



Bull Management Practices Tool

What is this tool?

This is a **risk assessment** tool. It assesses bull management practices on the farm and the risk that they may reduce herd reproductive performance.

Why use this tool?

Bull management can have a significant impact on herd reproductive performance by contributing to higher empty rates. Ensuring good bull performance requires management of three key areas: selection (and rearing) of bulls, day-to-day management of working bulls and bull power.

This tool enables you to compare your farm's bull management with best practice, identify your risk level and assess the potential \$ benefits of improved herd reproductive performance if this can be achieved through changes to bull management practices.

For more information, see *The InCalf Book*, Chapter 13: 'Bull management' and the *InCalf Fertility Focus report*.

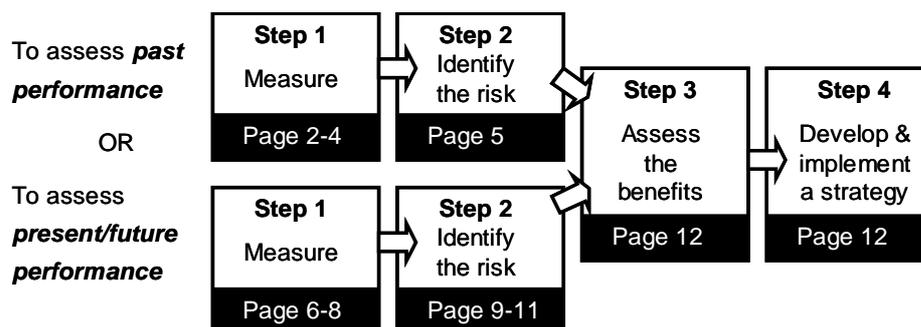


See pages 121-130

How to use this tool

First, choose whether you want to assess **past performance** (from the results of a previous mating period) or **present/future performance** (by assessing the risks in a current or upcoming mating period).

Then 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.

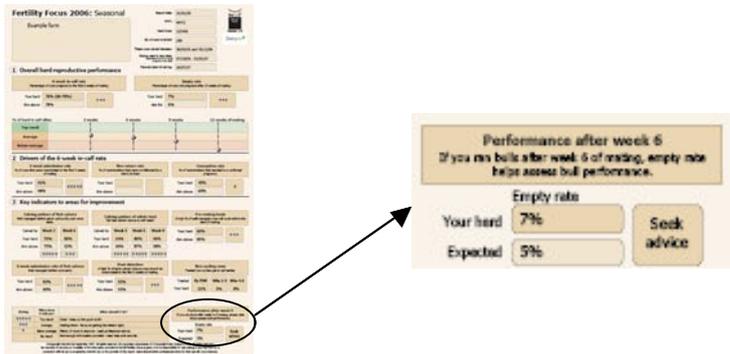
Proceed to page 2 or page 6 

Assess *past performance*

Step 1) Measure

OPTION 1 (preferred): If you do have an *InCalf Fertility Focus report* this will automatically calculate your herd's *expected* empty rate given your 6-week in-calf rate and length of mating. It allows you to compare this expected empty rate with what *actually* happened in your herd.

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



Now calculate the difference between the two figures:

Your herd's actual empty rate (C)	Your <i>expected</i> empty rate (G)	Difference (i.e. C – G = H)
.....%	-%	=% (H)

This difference indicates the degree to which performance after week 6 of mating is better or worse than expected. If you ran bulls after week 6 of mating, a worse than expected empty rate could be due to incorrect bull management.

Go to page 5 to identify your risk level and what you should do.



OPTION 2 If you do not have an *InCalf Fertility Focus report*, you can still calculate your expected and actual empty rates based on the 6-week in-calf rate and make this comparison. Note, however, that reproductive performance results obtained using these methods may differ from those obtained in an *InCalf Fertility Focus report* and be slightly less accurate.

Part 1: Calculate your herd’s actual empty rate

- Select all cows that have calved in the most recent calving period. This is the total number of cows.
 - Include all cows calved before and during the mating period.
 - Exclude death/culls before mating started and all cows that you did not intend to have mated.
- From the results of pregnancy testing, count how many of these did not become pregnant. This is the number of cows not pregnant.



$$\begin{array}{l} \dots\dots\dots(B) \\ \text{No. of cows not} \\ \text{pregnant} \end{array} \div \begin{array}{l} \dots\dots\dots(A) \\ \text{Total no. of cows} \end{array} \times 100 = \begin{array}{l} \dots\dots\dots\% (C) \\ \text{Empty rate} \end{array}$$

(See *The InCalf Book* Appendix 6, page 188, for full explanation).



