Setting Weight-for-Age Targets

This Infosheet covers:

• Setting heifer mob weight-for-age targets and individual animal minimum weight targets.

Key points

• The industry weight-for-age targets are 30% of mature liveweight at 6 months, 60% at 15 months and 90% at 22 months.
• The average weight of a heifer mob should meet the target weight-for-age, but individual heifer weights will fall on either side of this average.
• No more than 10% of a mob should be more than 10% behind their target weight-for-age.
• If an animal is below the minimum weight the reason(s) should be identified.

Steps to setting liveweight targets

Meeting heifer liveweight targets can improve farm productivity and profitability. Research trials have identified heifer liveweight targets that optimise reproduction and milk production.

There are four steps to heifer liveweight target setting (this Infosheet will focus on steps 2 and 3):

1. Select a mature liveweight for a group of heifers.
2. Set mob weight-for-age targets based on meeting a percentage of mature liveweight.
3. Set individual weight-for-age minimums.
4. Create an expected, or targeted, seasonal growth rate plan so that heifers achieve their target liveweights.

More information

• For more about why liveweight targets are useful, see Heifer Infosheet: Benefits of Heifer Liveweight Targets.
• For more about how heifer liveweight targets were set, see Heifer Infosheet: Science Behind Heifer Liveweight and Body Condition Score Targets.
• To find out how to set a target mature liveweight, see Heifer Infosheet: Selecting Mature Liveweights.
• To find out how to determine daily growth rates to meet target liveweights, see Heifer Infosheet: Creating a Growth Plan.
**Weight-for-age targets**

The industry weight-for-age targets identified through research are expressed as a percentage of mature liveweight. They are:

- 30 % at 6 months,
- 60 % at 15 months (start of first mating), and
- 90 % at 22 months (pre-calving).

These targets should be used for mobs. The goal is for the average weight of a mob to meet each target weight-for-age as this will indicate that they are on track for meeting the 22 month target. No more than 10 % of a mob should be more than 10 % behind their target weight-for-age. If the mob falls behind target then corrective action should be taken to increase heifer growth rates, the earlier the better.

If the average weight in a heifer mob is 5 - 15 % below the liveweight action is recommended for the whole group. If the mob’s weight is more than 15% behind target liveweight than urgent action is required to prevent a disastrous performance and preventing a breach of animal welfare standards.

Individual heifer weights will fall on either side of the weight-for-age target. A study of heifers of the same breed, grown on a research farm under the same management regime, found that individual animals varied in weight by +/- 15 % above and below the mob average at 22 months. The average mob weight met the target, but some healthy individuals were still 15 % lighter than their peers.

Breed average mature liveweights (based on 2016 national dairy herd statistics data), and their weight-for-age targets, are shown in Table 1 (below). The weight-for-age targets identified through research are highlighted. The other weights are guidelines extrapolated from the target weights to aid in assessing growth at weaning, and at other strategic points, such as the start or finish of grazing contracts.

<table>
<thead>
<tr>
<th>Mature weight</th>
<th>Age</th>
<th>Liveweight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 %</td>
<td>6 – 8 yrs</td>
<td>420 465 500 550 600</td>
</tr>
<tr>
<td>20 %</td>
<td>3 months</td>
<td>84 93 100 110 120</td>
</tr>
<tr>
<td>30 %</td>
<td>6 months</td>
<td>126 140 150 165 180</td>
</tr>
<tr>
<td>40 %</td>
<td>9 months</td>
<td>168 186 200 220 240</td>
</tr>
<tr>
<td>50 %</td>
<td>12 months</td>
<td>210 232 250 275 300</td>
</tr>
<tr>
<td>60 %</td>
<td>15 months</td>
<td>252 279 300 330 360</td>
</tr>
<tr>
<td>80 %</td>
<td>19 months</td>
<td>336 372 400 440 480</td>
</tr>
<tr>
<td>90 %</td>
<td>22 months</td>
<td>378 419 450 495 540</td>
</tr>
</tbody>
</table>

Weight-for-age targets can also be used when creating a heifer feed plan to ensure key liveweight targets are met at 15 and 22 months, and to match heifer demand with the farm’s feed supply.

