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Abstract Book



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Relationship between udder conformation and somatic cell count in saanen goats

Batista Freitas, C.; Santos Silveira D.; Santos Parapinski B.; Lima

three dietary treatments as follows: control (CO), soybean oil (SO) or fish oil (FO). All three diets contained the same ingredients (alfalfa 13.32%, corn silage 14.34%, wheat straw 2.05%, barley grain 49.18%, canola meal 4.10%, corn grain 5.12%, wheat bran 2.58%, rice bran 2.60%, soybean meal 2.56%, mineral-vitamin mix 0.31%, sodium bicarbonate 0.51%, salt 0.2% and limestone 1.13%) and were isonitrogenous and isoenergetic, but contained different fat sources. Rumifat® (prilled palm-oil, high in C16:0; Malaysia), soybean oil (high in C18:2 n-6) and fish oil (high in EPA 20:5 n-3 and DHA 22:6 n-3) were supplemented at 2% DM to control, soybean oil and fish oil diets, respectively. Kids were allowed ad libitum access to water and offered feed twice daily at approximately 0900 and 1700 for 12 weeks. After 84 days on treatments, 1 h after 0800 feeding, the total mixed ration (TMR) was removed and 3 h later approximately 300 ml of ruminal fluid was collected from each kid using a stomach tube, and checked to ensure that they did not contain saliva. Rumen fluid was strained through two layers of muslin cloth for study of rumen fermentation parameters. Data were analyzed as a completely randomized design by using of the Statistical Analysis Software package (SAS Institute, 2002). Least-square means were computed and tested for differences by the Tukey's test. Differences of least squared means were considered to be significant at $P < 0.05$. **Results:** Lipid sources did not affect feed intake ($p > 0.05$), although there was a tendency for intake of the CO diet to be higher. Also, rumen pH, number of protozoa, ruminal NH₃-N, volatile fatty acid concentrations, and acetate/propionate ratio in rumen fluid did not differ among treatments ($p > 0.05$). **Conclusions:** In conclusion, supplementation of soybean oil or fish oil at 2% DM in growing kids did not affect dry matter intake, number of protozoa and ruminal fermentation parameters.

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Blood gas and acid-base balance from goats at post-partum period

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Objectives: The goals of this study were to assess the occurrence of variations on blood gas and acid-base balance parameters of goats through 75 days after parturition.

Materials and Methods: Eleven goats were used. Starting from the time of delivery, all animals underwent blood sampling with heparinized syringe by means of jugular venipuncture at zero hour (M0), 48 hours (M1), seven days (M2), 15 days (M3), 30 days (M4) and 75 days (M5) post-partum. The blood pH, carbon dioxide partial pressure (pCO₂), total carbon dioxide (tCO₂), bicarbonate concentration (HCO₃⁻) and base excess (BE) were determined by using a portable blood gas analyzer and specific cartridges (Abbott Laboratories, Abbott Park, Illinois, EUA). Statistical software was used to perform KS test to verify Gauss distribution pattern followed by ANOVA and Tukey tests to compare the assessed variables. A value of $P = 0.05$ was considered significant for all tests.

Results: Significant differences were observed regarding the tCO₂, HCO₃⁻, and BE in adult goats at the post-partum period. The pH values were 7.36 ± 0.04 (M0), 7.39 ± 0.05 (M1), 7.45 ± 0.10 (M2), 7.40 ± 0.05 (M3), 7.41 ± 0.05 (M4) and 7.42 ± 0.02 (M5) with no statistical difference between moments. The pCO₂ (mmHg) values were 36.66 ± 6.58 (M0), 41.74 ± 6.30 (M1), 40.49 ± 3.36 (M2), 41.13 ± 4.84 (M3), 39.85 ± 7.26 (M4) and 41.26 ± 3.41 (M5) with no statistical difference between moments. The tCO₂ (mmol/L) of M0 (20.28 ± 3.15) differed statistically from others moments values of 23.89 ± 1.67 (M1), 25.03 ± 2.11 (M2), 24.74 ± 2.70 (M3), 24.95 ± 2.80 (M4) and 23.89 ± 2.74 (M5). The HCO₃⁻ (mmol/L) M0 value (20.04 ± 3.07) differed from M2 (25.60 ± 1.78), M3 (25.15 ± 2.87) and M5 (25.55 ± 2.88) but didn't differ significantly from M1 (24.45 ± 2.54) and M4 (24.90 ± 4.15). The BE (mmol/L) value of M0 (-4.69 ± 3.13) didn't differ from M4 (0.64 ± 4.06) but differed from the others moments with values of -0.23 ± 2.57 (M1), 1.37 ± 1.79 (M2), 0.54 ± 2.98 (M3) and 1.71 ± 2.70 (M5). The variations occurred but with values inside the reference ranges for goats.

