



# Colostrum management

## Colostrum management is the key to preventing disease and death in calves

The cow and calf are 'oddities of nature'. Unlike in other mammalian species, where antibodies can pass freely from the mother across the placenta to bestow immunity to her baby; calves are born with little or no immunity to disease. This is because (unlike in humans and other mammals), the cow's placenta prevents the transfer of antibody molecules, essential for immunity, from crossing the placental-blood barrier. Therefore, calves must drink colostrum, and absorb antibodies from colostrum, across their gut wall to obtain immunity until their own immune system becomes functional. This process is often referred to as 'passive transfer'. Calves that fail to absorb sufficient quantities of antibodies are said to have suffered from Failure of Passive Transfer (FPT).



### FPT can result in:

- increased disease and increased death rates in dairy calves
- longer term detrimental effects on growth rates, milk production and reproductive performance.

## Calves can develop FPT in a number of ways, all related to poor colostrum management.

Often as we reach the peak of the busy calving season, colostrum management becomes more haphazard as people become busier.

It is vital that the first 24 hours of a calf's life is managed as well as possible to give them the best start possible.

Over the first 24 hours of life the newborn calf gut becomes increasingly impermeable to large antibody molecules - so timing of colostrum feeding is crucial. Feeding colostrum too late is a contributor to FPT.

## The 3 Qs of colostrum management to prevent FPT:

1. **QUICKLY** - we need to get colostrum into newborn calves quickly to prevent FPT. Specifically within the first 6-12 hours of life before the newborn calf gut 'closes'.
2. **QUANTITY** - we need to feed enough colostrum to the newborn calf to prevent FPT. Specifically 10-15% of the calf's liveweight as a minimum. NB. Because the abomasal (first stomach) capacity is only 1.5 to 2 litres we need to split feeds into no more than 2 litres for a 40kg Friesian calf - this looks like 4 litres of colostrum (10% minimum), split into 2 feeds of 2 litres, fed within the first 6-12 hours of life.
3. **QUALITY** - colostrum quality is measured by antibody levels (we want these to be high) and bacteria levels (we want these to be low). Antibody levels are highest in the first milking or "gold" colostrum. It can be checked with a brix refractometer.



## Promoting high antibody colostrum

You can measure colostrum antibody levels using a BRIX refractometer. A BRIX refractometer is an instrument that has been used to measure the sugar content in the wine, beer and kiwifruit industries. Transferring this instrument to the dairy industry, it can be used to measure the antibody level in colostrum. This is a neat, cow-side test that allows you to measure antibodies in colostrum right then and there, without having to wait for lengthy laboratory testing. Brix % readings of more than 22% indicate adequate colostrum antibodies.



## If your colostrum is low in antibodies (according to the BRIX):

1. You need to be sure that the colostrum you have pooled for feeding to your newborn calves is FIRST MILKING colostrum only. This is the ONLY colostrum that is suitable for feeding to newborn calves.
2. The second thing to check is how soon after the cow calves you are collecting colostrum. The sooner the better as the antibody level in colostrum will decline with time the more time passes since the cow calved. This decline in antibodies in colostrum will also happen if the colostrum is left sitting in a bucket for a number of hours prior to feeding it to newborn calves. Make sure you are collecting colostrum as quickly as possible from the cows and feeding it as quickly as possible to your calves.
3. The last thing to check is that you are selecting the cows in your herd that are producing the best quality (highest antibody) colostrum. There are many reasons that a cow may produce low antibody colostrum: skinny cows, sick cows and cows that have already been suckled will have low antibody colostrum.
4. Vaccinating your whole herd 3-6 weeks before planned start of calving against Rotavirus scours will boost specific antibody levels in colostrum.

## Reducing bacterial contamination of colostrum

Bacterial contamination of colostrum is a real risk as it will prevent the calf from absorbing antibodies across its gut. This means that if you have high antibodies in your colostrum and it is really contaminated you STILL run the risk of FPT in your calves.

Bacterial contamination of colostrum can occur at any stage from harvesting (from the cow), to storage and feeding. All storage and feeding equipment needs to be kept clean. Use hot soapy water to scrub clean all equipment and buckets EVERY time they are used.

Colostrum should be stored in a lidded drum or vat and stirred regularly.

## Preserving colostrum quality

Once you have the quality of your colostrum where you want it (high in antibody and low in bacteria) - keep it that way; by preserving it.

Ideally, colostrum should be refrigerated (at 4° C) to suppress growth of bacteria and help preserve antibody concentrations.

Consider adding a chemical preservative agent to the colostrum such as potassium sorbate at a rate of 1% by volume of a 50% solution (talk to your local Anexa vet for a recipe). More traditional chemical preservatives, such as formaldehyde and hydrochloric acid are not recommended for use in the food producing industry as they are known carcinogens. Probiotics, are also not recommended because they do not preserve IgG or prevent bacterial proliferation.

Continuing to feed colostrum to calves beyond the initial 24 hours (after the calf gut 'closes') will still have some advantages, as antibodies can bind to infectious agents in the gut, limiting disease prevalence and severity. It is also a highly nutritious feed. You may want to preserve both "gold" colostrum and older calf colostrum.

For further information on this topic contact your local clinic | [anexa.co.nz](https://anexa.co.nz)

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