Before heifers move properties the group should meet their target weight-for-age. The number of animals below target and/or the range around the target should be documented, particularly in contract grazing situations where the grazer is expected to achieve targets. If individual animals are significantly below target e.g. by 10 - 15%, then it may be best not to move them. Graziers should also establish rejection criteria to ensure that they only receive animals which are capable of reaching agreed targets. Alternatively, the grazing contract should state the

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1Heifer Rearing Tool. InCalf Herd Assessment Pack. Hamilton, New Zealand: DairyNZ, NZ 1.2
management expected for smaller and/or less well-grown animals, and the extra payment the grazier will receive as a consequence.

**FARMER VIEWPOINT**

Weighing with scales is so important. Scales help differentiate the bit you can’t see. Visually you can’t pick up a 5 to 10 kg difference when the animal is small but a scale can. Weighing has been a real eye opener for our grazier.

Dairy farmer, 265 cows, Palmerston North, Manawatu

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**More information**

- For more information regarding rejection criteria, see Heifer Infosheet: Shifting Heifers Off Farm.
- For help in identifying why a heifer mob average liveweight is below the target, see Heifer Infosheet: Causes of Low Heifer Growth.
- For help in pinpointing underperforming heifers, see Heifer Infosheet: Identifying Low Growth in Heifers.

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**Minimum weights**

Minimum weights are used as a guideline for assessing individual animals. They become important when setting a threshold for action for individuals within a mob, even if the mob is on track. According to industry recommendations the minimum weight should be set at around 10% below the mob weight-for-age target.

Minimum weights should not be interchanged with weight-for-age targets because this can cause:

1. An undergrown mob - if a minimum weight is used as a weight-for-age target.
2. An overgrown mob - if a weight-for-age target is used as a minimum weight.

Table 2 indicates the percentage of mature liveweight that the mob’s average liveweight should meet at different ages and, ideally, no more than 10% of the mob should be below the minimum percentage of mature liveweight.

**Table 2.** Mob and individual percentage of mature liveweight targets at different ages.

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>Percentage of mature liveweight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mob average</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>6*</td>
<td>30</td>
</tr>
<tr>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>15 (mating)*</td>
<td>60</td>
</tr>
<tr>
<td>22 (pre-calving)*</td>
<td>90</td>
</tr>
</tbody>
</table>

*Industry agreed weight-for-age targets.

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*Heifer Rearing Tool. InCalf Herd Assessment Pack. Hamilton, New Zealand: DairyNZ, NZ 1.2
If the stock owner is working with a grazier then the minimums should be agreed prior to the heifers moving properties.

McMeekan described a similar method of identifying underperforming animals back in 1954, and this concept remains relevant today (see Figure 1): “This type of graph will be familiar to every farmer [who has] reared...children under the Plunket system. The heavy middle line represents the weights...(that)...might be called ‘good economic growth’. This is the target which every farmer should hit. The shaded portion above this, to the top curve, represents ‘very good growth’ – a target which every careful farmer can hit if [they] want to; the shaded portion below the middle curve, to the lowest curve, represents ‘poor growth’, which a certain amount of trouble will definitely be experienced and below which is certainly unsafe to fall.”

Figure 1. ‘Ideal’ range of weights for identifying good, poor and average heifer growth.

When an animal is below the minimum weight the reason(s) should be identified. Although there may be a problem which needs addressing, such as a health issue, this will not always be the case. The weights of different breeds vary and there are also large variations within a breed. For this reason, a heifer’s liveweight breeding value (Lwt BV) can be an indicator when investigating an animal which appears to be performing poorly. It is particularly useful when assessing mixed breed lines. Lwt BVs can be found in a mob’s trait report.

If Lwt BVs are sourced through the LIC MINDA™ weights programme, be aware that the bar graph report allows for a -5% threshold below target before animals are identified as underweight. The quadrant graph, however, displays the current weight as any deviation from the target Lwt BV at an individual animal level.

