

# The skinny on body condition scoring dairy cattle: collecting the data and putting it to good use

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## Abstract

Routinely recording the body condition score (BCS) of dairy cattle is a valuable tool for managers and consultants on the dairy. Using solid guidelines based on reputable resources, a consistent analysis may be made for the whole herd and create a data set which will show trends over time. By managing the data using a computer spreadsheet program, BCS may be sorted and examined by a variety of criteria, including days in milk (DIM), parity, stage of lactation, pen number, or any other relevant parameters. Monitoring the BCSs on a regular basis will provide an invaluable set of data that can be used to observe not only the nutritional management of the herd, but the reproductive management, welfare, and environmental conditions of the dairy as well.

**Key words:** cattle, dairy, body condition, BCS

## Résumé

Systématiquement l'enregistrement du résultat de l'état corporel (BCS) des bovins laitiers est un outil précieux pour les gestionnaires et consultants sur la laiterie. À l'aide de solides lignes directrices fondées sur les ressources fiables, une analyse cohérente peut être faite pour l'ensemble du cheptel et créer un ensemble de données qui montrera les tendances au fil du temps. En gérant les données en utilisant un tableur, BCS peut être triées et examinées par une variété de critères, notamment le nombre de jours dans le lait (DIM), la parité, le stade de lactation, numéro de plume, ou tout autres paramètres pertinents. Surveillance de la BCSs sur une base régulière permettra de fournir un précieux ensemble de données qui peuvent être utilisés afin d'observer non seulement la gestion nutritionnelle du troupeau, mais la gestion de la reproduction, du bien-être social, et les conditions environnementales de la laiterie ainsi.

## Technique and Guidelines

In the early 1980s Wildman et al published their work on developing the 5-point body condition scoring system of dairy cows, realizing that weight measurement alone would not suffice in determining the amount of energy reserves in the cow.<sup>5</sup> Using the same principles in modern practice, scoring dairy animals requires the visual analysis and/or palpation of the significant body protrusions and areas of fat storage on the cow's frame, and then assigning it a score

in quarter point increments from 1 to 5, from emaciated to obese, respectively. The amount of subcutaneous adipose tissue or "fatness" surrounding the crucial landmarks, such as the sacral and tailhead ligaments, hook and pin bones, thurl, and short ribs, will indicate the cow's energy reserves, which will in turn provide insight to not only the current status, but its past and present performance as a dairy cow.<sup>1</sup> Ideal body condition score ranges have been determined for the various stages in lactation for dairy cows and may be referenced to determine whether the animal being evaluated is within an acceptable range of her expected values. If the group's average score is outside the ideal ranges, the dairy should further investigate potential factors which could be causing this variation. Table 1 shows an example of these target conditions that may be expected when scoring a group of cows.

This technique can be taught to a variety of people of differing education levels. By following the guidelines, it can result in an objective portrayal of a group of dairy animals in that moment of time. Like any other skill, practice and review is essential so that scoring is done consistently between herds.<sup>2</sup> Simply weighing the animal is not an accurate means of evaluating the energy reserves of the animal since animals of similar weight could be too thin or too heavy depending on their frame, especially when pregnant or full/void of feed and water.<sup>3</sup> A representative portion of the group must be scored and subsequently evaluated by that group's average to determine the overall condition at the pen, stage of lactation, or otherwise level. A random approach to choosing cows for body condition scoring helps to decrease bias where one may tend toward focusing on the thin or heavy cows. The condition of a single animal must also not be weighed heavily to represent the majority of the group.<sup>4</sup> Since the publication of Wildman's work, other professionals have improved upon the technique and have provided schematics for consistently scoring a group of animals. By adhering to the flow of steps to analyzing the condition of a cow, the system will provide a reliable and repeatable means of scoring within and between herds with confident personnel after training.<sup>3</sup>

