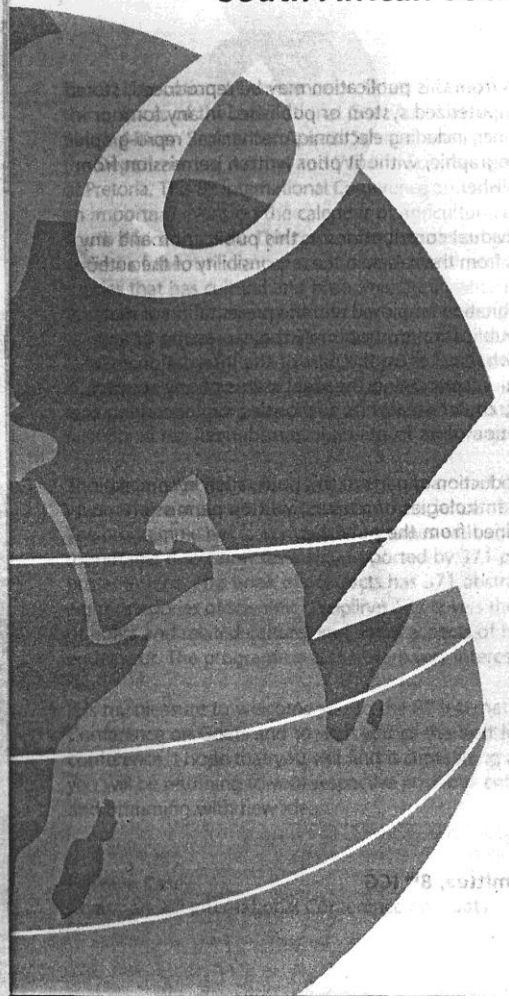
ISBN 0-620-32461-9
PUBLISHED BY THE Organising Committee, 8th ICG
Layout and design: Charné Casey

Book of Abstracts of the 8th International Conference on Goats, South Africa

This event is held under the auspices of the International Goat Association and the South African Society for Animal Science



eighth

INTERNATIONAL CONFERENCE ON GOATS

International Goat Association

Luca Rapetti

PHYSIOLOGY [PH.034]

Live weight estimate of native goats in a semi arid region of Brazil

N.L. Ribeiro[1], A.N. Medeiros[2], M.N. Ribeiro[3] and E.C.P. Filho[2]
[1] Animal Science student , University Federal of Paraiba State; [2] Teacher s of Animal Science, University Federal of Paraiba State ; [3] Teacher of Animal Science , University Federal Rural of Pernambuco State.

The objectives of this work were: (1) to study correlations among live weight and morphometrical traits of Moxotó and Canindé breeds goats; (2) to estimate the live weight of the animals through mathenatical equations; (3) to estimate body index based on morphometrical traits; (4) to correlate body length (BL) data obtained by two methods. Data were collected from 78 Canindé goats as well as 165 Moxotó goats , summing 243 animals of both breeds. These were distributed among age groups (as estimated by teeth change) as follows: 63 individuals of "milk teeth" (before the first teeth change); 78 individuals "after the first teeth change"; 14 individuals "after the third teeth change"; and 88 individuals of "full mouth" (after the last teeth change). Live weight, thoracic perimeter (TP), withers height (WH), body length (BL), and subsequent height (SH) were measured. Correlation between these morphometrical traits and live weight was calculated. Live weight was signifficantly affected ($p < 0,01$) by breed, age and lactation, but it was not affected by sex neither by fisyological state. A high correlation index was found among live weight and all morphometrical traits measured ($r > 0,90$), specially with TP. This trait displayed maximum correlation with live weight in both breeds and all age groups. TP was then chosen to predict live weight in all ages and breeds. Considering only the Moxotó goats, a linear equation was quite valid to estimate live weight in "third teeth change" and "full mouth" ($R^2 > 0,70$), and a quadratic equation was the best in other age groups ($R^2 > 0,90$). A linear equation was more adecuate to predict live weight among goats of "milk teeth" and "after the first teeth change" in the Canindé breed. For the goats of "full mouth" in this same breed, quadratic effect was better than others ($R^2 = 0,75$). It was observed a high correlation index between BL values as estimated by Spanish and New Zealander methods ($r = 0,98$). So, any of these methods could be used to estimate BL. According to the estimated index, both Moxotó and Canindé breeds were classified as conpact, straight, with short legs, and with a good thoracic conformation.

PHYSIOLOGY [PH.035]

Effect of feeding browse on abortion rate during pregnancy in Korean Native Goats

S.H. Choi[1], H.H. Seong[1], Y.H. Choy[1], W.H. Kim[1] and S.N. Her[2]
[1] National Livestock Research Institute, R.D.A.
[2] Department of Animal Science, Chonbuk National University

In order to investigate the effect of feeding browses on the incidence of abortion in pregnant Korean native goats, 20 pregnant does(3-4 month) were grouped into four treatments with 5 heads per each experimental diet. Four treatment groups were fed pine browse, pine browse silage, pine browse silage with additives, or oak browse silage. Browse intakes per day were 0.36kg for oak browse silage, 0.28kg for pine browse, 0.24kg for pine browse silage, and 0.14kg for fermented pine browse. *Salmonella* and *Fungi* were not found in pine browses but they were found in oak browse silage in the amount of $7.93\ 10^3$ and $11.1\ 10^1$cfu/g, respectively. $11.67\ 10^1$cfu/g of *E. Coli* were found to be present in oak browse silage.The incidence of abortion was 60% for fermented pine browse, 40% for pine browse silage, and 20% for pine browse feeding. Abortion did not occur by feeding oak browse silage. Progesterone concentration at delivery was similar regardless of normal borne or aborted. But the concentration of estradiol was higher for does borne normal, and concentration of cortisol was lower until the delivery day than does aborted. The results suggested that pine browses fed to pregnant Korean native goats likely to have lead to abortion.

