HIGHLIGHTING RESEARCH
AND OUTREACH EFFORTS AT
THE UNIVERSITY OF KENTUCKY

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EQUINE SCIENCE REVIEW

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College of Agriculture,
Food and Environment

ESR

Equine Science Review is a monthly College of Agriculture, Food and Environment newsletter that highlights important equine work happening at the University of Kentucky.

Photo courtesy Dr. Jimmy Henning.

UK HOSTING ROTAVIRUS WORKSHOP JULY 19

IMAGE COURTESY UK COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT.

The University of Kentucky College of Agriculture, Food and Environment will be hosting a Rotavirus workshop July 19 at Keeneland from 12:30-5:30 p.m. EDT.

Sponsored by Keeneland, the workshop will overview equine Rotavirus in foals and the work performed by UK's Gluck Equine Research Center and Veterinary Diagnostic Lab, in collaboration with clinicians and farms during Spring 2021.

The workshop will focus on the discovery of the new Rotavirus B variant found in foals with neonatal diarrhea, as well as infection detection, control and prevention strategies and discussion about Rotavirus A. Presentations given by researchers, veterinary clinicians and farm managers will be 15 mins each for a fast moving interactive workshop.

The workshop will be in-person and also live-streamed for virtual attendance via Zoom Webinar. It is free to attend.

Visit the registration page for more information and to register for the in-person event or to attend virtually via Zoom webinar: https://gluck.ca.uky.edu/2021-rotavirus-workshop

The material presented is funded by the UK College of Agriculture, Food and Environment's Gluck Equine Research Center Koller Emergency Response Funds and gifts from the Kentucky Thoroughbred Association/Kentucky Thoroughbred Owners and Breeders, Coolmore America and Grayson Jockey Club.

CE credit has been applied for from KBVE for Kentucky veterinarian licensees. If granted, attendees must be registered either in person or by webinar to receive CE credit.

Keeneland is generously providing the Sales Arena and complimentary light refreshments during the workshop. Lunch may be purchased at the Track Kitchen on site.

| *Source: Edited UK CE announcement.*

College of Agriculture, Food and Environment

TURF MANAGER CERTIFICATION PROGRAM SUCCESSFULLY LAUNCHES

With turf racing events steadily gaining in popularity on the racing calendar in the United States, the newly launched Racecourse Manager Certification Program: Turfgrass as an Equine Sports Surface focused on turf cultivation, conditions and impacts. The continuing education program stems from the combined efforts of the National Thoroughbred Racing Association (NTRA) Safety and Integrity Alliance, the University of Kentucky College of Agriculture, Food and Environment; and the Racing Surfaces Testing Laboratory (RSTL).

Launched in June with three live-streamed webinars, the program provides intensive research-based education for horse industry professionals so they more fully understand recent trends and research on equine surfaces and the broad impacts of surface on equine performance.

"With the increased popularity of turf racing and demand on turf courses in North America, it made perfect sense to start this series with a focus on turf racing and the use of turf in other equestrian sports. And partnering with the University of Kentucky and the Racing Surfaces Testing Laboratory provided for a superior educational platform," Alex Waldrop, NTRA CEO, said.

Providing information to racetrack superintendents and equine facility managers with information to help address the increased pressure on equine turf surfaces in North America: turf cultivation, conditions and impacts were a main focus. The three live-streamed sessions included:

1. **"Selection of Turf for Climate Zones,"** (Mike Goatley, PhD, professor and extension turfgrass specialist, Virginia Polytechnic Institute and State University; Gregg Munshaw, PhD, director of agronomy for Mountain View Seed; Elizabeth Guertal, PhD, Department of Crop, Soil and Environmental Sciences, College of Agriculture Auburn University; Logan Freeman, MTC Board member and golf course superintendent at Mountain Branch Golf Club in Joppa, Maryland; Michael D. Boekholder, director, field operations at Philadelphia Phillies; and Geoffrey Rinehart, turf management lecturer, College of Agriculture and Natural Resources at the University of Maryland)
2. **"Cultivation of Turf Compaction and Wear,"** (Jim Pendergest, general manager at The Thoroughbred Center; Michael D. Boekholder, director, field operations at Philadelphia Phillies; Leif Dickinson, superintendent at Del Mar Thoroughbred Club; Sean Gault, consultant and former director of Thoroughbred surfaces at Woodbine; Geoffrey Rinehart, turf management lecturer, College of Agriculture and Natural Resources at the University of Maryland; Logan Freeman, MTC Board member and golf course superintendent at Mountain Branch Golf Club in Joppa, Maryland ; Trey Rogers, PhD, professor, turfgrass research - golf course renovations - Sports Turf and Golf Turf Management Programs; Turfgrass Research, Michigan State University College of Agriculture & Natural Resources; and Elizabeth Guertal, PhD, Department of Crop, Soil and Environmental Sciences, College of Agriculture Auburn University)
3. **"Measurement of Turf Condition,"** (Sarah Jane Hobbs, PhD, equine and human biomechanics,