See page 188

Part 2: Calculate your herd’s expected empty rate

- If you have early pregnancy testing results, count how many of these became pregnant in the first 6 weeks of mating.



$$\begin{array}{l} \dots\dots\dots(D) \\ \text{No. of cows} \\ \text{pregnant in first 6} \\ \text{weeks mating} \end{array} \div \begin{array}{l} \dots\dots\dots(A) \\ \text{Total no. of cows} \end{array} \times 100 = \begin{array}{l} \dots\dots\dots\% (E) \\ \text{6-week in-calf rate} \end{array}$$

Note: If you did not pregnancy test early and therefore can’t calculate an actual 6-week in-calf rate figure (E), select a typical value such as 65% and enter this here

.....% (F)



(See *The InCalf Book* Appendix 6, page 188, for full explanation).

See page 188

Use Table 1, below, (from *The InCalf Book*, page 127) to determine the *expected* empty rate based on the 6-week in-calf rate of your herd calculated for the past year (E) or the typical value (F) and your total mating period (AB period plus bull mating period).



See page 127

Table 1: Expected empty rate (G), given 6-week in-calf rate (E) or (F) and length of mating period.

6-week in-calf rate	Total weeks mating (AB period plus bull mating period)		
	9	12	15
40%	28%	16%	10%
50%	24%	14%	8%
60%	19%	11%	6%
70%	14%	8%	5%
80%	9%	5%	5%

Expected empty rate = % **(G)** 

Part 3: Compare your herd's actual and expected empty rates and calculate the difference between the two figures:

Your herd's actual empty rate (C)	Your <i>expected</i> empty rate (G)	Difference (i.e. C – G = H)
.....%	-%	=% (H)

Go to page 5 to identify your risk level and what you should do. 

Step 2) Identify the risk

Use the information below to assess your risk level and what you should do.



See page 127

Difference in empty rate (H)	Risk assessment	What you should do
Less than 0	Low: There is only a low chance that bull management increased the empty rate last year.	Review bull management practices to ensure minimum risk is maintained.
0-3%	Moderate: There is a moderate chance that bull management increased the empty rate last year.	Review bull management practices ready for the next mating period.
More than 3%	High: There is a strong chance that bull management increased the empty rate last year.	<u>Urgently</u> review bull management practices as a high priority prior to the next mating period. You may need to consult an adviser to further examine the problem.

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



Note: This indicates an assessment of the risk only. While poor bull performance is a likely cause, there are also other possible causes of a higher-than-expected empty rate.

Now go to page 12



Assess present/future performance



Step 1) Measure

See page 122-123

This requires a self-assessment of your risk in three key areas: bull selection (and rearing if applicable); day-to-day management of working bulls; and bull power.

1. Bull selection (and rearing if applicable)

Work through statements 1-12 in Table 2, below, to assign yourself a total risk score for this area.

Table 2: Risks in bull selection.

Your herd		Score	Your risk score
1	The bull team is young (all are between 15 months and 4 years of age)	0	
	Some bulls are over 4 years of age	2	
	All bulls are over 4 years of age	5	
2	My bull team has one or two age groups	0	
	The bull team has three or more age groups	2	
3	Has the bull team been running together for several months before they start mating, i.e. have they had a chance to work out their social order?	Yes	0
		No	5
4	Most bulls are about equal in size to the mature cows	0	
	Most bulls are less than two thirds the size of the mature cows	4	
	Most bulls are more than one third larger than the mature cows	4	
5	Young bulls are well grown when they start work (achieve 50% of mature bodyweight by 14-15 months and 85% by 2 years of age)	0	
	Young bulls are not well grown when they start work	5	
6	Bulls have the same drenching and vaccination programme as the heifers	0	
	Bulls are not drenched or vaccinated like the heifers	5	
7	Bulls are routinely vaccinated for leptospirosis	0	
	Bulls are not routinely vaccinated for leptospirosis	5	
8	When purchasing or leasing bulls, I always insist that they are verified free of TB, BVD, neospora, Johne's and EBL	0	
	I purchase or lease bulls without always knowing whether they are verified free of TB, BVD, neospora, Johne's and EBL	5	
9	I only ever purchase virgin bulls	0	
	I purchase virgin and experienced bulls	5	
	I only use bulls I have reared myself	0	
10	Prior to the breeding season, I inspect all my bulls for general health and soundness at least weekly	0	
	Prior to the breeding season, I inspect all my bulls for general health and soundness less than once a week	5	
11	My bulls always remain on my property and bulls from neighbouring farms / elsewhere never get access to my herd	0	
	I sometimes 'share' my bulls intentionally or unintentionally with neighbouring farms and / or bulls from neighbouring farms / elsewhere sometimes get access to my herd	5	
12	Prior to the breeding season have all bulls been examined?		
	Yes, all bulls had a thorough physical and semen examination	0	
	Yes, all bulls had a basic physical examination of their reproductive tract	1	
	No, not all bulls had at least a basic physical examination	2	
Total risk score		(A)
<i>The ideal score is 0. Scores over 0 for any response suggest action may be required.</i>			

2. Day-to-day management of working bulls

Work through statements 1-10 in Table 3, below, to assign yourself a total risk score for this area.



