

GRADING TO MANAGE UNIFORMITY

AVIAGEN MANAGEMENT ESSENTIALS



OBJECTIVE

A uniform flock is easier to manage than a variable one; birds in a similar physiological state will respond more uniformly to management factors. The purpose of grading, therefore, is to sort the flock into 2 or 3 sub-populations of different average weights (physiological state) so that each group can be managed in a way that will result in good whole flock uniformity at point of lay (POL).

PRINCIPLES

Within populations there is always natural variation, even at day-old. At placement, flock body weights should follow a normal distribution with a low variation (see Day 1 in Figure 30). As

birds grow, the variation within a flock will increase further due to the different responses of individual birds to factors such as vaccination, disease, differing competitiveness for feed, etc. (Figure 30). This increased variation reduces overall flock performance and makes flock management much more difficult.

Figure 30: Example of how flock variation changes over time as a result of natural variation when no flock grading has occurred.



In order to create a uniform flock, smaller, lighter birds as well as larger, heavier birds should be identified, penned and managed separately. The benefits of doing this are illustrated in Figure 31.

Figure 31: Example of how flock variation changes when the flock is graded at 28 days.



Minimizing variation within the flock makes flock management easier, as all birds will respond in a similar way to management factors such as light stimulation and increased feeding.

GENERAL PROCEDURES FOR GRADING

Grading is best carried out when the flock is between 28 and 35 days (4 and 5 weeks) of age. If completed later than this, the time available to resolve issues (ideally by 63 days) is reduced, and the procedure is less effective.

Grading is based on the variation in body weight within a flock at the time of grading. A highly variable flock at time of grading with a large spread of body weights around the average will need to be split into more sub-populations than a less variable flock. After grading, each sub-population should be managed separately according to its weight with the aim of bringing all populations back to target by POL.

Variation within a flock can be measured in two ways:

1. **Coefficient of variation (CV%)** – this measures the variation (spread) of body weights within the flock; the **lower** the CV%, the less variable the flock is.
2. **Uniformity (%)** – this measures the evenness of body weights within a flock; the higher the uniformity, the less variable a flock is.

Grading can be done using either measurement of flock variation and methods for doing so are given in more detail below. However, there are some general principles for grading that are the same no matter which strategy is used to grade a flock:

1. The actual grading procedure will largely depend on the farm/house design and management practices (e.g. flexibility of pen arrangements and feeding systems) and the variation in body weight within the flock at 28-35 days.
2. Space allocated for both male and female flocks must be capable of being divided into 2 or 3 pens/populations. Where the entire population of a house is to be graded within that house, then ideally 1 or 2 adjustable partitions will be required to allow the flock to be segregated.
3. Prior to grading, a sample of birds from the population should be weighed and the variation within the flock (as measured by CV% or uniformity) measured. Flock CV% or uniformity can then be used to determine the grading cut-off points (the number and average weight of birds that will be graded into each population). Aviagen's preference is to use electronic scales that record and count individual weights, and automatically calculate the CV% and uniformity of the population. A minimum sample of 2% of the population (or 50 birds, whichever is greater) should be weighed. If more birds than this are caught, they should all be weighed to avoid selective bias.
4. After grading, it is important to re-weigh a sample of birds from each pen or population (a minimum of 2% or 50 birds, whichever is greater) and establish the average body weight, the variation around that average as measured by CV% or uniformity and number of birds for each pen. After grading, the variation in body weight within the graded populations will have improved.
5. It is essential that stocking density and feeding and drinking space are maintained in line with recommended guidelines in the graded populations. Each population should have its own dedicated feeding system. Where this is not possible, supplementary feeding systems must be installed to allow even distribution of feed and adequate feeding space per bird.
6. The body weights from graded populations should be plotted against targets and the profiles redrawn where necessary to bring birds back on target by 63 days (9 weeks) of age. Adjustment in feed levels should be based on deviation in body weight from target.

GRADING USING CV%

Houses with adjustable penning

From each pen/population, a random sample of birds (a minimum of 2% or 50 birds whichever is greater) should be caught in a catching pen and weighed.

Houses with fixed penning

In houses with non-adjustable or fixed penning, the pens are set in place at the start of the flock in each house. Pens will be equally divided across the house and the graded populations will need to be split evenly across the available pens. For example, if there are four separate pens, 25% of the population will need to be housed in each pen; grading cutoffs and cut-off weights will need to be adjusted to account for this. See Appendix 4 for more information.

GRADING USING UNIFORMITY

Houses with adjustable penning

The uniformity of a flock is expressed as the percentage of birds that fall within a given range (ideally +/- 10%) around the average body weight of the flock. The higher the number of birds that fall within this body-weight range, the more uniform the flock and the less grading it will require.