School of Sport and Health Sciences, University of Central Lancashire; Alison Northrop, senior lecturer, Nottingham Trent University; Lars Roepstorff, Swedish University of Agriculture; Elizabeth Guertal, PhD, Department of Crop, Soil and Environmental Sciences, College of Agriculture Auburn University; and Mick Peterson, PhD, director of the Racetrack Safety Program at UK and Executive Director of the RSTL

"With more than 20 presentations from 13 different speakers across multiple universities and organizations, not to mention time zones, this was a big undertaking. We were really pleased with the interest from the horse industry at large, though this was originally conceived for racetrack superintendents and such. I'm pleased to see participation across the spectrum of horse activities," Peterson, said. "The certification program is an excellent example of the land-grant university mission—to take research-based, practical information to the public so they can put it into practice. I'm pleased that our audience, which grew each session and peaked at 32, will have this material to help them understand and make sound decisions about their equine surfaces, whether it's a turf race or training course, a polo field or an eventing course."

Participant feedback has been very positive across equine disciplines.

"I signed up for this course as I am the owner of grass arena polo club. We have three grass fields and one grass arena. I am personally responsible for the grass arena which is located south of San Antonio, Texas. The opportunity to get expert information on how to maintain a turf field was extremely welcome. Once the class started, I was amazed at the information that was presented and the opportunity to follow up with all the instructors and presenters. I really enjoyed the course," Karl Hilberg, a founding member of the Central Texas Polo Association, said.

"The turf meeting was excellent—technical, practical and scientific topics were discussed. It also gave us the opportunity to see what is happening on the other racetracks and how others are managing the procedures in different types of climate. It was great!" said Paulo Nania, racing surfaces engineer at Woodbine Entertainment.

Information about the program is available here.

Videos of the presentations can be watched for free on the UK Ag Equine Programs YouTube channel. The University of Kentucky will be administering the certification program. The fee to take the certificate test is $50, and email notification will be sent when the testing portion for the certificate launches in July. Racecourse Manager Certification Program: Turfgrass as an Equine Sports Surface was sponsored by John Deere. Other sponsors include Duralock, Horsemen's Track and Equipment, Inc. and Equinox Racing.

This is the first of a series of continuing education programs for horse industry professionals. Sign up to receive email updates here. Follow the Equine Sports Turfgrass Alliance on Twitter at @equineturfgrass.

| *Karin Pekarchik, MS, senior extension associate for distance learning in the UK Department of Biosystems and Agricultural Engineering and founder of the UK Female Equestrian Health and Wellness Community of Practice, and Sydney Carter, equine undergraduate major and communications intern with UK*

NIELSEN ELECTED AAVP PRESIDENT

The annual meeting of American Association for Veterinary Parasitologists (AAVP) was recently held in Lexington, Kentucky, in a hybrid format of both in-person and virtual components. Martin Nielsen, DVM, PhD, Dipl. ACVM, Schlaikjer Professor of Equine Infectious Disease at the University of Kentucky Gluck Equine Research Center, who served as program chair of the meeting, was elected president of the AAVP at the business meeting held during the conference.

Here, he accepts the handoff of the presidency cowbell from predecessor Doug Carithers, DVM, director of applied research and publications at Boehringer Ingelheim.

2021 VALENCIA, SPAIN, EHV-1 OUTBREAK

COMMENTARY BY LUTZ GOEHRING, DVM, PHD

Equine Herpesvirus, EHV-1, canEquid Herpesvirus, EHV-1, can cause detrimental neurological disease (Equid Herpesvirus-associated Myeloencephalopathy or EHM) in horses and abortion in late-gestational mares. EHM outbreaks remain rare or typically occur as single events that usually are confined to single horse operations during almost an 'EHM season' that runs from October/November through April, with almost 90% of outbreaks during that period. For the last 20 years, we've observed EHM outbreaks in the northern hemispheres most commonly at boarding facilities with single or mixed breeds. However, breeds like Thoroughbreds, Standardbreds, various Warmblood breeds and Quarter Horse/Paint/Appaloosa seem overrepresented in developing EHM during these outbreaks.