See page 124-125

Table 3: Risks in day-to-day management of working bulls.

Your herd		Score	Your risk score
1	I have at least two bulls running with the herd at any one time during the natural mating period I sometimes have only one bull running with the herd at any one time during the natural mating period	0 5	
2	All my bulls are quiet and not aggressive towards each other and handlers I have one or more bulls that have shown aggression to each other or are difficult to manage in the yards and paddock	0 5	
3	During natural mating periods: I rest all bulls for several consecutive days I rest all bulls for odd single days I don't rest all bulls	0 2 2	
4	Most bulls are in moderate body condition Many bulls are thinner than ideal body condition Many bulls are over-fat	0 3 3	
5	I regularly observe the bulls to check that they are capable of performing service and remove any bulls which are incapable of service I regularly observe the bulls to check their ability to perform service but don't always remove any bulls that are incapable of service I do not regularly observe the bulls to ensure their ability to perform service	0 3 3	
6	In the 2 months before joining my bulls have regular access to shade and water Bulls have no shade before and during joining – hot climates – temperate climates Extra bulls are used because prejoining and joining often coincides with hot weather	0 5 3 0	
7	I have not had recent problems with lameness in bulls I have had recent problems with lameness in bulls	0 5	
8	All bulls are monitored for lameness daily All bulls are not monitored for lameness daily	0 5	
9	A lame bull is replaced immediately A lame bull is replaced only if he does not improve within a few days A lame bull is left with the herd but another bull is added as a back up A lame bull is left with the herd and another bull is not added as a back up	0 3 2 3	
10	Select the responses that apply to your herd: Bulls are allowed to walk in concrete yards Bulls walk for considerable distances on stony tracks Bulls are occasionally chased by dogs Bulls are exposed to some other risk factor for lameness	5 2 2 2	
Total risk score		(B)
<i>The ideal score is 0. Scores over 0 for any response suggest action may be required.</i>			

3. Bull power

Part 1: Estimate the minimum number of bulls required (C) to run with the herd at any one time

Use Table 4, below, from *The InCalf Book*, Chapter 13, page 129, to estimate the minimum number of bulls required to run with your herd at any one time, based on your herd size and the likely % of your herd being pregnant to AB.

Note: If you are not sure how many cows are already in calf when the bulls are joined, consult with an adviser or estimate at a low percentage of 40-50%.

No. cows in milking herd	Likely % of herd pregnant at start of bull mating			
	Very low (less than 40%)	Low (40–50%)	Moderate (50–70%)	High (more than 70%)
100	2-4	2-3	2	2
200	5-6	4-5	3	2
300	7-8	6	4-5	3
400	9-11	7-8	5-6	3-4
500	12-13	9-10	7	4-5
600	14-15	11-12	8-9	5-6

Write minimum number of bulls required (InCalf recommendation): (C) 

Part 2: Calculate the percentage of required bull power actually run (E)

Compare the recommended number of bulls required (C from Part 1 above) to the actual number running or intending to run with your herd at any one time.



Actual no. of bulls running with/intending to run with your herd at any one time (D)	Minimum no. of bulls required to run with the herd at any one time (C) from Part 1	Percentage of required bull power actually run (E)
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$$\text{.....} \div \text{.....} \times 100 = \text{.....} \% \text{ (E)}$$

Step 2) Identify the risk

Part 1: Identify the risks in each of the three key areas

1. Bull selection (and rearing if applicable)

Your major areas of risk (those for which you didn't get a 0 score on page 6) are:
(List here)

1. _____

2. _____

3. _____

4. _____



Your total risk score (A) from page 6 was:

Risk assessment based on current bull selection/rearing practice.

Risk Score (A)	Risk assessment	What you should do
Less than 10	Low: Bull selection/rearing practices do not represent a significant risk.	No changes necessary.
10-20	Moderate: There is a moderate chance that bull selection/rearing practices may place reproductive performance at risk.	Review bull selection/rearing prior to the next bull mating period.
More than 20	High: There is a strong chance that bull selection/rearing may be insufficient to ensure good reproductive performance.	<u>Urgently</u> review bull selection/rearing prior to the next bull mating period.

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



2. Day-to-day management of working bulls

Your major areas of risk (those for which you didn't get a 0 score on page 7) are:

(List here) 

1. _____
2. _____
3. _____
4. _____

Your total risk score (B) from page 7 was:

Risk assessment based on current or planned day-to-day management of working bulls.

