Dairy Australia
InCalf
Your Levy at Work

Herd Assessment Pack

Heat detection tool

Seasonal/Split calving herds

What is this tool?

This is a **risk assessment** tool. It assesses heat detection and the risk that missed heats may reduce herd reproductive performance.

Why use this tool?

In a seasonal or split calving herd, a useful indicator of heat detection is the % of mature cows that calved early in the calving period that were subsequently inseminated in the first three weeks of the mating period. This is because these cows are the most likely to be cycling.

This tool uses this indicator to enable you to identify the risk of missed heats in your herd and assess the potential $ benefits of improved herd reproductive performance if this can be achieved by lowering your risk of missed heats.

For more information, see *The InCalf Book*, Section C: Heat detection, and the *InCalf Fertility Focus Report*.

How to use this tool

First, choose whether you want to assess past performance (the risk of missed heats during a previous AI period) or present/future performance (the risk of missed heats during the current AI period).

Then work through this tool's four basic steps:

To assess past performance

Step 1 Measure → **Page 2–3**

→ **Step 2** Identify the risk → **Page 3**

OR

To assess present/future performance

Step 1 Measure → **Page 4**

→ **Step 2** Identify the risk → **Page 4**

→ **Step 3** Assess the benefits → **Pages 5**

→ **Step 4** Develop & implement a strategy → **Page 6**

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

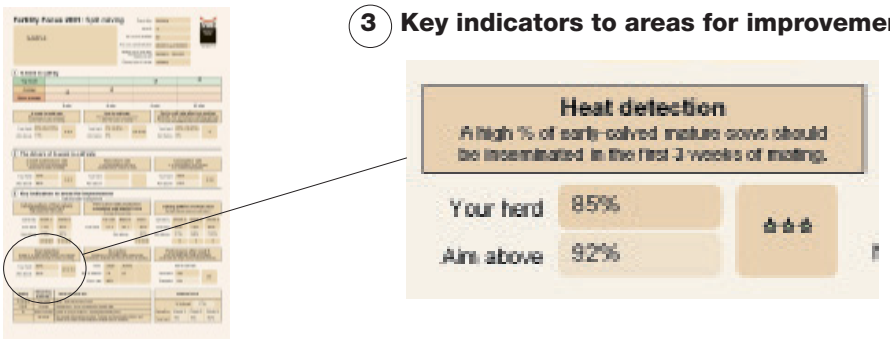
Assess past performance

Step 1: Measure

Option 1: (preferred) If you have an *InCalf Fertility Focus Report*

If you do have an *InCalf Fertility Focus Report* assess your Star rating for Heat Detection.

Here's the place to look on your *InCalf Fertility Focus Report (See page 79):*



Go to Table 1 on page 3 to identify your risk level and what you should do.

Option 2: If you do not have an *InCalf Fertility Focus Report*

If you do not have an *InCalf Fertility Focus Report*, you can still calculate your herd's 3-week submission rate for early-calved, mature cows and make this comparison. You will need birth dates, calving dates and insemination dates.

Part 1: Calculate the number of early-calved, mature cows that you intended to mate

- Obtain a list of all cows that were in the mating group at the start of the mating period. This may be the whole herd in a seasonal herd or a group of cows in a split-calving herd. This list should include the age of the cows and their calving date.
- Put a line through and exclude all the cows that are under 4 years of age.
- Note the day that mating started: _____

  Subtract 6 weeks (42 days): _____

  Put a line through and exclude all the cows that calved after this date.

  The cows remaining on this list are the early-calved, mature cows.

The actual VWP for your herd was/is _____ **days (A).**

Part 2: Using your mating records (wall chart, docket book, pocket book or computer program), calculate the number of early-calved, mature cows actually inseminated in the first 3 weeks of the mating period

- Put a circle around each cow in this list that was inseminated in the first 3 weeks (21 days) of mating.
- Count the number of cows that have been circled

The number of early-calved, mature cows inseminated in the first 3 weeks of mating was: _____ **(B)**

Part 3: Calculate the early-calved, mature cows' 3-week submission rate

– Divide the number of cows that were mated (B) by the number of cows that were intended to be mated (A) to calculate the 3-week submission rate for these cows.

No. of cows mated		**(B)**	**x 100 =**		**% (C)**
No. of cows intended to be mated		**(A)**			**3-week submission rate for early-calved, mature cows**

Go to **Table 1 below** to assess 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.

Table 1: Heat detection risk assessment based on past performance.

% of early-calved mature cows inseminated in the first 3 weeks of mating	Risk assessment	What you should do
90% or more	Low: There is only a low chance that missed heats during the last AI mating period reduced herd reproductive performance.	No changes necessary.
85–89%	Moderate: There is a moderate chance that missed heats during the last AI mating period reduced herd reproductive performance.	Review heat detection practices ready for the next AI mating period.
Less than 85%	High: There is a strong chance that missed heats during the last AI mating period reduced herd reproductive performance by a substantial amount.	Urgently review heat detection practices prior to the next mating period. Unless you are confident your strategies to improve heat detection will be effective, consult an adviser.

