

Hygiene in calf feeding

Would you drink from a coffee cup that you have been using for three days? Would you give your baby milk from a dirty bottle?

Not only since Corona the answers have been clear: Cleanliness and hygiene are important to all of us! But why not with the same consequence in calf rearing?

It is known that calves must develop their immunity. Sufficient immunization with colostrum is important. But immunity can only protect the calf to a certain extent. If the bacterial load in the environment is too high, even the best colostrum management is of no use. The calves get sick!

Contaminated colostrum is problematic in several ways:

- a) The germs can enter the calf's organism before it has developed an immune response.
- b) Germs can block the absorption capacity of the intestinal wall for antibodies.
- c) Germs in milk bind the antibodies that attach themselves to the pathogen to inactivate it. Then these antibodies are no longer absorbed into the bloodstream.



Of course, this applies to the entire life of the calf: The more it is confronted with germs, the more the organism has to deal with it. This demands strength and energy and thus reduces the potential growth and development of the calf.

Rienhoff, Prof. Boelhauve et al. from the university of applied sciences South Westfalia¹ found f.ex. that the germ load in the colostrum has a significant influence on later growth. Up to 200 g lower daily weight gains were measured in calves with a high bacterial load in the milk.

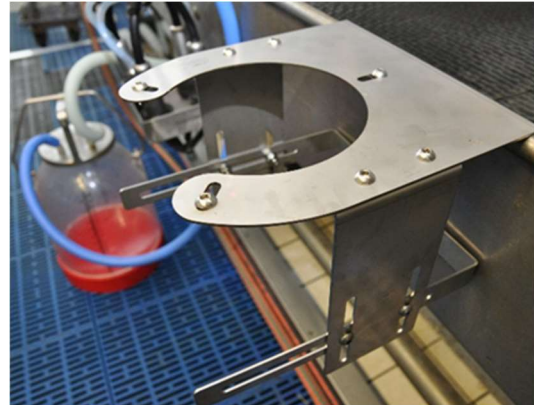
¹ <https://www.elite-magazin.de/heftarchiv/gesundheit/biestmilch-voller-keime-7578.html>
https://www4.fh-swf.de/de/home/ueber_uns/standorte/so/fb_aw/doz_aw/ma_aw/rienhoff/index.php

Hygiene problem milk bucket

Here not the colostrum as such is the problem. Rienhoff et al. also show that the colostrum is massively contaminated with germs by the milking churns and drinking buckets used.

Experiments in which the buckets were not cleaned showed that the freshly milked colostrum had relatively little contamination of approx. 100 cfu/ml. In the milk churn in the milking parlor, this value rose significantly above 200,000 cfu/ml, (with fluctuations of 1,000 to 4.2 billion cfu/ml !!).

Only with regular cleaning of the milk churns, e.g. with the Holm & Laue **CanWash** (see also the video at: <https://rebrand.ly/canwash>) – integrated in the milking system cleaning –, the germ load of the fresh colostrum can be reduced to an acceptable level of well below 100,000 cfu/ml.



Hygiene problem teat bucket

The bacterial load in the feeding buckets is often well over 100 million cfu/ml!

And this problem is not limited to the colostrum but persists the entire drinking phase of the calves if hygiene management is inadequate. Cleaning the teat with the valve is particularly time-consuming and is therefore often neglected. It is also common practice to leave the bucket hanging with the calf, so that there is no mixing of the buckets in between calves and therefore no carryover of the pathogens. Especially in summer and when feeding AdLibitum the germ load quickly reaches its limits.



Regular cleaning of the buckets is f. ex. possible with the **FlushMaster** in the MilkTaxi from Holm & Laue (also see the video at: <https://rebrand.ly/flush-master>). Since it can take place directly at the calves, you save long walking routes to the milk kitchen.

Nevertheless, it is recommended to take apart the teats and valves of the buckets at regular intervals and to clean and disinfect them thoroughly.

Is pasteurising the solution?

Germs in whole milk are effectively combated in the MilkTaxi by pasteurization. Dangerous pathogens such as E-coli, Staphylococci, Enterococci or Salmonella are reliably killed. Nevertheless, it happens again and again that milk that has already been made low in germs will germinate again. As described above this can happen by using dirty drinking buckets.

But also, in the MilkTaxi there is a risk of recontamination. This is f. ex. possible when rubber parts become porous and germs settle there and cannot be reached by the heat treatment. In practice, there are situations in which, after successful pasteurization, the milk returns to the germ level before pasteurization.

Although these types of germs no longer correspond to the original germ pattern, they are quite suitable to let the milk spoil faster. It is therefore always recommended to change the wear and tear parts of the MilkTaxi regularly (at the latest after one year!).

In addition, it makes sense to check the result of the pasteurization by “before and after” examinations of the milk.

Checking your own hygiene standard

Many farms use the monthly milk check to also control the calf milk for bacteria. In addition to the samples from the cows, a few tubes are simply filled with calf milk and examined for the total germ content.

It has proven useful to take the following samples:

- Sample from the milk bucket in the milking parlour (if in use)
- Sample of the raw milk in the MilkTaxi before pasteurisation
- Sample of the pasteurised milk
- Sample of the milk in the nursing buckets

This gives you a very good overview of the development of the germs in the preparation and feeding process.



Further hygiene tips

- **Does the acidification of the milk inhibit the germs?**

Acidifying the milk f. ex. for AdLibitum feeding to pH 5.5 reduces the further development of the bacteria in the milk. Contrary to popular belief, the acid only kills some of the germs. In addition, a multiplication of germs can be recognized again with a longer waiting time. Therefore, the hygiene rules described above should also be strictly observed when using acid.

- **How do I find out the germ load on surfaces?**

The bacterial contamination of surfaces can be checked relatively easily using so-called ATP testers. They are simple hand-held devices that are equipped with a test tube that was previously run over the surface to be measured. Within a few seconds you know how heavily the surface is loaded. However, it is not bacterial counts that are measured, but the ATP content (adenosine triphosphate) of the biofilm on the surface.

- **Do I have to clean the surface before disinfection?**

Disinfection on an existing biofilm does not produce a satisfactory result. Therefore, thorough cleaning with warm water and detergent is always necessary. In case of doubt, an ATP test (see above) should be carried out before disinfection to check the cleaning result.

- **Why do I have to let the surfaces dry before disinfection?**

The disinfectants should be used exactly according to the manufacturer's recommendation. Most agents only work at an optimal concentration in a solution with water. A damp surface or even puddles ensure that the active ingredient is too diluted.

- **What is to be considered in respect of teat cleaning at automatic feeders?**

In addition to the automatic rinsing of the teat in the HygieneStation, it is recommended to change the teat daily and disinfect it in a cleaning solution. The quick teat change device makes this step easier. If desired, you can even replace and disinfect the entire teat seat unit.

- **How should the drinking technology serviced to ensure optimal hygiene?**

As already mentioned, there is a risk of recontamination of the milk by porous rubber parts or components that are difficult to clean in the drinking technology. Annual maintenance of the MilkTaxi or the automatic feeder by trained specialist staff ensures a good hygienic basis for the future drinking phase. Holm & Laue offers complete maintenance kits with all the necessary wear and tear parts at special prices for the CalfExpert and the MilkTaxi!