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Feed The Calves Colostrum As Quickly As Possible

For a heifer calf, colostrum is one of the most decisive factors for future milk yield. Improving colostrum management is simple and does not require large investment of money - but remember, with every calf you only have one chance to do it right.

Four key areas to focus on when optimizing colostrum management:

- How improving colostrum management can increase the **profitability of your farm**
- Why measuring **colostrum quality** is crucial
- Why the **time to first feeding** of colostrum is critical
- Why the importance of **good hygiene** while collecting and feeding colostrum cannot be understated

This is the third of four articles focusing on the importance of **feeding colostrum immediately** after birth.





About Hanne Skovsgaard and coloQuick International

Dr. Hanne Skovsgaard Pedersen, DVM, PhD is a calf specialist with experience as large animal veterinarian and researcher. She focuses on staying current with scientific publications and developing literature that explains the biology of the calf. She is passionate about the dissemination of knowledge and optimizing calf management on farms around the world.

coloQuick International is a division of the Danish company, Calvex A/S (est. 1992). At coloQuick we supply products and expert level advice, to increase farm profitability and reduce the use of antibiotics in dairy herds by focusing on the first hours of a calf's life.





Good calf managers communicate a clear strategy with their team, to ensure colostrum being fed efficiently and systematically to all calves, immediately after birth. You and your employees, should see the time to the first feeding of colostrum as a race against the clock, and if colostrum is not fed quickly, you are already a step behind when it comes to the health of the calf, its growth and the possibility to exploit its full potential.

Maximize efficiency of absorption by feeding colostrum ASAP

Calves are born with a naive immune system, so the antibodies in the colostrum will serve as the calf's main defense against pathogens for the first 2-3 weeks after calving, until the calf establishes its own production of antibodies.

Feeding high quality colostrum is not enough on its own – the colostrum needs to be fed as soon as possible after birth in order to maximize efficiency and take advantage of its numerous beneficial ingredients. The calf's ability to absorb antibodies is a specialized biological mechanism, which is only active for a short period of time. In the first few hours following birth, the structure and function of the intestinal cells is specialized to absorb antibodies from colostrum but efficiency of absorption diminishes rapidly over time (Figure 1).

Studies have shown that the capacity for the absorption of antibodies drops as early as 30-60 minutes after birth (Rajala & Castren 1995, Shivley et al 2018). This means that if the calf is not fed colostrum immediately after birth, the antibody concentration in the calf's blood will be lower than it could, and should be. This will increase the risk of disease, such as diarrhea and respiratory infections. Any disease incidence will have a negative effect on growth performance and the calf's ability to fulfill its milk yield potential as an adult.

