

Wobbler Syndrome: What We Know and Where We're Headed

Cervical stenotic myelopathy (CSM), a neurologic disease commonly known as wobbler syndrome, was first reported anecdotally back in the mid-1800s. Skeletal malformations of the neck vertebrae in affected animals lead to narrowing of the cervical spinal canal and subsequent spinal cord compression. Clinical signs primarily include neurologic deficits, with the hind limbs typically more severely affected than the forelimbs. In severe cases, veterinarians might recommend euthanasia for humane reasons and to guard horse and human safety.

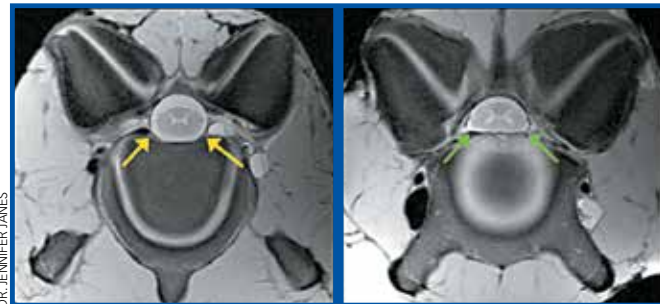
disease remain unclear.

What we do know is how gender, breed, and age factor into the epidemiology of this devastating disease. Males are more often affected than females. Breeds such as Thoroughbreds, American Saddlebreds, Warmbloods, and Tennessee Walking Horses are over-represented, which means they seem to develop the disease more often than horses of other breeds. And in various studies researchers have identified the mean age of CSM horses as younger than 2 years, which has prompted veterinarians to categorize CSM as a developmental bone disease.

Over the years practitioners have developed approaches for diagnosing CSM. All clinical workups begin with the veterinarian conducting a thorough neurologic exam, looking primarily for signs of ataxia (incoordination).

The next step is using radiography to visualize the neck vertebrae. Researchers have defined what's normal or healthy for a neck based on skeletal anatomical measurements at each vertebral site, which helps veterinarians identify presumed areas of spinal canal narrowing. Veterinarians can perform myelograms (special radiographs taken after injecting dye into the spinal canal) to see the actual compression.

Once a veterinarian diagnoses CSM in a horse, the owner has several management and treatment options to choose from. More conservative approaches center on dietary modification and anti-inflammatory



Note the difference between the MRI image showing a normal spinal cord on the left and the one showing cord compression on the right.

Equine CSM is a multifactorial disease, meaning it has many causes. High planes of nutrition (overfeeding), increased growth rates, alterations in zinc and copper concentrations, and genetic determinants could be responsible. Researchers have clearly established the relationship between nutrition, mineral intake, and skeletal development; any disruption in this balance can result in asynchronous (uneven) skeletal growth and possible clinical signs of disease. While we know or suspect that all these factors play a role in CSM development, the exact mechanisms leading to clinical

Articles of Interest

Palli Named Chair of UK Department of Entomology

Slobbers in Horses

Equine Tyzzer's Disease Update: January 1993-April 2015

Advanced Grazing School to Focus on Warm-Season Annuals

Grad Student Spotlight: Carleigh Fedorka

Potomac Horse Fever Cases and Testing

UK Intern Wins Journalism Award

UK Strongly Represented at the ESS Symposium

Mares Could Have Role in Foal EPE Development

The Ergot Alkaloid Enigma

Stay Weather-Aware at Events

UK Gluck Center to Host Immunology Symposium in November

Follow us on Social Media

Upcoming Events

administration to slow growth rates, reduce swelling of nonskeletal tissues, and possibly allow vertebral bone remodeling to reduce cord compression. More aggressive approaches involve surgical intervention (e.g., cervical vertebral fusion) to alleviate cord compression.

Developments in diagnostic imaging modalities, such as MRI and CT, have helped veterinarians better characterize the lesions along the entire neck post-mortem. High-resolution images from multiple angles and the ability to visualize the cervical vertebrae, spinal

Wobbler Syndrome

cord, and associated soft tissues together provide powerful data for studying CSM pathology. A combination of imaging modalities, clinical resources, and thorough necropsy examination results are providing new insights for CSM research. Upcoming changes in these imaging units to accommodate the horse's large size will allow veterinarians to use CT or MRI, where available, to examine CSM cases clinically in the future.

Finally, due to rapidly developing technologies, researchers are now examining the equine genome to identify specific genes that may contribute to CSM susceptibility. This is an exciting area of research that could have an important impact both on breeding decisions and management of potentially susceptible horses. **UK**

>Jennifer Janes, DVM, PhD, Dipl. ACVP, is an assistant professor of anatomic pathology at the University of Kentucky Veterinary Diagnostic Laboratory.

Palli Named Chair of UK Department of Entomology

A professor with a passion for developing environmentally sound pest control methods is the new chair of the Department of Entomology in the University of Kentucky College of Agriculture, Food and Environment.

Reddy Palli, PhD, is no stranger to the department, having served as a faculty member since 2002. He assumed his new role July 1 and will also serve as the state entomologist.

A native of India, Palli developed his passion for entomology as a child while watching his father farm. It was in India that he saw the impact improper pesticide use could have on people's health. He has spent his career trying to find innovative ways to control troublesome insects.

"Reddy is an outstanding scientist who has made many contributions to the entomology department already," said Nancy Cox, PhD, college dean. "He has support of his colleagues to be their new leader, and there will be a seamless transition between him and former chair John Obrycki."

Within the entomology profession, Palli is best known for developing RNA interference technology that kills insect pests and fights resistance to insecticides, particularly in beetles and bed bugs. A gene switch technology he developed might have important human health implications and is in phase 3 clinical trials to fight cancer in humans.