The EHV-1 outbreak at an international jumping competition in February located in Valencia, Spain, has been world news, not only in equestrian and equine media, including various platforms of social media, but has also been on national television and in newspapers in most of the participating countries. The following outbreak description does not claim to be complete or accurate for all numbers. This report is also biased, as not all involved have been heard. The information gathered here is based on phone/Zoom™ conversations with local veterinarians at the venue, a few returning participants and communication with several of the referral hospitals directly or indirectly involved in the outbreak. The interpretation of the collected data is based on this author's previous experience with EHM outbreaks, as well as on current knowledge of EHV-1 pathogenesis and epidemiology.

IMAGE COURTESY HOLLY WIEMERS.

The Valencia outbreak brings back memories of the 2011 EHV-1 outbreak that began at the National Cutting Horse Association's Western National Championships in Ogden, Utah. Each year during the months of February and March, equestrian venues in the South of Spain, Portugal and along the Mediterranean coast open their doors for international jumping and dressage competition, under names like Sunshine Tour (Jérez, Spain), CES Valencia Tour and Mediterranean Equestrian Tour at Oliva Nova (Spain). Similar events are organized in Gorla Minore, Italy; Vilamoura, Portugal; and HUBSIDE Jumping, St. Tropez, France.

Each venue hosts competitive events for several weeks, usually around five to eight weeks, with weekly change of competitive levels. This allows horses and teams to move from one location to the next with reasonable transportation time and distance. So it is not uncommon for individual teams to see several venues during a single Spring tour, and each venue will host between 1,000 to 2,000 horses and 400 riders with their support team of grooms from up to 40 different countries, the majority from Central, Eastern and Northern Europe. Several facilities along the roads in France and Spain open their doors for traveling horses. All-in-all, it is a major event of training and competition after a long winter up north and in addition, preparation for European and world championships, as well as for the Olympics.

To set the tone, EHV-1 infection in its chronic-persistent form as a latent infection is endemic in Europe, meaning the virus persists as a sleeper, non-active infection in many if not all horses that became infected at young age as a foal or yearling. Furthermore, EHV-1/EHM is not a reportable disease in Europe, with few ex-

ceptions (Sweden, Thoroughbred breeding and racing), and it is the national equestrian organizations and not the FEI, that define core vaccinations for competing horses. Many countries in Europe recommend EHV-1 vaccination; however, it remains a recommendation.

The venue for the CES Valencia Tour is located north of the city of Valencia, a location that has hosted this event in the past (www.cesvalenciatour.com). According to its website, the location provides indoor and outdoor arenas, warm up areas, individually fenced paddocks and stabling for 80 horses in a permanent barn building, as well as another 300+ boxes in a large barn tent with at least two central barn aisles.

The first out of a total seven weeks of competition started on January 28. Typically, four days of competition were followed by three days of non-competing activities (travel days or training). Counts differ, but apparently in week two, there were between 150 and 250 horses on the grounds. It was reported that in week two, there was a first horse with fever, and five or more horses with a fever in week four. Nasal swabs submitted for PCR analysis in week four returned negative for EHV-1. As horses left for Doha, Qatar, during week three, and tested positive for EHV-1 on nasal swabs at the Doha venue, it is very likely that virus had already circulated during weeks two and three of competition in Valencia.
The trickiness of EHV-1 infection and recognition is in the timing. Phase 1 of EHV-1 infection is infection of the upper airways, where it replicates in masses, and is subsequently spread via droplets into other in-contact horses. During phase 1, virus moves towards the local lymph nodes where it also replicates and quickly enters various cells of the immune system, mainly lymphocytes and monocytes.

What follows is a phase 2 of infection, viremia, where virus enters the bloodstream, but inside these immune cells: a cell-associated viremia. While phase 2 does not occur in all phase 1 horses, this phase is a key necessity for the development of EHM as a phase 3. Here, virus-infected immune cells interact with small blood vessels of (mainly) the spinal cord, causing the vascular breakdown and thus inadequate support of the spinal cord with malfunction of neuronal circuits leading to ataxia, weakness and, potentially, recumbency (EHM).

A fever greater than 38.5°C/101.3°F is typically a fever of a viremic (phase 2) animal. Viral replication is most abundant during phase 1 and often tapers off during phase 2. However, phase 1 is typically a very subtle phase of the infection with regards to clinical signs, and early recognition of an infected animal remains difficult at best. This explains the explosive spread of the infection at the venue.

