

## Section 5

# Calf house Management



### Introduction

Calf accommodation must provide for the animal's needs. Calf housing standards are regulated under the Department of Agriculture, Food and Marine specification S124 Nov. 2009, which describes the minimum specification required. Calves are susceptible to the chilling effects of wind and rain. Therefore they should be kept indoors or under shelter for the first three weeks of life. It is important that housing management is optimised in order to prevent stress and to limit the calf's susceptibility to disease.

- ① Creating a draught free environment.
- ② Creating and maintaining a dry bed.
- ③ Adequate manure disposal system.
- ④ Regular house and personnel disinfection.
- ⑤ Provision of clean air and water.
- ⑥ Adequate feeding and drinking space.
- ⑦ Sufficient air space.
- ⑧ Other services/calf house requirements.
- ⑨ Labour efficient calf housing.

# Calf house Management

## ① Creating a draught free environment.

From the start, calves should be kept dry and draught free. Draught is considered present if wind velocity exceeds 0.5m/s in any of the calf pens. Draughts hitting calves causes them to lose heat energy. Energy loss will double when wind speed rises above 0.5m/s. A comfortable microclimate must be provided in the first week of life with temperatures >20°C.

In practice, air inlets should be above calf height level and the penning area should be laid out so that the currents of incoming air are not directed into the calf lying area. It is also important to make sure there are no down draughts from the outlets.

Draughts are especially difficult to avoid in open-sided buildings where wind cannot be controlled. Farmers with buildings like these are advised to build temporary walls/shelters to avoid uncontrolled wind impacting on young calves.

In long houses, one or more solid pen divisions is necessary to reduce draughts.



*Large open sides on buildings can be blocked with bales to prevent uncontrolled wind reaching the calves.*

## ② Creating and maintaining a dry bed.

### KEY FACTS:

**Calves spend 80% of their time lying down so the type and depth of bedding used is important.**

Calves should not be lying directly on concrete as it tends to become wet and slippery and encourages the spread of bacteria throughout the house.

The quality of bedding material is crucial to reduce the amount of heat lost via conduction from lying calves. Deep straw bedding is superior to other bedding material in its efficacy as an insulator. It can provide a high 'nesting score' which has a preventive effect against calf respiratory disease in naturally ventilated sheds. Straw bedding should be at least 15cm deep and should remain dry at all times.

Wood shavings and bark chips can also be used to provide the calves with dry lying conditions.

### KEY FACTS:

**Calves require up to 20 kg/head/week of straw bedding in order to maintain dry conditions on concrete floors. This quantity can be halved by using slats under the straw.**



*Dry looking beds may be wet. To check if beds are adequately bedded and dry, kneel with all your weight on the bedded floor. If the knees of your trousers are wet, the house is not bedded sufficiently.*

### HOW TO:

**Choose appropriate bedding for calves**

When selecting bedding materials it is important to consider issues like on-going availability, price and the degree to which the material compacts over time. Avoid using dusty bedding as it can cause respiratory problems.

Material	Suitable (yes/no)	Explanation
Bark chips	Yes	Wood chips, tan bark and post peelings are absorbent bedding materials with good insulating properties and low palatability to calves.
Straw/hay	Yes	Using straw or hay as a bedding should be avoided if it is also supplied as a dietary fibre source. Calves may consume contaminated bedding and increase their exposure to pathogens. For example, if you use straw for bedding, feed hay as the forage/fibre source.
Wood shavings	Yes if untreated	Treated wood/pine shavings or sawdust should not be used as these can be toxic if consumed.
Sawdust	No	Fine particle sawdust will compact more, and is less suitable, than larger wood shavings.
Sand	No	Sand does not provide any insulating properties and has poor absorbing ability. It can accumulate in the stomach of calves who may consume it. Therefore it is not recommended.
Rubber mats	No if used without other bedding	Rubber mats are not suitable on their own for calves, but can be used alongside straw, bark chips etc. On their own they can lead to a net energy loss and can be too cold to allow resting.



Straw and bark chip make good bedding materials.



**3 Adequate manure disposal system.**

The flooring/bedding needs to facilitate easy cleaning and removal of waste. Waste should not drain away from one pen through another as this can spread disease.

Drainage on concrete floors can be improved by having a 1:20 slope towards a channel. The channel should be located a minimum of 300mm inside the feed barrier. Channels should have a 1:60 slope and waste should be removed to an external, ventilated storage tank. There should be shallow channels within the pens that are 25-30mm deep, 100-150mm wide and easily cleaned by brushing. These channels should not impede the mechanical cleaning of straw beds.

**4 Regular house and stockperson disinfection.**

The shed should be thoroughly cleaned and disinfected with a broad spectrum disinfectant before calves arrive. While in use, pens should be frequently disinfected to prevent the build-up of disease organisms. Ideally, calves should be bedded every day and pens cleaned out weekly.

**Checklist**

To ensure pens can be easily cleaned and disinfected:

- Use quality materials for pen divisions (at least 1.2m in height).
- Demand good workmanship on concrete floors and wall finishes.

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- Include falls of 1:20, 1:60 in channels.
- Front drainage channel should be 75mm X 75mm.
- Use trap gullets to prevent back odours.
- Prioritise safety e.g. no steps, electrical installation to ETCl standards.