Palli also co-directs the Center for Arthropod Management Technologies, a National Science Foundation Industry/University Cooperative Research Center.

He has received numerous awards for his research and in 2014 was named a fellow of the Entomological Society of America for his outstanding contributions to the field. He has published 130 peer-reviewed journal articles, 20 book chapters, co-edited a book, and is a co-inventor on 28 patents. **UK**

>Katie Pratt is an agricultural communications specialist within UK's College of Agriculture, Food and Environment.



MATT BARTON

MASTHEAD

University of Kentucky Ag Equine Programs

Jenny Evans, MFA, co-managing editor and interim executive director of the Gluck Equine Research Foundation, jenny.evans@uky.edu

Holly Wiemers, MA, APR, co-managing editor and communications director of UK Ag Equine Programs, holly.wiemers@uky.edu

Bluegrass Equine Digest Advisory Board

Bob Coleman, PhD, PAS, associate professor, director of undergraduate studies for equine science and management and extension horse specialist

David Horohov, MS, PhD, interim chair of UK's Department of Veterinary Science and interim director of the UK Gluck Equine Research Center

Ray Smith, PhD, professor and forage extension specialist in the department of plant and soil sciences

Ed Squires, PhD, Dipl. ACT (hon.), professor, UK Gluck Equine Research Center

Jill Stowe, PhD, director of UK Ag Equine Programs and associate professor in the department of agricultural economics

Bluegrass Equine Digest Editorial Committee

Craig Carter, DVM, PhD, Dipl. ACVPM, director and professor of the UK Veterinary Diagnostic Laboratory

Laurie Lawrence, PhD, professor in the department of animal and food sciences

Krista Lea, MS, assistant coordinator of UK's Horse Pasture Evaluation Program in the department of plant and soil sciences

William W. Witt, PhD, professor emeritus in the department of plant and soil sciences

The Horse: Your Guide to Equine Health Care

Alexandra Beckstett, Managing Editor
Brian Turner, Layout and Design

The Bluegrass Equine Digest is a registered trademark of the University of Kentucky Ag Equine Programs and Gluck Equine Research Center. The Bluegrass Equine Digest is produced by the University of Kentucky in partnership with TheHorse.com and sponsor Zoetis. It is published monthly to provide up-to-date information on equine research from the University of Kentucky's College of Agriculture, Food and Environment. Research material is meant to be shared. However, materials are copyrighted and require reprint permission from UK Ag Equine Programs. Past issues of the Bluegrass Equine Digest are available at www2.ca.uky.edu/equine/bed.

Slobbers in Horses

Excessive salivation in horses can be worrisome for horse owners that have not seen it before, but “slobbers,” as the condition is often called, is usually of very little real danger. Slobbers often results from horses ingesting the compound slaframine, produced by the *Rhizoctonia* fungus found on legumes such as red and white clover and alfalfa.

Rhizoctonia fungus thrives on legumes during stressful times, such as high humidity, drought, and continuous grazing; therefore, slobbers is often seen in pastured horses during the summer months. Horses kept in the same pasture might experience different levels of slobbers due to their grazing preferences and different sensitivities to slaframine.

Legume hay has also been known to cause slobbers because slaframine can remain in hay—most commonly in red clover hay—for several years. Later

cuttings of hay are most likely to contain high levels of slaframine compared to first cuttings. The *Rhizoctonia* fungus has a brown color visible on the live plant. Clover hay has a brown color, as well, but not due to any fungus.

For the vast majority of cases, slobbers is no more than a nuisance to horse owners. Access to fresh water will prevent dehydration and should always be provided. Other possible causes of excessive salivation can include mouth sores, foreign objects, and reactions to medication. In very rare cases, excess salivation can also be a sign of rabies, so experts do urge using an extra dose of caution around animals with excessive salivation. Check with your veterinarian to rule out any of these possibilities.

In most situations, legumes in hay or pasture provide quality forage for horses. Slobbers might be an unwelcome side effect, but shouldn't be of major concern to owners or managers. **UK**



The *Rhizoctonia* fungus that causes excessive salivation can be found on legumes such as red and white clover and alfalfa.

References: Plants Toxic to Horses: *Rhizoctonia* Fungus on White and Red Clover. Penn State Extension: <http://extension.psu.edu/animals/equine/news/2013/plants-toxic-to-horses-rhizoctonia-fungus-on-white-and-red-clover>.

>Krista Lea, MS, assistant coordinator of UK's Horse Pasture Evaluation Program, provided this information.

Equine Tyzzer's Disease Update: January 1993-April 2015

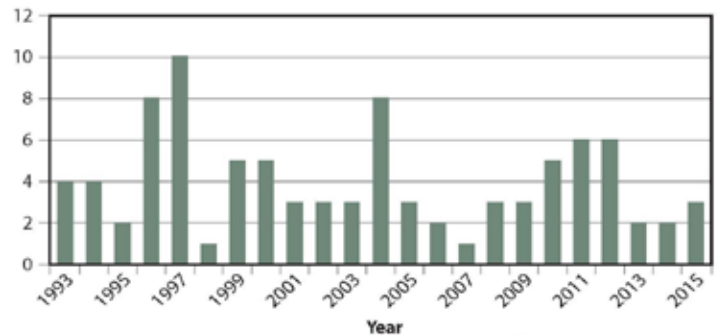
Tyzzer's disease was originally described in mice in 1917 and since then has been diagnosed in multiple species of domestic animals and wildlife worldwide. Tyzzer's disease is highly fatal in young foals and is caused by the bacterium *Clostridium piliforme*. The organism is an intracellular pathogen that primarily infects the lower intestinal tract and can disseminate through the circulatory or lymphatic systems to visceral organs.

