Body Condition Loss in Early Lactation Tool

What is this tool?

This is a **gap calculator** tool. It measures the difference between the herd's actual and desired body condition (BCS) loss in early lactation, i.e. between calving and mating, and assesses the likely impact of this on herd reproductive performance.

> **(!)** Body condition scoring is a visual assessment of the amount of muscle and fat covering the cow's skeleton. InCalf's body condition recommendations use the 1-10 scale system as described in the *Condition Scoring Made Easy* booklet

Why use this tool?

Cows that lose more than a full BCS unit in early lactation take longer to get back in calf and are more likely to be empty. If a high proportion of the herd lose more than a BCS unit then overall herd reproductive performance will suffer.

This tool enables you to measure the gap between your herd's average BCS loss in early lactation and the InCalf recommendations, and assess the potential $ benefits of improved herd reproductive performance from closing this gap.
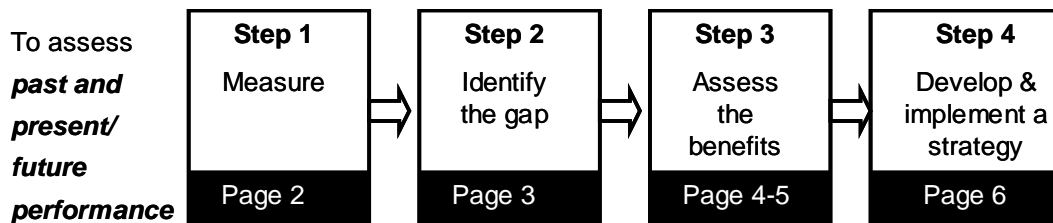
For more information, see *The InCalf Book*, Chapter 11: "Body condition and nutrition" and the *Condition Scoring Made Easy* booklet.

See pages 69-90

How to use this tool

Work through this tool's four basic steps:

To assess *past and present/ future performance*	**Step 1** Measure	**Step 2** Identify the gap	**Step 3** Assess the benefits	**Step 4** Develop & implement a strategy
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When you see this symbol ✍ you need to fill in some information or do some calculations before continuing.

Step 1) Measure

How many cows and when?
The minimum is to condition score 70 cows randomly at four critical times:
1) end of mating; 2) in late lactation (3-4 months before the Planned Start of Calving (PSC) date; <u>3) just before PSC; and, 4) two weeks before the Planned Start of Mating (PSM) date.</u>

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What to do?
Use the 'hands on' method initially to calibrate the eye so that quick visual assessments can be made in the paddock or dairy shed. Refer to the simple procedures explained on pages 8-9 and 34-35 of the "Condition Scoring Made Easy" booklet.

See pages 8-9 and 34-35

Use the InCalf (Pre-mating) BCS Recording Sheet (page 7 of this tool) to score 70 cows using the 'picket-fence' scoring method. The 'picket-fence' scoring method as shown on page 35 of the "Condition Scoring Made Easy" booklet is recommended.

From 2 weeks before the Mating Start Date calculate:

(A)……% are too thin   Add up the total number of cows with BCS <u>below</u> 4.0. Divide this by the total number of cows assessed (x 100 %).

(B) Average BCS ……..   Write down the number of cows in each BCS category. Multiply this number of cows by the BCS (eg. 24 cows at BCS 4.0 = 108). Add all these values together and divide by the total number of cows assessed. The result is average BCS.

Step 2) Identify the gap

Once you have measured the BCS of your herd using the method described in Step 1) the risk to herd reproductive performance associated with your herd's BCS change in early lactation can be estimated. The key figure is the *average* body condition change of the herd. We expect the change to be negative, i.e. a loss. The gap to be calculated will depend on this figure rather than the % of cows with BCS below 4.0 or above 5.0, as used to assess the BCS at calving gap.

Part 1: Carry over the results of your measurement from Step 1

Average BCS of herd just before calving ……………… BCS **(A)**
  (from the *Body condition at calving tool*)
Average BCS of herd just before mating: ……………… BCS **(B)**

Average BCS loss of herd = (A) minus (B) ……………… BCS **(C)**

Part 2: Assess the risks associated with average loss in BCS of the herd in early lactation

Average herd BCS loss	Risk assessment	What you should do
Less than 0.5	**Low:** It is likely that few cows in the herd have lost excessive condition. There is a low chance of losses in reproductive performance for the herd.	No action is required at this stage, although low rates of BCS loss can also indicate low BCS at calving. Check that this is not the case.
0.5 to 1.0	**Moderate:** It is likely that some cows have lost excessive body condition. These cows are at risk of reduced reproductive performance. The risk of reduced herd reproductive performance is typical of that in most herds.	When assessed using this method, these rates of loss are considered typical. No action needed at this stage.
More than 1.0	**High:** A substantial number of cows have lost excessive body condition. There is a high chance of losses in herd reproductive performance.	Action is needed to limit body condition losses after calving and prevent losses in reproductive performance. Increase body condition to prevent substantial losses in reproductive performance.

