



# Non-cycling Tool

## What is this tool?

This is a **gap calculator** tool. It assesses the likely impact of your non-cycling rate on your herd's overall reproductive performance.

## Why use this tool?

The prevalence of non-cycling has a major impact on herd reproductive performance. This tool enables you to assess your overall non-cycling rate to identify the gap between actual and desired performance. The tool then enables you to assess the \$ benefits of improved herd reproduction performance from closing the gap.

**(!)** The purpose of this tool is not to assess whether non-cyclers should be treated or untreated; which is a separate issue. Rather, the purpose of this tool is to assess the benefits of reducing the prevalence of non-cycling cows in a herd that does treat non-cyclers.

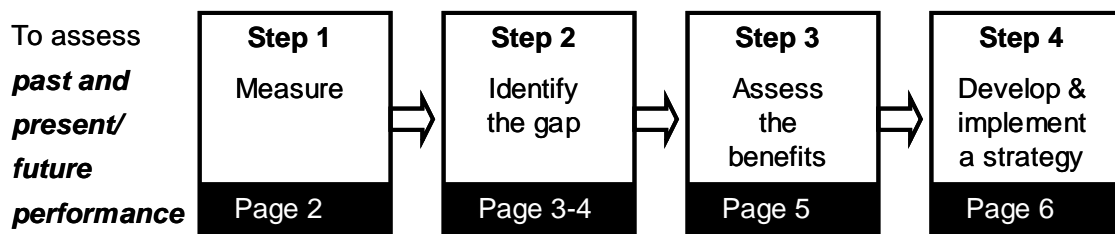
For more information, see **The InCalf Book**, Chapter 17: "Maximising pre-mating cycling" (Page 143) and your **InCalf Fertility Focus report**.




See pages 143-152

## How to use this tool

Work through this tool's four basic steps:

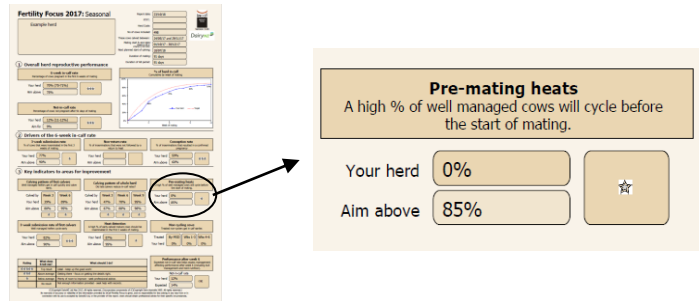


When you see this symbol  you need to fill in some information or do some calculations before continuing.

## Step 1) Measure

**OPTION 1** (preferred): If you enter your pre-mating heats into the database then the *InCalf Fertility Focus report* this will calculate the % cows having pre-mating heats.

Here's the place to look on your *InCalf Fertility Focus report*:



- Calculate your non-cycling rate:

$$100 - \dots\dots\dots \% (A) = \dots\dots\dots \% (B)$$

% cows with pre-mating heat                      Non-cycling rate  
(from your *Fertility Focus report*)

**E.g.** If the *Fertility Focus report* shows that 69% of cows had a pre-mating heat then;  
100 - 69 = 31% non-cycling rate (B)

**Now go to Step 2) on page 3**

**OPTION 2** If your pre-mating heats are not reported in your *InCalf Fertility Focus report*, you can still calculate it manually if you know the number of non-cyclers at either 10 days before the Mating Start Date (MSD) or before MSD. You will need a calculator.

- Calculate your cycling rate (A)

$$\dots\dots\dots \div \dots\dots\dots \times 100 = \dots\dots\dots \% (A)$$

No. cows with a pre-mating heat                      Total no. cows in the herd (include very late calvers, but exclude deaths/culls before mating started)                      % cows with pre-mating heat (i.e. cycling rate)

**E.g.** If there were 207 cows with a pre-mating heat among a herd of 300 cows (including very late calvers, and excluding deaths/culls before mating started) then; 207 ÷ 300 x 100 = 69% cycling rate (A)

- Calculate your non-cycling rate (B)

$$100 - \dots\dots\dots \% (A) = \dots\dots\dots \% (B)$$

% cows with pre-mating heat                      Non-cycling rate

**E.g.** If 69% of cows had a pre-mating heat (A) then; 100 - 69 = 31% non-cycling rate (B)

**Now go to Step 2) on page 3**

## Step 2) Identify the gap

### **Part 1: Estimate the likely associated effect of closing the non-cycling rate gap on the herd's overall reproductive performance.**

Use the “look-up” Table 1 (below) to assess the benefit of closing the non-cycling rate gap on the herd's 6-week in-calf rate and not-in-calf rate. See over page for an example.

- Circle your actual non-cycling rate (i.e. B) in Table 1. The corresponding values are the expected % change in 6-week in-calf rate and % change in not-in-calf rate, compared to a herd where all cows have calved and are cycling before mating starts.
- Then, circle the values in the chart below that correspond to the desired non-cycling rate (i.e. C).

