Raising dairy herd replacements from weaning to calving

R Bettenay

Western Australian Department of Agriculture

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RAISING DAIRY HERD REPLACEMENTS FROM WEANING TO CALVING
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RAISING DAIRY HERD REPLACEMENTS FROM WEANING TO CALVING

by R. Bettenay, Senior Adviser, Dairy Cattle Husbandry

The way heifer replacements are reared from weaning to calving can affect their ability to get in calf and to grow to a reasonable size. Under extreme conditions it can impair their lifetime yield.

Because the culling rate of cows from dairy herds is usually about 25 per cent, the farmer needs to keep up to 70 per cent of heifer calves born just to maintain herd size. As the herd size is usually increasing, even more of the heifer calves must be kept and there is little scope for culling heifer calves from poorer cows.

Use a proven sire

With so little opportunity to select heifers from the better cows, use of a good sire is the main way of genetically improving the herd. Artificial breeding gives the best opportunity for using a proven sire of the chosen breed.

A good sire to use is a highly-ranked young bull from one of the larger bull proving centres. If heifers are not being inseminated proven sires should be used over all cows in the herd so that all replacement heifers can be daughters of proven sires. If it is possible to inseminate heifers, a selection of the poorer cows can be mated to a beef bull or any young bull kept for the purpose, and the daughters not retained for dairying.

Rearing from birth to weaning

Methods of rearing from birth to weaning are discussed in Department of Agriculture Bulletin 3854 “Calf raising”.

Calves should be weaned at about eight weeks old, although the actual age can vary several weeks either side depending on growth of the particular calf, cost of milk and liquid replacers, quality of pasture, hay and dry concentrates available and the desired growth rate.

Age at calving

Heifers should calve at 24 months old. This is particularly important in seasonally-calved herds where heifers which do not calve at close to 24 months must be held over for an extra 12 months.

Age at first calving is less important on market milk farms where cows calve throughout the year and where heifers which are not big enough to mate at 15 months can be mated a couple of months later. On market milk farms other considerations may determine when heifers are mated. For example, many market milk farmers bring heifers into production about February so they are milking when it is most difficult to meet the 8.5 per cent legal minimum for solids-not-fat in market milk.
This is a good practice since heifers have more SNF in the milk than older cows.

If the productivity of cows is compared up to a fixed age, younger calving results in higher production. However, if the cows are compared over a given number of lactations calving at an older age results in higher production. Table 1 gives an example.

Table 1.—The effect on production of age at first calving.

<table>
<thead>
<tr>
<th>Age at first calving (months)</th>
<th>18 to 21</th>
<th>24 to 27</th>
<th>30 to 33</th>
<th>36 to 42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total milk fat to 84 months (kg)</td>
<td>848</td>
<td>843</td>
<td>749</td>
<td>676</td>
</tr>
<tr>
<td>Total milk fat over 5 lactations</td>
<td>848</td>
<td>857</td>
<td>903</td>
<td>914</td>
</tr>
</tbody>
</table>

In seasonally calved herds it may be better to grow replacement heifers quickly enough to calve at 22 to 23 months old, slightly ahead of the main herd. If they slip back a little in later lactations they may still calve at an acceptable time without artificially inducing calving.

Age and size at puberty

Puberty within a breed occurs at a certain size and not at a fixed age. A low energy intake
Hieifers should be mated when they are big enough, not when they are old enough.

early in life delays puberty in both male and female cattle, because they grow more slowly to the size at which puberty begins. This size is fairly accurately measured by weight, but girth, wither height, and length give more accurate estimates.

Friesians in Western Australia fed at different levels begin to cycle at 230 to 240 kg live weight but at ages varying from eight to 11 months. In America the Holstein begins to cycle at about 250 to 270 kg live weight.

**Growth rate**

Growth rate is not very important, and very satisfactory milking cows can be produced over a wide range of growth patterns.