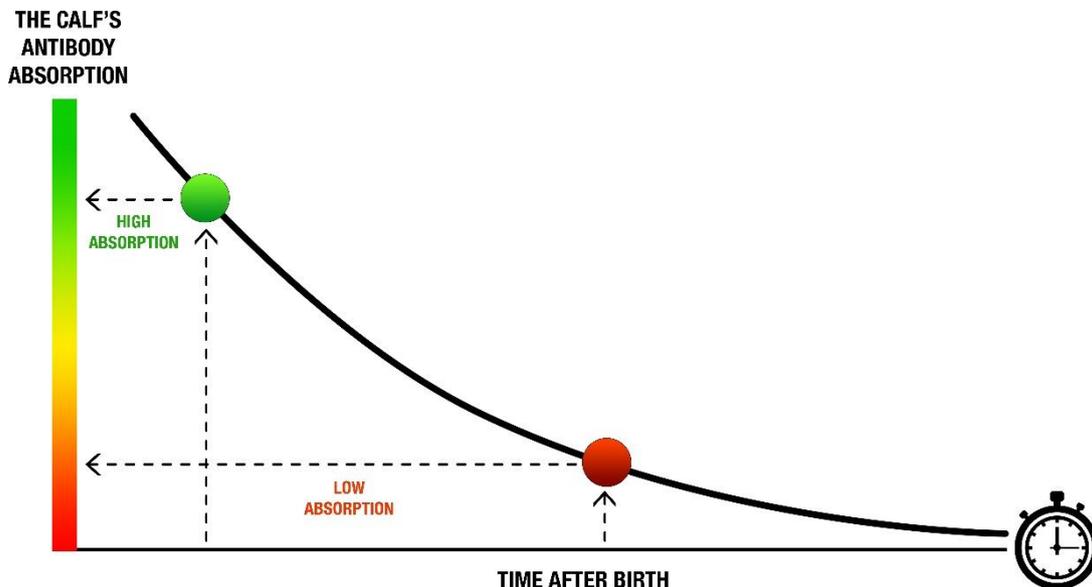


Figure 1: Feeding the calf colostrum immediately after birth (green circle) ensures a high level of absorption of antibodies into its blood. Providing colostrum later (red circle) reduces the antibody absorption and hence the calf's immunity and resilience





Early feeding with colostrum affects the intestinal microbiome

The bacterial colonization of the calf's intestine commences during the birthing process and continues immediately after calving. Some types of bacteria have proven to be beneficial to the development of the intestines and a healthy immune system.

Beyond the passive transfer of immunity, feeding calves colostrum as soon as possible after calving, increases the number of beneficial intestinal bacteria (Fischer et al. 2018). In addition, research indicates that the types of microorganisms establishing in the rumen and intestinal system, can greatly affect health and productivity, when the calf becomes a dairy cow (Li 2018).

Further reducing the risk of disease in immunized and well-fed calves

Feeding colostrum as soon as possible after calving will also reduce the risk of the calf ingesting pathogenic microorganisms. A well-fed calf will lie down to digest (Figure 2), while a hungry calf will have a greater tendency to suck on pen fixtures, the calf feeder's hands, clothing etc. This suckling behavior increases the odds that the calf will come in contact with potentially harmful bacteria or viruses in the environment.

Experienced calf feeders will also tell you that if a calf is born without any human assistance, the calf's sucking reflex will be the strongest immediately after calving. Therefore, it will be easier to get the calf to drink a full serving of colostrum the earlier it is fed.

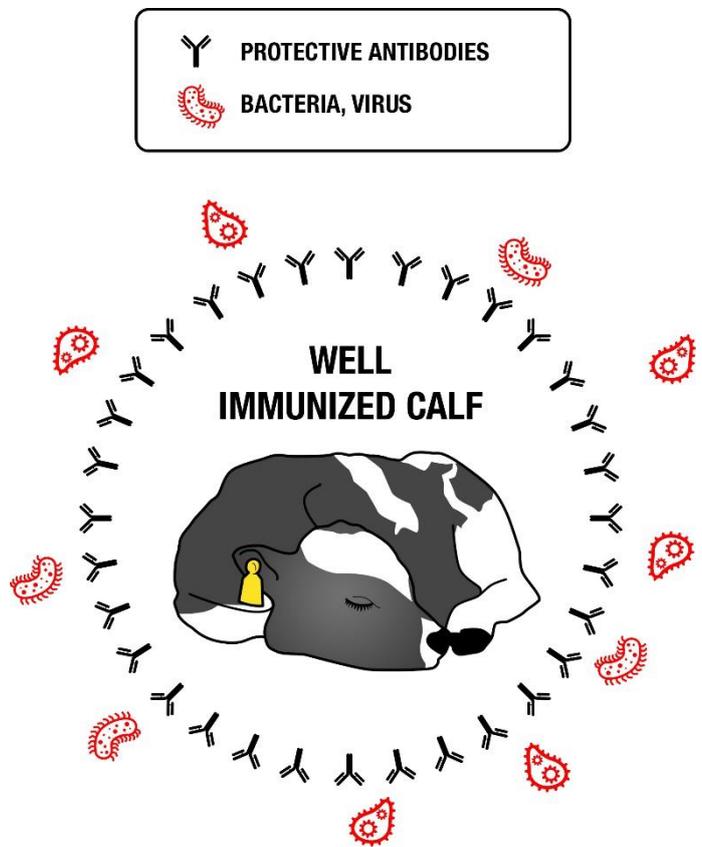


Figure 2: Early feeding with colostrum results in a high level of antibody absorption and a feeling of being full, which reduces the risk of absorbing contagion from the environment.





