

## People and facilities

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Research

### Key Points

1. Get the right person to rear the calves and ensure they have the resources and support to do the job well.
2. Calf sheds need to be draught free but well ventilated at a high level.
3. Maximise sunlight – it is a natural steriliser.
4. Bedding needs to be clean and dry.
5. Calves need access to fresh water at all times.

### Would you swap places with your calves??



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Calf Rearing Fact Sheet 1.1

### Staff

- Select and invest in the right person - rearing calves requires skill, attention to detail and empathy with the calves.
- The best rearer is someone who actually wants to do the job, not someone who is directed to do it. Keep trained staff in the calf shed.
- Ensure they have the time and support they need to do the job well.

### Facilities

- The calf shed should be dry and draught free. There needs to be airflow at a high level but no draught at calf height – a match shouldn't blow out when lit at calf height.
- Calf sheds should face towards the sun. Sunlight dries out and helps sterilise the shed.
- Purpose built calf sheds can have a UV resistant plastic roof and shade cloth/fabric walls which can be rolled up for better ventilation.
- If building a new shed, consider drainage under the calf shed and design the shed so that milk/colostrum can be piped/gravity fed. Install swinging gates with self-closing latches and a raised collection pen/ramp for loading / unloading calves.
- Avoid sharp edges, nails, corrugated iron or any small gaps where calves can get their heads or hooves stuck.
- Calves need a minimum of 1.5 m<sup>2</sup>/calf. The smaller the available area per calf, the messier the shed and the more fresh bedding required.
- All calves (including bobbies) must have access to clean fresh drinking water at all times.

### Bedding

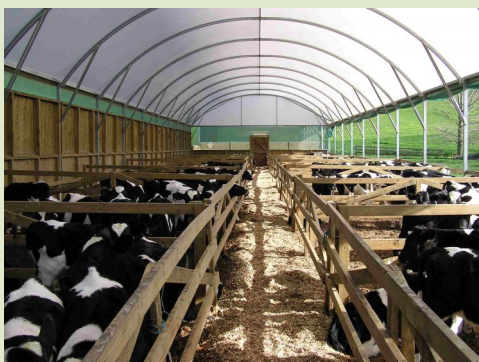
- Some calf sheds successfully use grating—as long as there is no draught coming up through it.
- Ensure bedding is topped up regularly or replaced with fresh material – untreated shavings, sawdust or bark chips are ideal. Concrete might be easy to clean but it is cold and slippery.
- Regularly (at least weekly) spray surfaces at calf level – pen fittings, walls, gates, floors/bedding with a virucide disinfectant.
- Have a separate area designated for sick calves to minimise disease spread. Clean out the calf shed at the end of the calf rearing season rather than just before the start of the next season. This allows time for sunlight to sterilise the shed.

# Building a calf shed

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## Key Points

1. Low cost calf sheds can be constructed using UV resistant plastic. This has the advantage of letting in sunlight which acts as a natural sterilant.
2. Site sheds so that shelter belts protect people, calves and shed from prevailing winds.
3. Face calf sheds into the sun for warmth and sterilisation.
4. Ventilation is important - not draughts at calf height but provide air movement at a high level.
5. Decide on your milk feeding system – this usually dictates the size, shape and layout of pens.



