Assessing Heifer Performance Without Weight Data

This Infosheet covers:

• Using alternative measures, other than weight, to assess heifer growth including:
  • empty rates
  • height
  • calving pattern
  • submission rate
  • herd test data
  • percent of heifers entering second lactation

Key points

• Liveweights are the best measure of heifer performance; however other measures can be used when weight data are absent or to track the performance of heifers in their first lactation.
• If heifer performance is below the target, e.g. empty rates > 10 %, then heifer management should be analysed to identify any issues.

Alternative performance measures

In the absence of weight data, you can assess how well heifers have been reared and grown by reviewing other heifer performance indicators, they include:
• Empty rate after first mating.
• Heights compared with the herd.
• Calving pattern of first calvers.
• Submission rate of first calvers.
• Milk production compared with the mature herd.
• Number of heifers still in the herd at the end of the season as a percent of heifers that calved.

These measures are in the order that they could be used over the first three years of an animal’s life.

Farmer rule of thumb

At 22-24 months, heifers should be the same height as mature cows.
1. **Empty rate after first mating**

Ideally, less than 10 % of the heifer mob should be not-in-calf when pregnancy tested. When the empty rate is higher than 10 % there will be a financial loss and the genetic progress of the herd will be limited. If empty rates are greater than 10 %, review heifer feeding levels pre-puberty and heifer health. Also assess if enough bulls were used, and check their health and fertility.

2. **Height compared with the herd (once heifers return to the dairy farm)**

At the planned start of calving (PSC) heifers should be the same height as the mature cows. This measure is a simple “rule of thumb”, and an easy check. If heifers are shorter than the mature herd, review heifer management between weaning and 12 months (pre-puberty): growth post-puberty has been shown to have no influence on height.

3. **Calving pattern of first calvers (available from the Fertility Focus Report)**

Seventy-five percent of well-grown heifers should have calved by the end of the first three weeks after the PSC and 92 % by the end of week six after the PSC. If less than 65 % of heifers have calved by week three, and less than 85 % by week six after PSC, then review heifer mating management, feeding levels pre-puberty, and animal health.

NB. Fertility Focus Reports are available in herd software management programs from LIC or CRV, or through veterinary clinics that use the Infovet software programme.

4. **Submission rate of first calvers in the herd (available from the Fertility Focus Report)**

The three-week submission rate of first calvers should be 90 % or higher. There are several reasons why the submission rate of first calvers may be lower than the target, including low liveweight, delayed oestrus, or body condition is below target pre-calving. If the three-week submission rate for first calf heifers is lower than 90 %, then heifer rearing and post-calving management needs further review.

5. **Milk production data**

Industry guidelines indicate that well-grown heifers can produce 80–85% of the milk production\(^1\) of the mature herd, if the heifers and cows are a similar breed.

However, this measure should be ignored, or an allowance made, if heifers are milked less frequently than the mature herd e.g. once-a-day versus twice-a-day, or they walk a much longer distance to paddocks.

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6. **Percent of heifers entering second lactation**

At least 86% of well-grown heifers that have calved once, should get in calf again. For example, out of 90 first-calving heifers, 77 should return as pregnant rising three year olds.

First and second calvers should be the most fertile animals in the herd so they should not be over-represented in the herd empty. If over 15% of first and second calvers are empty, then heifer management should be reviewed.

Heifers may be empty because of animal health issues, such as mastitis or lameness, as well as fertility problems. Consult your veterinarian if these issues are occurring.

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**More information**

- For further information about reproductive measures refer to the DairyNZ InCalf book (https://www.dairynz.co.nz/animal/reproduction/incalf/) or consult with a trained InCalf advisor.
- More information about identifying and managing underperforming heifers is available from other documents in the Heifer Infosheet series.
- Information on heifer mastitis can be accessed from https://www.dairynz.co.nz/animal/cow-health/mastitis/calving/heifer-mastitis
- Information on lameness is available: https://www.dairynz.co.nz/animal/cow-health/lameness/

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**Definition**

**Planned Start of Calving (PSC)** - The first day that cows are due to start calving.