Raising healthy calves
the easy way

EXCITING NEW
calf raising research inside!

800 776 7042
milkbar.coburn.com
Milk Bar Research Trial 2014

New Research Trial results show superior digestion of milk and no cross sucking by group fed calves fed on Milk Bar Teats!

For 20 years, Milk Bar customers have told us that calves are healthier when they use Milk Bar Teats. We wanted to know exactly why Milk Bar calves have less nutritional scour and much less cross sucking than pail fed calves or calves fed with standard teats, so we commissioned a research facility to conduct in-depth investigation on the digestive system of young calves. The brief was to feed six groups of calves from the same farm, the same rations and in the same facility. Three groups were to be fed with Milk Bar Teats, while the other three groups were to be fed on a faster feeding teat with an internal valve. The faster teat fed at a slower speed than teats that are commonly available but still had dramatic ill health effects on the calves.

Curding and digestibility

Calves fed on Milk Bar Teats weigh more and have better digestibility

During the course of the trial, some calves from both groups were humanely euthanized to see what the effects of different feeding speeds had in the digestive tract. The difference in the curd structure in the abomasum was very noticeable two hours after feeding. Calves fed on a faster teat with an internal valve had very little curding with hard lumps of coagulated milk in a watery fluid. Calves fed on Milk Bar Teats had even porridge like curding.

Results from digestibility analysis show huge differences in the absorption of lactose in 14 day old calves. Tests were conducted two hours after feeding and showed there was 254% more lactose remaining in the abomasum of calves fed with a faster teat with an internal valve than there was in calves fed with the slower feeding Milk Bar Teats. 150% more lactose had passed through the digestive system and as far as the rectum in calves fed with a faster teat with an internal valve than in calves fed with Milk Bat Teats. This indicates there is significantly more lactose present in the intestines of calves fed with a faster teat with an internal valve. Lactose is a sugar, and an ideal medium for the growth of bacteria. High levels of lactose in the intestines could be part of the reason why calves fed with a faster teat are prone to scours.

There were significant differences in the Average Daily Weight Gains. 42 day Average Daily Gain

- Faster Teat with valve 1.46lb per day
- Milk Bar Teat 1.62lb per day

Did you know?
The Milk Bar Team are dedicated to providing you with the best information and products to help you raise healthy calves with minimum fuss.
Cross Suckling and Udder Damage

Trials show that Cross Suckling occurs when group fed calves are fed quickly

Calves in the “faster teat with an internal valve” groups cross suckled vigorously after feeding and tended to have red swollen teats. Of great concern was the teat canals were open, and the keratin plug had been sucked out.

O. Schalm wrote “Calves suckling on each other can affect the development of the juvenile udder. This in conjunction with the transmission of mastitis pathogens is prone to lead to heifer mastitis”.

Calves in the “Milk Bar Teat” groups did not cross suckle after feeding. They displayed natural behaviours and would lick each other around the mouth, run around, eat starter ration or lie down.

Group fed calves fed on Milk Bar Teats had no cross sucking, teat or udder damage!

Healthy calf udder on a calf fed with Milk Bar Teats

Damaged udder on a calf fed with a Faster Teat

Calf udder showing cross sucking damage to two teats. The keratin plug has been sucked out leaving the calf open to infection.

Using the right teat for success

Why calves fed on Milk Bar Teats are heavier and healthier

Only Milk Bar Teats have an internal web that controls the flow rate, stopping calves gulping and encouraging the correct suckling action and saliva production required for great calf health, better curdling, higher weight gain and less cross suckling.

A Milk Bar Teat and a teat with an internal valve have completely different actions!

Squeeze a cows teat and the milk goes back into the udder. To milk a cow you must strip downwards, squeezing the teat between thumb and fingers.

Calves must suckle hard to obtain milk.