Be systematic and increase your speed

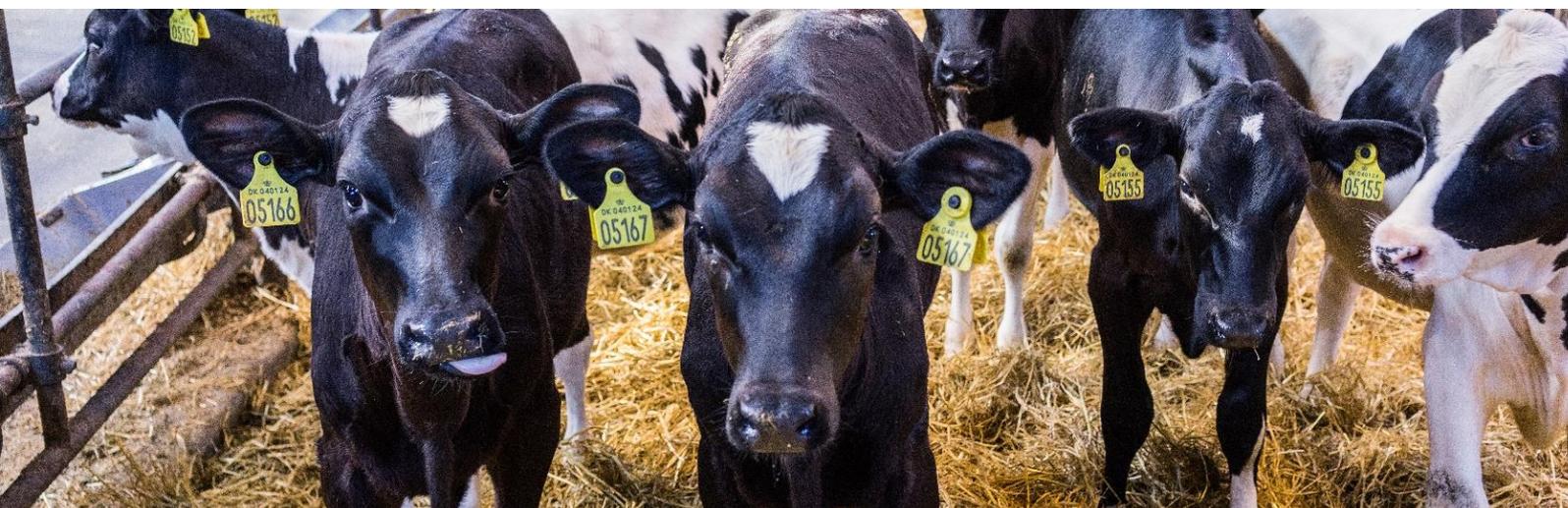
Remember, you only have one chance to do this right. The window for maximizing the benefits of early colostrum feeding is very small, so feeding colostrum as soon as possible should be a top priority.

Feeding the calf colostrum within 1 hour after calving can be challenging, especially if the cow calves during the night or if it coincides with other scheduled tasks. It is therefore supremely important, that you always have high-quality colostrum in stock and that there are clear and easy procedures in place for how the calves should be fed colostrum.

Optimally, colostrum should be fed to the calf as soon as possible after birth and ideally within 1 hour. This way, you can ensure that the calf will benefit fully from the positive physiological effects of the colostrum ingredients. Previous recommendations to provide colostrum within 4-6 hours should therefore be considered inadequate.

The three most important things to remember:

- Calves need to ingest a high amount of colostrum to stay healthy and grow up to become healthy, high producing, long lasting dairy cows.
- Feeding colostrum immediately after birth (<1h) significantly increases the efficiency of antibody absorption
- A systematic approach to colostrum feeding is the best, and easiest way to achieve your goals.





