

## REARING MALES FOR OPTIMAL LEG HEALTH

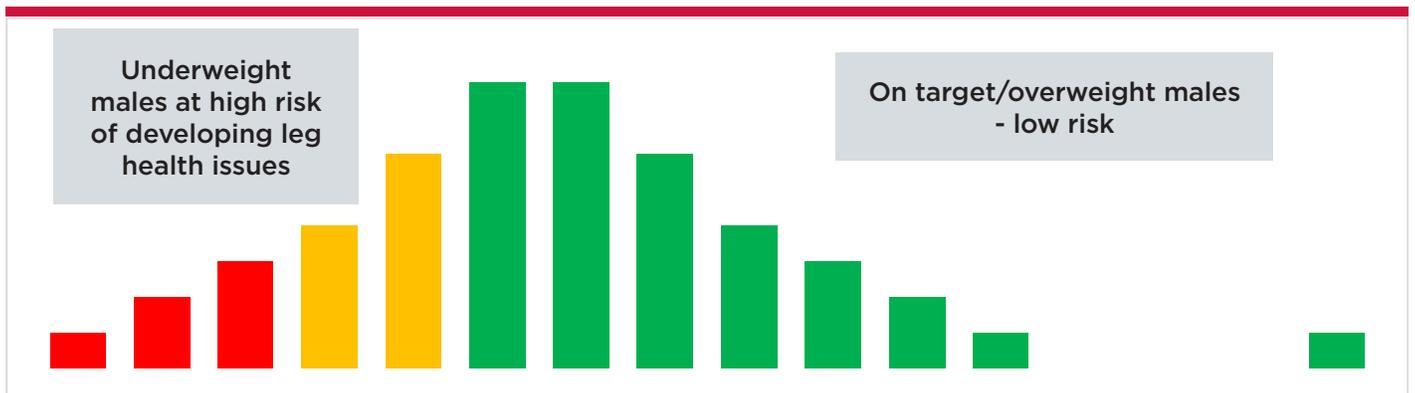
### INTRODUCTION

Appropriate management practices, such as grading, extended lighting programs and provision of an enhanced nutrient strategy when implemented during the rearing period can help alleviate the presence of male leg health issues in late rear and production. During the rearing period, the strength and integrity of muscles, tendons, bones and many other body components are determined through the management of body weight to reach critical parameters in the bird's physiological development. The entire flock should achieve these developmental milestones uniformly and with the correct nutritional support necessary for each life stage.

### BODY WEIGHT AND UNIFORMITY

Body weight and uniformity are intrinsically linked in broiler breeder management. A flock with an average body weight on target for age will inevitably have males below standard and above standard. Males that are underweight compared to the standard are at a higher risk of developing issues relating to leg health. The greater the variation, the greater the number and potential severity of the issues (**Figure 1**).

