Addition of Ticarcillin-Clavulanic Acid to INRA96 Extender for Stallion Semen

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The semen extender tested should not be frozen and thawed before use. Addition of ticarcillin-clavulanic acid (1 mg/mL) to the extender did not impair sperm quality but did not provide added protection against bacteria commonly found in equine semen. Authors’ addresses: Department of Animal and Food Sciences, College of Agricultural Sciences and Natural Resources, Texas Tech University, Lubbock, TX 79409 (Dean); Four Sixes Ranch, Guthrie, TX 79236 (Hobgood, Blodgett); and Department of Large Animal Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station, TX 77843-4475 (Love, Blanchard, Varner); e-mail: dvarner@cvm.tamu.edu. *Corresponding author; †Presenting author. ©2012 AAEP

1. Introduction
The aim of this study was to evaluate the effects of added ticarcillin-clavulanic acid to antibiotic-containing commercial semen extender on equine sperm quality and effectiveness at inhibiting bacterial growth.

2. Materials and Methods
Forty-two ejaculates were mixed with INRA96 extender to evaluate the effects of added ticarcillin-clavulanic acid (1 mg/mL) on semen quality and antimicrobial effectiveness. Storage methods for reconstituted ticarcillin-clavulanic acid or extender before use were also studied.

3. Results and Discussion
Addition of ticarcillin-clavulanic acid to INRA96 did not impair sperm quality (ie, motility features and sperm membrane integrity) of cool stored stallion semen (p > 0.05). Freezing and thawing of extender before use resulted in reduced quality of sperm after cooled storage, as evidenced by lowered sperm motility, progressive motility, and membrane integrity (p < 0.05). Addition of ticarcillin-clavulanic acid to INRA96 did not improve antimicrobial effectiveness in this study (p > 0.05). Inhibition of bacterial growth was improved by cooled storage of extended semen for 24 hours, as compared with semen exposure to extender at 37°C for 15 minutes (p < 0.05). Further studies are warranted to evaluate the effects of ticarcillin-clavulanic acid added to INRA96 involving fertility trials, different storage temperatures, and possible inoculations with pathogenic bacteria such as Pseudomonas aeruginosa and Klebsiella pneumonia.