Infections in foals are commonly acute and fatal. *C. piliforme* infections can be subclinical (not showing signs), with affected foals found comatose or dead, but possible clinical signs can include depression, anorexia, pyrexia (fever), jaundice, diarrhea, and recumbency. Affected foals are typically between one to six weeks of age, but most cases occur between one and two weeks

of age. The disease primarily affects the liver, causing necrotizing hepatitis (liver disease).

Veterinarians can use antemortem serology and fecal polymerase chain reaction (PCR) assays to test for *C. piliforme*; however, results must be interpreted in combination with appropriate clinical signs to make a presumptive clinical diagnosis. A definitive diagnosis is made upon post-mortem examination and is accomplished by associating the organism with characteristic liver lesions; this association can be made by microscopically visualizing the organism or by detecting its genetic material by PCR. There is no known effective treatment for the disease, and vaccines are not available.

Over the last 23 years, 92 cases of Tyzzer's disease have been diagnosed at the



Incidence of Tyzzer's Disease diagnosed at the UK Veterinary Diagnostic Laboratory, 1993-2015.

University of Kentucky Veterinary Diagnostic Laboratory (see chart). The disease was identified in 44 colts, 36 fillies, and 12 foals where the sex was not noted. Of the 92 cases diagnosed, there were 82 Thoroughbreds, three Tennessee Walking Horses, one Quarter Horse, one Standardbred, one Paint, one Morgan, and three foals without breed notation. The high number of Thoroughbreds is consistent with the breed distribution typically seen at the diagnostic lab. The ages of affected foals ranged from 7 to 270 days

with an average age of 26 days. Fifteen foals were 30 days of age or older. Of the 92 cases, 89 died in the months of February through June. The other three cases occurred in January, July, and October. **UK**

CONTACT Dr. Jacqueline Smith, 859/257-8283, jsmit8@uky.edu, University of Kentucky Veterinary Diagnostic Laboratory Lexington, Kentucky.

This is an excerpt from *Equine Disease Quarterly*, funded by underwriters at Lloyd's, London, brokers, and their Kentucky agents.

Advanced Grazing School to Focus on Warm-Season Annuals

Adding warm-season grasses into a grazing system can help livestock producers better manage the summer months, when cold-season pastures typically take a hit. Producers can learn how these forages might enhance their operations by attending the Advanced Kentucky Grazing School on Aug. 17 at the University of Kentucky (UK) Spindletop Research Farm, in Lexington.

The one-day event is for producers who have attended at least one other UK grazing program. This year's event is hosted by the UK College of Agriculture, Food and Environment; the Kentucky Beef Network; and the Kentucky Forage and Grassland Council.

During the program participants will receive in-depth information and important grazing concept reminders from forage and animal specialists at UK and from throughout the Southeast. Registration begins at 7:30 a.m. EDT.

The topics on the agenda are related to pasture renovation and establishment and summer and fall grazing options. The program will also include demonstrations and hands-on activities including calibrating no-till seeders and ATV sprayers.

Participants must preregister by Aug. 10. The registration fee is \$20. For a complete agenda, farm directions, lodging options, and registration forms, visit the UK Master Grazer website at [http://](http://www2.ca.uky.edu/grazer)

www2.ca.uky.edu/grazer or contact Robin Notton at 859/257-7508 or robin.notton@uky.edu. Mail registration forms and a check payable to the Kentucky Forage and Grassland Council to Robin Notton, 900 W.P. Garrigus Building, University of Kentucky, Lexington, KY 40546-0215.

Grazing school sponsors include the Master Grazer Educational Program; UK College of Agriculture, Food and Environment; Kentucky Agricultural Development Fund; and the Kentucky Forage and Grassland Council. **UK**

>Katie Pratt is an agricultural communications specialist within UK's College of Agriculture, Food and Environment.

GRADUATE STUDENT SPOTLIGHT

CARLEIGH FEDORKA

From: Meadville, PA

Degrees: BS in Biology from St. Lawrence University in Canton, NY

Carleigh Fedorka came to Lexington, Kentucky, after graduating from college in New York to start a career in the Thoroughbred breeding industry. During the 2011 nocardioform placentitis (a form of bacterial placentitis affecting late gestation mares that can cause abortions and abnormal placentas) outbreak, Fedorka was managing Hinkle Farms, in Paris, Kentucky. The farm's veterinarian, Karen Wolfsdorf, DVM, Dipl. ACT, asked if they would be willing to participate in a study through the University of Kentucky Veterinary Diagnostic Laboratory (UKVDL).

The study piqued Fedorka's interest in the physiology, pathology, and disease processes that were occurring. After meeting with Mats Troedsson, DVM, PhD, Dipl. ACT, ECAR, professor and past chair of the department of veterinary science at UK, Fedorka decided to pursue a master's degree in equine reproduction, which eventually became a doctoral degree.

"Although placentitis brought me to the Gluck Center, I have actually been studying the seminal plasma protein CRISP-3 and its possible effect on modulation of the inflammation that we see after breeding," Fedorka said.

Previous research conducted by students in Troedsson's lab focused on the effect of seminal plasma, specifically CRISP-3, on inflammation. They hypothesized that CRISP-3 protects viable spermatozoa from phagocytosis (a living cell that ingests other cells/particles) and post-breeding digestion by neutrophils (white blood cells), which are both immune system responses.