Conclusions: Significant variations were observed in blood gas values from goats through 75 days after parturition but with no clinical relevance.

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Evaluation of blood gas and acid-base balance of goat kids from birth to 75 days of life

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Objectives: The goals of this study were to assess the occurrence of mixed acidosis in newborn goats and verify the occurrence of variation on blood gas parameters of kids from birth to 75 days of life.

Materials and Methods: Twenty-five goat kids were used. Starting from the time of delivery, all animals underwent blood sampling with heparinized syringe by means of jugular venipuncture at zero hour (M0), 48 hours (M1), seven days (M2), 15 days (M3), 30 days (M4) and 75 days (M5) post-partum. The blood pH, carbon dioxide partial pressure (pCO₂), total carbon dioxide (tCO₂), bicarbonate concentration (HCO₃⁻) and base excess (BE) were determined by using a portable blood gas analyzer and specific cartridges (Abbott Laboratories, Abbott Park, Illinois, EUA). Statistical software was used to perform KS test to verify Gauss distribution pattern followed by ANOVA and Tukey tests to compare the assessed variables. A value of $P = 0.05$ was considered significant for all tests.

Results: There were statistically significant differences in blood gas values between the times of sampling in kids with exception of HCO₃⁻. The pH varied from 7.21 ± 0.06 (M0) to 7.30 ± 0.05 (M1), 7.33 ± 0.05 (M2), 7.34 ± 0.03 (M3), 7.36 ± 0.04 (M4) and 7.38 ± 0.04 (M5) with statistical difference between M0 to others moments. The pCO₂ (mmHg) varied from 66.50 ± 8.07 (M0) to 54.38 ± 6.96 (M1), 51.58 ± 6.17 (M2), 50.10 ± 5.26 (M3), 48.34 ± 5.91 (M4) and 44.89 ± 5.85 (M5) with statistical difference between M0 to others moments. The tCO₂ (mmol/L) of M0 (27.96 ± 2.54) differed statistically from others moments values of 25.42 ± 3.38 (M1), 26.08 ± 2.21 (M2), 25.68 ± 1.59 (M3), 24.35 ± 1.84 (M4) and 22.61 ± 2.22 (M5). The HCO₃⁻ (mmol/L) values didn't differ significantly through experimental period, with values of 25.97 ± 2.44 (M0), 25.52 ± 2.85 (M1), 26.13 ± 1.94 (M2), 26.14 ± 1.97 (M3), 26.16 ± 2.65 (M4) and 25.75 ± 2.44 (M5). The BE (mmol/L) value of M0 (-1.64 ± 3.20) didn't differ from M1 (-0.44 ± 2.96) but differed from the others moments with values of 0.57 ± 2.20 (M2), 0.51 ± 1.92 (M3), 0.67 ± 2.49 (M4) and 1.02 ± 2.08 (M5). The variations observed characterized a transitory acidemia instead a mixed acidosis considering there wasn't variation on bicarbonate concentration but only a respiratory compensation during neonatal adaptation to extra-uterine life.

Conclusions: There were significant variations in blood gas values from newborn goats although they didn't presented mixed acidosis at post-partum period but only a transitory acidemia.

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Hormonal control of the breeding activity in Churra Galega Bragançana ewes

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Objectives: This study aimed to evaluate the efficiency of different hormonal treatments to control the breeding activity in Churra Galega Bragançana (CGB) ewes.

