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Colostrum Management In Newborn Calves

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It is essential that newborn calves consume an adequate amount of their dam's colostrum within the first few hours of life. Unlike human infants, calves are born almost entirely immune naave, devoid of any protective maternal immunoglobulin. These colostral immunoglobulins are a unique group of maternal antibodies, which are found in the milk secretions during the first 24 hours after giving birth. They encompass a wide variety of specific disease protection which is patterned after the dam's own immune history. The consumption of the colostral milk during the calf's first day of life allows for the absorption of these immunoglobulins into the calf's bloodstream. These colostral immunoglobulins provide much of the calf's immune protection while its own immune system matures.

Because of several influencing factors many calves fail to achieve the important immunological benefits of this critical first meal. When this occurs, calves are considered to have Failure of Passive Transfer (FPT). Research continues to show a strong correlation between the incidence of FPT and increases in calf morbidity and mortality. In a recent study it was found that beef calves, diagnosed with FPT, were 6.4 times more likely to become ill and 5.4 times more likely to die. In managing calves, our best defense against FPT is good colostrum management, making certain that every newborn calf receives an adequate amount of colostrum soon after birth.

Colostrum quality varies tremendously between animals. The quality of colostrum almost always refers to its concentration of immunoglobulin. The primary immunoglobulin in bovine colostrum is gamma-immunoglobulin (IgG). Therefore, the concentration of colstral IgG is used as the primary indicator of colostrum quality. The variation in colostral IgG has been shown to directly impact the incidence of FPT in newborn calves.

Many factors contribute to the amount of IgG found in colostrum. Some of these include breed, age, health status, pre-partum nutrition, and dystocia. Further, colostrum from first-calf heifers often tends to be of lesser quality compared to multi-parous cows. In many cases, the concentration of IgG in heifer colostrum is similar to cows, but the overall volume of colostrum available to the calf may be lower.

To offset low IgG concentrations in colostrum, some producers utilize colostrum supplements to fortify existing levels. Typically, these commercial supplements are derived from dried whey or colostrum, which is rehydrated in water prior to administration. Research into the efficacy of whey and colostrum based products has not been promising. Several factors contribute to their poor performance, including, low concentrations of IgG (compared to natural colostrum), poor solubility, and low IgG availability. The reason behind this observed poor availability of dried colostrum IgG is not well understood. Nevertheless, during instances where colostrum may not be available, or may be limiting, the use of commercial dried colostrum supplements may be warranted.

The following points summarize important considerations when developing a quality colostrum management program. Particular points will certainly vary between locations and management styles. In general, however, calf producers who are able to focus and optimize these criteria will realize improved calf health and subsequent improved performance.

Important Considerations in a Colostrum Management Program

Attempt to set criteria to ensure that the calf has consumed an adequate amount of colostrum. Ask yourself the following questions, 1) is the calf vigorous enough to suckle soon after birth, 2) has the cow abandoned the calf or refused the calf access to suckle soon after birth, or, 3) has the calf been exposed to weather pressures that might interfere with its' ability to suckle?

The calf must consume colostrum as soon after birth as possible. The ability of the calf to absorb IgG falls dramatically as the calf reaches 24 hours of age. Colostrum or colostrum supplement should be fed to the calf within 24 hours of age. Therefore, it is essential that a producer notices when a newborn calf did not suckle their dam. If a calf is too weak to suckle colostrum or colostrum supplement from a bottle, an esophageal feeder should be used.

When feeding colostrum to calves always attempt to utilize high quality frozen colostrum (minimum of 50 g of IgG / L) or utilize a commercial, dried bovine-serum based commercial supplement.