Houses with fixed penning

If grading using fixed (non-adjustable) penning is the only option available, it will be necessary to adjust the grading cutoffs and cut-off weights to account for pen size. This adjustment will need to ensure that the correct number of birds are placed in each pen so as to maintain recommended stocking density.

SPECIAL NOTE

- Grade males and females at 28 days (4 weeks).
- It is recommended to use electronic rather than manual weigh scales.
- A successful grading will improve the variability of the graded populations to be better than that of the original population and ideally to a CV% of around 8 or a uniformity of above 80%.
- Each population should be re-weighed and counted to confirm the average body weight and uniformity/CV% so projected target body weights and feeding rates can be determined.
- Inaccurate counting of birds after grading may lead to incorrect feed quantities being given.
- Each population is best served by its own dedicated feeding system. Where this cannot be provided, supplementary feeding must allow even distribution of feed and adequate feeding space per bird.
- Ensure that stocking density, drinking and feeding space are consistent with the recommended guidelines after grading; this is especially important where pen size is adjusted during grading.

FLOCK MANAGEMENT AFTER GRADING (POST 28 DAYS)

After grading, the flock must be managed so that graded populations achieve target weight in a uniform and coordinated manner.

Although the grading of birds into individual pens is a key management strategy, post-grading management to maintain bird uniformities within graded pens is of even greater importance and particular detail must be paid to the management of individual populations from 35 days onward. If population sizes in lay are likely to be larger than they were in rear, birds will have to be mixed at transfer. Here it is especially important that management after grading results in the birds converging to a common target body weight by the expected age of transfer.

Post-grading Feed Levels

Post-grading feed levels should be adjusted to individual pen and graded bird body weights to bring each population gradually back to the target line.

- Feed levels must be recalculated on a weekly basis calculating for changes in livability.
- Base on individual pen body-weight gain and bird numbers.
- Feed levels should NEVER be reduced.
- For light bird pens, feed levels should remain the same as the week prior to grading for 1 week post-grading. Reduced competition from heavier birds after grading means an initial increase in feed is not required.
- Do not hold feed at a constant level for longer than two consecutive weeks.
- Weekly feed increments will need to be:
 - smaller for heavy bird pens.
 - greater for light bird pens.

Unexpected changes in body weight may be due to incorrect feed allocation, changes in feed composition/ingredients or a change to a different feed type and must be investigated immediately.

POST-GRADING BODY-WEIGHT MANAGEMENT (UP TO 63 DAYS OF AGE)

At grading, the flock will have been divided into 2 or 3 populations, depending on the original CV% or uniformity. For each graded population, the aim is to achieve the target body weight uniformly within the period during which skeletal development is taking place (i.e. before 63 days of age). After 28 days of age, the weekly body weights of each population must continue to be monitored and feed allocations adjusted as necessary to allow the required body-weight targets to be met.

Under target weight birds (light population)

Where the average body weight after grading for a population or pen is below target body weight by more than 100 g (0.22 lbs), the objective is to redraw the body-weight curve so that target body weight is achieved by 63 days (Figure 35). For the first week after grading, the light population should be held on the same feeding volume as that prior to grading (i.e. do not increase feed levels). Body weight will be increased due to the reduced competition from the larger birds. Subsequent appropriate increases in feed should then be based on the deviation from target body weight.

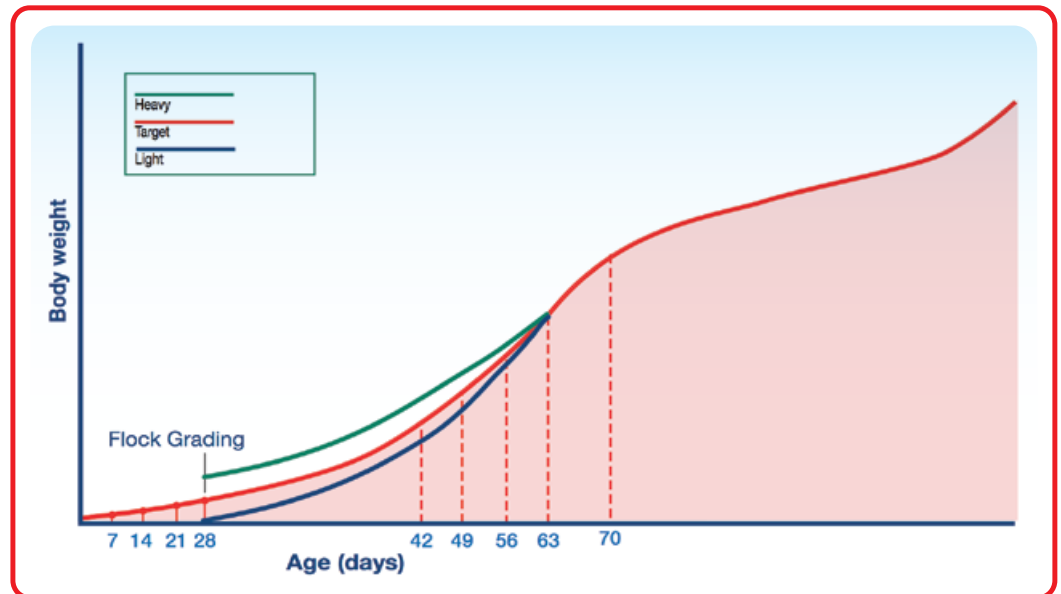
On target weight birds (average population)

The aim is to continue to keep birds on target (Figure 35).

