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Accuracy of ultrasonography in the diagnosis of silent heat in cows compared to plasma progesterone concentration

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Silent heat is defined as the lack of behavioral oestrus symptoms although the genital organs are undergoing the normal cyclical changes. It is the main reason of post-partum anoestrus in dairy cows causing elongation of service period and, in consequence, substantial economical losses. Rectal palpation is a main method used for clinical evaluation of ovarian activity in dairy herds, but it may cause high proportion of misdiagnosed and incorrectly treated animals. Ultrasonography is considered an important diagnostic aid to rectal palpation. The aim of this study was to assess the accuracy of ultrasonography for the diagnosis of silent heat compared to plasma progesterone concentration. The study was carried out in 5 dairy herds in North-East Poland. Cows, which showed no visible oestrus signs until day 60 postpartum were examined by ultrasonography twice, in a 10-day interval. A real-time, B-mode scanner (Honda 1500) with 5 MHz probe was used. Blood samples were collected simultaneously from the tail vein into heparinised evacuated tubes. Progesterone concentration in blood plasma was determined using RIA. Presence of physiological ovarian structures (follicles, corpus luteum) was an indication of cyclicity in anoestrous cows. High progesterone level on the first, but low on the second examination or low on the first and high on the second examination were interpreted as a silent heat. Based on progesterone values silent heat was diagnosed in 145 anoestrous cows, whereas ultrasonographically 106 cows were found with silent heat. The accuracy of ultrasonography in diagnosis of silent heat in cows was 89.0 %. The sensitivity and specificity of this method for diagnosis of corpus luteum were 94.7 % and 84.0 %, respectively. Our results showed that ultrasonography is useful tool to diagnose of silent heat in cows.

Poster 02 - Reproduction of Small Ruminants

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Trehalose improves ram semen cryopreservation when it is present in conventional extenders

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It is well known that trehalose improve the post-thawing sperm viability and fertility when it is added in hypertonic conditions. The aim of this study was to apply trehalose in three different extenders used commonly in ram semen cryopreservation. The solutions (with or without trehalose 100 mosm/L), containing Tris, citric acid, fructose or glucose, glycerol, egg yolk and antibiotics, were B1 (experimental), S (Salamon's extender) and Tri (Triladyl®). Ejaculates from four Merino rams were evaluated and pooled at 30°C. The semen was diluted to contain $1x10^9$ cells/mL, cooled to 5°C, loaded into 0.25-mL straws, frozen and stored in liquid nitrogen. Post-thaw evaluation was based on sperm motility (MI), supravital stain (Eo), acrosome integrity (AI), hyposmotic swelling test (HOST), middle piece function (PI) and incubation resistance at 39°C, 4 h (TR).
Majority, post-thaw parameters were higher in those treatments with trehalose, specially MI, AI, PI and TR, indicating that this disaccharide in this conditions improve the morphology and function status of cryopreserved spermatozoa. The extender S with trehalose showed the best results: MI=63.0%; Eo=58%; TR=50%, PI=0.92; AI=75.8%.
We conclude that, in that trial, trehalose protects membranes integrity and physiological parameters, and could improve the fertility results in artificial insemination programmes with cryopreserved ram semen.

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Measurement of sperm capacitation and acrosome reaction - like changes by chlortetracycline test (CTC) can predict the freezability of ram semen?

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The purpose of this study was to know if the chlortetracycline test (CTC) applied to fresh semen can predict the performance of ram spermatozoa in cryopreservation. Ejaculates of 25 Santa Inês rams were collected and the CTC assay was applied in fresh semen diluting a sample (24 x 10^6 spermatozoa) in 1000 µL of PBS (37°C) and submitting it to centrifugation (900 g/4´) to remove the seminal plasma. The sperm pellet was then resuspended (150 µL – PBS) and an aliquot (10 µL) was mixed with 10 µL of 1mM CTC (20mM - Tris; 130mM – NaCl; 5mM - L-Cysteine). The mixture was homogenized for 20 seconds and then it was added to 10 µL of 1% of glutaraldehyde solution (2M - Tris). A 10 µL-sample of this suspension was placed on a heated slide (37°C) and mixed with 10µL of 0.22 M 1,4-diazabicyclo[2.2.2]octane (DABCO – PBS:Glycerol - 1:9). The mixture was covered with coverslips, compressed, sealed and stored at 4°C in the dark to be evaluated within 1 hour using an epifluorescent microscope under oil (1000x). A total of 100 cells were counted for each slide and distributed into 3 categories: uncapacitated with intact acrosome (F), capacitated with intact acrosome (B) and acrosomal reaction sperm (AR). To frozen semen, the ejaculates were diluted in egg yolk Tris extender (100 x 10^6 spermatozoa/0.25mL), cooled (0.25°C/minute to 5°C - 120 minutes), frozen (-20°C/minute to -120°C) and thawed (42°C/20´´). The frozen-thawed semen was evaluated as for spermatic plasmatic membrane integrity (PMI) by association of propidium iodide (PI – 0.5 mg/mL) and *Pisum sativum* agglutinin conjugated with fluorescein isothiocyanate (PSA-FITC - 100 g/mL). The rams were grouped in three cryoresistence levels (CRYO) according to general average of PMI (X=22.1%), such as: 1 – inferior ($X \leq 10.3\%$); 2 – intermediate ($10.3\% < X \leq 29.9\%$) and; 3 – superior ($X > 29.9\%$). To all the variables it was used the variance analysis (ANOVA) in a completely randomized design and Tukey method was used to compare the averages ($P<0.05$). The CRYO level influenced ($P<0.05$) the CTC pattern distribution. The averages and standard deviations ($X \pm \sigma$) of spermatozoa classified as F, B and AR were 64.7 ± 15.3; 21.0 ± 14.7 and 14.3 ± 10.8% for CRYO 1, 84.9 ± 6.8; 7.1 ± 6.1 and 8.0 ± 6.0% for CRYO 2 and 87.0 ± 7.9; 7.4 ± 5.6 and 5.6 ± 5.1% for CRYO 3 respectively. In CRYO 1 the proportion of F spermatozoa was lower and the proportion of B and AR was higher, both compared to CRYO 2 and 3 ($P<0.05$). It was concluded that the CTC test can be used to select semen donor rams with less susceptible spermatozoa to cryopreservation.

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Birth and weaning weight of F_1 lambs of pelibuey and blackbelly ewes sired with specialized meat production breeds

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The objective of this work was to evaluate the paternal breed effect above birth(BW) and weaning(WW) weight of cross lambs of Pelibuey (PB) and Blackbelly (BB) ewes sired with PB, BB, Dorper Black Head (DPN), Dorper White (DPB), Katahdyn (K) and Ile of France (Ile). The data reported here were collected in four seasons (Summer and Fall (2006); Winter and Spring (2007)) at the Mococha research station of INIFAP, Mexico, and in the last Spring season, we incorporated another two more farms, which only have PB ewes. They are located at tropical weather with rain season in Summer. What we use were 434 BW and 318 WW records, from 39 sires and 231 dams. Ewes were fed in Star Grass irrigated pastures + 300 g/hd/d