Pasture grazing replacement dairy heifers

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Doing what you have always done is easy – you know what to do, when to do it and what the results are likely to be. Making major changes, such as changing from housing to grazing heifers, is much harder as the 'whats and whens' are unfamiliar and the results are uncertain.

So why go to the effort of changing established practices by putting heifers out to graze? Many studies have shown that grazing has varied benefits both to heifer health and to the economics of the enterprise.

A two year study by A. Fay Benson, Cornell Cooperative Extension, demonstrated that farms that ran their mated heifers in well managed grazing systems prior to calving rather than housing them in barns, found significant benefits.

They discovered that the exercise stimulated heifers' appetites and prepared them physically for the stress of milk production.

This preparation for their first lactation was manifest in improving calving ease and reduced post partum metabolic problems such as sub-clinical ketosis and metritis.

These improvements will deliver economic benefits during the first lactation, and possibly in later lactations.

Grazed heifers have the opportunity to get a lot more exercise than housed heifers. Both groups walk to the feed, eat and play with their peers. However, even in small fields, the young grazed heifers will chase a bird or interact with animals in a nearby laneway or field and in the late afternoon the entire mob will go crazy playing chase for several minutes. Older heifers are usually moved to bigger fields where they have to walk even further to feed; housed heifers' exercise levels do not increase as they age.



Young unweaned calves on pasture, which would not be suitable feed for postweaned calves without supplementation. Note the well drained field and the shelter from trees.

Another major benefit of grazing is that, in general, grazed calves are exposed to much lower levels of pathogens and toxins than housed calves.

This obviously results in much lower disease levels.

Even if heifers are housed for part of the year due to the climate, they will still reap benefits from some grazing.

Physical benefits

The likely benefits to heifer health from the enforced exercise and lower pathogen levels associated with grazing are:

Table 1. Effects of exercise during gestation on calving ease and retained placenta
of housed dairy heifers.

Group	No. of heifers	Calving ease score**	Placenta release time (hours)
Control	14	2.1	4.2
Exercise**	26	1.4	2.5
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*I = easy calving; 5 = dystocia; "Walk of one mile daily at 3.5mph for four weeks prior to calving (Oregon State University Calving School Handbook).

- Increased bone density.
- Increased heart and lung size.
- Correct structural development of feet and legs.
- Improved circulation.

 Increased oxygen levels in the body (oxygen is necessary for utilisation of nutrients by the body).

- Reduced incidence of pneumonia.
- Improved calving ease.
- Reduced placenta retention time.
- Less days open after calving.

• Grazed animals have an increased appetite which persists even after removal from the pasture. This is likely to be a key contributor to the lowered level of post partum metabolic problems in grazed heifers.

Welfare benefits

Grazing has welfare implications to consider. The public perception is that grazing is more acceptable than housing as it is perceived to *Continued on page 8*

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be 'normal' behaviour for cattle and therefore better.

Galindo and Broom (2000) observed that pasture grazing allows cows to behave more naturally and thus reduces stress.

They found significantly fewer aggressive interactions between cows when on pasture rather than confined.

Grazed animals also exhibit greater 'behavioural synchrony' (doing the same thing at the same time) than housed animals.

Behavioural synchrony is an integral part of the herding instinct of cattle. Management practices which encourage behavioural synchrony allow the expression of inherent behaviours such as establishment of linear hierarchies (dominant/submissive behaviours).

Encouraging these natural behaviours in heifers is likely to reduce aggressive interactions and stress levels and therefore improve health and growth rates.

Economic benefits

There are set-up and on-going costs of establishing and maintaining a grazing area with perennial pasture and there may still be some costs in harvesting some of the spring flush as hay or silage, but the normal costs of harvesting, carting, storing, feeding out and resowing fodder crops are minimised. The heifers become not only pasture harvesters but manure spreaders as well, meaning that the annual cost of disposing of effluent is also eliminated or reduced.

In a perennial pasture system run as an intensive rotational grazing system, soil nutrients and pasture composition are likely to improve and erosion may decrease because of the reduced tillage.

Less intensive grazing management will probably result in a gradual decline in pasture quality and in nutrient 'hot spots'; these issues will incur comparatively small costs to rectify.

The health of grazed animals is likely to be much improved and the lower veterinary costs and better health and growth rates both add to the economic benefits.

Setting up a grazing system

Before making decisions about a grazing system it is important to know that small heifers are very selective grazers and will not consume the same proportion of pasture as older animals. They do not become adept at eating pasture down to desired residuals until they are adults. As a rule of thumb, allow young calves twice as much pasture per kg of bodyweight as for older animals.

