05

Why individually weigh broiler breeders in rear?

Routine accurate estimates of average body weight allows:

- Correct feed allocation to a population during rear and production.
- Correct control of both male and female body weights which will optimize performance at every stage of life.
- Recording individual body weights from 14 to 21 days of age onwards allows CV% and grading populations to be accurately managed.

The procedure for individually weighing broiler breeders in rear

Bird Handling

Birds must be handled in a calm and correct way by people who have been appropriately trained. Bird welfare must be a priority at all times.

Equipment

1. A good set of electronic or manual / mechanical dial scales with 10 g (0.02 lb) increments, an accuracy of +/- 20 g (0.04 lb) and have a minimum capacity of 5 kg (11 lb).

Electronic scale (left) and mechanical dial scale (right) for taking individual bird weights.

2. A pen or pencil.
3. Weight recording charts.
4. Scientific calculator if weighing using manual / mechanical dial scales.

Note *- All scales should be calibrated on a regular basis (at the beginning and end of every weighing) to ensure they are weighing accurately and correct body-weight management is maintained.*

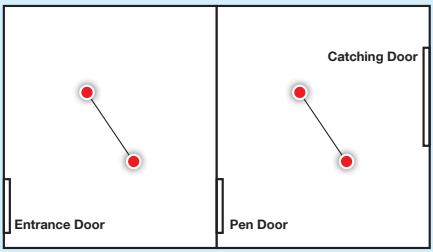
Procedure

Birds should be weighed on the same day each week and at the same hour of the day; ideally 4-6 hours after feeding.

Step 1 Suspend / situate scales in a secure, easily accessible place in the pen where weighing will take place. Set the scales to zero and have a secure shackle to hold birds in place before weighing begins.


Step 1

Step 2 Catch and pen up a sample of at least 2% or 50 birds per population, whichever is greater. In rear, if the population size is greater than 1000 birds, samples should be taken from 2 different locations in the pen or house. Samples should be taken from towards the middle of each pen or house avoiding side wall areas and areas close to entrance doors.



Bird sample points; should be away from side wall and entrance doors.

Step 3 Collecting one bird at a time, place its legs into the shackles, wait until the bird is calm and read the weight from the scale (to the nearest 20 g [0.04 lb] for mechanical scales).

Step 4 Record the weight obtained and gently release the weighed bird back into the main pen population.


Step 4

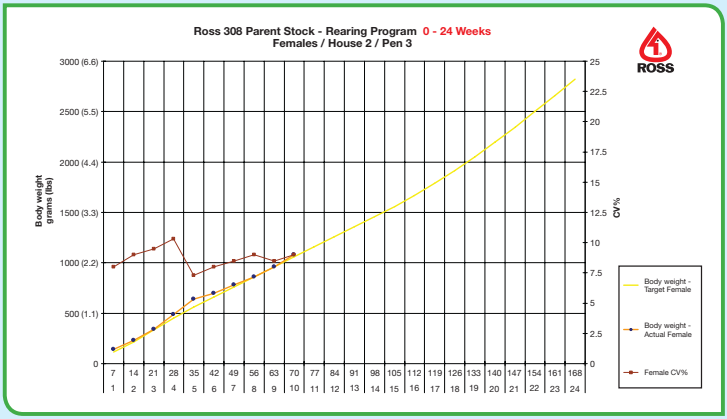
Mechanical scales require manual data records to be kept and data calculations to be made for:

- Total number of birds weighed.
- Average weight per bird (Total weight of all birds ÷ Number of birds weighed).
- Weight range.
- Coefficient of Variation (CV%).

Step 5 Repeat the weighing process until **ALL** birds in the catching pen have been weighed and recorded. This will eliminate selective bias.

Step 6 Calculate average weight and the Coefficient of Variation (CV%). CV% is usually calculated automatically when using digital scales. If manual scales are used, it will be necessary to calculate the standard deviation using either a scientific calculator or a computer spreadsheet.

Step 7 Average body weight and CV% should be plotted on a body weight for age chart and compared to target. Variation from performance targets will help determine future feed allocations.



Example for manual calculation of CV%:

$$CV\% = \frac{\text{Standard Deviation}}{\text{Average Body Weight}} \times 100$$

For example:

Where standard deviation = 0.048 kg / 0.106 lb and average weight = 0.471 kg/1.04 lb

$$CV\% = \frac{0.048 \text{ kg} / 0.106 \text{ lb}}{0.471 \text{ kg} / 1.04 \text{ lb}} \times 100 = 10.2$$

Example of a body weight recording chart when manual scales are used for weighing.