In week five, about 30 horses were reported with fever and most of the horses with EHM were noticed during this week. Several nasal swabs and EDTA whole blood samples (testing for viremia) were then positive for EHV-1. An N-variant, the variant less likely to cause EHM in horses, was identified. Severe cases were transferred to regional (university) hospitals, which cleared their barns first to be able to exclusively tend to these challenging patients. During this week, veterinarians from participating countries were brought in, quarantine stable tents were set up and slings were assembled.
In weeks four-five, quarantine of the entire facility was announced. By week six, several more horses were reported with a fever, as well as a few additional horses with EHM.

On March 29, (week nine), the last non-resident horse left the premises following an orchestrated lift of quarantine based on a rigid sampling and negative test result protocol.

By the end of the tour, Valencia reported that out of 250 to 300 horses on the venue at the beginning of the outbreak, a total of 100 horses developed fevers. Of those, 30 developed EHM, and for 17 of those 30, the disease was severe enough to recommend euthanasia. It is not clear whether the number included affected horses and casualties in the horses‘ home countries.

Back to week four and five… It would have been prudent that all horses should have stayed in quarantine. However, and against recommendations by local authorities, some owners and riders traveled home with both febrile (showing fever) and non-febrile horses. The virus was subsequently transported to the lay-up facilities (France) along the road back north, and into several home farms in France, Germany, Belgium and the Netherlands, with satellite outbreaks that included abortions and further EHM casualties in the home barns.

WHAT WENT WRONG?

1. In numbers, EHM is a rare disease among horses, despite the fact that we assume that many horses are carriers of EHV-1 in its silent, latent stage. First-time infection probably occurs at a young age without complications or harm, and many horse owners and riders are unfamiliar with the disease and its contagious nature. This virus is not perceived by riders and owners as a threat. Thus, there is generally no perceived risk, nor perception of need for vaccination.

2. An outbreak that leads to a subsequent (or satellite) outbreak is extremely rare, and is typically caused by horses being transported from affected facility to the yet

unaffected. There are only two reports in peer-reviewed literature that describe subsequent satellite outbreaks in the home premises upon return from competition: Belgium 2003 and Ogden, Utah, 2011.

Despite the ever-increasing competition schedule and the number of horses participating in events since Utah in 2011, EHM outbreaks starting at competition have not been reported, and Valencia apparently is a rare exception. Reactivation of virus from its latent location with a return to the respiratory tract, from where it can spread horizontally, is also likely a rare event. This assumption is based on the results of many studies where horses have been screened for virus during and after stressful events and the virus remained undetectable in the nasal passages. That the reoccurrence after reactivation, also called recrudescence, is rare is supported by the fact that the number of EHM outbreaks per year in endemic areas are incidental at best. Typically, an outbreak occurs at a single horse operation, a training or boarding facility -- often upon return of a horse from an event. If the returning horse is the source of the spread, it seems likely to assume that it takes a number of days for the virus to return to the respiratory tract and for the horse to become a productive spreader. These observations and assumptions would explain the usually isolated and incidental nature of EHM outbreaks.
As horses were transported over long-distances to the Valencia venue, arriving at an unfamiliar and bustling competitive event, it can be assumed that circumstances for recrudescence in that one horse were met.

3. When one became many... Horses with different backgrounds were stabled in a large stable tent after strenuous transportation with possible negative effects on a horse's immune system. Many of them were (reportedly) not current on their EHV-1 vaccination or had not been vaccinated. Although the closed sides of the stalls did not allow easy nose-to-nose contact, the riders and grooms from different parties often know each other, which also facilitates the contacts among horses. In addition, it is not uncommon that equipment (tack, but also, as we were told, nebulizers) is shared between parties. If one horse becomes the super spreader after either horizontal infection or recrudescence in a densely populated stable tent with suboptimal ventilation, it is easy to envision the rapid spread of the virus among this population.
We also heard of non-compliance to simple isolation and precaution measures. Owners did not want their horses that were showing a fever to be moved into isolation, mainly because of a feared increased risk of injury. Owners left the venue with sick horses, transferring virus into satellite facilities and/or home barns. Relocating untested and unconfirmed 'negative' horses from one barn to another has been shown to be a very effective way to transfer disease.