## Relevance in the Herd

Though a BCS analysis may be performed at any stage of lactation, critical points for evaluating herd body condition include dry-off, calving, and post-calving. A dry cow will generally have greater energy reserves than an animal at peak lactation; however, a notable loss in body condition indicates an issue that must be explored. Roche et al states that the

**Table 1.** Optimal Body Condition Scores.

Stage of lactation	BCS
Calving	3.25-3.75
Early lactation (peak milk)	2.50-3.00
Mid lactation	2.75-3.25
Late lactation	3.00-3.50
Dry period	3.25-3.50

Source: Elanco Animal Health

optimal condition of a cow at the time of calving should be between 3.0 and 3.25 (according to the 5-point scale) to avoid metabolic disorders in the early days as a fresh cow. Depending on stage of lactation, a higher or lower BCS may be acceptable compared to other lactation groups, but the extremes are never acceptable and are rarely seen.<sup>3</sup>

The adverse impacts of suboptimal herd BCS that have been documented have included lost milk production; dystocia; metabolic diseases such as ketosis and parturient paresis; displaced abomasum; decreased dry matter intake; lameness; and delayed conception.<sup>3</sup> Over-conditioned cows at calving are at a higher risk for lameness and metabolic issues post-calving, and cows losing excessive condition post-calving may not reach their full potential for milk production due to excessive time in a state of negative energy balance. Those complications continue into the cow's reproductive well-being as both under and over-conditioned animals may face delayed conception and increased risk for premature removal from the herd. Thin groups of cows may also be a reflection of the environment in which they live. For example, stressful housing or poor hoof care will increase the number of lame cows who are less willing and/or able to eat and could consequently fail to meet their nutrition requirements for lactation, growth, and reproduction as well as maintaining energy reserves. In addition to these contributors of economic loss, welfare issues must also be considered.<sup>3</sup> When an animal becomes too thin because of neglect or failure to respond to treatment, euthanasia must be considered for the greater well-being of the animal.

### Use of the Collected Data

It is obvious that the BCS data collected from a herd have immense value to evaluating an assortment of managerial aspects of the dairy. Of equal importance is the need for a standardized way to organize that data in a manner that allows trends and deviations from the target to be quickly identified. Knowing where a lactating group was 6 months ago or more will add value to the current data collected. For example, determining that the average second-lactation animals are scored 3.25 at that moment is good, but knowing that only 4 months ago they averaged 3.05, and 8 months ago were 2.85, will signal that they are gaining weight and an informed decision to change the ration may be made. Herd

management software can be used to create a list of cows along with relevant cow attributes. Those commonly used in connection with BCS include days-in-milk (DIM), lactation, pen number, and possibly age. Spreadsheet software can be used to manipulate the table of information to emphasize the points of interest, and then graphically represent the data to demonstrate the results from a visual standpoint. The minimum, maximum, and average BCS may be determined for each category of DIM, lactation, pens evaluated, and lactation, and then compared to one another. The portion of animals falling within each BCS category scored may be useful as well: for example, if the minimum score in a given pen was 2.25, there may not be need to stress over a thin string of cows if that was the only score given in that range and the average score was 3.03 for that group. Scoring the cows on a quarterly basis will provide adequate feedback regarding the cows' conditions over time, especially if changes have been made due to the results of a previous analysis.

### Conclusion

A routine analysis of the BCS of the dairy herd is essential to maintaining good managerial practices, as it reflects a number of well-being conditions for a given group of cattle. Energy reserves not only build and diminish due to feed intake and ration designs, but are also a result of her metabolic/health status and the cow's ability to cope with the stresses of her environment. A 5-point scoring system using quarter-point increments can be taught to and used by a range of individuals with consistent results. Routine use of this system can provide a consistent analysis of the herd that can be used to make informed management decisions. Once that information has been gathered and entered, it can be organized along with other animal data or combined with previous data so that trends can be evaluated. Review of these data by the herd manager and another consultant will shed light upon opportunities that exist to improve the health, productivity, and well-being of the herd and may result in profitable improvements for the dairy as a whole.

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