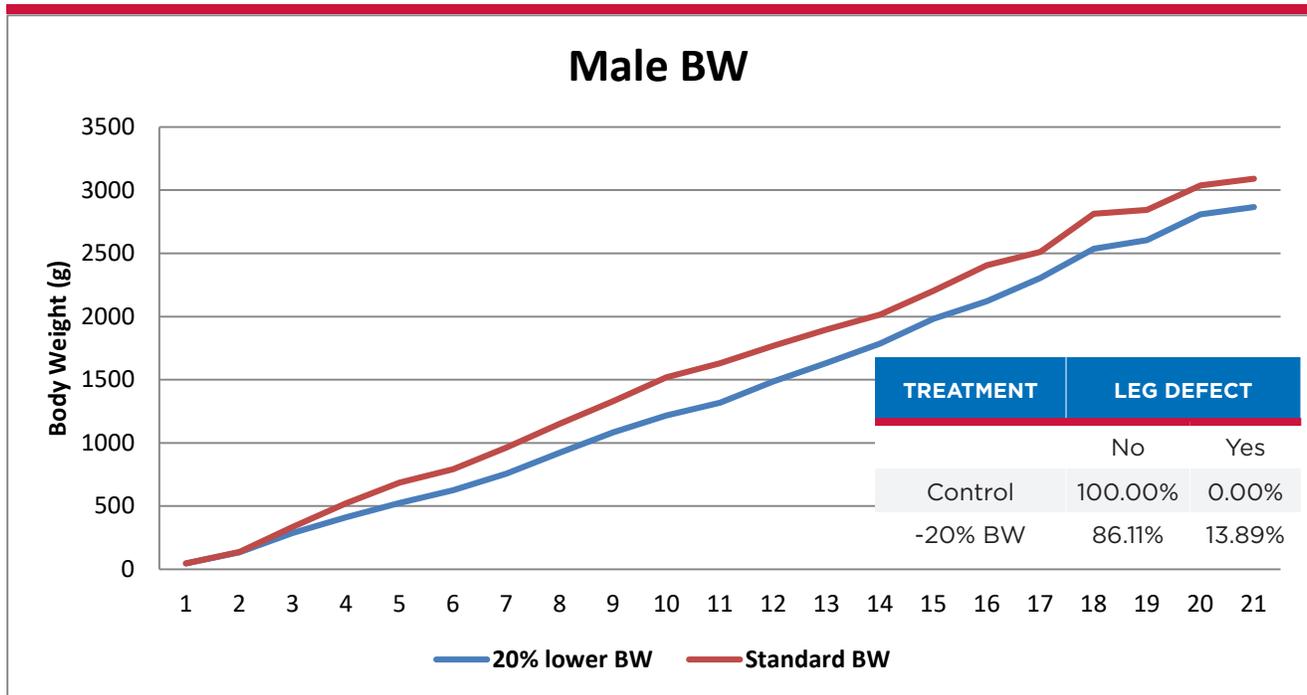
**FIGURE 1:** Uniformity affecting the incidence and severity of leg health issues in males.



It is important that all males in the flock achieve the minimum target body weight of the recommended Aviagen standard. Where there is high variation in a flock's body weight, it may be necessary to target a 10-week body weight that is 100g above the Aviagen standard to ensure all males meet the goal. Achieve this higher body weight gradually, from three weeks old, for the greatest benefit through the addition of approximately 6% from 4 weeks to return to standard from 15 weeks.

An example is shown in **Figure 2**, where populations of a standard control and a lighter body weight (20% lower body-weight profiles) were evaluated. The lighter body weight group demonstrated a higher incidence of leg defects when compared to the control body weight group.

**FIGURE 2:** Trial summary of males reared on 20% lighter body weight profile, that exhibited a higher incidence of leg defects at 19 weeks compared to the control.



### EARLY FEED INTAKE

Sufficient early feed intake will ensure males meet weekly body-weight targets to optimize gut development, skeletal development as well as other physiological targets. Listed below are key management factors to enhance this early development of feed intake:

- Providing optimum environmental conditions during the brooding period.
- Adding feed little and often to encourage uptake.
- Assessing crop fill to achieve >75% by two hours and, if not, corrective action taken to achieve >80% at eight hours.
- Ensuring 7-day male body weights on or above target.

