

two groups ($n = 7$) and were inseminated with semen frozen in TEY extender containing 0% (CON) or 1.5% of EQ (TRT). One hundred million progressively motile spermatozoa were used for each uterine insemination using Norwegian catheter 2–5 days after ovulation. The pregnancy rate and number of fetuses were analyzed by using the CATMODE and GLM procedure. In EXP 1, the post-thawing indices were higher in semen diluted with TEY + EQ compared to semen diluted with TEY extender alone (MOT 0.8 versus 0.4 ± 0.02 ; VEL 0.9 versus 0.8 ± 0.03 ; VS 0.7 versus 0.6 ± 0.02 ; HOS 0.8 versus 0.6 ± 0.02 ; ACR 0.8 versus 0.6 ± 0.02 ; $P < 0.01$). Furthermore, there were no significant differences in all sperm parameter between E15 and E25 with the exception of MOT (0.73 versus 0.79 ± 0.02 ; $P < 0.01$). Semen diluted with TEY extender alone had a lower percent of intact spermatozoa at TEM compared to semen diluted with TEY + EQ (0.5 versus 0.7 ± 0.05 ; $P < 0.04$). Semen diluted with TEY + EQ 2.5% had fewer percent of intact spermatozoa at TEM compared to semen diluted with TEY + EQ 1.5% (0.6 versus 0.8 ± 0.05 ; $P < 0.03$). In EXP 2, the pregnancy rate and the litter size were numerically higher but not significantly different in the TRT group compared to the CON group (71% [5/7] versus 43% [3/7], $P < 0.29$; 2.1 versus 1.1 ± 0.6 , $P < 0.29$; respectively). In conclusion, the addition of 1.5% or 2.5% of EQ to the TEY extender improved post-thawing indices of dog spermatozoa. Although in most sperm parameters studied there were no differences between 1.5% and 2.5% EQ, the ultra structural study of frozen–thawed sperm with TEM showed a decrease in the percentage of intact spermatozoa with TEY + 2.5% EQ compared to 1.5%. There was a trend in improving pregnancy rates with the use of TEY + 1.5% EQ compared with TEY.

Keywords: Semen; Canine; Frozen; Ultrastructure; Spermatozoa

EFFECT OF THE GnRH ANTAGONIST, ACYLINE, ON CANINE TESTICULAR PARAMETERS

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GnRH antagonists competitively block GnRH receptors sites at the pituitary gland, exerting an immediate inhibitory effect on the gonadal axis. Acyline, is a third generation GnRH antagonist, that has been found to be safer and more effective at suppression and maintenance of suppression of gonadotrophins than

earlier compounds. The aim of this study was to test the effect of acyline on some testicular parameters in male dogs. Secondary, acyline safety was also assessed.

Six reproductively normal, 2–6 years old, mixed and pure bred (Beagle, German shepherd, Bull Mastiff) dogs were followed up weekly for three periods (PRE, POST1 and POST2) of 4 weeks each. At the end of the first period, they were administered acyline (NICHHD, NIH, USA) $330 \mu\text{g/kg}$ SC. Follow up included general physical examination, scrotal diameter, testicular consistency, libido and erection at semen collection and semen volume, concentration, motility and morphology. Before treatment and then on days 15, 30 and 60 after treatment blood samples were taken for hemogram and biochemical serum determinations. Quantitative data were analyzed by least-squares ANOVA using the General Linear Models Procedure (PROC GLM, SAS[®]), and categorical data analysis by PROC CATMOD, SAS[®]. The mathematical model included the main effect of period. Orthogonal contrasts were also used to test differences among periods. The level of significance set at $P 0.05$.

Individual responses to treatment varied markedly among animals. Testicular consistency and scrotal diameter slightly, but not significantly, decreased in POST1 in all the animals. Libido and erection was unaltered throughout the study, with the exception of three dogs in which they were absent during 2 weeks of POST1. Semen volume, total concentration and motility were significantly lower in POST than in PRE ($P < 0.05$). There was a clear impairment of these parameters, reaching nadir values ($\leq 0.2 \text{ cm}^3$, 0.5×10^6 and 30%, respectively) around week 2 of POST1, and then slowly improving to the end of the study, when three animals regained PRE values. Spermatozoa morphological abnormalities significantly increased during POST2 ($P < 0.05$), they were mainly represented by ≥ 40 proximal droplets and head abnormalities in some dogs. No animal presented hematologic, serum biochemical, local nor systemic side effects related with the treatments throughout the study periods.

