Small Ruminant

94  Productive performance, milk composition, and milk fatty acids of goats supplemented with sunflower and linseed whole seeds. E. Vargas-Bello-Pérez, C. A. García Montes de Oca, N. Pescador-Salas, J. G. Estrada Flores, J. Romero Bernal, L. E. Robles Jimenez, and M. González-Ronquillo, 1Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark, 2Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, Estado de México, México, 3Instituto en Ciencias Agropecuarias y Rurales, Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, Estado de México, México.

The objective of this study was to determine productive performance, milk composition and milk fatty acids (FA) of goats supplemented with sunflower and linseed whole seeds in grass silage-based diets. Nine Alpine goats were grouped in a replicated 3 × 3 Latin square design (n = 3) that included 3 21 d periods. Treatments were based on grass silage offered ad libitum and a concentrate mixture supplemented with either 40 g/d of Megalac (control), 80 g/d of sunflower seed (SF), or 80 g/d of linseed (LS). Data was analyzed using GLM procedure of SAS. Milk yield (776 ± 20 g/d), dry matter intake (64 ± 3 g/kg LW0.75) and digestibilities (g/kg) of dry matter (612 ± 27), organic matter (664 ± 12), neutral detergent fiber (567 ± 24) and acid detergent fiber (522 ± 28) were not affected by treatments (P > 0.05). Treatment did not affect milk fat yield (40 ± 1.1 g/d), protein content (4.5 ± 0.04%) and protein yield (35 ± 1.2 g/d). Milk fat content was higher (P < 0.05) in control (5.4 ± 0.1%), intermediate in SF (5.1 ± 0.1%) and lower (4.9 ± 0.1%) in LS. Compared with control, SF and LS, decreased C16:0 (28.2 ± 0.8 vs. 23.1 ± 0.8 and 22.4 ± 0.8 g/100g) and increased total C18:1 (24.1 ± 1.1 vs. 27.6 ± 1.1 and 28.4 ± 1.1 g/100g) respectively. The ratio of monounsaturated to polyunsaturated FA was higher (P < 0.05) in SF (7.7 ± 0.32) and lower in control (6.2 ± 0.32). Overall, SF and LS represent an effective strategy for altering the FA composition of goat’s milk toward a healthier profile for humans without deleterious effects on animal performance.

Key Words: oilseeds, milk, dairy goat

95  Physiological, lactational, and blood metabolite profile of dairy goats exposed to low ambient temperatures. W. Coloma-García, N. Mehaba, X. Such, G. Caja, and A. A. K. Salama, 1Research Group in Ruminants (G2R), Universitat Autònoma de Barcelona, Barcelona, Spain, 2Facultad de Medicina Veterinaria, Universidad Agraria del Ecuador, Guayaquil, Ecuador.

Low winter temperatures in some regions combined with increasingly frequent extreme cold waves have a negative impact on animal performance, behavior, and welfare. The objective of this study was to evaluate the physiological, metabolic, and lactational responses of dairy goats to low ambient temperatures during 3 weeks. Eight Murciano-Granadina dairy goats in mid-lactation were divided into 2 balanced groups and randomly assigned to 2 treatments: thermoneutral (TN; 15 to 20°C) and low temperature (LT: −3 to 6°C). The experimental design was a crossover with 2 treatments in 2 periods (21 d each). Goats received a total mixed ration (70% forage and 30% concentrate) and water ad libitum and were machine-milked twice daily (8 and 17 h). Feed intake, water consumption, rectal temperature, and respiration rate were recorded daily. Milk samples for composition were collected weekly. Insulin, glucose, non-esterified fatty acids (NEFA), β-hydroxybutyrate (BHBA), cholesterol, and triglycerides were measured in blood. Body weight was recorded at the start and end of each period. Compared with TN goats, LT goats had similar feed intake and milk yield, but lower (P < 0.05) water consumption (~23%), respiratory rate (~6 breaths/min) and rectal temperature (~3.2°C). Furthermore, milk of LT goats had greater (P < 0.05) contents of fat (+12%), protein (+11%), and lactose (+4%). The LT goats lost ~0.45 kg BW, whereas TN goats gained 2.2 kg (SE of the difference = 0.77; P < 0.05). Insulin and cholesterol blood levels were not affected by LT. However, values of blood glucose, NEFA, hematocrit and hemoglobin were increased (P < 0.05) by LT, whereas BHBA and triglycerides decreased (P < 0.05). In conclusion, Murciano-Granadina dairy goats during lactation were sensitive to cold temperatures. The LT goats maintained feed intake and milk production, but produced milk with greater fat and protein contents. The LT goats mobilized body fat reserves to cover the extra energy needed for heat production under cold conditions.

Key Words: cold temperature, milk production, metabolism