

Comparison of Mineral Status and Haematological Parameters of Friesian Calves Born Through Embryo Transfer and Artificial Insemination

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The application of new reproductive technologies such as Embryo transfer (ET) and Artificial insemination (AI) in cattle results in offspring with higher productivity. Pregnancy rate after ET is 60-70% while 30 - 40% following AI. But the cost of production is very high in ET technology. The well being of the calves is important to make the processes a success. Health status of the calves can be determined by serum micro nutrient level, haematological parameters such as erythrocyte, leukocyte, and Differential Leukocyte counts, haemoglobin (Hb) concentration and pack cell volume (PCV) and total plasma protein and albumin levels. The objective of this study was to compare the mineral status and haematological parameters of the Friesian calves produced by ET and AI techniques.

Six clinically healthy calves produced by ET and AI techniques who were 06 month of age and had the same type of feeding regime were selected for this study. The mean plasma calcium, magnesium and copper concentration of the ET calves were 6.74 (\pm 0.75) mg/dl, 3.05 (\pm 0.31) mg/dl and 0.48 (\pm 0.12) μ g/ml while those of AI calves were 4.91 (\pm 0.81) mg/dL, 2.73 (\pm 0.61) mg/dl and 0.26 (\pm 0.07) μ g/ml respectively. The mean values of PCV [30 (\pm 3.63)], erythrocyte counts [9.67 (\pm 1.43) $\times 10^6/\mu$ l], leukocyte counts [5329 (\pm 1611) $\times 10^3/\mu$ l] and Hb concentration [9.24 (\pm 0.42) g/dL] of ET calves were compared with those of AI calves {PCV [30 (\pm 3.63)], erythrocyte counts [8.44 (\pm 0.59) $\times 10^6/\mu$ L], leukocyte counts [4875 (\pm 746) $\times 10^3/\mu$ l] and Hb concentration [9.46 (\pm 0.56) g/dl]}. Further the total plasma protein [5.90 (\pm 0.53) g/dl], albumin [4.04 (\pm 0.70) g/dl], globulin [1.42 (\pm 0.62) g/dl] and fibrinogen concentration [0.45 (\pm 0.26) g/dl] of ET calves were compared with those of AI borne calves {total plasma protein [6.08 (\pm 0.60) g/d], albumin [3.32 (\pm 0.41) g/dl], globulin [2.22 (\pm 0.87) g/dl] and fibrinogen concentration [0.54 (\pm 136) g/dl]}. It was observed that the ET calves had higher levels of calcium, magnesium and copper concentration than AI calves. The plasma calcium level was significantly different ($P < 0.05$) while the plasma magnesium and copper levels did not differ significantly between AI calves and ET calves. No significant difference in haematological parameters were observed between the ET and AI calves. The result indicated that the reproduction technologies did not influence the serum mineral contents or the haematological parameters.