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Calf Rearing Fact Sheet 1.2

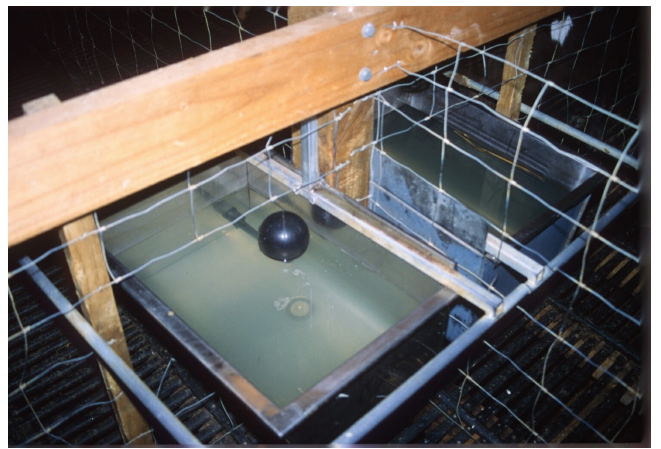
## General design

- A good calf shed is one that meets the needs of both calves and calf rearers.
- Calves can be reared in a wide range of facilities from converted implement sheds to purpose built calf sheds.
- Use existing shelter belts where possible. These make the environment warmer for people and calves, while protecting sheds from wind damage.
- Ventilation is important. There should be air movement above the calf to prevent the build up of ammonia and subsequent problems with pneumonia. Solid partitions between pens prevent draughts.
- Many sheds now have a UV resistant plastic roof and shade cloth on the walls which can be rolled up for ventilation. Such sheds can be built at much lower cost than traditional sheds because of the lighter materials used.
- Sheds (and calves) should face into the sun. Sunlight is not only good for keeping calves warm it also dries out and disinfects the pens.
- If building a new shed, consider drainage under the shed. Ideally, the shed should be higher at the back and have some form of drainage at the front.
- Consider covered areas for storing feed and mixing milk. Load-out facilities and a race with calf scales are very useful.
- Have a separate pen where sick calves can be placed in isolation.
- Avoid sharp edges, nails, corrugated iron or any small gaps where calves can get their heads or hooves stuck.

## Pens, bedding and feeding

- An area of 1.5 m<sup>2</sup>/calf is a minimum and pens of 10-12 calves are ideal. In an open fronted shed, pens should be twice as deep as they are wide.
- Decide on your milk feeding system and design pens to suit. If hanging a feeder on the front of a pen there needs to be sufficient space for all calves to feed.
- The best systems involve having calves of a similar age together and having a separate quarantine area for new arrivals.
- The best bedding is whatever is readily available at a reasonable price. Bark chips, post peelings and sawdust are all useful. Bedding should be at least 200-300 mm deep. Fresh bedding needs to be added as calves get older and pens get messier.
- Slatted floors and under pen drainage are good provided there are no draughts.
- Modern sheds feeding whole milk should be designed so that milk is piped (gravity fed) to avoid carting milk.
- All calves (including bobbies) must have access to clean drinking water.
- A perimeter guard around each trough (see next page) can prevent fouling.







## Equipment

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### Key Points

1. All aspects of the operation from calf pick up to water in paddocks after weaning require attention to detail.
2. Cleanliness is a must.
3. Sharp edges in any equipment can damage calves and people.
4. Check teats in feeders and replace faulty teats. Provide plenty of meal—and keep it fresh and clean.
5. Sunshine is a powerful sterilising agent.
6. Wash and drain feeders between feeds.



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Calf Rearing Fact Sheet 1.3

### General

- Site the operation in a sunny well drained area. Be prepared to put shingle down in areas where vehicles travel. Mud will increase the likelihood of disease.
- Dirty equipment leads to disease and sickness. This is an animal welfare issue and a bottom line loss to the enterprise.
- After washing, drain equipment to allow it to dry. Sunshine sterilizes.
- Repair broken equipment. Damaged items may cause injury.

### Calf trailers

- Shelter from cold wind and rain is critical to ensure that calves do not arrive weakened and susceptible to disease.
- Clean trailers after each use and leave to dry in sun.

### Milk feeders

- Use compartment feeders if feeding a restricted volume of milk. This ensures each calf gets its full milk ration.
- Replace leaky teats or teats that flow too fast/too slow.
- There should be room in each pen for each calf to feed comfortably off the feeder.
- Feeders should be placed such that calf necks are stretched out long and low.

### Meal feeders

- Trough feeders allow easy access to birds and rodents but give calves good access as well. Allow 35 cm of trough length for each calf. Troughs should be off the ground and protected from the weather.
- Meal bins with plastic strips that hang down will help deter birds. Start calves with strips tied up and release once calves are used to feeding from the bin (next page).

### Water troughs

- Protect ball cocks so that calves cannot play and cause flooding.
- Clean out regularly.
- Small bowls are good so that water remains clean by frequent refilling.
- A perimeter guard around a water trough can prevent fouling (next page).
- Never use teats for providing water to calves as water will then go straight to the abomasum rather than the rumen.

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**Calf Rearing Fact Sheet 1.3**



# Calf collection

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## Key Points

1. Farm staff must know pick up plan and calf ID system to be used. Plan ahead.
2. Collect calves at least once a day to reduce bonding time with the cow. Get the calf to a warm dry environment as soon as possible.
3. Treat calf navel with iodine spray before transporting and again at shed.
4. Trailer must be clean and dry. Sunshine is a good steriliser.
5. Don't overcrowd trailers - provide shelter and drive slowly.
6. Treat NEWBORNS with care.
7. All newborns must receive 12% of their bodyweight in fresh warm colostrum within 12 hours of birth.



