



NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Growing heifers - Readers' Note

This document is part of a larger publication. The remaining parts and full version of the publication can be found at:

<http://www.dpi.nsw.gov.au/agriculture/livestock/dairy-cattle/herd/manuals/growing-heifers>

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The benefits of good heifer management

The aim of calf rearing should be a healthy, fully weaned calf at its target weight at 12 weeks of age. This should be the first step in your overall plan to calve your heifers at 2 years at desirable bodyweights (see Table 1.1).

Good heifer management increases your profits because:

- first lactation milk production and lifetime milk production are increased
- there is less culling for failure to conceive or poor production
- reproductive performance is better
- fewer replacement heifers need to be reared
- genetic potential is maximised.

Unsatisfactory calf rearing systems result in high labour requirements, lower growth rates, and costly health problems.

The Best Practice Principles chart overleaf shows the inputs, management goals and advantages of good calf rearing.

for each lactation. These weights can be achieved under normal commercial dairy farm conditions if you have a well planned heifer management program.

There is a range of target weights for each age group, depending on farmers' goals. There is a large amount of variation within herds and among farms. For Holstein–Friesian x Jersey heifers assume that the live weight targets are half-way between those given for the purebreds.

If you don't manage your heifers properly they will not reach their minimum target weights at critical stages of growth. This means your profits will be reduced, because:

- the heifers will be older at calving, so you will need to run more replacements
- oestrus (which is determined by live weight) will be delayed
- undergrown stock will try to catch up their weights in subsequent lactations at the expense of milk production

The importance of reaching target weights

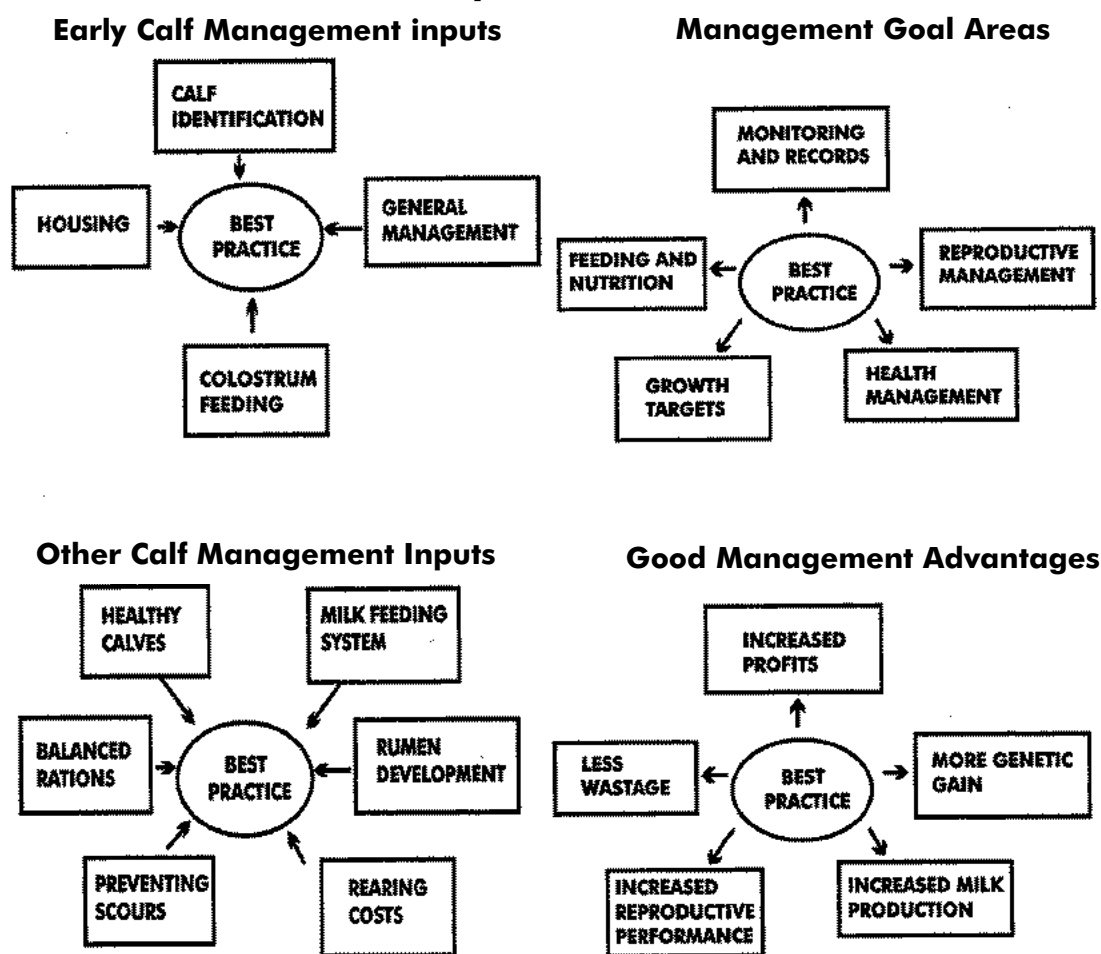
If your 2-year-old heifers reach their target live weights at calving, their milk production and reproductive performance will be maximised. Minimum target live weights for Holsteins are 330 kg at mating and 550 kg at calving (230 kg and 400 kg for Jerseys). For more details see Table 1.1.

