STUDIES ON METABOLIC PROFILE WITH SPECIAL REFERENCE TO MINERAL IMBALANCE IN PREGNANT CROSSBRED EWES OF HIMACHAL PRADESH

ABSTRACT OF RESEARCH FINDINGS

Livestock sector plays an important role in the national economy. In Himachal Pradesh the animal husbandry forms the backbone of rural economics and, sheep rearing is one of the sources of livelihood of the larger part of population. The agroclimatic conditions of the state are quite suitable for rearing of sheep and they are unsurpassable at converting grasses and other herbages into high quality meat, milk, hide and many other such products. The metabolic profile of the ewes during gestation is very much needed to understand the intricacies of reproductive health care and in order to augment the production and reproduction of the sheep.

The present study was carried out on the crossbred ewes of Sheep Breeding Farm, Tal, district Hamirpur (H.P.) to study some of the hematological, blood biochemicals, plasma enzymes (AST and ALT), plasma macro and micro minerals and mineral level in fodder during the different phases of gestation. The study was conducted keeping in view the immense significance of metabolic profile during the different stages of gestation.

The hemoglobin and total erythrocyte count decreased gradually with advancement of gestation probably due to the increasing need of iron by the foetus. There was no significant change in hematocrit (PCV) possibly due to well coordinated osmotic balance. The total leukocyte count increased marginally during mid and late gestation. In the differential leukocyte count, the neutrophil count increased; lymphocyte and eosinophil count decreased and the monocyte and basophil count was static during all stages of gestation probably due to the corticoid induced changes.

The blood glucose level decline in late gestation, possibly due to failure of mechanism of glucose control, during later stage of gestation. The total plasma protein level showed a decline during gestation, possibly due to increased demand of the fetus. The total plasma cholesterol level was highest in mid gestation and declined marginally in the late gestation. The aspartate amino transferase and alanine aminotransferase activity increased significantly (P<0.01) during mid gestation as compared to early gestation. The plasma sodium concentration decreased in early pregnancy due to transfer of the ions to the foeto placental unit. The potassium, calcium, phosphorus and iron decreased in late pregnancy due to the increasing demand of the foetus. The plasma magnesium level showed a non significant change throughout the gestation. There was non significant change in the concentration of plasma copper and zinc throughout the gestation in the ewes, though plasma zinc concentration was low during late gestation as compared to mid gestation. In the post-partum period hemoglobin and total erythrocyte count was with a normal range. Differential leukocyte count was similar to the late gestation. The plasma glucose and total protein values where returning to normal but still low. The total plasma cholesterol level declined in relation to the gestational stages but was still on the higher side. Aspartate aminotransferase and alanine aminotransferase activity was increasing. All mineral elements were returning towards normal except calcium and phosphorus which showed a decline as compared to late gestation. The prenatal mortality was low, possibly suggesting proper balance between various nutrients supplied to the sheep of sheep Breeding Farm, Tal.

To conclude the blood glucose level, total plasma cholesterol level declined during late gestation; suggesting increased requirement of energy during this stage. Concentration of plasma calcium, phosphorus and iron was low during late gestation needs to be further augmented.