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Effect of simplified stair- step feeding on growth performance and reproductive function of goats

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Abstract

The experiment was conducted to examine effects of the stair-step feeding on growth performance and reproductive function of goats. Complete Randomized Design (CRD) was used in this experiment. Mature female goats (n = 6) were randomly assigned into control (ad libitum feeding; 100% of nutrient requirement for goats) and stair-step feeding (feed restriction and realimentation; 70% and 130% of control for 1st - 2nd and 3rd - 4th estrous cycles). Samples were collected throughout the following estrous cycle to determine concentration of progesterone (P4), glucose and insulin. No significant differences of body condition scores (BCS), dry matter intake (DMI), average dairy gain (ADG) and percentage of body weight (% BW) were observed in goats fed either the control or stair-step feeding groups. Greater serum P4 concentrations were observed on day 13 of the estrous cycle in the stair-step group ($P < 0.05$). During realimentation phase at 4 h, glucose concentrations were greater ($P < 0.05$) in goats fed stair-step than control goats. Greater serum insulin concentrations were observed in restriction phase at 0 and 4 h in control group ($P < 0.05$), on the other hand, during realimentation phase at 4 h post feeding greater serum insulin concentrations were observed in goats fed stair-step than control goats ($P < 0.05$). These data demonstrate that the simplified stair-step feeding during pubertal period affects blood metabolites and P4 concentrations.

Keywords: stair-step feeding, growth performance, reproductive function, goat