The target weights recommended in the table are for animals that will be milked on pastures and fed supplements to produce 6000-8000 L (Holstein-Friesian) or 4500-5000 L (Jersey/Guernsey) of milk

Table 1.1: Target live weights (kg) for Holstein–Friesian and Jersey heifers

Age (months)	Jerseys Target live weight	Holstein–Friesian Target live weight
	kg	kg
Birth	20–25	35–45
Weaning (2–3)	70–80	90–100
12	170–180	250–280
15 (mating)	230–280	330–370
24 (pre calving)	400–450	550–600

Principles of Best Practice



- selection and the rate of genetic gain will be slower
- late calving heifers may have more calving problems.

Increased milk production

Tasmanian studies have shown that one of the most important benefits of having the correct weight for age at calving is increased milk production (Table 1.2).

Studies in NSW and Victoria have shown similar figures. Two-year-old heifers produced an extra 1000 L in their first lactation if they calved at 525 kg (peaking at 25 L/day), rather than if they calved at 425 kg (peaking at 20 L/day), under similar management.

1000 L x 30 c/litre (average price) = \$300 extra per heifer for the first lactation.

Subsequent lactations will return higher margins.

Reduced wastage

New Zealand studies have clearly demonstrated the benefits of improved

Table 1.2: Potential production increase with each 1 kg increase in heifer live weight at calving

	Milk (L)	Fat (kg)	Protein (kg)
1st lactation	4.07	0.18	0.18
2nd lactation	8.30	0.26	0.39
3rd lactation	8.44	0.33	0.28
Totals	20.81	0.77	0.85

Source: Department of Primary Industries and Fisheries, Tasmania

Table 1.3: Effect of live weight on percentage of empty heifers and on cull rates

Year	Live weight range in kg (mean)	Empty %	Culled (poor production) %
1988	258–439 (315)	15	13
1990	334–460 (387)	6	4
1991	372–560 (432)	0	0

heifer weights. Table 1.3 shows that as the average live weight increased in 2-year-old heifers, fewer were empty and fewer were culled for poor production.

Better reproductive performance

The onset of puberty and start of cycling are related more to weight than to age. Conception rates are lower in lighter heifers, and they have more calving problems.

Fewer replacements

The number of heifers needed is directly related to the age at first calving and the replacement rate on the farm. For example, assuming an average culling rate of 30% and an average age at first calving of 28 months, Table 1.4 shows that you would need about 77 heifers per 100 cows—77% of your herd size (milking plus dry cow numbers). It appears that many farmers raise too many heifers at a real cost to their overall operations. By reaching target weights on time you can reduce the number

of replacements required and the total rearing time.

Bottom line economics

Heifers weighing 100 kg more at 2 years are likely to produce 2500 L more milk over their lifetimes. This would return an additional \$750 at 30c/litre (average milk price). They would also return extra money as cull cows (say, 100 kg at 80c/kg live weight = \$80) and produce heavier calves.

The additional cost of grain for the extra growth and milk production would be, say, \$540 (3 tonnes at \$180/tonne). This leaves a \$290 profit per cow—and you also get faster genetic gain and have to keep fewer replacements.

Your Heifer Management Program

The management of heifers should be planned from the day they are born. Good record keeping is essential and cannot be over-emphasised.

Table 1.4: Effect of age at first calving and culling rate on numbers of replacements needed to maintain static herd size of 100 head

Cull rate (%)	Age at first calving (months)							
	22	24	26	28	30	32	34	36
20	40	44	48	51	55	59	62	66
22	44	48	52	56	61	65	69	73
24	48	53	57	62	66	70	75	79
26	52	57	62	67	72	76	81	86
28	56	62	67	72	77	82	87	92
30	61	66	72	77	82	88	94	99
32	65	70	76	82	88	94	100	106
34	69	75	81	87	94	100	106	112



*Having healthy, contented and well grown heifers can maximise your genetic gains.
Photo: D Rosenbaum, Gloucester.*

Replacement heifer management program for achieving target weights

Birth–2 weeks: Provide colostrum, dip navel (7% iodine solution), remove surplus teats, identify calf, house properly. Introduce starter meal; dehorn.

6 weeks: Weigh, check feed intake, wean if eating 0.5–0.75 kg a day of a 20% protein concentrate.

8 weeks: Vaccinate for clostridial diseases and leptospirosis.

12 weeks: Check weight and body condition and revaccinate.

6 months: Check weight and body condition and assess.

9 months: Check nutritional needs (good pasture and/or supplements).

12 months: Check your drenching and vaccination program.

14–15 months: Check weight for age; heifers that have reached their targets may be synchronised and mated (preferably with AI and a follow-up bull).

18–20 months: Pregnancy test and check live weight targets.

20–24 months: Check weight and condition score. Drench. Before calving introduce to milking shed and farm routine.

Calving: Check target weights. Revaccinate for clostridia and leptospirosis.