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

Now go to **page 5** to assess the benefits.

Assess present/future performance

Step 1: Measure

Option 1: (preferred) If you have an *InCalf Fertility Focus Report*

If you can obtain an *InCalf Fertility Focus Report* immediately after 21 days of mating, this will automatically calculate your herd's present 3-week submission rate for early-calved, mature cows.

Go to Table 2 below to assess your risk level and what you should do.

Option 2: If you do not have an *InCalf Fertility Focus Report*

If you cannot obtain an *InCalf Fertility Focus Report*, you can still calculate your herd's 3-week submission rate for early-calved, mature cows and make this comparison. You will need birth dates, calving dates and insemination dates.

Use the same calculation steps as in 'Assess past performance', Option 2, pages 2–3. Then go to Table 2 below 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.

Table 2: Heat detection risk assessment based on present performance.

% of early-calved mature cows inseminated in the first 3 weeks of mating	Risk assessment	What you should do
90% or more	Low: There is only a low chance that missed heats reduced herd reproductive performance in the first 3 weeks of this AI mating period and may continue to for the rest of the mating period if heat detection practices are unchanged.	No changes necessary.
85–89%	Moderate: There is a moderate chance that missed heats have reduced herd reproductive performance in the first 3 weeks of this AI mating period and may continue to for the rest of the mating period if heat detection practices are unchanged.	Review heat detection practices for the rest of the current AI mating period in preparation for the next mating period.
Less than 85%	High: There is a strong chance that missed heats have reduced herd reproductive performance by a substantial amount in the first 3 weeks of this AI mating period and may continue to for the rest of the mating period, if heat detection practices are unchanged.	Urgently review heat detection practices as a high priority for the rest of the current mating period. Also review heat detection practices prior to the next mating period. Unless you are confident that your strategies to improve heat detection will be effective, consult an adviser.

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

Step 3: Assess the benefits*

Now assess the potential benefits of improving your herd's reproductive performance if this can be achieved by lowering your risk for missed heats. These can be estimated by considering the likely $ results from changes in reproductive performance.

Note that moving to optimal heat detection performance (as indicated by an improved submission rate in the early-calved, mature cows), continued for at least the first 6 weeks of mating, can increase the 6-week in-calf rate substantially, resulting in important benefits for herd profitability.

If an improvement in heat detection performance increases the 3-week Submission Rate by 10%, this is likely to increase the 6-week in-calf rate by 2–7%, depending on herd conception rates and whether the improved heat detection rate continues throughout weeks 4–6 of mating.

For seasonal calving herds:

If no calving induction is used:

- Every 1% increase in 6-week in-calf rate has a likely benefit of $400/100 cows/year.
- Every 1% decrease in not-in-calf rate has a likely benefit of $570/100 cows/year.

If early calving induction is used:

- Every 1% increase in 6-week in-calf rate has a likely benefit of $290/100 cows/year.
- Every 1% decrease in not-in-calf rate has a likely benefit of $550/100 cows/year.

Changes in heat detection generally have little effect on the not-in-calf rate where the AI period is followed by a bull mating period of 9 or more weeks. However, where the bull mating period is short or no bulls are used at all, changes in heat detection can also affect the not-in-calf rate.

For split calving herds:

Every 1% increase in 6-week in-calf rate has a likely benefit of $490/100 cows/year.

This combines the effects of changes in the 6-week in-calf rate and the 2-period not-in-calf rate. Where bulls are run with the herd for at least several weeks after the AI period or during the second mating period, the appropriate $ value will be less than this.

* Based on use of standard herd figures in the InCalf economic benefits models (2004).

Step 4: Develop & implement a strategy

If low risk identified in Step 2)

If Step 2) of this tool (page 3 or 4) has identified a low risk that missed heats during the AI mating period reduced your past or present herd reproductive performance, no changes are necessary.

If moderate or high risk identified in Step 2)

If Step 2) of this tool (page 3 or 4) has identified a moderate or high risk that missed heats during the AI mating period reduced your past or present herd reproductive performance, and Step 3) (page 5) indicates significant potential benefits if improvements can be achieved by lowering your risk for missed heats:

- Work closely with your adviser to develop your own personal farm strategy to improve your heat detection program.
- Use the InCalf Body condition at calving Tool, the InCalf Body condition loss in early lactation Tool, and the Individual cow health Tool. Consider consulting an appropriate adviser if these indicate a problem.

Apart from missed heats, another possible cause of a low 3-week submission rate in early-calved mature cows is a high rate of non-cycling cows. This may be due to nutritional factors such as low body condition at calving and/or excessive loss of body condition in early lactation, or other factors such as cow health problems.

Refer to *The InCalf Book*, Section C, starting on page 71, for further information on heat detection and strategies to improve your heat detection program.

Key issues to consider:

- Use of paddock observations and detection aids (See *The InCalf Book*, pages 79–80)
- Heat synchronisation (See *The InCalf Book*, page 89 and pages 186–189)
- Managing cows not detected on heat (See *The InCalf Book*, pages 90-93)

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