

Measurement of Some Growth Parameters of Intensively Managed Calves Fed With a Supplement Containing a Cocktail of Amino Acids, Simple Peptides and Fibres

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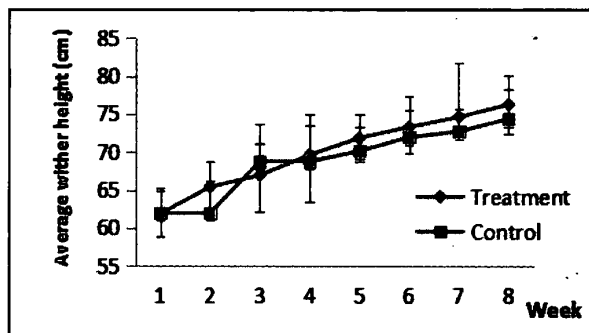
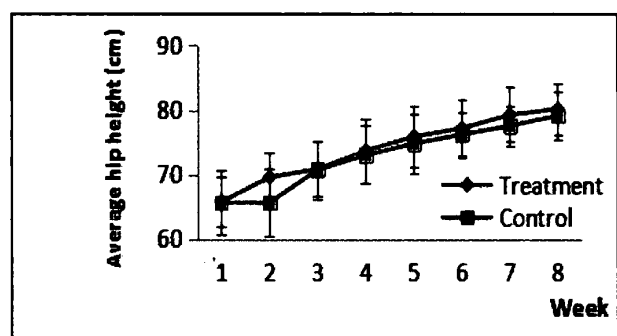
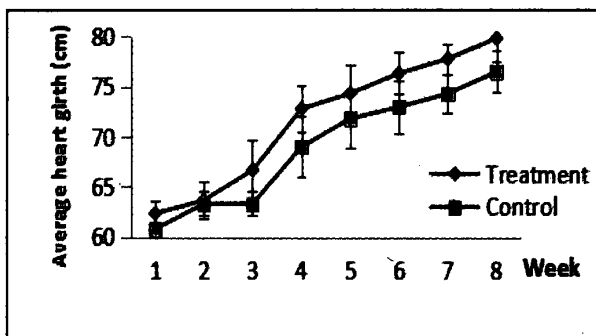
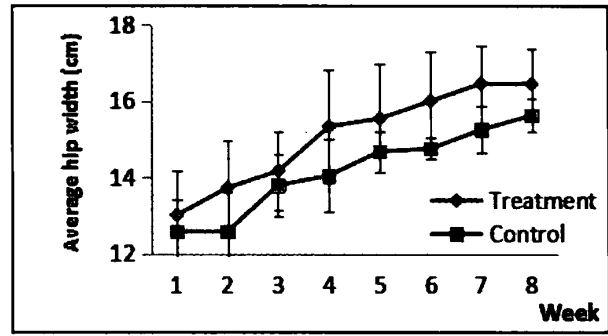
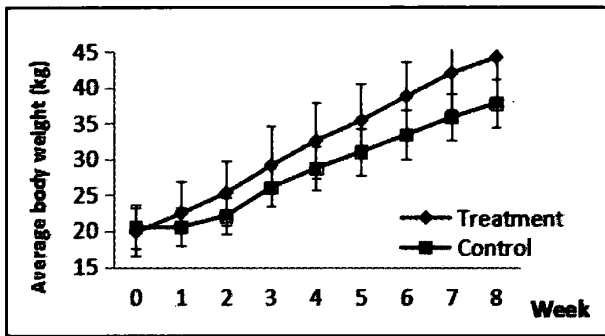
Abstract

Milk or milk replacer is initially the primary diet of neonatal dairy calves. However, numerous research studies have reported that minimal rumen development in the calves receiving solely milk or milk replacer up to 12 weeks of age. Therefore, it is important to ensure the solid feed intake especially concentrate or high carbohydrate diets in order to initiate the rumen development and trigger the pre-weaning calf growth. The primary objective of this study was to test the effect of a novel supplement containing a cocktail of amino acids, simple peptides and fibres on pre-weaning calf growth.

At the beginning proximate composition and the solubility of the supplement was determined. A mineral content of the supplement was determined using the atomic absorption spectrophotometer. Twelve new born Jersey × Sahiwal cross bred calves whose body weight ranging from 16-26 kg and same parity were selected from Marandawila NLDB farm. They were randomly allocated in two groups as control group and treatment group and were housed individually in separate calf boxes. After three days of colostrum feeding the calves of the control group were fed with whole milk, at 8% body weight, until weaning. Calves in treatment group were fed with whole milk at 8% body weight and encouraged to consume a supplement containing a cocktail of simple peptides, amino acids and fibers at 0.1% of body weight until weaning. Weekly measurements of body weight (BW), wither height (WH), hip height (HH), hip width (HW) and heart girth (HG) were measured and recorded until weaning.

Crude protein (%), crude fat (%), crude fiber (%) and dry matter (%) of the starter ration were 30.52 (SD 3.85), 15.52 (SD 0.17), 4.16 (SD 0.05) and 86.08 (SD 1.43), respectively. Solubility (%) of the ration was 45.89 (SD 1.11) at the room temperature (30°C). The mean concentration of Copper,

Magnesium, Zinc, Manganese, Calcium and Iron of the supplement were 12.5 ppm, 2500 ppm, 1030 ppm, 73 ppm 3600 ppm and 306 ppm, respectively. Weekly variation of BW, WH, HH, HW and HG of the calves in treatment and control groups are shown in below charts.



Out of the measured growth parameters, average BW was significantly higher ($p < 0.05$) in the treatment group from the sixth week onward while all the other parameters including increment of WH, HH, HW and HG were not significantly ($p > 0.05$) different among the treatment and control groups. Mean BW (kg), mean WH (cm), mean HH (cm), mean HW (cm) and mean HG (cm) of calves of treatment and control group at weaning were 44.2 (SD 5.3), 37.8 (SD 3.4); 76.3 (SD 4.6), 74.4 (SD 3.3); 80.2 (SD 4.0), 79.1 (SD 3.7); 16.5 (SD 0.9), 15.6 (SD 0.4) and 79.8 (SD 2.3), 77.3 (SD 2.0) respectively. Therefore, above results can be concluded that there is a positive effect of feeding intensive reared calves with a supplement containing a cocktail of amino acids, simple peptides and fibres on pre-weaning growth of dairy calves.

Keywords: Dairy calves; Pre-weaning growth; Supplement