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Calf Rearing Fact Sheet 1.4

## Calf collection

- Have a plan and make sure it is understood by all staff.
- The calf identification and tagging system needs to be clear and straight forward.
- Collect calves twice a day, if practical. The aim is to collect as soon as possible after birth. This provides control over colostrum intake.
- Collection soon after birth reduces the time calves have to suckle and lessens the chance of the cow contracting mastitis.
- Aim is to get the calf to a dry warm environment as soon as possible and feed a known quantity of fresh high quality colostrum.
- Spray navel with 7% iodine solution before transporting and again in shed. Cover the navel completely with the spray solution.

## Calf trailer

- Needs to be CLEAN and DRY and protected from wind and rain. A deep bed of dry clean straw works well. Clean rubber mats are OK as long as it is not too wet and cold.
- Always place calves gently in the calf trailer. They are NEW BORN.
- Calf trailers are a major source of bugs, so they they must be kept clean and dry.
- DO NOT place too many calves in the trailer. Drive slowly.
- Calves standing all over each other is not acceptable.

## Arrival at the shed

- Feed 12% of bodyweight of high quality fresh colostrum to all calves within 12 hours of birth. To be sure all calves get colostrum it is often easier to tube all calves with 2-4 litres of first milking warm colostrum.
- Don't assume a calf has had sufficient colostrum from its mother.
- A 30 kg calf requires 3.5 litres of colostrum within 12 hours of birth.
- First milking colostrum has more antibodies (immunoglobulins), fat, protein, minerals and vitamins than transition milk.
- Antibodies in colostrum are only absorbed for the first 24 hours of a calf's life. Ideally give two feeds of first milk colostrum within the first 12 hours of life.
- Calves that are weak or cold require extra attention. Use a heat lamp box and tube feed with warm, good quality colostrum.



# Guide to calf health

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Research

## Key Points

1. Calves need warmth, high quality feed and fresh clean water at all times.
2. Monitor calves regularly.
3. Plenty of colostrum fed early is critical. At least 2 litres in first 12 hours and 4 litres total within first 24 hours. After that, you have missed the boat!
4. Scours are a calf rearer's nightmare. Take action quickly to ensure calves remain hydrated.
5. Take concerns to your veterinarian early. Saving money on vet bills may negatively impact both bottom line returns AND calf welfare.
6. Some practices (tube feeding, dehorning and castration) require special skills. Learn from other professionals.



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Calf Rearing Fact Sheet 1.5

## Introduction

- Calf rearing requires a high degree of skill and stockmanship.
- Calves are new born animals - they are weak and vulnerable. Their digestive and immune systems are only partially developed.
- Calves need to be checked regularly so twice a day feeding (and twice a day checking) is a good idea for young calves. A calf that won't feed or is slow to come up to be fed has a problem.
- A good recording system helps detect problems early. Coloured neck bands are a good way of identifying calves with problems. For example, a calf that is a slow feeder can get a coloured band and be checked at the next feed. Have different coloured bands for different issues.
- Calves that are small, have had birthing difficulties or haven't had adequate colostrum are highly susceptible to illness.
- Calves need at least 4 litres of colostrum in the first 24 hours. The first 12 hours are the most critical for ensuring maximum benefit from colostrum.
- The shed needs to be warm and dry with good ventilation and without draughts at calf level.
- A good layer of bedding is important to keep calves warm and absorb urine.

## Scouring

- Scouring is the calf rearer's biggest nightmare. There are a number of causes and identification is often difficult. Young calves which are scouring need to be fed electrolytes immediately to avoid dehydration. The number and timing of calves scouring is often a clue as to the cause.
- Scouring in older calves is usually easier to deal with than scouring in young calves - the challenge is identifying the cause and deciding on treatment.

## Navel infections

- These are caused by bacteria entering the umbilical cord. Navel becomes swollen, hot and the calf reacts when it is touched.
- Prevention is best - all calves should be treated with iodine at pick up. Infected navels need to be treated with penicillin.

## Dehorning and castration

- Animal welfare is important and some practices are illegal. Local anaesthetic must be used when dehorning. Learn appropriate techniques and timing.



# Welfare and euthanasia

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## Key Points

1. Good calf welfare is non-negotiable for all calf rearers.
2. The Dairy Cattle Code of Welfare (2010) sets minimum standards around calf welfare. Ensure all those involved in calf rearing are familiar with this code.
3. It may be necessary to humanely destroy calves - follow correct procedures. Ensure there are good practices around dead calf disposal.
4. Approved methods of Euthanasia are rifle, captive bolt and chemical euthanasia.



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Calf Rearing Fact Sheet 1.6

## Calf welfare

Good calf welfare underpins all successful calf rearing enterprises.

