



Horse Industry Newsletter

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Recent EHV-1 Cases Reported in both TX and OK

The Texas Animal Health Commission (TAHC) reported on Feb. 6, 2015, that two horses were diagnosed with the neuropathogenic form of equine herpesvirus (EHV-1) at two different stables in northwestern Galveston County. One horse has died and the other is currently being treated.

According to the TAHC, EHV viruses are found in most horses all over the world. It is recognized that severe debilitating diseases, which cause immunosuppression, can result in reactivation of the virus. It is suspected this is the most likely chain of events in the confirmed case. Five other horses have been quarantined and the equine barn is currently closed for biocontainment until further notice.

Also, on Feb. 13, 2015, the Oklahoma State Veterinary Office reported that a hospitalized equine patient at the OSU Veterinary Medical Hospital has been confirmed with the neuropathogenic form of EHV-1. Necessary biosecurity measures have been taken and disinfection protocols have been implemented.

Due to these recent reports of disease incidents and the history of other outbreaks of EHV-1 in previous years, horse owners should continue to follow normal precautions and farm biosecurity and disease prevention practices. These include but are not limited to: continual monitoring of all horses on the farm; isolation of new animals for several days; not comingling with other horses of unknown history especially at shows and events; and not using common feed or water buckets. If any horse appears to be ill, a veterinarian should be contacted immediately.

TAHC reports that direct horse-to-horse contact is a common route of transmission of the virus, but indirect transmission is also important. This occurs when infectious materials (nasal secretions, fluids from abortions, etc.) are carried between infected and non-infected horses by people or inanimate objects such as buckets, tack, trailers, etc. Aerosol transmission can also occur when infectious droplets are inhaled. The source of infectious droplets is most often respiratory secretions.

Symptoms of EHV-1 include fever which is one of the most common clinical signs and often precedes the development of other signs. Respiratory signs include coughing and nasal discharge. Neurologic signs associated with EHV-1 are highly variable, but often the hindquarters are most severely affected. Horses with EHV-1 may appear weak and uncoordinated. Urine dribbling and loss of tail tone may also be seen. Severely affected horses may become unable to rise.

For more information on protecting your livestock from EHV-1, contact your veterinarian, your local TAHC regional office or call 1-800-550-8242 or visit http://www.tahc.texas.gov/news/brochures/USDABrochure_EquineBiossecurity.pdf.

Horse owners can also consult Texas A&M AgriLife publication, "Best Management Practices for Disease Prevention" at <http://animalscience.tamu.edu/livestock-species/equine/publications/>.

Equine Reproduction Management Short Course Provides Hands-On Practical Experience

The Equine Reproduction Management Short Course held Jan. 7-9, 2015, was sponsored by the Department of Animal Science and AgriLife Extension. Nine participants from Texas and Tennessee attended the program which focuses on science-based, relevant, hands-on information on reproductive management of broodmares and stallions. This course, which has been offered since 1979, is targeted toward breeding farm managers, stallion and mare owners who are interested in learning more about modern breeding practices and management of breeding stock. Attendees rated 17 different topic areas of lectures, hands-on labs and demonstrations as 74.5 percent "very beneficial" and 25.5 percent as "somewhat beneficial".



Texas is the No. 1 state in the U.S. in total horse numbers and in registered Quarter Horses, with approximately one million horses in the state. Horses have a total economic impact to Texas conservatively estimated at more than \$5 billion annually. Horse breeding farms, especially those associated with performance horses, are an integral part of the total horse business in Texas and contributes heavily to this economic impact and to employment opportunities in the horse industry. Anyone interested in the 2016 program can contact Dr. Martha Vogelsang at m-vogelsang@tamu.edu or 979-845-5796.

TAMU Farrier Conference Provides Exceptional Education for Texas Professional Farriers

On Jan. 8, 2015 more than 50 professional farriers, veterinarians, hoof health care providers and horse owners from across Texas and beyond attended the 2nd annual Texas A&M Farrier Conference at Pearce Pavilion on the Texas A&M campus. Farriers in attendance averaged having shod horses for over 16 years and have been professional farriers for over 13 years.

Experts presented useful information from hoof biomechanics to unique techniques for shoeing reining horses. An educational demonstration of hoof and lower leg dissection and presentation on nutrition gave participants information to build sound farrier principles.