Materials and Methods: This experiment took place at Bragança (latitude 41° 49' N, longitude 6° 40' W, altitude 720 meters) and involved 94 adult CGB ewes. At March 9, 25 ewes received a melatonin implant (18 mg) – Melatonin. Forty-five days later a vaginal sponge with 20 mg of FGA was inserted in all ewes. FGA treatment lasted for 12 days. Twenty-four hours before sponge removal 32 non-melatonin treated ewes were injected with

500 UI of eCG (D-1). At sponge removal melatonin ewes and all remaining non-melatonin ewes ($n = 37$; Control) were injected with 500 UI of eCG. Heat detection was performed by 5 intact rams provided with harness markers. Ovarian activity was assessed by progesterone (P4) plasmatic levels 2 weeks before melatonin and FGA treatments and for 5 days after sponge removal. Pregnancy diagnosis was performed 41 days after sponge withdraws by ultrasonography.

Results: In the fortnight prior to melatonin treatment 74.5% of all ewes had high plasmatic levels of P4 (> 0.5 ng/ml). In the previous 2 weeks to FGA treatment 80.0% of Melatonin and 56.5% of non-melatonin treated ewes had high levels of P4 (Chi-square = 13.2; $P=0.001$). About 76.6% of all ewes showed heat. Around 83.3% were Control and 76.0% Melatonin ewes (Chi-square = 2.0; $P>0.05$). Time at eCG injection affected the percentage of ewes in heat: Control (83.3%) vs. D-1 (71.9%) ewes (Chi-square = 4.2; $P=0.05$). Over 96.8% of all ewes had high levels of P4, 1 to 5 days post sponge withdraws. About 97.3% were Control and 100.0% Melatonin ewes (Chi-square = 3.0; $P>0.05$). Time at eCG injection had no influence in the percentage of ewes with high levels of P4: Control (97.3%) vs. D-1 (100.0%) ewes (Chi-square = 3.0; $P>0.05$). Forty-one days after sponge removal, only 41.5% of all ewes were pregnant. About 45.9% were Control and 48.0% Melatonin ewes (Chi-square = 0.1; $P>0.05$). Fertility rate was higher in Control (45.9%) than in D-1 (31.3%) ewes (Chi-square = 4.8; $P=0.05$).

Conclusions: – Initially 74.5% of all ewes presented high plasmatic levels of P4 (> 0.5 ng/ml). – Melatonin enhanced the percentage of ewes with high levels of P4 prior to FGA treatment. – Melatonin had no effect in post FGA near breeding activity. – Preceding in 24 hours the eCG administration had negative impact in sexual behavior and fertility rate. – Fertility rates were fairly poor.

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Milk electrical conductivity change across lactation in Chios and Lacaune ewes

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Objectives: The objective was to describe the change of electrical conductivity of milk (MEC) across lactation in Chios and Lacaune ewes, reared intensively in two commercial flocks in Greece.

Materials and Methods: Two dairy breeds of sheep, Chios and Lacaune were used. They were reared in two commercial flocks, comprised 326 and 303 ewes, respectively. The production system in both flocks was intensive. The ewes were monitored for three successive lactation periods using an automatic daily milk recording system that was available in both farms (SAE, Afikim, AfimilkTM). The latter, provided detailed individual daily records concerning milk yield (MY) and MEC. Data regarding parity number, age at lambing and lambing date were, also, recorded for each individual ewe. Following data edits, the final dataset included a total of 14,694 and 8,826 MEC records for Chios and Lacaune ewes, respectively. Test-day record distribution by lactation number was 6,365, 4,545 and 3,784 for Chios ewes and 3,667, 2,136 and 3,023 for Lacaune ewes for 1st, 2nd, and 3rd lactation, respectively. Initially, descriptive statistics for MEC were calculated. Thereafter, a random regression model and third order polynomial (including fixed effect of week post lambing) were used to calculate MEC curves.

