

## **Blood selenium concentration of grazing goats under extensive condition in semi arid area in Brazil**

HAYASHIDA, Maki<sup>1</sup>, GALVAO, Ricardo J. D.<sup>2</sup>, KISHIMOTO, Tsukasa<sup>3</sup>, VASCONCELOS, Servulo H. L.<sup>2</sup>, FUJIHARA, Tsutomu<sup>4</sup>

1. TUA, Junior College of Tokyo University of Agriculture. 2. UFRSA, Universidade Federal Rural do SEMI-ARIDO.. 3. JICA, Japan International Cooperation Agency Project Office.. 4. MU, Mie University. makihayashida29@yahoo.co.jp

### **Abstract / Resumo:**

Selenium (Se) is essential for body functions such as growth, reproduction, prevention of various diseases and the production of the healthy tissue (McDowell 1985). This element is contained in glutathione peroxidase which aids in protecting the cellular and subcellular membranes from oxidative damage. In Se deficiency, the growth and reproductive performances of livestock are decreased. On the other hand, Se is also toxic element which results in the serious disease such as alkali disease and blind stagger caused by Se-polluted grass. Rio Grande do Norte (RN), Brazil is a semi arid region called Caatinga receiving an annual rainfall less than 400 mm. Farmers leave their goats to graze freely on indigenous pasture in their farms. During the dry season, animal forage intake is too low to meet energy, protein and mineral requirements. Hayashida et al. (2008) reported that blood phosphorus and copper concentrations of some goats were lower than the normal range levels (9th ICG). However there is scanty information regarding Se status of goats in RN. The objective of this study was to determine blood Se concentration of grazing goats in this region during dry season. The study was conducted in 4 farms of Mossoró - RN (50°23'W, 36°08'S) in January and February, 2006. All the goats (average 200 per farm) were under free range grazing conditions throughout the year without any supplementation. Animals depend on browsing on leaves, twigs and fruits of coconut trees during the dry season. A total of 40 mixed-bred goats were used. Blood sample from each animal was taken from the jugular vein. Se concentrations in whole blood were determined. Mean values of blood Se concentration of grazing goats in each farm were higher (326.1-546.7 ng/mL) than the normal range of 20-100 ng/mL recommended by Underwood and Suttle (1999). There were no significant differences between sampling months in each farm ( $p > 0.05$ ). Animals in 2 farms had much higher concentrations (455.0 & 516.2 ng/mL) than those in other 2 farms (327.2 & 357.1 ng/mL) ( $p < 0.05$ ). The results clearly show the goats might be endangered to over intake of Se, although no animals appeared any symptoms of toxicity or deficiency of Se.

### **Effects of milking frequency on goat immune status.**

Ruiz-Díaz, M. D.<sup>1</sup>, Capote, J.<sup>2</sup>, Sein, C.<sup>3</sup>, Argüello, A.<sup>1</sup>, Moreno-Indias, I.<sup>1</sup>, Hernández-Castellano, L. E.<sup>1</sup>, Castro, N.<sup>1</sup>

1. ULPGC, Universidad de Las Palmas de Gran Canaria. 2. ICIA, Instituto Canario de Investigaciones Agrarias.. 3. ENVT, école nationale vétérinaire de Toulouse. loli\_vet@hotmail.com

### **Abstract / Resumo:**

The aim of present study was to identify the effect of milking frequency on immune status of dairy goats. Eleven dairy Majorera goats in the middle lactation were milked during 5 weeks at different milking frequencies. The first and fifth week, goats were milked once a day (09:00), the second and fourth week goats were milked twice a day (09:00, 17:00), and the third week goats were milked three

times a day (09:00, 13:00, 19:00). Blood samples were taken once a week each Wednesday. White blood cells count (WBCC) was measured and, after that, blood was centrifuged and the plasma fraction storage at -80°C until subsequent analysis. IgG, IgM and complement system activity (Classical plus alternative and alternative pathway alone) were evaluated. A Proc Mixed procedure was performed by SAS statistic package. Mean blood plasma IgG was 26.7, 17.8, 9.8, 11.7 and 14.8 mg/ml at week 1, 2, 3, 4 and 5 respectively. Blood plasma IgG was significantly higher at week 1 than other periods studied and the level of IgG was reduced as milking frequency was high. Blood plasma IgM was 0.8, 0.9, 1.0, 1.1 and 1.3 mg/ml at week 1, 2, 3, 4 and 5 respectively. The highest blood plasma IgM was observed at week 5, showing an increase trend during the experimental time. WBCC was 14.0, 14.0, 15.0, 13.9 and 13.5x10<sup>3</sup> cells/ml at week 1, 2, 3, 4 and 5 respectively. WBCC at week 3 was significantly higher than at week 5, although a trend was observed while milking frequency increased the WBCC concomitant increased. Complement system activity measured as Classical plus alternative pathways activation was 44.7, 47.0, 55.2, 71.7 and 71.7 % at week 1, 2, 3, 4 and 5 respectively. Complement activity measured as alternative pathway alone was 28.8, 31.8, 39.2, 42.0 and 40.9 % at week 1, 2, 3, 4 and 5 respectively. Complement activity measured as classical plus alternative pathways and alternative pathway alone were affected (increasing) by milking frequency during the first three weeks, and after that the complement activity still increased. As a preliminary conclusion, milking frequency affect in a different way the innate and acquired immune status of dairy goats. Nevertheless, further studies are necessary.

### **Effects of selfsuckling behavior on immune milk status, milk quality and milk technological parameters**

Bissieres, V.3, Ruiz-Díaz M. D.1, Morales-delaNuez, A.1, Moreno-Indias, I.1, Capote, J.2, Castro, N.1, Argüello, A.1

1. ULPGC, universidad de Las Palmas de Gran Canaria. 2. ICIA, Intituto Canario de Investigaciones Agrarias.. 3. ENVT, école nationale vétérinaire de Toulouse.

loli\_vet@hotmail.com

### **Abstract / Resumo:**

The aim of this study was to evaluate the effect of selfsuckling on immune milk status, milk quality and milk technological parameters on cisternal and alveolar fractions. Eleven Majorera breed dairy goats were observed to display a unilateral selfsuckling behavior. Goats were milked daily by machine milking and milk samples were obtained weekly. During 6 weeks the cisternal milk yield was evaluated from each suckled (SU) and non suckled gland (NSU) after the administration of an intravenous injection of an inhibitor of oxytocin (Atosiban®). After cisternal milk removal, goats were intravenously injected with 2 IU of Oxytocin in order to collect and record the alveolar milk. In cisternal and alveolar fractions were measured immune parameters (IgG, IgM, Chitotriosidase and Somatic cell count), milk quality parameters (Fat, Protein and Lactose percentages) and technological parameters (pH, Density, Titratable acidity, Rennet clotting time, Ethanol stability). Data from six weeks were pooled and an ANOVA was performed using a SAS statistic package. No effects of selfsuckling behavior were observed for cisternal or alveolar milk yields. In reference to immune parameters the cisternal milk IgG concentration was affected by selfsuckling being higher on SU glands (30%). In the same way, somatic cell count was significantly higher on SU glands (225%). No effects on alveolar milk immune parameters were observed. Milk quality parameters were not affected by selfsuckling neither in cisternal nor alveolar fractions. Technological parameters were affected by selfsuckling behavior, with