Choose what sort of system you are going to use. The choices are:

• Continuous grazing. Stock have access to the whole area year round. This results in decline of preferred pasture species, uneven nutrient deposition and possible compaction and erosion.

• Set stocking. Fields grazed almost continuously with some pastures rested seasonally for regrowth or fodder conservation. This has similar disadvantages as above.

Rotational grazing. Stock moved through a small number of paddocks based on the amount of feed on offer. Better for pasture and heifer growth than the first two options.

• Intensive rotational grazing. Rotation through many small areas at high stocking rates for a very short period. Good for pastures and for stock but more labour intensive. This is the system that delivers the best heifer growth rates and is best for pasture growth and species survival. Heifers should be moved daily or every two days; baby heifers can be followed by older heifers (or sheep) to get pasture down to the required residual levels.

Consider whether Johne's disease is present or suspected in the herd. If it is, then the area grazed by young calves should not be grazed by adult animals – a separate area should be set aside for running stock up to at least 12 months of age.

This area should not have been contaminated with manure from adult cattle in the 12 months prior to stocking with young calves.

Do a rough feed budget by considering: The number of calves you are going to graze. • The average bodyweight over the time they will be on the pasture and their required growth rate.

• The percentage of the year they will be on that pasture.

• The months of the year in which there will be active pasture growth.

The likely kg/ha pasture available and

• The level of supplementation you plan on providing.

This will give you an approximate number of hectares needed to carry the heifers.

Chose a suitable site, factoring in stock and vehicle access to laneways and yards, soil type, shelter and field size and shape.

Plan a watering system to fit the field layout. Optimal growth rates will only be achieved when heifers have free access to water, particularly in summer.

Access to water should not be restricted by sharing troughs between two paddocks nor should they have an electric fence across them.

Select suitable pasture species for your soil type and climate; talk to an independent agronomist to make sure you know what all the choices are.

Fence the selected area securely. Ringlock, plain or barbed wire, electric fencing or a combination are all suitable. If you are using electric fencing only, it is a good idea to train calves about electricity in a yard before they go out into the field.

Managing for success

Transition baby heifers onto pasture gradually. Their rumens will take at least 2-3 weeks to adapt to a new diet, so for the first few weeks continue to feed them the same ration they had prior to moving to pasture.
Until heifers are approximately six

months old, they do not have the rumen capacity to exist on pasture alone.

• At times of poor pasture quality or during very cold weather, even older heifers may need the pasture to be supplemented with concentrates.

• Set average daily gains and growth targets for your heifers.

• Work with the farm's nutritionist to develop accurate feed budgets and to establish a programme for supplementary feeding.

• Have 'as fed' samples of pasture feed tested to ensure that heifers are receiving adequate nutrients to grow at the required rate. Be prepared to supplement with concentrates or silage as necessary.

 Weigh at least sentinel heifers monthly to ensure that they are reaching the set targets.
Learn pasture assessment skills. Pasture can be measured with a pasture ruler, rising plate meter, capacitance probes or the new echo sounder or laser beam quad bike mounted pasture meters.

 Maintain records of pasture growth, feed test results, supplementary feeding levels and heifer growth rates in a spreadsheet to build an historical picture for your farm, which will be useful for planning in the future.

• View the first couple of seasons as learning experiences; do not give up if everything is not perfect in the first season.

Potential problems

Young stock are much more susceptible to internal parasites than older animals. Regular faecal egg counts will allow monitoring of their parasite burdens and to determine whether or not drenching is necessary. Bloat can be a problem in depastured cattle. Heifers are particularly susceptible and some breeds are more prone to bloat than others. Bloat is generally seen in animals grazing pastures with a high legume content (> 50% clover or lucerne), but even young grasses containing high soluble protein levels can cause problems. There are several prevention strategies available, which your veterinarian will be able to discuss with you but, in general, avoid allowing empty animals to gorge on fresh pastures.

 Clostridial disease can be associated with animals grazing fresh, young pasture. Ensure clostridial vaccinations are up to date before depasturing heifers.

 Escaping heifers are unlikely to be a problem if fences are maintained in good order but beware of the neighbour's bull, which can leap even good fences in a single bound



if he decides that your heifers are just what he has been waiting for!

Grazing heifers should not be viewed as a 'set and forget' method of growing out heifers.

Good management is just as important as it is in housed heifers and it is important that someone is given responsibility for supervising the health and well being of grazed heifers, to ensure that problems do not get out of hand.