"With this in mind, we are studying the effect that this protein may have on the expression of cytokines in the endometrium of the mare post-breeding, studying both normal mares as well as mares that are found to be susceptible to post-breeding induced endometritis (PBIE)," Fedorka said. "By studying cytokine expression, we can get a picture of whether or not it is involved in numerous signaling pathways of the innate immune system, and further understand its role in the breeding process."

Fedorka said the impact this research could have depends on the studies' outcomes. Potentially, breeders could use the findings to modulate post-breeding inflammation and assist with uterine clearance.

Fedorka has worked on and led other research projects besides her own

in her time at the Gluck Center, including a 2014 field study on placentitis that required taking blood samples from 750 Thoroughbred mares in Central Kentucky and looking for biomarkers that predict placentitis. She also worked with another graduate student to look at Acyline's potential use for chemical castration. She has worked on many other research projects within the reproduction lab.

Fedorka describes herself as a "farm manager with a scientific brain." When she joined the Gluck Center, she wanted to understand the biology and chemistry behind what happens daily in an equine operation.

"During my time at UK I have been able to answer so many of those questions, as well as further my knowledge of the reproductive system even farther than I could have imagined," Fedorka said. "That was all that I asked for when beginning this degree, and I am happy to say that although I have discovered so many more questions, I have also answered so many of the original ones."

After completing her degree Fedorka hopes to become a faculty member at a university and teach undergraduates. "While I really enjoy research, I am more passionate about teaching and educating others with answers to those same questions that I had asked of my mentors," she said. "I wish that during my undergraduate degree I had access to classes such as those taught by our own Equine Programs here at UK, and I would want to join a team such as this."

Outside of her work at the Gluck Center, Fedorka owns two off-the-track Thoroughbreds, Dynamaker and Called to Serve, whom she competes in three-day eventing. Called to Serve is entered in the Retired Racehorse Project's Makeover competition at the Kentucky Horse Park in October. Fedorka also writes a blog called "A Yankee in Paris" that has been published on websites such as Horse Collaborative, The Paulick Report, and The Retired Racehorse Project. You can find her blog at <https://ayankeeinparis.wordpress.com>. **UK**

>Hannah Forte is a communication intern with the UK Ag Equine Programs and Gluck Equine Research Center and undergraduate student majoring in community and leadership development at UK.



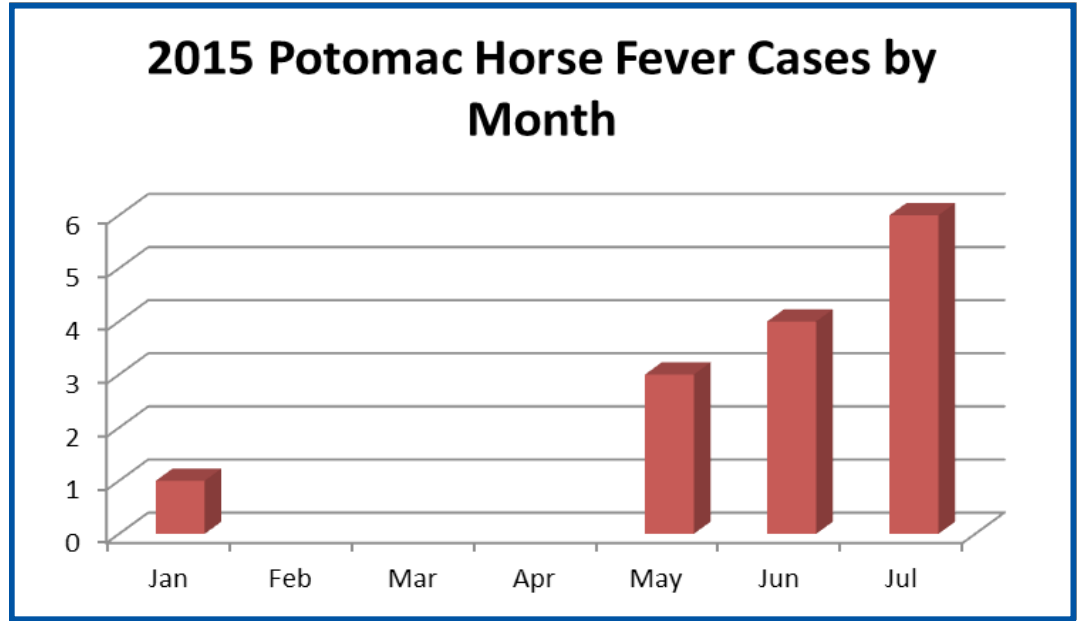
Potomac Horse Fever Cases and Testing

The University of Kentucky Veterinary Diagnostic Laboratory has seen a recent trend in positive results for Potomac horse fever (PHF), which is caused by *Neorickettsia risticii*. Results are detected using a real-time polymerase chain reaction (PCR) assay test.

