INFLUENCE OF PARITY ON BLOOD SERUM CONCENTRATIONS OF MACROMINERALS IN DAIRY GOATS DURING EARLY LACTATION

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The objective of this study was to determine the influence of parity on blood serum macromineral concentrations in Saanen dairy goats during early lactation before the weaning of goat kids.

A total of 18 Saanen dairy goats (7 primiparous and 11 multiparous) between 1 and 4 years of age were used in this research. Goats were kept in individual boxes. According to standard farming practice, animals were fed twice daily and had free access to drinking water. They were fed with good-quality meadow hay (2.2 kg per doe daily) at the same time every day. Every day, each animal received 0.98 kg of concentrate of known chemical composition (1.54 % calcium, 0.60 % phosphorous with a Ca:P ratio of 2.57:1). All does were categorized on a scale from 1 to 5 into medium does with the body condition score (BCS) ≥2.75<3.50. Blood samples were taken every five days, starting on the 5th day until the 40th day of lactation. Calcium, phosphorous, potassium, magnesium, sodium and chloride serum concentrations were determined.

In primiparous dairy goats, the average serum macromineral levels were: calcium 2.28±0.27, phosphorous 2.05±0.46, sodium 148.12±6.12, potassium 4.87±0.53, chloride 107.28±4.25, and magnesium 1.21±0.41 mmol/L. The average levels of macrominerals in multiparous goats were: calcium 2.36±0.19, phosphorous 2.38±0.62, sodium 147.73±6.37, potassium 4.79±0.49, chloride 108.64±3.77, and magnesium 1.23±0.11 mmol/L. The average parity was 3.2 in multiparous does with an average litter size 1.55±0.59, while in primiparous does, this was 1.29±0.41. Phosphorus values were higher at the beginning of lactation than in mid lactation in multiparous does. Multiparous does had calcium levels below the normal range (2.3–2.9 mmol/L) until the 20th day of lactation (from the first sampling 2.07±0.28 to 2.23±0.27 mmol/L), as a clinical sign of moderate hypocalcaemia.

In this study, all goats had average macromineral levels within the physiological range for the species. Only multiparous does had calcium levels below normal range until the 20th day of lactation, and higher phosphorus values. Analyses of macromineral serum levels in dairy goats during lactation can be helpful for early detection of certain metabolic disorders.

Keywords: DAIRY GOATS, MACROMINERALS, PARITY