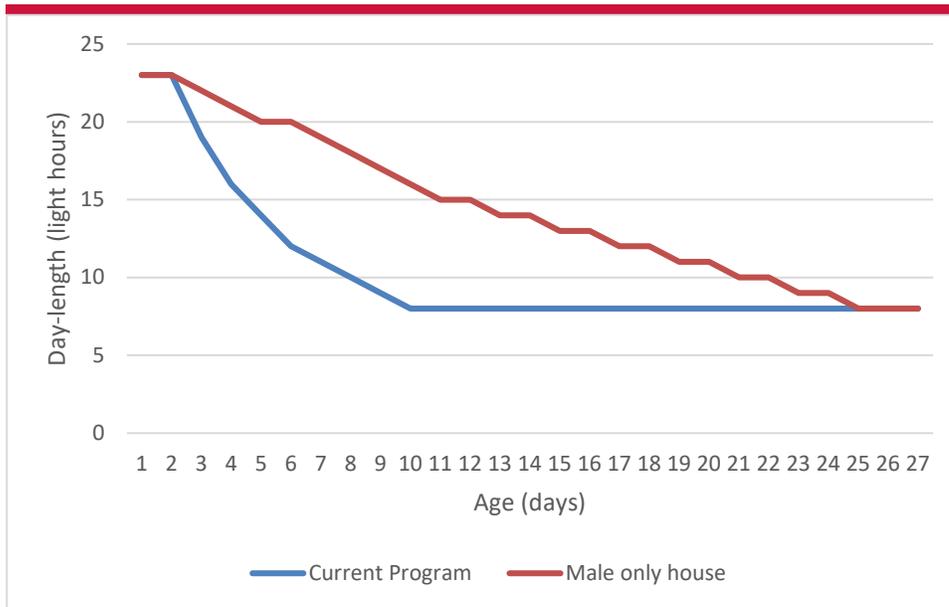
### LIGHTING PROFILE AND AD-LIB FEEDING

Where previous flocks of males have a history of being underweight for age, consider extending the time taken to reach 8 hours day-length, allowing males more time to consume feed (**Figure 3**). Ensure feed is readily available for males until 8 hours is achieved, but avoid excessive feed, which could be lost in the litter.

Considerations:

- Mixed sex housing: Reach 8 hours by 18 days at the latest.
- Male-only housing: Reach 8 hours by 26 days at the latest.

**FIGURE 3:** An example of an extended lighting program where flocks have been underweight.



## GRADING MALES

Grading males before 4 weeks helps to effectively optimize the growth and development of the flock by accurately providing the correct nutrition for each sub-population, with the aim of a uniform male population as early as possible.

Grading involves a sample weighing (minimum of 2% or 50 birds, whichever is greater) to determine the ranges required for grading, as well as the cut-offs – cut offs for ranges will depend on whether pen sizes are fixed or adjustable. Table 1 shows the grading cut-offs when using CV%, as well as whether a 2- or 3-way grade is required.

**TABLE 1:** Grading cut-offs when using CV%.

FLOCK UNIFORMITY CV%	PERCENTAGE IN EACH POPULATION AFTER GRADING			
	2 or 3-way grade	Light (%)	Normal (%)	Heavy (%)
8-10	2-way grade	20	~ 80 (78-82)	0
10-12	3-way grade	22-25	~ 70 (66-73)	5-9
>12	3-way grade	28-30	~ 58 (55-60)	12-15

Following grading, consideration should be given to the feed allocation of each of the sub-populations (light, target and heavy males) to avoid a reduction in nutritional intake or an excessive increase nutritional intake.

## WATER AVAILABILITY

Water is critical in the transport of nutrients, removing waste products, and maintaining body temperature. Therefore, it is essential that water is both available and accessible to the birds to achieve a feed-to-water ratio of 1.6-2.0. Birds need more water if the feed form is easily detectable in the crop. To ensure the birds are consuming adequate water, water pressure and drinker line height need to be assessed for the bird's age and development.

## NUTRITION

### FEED SPECIFICATIONS

Providing a pre-starter diet offers an enhanced nutrient strategy, which can be beneficial to support early body-weight development and, subsequently, leg health in males. Avoid a diluted diet during the rear period, but especially in the first 10 weeks.

**TABLE 2:** One example of an alternative nutrient strategy for cases where male leg health has been an issue in previous flocks.

FEED COMPONENT	UNITS	PRE-STARTER (0 - 14 DAYS)	STARTER 1 (15 - 28 DAYS)	STARTER 2 (29 - 42 DAYS)
Crude Protein	%	22-23	19-20	17-18
WPSA - AMEn kg	kcal/k	2900	2800	2750
Total Calcium	%	1.00	0.95	0.95
Av Phosphorus	%	0.50	0.46	0.46
Sodium	%	0.20	0.20	0.20
Chloride	%	0.25	0.25	0.25
Potassium	%	0.8-0.9	0.8-0.9	0.8-0.9
Dig Lysine	%	1.15	0.95	0.70
Dig Methionine	%	0.60	0.58	0.38
Dig Met+Cys	%	0.90	0.85	0.65
Dig Threonine	%	0.80	0.72	0.55
Dig Tryptophan	%	0.22	0.20	0.18
Dig Isoleucine	%	0.80	0.75	0.55
Dig Leucine	%	1.30	1.20	1.1
Dig Valine	%	0.95	0.85	0.65
Dig Histidine	%	0.53	0.50	0.45
Dig Arginine	%	1.30	1.20	1.10