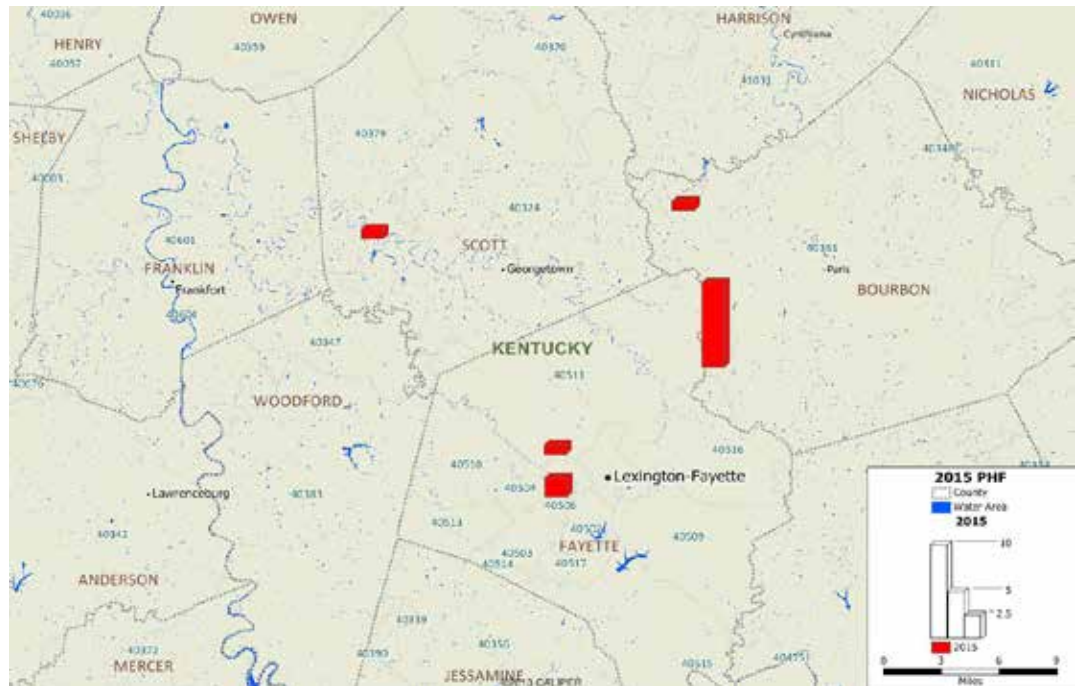
Neorickettsia risticii causes fever, anorexia, leukopenia (reduced white blood cell numbers), and occasional diarrhea in horses and can be fatal in up to 30% of cases. *Neorickettsia risticii* can also sometimes result in abortion in pregnant mares. Veterinarians have diagnosed PHF across North America, usually in horses one year and older.

Horses become exposed through accidental ingestion of the metacercarial (encysted) stage of a trematode (parasite) within its insect host (such as mayflies). Veterinarians believe horses are infected through inadvertently ingesting insects that land in drinking water. Risk factors include association with rivers, streams, and other aquatic habitats and grazing pastures next to waterways.

The veterinary diagnostic laboratory can help diagnose PHF. A complete blood count might reveal a transient leukopenia in the early stages. A single positive indirect fluorescent antibody (IFA) test for PHF indicates exposure to the agent. Paired samples collected two weeks apart with a fourfold rise in titer is evident of an active infection. In live animals, a PHF PCR assay should be performed on EDTA blood (i.e., blood



As of July 9, UKVDL has received the following specimens that tested positive for Potomac Horse Fever (*Neorickettsia risticii*) in Kentucky by PCR this year.



collected in a tube containing a chelating agent and anticoagulant) as well as a fecal sample, as the organism's presence in blood and feces might not temporally coincide.

Specimen

To confirm suspect cases, the UKVDL recommends providing 10 mL of anticoagulated blood in EDTA tubes

(purple top) and either feces (at least 5 grams) or a fecal swab for each animal tested using real-time PCR analysis. Please use an appropriate specimen container—feces in gloves can no longer be accepted. Screw-cap tubes are preferred.

Fee and Schedule

The fee is \$35 in-state and \$52.50 out-of-state total for

both samples. Turn-around is one to two working days. The test is run Mondays through Fridays.

Please call 859/257-8283 for further information. [UK](#)

>Jenny Evans, MFA, is the interim executive director of the Gluck Equine Research Foundation and the marketing/promotion specialist senior of the Gluck Equine Research Center.

UK Intern Wins Journalism Award

Hannah Forte, a communications intern with the University of Kentucky Ag Equine Programs and Gluck Equine Research Center, won first place in the equine-related student journalism category at the American Horse Publications seminar awards dinner held June 20 in San Antonio, Texas. Forte was the only award winner in the category. She is an undergraduate at UK majoring in community and leadership development with an emphasis in agriculture communications.

JENNY EVANS



UK Strongly Represented at the Equine Science Society Symposium

Many equine researchers from the University of Kentucky College of Agriculture, Food and Environment attended the Equine Science Society (ESS) Symposium held May 26-29 in St. Pete Beach, Florida. The National Association of Equine Affiliated Academics (NAEAA) was held on the front end of the ESS symposium May 26.

ESS occurs every two years in different locations and promotes quality research on equine nutrition and reproductive physiology production and management, teaching, and extension. The event is set up to establish effective communication among researchers, teachers, extension, and production personnel.

Ernie Bailey, PhD, professor in the department of veterinary science at the UK Gluck Equine Research Center, was an invited speaker and presented a full-length paper titled "Genetics After Twilight," about the next step in genetics. The title references Bailey's past work, sequencing the entire equine genome on the Thoroughbred mare Twilight. Bailey's paper discusses how researchers can use functional genomics to answer biological questions. Functional genomics is relevant to all areas of equine studies, including immunology, nutrition, reproduction, exercise physiology, and veterinary medicine.

Laurie Lawrence, PhD, professor in UK's Department of Animal and Food Sciences, received the Equine Nutrition Research Award during the symposium. The American Feed Industry Association-sponsored award acknowledges Lawrence's achievements and contributions to the equine industry. Lawrence's international research on equine nutrition has most recently concentrated on pasture-based feeding and forage for both young and mature horses.

Other abstracts authored and/or co-authored by UK faculty and students included:

Undergraduate Student Research

- Effects of horse age and feeding status on AMPK activation in horses

UNIVERSITY OF KENTUCKY®

COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT
www.ca.uky.edu

UK Ag EQUINE

www.ca.uky.edu/equine
equine@uky.edu

UK Ag Equine Programs



- World-class research in equine health, nutrition, economics, forages and more



- Undergraduate and graduate opportunities and seven student teams and clubs



- Year-round programs and educational materials for horse owners, farm managers and equine professionals



The horse is at the heart of everything we do.

