HORSE SPECIES SYMPOSIUM: Pathogenic and reproductive dysfunction in horses

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One of the major factors contributing to production losses in the equine industry is pathogen-associated reproductive dysfunction. Although it is difficult to place a true value on the economic losses associated with pathogen-induced reproductive dysfunction in the horse due to the varying value of individual animals, the financial loss and emotional stress to horse owners and breeders is significant. Pathogenic organisms are associated with poor reproductive performance in the stallion and open and pregnant mare. Thus, the Horse Species Symposium held in Denver, Colorado, on July 15, 2010, at the joint meeting of the American Society of Animal Science, American Society of Dairy Science, Poultry Science Association, Asociación Mexicana de Producción Animal, and Canadian Society of Animal Science targeted 3 areas of significance: 1) contagious equine metritis (CEM), 2) identification of pathogens associated with endometritis and chronic endometritis in the mare, and 3) pathogen invasion during uterine infection leading to premature birth in mares. The primary goal of the symposium was to give an update on these 3 areas of concern and what progress has been made in the management, diagnosis, and treatment of these infectious conditions that have led to reduced reproductive performance in the equine species.

Peter Timoney, from the Maxwell H. Gluck Equine Research Center at the University of Kentucky, assessed the significance of CEM, which has given cause for concern since it was first recognized as a novel sexually transmitted disease of equids in 1977 (Timoney, 2011). This disease of the reproductive tract is caused by the previously unidentified but highly contagious bacterium, *Taylorella equigenitalis*, a coccobacillary or bacillary gram-negative nonmotile bacterium (Platt et al., 1977; Timoney et al., 1977). Contagious equine metritis was initially discovered in the United Kingdom and Ireland in 1977 (Powell, 1978), causing widespread panic internationally within the Thoroughbred industry due to the highly contagious nature of the disease. Whereas CEM is a nonsystemic disease that is restricted to the reproductive tract of both mares and stallions, the clinical signs are only manifested in the mare and are characterized by an acute endometritis, cervicitis, and vaginitis of variable severity together with a mucopurulent vaginal discharge, but rarely results in abortion. Since its emergence, CEM has become more geographically widespread due to the shipment of carrier animals and fresh-cooled or frozen semen within and between countries. Contagious equine metritis is also believed to be endemic in non-Thoroughbred breeds in many countries. Since the initial emergence of the disease in 1978, there have been only a few incursions of note in the United States until December 2008 when the disease re-emerged (USDA, APHIS, 2010), resulting in an extensive epidemiological study that determined the outbreak was more extensive than originally thought. Several significant epidemiological findings emerged from these studies, which identified that 11 breeds were affected and stallions were the primary carrier animals, most of which were exposed to *T. equigenitalis* through the use of contaminated fomites in semen collection centers. The good news is that the pathogen is sensitive to a wide array of antibiotics and good management practices can lead to the eradication of the pathogen. However, Timoney reiterated the challenge facing the equine industry in the United States and the importance of reestablishing CEM-free status.

Two presentations were devoted to better diagnosis and treatment of endometritis. Morten Petersen, University of Copenhagen College of Veterinary Medicine, Denmark, described the use of fluorescent in situ hybridization (FISH) to identify endometritis pathogens in the mare uterus (Petersen et al., 2010).