



The assessment of body condition in rabbits



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Definitions and welfare impact

Body condition score (BCS) reflects the nutritional status and overall health of rabbits, serving as a key indicator of welfare. A rabbit with poor BCS shows signs such as prominent bones along the lumbar spine, which can be easily felt during palpation or visually (Figure 1). This often results from inadequate feeding (unbalanced diet, insufficient quantity of feed) or underlying debilitating diseases (EFSA, 2005).

Poor BCS in females/does leads to reduced fertility, increased disease risk, metabolic disorders, and insufficient milk production, putting kits at risk of hunger, especially before weaning (EURCAW Poultry-SFA, 2021). Therefore, since the BCS of lactating does can change very quickly, a failure to periodically assess this parameter, increases the risk of misdetection of the problems mentioned above leading to bad welfare (Lebas, 2000). Moreover, young growing rabbits after weaning and young females between 12 and 17 weeks of age in preparation for breeding may also be temporarily restricted-fed to prevent digestive and fertility disorders, respectively, increasing the risk of transitory hunger. The BCS, therefore, helps to assess whether the feeding programme meets growing rabbits' nutritional needs, but also the management of groups and feeding places. The BCS can be assessed visually or by palpation in breeding and growing rabbits. This factsheet describes four methods for assessing BCS in rabbits.



Figure 1: Comparison of body condition: growing rabbit with poor body condition score (top) vs good body condition score (bottom) (Source: IRTA, 2019)



Legal requirements

Council directive 98/58/EC of 20 July 1998 concerning the protection of animals kept for farming purposes:

"Animals must be fed a wholesome diet which is appropriate to their age and species and which is fed to them in sufficient quantity to maintain them in good health and satisfy their nutritional needs. No animal shall be provided with food or liquid in a manner, nor shall such food or liquid contain any substance, which may cause unnecessary suffering or injury" (Annex, Point 14)

"All animals must have access to feed at intervals appropriate to their physiological needs" (Annex, Point 15)

"All animals must have access to a suitable water supply or be able to satisfy their fluid needs by other means" (Annex, Point 16)

"Feeding and watering equipment must be designed, constructed and placed so that contamination of food and water and the harmful effects of competition between the animals are minimised." (Annex, Point 17)

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Predisposing factors

Since prolonged hunger negatively affects body condition score of rabbits, leading to bad welfare outcomes (EFSA, 2020), the hazards leading to prolonged hunger are listed below.

Hazard category	Hazard
Housing	Badly designed or managed (soiled) feeder leading to reduced access or increased competition for feed. Poorly designed or managed drinker leading to low water intake and consequently a reduction in feed intake.
Ambient conditions	Low (<10°C) or high (>30°C) ambient temperature. High humidity leading to a poor quality of feed.
Genetics	High prolificacy lines
Nutrition and feeding	Breakdown of automatic feeding systems. Underfeeding due to too high feed restriction. Incorrect formulation of the feed composition, inadequate for nutritional requirements
Management of biosecurity	Unhygienic feed through soiling
Management of reproduction	Intensive reproduction cycle length (35-38 days)

Methods of assessment

Bonanno et al. (2008)

BCS is assessed by palpation to feel the loin and rump regions, for bone protrusions (spinous process) and

muscle size over and around the vertebrae. After palpation, the **loin** is subjectively evaluated according to poor, intermediate or wide, whereas the **rump** for poor or wide.

- **Poor:** pronounced bone protrusion and poor muscle size
- **Intermediate:** perceptible but not pronounced protrusions and good muscle size
- **Wide:** great muscle size and imperceptible bone protrusions

The judgements are combined to give an aggregated individual score.

Individual scoring system

Scoring scale	Description
Score 0	Loin is poor
Score 1	Loin is intermediate and rump poor
Score 2	Loin is intermediate or wide and rump wide

Rosell and de la Fuente (2008)

BCS is assessed on breeding females by palpation and estimating the muscle size and fat of the lumbar, sacral, coxal tuberosity and gluteal regions in relation to the size of the animal.

This larger scale has scores from 1 (**emaciated**) to 9 (**obese**), 5 is the optimum body condition and 4 and 6 are acceptable (Figure 2).



Figure 2: Notation scale of body condition score in does
Source : Rosell and De la Fuente, 2008

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Dalmau et al. (2020)

The body condition is visually assessed, considering two anatomical areas: hips and backbone. An animal is classified as lean if the bones in these areas are prominent.

This assessment is performed on **24 bucks and 34 does** (17 around mounting or insemination, and 17 just before weaning if possible) **or on 50 does** (around insemination and just before weaning, when possible). In this protocol, if no lean rabbits are noted, the score is excellent.

Classyfarm protocol (2022)

This protocol is based on the methods (adapted) of Dalmau et al. (2020) and Bonanno et al. (2005).

BCS is visually evaluated on at least **50 does** at the time of litter weaning (approximately 30-35 days postpartum) by assigning a score from 0 to 2 based on the degree of muscle fullness of the rump and loin area and the possible presence of bony prominences.

Individual scoring system

Scoring scale	Description
Score 0	<u>Cachectic/very thin animal</u> : poor muscle coverage and excessive bony prominences
Score 1	<u>Thin animal</u> : acceptable, but no optimal muscle coverage and only hinted bone prominences
Score 2	<u>Normal animal</u> : good muscle coverage and no visible bone prominences.

Final scoring system

According to the ClassyFarm scoring system, to assign the final assessment, one animal with a score of 0 is considered equivalent to three animals with a score of 1. In this way, only the percentage of animals with a score of 1 is considered for the value assignment, in which animals with score of 0 multiplied by three were previously included. The higher the percentage, the worst the body condition final assessment.

$$\% BCS\ 1 = \frac{(BCS\ score\ 0 \times 3) + BCS\ score\ 1}{Total\ observed\ animals} \times 100$$

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Co-funded by
the European Union



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