The College of Agriculture, Food and Environment is an Equal Opportunity Organization.



Equine Science Symposium

by S.E. Sivinski, A.L. Wagner, S.L. Tanner, T. Brewster-Barnes, and K.L. Urschel.

- Tumor necrosis factor- α gene expression before and after exercise in middle-aged and older horses by M.M. Darby (Morehead State), S.R. Malone (Morehead State), D.W. Horohov, and D.E. Chappell (Morehead State).
- Demographics, body condition scores, and owner body weight estimations of adult draft and warmblood horse breeds by A.M. Hansen (University of Minnesota), D.N. Catalano (University of Minnesota), R.J. Coleman, M.R. Hathaway (University of Minnesota), A.K. Rendahl (University of Minnesota), and K.L. Martinson (University of Minnesota).

Exercise Physiology

- Post-exercise dietary supplementation leads to improved muscle recovery in fatigued horses by R.D. Jacobs (Virginia Tech), R.K. Splan (Virginia Tech), K.L. Urschel, S. Mastellar (South Dakota State University), and A.L. Wagner (Cooperative Research Farms).

Nutrition

- Exogenous lactobacilli mitigate microbial changes associated with grain fermentation in vitro by B.E. Harlow, L.M. Lawrence, I.A. Kagan, P.A. Harris (Waltham Centre for Pet Nutrition), and M.D. Flythe.
- Comparison of inflammation, nutritional status, muscle mass, pituitary function, and age in geriatric horses by M.H. Siard, A. Betancourt, P.A. Harris (Waltham Centre), A.D. Moffett (MARS Horsecare US, Inc.), K.E. McMurry, S.E. Reedy, and A.A. Adams.
- Postprandial changes in plasma urea nitrogen concentrations in response to amino acid supplementation in horses by C.M. Latham, T. Brewster-Barnes, K.L. Urschel, and A.L. Wagner (Cooperative Research Farms).
- Using the indicator amino acid oxidation technique to study threonine requirements in horses by C.H. Mok, T. Brewster-Barnes, and K.L. Urschel.
- Accounting for variation in phosphorus digestibility estimates by A.L. Fowler, B.E. Harlow, M.B. Pyles, S.H. Hayes, A.D. Crum, and L.M. Lawrence.

- Application of mathematical multi-compartmental models to digesta retention parameters in horses by T.L. Hansen, A.L. Fowler, B.E. Harlow, V. Bill, V. Stilwell, A. Crum, S.H. Hayes, and L.M. Lawrence.
- The effect of n-3 polyunsaturated fatty acids (DHA) and prebiotic supplementation on inflammatory cytokine production and immune responses to vaccination in old horses by A.A. Adams, K.R. Vineyard (Purina), M.E. Gordon (Purina), S. Reedy, M.H. Siard, and D.W. Horohov.
- Evaluation of apparent total tract digestibility and glycemic responses to processed corn in non-exercised Thoroughbred horses by C. Whitehouse (KER), J.D. Pagan (KER), R.J. Coleman, B. Walldridge (KER), O.L. Yates (KER), S.W. Garling (KER).
- Effect of storage time and temperature of equine feces on the subsequent enumeration of lactobacilli and cellulolytic bacteria by B.E. Harlow, L.M. Lawrence, and M.D. Flythe.
- Changes in fecal lactobacilli after a concentrate meal by M.B. Pyles, L.M. Lawrence, and M.D. Flythe.
- Effects of the novel feed additive Phytozen on immune and endocrine function in senior horses by M.H. Siard, A.L. Wagner (Cooperative Research Farms), B. Medina (Laboratoires Phodé), I.D. Girard (Probiotech International), and A.A. Adams.

Production and Management

- Effects of prolonged dexamethasone treatment on signaling pathways associated with muscle protein degradation in mature horses by C.M.M. Loos, T. Barnes, K.M. Brennan (Alltech), and K.L. Urschel.
- Estimation of actual and ideal body weight for adult draft and warmblood horse breeds using morphometric measurements by D.N. Catalano (University of Minnesota), R.J. Coleman, M.R. Hathaway (University of Minnesota), M.E. McCue (University of Minnesota), A.K. Rendahl (University of Minnesota), and K.L. Martinson (University of Minnesota).
- Effect of inulin chain length on fermentation by equine fecal bacteria and *Streptococcus bovis* in vitro by B.E. Harlow, L.M. Lawrence, I.A. Kagan, and M.D. Flythe.
- Characterization of lipid and inflammatory profiles in horses with equine metabolic syndrome by S.E. Elzinga,

P.L. Wood (Lincoln Memorial University), and A.A. Adams.

Reproductive Physiology

- Effects of feeding a yeast-based supplement containing selenized yeast, vitamin E and a DHA-rich microalgae on sperm motion characteristics by L.D. Goedde, K.M. Brennan (Alltech), B.A. Ball, L.M. Lawrence, M.H. Troedsson, and E.L. Squires.
- Determination of peripheral progesterone concentrations in the late pregnant mare based upon immunoassays and liquid chromatography-tandem mass spectrometry by M.A.A. Wynn, E.L. Legacki (UC Davis), A.J. Conley (UC Davis), S.A. Loux, A. Esteller-Vico, S.D. Stanley (UC Davis), E.L. Squires, M.H. Troedsson, and B.A. Ball.

