

The Colostrum Counsel



The single, most important meal a calf will consume in its lifetime is the first feeding of colostrum. Knowing when and how to intervene are the first steps for ensuring a productive calf.

Important tips for feeding colostrum

What are the impacts of good colostrum feeding practices on long-term productivity?

The financial benefits of good colostrum feeding practices due to improvements on tangible production parameters are often overlooked. The effect of good colostrum feeding practices on improved average daily gain, reduced treatment costs, and better feed conversion efficiency are 3 examples of the financial benefits that could be obtained by feeding more colostrum.

When should a producer be concerned that a calf needs to receive a colostrum supplement or a colostrum replacer?

There are many circumstances when producers should feed a colostrum product; these include in very cold weather, twin births and calves born to first calf heifers with poor mothering instincts, however dystocia/difficult birth calves are at the greatest risk for failure of passive transfer of immunity since they are often slow to get up and suckle, and their body's ability to absorb antibodies may be compromised due to the delay and altered metabolic parameters. Whenever there is the need to assist in the delivery of a calf, the calf should be given at least a supplement dose of colostrum, if not a full replacer dose. Producers should consider supplementing any calf that has not suckled within 1-2 hours of birth.

When should colostrum be fed?

With each minute that passes after birth, the calf's ability

to absorb antibodies is reduced, and by 24 hours the gut is almost completely closed. Colostrum must be fed as soon as possible after birth, ideally within an hour. In beef herds, calves should be assisted to suckle if they do not do so on their own. If bottle or tube feeding is necessary and when it is not possible to milk the cow immediately, a good quality colostrum supplement or replacer is an excellent alternative to ensure the calf receives a timely first meal. If colostrum has been delayed past 2 hours, feed larger amounts to compensate for reduced absorption.

How much colostrum do calves need?

When it comes to colostrum, more is better. Most veterinarians now recommend that calves receive at least 1 gallon or 4 liters of good quality colostrum, which should provide calves with at least 150-200g of IgG. Good quality colostrum replacers can be used when the dam does not provide sufficient volume, or where colostrum quality/IgG/antibody concentration is low. A significant percentage of first calf heifers produce only small volumes of colostrum, sometimes less than 1 L, and their calves would benefit from a colostrum supplement or replacer.

How should I feed colostrum?

First, attempt to bottle feed the calf. If the calf does not consume the entire bottle or colostrum feeding is delayed past 6 hours, tube feeding the remainder is suggested in attempt to achieve successful passive transfer of immunity.

Since absorption of colostrum Calves also benefit from a second and third feeding of colostrum.

Should cold weather calves be treated differently?

Calves have a thermal neutral zone of 15 to 25°C (59 to 77°F) and many calves are born into conditions much colder than this! Calves need a timely feeding of colostrum to warm them by providing energy to produce body heat. Note that bottle fed colostrum should be warm but not too hot to immerse your hand in. Colostrum contains unique colostrum fat that initiates metabolism of brown fat stores which fuels the calf's internal furnace for energy and heat to get up, suckle, stay warm and stay alive.

Can producers use colostrum from their own cows, and if so, how?

Herd colostrum can be used to supplement calves of other dams, but to be done right, it is a demanding process. Colostrum should be collected with sanitized equipment within 2 hours of birth of the calf; it should be tested with a refractometer or hydrometer to measure quality and only colostrum that meets parameters consistent with high IgG/antibody levels should be used; the colostrum should be cooled in small 1L or less containers, as quick as possible since bacteria numbers double every 20 minutes; stored either in a refrigerator for no more than 48 hours or frozen for no more than a year. Avoid freezing and thawing repeatedly as this may reduce the quality and life span of colostrum. It is unwise to use colostrum from neighboring dairy farms as this is a risk for introducing disease agents into the herd - even from farms using an on farm pasteurizer.

What should I look for in a colostrum product?

Examine ingredient labels carefully. Colostrum products can be made from various sources, however the greatest benefits to the calf result from feeding actual colostrum rather than formulas of proteins and fats from other sources. Colostrum based products contain all the immune, metabolic and growth factors naturally found in maternal colostrum. One very important ingredient is colostrum fat. Colostrum fat is essential for activating brown fat metabolism; an important energy source required by the calf immediately after birth. Products that contain blood or whey with added vegetable and animal fats not naturally found in colostrum do not provide the same benefits for the calf and some of these products contain no actual colostrum in them at all. Look for products that are regulated by the CFIA (Canada) or USDA (United States) and for those that are backed by numerous safety and efficacy studies published in scientific journals.

Can I feed colostrum after 24 hours?

Transition milk is produced by the cow for the first 6 milkings and represents a gradual decline in the bioactive ingredients found in first milk colostrum. Feeding transition milk can be an extra immune booster in addition to its rich composition of nutrients, energy, growth factors and hormones. Although

the calf can no longer absorb antibodies directly into its bloodstream, the immune factors in transition milk are useful in providing local immunity and protection against infections that cause diarrhea. Suckling beef calves gain these benefits naturally, and they can also be provided to other calves by feeding a colostrum replacement product in an amount equal to feeding 10g IgG (or 1 cup of first milking maternal colostrum) or more per feeding; this strategy is especially beneficial during times of risk of scours.



By: Deserae Hook, BSc, Ag
Director of Marketing,
SCCL

Deserae earned her Bachelor of Science in Agriculture with a major in Animal Science from the University of Alberta. She joined SCCL at the start of 2009 to assist the management team with everything from regulatory and marketing to quality control and operations. Deserae now specializes in leading marketing and communications efforts through creation of educational and marketing tools, website management, promotion and technical support for clients and distributors and attending shows and conferences. As editor of The Colostrum Counsel, Deserae is dedicated to improving animal health and nutrition through colostrum management practices.

References

1. Gold Standards. Dairy Calf & Heifer Association. www.calfandheifer.org
2. Godden S.M. et al. 2009. J. Dairy Sci. 92:1758-1764
3. Berge A.C.B. et al. 2009. J. Dairy Sci. 92:286-295
4. Chamorro M.F. et al. 2016. J. Dairy Sci.

ASK THE EXPERT

Why is colostrum fat an important ingredient in preventing and treating hypothermia

Administration of high quality colostrum containing natural colostrum fat to calves as soon as possible after birth is important so they can defend themselves against cold stress. When judging colostrum quality we need to consider both immunoglobulin as well as natural fat concentrations. Natural colostrum fat found in maternal colostrum is unique because it is the main nutrient that fuels immediate metabolism of brown fat to generate heat. Without colostrum fat, a calf will deplete its body fat reserves within hours and the risk of hypothermia is heightened. In addition to calves exposed to a cold environment, dystocia calves are also more prone to hypothermia, and they require good quality colostrum as soon as possible.



Deborah Haines, DVM, M Phil, PhD
Director of Research & Development, SCCL
and Professor, Department of Veterinary
Microbiology, Western College of Veterinary
Medicine, University of Saskatchewan