4. The perfect storm…multi-factorial disease: Horses at the Valencia venue were mostly Warmblood breeds, and thus in the high-risk group to develop EHM upon infection and viremia (phase 2). The isolated virus from a horse at the venue was an N-variant of EHV-1. The virus' genome has been sequenced, and it appeared very closely related to a Belgian strain that was once recovered from an aborted fetus. While EHM outbreaks associated with an N-variant have been associated with EHM-cases in the past, the number of EHM-cases were considered to be less than with infections caused by a D-variant. However, other factors such as crowding, opportunity for nose-to-nose contact and immune status due to transportation may have facilitated transmission and thus viral load/infectious dose that reached an individual animal. An observation by local veterinarians was that with an even gender distribution, female horses were overrepresented in the EHM group. Interestingly, this observation was also made during the Ogden outbreak in 2011; however, it is different from the various EHM outbreaks that occur at (mixed breed) premises considered home operations. Whether this was a coincidental finding or caused by differences in endocrinologic status at competition has to be determined.

5. How to prevent this from happening? Vaccination against EHV-1 should be required to enter the grounds and administered more than five weeks prior to an event. Additionally, owner/rider/groom education should be conducted; bedding materials completely removed, a box/stall cleaned and disinfected prior to use; an empty box/stall employed between horses of different teams; intake (physical) exams conducted that include temperature check; regular temperature check by owner and results displayed on the box/stall door; and standard operating procedures for horses with a fever (or other signs of possibly contagious disease). Additionally, there should be little as possible contacts with horses from other teams; no sharing of tack or equipment with other teams; one-way traffic in barn aisles; regular cleaning and disinfection of crosstie areas/ wash stalls between teams.

| *Lutz Goehring, DVM, PhD, is the Warren Wright, Sr. – Lucille Wright Markey Endowed Chair in Equine Infectious Diseases at the University of Kentucky's Gluck Equine Research Center.*

SELECTING HAY FOR YOUR HORSE: SEPARATING THE FACTS FROM THE FICTION

Horse people are often described as picky, fussy or difficult when it comes to hay selection. This description is not surprising because many horses are either very valuable or viewed as part of the family.

It is often a lack of knowledge about selecting quality hay that gives horse owners a bad name and forces them to pay more for hay than their neighbors with other types of livestock. Myths develop because of a piece of truth that becomes inflated and held as absolute truth without justification. To improve our knowledge of hay selection, here are a few common myths about hay, how these myths came to be accepted and, finally, "the truth."

Note: For the purposes of this article, "high quality hay" refers to hay with a high nutritive value.

IMAGE COURTESY DR. JIMMY HENNING.

MYTH: SECOND CUTTING HAY IS ALWAYS THE BEST CUTTING.

How it came about:

The number one factor that determines hay quality is stage of maturity at harvest. Cool season grasses such as orchardgrass and timothy will produce a seedhead in the spring, often just in time for the first cutting. For the hay producer, this means an increase in yield and therefore more bales can be harvested and sold. However, this also means that fiber is elevated in the crop, therefore reducing quality. Because seedheads are only produced one time per year in cool season grasses, subsequent cuttings do not contain them and second or later cuttings will be generally less fibrous as a result. Second cuttings tend to cure more quickly and are less likely to experience rain damage; both contribute to higher quality relative to first cutting.

Truth:

First cutting hay can be high quality if cut early and second cutting can be low quality if it cut late. Stage of maturity and other management factors affect hay quality at harvest. High quality (or low quality) hay can be harvested from late spring to late fall if weather and management conditions are right. Quality should never be assessed based on cutting number, but on a laboratory-performed analysis.

MYTH: HORSES REQUIRE HIGHER QUALITY HAY THAN CATTLE.

How it came about:

Some horses, especially those with high nutrient requirements, do require higher quality hay than cattle. Horses and cattle have very different digestive tracts. Cattle are ruminants and are able to breakdown fiber very efficiently, whereas horses are monogastrics with a functional large intestine (hindgut fermenters) and are less efficient at fiber digestion. Therefore, cattle can perform well on lower quality hay that horses cannot digest well.

Truth:

Individual needs of the animal should dictate the quality of hay provided. An easy-keeping Quarter Horse in light work does not need the same quality of hay as a Thoroughbred at the peak of its racing career. Similarly, an open Angus cow does not need the same quality of hay that a high producing dairy Holstein needs at the peak of lactation. Consider the current body condition, level of work and pasture availability of your horse. Then choose hay that will meet the needs of your horse without excess based on a hay test.

Myth:

(Fill in the blank) is the best type of hay.

IMAGE COURTESY DR. JIMMY HENNING.

How it came about:

Statements such as this often come from horse owners that have moved from one area of the country (or world) to another and are not accustomed to the local hay. Different forages are adapted to different soils and climate conditions, so the most common hays available for horses vary among regions.