Did you know?
The slower I feed, the less likely you’ll need to spend time treating me. When I feed at the slow speed I’m supposed to, I can digest my milk and am much healthier than calves that are fed quickly.
A calf’s digestive system

By feeding as nature intended many rearing problems disappear

- When a calf drinks from a cow, it drinks slowly with its neck stretched out, and produces a lot of saliva.
- This action closes the esophageal groove so milk bypasses the rumen and enters the abomasum.
- When milk enters the abomasum, rennin and other enzymes curd the milk.
- Milk curd is then broken down by enzymes in the abomasum, before also passing into the intestine for absorption.

The importance of saliva

Calves that produce lots of saliva when drinking are far healthier

- The saliva produced by suckling slowly, balances the pH in the abomasum to help curd the milk.
- Saliva contains essential enzymes like lipase, necessary for fat digestion, a vital energy source.
- Saliva contains natural antibiotic properties, a calf’s first and main defence against infection.
- When a calf is fed fast, it may not produce the saliva it needs to digest milk. This can cause the calf to suck on ears, navels, udders, and surroundings to try to produce the saliva it should have produced while suckling. **This is called cross sucking.**
- Fast feeding can lead to milk overflowing the esophageal groove and entering the rumen where it will sour and ferment in the absence of enzymes, leading to digestive upsets.
- Fast feeding and insufficient saliva can also result in a lack of curding, allowing whole milk to enter the small intestine. This leads to bacterial fermentation and nutritional scour.
- **E-Coli numbers multiply rapidly when in contact with raw milk. This is a leading cause of nutritional scours in young calves.**

Calves fed on Milk Bar Teats produce a lot of saliva, drink at a natural speed and with the correct suckling action. A teat with an internal valve can not replicate natural suckling as the action is completely different.

Nutritional Scours

Feeding calves at a natural slow speed can help avoid this problem

*Nutritional scours is simply the end result of an over supply of lactose in the intestines, caused by milk moving too rapidly out of the abomasum, so it cannot be broken down quickly enough.*

Nutritional scours often progresses to infectious scour, caused by a high population of pathogens. Pathogens use excess lactose as a nutrient source to increase in numbers. The rate in lactose digestion is then further reduced as a result of damage to the intestine walls by these pathogens. This damage also causes body fluids to leak into the gut, thereby increasing the rate at which the calf dehydrates.'

Source- Victoria Department of Primary Industries.

Did you know?

If I am fed too fast, too much milk, without the correct suckling action, or in the wrong position, milk can enter my rumen. This can form acids which lower the rumen pH and cause long term damage.
The Esophageal Groove

What it is and why it is so important

The esophageal groove is a curved muscle that lies in the throat of the calf. Its job is to ensure that everything that enters the calf’s mouth, ends up in the right place.

The Rumen. When a calf drinks water from a trough or eats meal and grains, the esophageal groove stays curved to direct these foods to the rumen for digestion.

The Abomasum. When a calf suckles on a cows teat the esophageal groove closes and forms a tunnel to direct the milk to the abomasum for digestion. This tunnel is small and cannot cope with the large volumes of milk caused by fast feeding.

It is vital to the health of the calf that all the milk goes into the abomasum. If milk enters the rumen through fast feeding, tube feeding or bucket feeding, it can cause a gut ache, as the enzymes in the rumen cannot digest milk. Milk in the rumen can also lead to scarring on the rumen wall, which affects the long term production of that animal.

This demonstrates the esophageal groove when relaxed.

As a calf drinks water from a trough or eats grain or pasture (grass, hay, silage etc) the esophageal groove muscles are relaxed so the food and water drops into the rumen.

This demonstrates the esophageal groove when a calf suckles from a teat.

The muscles tighten to form a tube to direct milk to the abomasum. Fast feeding can overflow the tube so milk can enter the rumen.

What to feed when

Find the balance between growth and the bank account

There are 3 phases in the development of a calves’ digestive system.

- **Liquid feeding phase:** All nutrients are obtained from milk or milk replacer for about the first 3 weeks.
- **Transition Phase:** Milk and starter rations contribute to meeting nutrient requirements. Feed starter ration as soon as possible. After 3 weeks the rumen will be developed enough for the ration to be contributing to the energy required for growth, but it will not be developed enough to digest pasture or hay. The calf can be weaned when it is consuming 2 lbs of starter ration per day.
- **Ruminant Phase:** Nutrients are derived from solid feeds through microbial fermentation in the rumen. By the time the calf is 12 weeks the rumen will be developed enough for the calf to thrive on pasture (or pasture based feeds) or grain.

