

## Section 3

# Milk Feeding Methods



### Introduction

There are a number of milk feeding methods available for artificially rearing calves. These methods can be divided into two groups: restricted feeding methods and *ad lib* feeding methods. Restricted feeding includes the use of individual or group feeding methods such as individual buckets/teats, nipple bars, calfeterias etc. *Ad lib* feeding can be used for whole milk or MR. For milk replacer there must be an automatic mixing unit/agitator. When employed correctly, restricted and *ad lib* feeding methods both achieve good calf performance.

- ① What is the most appropriate feeding method?
- ② For restricted feeding, is teat feeding better than bucket feeding?
- ③ What are the benefits of teat feeding on digestion and calf health?
- ④ How do you train a calf to drink?
- ⑤ What are automated /computerised feeding systems?
- ⑥ What are the advantages of automated feeding?
- ⑦ Is a regular feeding routine important for calves?
- ⑧ Cleaning feeding equipment.

# Milk Feeding Methods

## 1 What is the most appropriate feeding method?

The milk feeding method used on a farm depends on:

- Number of calves to be fed.
- Type of housing.
- Amount of milk/MR to be fed.
- Availability of labour.

Bucket feeding is the most common feeding method for calves that are individually penned or in groups of 2-8 per pen. This method has many feeding options including:

1. Bucket (no teat).
2. Individual teat buckets.
3. Multi teat feeders.
4. Compartment multi teat feeders (with divisions).
5. Mobile multi teat feeders.

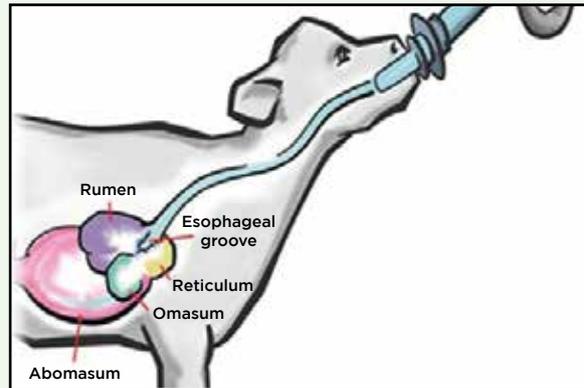


*A compartment multi teat feeder allows calves to be allocated the correct amount of milk and reduces the effect of bullying.*

For restricted feeding, it is important to have groups of calves in pens of eight and of the same age and size. A washing up area, milk replacer mixing unit, measuring container, open container on wheels for transferring milk and wide passageways all are important for successful and time efficient restricted feeding methods.

## 2 For restricted feeding, is teat feeding better than non-teated feeding?

Although the method of calf feeding does not have a major impact on weight gain, feeding calves from a nipple/teat is more natural. It takes longer and helps the calves satisfy their urge to suckle. Teat feeding is preferable from a behavioural point of view.



## 3 What are the benefits of teat feeding on digestion and calf health?

When a calf is born, the abomasum or fourth stomach is the only stomach that is functioning. Teat feeding triggers a reflex which causes a groove in the rumen (oesophageal groove) to close. This directs milk past the rumen and into the abomasum where it is digested. In addition, using a teat may also stimulate saliva production and maintain fluid intake in scouring calves.

If a calf drinks from a bucket the oesophageal groove may not be activated and the milk will go into the rumen. As the rumen is not functioning, the milk is not digested and ferments, causing the calf to scour.

If a non-teated bucket is used its base should be placed at least 30cm above the ground to help the oesophageal groove to close. When teat feeding ensure that the height of the teat is at normal nose height to the calf and that the calf keeps her neck and head up while drinking.



*Whichever feeding method is used, each calf must receive the correct amount of milk daily.*

**4 How do you train a calf to drink?**



*Training calves to drink requires both patience and skill. Let the calf suck your fingers and gradually guide the calf's mouth onto the teat or its nose to the milk in the bucket.*

The speed that calves learn will differ; some calves learn quickly to come to the milk feeder, while others require more training. Gentle handling of hungry calves helps speed up independent feeding.

**5 What are automated /computerised feeding systems?**

In general, for warm *ad lib* feeding, automated feeders dispense a pre-determined concentration of milk replacer at a set temperature continuously. The most common

type has a dry milk replacer hopper and a water-tank attached to the main water supply. A thermostatically controlled immersion heater controls the water temperature. The feed is mixed in a mixing bowl after the required amount of milk replacer powder and heated water are dispensed into it. The mixing bowl services either two or four feeding teats through a milk line. Each feeder can service up to 50 calves.

