

Variation of Energy Parameters, Plasma Proteins and Minerals in High Altitude Dairy Cattle Near Great Himalayas with Milk Yield

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Summary

The study was carried in high altitude region near to Himalayas. The study was aimed to evaluate the variation in energy parameters, proteins and minerals in plasma of dairy cattle. 160 blood samples were collected at random from dairy cattle from various regions. The animals were divided into dry cattle, low yielders (yielding upto 5 kg), medium yielders (5-10 kg) and high yielders (10 kg & above) on the basis of milk yield range reported. In current study triglycerides were highest (8.82 mg/dl) in dry animals with an overall average of 8.39 mg/dl. The high-density lipids (HDL) were highest (114.02 mg/dl) in lactating animals with milk yield up to 5 kg. Glucose content was significantly lower (45.67 mg/dl) in lactating animals with milk yield of 10 kg and above as compared to lower lactating and dry animals. Non esterified fatty acids (NEFA) were significantly higher (0.63 mmol/L) in lactating animals with milk yield of 10 kg and above as compared to lower lactating and dry animals. Total protein and albumin levels were highest in animals yielding 10 kg and above milk (6.12; 3.20 g/dl) and was lowest in dry cattle (5.47; 2.76 g/dl). No significant ($P>0.05$) variation was observed for blood urea nitrogen. Significantly ($P<0.05$) lower calcium (8.45 mg/dl) was reported in animals yielding 10 kg and above milk as compared to low lactating and dry animals. Copper was highest (11.19 $\mu\text{mol/L}$) in animals yielding up to 5 kg milk and lowest (9.40 $\mu\text{mol/L}$) in animals yielding 10 kg and above. The copper was lower than normal range of 10-20 $\mu\text{mol/L}$ (Constable et al., 2017) in animals yielding 10 kg and above. Iron was highest (25.88 $\mu\text{mol/L}$) in dry animals and lowest (22.08 $\mu\text{mol/L}$) in animals yielding 10 kg and above. Significantly ($P<0.05$) lower zinc was observed in animals yielding 10 kg and above as compared to dry animals. The overall zinc was lower than normal range of 12.2-18.2 $\mu\text{mol/L}$ and was only in normal range in dry animals. Significantly ($P<0.05$) lower manganese was observed in animals yielding 10 kg and above as compared to animals yielding up to 5 kg milk. The manganese was lower than normal range of 3.2-5.4 $\mu\text{mol/L}$ in high yielding animals. There was no significant ($P>0.05$) difference between groups for copper, iron and cobalt.