



BODY CONDITION SCORING

A Fact Sheet for the Canadian Dairy Industry

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Body condition scoring is a method for evaluating nutritional management of dairy cows. The body condition score (BCS), reflects the body reserves available for growth, lactation, and activity⁶. To maintain health, reproduction, and productivity, dairy cows must have an adequate amount of body reserves⁶. Knowing the body condition score of dairy cows can help plan feeding to promote milk production, reproductive efficiency and cow longevity². Additionally, BCS influences lactation, health, fertility, and has effects at calving in high producing dairy cows⁶.

How to body condition score?

BCS ranges from 1 (emaciated) to 5 (extremely over-conditioned)⁹. Cows should be body condition scored using your hands, feeling for tissue (fat and muscle) cover at the short ribs, spine, hooks and pins, and each side of the tail head (Figure 1). Fingertip pressure will provide a good indication of the amount of tissue cover.

When to body condition score?

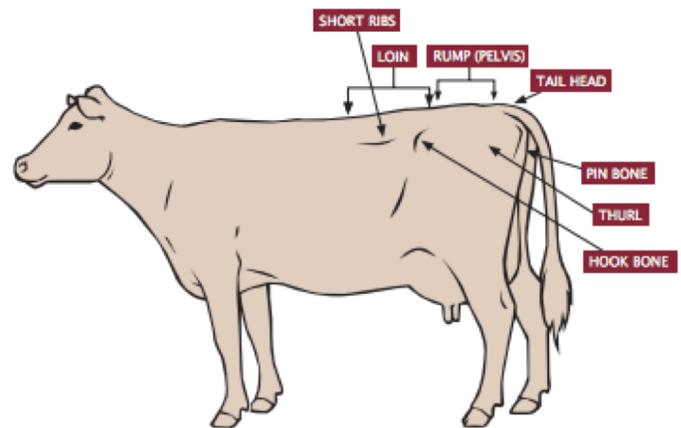
All cows should be scored at the beginning and end of their dry period and multiple times (4-5) during lactation, as ideal body condition varies depending upon stage of lactation^{8,9}. Body condition scoring in this way reflects changes in body reserves at each stage of lactation, identifies nutritional deficiencies, health problems, as well as other management-related issues¹. BCS decreases in early lactation, is restored during mid-lactation, and becomes steady during late

lactation⁵ (Figure 2). Ideal BCS during different stages of lactation are as follows⁸:

Ideal BCS Ranges:

- Drying off – 3.25 to 3.75
- Calving – 3.25 to 3.75
- Early lactation – 2.50 to 3.25
- Mid-lactation – 2.75 to 3.25
- Late lactation – 3.00 to 3.50
- Growing heifers – 2.75 to 3.25
- Heifers at calving – 3.25 to 3.75

Figure 1. Labelled illustration of a dairy cow with BCS of 3



Source: Farm and Food Care Ontario. A practical approach to body condition scoring of dairy cows.

Body Condition Scores of Dairy Cows⁷:

BCS 1

- Ends of short rib sharp to touch
- Loin prominent
- Vertebrae prominent in loin and rump area
- Individual bones easily visible
- Hook and pin bones sharply defined, very angular
- No fat pad
- Sunken and hollow on either side of tail head
- Ligaments connecting pin bones to spine are sharply defined
- Vulva prominent

BCS 2

- Ends of short ribs not as prominent but can be felt
- Slight fat cover, and slightly more rounded appearance
- Vertebrae in loin and rump areas less visually distinct
- Easily feel individual vertebrae
- Hook and pin bones still prominent, angular
- Fat pad not palpable
- Little tissue cover
- Both sides of tail head sunken and hollow
- Ligaments connecting pin bones to spine still sharply defined

BCS 3

- Ends of short ribs felt with moderate pressure
- Ribs appear smooth without noticeable scalloping
- Vertebrae in loin and rump area appear rounded
- Backbone visible, but individual vertebrae not distinct
- Hook and pin bones visible, but smooth, with rounded appearance
- Fat pad palpable
- Both sides of tail head somewhat hollow, but skin folds not distinct
- Ligaments connecting pin bones to spine are rounded in appearance

BCS 4

- Individual rib ends not visible, only felt with firm pressure
- Vertebrae rounded, smooth
- Loin and rump areas appear flat
- Hook and pin bones are rounded, with obvious fat covering
- Area between hook and pins almost flat
- Sides of tail head not hollow, no skin folds
- Some fat deposit palpable

BCS 5

- Ends of short ribs can't be seen or felt
- Vertebrae in loin and rump not visible
- Difficult to feel individual vertebrae
- Hook and pin bones very round, buried in fat tissue
- Area between hook and pin bones filled (appears flat)
- Areas on both sides of tail head buried in fat tissue

Profitability to the operation

It has been reported that dairy cows in good body condition (BCS 3.25-3.75) at calving had significantly reduced number of days open compared to animals in intermediate or low body condition⁵. The number of days open (days between calving and conception) is largely associated with reduced profitability in dairy cows and is partly due to factors such as increased breeding, culling and replacement costs, and decreased milk production¹¹. The cost per extra day open ranges from \$3-\$5.50 USD¹².