Truth:

Hay quality is not about the forage species or even the variety. Forage species used for hay will fall into one of two categories: grasses or legumes. Grasses can include orchardgrass, Kentucky bluegrass, tall fescue, bermudagrass, timothy, teff and smooth bromegrass. Legumes include alfalfa, red and white clover, lespedeza and birdsfoot trefoil. When managed and harvested correctly, legumes will be higher in quality than grasses; however there will be little difference between different grasses or between different legumes when all other factors are held constant. Buying quality, local hay will likely save money due to reduced transportation costs. Make sure to address any concerns with a specific grass or legume species, such as endophyte infected tall fescue. If you are concerned about feeding a certain species of hay, ask your local county extension agent or equine nutritionist about it.

MYTH: FORAGE STORED AS ROUND HAY BALES OR AS SILAGE CONTAIN DISEASES SUCH AS BOTULISM AND SHOULD NOT BE FED TO HORSES.

How it came about:

The botulism bacterium prefers moist conditions and is commonly found in the soil, in stream sediments and in the intestinal tracts of fish and mammals. Silage (haylage) by definition is stored with higher moisture than hay, and when not properly handled, can allow the botulism bacterium to flourish. Hay that is conserved in large round bales is usually baled at a similar (often lower) moisture content as small square bales and thus is different than haylage. However, if round hay bales are stored outside, they can get wet from rain, encouraging the growth of bacteria and mold.

Truth:

Proper storage, handling and feeding of round hay bales will minimize the risk of botulism in horses. Round hay bales should be covered when stored and fed using a hay feeder to reduce contamination from trampling and urination. Round bales that show clear signs of mold should not be fed to horses. Feeding silage to horses is much more common in other countries than in the U.S. Silage should be put up at the proper moisture content for the style of storage, kept airtight until feeding and fed quickly to reduce the risk of botulism. Silage should always be tested for forage quality before feeding. In botulism prone areas, a veterinarian should be consulted about the use of silage and the inclusion of a vaccination against botulism to protect horses.

MYTH: DON'T FEED HAY THAT HAS BEEN RAINED ON.

How it came about:

Rain negatively affects hay in a variety of ways:

1. Rain on recently cut hay can prolong plant respiration and reduce energy content.
2. Rain on legumes will cause leaves to separate from the stems (called leaf shatter) and therefore remove the more nutritious portion of the plant. Fibrous stems will then be more concentrated in the final product, causing a decrease in quality.
3. Rain will also cause leaching of sugar and other carbohydrates, proteins and minerals.
4. Heavy rain can splash soil up onto curing hay, which can increase dustiness and rapidity of molding.

Truth:

Rained on hay can be acceptable quality. While rain usually negatively affects hay, to what degree depends on several factors, including what type of hay is being harvested, how much/how intense the rain fell, stage of curing when it rained and what the producer has done to counteract these negative effects. For example, if light rain occurs within a day of cutting, it

has very little effect on hay quality. All hay, especially material that has been rained on should be tested for quality and inspected for mold or dustiness before use.

MYTH: HAY SHOULD BE STORED FOR SIX WEEKS BEFORE FEEDING.

How it came about:

This myth likely came about from hay testing. After hay is stored in a barn, it will continue to cure for four to eight weeks. During this curing period, the quality of the hay can change slightly.

Truth:

Hay can be fed at any time after harvesting. Hay should not be tested until it has been stored for six to eight weeks to increase the accuracy of the hay test. While feeding hay sooner will not be harmful to horses, it will be difficult to balance the ration because the quality of the hay is unknown.

IMAGE COURTESY DR. JIMMY HENNING.

MYTH: GREEN IS GOOD; BROWN IS BAD.

How it came about:

Often, hay that has been harvested too late or mishandled will lose its green color due to processes such as heating and bleaching. Green hay is less likely to have gone through these processes and more likely to be of quality.

Truth:

A hay test is the only way to truly evaluate quality. No quality factors directly affect color or vice versa. Therefore, color is an inconsistent factor to evaluate the quality of hay.

MYTH: FEEDING HAY CAUSES A LARGE, DISTENDED DIGESTIVE TRACT, KNOWN AS A HAY BELLY.

How it came about:

Hay belly usually results when malnourished horses are provided large quantities of low quality, high fiber hay. The horse will usually be thin over the neck, withers, ribs and hindquarters; however the belly will appear large because the horse is consuming large amounts of hay.

Truth:

A balanced ration that includes quality pasture or hay will maintain a horse at an ideal condition without excessive gut fill.