Developing a healthy rumen early is vital to ease the transition from a pre-ruminant to a ruminant animal. These pictures show how the rumen of 4 week old calves have developed when fed various combinations of milk, grain and hay.

A healthy rumen has a dark colouration which is caused by increased tissue mass and large blood vessels.

The papillae in a healthy rumen are numerous and visible without magnification.

**Did you know?**

Let me drink slowly and place my feeder so the teats are about knee height from the bedding. These simple things will help me to stay healthy and take you less time in my barn!
Which way to raise calves

Raising healthy calves individually or in groups depends on the feed rate

The advantage of the Milk Bar Feeding System is the controlled feeding rate so you can raise groups of healthy calves with less labor. When choosing if you are going to raise your calves individually or in groups, it's good to be aware of the pros and cons of each system.

Individual Pen or Hutch with a Fast Nipple or Pail
- High risk of nutritional scour
- Low risk of disease spread
- Calves do not play or socialize
- Calves do not huddle for warmth
- No cross suckling
- Very labor intensive
- Calves have poor muscle development
- Calves have a growth check at weaning

Individual Pen or Hutch with Milk Bar Teats
- Low risk of nutritional scour
- Lowest risk of disease spread
- Calves do not play or socialize
- Calves do not huddle for warmth
- No cross suckling
- Labor intensive feeding
- Calves have poor muscle development
- Calves have a growth check at weaning

Group Pen or Hutch with a Fast Nipple or Pail
- High risk of nutritional scour
- High risk of disease spread
- Calves play and socialize
- Calves huddle for warmth
- High levels of cross suckling
- Less labor intensive unless treating scour
- Calves have good muscle development
- No growth check at weaning

Group Pen or Hutch with Milk Bar Teats
- Low risk of nutritional scour
- Much less disease to spread
- Calves play and socialize
- Calves lie together for warmth
- Very little cross suckling
- Least labor required
- Calves have good muscle development
- No growth check at weaning

Choosing a system for raising healthy calves with less time and effort

This is a survey of monitored farms conducted by the Moorepark Research Farm, Ireland. Care time is the total time spent with calves and includes treating sick calves, calibrating computerised feeders, cleaning equipment, and changing bedding.

<table>
<thead>
<tr>
<th>System</th>
<th>Calf Care (sec/day)</th>
<th>Weight Gain (lb/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic feeder</td>
<td>71</td>
<td>1.5</td>
</tr>
<tr>
<td>Twice/ day, buckets</td>
<td>83</td>
<td>N/A</td>
</tr>
<tr>
<td>Twice/ day, troughs</td>
<td>64</td>
<td>1.7</td>
</tr>
</tbody>
</table>

RESULT: Group feeding calves with teats takes the least amount of labor, and gives superior weight gains.

Source: Moorepark Laobur Study

Disclaimer: All information regarding the physiology of calf feeding is based on observations from the last 24 years of our own research, from information obtained from our recent Research Trial, vets in many countries and scientists who study calf rearing and its consequences. Where we have obtained information from an outside source, that source is given.
Group Raising

A well set up group system allows calves to thrive and saves you time

Calves are herd animals and thrive in group situations. There is much research on the benefits of group raising calves from 10 days old.

Studies by Chua et al (2001) found that calves raised in pairs continued to gain weight normally during the week of weaning while those housed individually experienced the “growth check” commonly observed in traditional calf rearing systems. This suggests that group housing calves prior to weaning promotes development of social skills and reduces fear of interaction with other calves.

Dr. James, Department of Dairy Science Virginia Tech

On dairies where there is a spread calving pattern, there are two options for moving calves into groups -

• Keep them in individual pens for the first 10 days to 2 weeks, or until there are enough calves to form a group. Then use the "Milk Bar Follow the Teat System" until weaning. See page 8 for details.