Investing in excellent welfare will pay dividends with low calf deaths, good growth rates and calves which grow into cows that are easy to handle. The Dairy Cattle Code of Welfare (2010) is very specific regarding the minimum care of calves. Some key points are:

- All calves must be fed colostrum within 24 hours of birth.
- All calves require a warm, sheltered environment with access to good quality water at all times
- Handle all calves gently and with care.

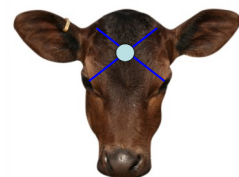
## Euthanasia

- There will be times when it is necessary to humanely destroy calves. It is unacceptable to leave a calf suffering. On some farms it is policy to euthanase unwanted calves. It is important that there is a person on farm trained and capable of humane slaughter of calves.
- Approved methods of euthanasia are:

Approved method  
Rifle



Approved method  
Frontal Target



Blunt force trauma cannot be used to kill calves

Approved method  
Rifle

To minimize the risk of the bullet exiting the body. Aim the rifle inline with the neck.



Approved method  
Captive Bolt





## Follow up to ensure death

- Bleeding out : Note - throat cutting is not an approved killing procedure. It is done after shooting with a rifle or captive bolt.
- When eyes are touched, dead animals have no blink reflex and no rhythmic breathing.
- It is important to confirm death after slaughter and re-check and confirm death again 5 minutes later.



- Note: a heartbeat may be felt 2-3 minutes after brain death.
- Dead calf disposal - have a plan. Most calves are disposed of in an offal hole/pit or in some regions a collection service operates. Dead calves may be worth selling to a 'slinky' buyer. Know what is available in your region.

## Bobby calf welfare

There are some good 'Best Practice Guidelines' available refer <http://www.dairynz.co.nz/file/fileid/27767>

## Painful procedures

- Disbudding and de-horning and castration must be done in ways that minimise pain and distress.
- Disbudding must be done by a veterinarian or appropriately trained personnel using a gas or electric cauterising iron with appropriate pain control (sedation/anaesthetic).
- It is best carried out as young as possible once the buds can be felt, usually at about 3 weeks.
- Consult your local vet and plan well ahead.
- Castration is best carried out as early as possible before 6 weeks (preferable 7-21 days) using a standard rubber ring. Use elastrators to apply the rubber ring to the neck of the scrotum. Ensure **both** testicles are in the scrotum below the rubber ring.





# Feeding guide

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## Key Points

1. Planning before the rearing season starts makes things easier.
2. Attention to detail is important.
3. Decide how and what you are going to feed your calves.
4. Create a routine and stick to it.
5. Ensure all calves have adequate colostrum in the first 24 hours.
6. Have a plan in place for when things go wrong.



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Calf Rearing Fact Sheet 1.7

## General

- As calves are baby animals they initially need to be fed milk until their rumen develops sufficiently for them to obtain adequate energy from grass to maintain good growth rates. How fast the rumen develops depends on the feeding system used.
- You need to choose a system that suits you and follow it carefully (see Fact Sheets 3.1 - 3.5).
- You need to know how much milk each calf is getting as both underfeeding and overfeeding calves can affect calf health and growth rates.
- Underfeeding a calf can reduce their future performance in terms of growth rate and lactation. Overfeeding is expensive, can cause scours and actually delays rumen development.
- Set up a routine so the calves are fed at the same time each day.
- Have a plan for what to do if something goes wrong.

## Planning

- Before calf rearing starts, decide what equipment you are going to use, how much milk you are going to feed and how you will provide it.
- Make sure you have everything ready before the first calves arrive in the shed.
- On entry to the shed the calves should be fed colostrum as this is critical to producing healthy calves.
- Calves need to be trained to drink off a calf feeder. This can take time and patience and some calves take longer than others.
- Initially calves should be fed twice a day. The length of time calves are fed twice a day depends on the feeding system used and the size and health of the calf. Twice a day feeding enables you to check each calf twice a day.
- Make sure all calves come up and drink their milk ration at every feed.
- Make sure every calf has room to get on the feeder.
- Feed at the same time each day.
- Monitor what is happening – is every calf drinking well, are they alert, full of energy etc? Identify any calves that are not – and act to sort out their problems.
- Calves are fussy eaters especially when they are young so it is important to ensure that everything you feed—milk, calf pellets / meal, hay and grass is fresh, clean and appealing. Milk and pellets must be high quality.
- It is important that the milk feeders are kept clean and teats are replaced as they become worn.
- Calves need water as well as milk—particularly if they are eating meal.
- Keep water troughs clean as calves won't drink dirty water. If you wouldn't drink it, don't expect them to!

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