photostimulation. This means that if a flock is photostimulated at a younger age than the normal 29 – 30 weeks the first eggs laid by the flock will be smaller. Conversely, if the flock is photostimulated at a later age its first eggs will be heavier.

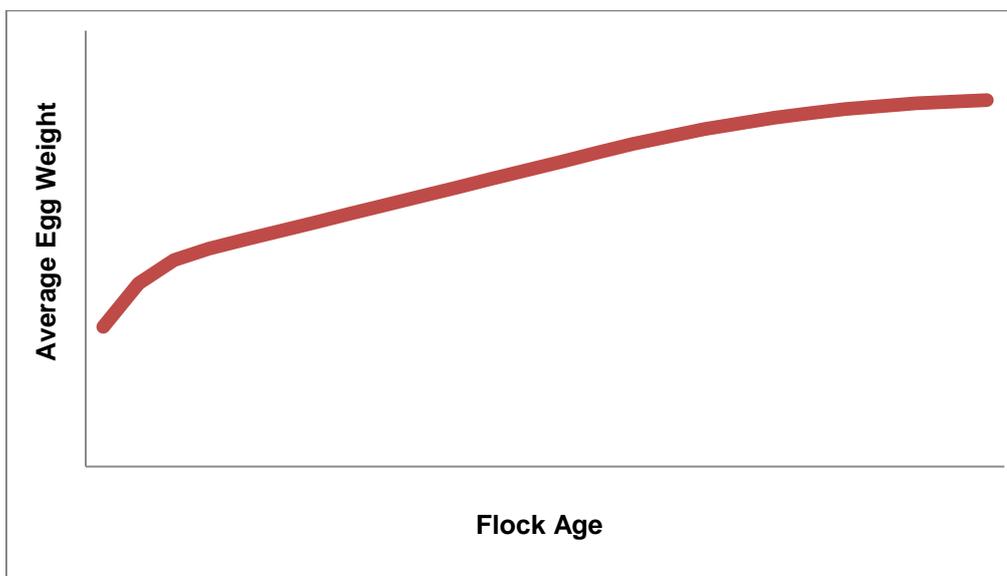


Figure 1: Egg weight curve through first laying cycle.

Variation in Egg Weight

- Egg weight is not highly variable and has a typical coefficient of variation of around 6–7%. The variation can be higher in the first week of lay, around 8–9%.
- A coefficient of variation of 6% indicates that:
 - 68% of eggs laid will have weights that vary between $\pm 6\%$ of the flock average (i.e. within 1 standard deviation [s.d.] of the mean). For example, if the average egg weight is 90g, then 6% of 90g = 5.4g, so 68% of eggs will fall within the range of 84.6 – 95.4g
 - Whilst 95% of eggs laid will have weights that vary between $\pm 12\%$ of the flock average (i.e. within 2 s.d. of the mean). For example, if the average egg weight is 90g, then 12% of 90g = 10.8g, so 95% of eggs will fall within the range of 79.2-100.8g. Note that 5% of eggs will be outside this range of egg weights.

Minimum Egg Weight

- Most producers use a minimum egg size, below which the egg is classified as unsettable. Small eggs tend to have poor hatchability and the poults that do hatch are less viable.
- The selection of a minimum egg weight is primarily a commercial decision, based on the cost of rejecting eggs as unsettable versus the benefits of better hatchability and poult viability.
- Aviagen Turkeys egg production goals are based on a minimum egg weight of 68g for heavy-medium strains and 72g for heavy strains.

Factors that Effect Egg Weight

- As already noted above, egg weight will be influenced by strain, age of the breeder flock and age at photostimulation.
- The rate of egg production can have an impact on egg size, whereby poor egg production flocks tend to produce heavier eggs.
- Most of the research into other factors that can influence egg size has been carried out on chicken eggs and, although it is possible that similar effects may be seen with turkey eggs, studies have not confirmed this.
- The following factors have been found to affect the size of chicken eggs:
 - High environmental temperatures (above 25°C) reduce egg size.
 - Non-standard lighting regimes, such as intermittent and ahemeral* programmes, tend to increase egg size although also result in a reduction in egg number.
 - Nutritional factors such as linoleic acid and amino acid levels have been shown to affect egg size in laying hens.

The contents of this Management Article are © Aviagen Turkeys. As performance can be affected by various factors existing in particular operations, these objectives or advice cannot and should not be regarded as a form of guarantee and Aviagen Turkeys Limited accepts no liability in relation to your use of this information



Aviagen Turkeys Ltd.

Chowley Five, Chowley Oak Business Park, Tattenhall, Cheshire CH3 9GA

Tel: +44 (0)1829 772020 Fax: +44 (0)1829 772059

Web: www.aviagenturkeys.com

