



By HANNE SKOVSGAARD PEDERSEN, veterinarian, PhD, coloQuick International A/S



Feed The Calves Colostrum As Quickly As Possible

Antibodies in the colostrum are a decisive factor for the future milk yield of a heifer calf.

Introduction of systematic colostrum management is simple, does not require large investments. But remember, you have only one chance.

Four articles on optimization of colostrum management:

This is the first of four articles about optimizing management of colostrum for calves. The four articles focus on these topics:

- **Financial gain** from improved colostrum management
- **The level of antibodies** is of crucial importance to the calf
- The importance of **feeding colostrum immediately** after birth
- The significance of **good colostrum hygiene**





About Hanne Skovsgaard and coloQuick International A/S

Hanne Skovsgaard Pedersen PhD is a qualified veterinarian, with experience from large-animal practice and ten years as a researcher. Her focus is on development and dissemination of professional knowledge about optimization of calf management.

coloQuick International A/S is a Danish company established in 2015 by the owners of Calvex A/S. The company supplies products and in-depth knowledge, to increase productivity and reduce consumption of antibiotics in dairy herds by focusing on the first hours of the calf's life.





Good calf management requires a clear strategy and system when feeding colostrum, which should be always initiated immediately after birth. When a calf is born, it is a race against the clock, and if colostrum is not fed, 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.

High antibody absorption with early provision of colostrum

Providing colostrum with a high content of antibodies is necessary to ensure good health, as the antibodies from the colostrum are transferred into the blood stream which improve the calf's resistance to disease. However, high-quality colostrum is not enough on its own – the colostrum must be provided as quickly as possible after birth in order to take advantage of its numerous beneficial ingredients.

The absorption of antibodies across the intestinal wall of the calf will ensure a good start to life. The ability of the intestinal cells to absorb antibodies is a specialized biological mechanism, which is only active for a short period of time. In the hours following birth, the structure and function of the intestinal cells change and the ability of the calf to absorb antibodies diminishes (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 if the calf had been given colostrum right after birth. This will increase the chance of diarrhea and other infections, and it will negatively impact on the growth of the calf and its ability to fulfil its potential later in life.

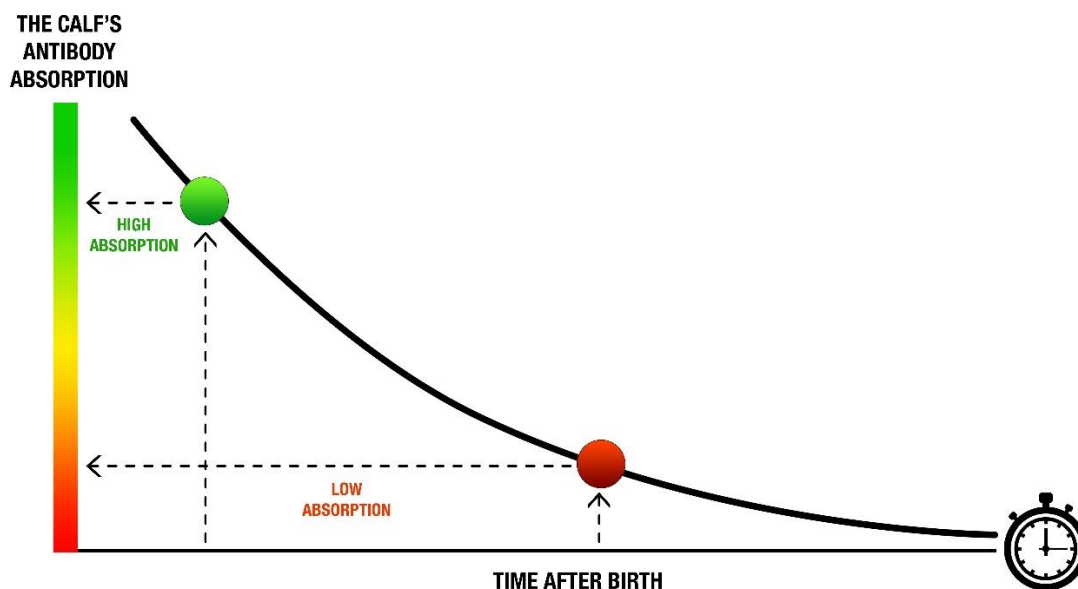


Figure 1. Feeding the calf colostrum immediately after birth (green circle) ensures a high level of absorption of antibodies into its blood. Providing colostrum later (red circle) reduces the antibody absorption and hence the calf's immunity and resilience





Early feeding with colostrum affects intestinal bacteria

Apart from effective immunization of the calf, feeding it with colostrum at an early stage increases the number of beneficial intestinal bacteria (Fischer et al 2018). The bacteria invasion from the calf's surroundings to its intestines commences as early as during birth and immediately afterwards. Some types of bacteria have proven to be beneficial to the development of the intestines and the immune system, with others giving the risk of diarrhea. Research also indicates that the type of micro-organisms in the rumen and intestinal system greatly affects health and productivity when the calf becomes a dairy cow (Li 2018).

Reduced risk of disease in properly immunized and well-fed calves

Provision of colostrum at an early stage will also result in a lower risk that the calf will ingest pathogenic micro-organisms. A hungry calf will have a greater tendency to suck on equipment etc. and in this way, have contact with contagion in the environment.

On the other hand, a well-fed calf will lie down to digest (Figure 2).

Experience also shows that during normal calving, the sucking reflex is strongest right after birth.

Therefore, it is easier to get the calf to drink the earlier it is fed colostrum.