PHYSIOLOGY [PH.036]

Ghrelin, leptin and IGF-1 in goat milk and plasma

F. Rosi, D. Magistrelli and L. Rapetti
Istituto di Zootecnia Generale, Facoltà di Agraria, Università degli Studi, via Celoria 2, Milano - 20133 Italy

Mammalian milk contains nutrients, cells, enzymes, hormones and protective and trophic factors; some of them diffuse from plasma, others are also secreted and others are encrypted in milk protein. Leptin and IGF-1 are growth factors identified in plasma and in milk. In milk they are implicated in for neonatal maturation, because they may be involved in the regulation of growth, in the development and maturation of the neonatal gut, the immune system and the neuroendocrine system. Moreover recent studies suggest that also ghrelin may be involved in neonatal development. Due to the importance of goat milk in newborn feeding and in human feeding, the aim of this study was to evaluate the presence of leptin, ghrelin and IGF-1 in goat milk. To contribute to the study of the origin of these milk-borne components, we investigated also their relationships with plasma levels. Moreover, because these peptides are involved in control of satiety, another aim was to determine their plasma variation during the periprandial period. Seventeen Saanen goats at mid-lactation were fed a diet based on mixed hay, maize, beet pulp, barley and soybean meal (40:60 forage to concentrate ratio) at 9.00 h and 17.00 h, and milked at 8.00 h and at 18.00 h. At 133, 148 and 163 DIM, milk production was recorded at each milking and milk samples from each animal were collected and stored at -20°C until analysis for milk-borne hormones. Milk samples, sonicated on ice for 1 min with an ultrasonic homogenizer and centrifuged (2,150 xg for 30 min at 4°C), were tested for milk leptin (multi-species leptin RIA, Linco Res. Inc., St. Charles, MO, USA), IGF-1 (IGF-1 RIA with extraction, Diagnostic System Laboratories, Inc., Webster, TX, USA) and ghrelin (total active Ghrelin RIA, Linco Res. Inc., St. Charles, MO, USA) content. At the same dates, five ml of jugular vein blood were taken before the first feeding of the day, 1 h and 4 h after the feeding. The samples were collected into EDTA tubes, centrifuged (6,000 xg for 15 min at 10°C) and plasma stored at –20°C, until analysis for leptin, IGF-1 and ghrelin by the same RIA method employed for milk. These methods, using antibody directed against human leptin, ghrelin and IGF-1, were validated for goat plasma and milk verifying the parallelism to the standard curve, of serial dilutions (25 to 100 ml) of plasma and milk in 100 ml buffer. Mean milk production was 1.3 and 1.02 kg/milking ($P<0.01$). Milk leptin level (7.81 and 7.64 ng/ml) and milk ghrelin level (3.4 and 3.41 ng/ml) did not show significant difference between morning and evening milkings. Milk IGF-1 level was thrice higher in morning than in evening milking (13.1 and 4.71 ng/ml; $P<0.01$, respectively). Both in plasma than in milk, leptin was significantly positively correlated to ghrelin (plasma: $r = +0.43$, $P<0.01$; milk: $r = +0.38$, $P<0.05$, respectively) and negatively to IGF-1 (plasma $r = -0.43$, $P<0.01$; milk: $r = -0.47$, $P<0.05$, respectively). The correlation between ghrelin and IGF-1 was significant only in plasma ($r = -0.41$, $P<0.01$). Milk and plasma leptin were not correlated, but milk ghrelin and milk IGF-1 were significantly correlated to their plasma level ($r = +0.47$ and $r = +0.84$, for ghrelin and IGF-1, respectively, $P<0.01$). During periprandial period (immediately pre-feeding, 1-h and 4-h post feeding) plasma leptin level (2.80; 2.61 and 2.58 ng/ml; SE 0.11) and IGF-1 level (65.2, 74.6 and 77.3 ng/ml; SE 14.1) did not significantly differ; meanwhile plasma ghrelin level (1.43, 1.23 and 1.26 ng/ml; SE 0.03; $P <0.05$) was significantly lower 1 h post feeding than before feeding. In literature the results regarding periprandial variation of leptin in ruminants are conflicting; in fact post-prandial increments, decrements or no variation are shown. In this study no variation is observed in plasma leptin. In sheep, plasma ghrelin is reported to increase just before feeding, and to be involved in inducing GH surge during feeding. Analogously, in goat we observed the same periprandial variation, although lower. However, to explain the periprandial variation of ghrelin, further investigation should be required. The milk levels of leptin and ghrelin were twice/thrice higher than their plasma levels, suggesting mammary synthesis or concentration. Although one site of action of milk-borne growth factors may be at intestinal level, the transfer of leptin from milk to the neonate has been shown for leptin in rat and for IGF-1 from indirect evidence in calf. Further research is needed to determine whether intraspecific or interspecific transfer can occur and whether these components from goat milk can maintain their biological activity in the systemic circulation of the neonate.