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Effects of feeding different volumes of colostrum on IgG1 blood sera concentrations, performance and health of dairy bred calves

Amanda Dunn

Agri-food and Bioscience Institute (AFBI), Northern Ireland

Calves are born with a functional but naive immune system therefore, successful passive transfer of colostrum immunoglobulins from dam to calf is vital to reducing calf mortalities. The objective of this study was to determine the effect of feeding colostrum at 5% or 10% of birth weight (BW) to Holstein calves (n=39) on IgG1 blood sera concentrations, performance and health. All calves received colostrum from their mother within 2.5 hours of birth and subsequent 4 days. Calves were group penned from day 5 and fed via automatic feeder where milk replacer, concentrate intake and weight were recorded daily. Blood samples were obtained from jugular vein at 0, 12, 24, 48 and 72 hours and days 7, 14, 21, 35, 49, 56 and 70 post birth and analysed for IgG1 (Bovine IgG1 ELISA, BioPanda). Statistical analyses were performed using GenStat (16th edition) using a combination of ANOVA, REML repeated measures and generalised linear models. Feeding calves 10% compared to 5% BW in colostrum resulted in significantly (p<0.05) greater IgG1 concentration in calves' serum at 12, 24 and 48 hours after birth. Calves receiving 10% BW had a significantly lower number of scour episodes than calves fed 5% BW (P<0.001). Calves fed 5% BW had significantly higher concentrate intakes compared to those fed 10% BW (p<0.001). Colostrum feeding level had no effect on milk replacer or live weight gain. In conclusion, feeding higher colostrum volumes resulted in successful passive transfer, reduced scour episodes but had no effect on growth performance.

Biography

Amanda Dunn is currently in the 2nd year of her PhD at the Agri-food and bioscience institute (AFBI), Hillsborough, Northern Ireland, where she is primarily supervised by Dr. Steven Morrison. The title of her PhD is 'Immuno-competence development in dairy calves'. She has completed a BSc honours degree in Agriculture Technology at Queens University, Belfast.

amanda.dunn@afbini.gov.uk

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