

The Impact of Contaminated Colostrum

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Everyone knows that colostrum provides the nutrients and maternal antibody protection for the young calf. However, colostrums on some dairies can be highly contaminated with bacteria. When not properly handled, colostrums may contain coliforms, salmonella, cryptosporidia and other intestinal pathogens. Even when collected using recommended practices, colostrums may contain the Johne's bacteria, bacterial mastitis pathogens or mycoplasma.

Here are some places to look for possible sources of contaminated colostrums:

Cow preparation – When the udder and teats are not completely cleaned and sanitized prior to collection of colostrums at calving, fecal coliforms can easily be added to the colostrums. Great care should be taken to prepare the cow prior to collection of colostrums. The udder and teat should clean and dry prior to collection...just like a cows being milked in the parlor. The colostrums will never be any cleaner than at the first moment following collection.

Cleaning and sanitizing of equipment – Buckets or pails used to collect the colostrums should be very clean. After each use, they should be cleaned with detergent and hot water. This should be followed with a sanitizer. Steps similar to care of the milking equipment in the parlor should be followed. When not properly cleaned, equipment may serve as a place when bacteria can multiply to high numbers in between uses.

Milking equipment – The milking equipment used to milk the fresh cows should be just as clean, or cleaner than the milking equipment used to milk the rest of the herd. This equipment should be inspected and maintained on the same schedule as the main milking parlor. The best trained and most trusted employee should milk the fresh cows to ensure collection of high quality colostrums.

Cooling and storage – Like the milk going into the bulk tank for sale, the colostrum should be rapidly cooled to less than 40 F and kept cold until used. The number of bacteria will double every 20 minutes or so at improperly high temperatures. This is particularly true for contaminated colostrum. In just a few hours, the colostrum can contain lethal amounts of bacteria.

Cows with mastitis – Cows that freshen with mastitis may be putting large numbers of Streps, Staphs or environmental bacteria into their colostrums. Colostrum from cows with clinically evident mastitis should not be fed to calves.

Bottles, nipples and buckets – The equipment used to feed calves should be clean and sanitized just like the bottles used to feed the human babies at home. After each feeding, the calf feeding equipment must be thoroughly cleaned followed by sanitization. Remember that for a sanitizer to be effective, it must be used in a clean bottle and have sufficient time to act on any residual bacteria. Sanitizers are like teat dips; they need contact time to be effective.

It is possible to culture the colostrums to determine if significant contamination has occurred. Samples of the colostrums can be cultured by your veterinarian or your milk quality laboratory where you submit mastitis samples. Dr. McGuirk of the University of Wisconsin, School of Veterinary Medicine gives the following guidelines for colostrums quality¹:

Total bacteria count:	<100,000 cfu/ml.
Fecal coliform count:	<10,000
Other gram-negatives:	<50,000
Strep. ag.	0
Strep. non-ags	<50,000
Staph aureus	0
Other Staphs	<50,000
Salmonella	0

When excessive numbers of newborn calves suffer from diarrhea or other intestinal problems, the possible sources of colostrum contamination should be checked out to locate the possible source of the problem. Keep in mind that pasteurization of waste milk being fed to calves when properly done can virtually eliminate these problems.

¹ S. M. McGuirk. 2003. Solving calf morbidity and mortality problems. Pre-Convention Seminar. Proceedings of the 36th Annual Conference of The American Association of Bovine Practitioners. Columbus, OH>