

## Understanding the difference between colostrum replacers and colostrum supplements

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Two of the most discussed areas of pre-weaned calf management are passive transfer and colostrum management. This is largely because the two go hand in hand and combined, they have a huge influence on early life success. One of the greatest risk factors for failure of passive transfer is poor colostrum management. Proper colostrum management is outlined very nicely by the “3 Q’s” concept (quality, quantity, quickly). In theory, this is a great concept, but a common complaint that we hear in the industry is that colostrum production is lacking which makes it difficult to achieve the ‘quantity’ part. While not as common, occasionally we also hear complaints that colostrum quality just isn’t there making it difficult to achieve the ‘quality’ part. Additionally, some herds may choose not to feed maternal colostrum as a strategy to break transmission cycles of infectious disease. As a result, it’s important to understand options for supplementing colostrum quality and replacing colostrum quantity, and to understand the difference between the two. This article aims to outline how and when colostrum replacers and supplements should be used, and to highlight the key differences between the two products.

### *Colostrum replacer*

Colostrum replacers aim to be a direct replacement for maternal colostrum and are commonly used when volume is lacking. To be marketed as a colostrum replacer, the product **must** be able to raise serum IgG concentrations above 10 mg/mL. Pay close attention to the label when you are purchasing a colostrum replacer as they are not all made equally. In order to be licensed in the US, colostrum replacers must be certified by the US Department of Agriculture Center for Veterinary Biologics and must originate from bovine colostrum, must be processed using accepted protocols, and must be tested for purity and potency (Godden et al., 2019). There are a lot of products on the market that are not licensed and use various manufacturing techniques, and while they may not all be ‘bad’ per say, the only way to be absolutely certain of the IgG content is to buy a licensed product. Additionally, make sure you read the label and instructions! Some replacers may require you to feed two packages to provide the recommended and necessary IgG level for successful passive transfer.

### *Colostrum supplement*

Colostrum supplements are designed to do exactly as their name suggest, supplement existing colostrum. Typically, they contain anywhere from 40-60g of IgG per dose (Penn State) and they aim to supplement additional IgG when colostrum quality is lacking. It’s important to remember that colostrum supplements cannot replace high quality maternal colostrum. In fact, researchers have established that passive transfer may be poorer for calves fed supplemented colostrum. The mechanism driving this is unclear, but could be related to increased competition for protein absorption sites.

The table below (adapted from Penn State) outlines data summarized across 26 published studies that investigated colostrum products. As you can see from the data in Table 2, there is a lot of variation between IgG intake, serum IgG levels, and apparent efficiency of absorption when calves are fed

maternal colostrum versus replacers / supplements. Maternal colostrum should always be the first choice, as demonstrated by the highest levels in each category in Table 2. However, when maternal colostrum is not available or it's not good quality, or perhaps not a safe option, these products can be useful! Please remember to read the label and understand the product you're giving to the calf and that you're giving it to her appropriately. Proper colostrum management will set the calf up for success down the road!

	#	Average	Maximum	Minimum
IgG Intake, g				
Maternal Colostrum	19	203	447	53
Colostrum-based Replacer	21	126	210	18
Colostrum-based Supplement	8	157	297	85
Serum IgG, mg/mL				
Maternal Colostrum	25	16	27	3
Colostrum-based Replacer	21	11	20	2
Colostrum-based Supplement	8	10	20	5
Apparent Efficiency of Absorption, %				
Maternal Colostrum	16	23	36	10
Colostrum-based Replacer	14	33	51	12
Colostrum-based Supplement	7	12	26	6