

5 newborn calf colostrum misconceptions solved

By Dave Cook, PhD

By now, we know that immunoglobulin-G, or IgG, is a critical component in bovine colostrum for calves. Some have gone so far to say IgG is a magical component to protect newborn calves and set them up for lifetime success when colostrum is delivered properly.

The real magic goes beyond IgG itself. Rather it is about achieving successful passive transfer of IgGs – which requires multiple critical steps of proper colostrum management for dairy calves.

Here are five misconceptions about newborn calf colostrum:

Misconception #1: IgG is the only beneficial ingredient in colostrum for calves

IgGs are important antibodies which newborn calves absorb into their bloodstreams via maternal colostrum. This absorption can only happen for a short period following birth, which helps protect newborn calves until they develop their immunity several weeks later.

However, colostrum also includes other valuable components which support passive transfer of immunity. Newborn calf colostrum is a source of several growth and immune modulating compounds factors, including peptide hormones, growth factors, cytokines, steroid hormones and enzymes. The proteins, amino acids, energy, fatty acids, lactose, vitamins and minerals contained in colostrum all are vital to early digestive and immune development.

Misconception #2: Timing of collection is not important for colostrum quality

Maternal colostrum IgG concentration is highest at calving. But, with every passing hour, IgG concentration decreases due to resorption and milk letdown dilution.

Researchers at Washington State University conducted a study evaluating IgG levels in colostrum remaining in the dam's udder at 2, 6, 10 and 14 hours post-calving. They found IgG concentration fell consistently in the hours after calving. By 14 hours, IgG concentration had dropped by about one-third. These results underscore the importance of harvesting colostrum as soon as possible after calving.

Misconception #3: Feeding colostrum to calves any time in the first 24 hours is fine

Researchers have found a newborn calf's ability to absorb IgG in the bloodstream gradually expires as the hours tick by following birth.

The Dairy Calf and Heifer Association Gold Standards recommend hand feeding colostrum to calves at 10 percent of the calf's bodyweight within the first two hours of life.

Sanitation is also a key factor in harvesting and feeding colostrum as high bacteria numbers have been shown to

interfere with IgG absorption and can affect the health of the newborn calf.

The more we learn about IgG and the other intricacies of feeding colostrum to calves, the more we are convinced of the absolute importance of getting it into the calf as quickly, cleanly and effectively as possible after birth.

Misconception #4: Older cows and those with the biggest colostrum volume produce the most IgG

While this assumption seems logical, it appears there is little correlation between dam age, colostrum volume and IgG concentration. If anything, some researchers suggest a large volume of colostrum may dilute IgG concentration and lower colostrum quality.

Every batch of colostrum should be tested with an on-farm tool such as a colostrometer or Brix refractometer to assess colostrum quality before feeding.

Misconception #5: One calf colostrum replacer is as good as the next

A [calf colostrum replacer](#) made from bovine colostrum will contain many of the maternal growth and immune factors shown to benefit the newborn calf, which are absent in blood-derived products.

A maternal colostrum replacer or calf colostrum supplement can be viable options for feeding colostrum to calves on day one to achieve passive transfer when maternal colostrum quality isn't up to par. However, blood-based (or plasma) products can be fed to newborn calves for localized gut support post-passive transfer during the critical first two to three weeks of life.