Under-conditioned cows

Cows with a BCS of 2 or less may result from poor quality feed, disease, lameness, or other factors¹. It is important that cows in poor condition are identified early so that treatment or culling decisions can be made in a timely and responsible manner.

Dairy cows too thin at calving (BCS <3.25) may not have sufficient body reserves to support high levels of milk production and may not show heat or conceive until they start to regain or at least maintain body weight⁸ (Figure 2).

Cows should not lose more than 1 BCS over any lactation period⁸ (Figure 2). 1 BCS change in dairy cows equals to 55-132 lbs (25-60 kg) change in live weight⁶. Cows that lose more than 1 BCS have reduced fertility, reduced reproductive performance, and are at increased risk for sole ulcers which can lead to lameness, particularly if the loss is too rapid^{1,8}.

The Code of Practice for the Care and Handling of Dairy Cattle requires producers to take corrective action for animals with a BCS of 2 or less⁷.

Over-conditioned cows

Over-conditioned cows (BCS >4) may be due to improper nutrition (e.g. feeding too rich of a diet during dry periods) and/or reproductive management¹. Over-conditioning tends to occur during the last 3-4 months of lactation, when milk production has decreased, but dietary energy has not been reduced¹⁰.

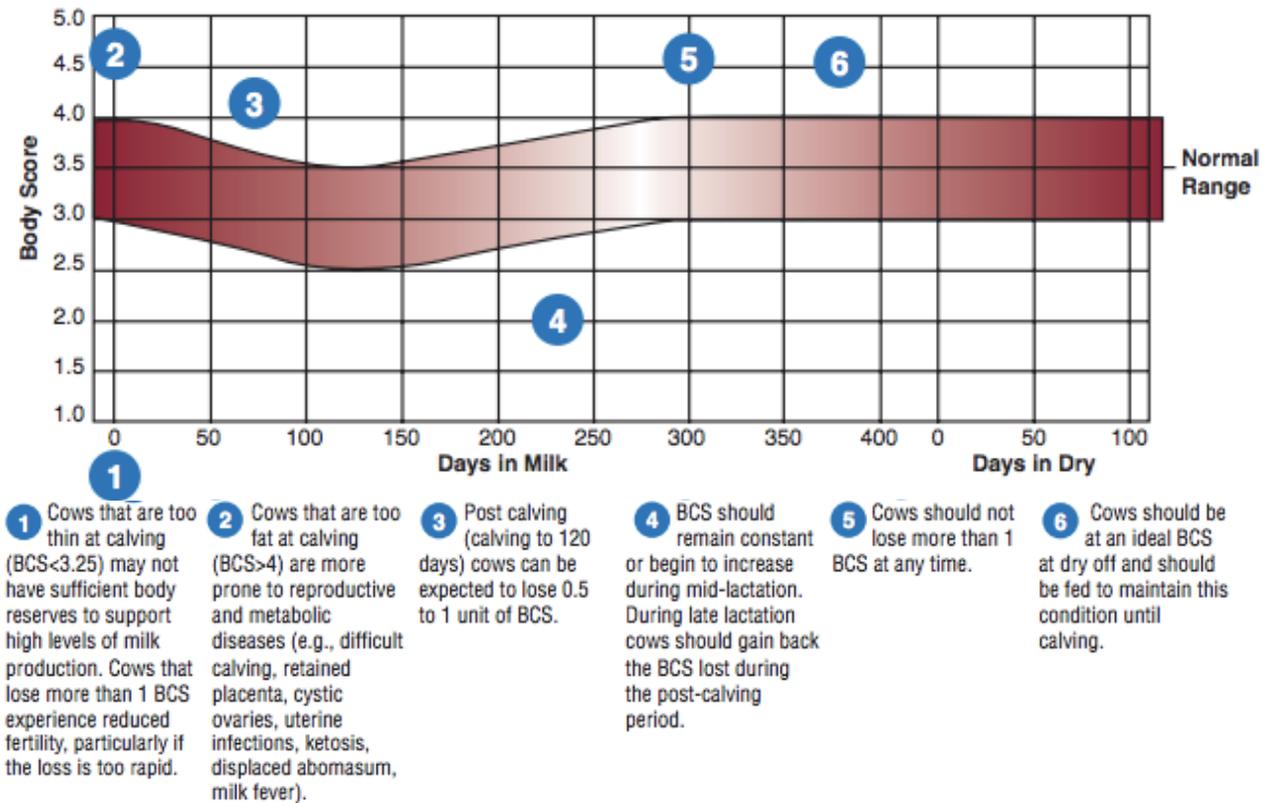
Dairy cows with excessive fat reserves at calving (BCS >4) have a greater risk of lower milk yield, increased health and reproductive disorders (e.g. difficultly calving, fatty liver), and metabolic diseases (e.g. ketosis) (Figure 2). As well, over-conditioned cows may require a greater number of services to get pregnant⁶.