It is important to remember that horses evolved consuming forage, and whether in the form of pasture or hay, is an important component in the equine diet. Choosing hay for your horse will depend on your horse's current condition, work level, pasture availability and the logistics of management on your farm. Hay should always be inspected and found to be free from contaminants such as weeds, insects, mold, dust and other foreign material. The nutritional value of the hay should also be evaluated prior to feeding so that a ration can be formulated that will meet the needs of your particular horse.

For more information, see the following publications from the University of Kentucky here.

- Botulism: A Deadly Disease that can Affect Your Horse
- Choosing Hay for Horses
- Minimizing Losses in Hay Storage and Feeding
- Understanding Forage Quality
- Alfalfa: High-Quality Hay for Horses

| Krista Lea, MS, UK Horse Pasture Evaluation Coordinator; Ray Smith, PhD, forage extension specialist; Chris Teutsch, PhD, forage extension specialist; and Jimmy Henning, PhD, provided this information.

UK IN THE NEWS

Study Answers Key Questions About Nocardioform Placentitis, But Etiology Remains Elusive

Source: Paulick Report, June 12, by Natalie Voss

A new study published in the peer-reviewed journal Theriogenology reveals more about nocardioform placentitis, a placental infection that has plagued breeders and stud farm managers for decades. Placentitis is believed to account for 19 percent of equine infectious abortions nationwide, but much remains unknown about the disease.

A research team led by Carleigh Fedorka, PhD, postdoctoral scholar at the University of Kentucky Gluck Equine Research Center, studied 264 mares — 145 who were suspected to have the disease and 119 with apparently healthy pregnancies — and compared characteristics of their pregnancies and resulting foals.

The study found that nocardioform placentitis tends to be associated with older mares, and it isn't contagious between mares in the same turnout group. One episode of nocardioform placentitis does not necessarily presuppose another in the same horse the following year, and mares did not seem to experience abnormal cycles or reduced fertility after a case of nocardioform placentitis. Mares who were given antibiotics and hormones throughout their pregnancies to stave off the disease were no less likely to develop a case of nocardioform placentitis than those who were not.

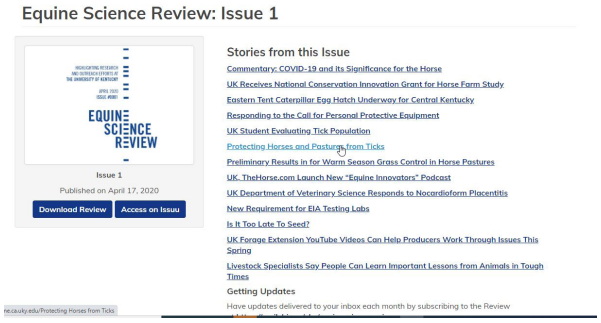
Read the story in its entirety here.

UK'S EQUINE SCIENCE REVIEW WINS AWARD OF EXCELLENCE WITH PRSA'S THOROUGHBRED CHAPTER

The Thoroughbred Chapter of the Public Relations Society of America (PRSA) recently announced the winners of its annual awards competition. The entries were in the two main categories of campaigns and tactics.

Befitting its location in Central Kentucky, each entry could be awarded either a win (first), place (second) or show (third) designation. The competition recognizes excellent work done by individual and company public relations professionals the previous year.

The University of Kentucky's Equine Science Review was awarded a Win in the Tactics category under special purpose publications.



EQUINE FUNGAL INFECTIONS IN CENTRAL KENTUCKY (2009-2019)

Fungal infections in horses are considerably less common than infections caused by bacterial or viral agents. Fungal organisms are typically encountered in the animal's normal environment, and the clinical manifestation of disease often reflects the route of exposure (skin, respiratory tract or reproductive tract). In some cases, immunodeficiency or immunosuppression may predispose an individual to fungal infection, while in other cases, there is no identifiable predisposing risk factor.

Overt signs of disease will typically be associated with an inflammatory response at the site of infection and may lead to generalized illness, abortion or death. A search of submissions to the University of Kentucky Veterinary Diagnostic Laboratory for the period from 2009-2019 turned up 241 cases that had fungal involvement. The most common sites of infection were the placenta, lungs, eye, guttural pouch, skin and nose. Less commonly represented were the gastrointestinal tract, nervous system and multiorgan infections. Fifty-nine cases of fungal placentitis were identified. Gestational ages ranged from 180 to 351 days, and the majority of cases presented as abortions four to one month prior to the mare's due date. The immediate/short term outcome for the foal was reported in 53 cases, of which 30 were born dead or euthanized. Live foals were frequently born early with gestational ages ranging from 310 days to full term. Five foals were born following premature placental separation, and three had a complicated delivery due to dystocia. A fungal organism was cultured in 18 cases, Candida sp. was isolated in two cases, Rhodotorula sp. in one case, and Aspergillus sp. in 15 cases. Age of the broodmare was generally not reported.