Over target weight birds (heavy population)

These are birds that are greater than 100 g (0.22 lbs) over the target body weight. Here the body-weight curve should be redrawn to reduce growth so that birds are gradually brought back onto target by 63 days (Figure 35). Feed levels should never be reduced, but it may be necessary to reduce the next feed increment or delay the next feed increase in order to achieve the revised body-weight profile.

Figure 35: Redrawing of future body-weight targets up to 63 days (9 weeks) of age



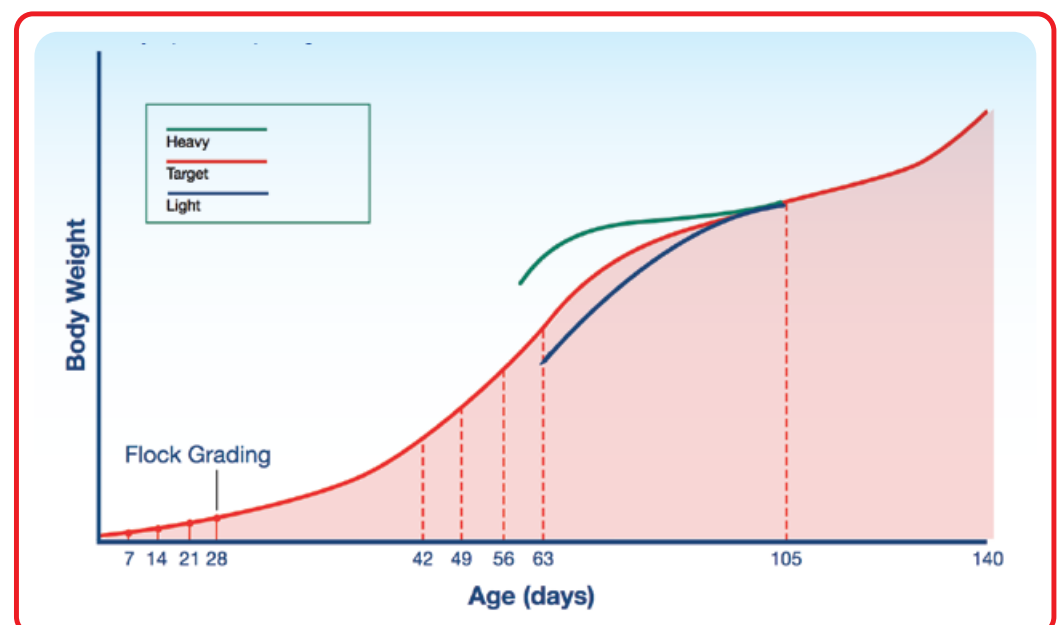
Post 63 Days Redrawing of Future Body-Weight Profiles

At 63 days of age, the weight of the population in relation to the target should be re-assessed. Populations that are of similar weight and feed consumption can be combined at this age.

Under target weight birds (light population)

If birds remain under target at 63 days (9 weeks), the target should be redrawn so that birds are brought back onto target profile gradually (Figure 36), achieving body weight by 105 days. Feed levels should be increased or the next feed increase brought forward to achieve this.

Figure 36: Redrawing of future body-weight targets when average body weight is below, on, or above target at 63 days (9 weeks) of age.



On target weight birds (average population)

The aim is to continue to keep birds on target (Figure 36).

Over target weight birds (heavy population)

If birds remain overweight at 63 days (9 weeks of age), the target should be redrawn so that birds are brought back onto target profile gradually (Figure 36), achieving body weight by 105 days. Birds should be fed the level of feed required to achieve the revised target profile.

SPECIAL NOTE

- Continue weekly body-weight monitoring.
- From 63 days, redraw the target weights of any population that is above/below target body weight to bring them back on target by 105 days of age.
- Before mixing any pens, ensure body weight and consumption per bird are similar.



WORLD'S NO.1 BROILER BRAND

T: +27 (0) 16 366 0249

www.rosspoultrybreeders.co.za

Block A, Techno Link Office Park,
63 Regency Drive, Route 21 Business Park, Irene.
Republic of South Africa

P.O.Box 297
Meyerton 1960
Republic of South Africa