Farm	Breed	House	Pen	Sex	Age	Date
		2		Female	28	Mar - 15

Number Weighed	Average Weight	Target Weight	% Coefficient of Variation
212	464 g (1.02 lbs)	450 g (0.99 lbs)	10.3

Weight Grams	Weight Pounds	Number of Birds																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
0.00	0.00																														
0.20	0.04																														
0.40	0.09																														
0.60	0.13																														
0.80	0.18																														
100	0.22																														
120	0.25																														
140	0.31																														
460	0.35																														
180	0.40																														
200	0.44																														
220	0.49																														
240	0.53																														
260	0.57																														
280	0.62																														
300	0.66																														
320	0.71																														
340	0.75	x	x	x	x	x																									
360	0.79	x	x	x	x	x	x	x	x	x	x	x																			
380	0.84	x	x	x	x	x	x	x	x	x	x	x	x	x	x																
400	0.88	x	x	x	x	x	x	x	x	x	x	x	x																		
420	0.93	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x												
440	0.97	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
460	1.01	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
480	1.06	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
500	1.10	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
520	1.15	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									
540	1.19	x	x	x	x	x	x	x	x	x	x	x	x																		
560	1.23	x	x	x	x	x	x	x	x	x	x	x																			
580	1.28	x	x	x	x	x	x	x																							
600	1.32																														
620	1.37																														
640	1.41																														
660	1.46																														
680	1.50																														
700	1.54																														
720	1.59																														
740	1.63																														
760	1.68																														
780	1.72																														
800	1.76																														
820	1.81																														
840	1.85																														
860	1.90																														
880	1.94																														

Example of printouts from automatic weighing equipment – CV%, number of birds weighed, average weight, and standard deviation are all calculated automatically when using electronic scales.

CURRENT DATA METRIC	
TOTAL WEIGHED:	79
AVERAGE WEIGHT:	0.471
DEVIATION:	0.048
C.V. (%):	10.2

Band limits	Total
0.320 to 0.339	1
0.340 to 0.359	1
0.360 to 0.379	2
0.380 to 0.399	2
0.400 to 0.419	4
0.420 to 0.439	7
0.440 to 0.459	12
0.460 to 0.479	15
0.480 to 0.499	14
0.500 to 0.519	10
0.520 to 0.539	6
0.540 to 0.559	3
0.580 to 0.599	2

CURRENT DATA IMPERIAL	
TOTAL WEIGHED:	79
AVERAGE WEIGHT:	1.037
DEVIATION:	0.105
C.V. (%):	10.2

Band limits	Total
0.705 to 0.747	1
0.750 to 0.791	1
0.794 to 0.836	2
0.838 to 0.880	2
0.882 to 0.924	4
0.926 to 0.968	7
0.970 to 1.012	12
1.014 to 1.056	15
1.058 to 1.100	14
1.102 to 1.144	10
1.146 to 1.188	6
1.190 to 1.232	3
1.279 to 1.321	2

Interpreting results

A deviation from expected body weight may be due to an inaccurate weighing. If an inconsistent body weight is recorded, check that the scales are working correctly and then weigh a second sample of birds immediately as a check before making any changes to feed levels.

Days 14 to 21

A deviation from standard body weight between 14 and 21 days generally indicates:

- A need to revise management of feeder transition (timing and procedures used to change from floor feeding to mechanical feeders).
- A need to revise feed levels; feed levels should be altered accordingly if body weights are above or below target.

Day 28 onward

Weights and CV% at day 28 should be used to grade the population into 2 or 3 sub-groups of different average weight. Each group can then be managed according to weight to minimize flock uniformity at point of lay.

1. Under target weight birds (dark blue line on graphs below).

- Where the average body weight for a population / pen is below target body weight by more than 100 g (0.2 lb) gradually bring birds back to target by 63 days.
- Appropriate increases in feed should be given based on the deviation from target body weight.
- If birds remain under target body-weight after 63 days they should be gradually brought back to target profile by 105 days of age.
- If birds still remain below target body-weight (by 100 g [0.2 lb]) at 105 days then they should be gradually brought back to target weight by the time of first light stimulation.

2. Over target weight birds (dark green line on graphs below).

- These are birds that are greater than 100g (0.2 lb) over the target body weight.
- Re-draw the body weight curve to bring birds gradually back on to target by 63 days of age. Never reduce feed levels; reduce the next feed increment or delay the next feed increase in order to achieve the revised body-weight target.
- **If birds remain over target weight from 63 days onward, then the target should be redrawn parallel to the profile. Do not attempt to bring these birds back to the profile**. Birds should be fed the level of feed to maintain this profile.

Re-drawing of future body-weight targets up to 63 days of age (on the left) and re-drawing of future body-weight profiles when average body weight is below, on or above target at 63 days of age (on the right).