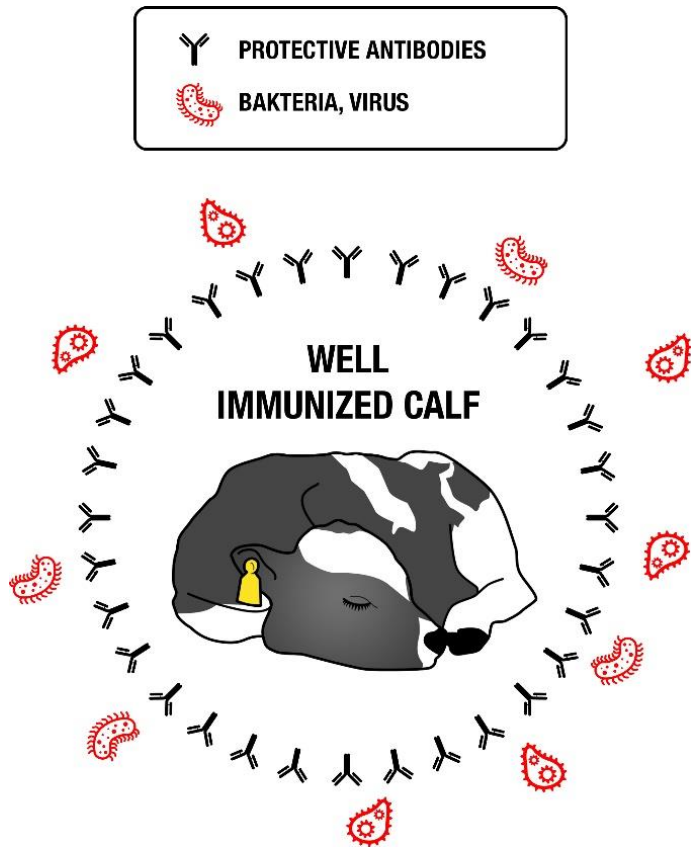


Figure 2. Early feeding with colostrum results in a high level of antibody absorption and a feeling of being full, which reduces the risk of absorbing contagion from the environment.





Be systematic and fast

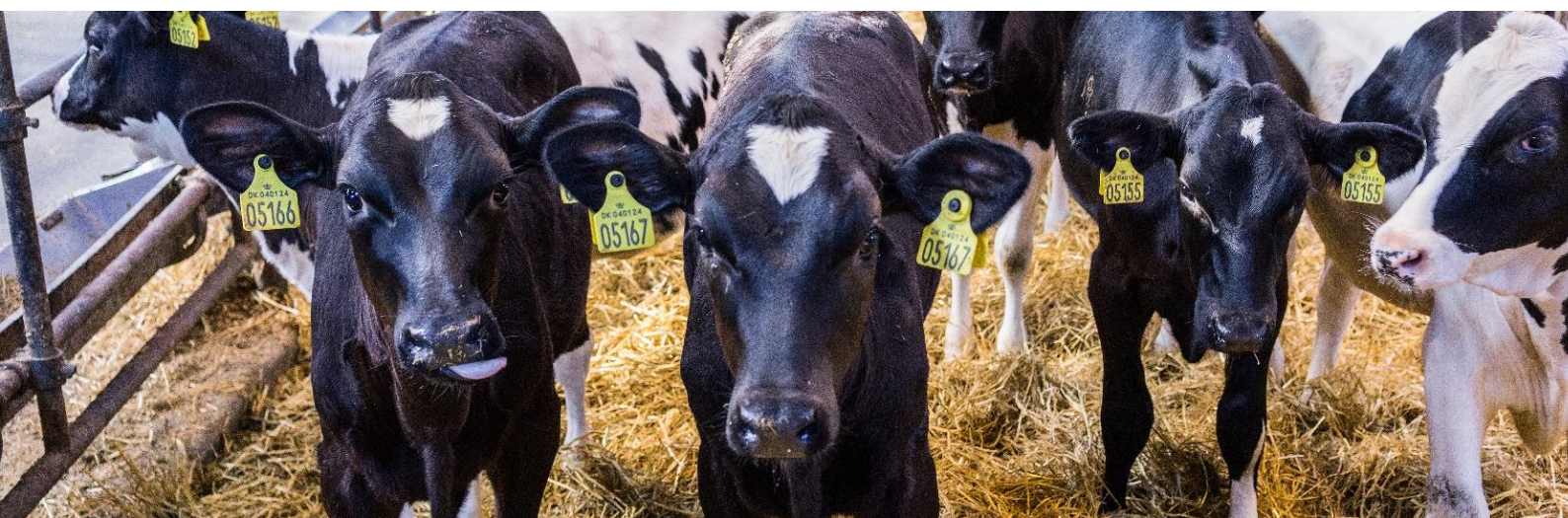
As a farmer and calf rearer, you only have one chance to establish the best possible future conditions for the calf and the herd. The window for exploiting the beneficial effects of the colostrum is brief and feeding colostrum right after birth should be a top priority.

Feeding the calf colostrum early can be challenging, especially if the cow calves during the night or if it coincides with other scheduled tasks that need to be performed in the herd. It is therefore important, that you always have high-quality colostrum in stock and that there are clear and easy procedures in place concerning feeding with 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 points of the article:

- Many antibodies from colostrum leads to strong and high-yielding cows
- Feeding colostrum immediately after birth (<1h) increases antibody absorption
- Systemization of the herd's colostrum feeding procedures is the way forward.





All calves in the herd are cared for, to ensure healthy calves and high-yielding dairy cows

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.





Early provision of colostrum 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, ensuring an optimal start to 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.

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 - the way forward

The coloQuick system is used to manage the colostrum in the herd.

“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