It is probable that heifers can sometimes be too well fed, causing a build up of fat in the udder which interferes with later milk production. The rate of growth must therefore be geared to age at mating. Where heifers are not to be mated until two years old they should not be allowed to become overfat. However, where heifers are to be mated as soon as they are big enough there is no danger in good feeding and a rapid growth rate.

An ‘Economy Growth Schedule’ (see Table 2) with slightly lower target weights than most schedules, illustrates the desired weights.

Target weights such as these are near the upper end of the weight for age reached by heifers under our grazing conditions. They are conservative levels for heifers reared indoors in some other countries. From this it can be deduced that heifer replacements grown on pasture and mated at 15 months are seldom too well fed, although some stud heifers reared for showing may be.

This schedule features

- A moderately slow growth rate in heifer calves but enough growth to ensure cycling by 14 months old.
- Continued steady growth after mating at 15 months until 9 to 12 weeks before calving.
- A gradual increase in the level of feeding so that the heifer gains weight more rapidly before calving.
- Continued good feeding during the first lactation to allow for growth plus production.
Table 2.—Target weights at different ages for economical growth.

<table>
<thead>
<tr>
<th></th>
<th>Jersey kg</th>
<th>Friesian kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>24</td>
<td>42</td>
</tr>
<tr>
<td>15 months</td>
<td>186</td>
<td>270</td>
</tr>
<tr>
<td>21 months</td>
<td>278</td>
<td>402</td>
</tr>
<tr>
<td>Pre calving 24 months</td>
<td>331</td>
<td>475</td>
</tr>
<tr>
<td>Post calving 25 months</td>
<td>297</td>
<td>428</td>
</tr>
<tr>
<td>Pre calving 36 months</td>
<td>428</td>
<td>604</td>
</tr>
<tr>
<td>Pre calving 48 months</td>
<td>466</td>
<td>651</td>
</tr>
<tr>
<td>Pre calving 60 months</td>
<td>489</td>
<td>673</td>
</tr>
</tbody>
</table>

Heifers which are small because of poorer feeding but which are well fed after first calving, grow to reach almost the same mature weight as larger heifers.

In fact, in some cases poorer feeding early in life may be better than overfeeding. It is possible that feeding which causes rapid growth in the first year of life and slower growth in the second will restrict yield in later years.

A high level of feeding can start oestrus much earlier and the difference can be nine months or more. However, the conception rate is not markedly affected by the feeding level and age once heifers are cycling regularly.

Underfeeding the pregnant heifer restricts calf growth by only a few kilograms but it does increase calving difficulty because the heifer does not grow as big and the calf is proportionately larger in relation to the heifer.

Heavier calves tend to be stronger and more robust and have a better chance of survival.

**Practical feeding guide**

Calves frequently suffer a set back immediately after weaning. To prevent this, keep the calves on a meal supplement for at least four weeks after weaning. Do not wean the calves until they are eating at least 0.5 kg of meal a day, and have good quality hay or pasture available for them.

The rumen is well developed in a two-month-old calf which has had access to grazing from an early age. By three months such calves can grow well without meal supplements provided they have access to high quality pasture. The young replacement heifer needs no special attention but should be kept growing to reach the target weight for mating by 14 months old.

To reach the target requires an average daily gain of 0.40 kg for a Jersey and 0.55 kg for a Friesian. As far as possible avoid extremes in the level of feeding which may reduce later production. The desired growth rates can be achieved with pasture or hay of 60 per cent digestibility and 14 per cent crude protein, such as in either average quality pasture or good quality hay or a combination of the two.

Supplementary minerals are seldom required for heifers grazing healthy pasture containing clover and grasses.

**Parasites**

Worm numbers can build up rapidly in grazing heifers, severely reducing their growth rate. Treat the heifers by drenching as required.

Lice can severely retard the growth of heifers and the observant manager will be on the lookout for the danger signs which include rubbing and scurfy, hairless patches developing particularly in the neck region. Treat by spraying or using a pour-on solution at the first signs of infection.

*Worms and lice can severely reduce the growth rate in grazing heifers.*