

Abstracts

Opening session

THE EFFECT OF A MONOVALENT LEPTOSPIRAL VACCINE AND PARENTAL OXYTETRACYCLINE TREATMENT AGAINST *Leptospira borgpetersenii* serovar *hardjo* type *hardjo* *bovis* ON THE REPRODUCTIVE PERFORMANCE OF BEEF CATTLE—A FIELD STUDY

R. Kasimanickam¹, W.D. Whittier¹, J.B. Hall², J.F. Currin¹, K.D. Pelzer¹, B. Inman¹

¹Department of Large Animal Clinical Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24060, USA

²Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24060, USA

Objective: To determine whether a commercially available monovalent *Leptospira borgpetersenii* serovar *hardjo* type *hardjo* *bovis* vaccine coupled with systemic oxytetracycline treatment to clear carriers would improve the reproductive performance of beef cows.

Animals: One thousand four hundred and forty six Angus cross-bred beef cows in eight locations were randomly assigned to treatment and control group.

Procedure: Cows received two doses, 4 weeks apart, of a commercial leptospira monovalent vaccine (Spirovac[®], Pfizer Inc., New York, NY, USA; Treatment group; *N* = 741) or placebo (Control group; *N* = 705). Cows that received the vaccine were also treated with 9 mg/lb (4.5 mL/100 lb) BW of oxytetracycline SC at the time of the second injection of vaccine. Serum antibody titers and urine samples were examined to detect presence of leptospira on farms prior to treatments. Farms were categorized as positive or

negative for leptospira based on the presence of leptospiruric cows. Cows were synchronized for fixed time artificial insemination (FTAI) and bulls were introduced 14 days later to breed non-pregnant cows following FTAI. Outcome measures evaluated were FTAI pregnancy rate and over-all (season-long) pregnancy rate (based on rectal palpation) for treatment and control group and for cows living in leptospira positive (*N* = 1182) and negative (*N* = 264) farms. Data were analyzed with a statistical software program (SAS Version 9.1 for Windows, SAS Institute, Cary, NC, USA). General Linear Model was used to examine the effects of vaccination on FTAI and over-all pregnancy rates. Variables included in the model were treatment (yes or no), farms status for leptospira, season (fall and spring), age (2, 3–6, >6 years) and body condition score (≤ 4 , 5 and 6, ≥ 7). All possible interaction effects were also tested.

Results: No significant differences in the FTAI pregnancy rate and over-all pregnancy rate between treatment and control groups were observed. The FTAI pregnancy rate for cows in the leptospira positive farms was significantly less than the cows in the leptospira negative farms [55.1% (651/1182) versus 61.7% (163/264)]. Among treatment groups, there was no significant difference in the FTAI pregnancy rate for cows in the leptospira positive and negative farms [55.4% (336/606) versus 59.3% (80/135)]. Similarly, among control groups, there was no significant difference in the FTAI pregnancy rate for cows in the leptospira positive and negative farms [54.8% (316/576) versus 63.6 (82/129)]. There were no significant differences in the over-all pregnancy rate for leptospira positive and negative farms.

Conclusions: Presence of leptospira on the farm affected the FTAI pregnancy rate. The monovalent

leptospirosis vaccine coupled with oxytetracycline treatment did not improve the reproductive performance in beef cows.

Keywords: Beef cows; Leptospirosis; Artificial insemination; Pregnancy rate

DOI: 10.1016/j.theriogenology.2007.05.005

PROGESTERONE CONCENTRATIONS IN GOATS RECEIVING SMALL RUMINANT CIDR[®]s VERSUS MODIFIED BOVINE CIDR[®]s

N. Hirsh, D. Matsas, S.L. Ayres

Tufts Cummings School of Veterinary Medicine, North Grafton, MA, USA

Administration of exogenous progesterone is an important part of estrus synchronization and superovulation protocols used in goat reproduction. Currently, progesterone implants for small ruminants are not available in the United States, but bovine controlled internal drug releasing devices (CIDR[®]s) containing progesterone have been approved. The purpose of this study was to compare the concentrations of serum progesterone produced using small ruminant CIDR[®]s to concentrations produced using modified bovine CIDR[®]s.

Six alpine does in anestrus were used in a crossover design. Three does had small ruminant CIDR[®]s (Eazi-Breed CIDR[®], InterAg, Hamilton, New Zealand) placed in the vagina, whereas the remaining does received bovine CIDR[®]s (Eazi-Breed CIDR[®]) that had been modified by removing one-third of the outer silicone shell containing progesterone, and threading this onto an 8 in. cable tie which was tightened to pull the shell into a 5-cm inverted V shape to fit into the vagina. Blood was collected daily for 3 days prior to CIDR[®] insertion, and for 14 days after insertion. The CIDR[®] was removed and blood was collected for an additional 3 days. The treatments were then reversed and blood was collected as above for a total of 37 days. Progesterone concentrations were determined by solid-phase radioimmunoassay (Coat-A-Count Progesterone RIA Kit, Diagnostics Products, Corporation, Los Angeles, CA, USA); data were analyzed using a two-way repeated ANOVA test (to compare concentrations over time). With the exception of Day 13 after CIDR[®] insertion, there were no significant differences between the concentrations of progesterone produced by the small ruminant CIDR[®]s and the modified bovine CIDR[®]s. The average serum proges-

terone peak was at, or just below, 4 ng/mL (average 3.85 for small ruminant and 4.01 for modified bovine CIDR[®]s) on the day after CIDR[®] insertion. Concentrations began to decline immediately, falling to <3.0 ng/mL by 8 and 9 days post-insertion for the small ruminant and modified bovine CIDR[®]s, respectively.

In summary, modified bovine CIDR[®]s produced serum progesterone concentrations comparable to those produced by small ruminant CIDR[®]s. These data could be important as evidence to support the use of modified bovine CIDR[®]s as an extra-label source of progesterone in small ruminant reproduction in the United States. In addition, bovine CIDR[®]s could potentially be modified to study the effects of prolonged sub-luteal and large-dose progesterone concentrations on estrous synchronization and superovulation in small ruminants.

Keywords: Goat; Progesterone; CIDR; Estrus synchronization

DOI: 10.1016/j.theriogenology.2007.05.006

DETERMINATION OF TESTICULAR BLOOD FLOW IN LLAMAS USING VASCULAR CASTING AND DOPPLER COLOR FLOW ULTRASONOGRAPHY

M. Grimes, M. Kutzler, R. Tyson, K. Timm

College of Veterinary Medicine, Oregon State University, Corvallis, OR, USA

Background: Information on reproductive abnormalities in camelids, specifically those pertaining to spermatogenesis, is extremely limited. Many male camelids have a high percentage of spermatozoa with abnormal morphology. These abnormalities include variable sperm head sizes and sperm head and midpiece vacuolar defects. In cattle, swine and humans, it has been shown that such abnormalities, in addition to genetic reasons, can result from poor scrotal thermoregulation or decreased testicular blood flow. We hypothesize that this is also true for camelids.

Materials and methods: A fertile 6-year-old male alpaca was heparinized (40,000 IU sodium heparin IV) and exsanguinated under anesthesia (xylazine, guaifenesin and ketamine IV). Sixty liters of heparinized saline was flushed through the aorta and out of the caudal vena cava. Batson's No. 17 casting material was infused first through the aorta (red plastic) and then through the caudal vena cava (blue plastic) to determine position and size of the major vessels entering and