Non-targeted lipidomics of stallion spermatozoa

- Effect of dietary docosahexaenoic acid (DHA) by P.L. Wood (Lincoln Memorial University), K.E. Scoggin, B.A. Ball, L.M. Lawrence, M.H. Troedsson, L.D. Goedde, K.M. Brennan (Alltech), and E.L. Squires.

Teaching and Extension Graduate Student Competition

- Effectiveness of eXtension online webinars as educational tools for current horse industry issues by K.E. Pulec (University of Nebraska), K.P. Anderson (University of Nebraska), C. Skelly (Michigan State University), C.M. Brady (Purdue), B.J. McIntosh (Virginia Tech), G.A. Shelle (Michigan State), A. Griffin, and E.A. Greene (University of Vermont).

Prevention of Horse-Related Injuries

- Where education efforts should be focused by F.C. Camargo, W.R. Gombeski, Jr., P. Barger (Certified Horsemanship Association), C. Jehlick (U.S. Pony Clubs), H. Wiemers, J. Mead, and K.A. Lawyer.
- Factors associated with persistence in the animal and food sciences degree program at the University of Kentucky: From Animal Science 101 to the capstone class by M.G. Rossano, S.V. Burk (Otterbein), A.M. Leed, W.J. Silvia, A.J. Pescatore, and E.S. Vanzant. [UK](#)

>Hannah Forte is a communication intern with the UK Ag Equine Programs and Gluck Equine Research Center and undergraduate student majoring in community and leadership development at UK.





Be a
HANDS-ON
HORSE
owner.

Routine horse care procedures can be stressful for you and your horse. DORMOSEDAN GEL® (*detomidine hydrochloride*) calms them, making it safer and easier to complete bandaging or other common tasks. Call your veterinarian today and ask about the only sedative that is FDA-approved to be administered by you. Learn more by visiting DormGel.com/gel.

DORMOSEDAN GEL 
(*detomidine hydrochloride*)

Join our community

 /eqstable

 EQStable™ available in the Apple® App Store

Important Safety Information: DORMOSEDAN GEL is contraindicated in horses with known hypersensitivity to detomidine. Intravenous potentiated sulfonamides should not be used in anesthetized or sedated horses, as potentially fatal dysrhythmias may occur. Do not use DORMOSEDAN GEL in horses with pre-existing atrioventricular (AV) or sinoatrial (SA) blocks, cardiovascular disease, respiratory disorders, liver or kidney diseases, or in conditions of shock, severe debilitation or stress due to extreme heat, cold, fatigue or high altitude. Appropriate precautions should be taken while handling and using gel-dosing syringes, as DORMOSEDAN GEL can be absorbed following direct exposure to skin, eyes or mouth, and may cause irritation. The use of impermeable gloves is advised. Please see the full prescribing information at DormGel.com/PI.

All trademarks are the property of Zoetis Inc., its affiliates and/or its licensors. All other trademarks are the property of their respective owners. ©2013 Zoetis Inc. All rights reserved. DOR13054

zoetis™

Mares Could Have Role in Foal EPE Development

David Horohov, PhD; Allen Page, DVM, PhD; and colleagues at the University of Kentucky have been working to unravel the epidemiology of equine proliferative enteropathy (EPE, caused by *Lawsonia intracellularis*, to which weanlings are most susceptible) for years, and they recently took a look at the mare's possible role in disease development. They determined, overall, that a pregnant mare's seropositivity or seronegativity for *L. intracellularis* antibodies had no impact on whether her foal developed EPE. They did, however, find that mares seropositive for at least five months from pregnancy through weaning had a higher number of foals that showed evidence of exposure to *L. intracellularis*, and foals of mares that were seropositive for less than five months were two times less likely to be seropositive. [UK](#)

COMMENTARY

Stay Weather-Aware at Events

Let's just jump to the bottom line: If you hear thunder you (and your horse) can be struck by lightning. Summer is the long-awaited horseback riding, horse event, and trail riding season.

Summer is also peak season for lightning strikes in the U.S., although lightning can occur year-round. According to the National Oceanic and Atmospheric Administration (NOAA), an estimated 25 million lightning strikes occur in the U.S. every year.

Human deaths due to lightning are well-documented. According to NOAA, from 2006 to 2014, 287 people were killed by lightning in the U.S. Statistics on lightning-related deaths of horses are not maintained. However, after just one April 2015 thunderstorm in Central Kentucky, three horses from one farm and two cattle from another farm were killed by lightning.

Organized trail rides, horse shows, race tracks, sales venues ... how many have a responsible person monitoring weather who has the knowledge and authority to stop the event in case of an inbound thunderstorm? Guidelines are useless unless they are up-to-date and followed, from county horse shows to international competitions.

An outdated guideline (but one still referenced) is the 30/30 rule: If thunder is heard less than 30 seconds after seeing lightning, an outdoor event should be stopped and not started until 30 minutes after the severe weather has passed.

Don't bother counting. If you can hear thunder or see lightning, you can be struck by lightning. There is no safe place to be outdoors!

Horse event organizers have much to learn from the United States Golf Association (USGA). At USGA national championships—and at most regional and local tournaments run under USGA guidelines—an official monitors weather radar when players are on the golf course. This person is in contact with the official-in-charge of the event who has the authority and the obligation to suspend play in the event of threatening weather.

Comprehensive evacuation plans are drawn up before a tournament. These plans typically designate several specific evacuation points around the golf course, where players have access either to safe areas or transportation to the clubhouse. On-course officials are required to know evacuation locations and are responsible for getting players and their caddies to safety when the horn sounds and play is suspended. Players know this standardized procedure.