• If there are enough calves of a similar age, place the calves in small groups from Day One.

On seasonal dairies where there is a more concentrated calving pattern, individual pens for a few days can be beneficial to ensure sufficient colostrum intake, however it is normal to put calves straight into groups of up to 10 calves.

All housing, whether for individual calves or groups should have the following to keep calves healthy and happy

Space: Calves need approximately 15 to 20 square feet of floor area per calf.

Water: Calves need access to fresh clean water from Day One. Calves with water eat more grain leading to better rumen development.

Ventilation: Calves need good ventilation, in a draft free environment. To check for drafts, light a match 6" above the floor, if it blows out there is too much draft.

Sunlight: Any housing where the calves can get some sunlight is beneficial to their health, both as a source of vitamin D, and a great disinfectant. Both individual and group hutches are great, as is a barn with clear roofing.

Individual crates are easy to turn into a group pen!

Successful group housing does not need to be expensive.

Group hutches are increasingly popular. You can easily and safely raise groups of healthy calves this way.

Did you know?

We specialize in calf raising and calf barn set ups.
If you’d like one of our team to come and help set up your barn give us a call at 800 776 7042.
Milk Bar’s Follow the Teat System
The easy way to raise healthy calves!

The Milk Bar Follow the Teat System was developed to easily raise healthy calves. The controlled flow rate of the Milk Bar Teat eliminates digestive problems. By using the Follow the Teat System from birth to weaning you know your calves have the best chance of staying healthy.

Training Phase. Days 1 - 3
Use one of these feeders fitted with a Milk Bar Colostrum Teat.

Development Phase. Days 4 - 14
Use one of these feeders fitted with a new Milk Bar Teat.

Growth Phase. Days 15 to weaning
When there are enough calves old enough to put into a group, remove the Milk Bar Teats from the development phase feeders and place into one of these feeders. If there are less calves than there are spaces available in the feeder, install blanking plugs as necessary.

Example Feeders - see the full Milk Bar Range for a feeder that suits you

Milk Bar Teats are easy to remove with a Milk Bar Teat Tool or by hand!

Did you know?
If you keep me on Milk Bar all the way through, I’ll be happy and so will you!
Milk Bar Teats
Calves fed on Milk Bar Teats are heavier, healthier and do not cross suck!

Milk Bar Teat
265-0002
• Simulates the slow natural sucking action required for correct digestion.
• Calves fed with Milk Bar Teats are more settled.
• Cross sucking after feeding is greatly reduced or eliminated.
• The correct feeding rate helps curd formation, preventing raw milk entering the intestine which is a leading cause of nutritional scours.
• Inverted tip prevents irritations in the calf’s mouth.
• Hygienic Milk Bar Teats have no threads or valves to harbor bacteria.
• Do not need to be removed for cleaning.

Calves fed from Milk Bar Teats are settled and content after feeding

Milk Bar Colostrum Teat
265-0001
• Made of a soft natural rubber to make teaching new calves a breeze.
• For great results use for the first 5-6 feedings, then change to Milk Bar Teats.
• Hygienic Milk Bar Colostrum Teats have no threads or valves to harbor bacteria.
• Do not need to be removed for cleaning.

Caution: Using a soft, fast feeding teat for more than the first 5-6 feeds can lead to nutritional scours. Use with fresh colostrum only.

Calves fed from a faster teat with an internal valve cross suckled vigorously after feeding

Did you know?
When you feed me colostrum from a bottle, I absorb a lot more IgG (antibody molecules) than if you tube me. You will also be sure that the colostrum goes to the right place!
Milk Bar Portable Feeders
Light, durable and very easy to use

- Handles in all the right places
- Feeders interstack with teats fitted for easy handling
- Feeders don’t tip forward
- Super easy to clean
- Fully adjustable and punt proof
- Ezi Lock Hooks
- Milk Bar Teats for great calf health
- 2 year guarantee (excluding teats with proof of purchase)

Milk Bar 5
265-2005
- Holds 15 quarts
- Sturdy carry handle
- Moulded hooks fit 1” - 1 1/2” rails
- Ideal Growth Phase Feeder