Risk Score (A)	Risk assessment	What you should do
Less than 10	Low: Day-to-day management of working bulls does not represent a significant risk.	No changes necessary.
10-20	Moderate: There is a moderate chance that day-to-day management of working bulls may place reproductive performance at risk.	Review day-to-day management of working bulls prior to the next bull mating period.
More than 20	High: There is a strong chance that day-to-day management of working bulls may be insufficient to ensure good reproductive performance.	<u>Urgently</u> review day-to-day management of working bulls prior to the next bull mating period.

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

3. Bull power

Assign yourself a risk score for bull power (F) of 0, 15 or 30, using value (E) from page 8 and the table below.

Risk assessment based on % of required bull power actually run.

% of required bull power (E)	Risk Score (F)	Risk assessment	What you should do
100% or more	0	Low: Actual bull power is greater than the minimum recommended.	No changes necessary.
80-100%	15	Moderate: There is a moderate chance that bull power may be insufficient to ensure good reproductive performance.	Review bull power for the rest of the current mating or prior to the next mating period.
Less than 80%	30	High: There is a strong chance that bull power may be insufficient to ensure good reproductive performance.	<u>Urgently</u> review bull power for the rest of the current mating and prioritise a review prior to the next mating period.
Total risk score: The ideal score is 0. Scores of 15 or 30 suggest action is required= (F)			

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

You have now completed risk assessments for the three key areas of current or planned bull management.

Part 2: Identify your overall risk

Add your total risk scores for each key area of bull management from Part 1, pages 9 to 10, to calculate your Overall risk score:

Key area of bull management	Your total risk score
1. Bull selection (A) from page 6
2. Day-to-day bull management	+ (B) from page 7
3. Bull power	+ (F) from page 10
Overall risk score	= (G)

- Now assess your overall risk level using this Overall risk score.

Overall risk assessment based on all three key areas of bull management:

Overall Risk Score (G)	Risk assessment	What you should do
Less than 25	Low: There is a low chance that bull management will increase the empty rate in the coming year.	Review bull management practices to ensure minimum risk is maintained.
25-50	Moderate: There is a moderate chance that bull management will increase the empty rate in the coming year.	Review bull management practices ready for the next mating period.
More than 50	High: There is a strong chance that bull management will increase the empty rate in the coming year.	Urgently review bull management practices as a high priority prior to the next mating period. You may need to consult an adviser to further examine the problem.

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

If your overall risk score is high but herd reproductive performance is still acceptable, this means that you are performing well in many other aspects of reproductive management. However, you should remain alert for any lapses in reproductive performance. Monitor herd reproductive performance with rectal pregnancy testing.

(!) Driving with a bald tyre does not necessarily mean you will get a puncture, but the risk is greater than with a new tyre. In the same way, this tool does not predict reproductive outcomes. It is simply a risk assessment tool designed to give you an idea of the potential impact that key areas of bull management practices might be having on your farm, and motivate you to seek specialist advice if you are at risk.

Step 3) Assess the benefits

Now assess the potential benefits of improving your herd's reproductive performance if this can be achieved through changes in bull management practices. These can be estimated by considering the likely \$ results from changes in reproductive performance.

Changes in bull mating practices offer the potential to decrease the empty rate. Economic (\$) benefits can then be gained.

Every 1% increase in the 6-week in-calf rate is valued at \$4 per cow in the herd.

Every 1% decrease in the empty rate is valued at \$10 per cow in the herd.

Step 4) Develop & implement a strategy

If low risk identified in Step 2)

If Step 2) of this tool (page 5 or pages 9-11) has identified a low risk that bull management practices reduced your past or present herd reproductive performance, review bull management practices to ensure minimum risk is maintained.

Note: If you do not have a high risk from your bull management but your empty rate is too high, you need to use other InCalf tools to assess other management areas.

If moderate or high risk identified in Step 2)

If Step 2) of this tool (page 5 or pages 9-11) has identified a moderate or high risk that bull management practices reduced your past or present herd reproductive performance, and Step 3) (above) indicates significant potential benefits if improvements can be achieved through changes in bull management practices, work closely with your adviser to develop your own personal farm strategy to improve your bull management practices.

Refer to *The InCalf Book*, Chapter 13, starting on page 121, for further information on bull management practices.



See pages 121-130

Remember that correctly assessing bull management from reproductive information requires some expert interpretation and is best undertaken by an adviser experienced in this field.

No warranty of accuracy or reliability of the information provided by this InCalf Herd Assessment Pack tool is given, and no responsibility for loss arising in any way from or in connection with its use is accepted by DairyNZ or Dairy Australia. Users should obtain specific professional advice for their specific circumstances.

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