

The Colostrum Counsel

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Presented by:



EXPLAINING THE WORLD WIDE EFFICACY OF NATURAL COLOSTRUM REPLACERS

A common misconception is that calves should receive colostrum from their own dam or herd to be protective against pathogens present on their own farm. However, certain natural colostrum replacers do in fact provide protection from diseases worldwide and should be considered in any colostrum management program.



A commonly asked question about colostrum replacer products is: How is it that a colostrum product from one country works to protect calves in other countries?

This is a valid question since there is a general belief that the best protection of the calf is obtained when it is fed colostrum from his or her own dam, or from a cow in the same herd. This assumption is based on the concept of the development of “herd immunity” which builds on the observation that pathogens re-circulating on a given farm boost immune responses of the animals in that herd. However, this “herd immunity” concept doesn’t guarantee that 100% of the cows on the farm will receive an effective natural-boost through exposure to all infectious agents at the appropriate time to generate high colostrum antibody titers. Therefore, the most important factor to consider is if a particular cow has or has not been exposed to a given calf pathogen prior to parturition. If she has, she will secrete antibodies against that pathogen into her colostrum and that colostrum should provide good protection if fed correctly. If she hasn’t (even if she is the mother) there would be no boost in antibody titers and that colostrum could be deficient in antibodies to that particular pathogen. In testing individual pails of colostrum it is not uncommon to find cows that lack antibodies to one or more of the important pathogens causing disease in calves even though those agents are present on the farm.

In addition, the assumption that the mother’s colostrum

is always better is sometimes interpreted as the belief that antibodies present in colostrum from the mother or another cow from the same herd have antibodies to some kind of “private” strain of infectious agent not present in other regions or countries. There is no epidemiological (epizootiological) evidence to support that statement. The common causes of calf morbidity and mortality during the first 3 weeks of life are pneumonias and diarrheas caused by pathogens capable of infecting the respiratory and intestinal mucosal surfaces (Table 1). These pathogens are world-wide in distribution (only absent in countries with

Table 1: Common pathogens causing diseases in newborn calves

Diarrheas	Pneumonias
E. coli (K99, F41)	BHV-1 (IBR)
Coronavirus	BVDV
Rotavirus	PI3
C. perfringens	BRSV
Cryptosporidium	Mannheimia (Pasteurella) hemolytica
Coccidia	Pasteurella multocida
Salmonella	Histophilus (Haemophilus) somnus
	Mycoplasma bovis

pathogen-specific eradication programs) and antibodies against them have broad cross-protection among the isolates from different locations and countries.

The University of Illinois researchers conclude, “growth factors or other components in the colostrum may enable calves to more efficiently use the greater nutrient supply for rapid body growth.”

Achieve the results

To harvest these long-term milk production benefits, start with a sound colostrum management program. Experts agree that calves should be removed from their dam immediately following birth. This prevents the spread of disease and increase the likelihood that newborns will consume adequate amounts of clean, maternal colostrum or a high quality colostrum replacer.

Among the pathogens listed in the table BVDV shows the most variability, and even then, antigenic similarities between type 1a and type 1b and between type 2a and type 2b BVD viruses are sufficiently high that antibodies to one of types (a or b) provides protection to the other type. In fact all commercially available vaccines used to prevent the disease are formulated using 2 viral strains only (type 1a and 2 a) and they are effective in cows and calves worldwide.

SCCL products are manufactured by collecting colostrum from thousands (more than 2500 donors per batch) of dairy cows from across Canada, effectively eliminating the risk of the absence of protective antibodies against important pathogens that exist when colostrum is sourced from a single donor cow. In addition, considering the worldwide distribution of the above listed pathogens, antibodies to the same pathogen present in colostrum sourced from a different farm even from a different country will provide equal protection to antibodies from the mother/farm. **As long as the antibodies are specific to the pathogen and are present in sufficient amounts in the colostrum they will have comparable efficacy.**

By Manuel Campos, DVM, MSc, PhD

Manuel has spent more than 25 years in the area of immunological research and development of animal health products. He worked at The Vaccine and Infectious Disease Organization (VIDO), SmithKline Beecham Animal Health, and Pfizer Central Research in Groton, CT, and currently consults to animal health and biotechnology companies.



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Deserae Posein

Marketing Specialist - The Saskatoon Colostrum Company Ltd.
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ASK THE EXPERT:

Can a colostrum replacer or supplement provide benefits even if herd colostrum is of sufficient quality?

Yes. A major problem with herd colostrum is the variability of both quality and quantity from dam to dam. Natural colostrum replacers or supplements deliver a consistent amount of IgG, growth factors, and nutrients such as fat, thereby reducing the variation experienced with herd colostrum and offering more consistent calf serum IgG levels. They are also easy and convenient to use, enabling calves that are at higher risk of FPT to be fed quickly and receive IgG as well as the colostrum fat needed to recover body temperature. “High risk” calves include those that had a difficult birth; those at risk of cold or heat stress; twins in beef herds; and calves born to first-calf heifers; dams that leaked milk from the udder or were milked prior to calving; beef mothers with poor udder or teat conformation or which have a small volume of colostrum; dams with lower quality colostrum or that are sick or slow to recover from calving.

How should I properly cool fresh colostrum?

The warm temperature of fresh colostrum is a bacteria’s dream breeding ground, allowing their numbers to double every 20 minutes! Rapid cooling is the best way to slow down growth of potentially dangerous bacteria. The best process is to divide the collected colostrum into small amounts, 2 quart or 2 liters are convenient volumes for later feeding, and immediately place them into a refrigerator or ice bath. These small volumes will cool down rapidly, and are also easy to re-warm when needed for feeding. Another practical solution is to have several frozen, clean water bottles on hand that can be dropped into the pail of warm colostrum as a way to cool the center of the pail. Two bottles of frozen water per gallon of colostrum can achieve rapid cooling, which will dramatically slow down bacteria growth.

Stephen D. Acres, DVM, MPVM, PhD

Senior Technical Analyst
Saskatoon Colostrum Company Ltd.
Saskatoon, SK



30 Molaro Place
Saskatoon, SK S7K 6A2
Toll Free: 1(866) 242-3185

Telephone: (306) 242-3185
Fax: (306) 373-5766
www.saskcolostrum.com