

Two Feedings of Colostrum within 6 Hours of Birth Improves Serum Immunoglobulin G Levels in Dairy Calves Up To 28 Days of Age

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It is widely recognized that the most important factor determining the health and viability of the newborn dairy calf is an effective colostrum management program. There are a number of long-term benefits associated with successful passive transfer of colostral immunoglobulins, including reduced risk of illness and death in both the preweaning and postweaning periods, and improved weight gain and feed efficiency. However, a substantial number of dairy calves in North America fail to achieve passive transfer. One area of potential improvement is providing multiple colostrum feedings within the period of time before gut closure. Therefore the objective of this study was to investigate the effect of providing dairy calves with a second feeding of high-quality colostrum within 6 h of birth on serum immunoglobulin G (IgG) concentrations at 24 h, 7 d, 14 d and 28 d of age.

Newborn Holstein dairy calves (n=30) were assigned to one of two treatment groups: one colostrum feeding at birth, receiving a total of 200 g IgG (CF1; n=15), or two colostrum feedings, at birth and at 6 h, receiving a total of 400 g of IgG (CF2; n=15). Each colostrum feeding consisted of 3 L, containing 200 g IgG, of a commercially available colostrum replacer.

CF2 calves had significantly higher mean \pm SE serum IgG (mg/mL) levels at 24 h (27.8 ± 0.86 vs. 19.7 ± 1.6) 7 d (19.9 ± 0.51 vs. 12.9 ± 1.6) and 14 d (15.8 ± 0.5 vs. 10.5 ± 1.1), and remained elevated at 28 d (10.8 ± 0.6 vs 8.3 ± 1.2) of age compared to CF1 calves, respectively. This study suggests that an additional feeding of high-quality colostrum to dairy calves within 6 h of birth increases serum IgG levels that persist up to 28 d; calves that achieve successful passive transfer of immunoglobulins are more likely to demonstrate long-term benefits in the weeks that follow.

Implications: Two high-quality colostrum feedings provided within 6 h of birth increases calf serum immunoglobulin levels in the short and long term, and is more likely to ensure healthy calves.