If using herd weights or breed average weights to set targets tables, such Table 2, can be used.

Table 3. Mob weight-for-age target liveweights and minimum weights for different breeds, in kilograms.

<table>
<thead>
<tr>
<th>Age</th>
<th>Jersey</th>
<th>Jersey average for mob</th>
<th>Crossbred</th>
<th>Crossbred average for mob</th>
<th>Friesian</th>
<th>Friesian average for mob</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Month</td>
<td>77</td>
<td>85</td>
<td>84</td>
<td>93</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>6 Month</td>
<td>115</td>
<td>128</td>
<td>126</td>
<td>140</td>
<td>135</td>
<td>150</td>
</tr>
<tr>
<td>9 Month</td>
<td>153</td>
<td>170</td>
<td>167</td>
<td>186</td>
<td>180</td>
<td>200</td>
</tr>
<tr>
<td>12 Month</td>
<td>192</td>
<td>213</td>
<td>209</td>
<td>232</td>
<td>225</td>
<td>250</td>
</tr>
<tr>
<td>15 Month</td>
<td>230</td>
<td>255</td>
<td>251</td>
<td>279</td>
<td>270</td>
<td>300</td>
</tr>
<tr>
<td>22 Month</td>
<td>345</td>
<td>383</td>
<td>377</td>
<td>419</td>
<td>405</td>
<td>450</td>
</tr>
<tr>
<td>Mature</td>
<td>425</td>
<td></td>
<td>465</td>
<td></td>
<td>500</td>
<td></td>
</tr>
</tbody>
</table>
Before we weigh our animals we know what we’re targeting heifer weights; we take a benchmark figure to assess the heifer’s weights compared with the target weight so we can identify animals to draft out during weighing. You need to look at more than the mob average weight because it doesn’t indicate anything about the number of heifers below target weight or the percentage of the group that is below target. We use the MINDA weights™ quadrant graph to see if there is a shift in the number of individuals in each quadrant rather than focusing too closely on individual animals. If a number of individuals start to ‘slide’ to the bottom left hand side of the graph then we take action.

Dairy farmer, 850 cows, Leeston, Canterbury

No matter what we’ve done there is always a 100 kg difference between the top and bottom of the lines of heifers at the end of the contract (22 months of age).

Contract grazier, 720 heifers, Oamaru, North Otago

**Applying targets and minimums—an example**

**Background information**

- The mature liveweight target for a group of heifers is 500 kg.
- At 6 months old the target weight is 150 kg (30% of mature weight).
- Animals 135 kg or less are 10% or more below the target weight, and considered ‘light’.

**Actions**

- Evaluate ‘light’ animals individually to identify the reason(s) e.g. age, ill-thrift, or genetics.
- Take appropriate action, for example, separate and preferentially feed ‘light’ animals, treat illness, or cull.
- It is possible that these ‘light’ heifers are healthy, just small for their age, or small due to their genetics. If this is the case it is possible that no further action is required.
More information

- For more information regarding rejection criteria, see Heifer Infosheet: Shifting Heifers Off Farm.
- For more on working out growth rates required to reach weight-for-age targets, and budgeting heifers’ feed demand, see the DairyNZ Heifer Grazing Pricing Guideline Calculator (https://www.dairynz.co.nz/animal/heifers/economics/).
- For more on rumen development and when to wean heifers, see Heifer Infosheet: Weaning Replacement Heifers.
- For more on underweight heifers, see Heifer Infosheets: Younger and Lighter Calf Management, Identifying Underweight Heifers, and Causes for Low Heifer Growth.
- For more on Lwt BVs and trait reports, see Heifer Infosheet: Selecting Mature Liveweights.
- For tools to support the stock owner/grazier relationship, see the following:
  - Heifer Grazing Remedial Action Plan, to provide an agreed plan if heifers do not meet targets or minimum weights (https://www.dairynz.co.nz/media/4112106/heifer-grazing-remedial-action-plan.pdf).
- For more on managing heifer growth, see Chapter 8, The InCalf book, available from DairyNZ available from https://www.dairynz.co.nz/animal/reproduction/incalf/.