Risk level: Low / Moderate / High (circle identified level)

Part 3: Calculate the gap

Calculate your gap in early lactation body condition loss:

Your maximum desired BCS loss in early lactation (D)	Your herd's actual BCS loss in early lactation (C)	Gap (ie. D – C = E)
…………...	- …………... =	…………. (E)

(!) Note: InCalf recommends an average loss in BCS of the herd in early lactation of no more than 1.0; and that no more than 15% of cows are in less than BCS 4.0 at mating.

Step 3) Assess the benefits

Part 1: Estimate the likely effect of closing the gap on herd reproductive Performance

New Zealand studies show that the 6-week in-calf rate reduces and not-in-calf rate increases with the more condition that cows lose after calving (see graph below).

In Table 1, below, the relationships depicted in the graph above are incorporated for you to use average BCS loss in your herd to assess the likely impacts on the herd's 6-week in-calf rate and not-in-calf for the herd overall.

- Move up the rows to see the effects of reducing the average herd BCS loss on the 6-week in-calf rate and not-in-calf rate from your actual figure for BCS loss in early lactation (C) to your maximum desired figure (D).

Table 1: Impact of BCS loss in early lactation on overall reproductive performance

Average herd BCS loss	Possible decrease in 6-week in-calf rate	Possible increase in not-in-calf rate
Less than 0.5	-	-
0.5 –0.75	-2%	1%
0.75-1	-3%	2%
1-1.25	-4%	3%
1.25 – 1.5	-5%	4%
More than 1.5	-6%	5%

(!) *For example:*

A reduction from a 1.25–1.5 to a 0.5–0.75 average herd BCS change in early lactation would have the following beneficial effects:
- 6-week in-calf rate: 3% increase (from -5% to a -2% decrease)
- Not-in-calf rate: 3% decrease (from 4% to a 1% increase)

Your figures (using Table 1):

A reduction from an actual herd BCS of ……….. (C) to a desired ………… (D) average herd BCS loss in early lactation would have the following beneficial effects:

- 6-week in-calf rate: (from …….. % to a ……..% decrease) = ………. % increase **(F)**

- Not-in-calf rate: (from …….. % to a ……..% increase) = ………. % decrease **(G)**

These are your 6-week in-calf rate and not-in-calf rate gaps.

What are the likely annual economic benefits of closing the body condition loss in early lactation gaps?

1. What is closing your *6-week in-calf rate* 'gap' worth?

Gap (F) ……….   X   *$4   X   ………. cows in   = $ ……..……. **(H)**

*This economic multiplier was estimated through modelling assuming a $5.50 per Kg MS payout. The financial consequences of empty cows were excluded from this estimate.

2. What is closing your *not-in-calf rate* 'gap' worth?

Gap (G) ……….   X   **$10   X   ………. cows in herd = $ ……..……. **(I)**

**This economic multiplier assumes a $1000 value differential between an empty and in-calf cow.

3. What is closing the condition loss in early lactation gap worth overall?

Total operating profit   (H) + (I)   = $ ……..……… per year

This $ value will allow you to assess the profitability of any decisions made to invest to reduce BCS loss in early lactation due to beneficial fertility effects. Conversely a $ figure can be calculated to indicate the effects of decisions that are made that will adversely affect BCS loss in early lactation and subsequent fertility.

Step 4) Develop & implement a strategy

Work closely with your adviser to develop your own farm strategy to achieve these benefits.

Key issues to consider:

Response to strategies implemented to reduce excessive body condition loss in early lactation include variables such as:

- Current lactation status both in Days in Milk (DIM) and current level of milk production. These will influence how much of the additional dietary energy inputs above maintenance the cow partitions into more milk vs. body condition;
    - cows do not partition nutrients to BCS replenishment until at least 6 weeks after calving.

- The feeds available. Different feeds can result in different responses to energy input;
    - feed availability may limit the level of energy that can be supplied to the cow efficiently.

- Whether remedial action is applied to the whole herd or just the thin cows in the herd (via physically separating the thin cows or by using an electronically controlled individual cow feeding system).

Professional advice is recommended.

For information on minimising body condition loss in early lactation, see *The InCalf Book*, page 83.

For information on using quick nutrition checks that may alert you to nutritional problems in your herd, see *The InCalf Book*, pages 84-89.

(Pre-mating)
BODY CONDITION SCORING RECORDING SHEET - alternatively, enter information in the BCS tracker App

incalf DairyNZ

Enter individual tag numbers or tally marks in boxes   Cow/heifer group: _____   Date: ___/___/___

	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
1										
2										
3										
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totals

No. of cows											(A)
Total BCS											(B)
% of sample No. of cows / total cows (A) x 100	total % under 4.0										

Now refer to Step 2) of this BCS tool to identify the gap in your herd's early lactation body condition loss, using the Average condition score from this tool compared to that recorded on the pre-calving BCS Recording Sheet

Average BCS (B/A)