**Table 1: Estimated impact of non-cycling rates on the herd's 6-week in-calf rate.**

Non-cycling rate (%)	6-week in-calf rate (%)	Not-in-calf rate (%)
0	0	0
2	0	0
4	-1	0
6	-1	1
8	-2	1
10	-3	2
12	-4	2
14	-5	3
16	-5	3
18	-6	3
20	-6	4
22	-7	4
24	-7	5
26	-8	5
28	-8	5
30	-9	6
32	-9	6
34	-10	6
36	-10	6
38	-11	7
40	-11	7
42	-12	7
44	-12	7
46	-13	8
48	-13	8
50	-14	8

**(!)** In Table 1 (above) relationships linking the impact of non-cycling rate on the 6-week in-calf rate and not-in-calf rate were generated from data in the NZ Monitoring Fertility Report 2003<sup>(1)</sup>, and use of the DairyNZ Whole Farm Model<sup>(2)</sup>. The table accounts for:

<sup>(1)</sup> The 6-week in-calf rate and not-in-calf rate of treated non-cyclers was 16% less and 6% greater, respectively, compared to cycling herd mates.

<sup>(2)</sup> Modelling showed that increasing non-cycling rate through incremental increases in the postpartum anoestrous interval is also associated with reduced reproductive performance in cycling cows.

- Use Table 2 below to calculate the potential increase in 6-week in-calf rate (D) and decrease in not-in-calf rate (E) from closing the non-cycling gap.



**Table 2: Potential improvement in your herds 6-week in-calf rate**

	6-week in-calf rate figure (from Table 1)	Not-in-calf rate figure (from Table 1)
<i>Actual</i> non-cycling rate ..... % (B)	.....%	.....%
<i>Desired</i> non-cycling rate..... % (C)	.....%	.....%
Difference ..... %	.....% (D)	.....% (E)

**For example:**

Let's assume that your non-cycling rate was 31% at MSD. The current impact on 6-week is -9% (See circled '-9%' box in the chart below) and the current impact on not-in-calf rate is +6%; compared to a situation where all cows were cycling before the Mating Start Date. *What would be the improvement in overall reproductive performance if you achieved a more desirable non-cycling rate at MSD of say 14%?*

Non-cycling rate (%)	6-week in-calf rate (%)	Not-in-calf rate (%)
0	0	0
2	0	0
4	-1	0
6	-1	1
8	-2	1
10	-3	2
12	-4	2
14	-5	3
16	-5	3
18	-6	3
20	-6	4
22	-7	4
24	-7	5
26	-8	5
28	-8	5
30	-9	6
32	-9	6
34	-10	6
36	-10	6
38	-11	7
40	-11	7
42	-12	7
44	-12	7
46	-13	8
48	-13	8
50	-14	8

The impact of a 14% non-cycling rate is - 5% on 6-week in-calf rate and +3% on not-in-calf rate; which represents a 4% increase in 6-week in-calf rate and a 3% reduction in the not-in-calf rate, compared to the 31% non-cycling rate.

## Step 3) Assess the benefits

### **Determine the likely economic benefits of improved herd reproductive performance from closing the non-cycling rate gap**

Use Table 3 below to estimate the likely economic benefits of reducing the non-cycling rate.

#### **Table 3: What are the likely annual economic benefits of closing the non-cycling rate gap?**

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



Gap (D)..... X \*\$4 X ..... cows in herd = \$ ..... (F)

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

**(!)** The \*\$4 per 1% increase in 6-week in-calf rate per cow in the herd multiplier is inclusive of cost-savings associated with reduced non-cycler treatments. Do not add additional cost-savings if less treatments are used in your case, as this would amount to double counting an economic benefit.

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

Gap (E) ..... X \*\*\$10 X ..... cows in herd = \$ ..... (G)

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

##### **3. What is closing the non-cycling rate gap worth overall?**

**Total operating profit** (F) + (G) = \$ ..... per year

## Step 4) Develop & implement a strategy

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

### 1. Strategies to minimise the prevalence of non-cycling cows

Strategies to minimise the non-cycling rate are those that recognise and mitigate for the risk factors that cause a non-cycling problem (e.g. more than 15% of the herd non-cycling).

The key risk factors are:

- *age* - heifers take longer to cycle after calving;
- *breed* – Holstein-Friesian's take longer to start cycling than Jerseys;
- *BCS at calving* - animals that calve below their target body condition score will take longer to cycle after calving;
- *prolonged BCS loss after calving* – non-cycling animals that continue to lose condition into mating are more likely to remain as non-cyclers; and
- *late calving* - late calvers have insufficient time to resume cycling before mating begins.



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Strategies to avoid a non-cycling problem include:

- Ensure that yearling heifers achieve 'age-for-liveweight' growth targets to maximise their in-calf rate as yearlings and achieve BCS 5.5 at first calving.
- Adherence to drying-off decision rules and dry-cow feeding management to achieve calving BCS targets for second calvers (5.5) and older cows (5.0).
- Consideration of differential mob management (e.g. extra feeding and/or once-daily milking) for 'thin' animals that continue to lose body condition in early lactation.
- Avoid or minimise the proportion of late and very late calving cows in the herd.



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### 2. Costs of closing the non-cycling rate gap

Ensure you consider the costs of closing the non-cycling rate gap, before a final decision is made. The strategies noted above for avoiding a non-cycling problem (e.g. more than 15% of the herd non-cycling at MSD) might require additional feeding, earlier drying-off dates, selective culling and/or reduced milksolids production in early lactation for some cows. These costs need to be considered in light of the expected gains associated with reducing the prevalence of non-cycling animals.

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