Following the conference on Jan. 9, 15 farriers went through various American Farriers Association certification exams sponsored by the Texas Professional Farriers Association and the AFA.

The conference received much positive feedback. Participants commented, "I loved it! Great job by all! Especially enjoyed Dr. Ruoff's thorough dissection and Glen Spradling's courage to think outside the box! Y'all are awesome." 95 percent of attendees indicated that the conference was valuable to their ability to care for horse's feet and 86 percent indicated that the information would have a positive economic impact on their business. This conference is held annually and is aimed at providing up-to-date information and continuing education to those who care for horses' feet. Information on next year's program can be obtained from Dr. Dennis Sigler at dsigler@tamu.edu.



Low Starch Feeds May NOT be the Best Feeding Program for the Elite Performance Horse

Recent research conducted by graduate students in the Department of Animal Science, led by Dr. Dennis Sigler, indicates that the so-called "lower starch feeds," although they may be safer for the horse, do not meet the need for adequate starch in the diet to help facilitate full recovery of muscle glycogen after intense exercise.

The amount of muscle glycogen (animal starch stored in the muscle) is indicative of how much total work the horse is able to perform before reaching a state of fatigue. Previous research has shown that the level of muscle glycogen can definitely be improved by both exercise conditioning and by feeding diets high in carbohydrates.

The 2014 study conducted by Sigler and master of science student Caitlin Vonderohe found that horses on a normal starch diet (998 grams of starch/day) had 41 percent more muscle glycogen after 48 hours of recovery from heavy exercise, than horses on a low starch diet (554 grams of starch/day). Interestingly, the horses fed the lower starch concentrate never fully recovered by 48 hours, while those on the normal diet had fully recovered to pre-exercise levels of muscle glycogen, even by 24 hours after exercise. A 2015 study recently completed compares effect of three different levels of starch in the diet to repletion rate of muscle glycogen. This additional study should provide useful recommendations for how much starch is needed in the diet for the intensively-worked horse. For the elite performance horse, especially those that are being asked to perform in multiple go-rounds within a few days of one another, the effect of low muscle glycogen could definitely influence the horses ability to perform up to expectation. More to come!

Take Good Care of That Newborn Foal

By Martha M. Vogelsang, Ph.D., PAS, Dpl. ACAS

Broodmare owners are always delighted when foaling season arrives and their year-long anticipations of new foals are realized. It is unfortunate for some that the newborn foal does not arrive healthy or does not remain completely healthy after arrival. Up to 25 percent of wastage in the horse industry has been attributed to neonatal disease. Because signs of neonatal disease are often subtle and non-specific, it is important for the owner or foaling manager to pay very close attention to the foal in the first few days after its birth.

Diseases that affect the newborn foal do not always present the same series of symptoms nor progress in the same manner as they might in the adult horse. Additionally, foal diseases may not respond to treatment like diseases of the juvenile or mature horse. Diseases that affect the neonate can develop during gestation, at parturition or after the foal has been born. Difficulty in detecting and diagnosing neonatal disease requires careful evaluation of the newborn so that problems are identified early enough for treatment to be effective. Under normal circumstances, attendants at foaling observe the foal's respiration to be sure that it is getting adequate oxygen, treat the naval stump and administer tetanus anti-toxin as preventives to infection, make sure the foal nurses and later test immunoglobulin (IgG) levels to determine whether the foal received sufficient antibodies from the colostrum for passive immunity. Frequent observation for the first 7-10 days of the foal's life is necessary in order to detect any indication that the foal may be in danger of developing life-threatening diseases.

If there is a reason to believe that the foal may be suffering from the initial onset of neonatal disease, an experienced veterinarian should be contacted to perform other diagnostic procedures that can identify the presence of infection. The veterinarian will be able to determine fibrinogen and white blood cell counts that would indicate infection, perform cultures to identify infectious organisms, diagnose respiratory tract disease by doing blood gas analyses, radiograph areas that seem to be the source of pain for the foal, and evaluate serum electrolyte and glucose balance. If neonatal disease is suspected, a complete examination of all systems should be performed because it is unlikely that problems will be limited to one specific system in the newborn foal. Foals succumb to disease very rapidly so it is imperative that treatment of neonatal diseases or dysfunctions begin early after detection of a problem.