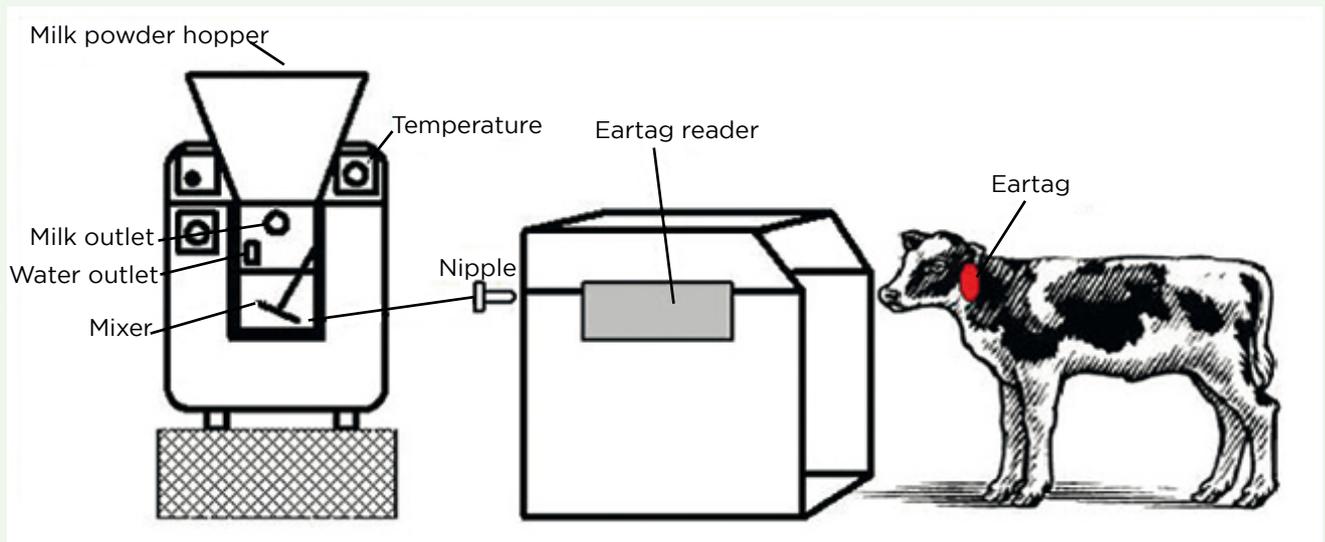
Key points for automated feeding:

- Calibrate the feeder at weekly intervals and also for different brands of milk replacer and different batches of the same brand.
- Only use milk replacers which are free-flowing.
- Clean the feeder mixing-bowl daily and "milk lines" three times a week.
- Ensure that the feeder nipple in the calf pen is always set 700-800 mm above floor level.
- Provide a drain adjacent to the feeder to remove all liquid out of the building.
- Ensure the floor area is always sloping away from the bedded area.

**6 What are the advantages and disadvantages of computerised/automated feeding?**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Reduction in labour requirement.</li> <li>• Calves have access to a constant supply of warm milk in smaller amounts; as they would from the cow.</li> <li>• You have control over the feed intake of individual calves.</li> <li>• Each calf's consumption is recorded in the computer so you know exactly how much feed each animal is getting.</li> <li>• The system generates a list of calves that aren't drinking so you know which ones to watch.</li> <li>• The computer can be programmed for gradual weaning.</li> </ul>	<ul style="list-style-type: none"> <li>• Automated feeders are an expensive investment per calf reared.</li> <li>• Can lead to less effective calf husbandry. Producers may forget that calves must still be checked twice daily, as they would if they were being fed manually.</li> <li>• It is difficult to rear more than one batch of calves per year with an automated system because of the seasonal nature of Irish dairy calf production.</li> </ul>

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## 7 Is a regular feeding routine important for calves?

Following a feeding routine is important for calves, especially over the first few days to ensure the calves settle in comfortably to their new regime and environment. During calf rearing the same person should be involved every day in order to alleviate stress on the calves. It is vital that whoever looks after the calves must have plenty of time to do the job properly.

Feeding, cleaning and animal health requirements should be prioritised and not put off due to time constraints.

## 8 Cleaning of feeding equipment.

Poor cleaning practices can lead to the development of biofilms on feeding equipment. A biofilm is an invisible layer of protein and fat which bacteria can bind to. The bacteria can multiply quickly leading to calf infection and scours. In extreme cases, a biofilm may cause a yellow or white scum, but usually biofilms are not visible.

If feeders are not cleaned correctly and biofilms develop, the biofilms can release bacteria and contaminate the milk or milk replacer being fed to calves when the equipment is used.

### HOW TO:

#### Correctly clean milk feeding equipment



There are five simple steps:

1. First rinse the equipment with water (32 - 38°C).
2. Soak the equipment in hot water (>50°C) with detergent for 30 minutes.
3. Scrub the equipment well and re-wash with hot water.
4. Rinse the equipment and spray with sanitiser.
5. Leave the buckets to dry, preferably on a designated drying stand/rack.