How many times have you seen horse shows continuing with classes when thunder can be heard or seen jockeys riding racehorses into a metal starting gate during a thunderstorm? We would challenge all organizers of equestrian events to develop, implement, and communicate a severe weather plan that is based on science and the safety of humans and horses. Until then, individuals need to have their own plan for safety by taking weather spotter classes, having a NOAA weather radio, getting a weather app for cell phones, and using common sense. Sitting atop a horse with metal horse shoes on is a bad place to be during a thunderstorm. Remain weather-aware and ensure people and horses are in safe places before severe weather strikes! [UK](#)



ISTOCK.COM

Plant/Endophyte Interaction



The Ergot Alkaloid Enigma

In this seminar, Krista Lea, MS, of the University of Kentucky, presents information to help horse owners and veterinarians understand the stability of ergovaline in endophyte-infected tall fescue, which causes toxicosis in broodmares.

Watch it at TheHorse.com/36011.

CONTACT Matt Dixon, 859/218-4363, matt.dixon@uky.edu, Meteorologist, Biosystems & Agricultural Engineering; Dr. Roberta Dwyer, 859/218-1122, rmdwyer@uky.edu, Maxwell H. Gluck Equine Research Center University of Kentucky.

This is an excerpt from Equine Disease Quarterly, funded by underwriters at Lloyd's, London, brokers, and their Kentucky agents.

UK Gluck Center to Host Immunology Symposium in November

The University of Kentucky Gluck Equine Research Center will host a one-day symposium titled the "Role of Immunology in Equine Health" on Saturday, Nov. 21 from 8 a.m. to 5 p.m. at the Embassy Suites in Lexington.

This symposium will focus on the immune system's role in equine diseases caused by viruses, bacteria, and parasites. Researchers will present information on the immune response to equine arteritis virus, respiratory disorders, parasitism, skin diseases, and immune changes in foals as well as factors affecting the immune response to vaccines.

The symposium is targeted toward veterinarians, regulatory officials, farm managers, and breed registry representatives.

The symposium is partially funded by a USDA-NIFA-AFRI (United States Department of Agriculture- National Institute of Food and Agriculture-Agriculture and Food Research Initiative) grant titled "Identification of genetic factors responsible for establishment of equine arteritis virus carrier state in stallions." However, registration is required, and the event costs \$25. To register, visit <http://immunologysymposium.eventbrite.com>.

Eight hours of Continuing Education is pending approval by the Kentucky Board of Veterinary Examiners for veterinarians and veterinary technicians. CE sheets must be signed at the meeting to receive credit.

For more information, contact Jenny Evans at jenny.evans@uky.edu or 859/218-1089. **UK**

>Jenny Evans, MFA, is the interim executive director of the Gluck Equine Research Foundation and marketing and promotion specialist senior at the Gluck Equine Research Center.

SYMPOSIUM SCHEDULE

8-8:30 a.m.	REGISTRATION
8:30-9:30	<i>An overview of the immune system</i> — Amanda Adams, UK Gluck Equine Research Center
9:30-10	<i>Factors affecting the immune response</i> — Robert Mealey, Washington State University
10-10:15	BREAK
10:15-11	<i>Immune response to EAV</i> — Udeni Balasuriya, UK Gluck Equine Research Center
11-noon	<i>Response to various respiratory disorders: infectious and non-infectious</i> — TBD
Noon-1 p.m.	LUNCH and LECTURE: <i>Trends in vaccine development</i> — TBD
1-1:45	<i>Immune response of the uterus to sperm and bacteria</i> — Robert Causey, University of Maine
1:45-2:30	<i>Immune response of the foal</i> — David Horohov, UK Gluck Equine Research Center
2:30-2:45	BREAK
2:45-3:30	<i>Dermatology: Immune response</i> — Peter Moore, University of California, Davis
3:30-4:15	<i>Immune response to parasites</i> — Don Knowles, Washington State University
4:15-5	<i>Local and systemic immune response to bacterial infection</i> — John Timoney, UK Gluck Equine Research Center
5-5:15	CLOSING REMARKS

UPCOMING EVENTS

September 8

Equine Science and Management Program Reception, Spindletop Hall

September 17

Welcome Back BBQ, E.S. Good Barn

Be Sure to Follow us on Social Media

The University of Kentucky College of Agriculture, Food and Environment has several equine-related social media pages featuring the latest news and events information.



Follow the UK Ag Equine Programs on Twitter at UKAgEquine. The UK Maxwell H. Gluck Equine Research Center is also on Twitter at UKGluckCenter.

Got Facebook? Like these pages administered by us:

University of Kentucky Ag Equine Programs: UK Ag Equine Programs is an overarching framework for all things equine at the University of Kentucky, including the undergraduate degree program, equine-related student organizations, equine research, and outreach activities.

University of Kentucky Maxwell H. Gluck Equine Research Center: The mission of the Gluck Center is scientific discovery, education and dissemination of knowledge for the benefit of the health and well-being of horses.

University of Kentucky Horse Pasture Evaluation Program: The University of Kentucky Horse Pasture Evaluation Program is a service program offered to horse farms in Kentucky with the goal of overall improved pasture management. Regardless of breed or discipline, the programs goals are to: provide detailed pasture management recommendation to horse farm owners and managers; help improve pastureland to increase quality and quantity of pasture as a feed source and reduce the need for stored feeds such as hay and grain; and assess the potential risk of fescue toxicity of individual pastures to pregnant broodmares.

Saddle Up SAFELY: Saddle Up SAFELY is a rider safety awareness program sponsored by UK HealthCare, UK College of Agriculture, Food and Environment and many community organizations. It aims to make a great sport safer through education about safe riding and horse handling practices.