Milk Bar 6
265-2006
- Holds 9 gal
- Ezi Lock Hooks
- Convenient hand grips
- Ideal Growth Phase Feeder

Milk Bar 10
265-2110
- Holds 15 gal
- Ezi Lock Hooks
- Well placed handles
- Ideal Growth Phase Feeder

Milk Bar 13
265-2133
- Holds up to 26 gal
- 7’ long
- Adjustable Aluminium hooks
- Ideal Growth Phase Feeder

Milk Bar 18
265-2318
- Holds up to 44 gal
- 11.3’ long
- Adjustable Aluminium hooks
- Ideal Growth Phase Feeder

Calves do better in a group.
Using Milk Bar Teats to promote good health will give them a flying start and take you less time and energy to raise them!

Did you know?
Feeders fitted with Ezi Lock Hooks are 100% punt proof and can lock onto anything from a 3” rail to a wire fence.
Strong and easy to use, you can also hang feeders upside down to drain!
Milk Bar Portable Feeders - Compartment

Compartment Feeders are great for sorting calves into drinking groups

- Compartments hold 2.6 quarts
- Handles in all the right places
- Feeders interstack with teats fitted for easy handling
- Feeders don’t tip forward on rails
- Easy to clean compartments
- Fully adjustable and bunt proof
- Ezi Lock Hooks
- Milk Bar Teats for even feeding
- 2 year guarantee (excluding teats with proof of purchase)

**Milk Bar 2 Compartment**
265-2202
- Ezi Lock Hooks
- Conveniant hand grips
- Ideal Development Phase Feeder

**Milk Bar 3 Compartment**
265-2203
- Ezi Lock Hooks
- Conveniant hand grips
- Ideal Development Phase Feeder

**Milk Bar 5 Compartment**
265-2205
- Ezi Lock Hooks
- Conveniant hand grips
- Ideal Growth Phase Feeder

**Milk Bar 10 Compartment**
265-2210
- Adjustable aluminium hooks
- Handles front and rear
- Ideal Growth Phase Feeder

Did you know?

Because Milk Bar Teats have no valves, we cannot gulp quickly but suck at the same speed. This means we all finish about the same time and won’t bump each other off the compartments!
Mobile Milk Bar 50
The Mobile Milk Bar 50 has NO pipes or tubes to clog and is very easy to clean

- Secure flip lid
- Galvanized trailer
- Two large drain taps for cleaning
- Marked gradients
- Round tank eliminates milk surge for superior stability
- Manual leveller ensures an even flow of milk to all teats
- Low center of gravity
- Tank drains completely for cleaning

PL  

plus available with 60 Teats and suspension!

Cleaning is easy
- Wind the leveller down and open the drain taps. Give it a rinse.
- Level the mobile. Put hot water and Milk Bar Detergent in the tank.
- Lightly scrub the tank and manifolds.
- With hot water in the manifolds, clean the teats with a horizontal scrubbing action. This bends the teats, forcing water back and cleans the inner teat surface.
- Teats do not need to be removed for cleaning!

A Milk Bar 20 is another option for large groups of calves

- Solid base stops calves bunting the feeder over
- Feeder bowl bolts onto stand so you can move it as one unit
- Feeder bowl stacks inside the base for transport and storage
- Holds up to 31 gal. Weight 26 pounds.
- Diameter 2.8ft. Height 3ft.

Did you know?
The teats on all Milk Bar Mobiles are the perfect height for great calf health. Nothing is left to chance when we design feeders for your calves.
Milk Bar Grain, Water and Accessories

These products provide everyday solutions for raising calves

**The Milk Bar Meal Saver**

- Eliminates grain wastage
- Totally weather and pest proof
- Won't blow over in the wind
- Keeps grain dry and edible
- Counter balanced lids that calves easily lift with their noses
- Fitted with skids for towing
- Holds 330lbs. 3.9ft long x 2.6ft wide.

**The Milk Bar Pen Waterer**

- Smaller bowl keeps water filling and fresh
- Stops dust, bird and calf faeces from contaminating the water
- Drain for easy cleaning
- Holds 2 gal.