Thirty-nine cases of pneumonia were identified in horses ranging from 3 days to 25 years of age. Horses with fungal pneumonia often had a history of concurrent gastrointestinal disease (21/39 cases).

Gastrointestinal diseases included prior surgery for large colon volvulus, colitis and enteritis. Concurrent infectious agents identified in the gastrointestinal tract included Lawsonia intracellularis (one case), Neorickettsia risticii (one case), Clostridioides difficile (one case) and Salmonella sp. (five cases). The association between colitis, particularly due to salmonellosis, and pneumonia has been previously reported.

Horses with fungal pneumonia but without a history of gastrointestinal disease presented with a range of conditions including nerve paralysis, immune mediated hemolytic anemia and dystocia. Treatment protocols were not provided often enough to determine how many horses received corticosteroids as part of clinical management.

Cases of guttural pouch infection ranged from 2 weeks to 23 years of age. Of 33 cases, 23 did not have co-morbidities outside of the guttural pouch. Where present, additional diseases included encephalitis, laminitis, uveitis, pneumonia and colitis, neuropathy, equine multinodular pulmonary fibrosis, basioccipital bone fracture and small intestinal volvulus. Twenty-six horses presented with fungal keratitis with an age range of 1-24 years. These were submitted as biopsy cases with minimal clinical histories and culture performed at external laboratories.

Twenty cases of gastrointestinal fungal infection were identified. Affected animals ranged from 3 days to 30 years of age and included four cases of fungal colitis, two of enteritis, nine of gastritis, one of enterocolitis, three of glossitis and one of esophagitis. All but two cases had a more significant primary disease that included acute respiratory distress syndrome, sepsis, Tyzzer's disease or diaphragmatic rupture.

Cases of rhinitis (14 cases) and dermatitis (21 cases) were submitted through the biopsy service, and sufficient clinical histories weren't routinely provided for analysis. In summary, fungal infections, localized and systemic, continue to be an uncommon but important cause of disease in equids. It appears that primary infections of the dermis, nasal cavity and guttural pouch frequently do not present with co-morbidities, while those of the gastrointestinal and lower respiratory tract often occur with serious disease of other organ systems. Fungal placentitis continues to be a recognized cause of abortion and premature birth. In many cases culture is unrewarding and diagnosis is dependent on demonstration of the organism microscopically.

| *Rebecca Ruby, MSc, BVSc, Dipl. AVCP, assistant professor and veterinary pathologist at the UK Veterinary Diagnostic Laboratory. Source: April 2021 Equine Disease Quarterly.*

Mechanical Horse vs. Treadmill Research:
What is the difference in heart rate and calories burned?

The Equestrian Athlete Initiative (EqA) invites all eventers, exercise riders, jockeys, polo riders, or any other riders that gallop on a regular basis to participate in a study to establish baseline data. The purpose of this research is to characterize differences between riding a mechanical horse and running on a treadmill to improve human athlete performance and training.

The study includes:

- 2 separate data collections within a 2 week period lasting less than an hour each
- A survey
- A maximal exertion test on a treadmill (at a self-selected pace)
- Riding the simulator at 3 speeds

There is no cost related to your participation. Your information will be kept confidential. You will receive feedback on your personal fitness level. You might experience slight muscle fatigue and soreness, similar to the soreness experienced after regular physical activity.

To participate you need to meet the following criteria:

- Be 18+ years of age
- Ride an average of at least twice a week
- Have no lower limb injury in the past 6 months that has kept you from physical activity for longer than a week

Contact Michaela Keener, M.S. at
m.keener@uky.edu or 859-323-9843

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Equestrian Athlete Initiative

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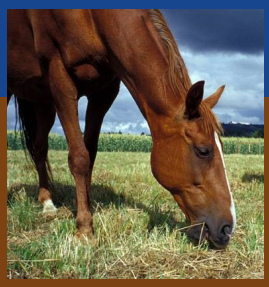

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at Bayer Farms
Gregg & Melissa Bayer
875 Eads Rd., Crittenden, KY 41030

July 20, 2021

4:00—8:00 PM
Meal provided by Sponsors

- Farm Tour of Forages, Lavender & Timber
- Questions to Ask when Purchasing Hay for Horses
- Equipment Demonstrations—Matching the Right Equipment for Your Program
- Forages: Moisture Testing, Determining Forage Quality

Registration Required
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