## KEY POINT:

**Calf rearing personnel should be clean at all times, with particular attention to clothes and boots. Disinfection procedures, such as boot dips, must be carried out and maintained.**

## HOW TO:

### Clean out a calf house

It is important to clean out, wash and disinfect calf houses. This should be done regularly and is essential between batches of calves. Maintaining a clean environment throughout calf rearing greatly reduces disease levels and enhances calf comfort.

- Rails, gates, partitions, walls and feeders must be cleaned of any obvious manure or other organic material. Disease pathogens persist longer in the environment if organic materials such as manure, saliva and bedding are present. All bedding and organic material should be removed.
- Pressure cleaning is recommended for cleaning out effectively. **Disinfection works best if all dirt and manure is removed.**
- Hot water/steam and soap may be necessary for cleaning milk residues as it aids removal of fat.
- Use a broad spectrum disinfectant for best results. A minimum of 10 minutes contact time is required, 30 minutes is preferable for effective disinfection.
- If cleaning pens when calves are in them, avoid wetting calves or creating aerosols of moisture that contain particles and pathogens.

## KEY TIPS:

**The longer the calf rearing area is free of calves and bedding material between calves/batches of calves, the fewer disease causing organisms will be present the next time its filled.**

## 5 Provision of clean air and water.

There should be good ventilation in the house to remove effluent gases (ammonia) and prevent outbreaks of pneumonia. A calf house should have at least five to six air changes per hour.

Clean water must be available to calves at all times, especially if they are scouring. When dehydrated, calves will drink almost anything, so access to stale/rank water which may be harmful must be prevented.

Contamination of feed and water from other calves, vermin and flies is common; the likelihood can be reduced with good house design.

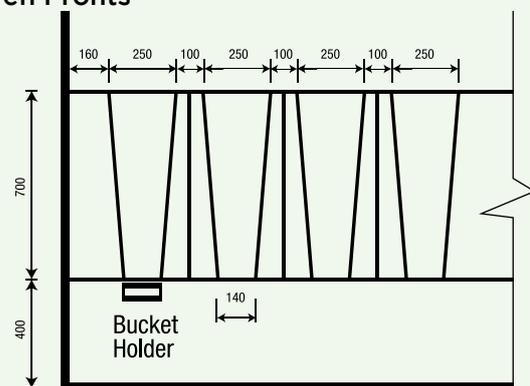
## 6 Adequate feeding and drinking space.

The correct feeder and drinking space must be provided to encourage feed and water intake and to discourage bullying. For bucket feeding, calves require 350mm of feed face each.

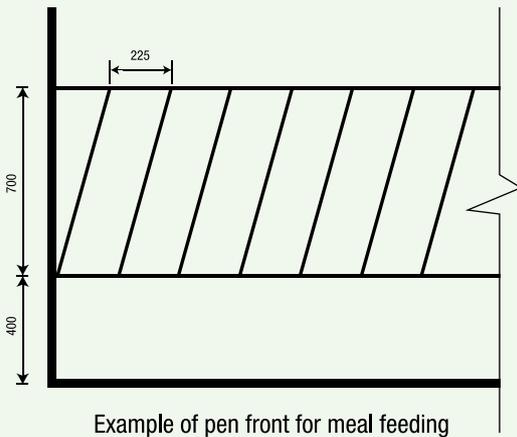
For automatic feeders there should always be more than one teat per pen. This reduces the risk of calves being without milk and then over feeding when a teat is fixed. The number of calves per feeder varies.

Meal troughs should be 450mm above the floor, 100mm deep and 250mm wide.

### Pen Fronts



Example of pen front for bucket feeding



### 7 Sufficient air space.

Air space is critical. There should be a minimum of  $7\text{m}^3/\text{calf}$  total house cubic air capacity provided per calf at birth, increasing to  $10\text{m}^3$  by two months of age.

The greater the number of calves in a single air space, the greater the risk to health. A calf with respiratory disease can shed millions of infectious organisms from its lungs into the surrounding atmosphere. A maximum of 50 calves per house is recommended (30-50 in a single air space).

### 8 Other services/calf house requirements.

- Artificial light - 50 lux (about five watts/ $\text{m}^2$  threshold).
- Natural light - at least 10% of roof area.
- Power points for automatic feeders, feed store, infra-red lamp, power washer etc.
- Water supply - drinkers for group pens (cold/hot).

### 9 Labour efficient calf housing.

In addition to providing the correct environment for calf health, welfare and growth, it is crucial that the design of the calf house allows routine tasks to be completed efficiently and provides good working conditions for the farmer/stockman.

Features of a labour efficient system include:

1. An adequately sized feed preparation area (if more than 20 calves).
  - $0.2\text{m}^2/\text{calf}$
  - Separate outside door
  - Its own airspace
  - Lockable cabinet for chemical and veterinary products
  - Sink and cold water supply, paper towel dispenser
2. Easy access for inspection and care of sick calves.
3. Access for a tractor with loader to clean bedding.
4. External access to a grazing paddock for calves.



*Spacious passageways ease management of the calf rearing facility.*