**Braden Start Bottle**

- One Braden Start Bottle to 2 to 2.5 calves in a pen.
- Keeps grain fresh and dry.
- Calves started on Braden Start Bottles consume more dry feed than those started on open troughs.

**Munch Trough**

- Ideal for calves, horses, deer, cattle or ostriches.
- High back and sides prevent spillage.
- Moulded hooks fit up to 2 inch rails.
- Holds 44 pounds.

**Milk Bar Teat Tool**

- Changing teats is simple with the Milk Bar Teat Tool!
- Place the end of the Teat Tool around the teat and pull it out

**Milk Bar Rail Pail**

- Unique design allows you to fill feeders through rails to avoid lifting heavy buckets over rails
- Holds 25L

**Did you know?**

I love these Milk Bar products.
They stop any nasty contaminants getting into my grain and water and make things easier for you!
Milk Bar Lamb and Kid Feeders
Well designed, easy to use and no tubes!

- Finger grips in all the right places
- Interstack with teats fitted for easy handling
- Super easy to clean
- Fitted with Milk Bar Lamb & Kid Teats for great animal health
- 2 year guarantee (excluding teats with proof of purchase)

**Milk Bar Lamb/ Kid Teat**
265-1002
- Simulates the slow natural suckling action required for correct digestion
- The correct feeding rate helps curd formation, preventing raw milk entering the intestine
- Long lasting and hygienic

**Milk Bar Lamb/ Kid Colostrum Teat**
265-1001
- Made of a soft natural rubber to make teaching new lambs and kids a breeze
- For great results use for the first 5-6 feeds, then change to Milk Bar Teats

**Lamb/ Kid Bottle**
265-3000
- Fitted with a Lamb/ Kid teat
- Solid, semi opaque bottle
- User friendly handle
- Holds 3 quarts

**Lamb/ Kid 1**
265-3001
- Hooks fit 1" rails
- Convenient hand grip
- Holds 3 quarts

**Lamb/ Kid 7**
265-3007
- Sturdy carry handle
- Hooks fit 1 - 1 1/2" rails
- Gradients every 5 quarts
- Holds 15 quarts

**Lamb/ Kid 10**
265-3110
- Units interstack
- Holds up to 9 gal
- Fitted with Ezi Lock Hooks

**Did you know?**
Milk Bar Lamb and Kid Teats last much longer than traditional teats so give great value for money. Because they have no valves, we lambs and kids will suckle at the speed nature intended.
Milk Bar Milk Karts
Feed calves quickly and easily with no lifting or carrying!

Milk Kart Complete
265-6000
- Double insulated construction, keeps the milk warm and gives great strength.
- Holds 33 gallons
- Designed to fit through a normal doorway
- The brake is automatically applied when the handle is released
- Fitted with a flow meter to exactly measure the milk volume
- Large diameter, heavy duty, steel rimmed wheels for easy movement over any terrain
- Sight glass with gradients
- Fitted with a 12 volt milk pump that is gentle on the milk
- Fitted with 7.8 feet of hose
- The battery is housed between the back wheels and is easy to recharge

Optional Power Whisk
265-6003
A stainless steel whisk is driven by a cordless drill (not included) which thoroughly but gently mixes a full load of powder in no time!

Cleaning
- Rinse the Milk Bar Milk Kart Complete with water.
- Run some water through the trigger and hose and drain the rest through the tap at the base.
- Wash with hot water and an alkali detergent.

Milk Bar Milk Kart Only
265-6001
The Milk Bar Milk Kart Only has no pump, battery, hose or flow meter and gives a great insulated milk transport option. Simply fill your pails from the tap at the base of the unit. The gradients and sight glass tell you how much milk you’ve let out.

Did you know?
The use of a high speed centrifugal water pump to pump or mix milk can damage the fat particles in the milk. Fat is a major energy source for me and my growth may suffer if I cannot digest it.
To find your nearest Milk Bar dealer, give The Coburn Company a call at 800 776 7042 or email us at info@coburn.com!