These results probably reflect the 2-week gonadotrophin and testosterone suppression to castrate levels that have been described for this drug in other species. It is concluded that the GnRH antagonist, acyline severely and reversibly deteriorated semen quality without side effects in these treated dogs. If this deterioration is enough to provoke infertility remains to be determined. Further, pharmacokinetic, endocrine and clinical studies are still necessary before GnRH antagonists could

be widely recommended for different applications in male dogs.

Keywords: Dog; GnRH antagonist; Acyline; Semen; Testis

ANALYSIS OF THE ASSOCIATION OF FARROWING INTERVENTIONS AND PERIPARTURIENT FACTORS AFFECTING SOW LONGEVITY

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The extent of sow retention in any herd is dependent on the level of culling and the mortality rate. Sows may leave a herd through death/euthanasia or culling. The economic loss associated with sow death is obvious in terms of the value of the sow, lost pig production, replacement cost and increased herd health risk. The performance of the sow is the most important factor deciding voluntary removal from the herd. However, the performance is greatly influenced by management and environmental factors. Larger litter size is often a highly sought-after performance variable in swine breeding herds. However, selection for litter size can have a negative effect on the number of stillborn piglets. Although the causes for stillbirth are complex and multiple in pigs, the need for farrowing assistance is often linked to a high stillbirth rate. Sows with stillborn piglets are more likely to die than those without stillborns. Induction of farrowing is a management intervention in commercial farms. However, induction of farrowing has been suggested to increase the need for farrowing assistance. The risk of removal is not the same throughout the life of a sow. Periparturient period is a high risk time for sow removals. The present study aims to analyze the periparturient risk factors associated with sow removals in breeding herds before next parity. Retrospective data involving 68,159 parity records of sows from a commercial farm in Minnesota, pertaining to the period 2002–2005, were retrieved from the PigCHAMP Database (PigCHAMP Inc., Ames, IA). The association of parity (categorized as parity 1, parities 2–5 and parity >5), piglets born alive (continuous variable), mummies and stillborn (categorized as present or absent), season of farrowing (grouped into four quarters), farrowing induction (induced or not) and farrowing assistance (needed or not) on removal or retention of the sows was analyzed using logistic regression model (SAS V 9.1). The likelihood of removal from the herd decreased by 10% with the birth of every live piglet ($P < 0.05$).

The likelihood of removal from the herd was 64 and 52% lower for sows of parities 1 and 2, and 3–5 compared to sows of parity >5 ($P < 0.05$ for both). Sows farrowing in the second and third quarter of the year had higher likelihood of removal ($P < 0.05$ for both) from the herd than sows farrowing in the last quarter (odds ratios 1.088 and 1.341, respectively). Sows with no stillborn piglets were 12% less likely ($P < 0.05$) to be removed from the herd than those with stillborn piglets. Sows that did not need assistance in farrowing were 10% less likely ($P < 0.5$) to be removed than those requiring assistance for farrowing. Farrowing induction was found to be beneficial in that induced sows were 18% less likely ($P < 0.05$) to be removed than non-induced sows. The results indicated that farrowing interventions and other periparturient factors are important in deciding sow longevity.

Keywords: Sow longevity; Farrowing assistance; Induction; Parity; Stillborn

THE USE OF LEUKOCYTE ESTERASE REAGENT STRIPS FOR DIAGNOSIS OF SUBCLINICAL ENDOMETRITIS IN DAIRY COWS

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Recent investigations have revealed that mild endometritis, both clinical and subclinical, is common in high producing dairy cows, and that it significantly impairs reproductive performance. In many cases, the diagnosis is not clinically evident and must be determined by endometrial cytology. Although neither complex nor costly, endometrial cytology lacks immediacy, and does require equipment and expertise. In this study we investigated the use of low volume uterine lavage and the use of a commercial diagnostic strip test for urinary neutrophils for diagnosis of mild endometritis.

Postpartum dairy cows from two herds ($n = 112$) were used in this study. Samples ($n = 253$) were taken from each cow on one to four occasions between 1 and 7 weeks postpartum. Samples obtained by lavage of the uterus with 20 ml of sterile saline were processed for cytological diagnosis [Gilbert, et al. *Theriogenology* 2005;64:1879–88]. A subjective inflammation score (of 0–3) was assigned and 200 cells were counted and identified as epithelial cells, small mononuclear cells (lymphocytes) large mononuclear cells (macrophages) and polymorphonuclear cells. The proportion of each cell type was calculated. Independently, each recovered sample was subjected to testing with a diagnostic test