Dairy heifers with excessive fat reserves (BCS >3.75) are difficult to breed, have disorders in development of mammary glands, and produce less milk when entering the milking herd⁶.

If more than 15% of the herd is above or below ideal BCS for their stage of lactation, you must engage in corrective measures³. Consult your veterinarian about herd health and specific issues that contribute to poor condition. Consult your nutritionist about formulating proper rations. Separate cows with poor condition into a small group for closer monitoring, as well as controlled feeding and/or treatment⁶.

Identifying cows that are too fat or thin and taking prompt action is a critical management tool on the farm to help with disease treatment, milk production, profitability, and fertility.

Figure 2: Body Condition Scoring Through the Lactation Cycle



Source: Farm and Food Care Ontario. A practical approach to body condition scoring of dairy cows.

References:

1. Dairy Farmers of Canada. 2017. Body condition score information document. Available at: https://www.dairyresearch.ca/pdf/bodyconditionscore_en.pdf (Accessed 24 July 2017.)
2. DeLaval. 2017. DeLaval body condition scoring BCS. Available at: <http://www.delaval.ca/About-DeLaval/Innovation-at-DeLaval/DeLaval-body-condition-scoring-BCS/> (Accessed 24 July 2017.)
3. Farm and Food Care Ontario. A practical approach to body condition scoring of dairy cows. Available at: <http://www.farmfoodcareon.org/wp-content/uploads/2016/04/body-condition-scoring-dairy-2010-06.pdf> (Accessed 24 July 2017.)
4. Farm and Food Care. Body condition scoring of dairy cattle. Available at: <http://www.farmfoodcareon.org/wp-content/uploads/2016/04/BodyConditionScore.pdf> (Accessed 24 July 2017.)
5. Lopez-Gatius, F., Yaniz, J., and Madriles-Helm, D. 2003. Effects of body condition score and score change on the reproductive performance of dairy cows: a meta-analysis. *Theriogenology*. 59: 801-812.
6. Montiel, F., and Ahuja, C. 2005. Body condition and suckling factors influencing the duration of postpartum anestrus in cattle: a review. *Anim. Repro. Sci.* 85: 1-26. doi:10.1016/j.anireprosci.2003.11.001
7. NFACC. 2009. Appendix E: body condition scoring chart. Available at: http://www.nfacc.ca/pdfs/codes/dairy_code_of_practice.pdf (Accessed 24 July 2017.)
8. NFACC. 2009. Section 2: body condition scoring. Code of practice for the care and handling of dairy cattle. Available at: http://www.nfacc.ca/pdfs/codes/dairy_code_of_practice.pdf (Accessed 24 July 2017)
9. OMAFRA. 2016. Body condition scoring of dairy cattle. Available at: <http://www.omafra.gov.on.ca/english/livestock/dairy/facts/00-109.htm> (Accessed 24 July 2017.)
10. PennState Extension. 2017. Body condition scoring as a tool for dairy herd management. Available at: <http://extension.psu.edu/animals/dairy/nutrition/nutrition-and-feeding/body-condition-scoring/body-condition-scoring-as-a-tool-for-dairy-herd-management> (Accessed 21 July 2017.)
11. De Vries, A. 2006. Determinants of the cost of days open in dairy cattle. Available at: http://www.vanbeeknaturalscience.com/kSuite/cmsLite/content/file/Live_Pdfs/increased_pregnancy_rate.pdf (Accessed 28 July 2017.)
12. Guilbault, L. Management tool to reduce days open. Available at: <http://genex.crinet.com/page4569/AManagementToolToReduceDaysOpen?print=1> (Accessed 28 July 2017.)
13. Farm and Food Care Ontario. A practical approach to body condition scoring of dairy cows. Available at: <http://www.farmfoodcareon.org/wp-content/uploads/2016/04/body-condition-scoring-dairy-2010-06.pdf> (Accessed 24 July 2017.)

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