Colostrum, immediately after birth, lays the foundation for high-yielding dairy cows

The calf's ability to absorb antibodies from colostrum starts to decrease after birth. At Skovgård, the goal is for all calves to receive colostrum immediately after birth, in order to ensure the production of good calves and strong cows.

Colostrum management is high priority at Skovgård. Colostrum is tested and sorted so that the calf is given the best colostrum from the herd immediately after birth.

“When a cow has calved, we thaw a portion of colostrum right away, which means that 95% of all calves are fed colostrum right after birth,” says Anne Fuglede-Hansen, who owns Skovgård together with her husband, Simon Fuglede-Hansen.





Feeding colostrum fast leads to strong dairy cows

Anne and Simon have always focused on the importance of feeding the calves colostrum as soon as possible after birth, in order to achieve the highest possible absorption of antibodies into the calf's blood, which ensures the calves having the best start in life.

“Early feeding with colostrum is incredibly important, not only for the calf's health, well-being and growth, but also for the quality of the animal which will become a future dairy cow. Feeding colostrum right after birth also means that it is easier and faster to get the calf to drink,” says Anne Fuglede-Hansen.

Calf health issues are rare among the calves in the herd, and Anne is very pleased.

“Our calf management is not perfect in all areas, but we have succeeded because we ensure a very good start for the calves. We believe that our handling and management regarding colostrum establishes a good foundation, which ensures that we have good dairy cows in the future,” says Anne Fuglede-Hansen.



Skovgård is owned by Anne and Simon Fuglede-Hansen, which took over the herd in 2014. The production is conventional and consists of 140 dairy cows. The calves are raised in a building that is isolated from the young animals (> 6 months), dry cows and dairy cows.

At Skovgård, feeding the calves colostrum immediately after birth is a top priority





Warming colostrum in a coloQuick water bath means that it will be available to the calf quickly and easily

Determination and systemization – it's the way forward

The coloQuick colostrum management system is the best, and the easiest way to manage colostrum on your farm.

“It's a brilliant system, and it makes it easy to provide colostrum correctly. When we realize that a calf has been born, a portion of colostrum is taken out of the freezer and heated using the coloQuick water bath. This way, I know that there is high-quality colostrum ready for the calf shortly after. When I pick up the portion, the colostrum has the right temperature and is ready for feeding – it's incredibly easy,” says Anne Fuglede-Hansen.

At Skovgård, the calves are well cared for. The motivation and determination stem from Anne and Simon Fuglede-Hansen's knowledge of the problems that arise from sub-optimal health and well-being among the calves.

“With us, failure to feed a calf colostrum right away is not an option, because we know the consequences of not doing it correctly – both to the calves and to the herd as a whole,” says Anne Fuglede-Hansen.





References

Fischer, A. J.; Song, Y.; He, Z.; Haines, D. M.; Guan, L. L.; Steele, M. A. Effect of delaying colostrum feeding on passive transfer and intestinal bacterial colonization in neonatal male Holstein calves. 2018. *J Dairy Sci* 101(4):3099-3109

Li, F.; Neves, A.L.A.; Ghoshal, B.; Guan, L.L. Symposium review: Mining metagenomic and metatranscriptomic data for clues about microbial metabolic functions in ruminants. 2018. *J Dairy Sci* 101(6):5605-5618

Rajala, P.; Castren, H. Serum immunoglobulin concentrations and health of dairy calves in two management systems from birth to 12 weeks of age. 1995. *J Dairy Sci* 78(12):2737-2744

Shivley, C. B.; Lombard, J. E.; Urie, N. J.; Haines, D. M.; Sargent, R.; Koprak, C. A.; Earleywine, T. J.; Olson, J. D.; Garry, F. B. Preweaned heifer management on US dairy operations: Part II. Factors associated with colostrum quality and passive transfer status of dairy heifer calves. 2018. *J Dairy Sci* 101:1-14