Results: The average MY for Chios and Lacaune ewes were 1.6 ± 0.73 kg and 1.7 ± 0.79 kg, respectively. The average MEC values in mmho were (mean \pm SE): 8.69 ± 0.44 and 8.65 ± 0.57 , for Chios and Lacaune ewes, respectively. In Chios ewes, average MEC were 8.61 ± 0.40 , 8.79 ± 0.49 and 8.72 ± 0.43 mmho, for 1st, 2nd and 3rd parity ewes, respectively. Similarly, in Lacaune ewes MEC were 8.64 ± 0.56 , 8.66 ± 0.62 and 8.67 ± 0.54 mmho, for the first three parities. MEC curves showed that average MEC, at the beginning of lactation (3rd week), was 8.66 and 8.84 mmho for Chios and Lacaune ewes, respectively. Thereafter, MEC decreased towards lowest values at 8.51 mmho (15th week) for Chios and 8.46 mmho (18th week) for Lacaune ewes. Finally, MEC values increased at 8.78 and 8.97 mmho (maximum values) for Chios and Lacaune ewes, respectively, during the 30th week of lactation.

Conclusions: Change of MEC across three lactations followed similar patterns for both Chios and Lacaune ewes. High MEC at the beginning and the end of lactation, as well as, low values at mid-lactation indicate differences in the concentrations of ions in sheep milk. Normal variation of MEC should be considered when it is used for the detection of subclinical mastitis.

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The effect of various forms of copper supplied to kids on growth intensity and the level of copper and zinc in the body

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Objectives: The aim of this trial was to compare the effect of supplementation of kids with different forms of copper on growth intensity and body reserves of copper and zinc in the body after 3 month of supplementation.

Materials and Methods: In this trial we used 26 kids that were divided into 3 groups. Group C ($n=10$) was control, group I ($n=10$) was given inorganic form (copper sulfate $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) and group O ($n=6$) was given organic form (Bioplex Cu, Alltech). Different number of the kids in individual groups was due to different count of kids from goats. Mothers were supplemented during pregnancy till the time of weaning with the same form of copper. Kids from groups I and O were supplemented with copper for 3 month with daily dose 7.5 mg (1st month), 9.0 mg (2nd month) and 10.5 (3rd month). The dose of Cu was increased during the experiment according the body weight; in average kids received 0.4 mg/kg BW daily. The natural content of the copper in the feed mixture was 5 mg/kg DM and supplemented Cu in different forms was 30 mg/kg DM of feed mixture. After 3 month of supplementation kids were slaughtered and the samples of blood, liver, pancreas, spleen, myocardium, brain, lungs, kidney, thigh muscle, tongue and diaphragm were taken for the assessment of Cu and Zn, which was measured by AAS after microwave digestion of samples. Concentration of Cu and Zn was determined in mg/kg of fresh tissue.

Results: The supplementation of kids with organic and inorganic form of Cu influenced significantly Cu concentration only in the liver, where were the concentrations in both experimental groups significantly higher than in control group ($p = 0.0001$): group C: 45.73 ± 12.318 mg/kg; group I: 109.17 ± 27.13 mg/kg and group O: 110.16 ± 7.08 mg/kg. Similar concentrations of Zn was significantly influenced only in the liver, where were in experimental groups lower in comparison with control ($p = 0.01$): group C: 42.20 ± 7.03 mg/kg; group I: 33.71 ± 3.13 mg/kg and group O: 32.25 ± 5.24 mg/kg. The Cu supplementation influenced significantly growth of kids. The average daily gain during the experiment was highest in the group I (143 ± 21 g/day) in comparison with group C (105 ± 33 g/day, $p = 0.01$) and group O (111 ± 38 g/day, $p = 0.05$).

Conclusions: Significant differences between supplementation of organic and inorganic forms of copper were found only in daily growth which was higher in group supplemented with inorganic form. The work was realized with the support of MSM project no. 6215712402 and no. 6215712403.

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The effect of lameness on milk yield in Chios dairy sheep in Greece

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Objectives: The objective was to assess the consequences of lameness on milk production in Chios dairy ewes. It was achieved by comparing the lactation curves of lame and non lame ewes.

Materials and Methods: A total of 283 Chios dairy ewes from two flocks were used. The ewes in both flocks were reared intensively and their milk yield was recorded daily; both farms had milking parlour with automatic recording system. A passageway was constructed, prior to the entrance of each milk parlour, in a way that allowed ewes to enter in single line and hence facilitated gait observation of individual animals. Lameness assessment was performed once a week and it was based on a 4-point scale scoring system.