Follow these guidelines when caring for sick foals.

1. Keep the foal warm, dry and clean.
2. Provide adequate nutrition either orally or parenterally.
3. Position in sternal recumbency to maximize ventilation.
4. Prevent self-trauma such as corneal ulcers.

5. Maintain cleanliness and integrity of intravenous catheters.
6. Provide sufficient exercise (active or passive) to prevent limb deformities.

Although most foals are born healthy and continue to do well as they adapt to their new environment, it is important that they are carefully observed so that early treatment can be utilized if a neonatal illness is detected.

For more information, contact Dr. Martha Vogelsang at m-vogelsang@tamu.edu or 979-845-5796.

New Technology Leads to Innovative Research in Equine Science

Animal Science researchers Dr. Dennis Sigler and Dr. Clay Cavinder along with graduate students in the department recently acquired a COSMED K4b2 Portable Telemetric Gas Analysis System for use in two different research projects. The equipment is a portable system which can be used to collect oxygen consumption, respiration and caloric expenditure data while subjects (both humans and horses) are exercising in a variety of exercise regimens.

Texas A&M University is currently the only university in the U.S. that has this technology for use in horses and the Department of Animal Science is the only department on campus that has this capability for human subjects. The equipment purchase was made possible through funding from Texas A&M AgriLife Research, the Department of Animal Science, and the College of Agriculture and Life Science's Dean's Office. Projects using this equipment were:

1. Colleen O'Reilly, master of science student. Title of project – "Rider Energy Expenditure During High Intensity Horse Activity." Committee chair – Dr. Dennis Sigler; collaborators – Dr. Martha Vogelsang, Dr. Clay Cavinder, (Animal Science) and Dr. James Fluckey (Kinesiology)

The goal of this project was to examine rider energy expenditure during high intensity horse activity. Very little data currently exists for caloric requirements for more intense horse riding such as showing in reining or cow horse show events. An exercise test was developed to simulate training and showing of the reining and cow horse. During these tests, data was collected on oxygen consumption, heart rate and body composition of the rider. Heart rates of the horse also were taken throughout the exercise bout to provide more information on the intensity of the exercise for both horse and rider. Results of this project provide data on energy expenditure during certain high intensity rides and form a prediction equation that can be used to provide riders with much needed information on caloric requirements and the health benefit of horseback riding as a form of exercise. The implications to human health and therapeutic riding activities are exciting.

2. Jennifer Zoller, doctoral candidate. Title of project – "Development of a Mathematical Model for Predicting Dietary Energy Intake to Meet Desired Body Condition Parameters in Exercising Horses." Committee co-chairs – Dr. Dennis Sigler and Dr. Clay Cavinder; collaborators – Luis Tedeschi, (Animal Science), J. Fluckey (Kinesiology), Julie Harlin (Ag Education).

The objective of this study was to utilize a novel computer nutrition modeling program, recently developed by Texas A&M Animal Science (Cavinder et al., 2011) to provide more accurate feeding recommendations which could reduce resources spent in managing horses and ultimately improve the health and welfare of the horse. To refine the current model to include the exercising horse, the energy expended during exercise needs to be measured through indirect calorimetry. The Cosmed K4b2 was utilized as a portable telemetric gas analysis system for performing a wide variety of tests including measurement of indirect calorimetry. The device measures pulmonary gas exchange (VO₂, VCO₂) using breath-by-breath technology which was previously unavailable in exercise testing for equine athletes. Prior to obtaining this equipment, measurement of metabolism in the human and equine required stationary treadmill exercise evaluation because current equipment was large, cumbersome and must remain stationary, therefore, was not able to measure energy expenditure during actual equine events such as jumping, cutting, reining, etc. In contrast, the K4b2 system is strapped to the body during exercise and wirelessly transmits breath-by-breath data to a computer with specialized software. Due to this portability, measurements can be performed during a variety of different disciplines, ultimately leading to a better understanding of how to care for a wider range of specialized equine athletes. Data are currently being analyzed and should provide researchers more specific recommendations that horse owners can use to adjust dietary energy intake and the effects on body condition score in the exercising horse.

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<http://animalscience.tamu.edu/livestock-species/equine/horse-bits/archives-horse-bits/>.