

Disease Mapping Initiative Helping to Navigate Outbreaks

NOCARDIOFORM PLACENTITIS 2017 DATA

| Case No. | Date | County | Species | Age | Breed | Sex | Color | Disposition | Diagnosis | Source |
|----------|---------|---------|---------|-----|---------------|--------|-------|-------------|--------------------------|---------|
| 1 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 2 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 3 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 4 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 5 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 6 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 7 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 8 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 9 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |
| 10 | 1/15/17 | Madison | Horse | 10 | Quarter Horse | Female | Bay | Aborted | Nocardioform placentitis | Private |

NOCARDIOFORM PLACENTITIS 2017 FOAL CROP



Multiple outbreaks of diseases such as equine herpesvirus-1 (EHV-1) and nocardioform placentitis have been making headlines in Kentucky, causing concern among practitioners, farm owners and managers, the University of Kentucky Veterinary Diagnostic Laboratory (UK VDL) staff, and horse industry media.

To mitigate an outbreak's consequences, it is important to understand where the disease is spreading. Thanks to a surveillance system designed by Jacqueline Smith, PhD, MSc, BSc, Dipl. AVES, UK VDL epidemiologist; adjunct epidemiology professor at Lincoln Memorial University in Harrogate,

Tennessee; and founder of the UK VDL Disease Mapping Initiative, we now have the resources to do just that.

Smith's database records all cases of more than 30 diseases from eight species that come through the UK VDL. Interactive maps represent every county in Kentucky, and all information is publicly available. By clicking on specific regions, users can determine when a case came in, the species affected, the affected animal's age and breed, the final disease diagnosis, and which county the disease was reported in. Information about the affected animals' owners remains confidential.

The system updates automatically daily at 5 a.m., and the mapping system also includes a historical map representing all the cases that have come into the laboratory in the past 30, 90, and 365 days.

Users can also view maps, graphs,

and charts, such as the ones shown at left, that include only equine diseases. The equine maps are divided into diagnostic testing, abortions, and necropsy maps covering diseases such as EHV-1, nocardioform placentitis, equine influenza, and leptospirosis.

The maps' usefulness goes far beyond their ability to track diseases in animals, Smith said. They can be used as public health information surveillance, as well.

"If you think about it, there are over 1,400 diseases that are known in humans and over 60% of them are zoonotic—they have the ability to be transferred from animals to humans," she said.

Real-World Benefits

So how can the information in the database help horse owners and veterinarians in day-to-day practice? An example: If the system had been implemented before the 2001-02 mare reproductive loss syndrome outbreak, which had a \$340 million economic impact on Kentucky's equine industry, UK VDL staff would have been able to notify veterinarians and the state a week earlier.

"While a week's notification wouldn't have stopped anything, it would have certainly helped if we could have gotten an alert out sooner," Smith said.

This year, the UK VDL has been keeping a close eye on a recent surge in cases of nocardioform placentitis—a

In This Issue

Fertilizing Cool-Season Pastures 03

Mare and Foal Nutrition Study 04

Warm Winter and Boodmares' Fescue Toxicosis Risk 06

Eastern Tent Caterpillar Egg Hatch Expected Early 10

Disease Surveillance

type of placental infection that results in late-term abortion or small, underdeveloped foals. Already, the UK VDL has seen more than 42 cases, a number that will likely grow in the weeks to come. Smith's mapping system detected those nocardioform placentitis cases quickly, and UK VDL staff notified the public as soon as that information became available.

Because nocardioform placentitis' pathogenesis remains poorly understood, there is little that can be done to prevent disease spread; however, the information attained and mapped during this year's outbreak will be very useful to epidemiologists in the future.

"The closer we can track this disease now, the better we can predict the movement of the disease in the future to warn veterinarians and have the resources available to deal with it," Smith said.

Smith said the UK VDL can only track cases it sees in the laboratory. As such, she emphasized the importance of reporting cases, no matter the animal species, to the VDL so it can continue to build its database for use in predictive analysis and early outbreak detection.

"As much as I love doing this, if it wasn't useful for people, there would be no point," Smith said. "If the information we put out gives the public enough

pause to consider talking to their veterinarian, changing their vaccine schedule, or urges them to call the VDL, then it was worth doing."

Future Endeavors

Smith said that, to her knowledge, no other diagnostic laboratory in the country has a similar database in place. Her vision is to encourage every diagnostic laboratory in the United States to share its information to create a national map that would be readily available to the public so everyone is more aware of what's going on.

If a national map was created, epidemiologists would have a first alert system when something out of character appears, she said.

"You're protecting public health and critical infrastructure," Smith said. "With years of information stored in this database, you are able to do predictive analysis—powerful information that could prevent a catastrophic outbreak."

View all the UK VDL's equine maps at vdl.uky.edu/EpidemiologyInformation/EquineMaps.aspx.

Individuals with questions or concerns about disease outbreaks can contact the VDL at 859/257-8283. **UK**

>Taylor Pence is a marketing and communications intern at the UK Gluck Equine Research Center, a senior marketing major at UK, and president of the UK Dressage and Eventing Team.

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The Horse: Your Guide To Equine Health Care

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Female Equestrians Needed for Study on Breast Biomechanics and Health Outcomes



ISTOCK.COM

Many female equestrians find that current bras don't offer appropriate support during gaits such as the sitting trot.

Ladies, are you still in search of that elusive piece of riding equipment—a bra that *actually* offers adequate support in the saddle—and suffering painful consequences in the meantime? You're not alone.

As part of her master's thesis, a UK researcher is studying female equestrian health outcomes with an emphasis on breast biomechanics. Karin Pekarchik is a staff member in the UK College of Agriculture, Food and Environment department of Biosystems and Agricultural Engineering (BAE) and a graduate student in the department of Community and Leadership Development.

Pekarchik's dissatisfaction with bras lacking sufficient support for a sitting trot led to her collaboration with researchers in the United Kingdom studying female equestrians' breast biomechanics.

Along with Kimberly Tumlin, PhD, UK College of Public Health, Pekarchik is collaborating with

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Breast Biomechanics

Jenny Burbage, PhD, University of Portsmouth Department of Sport and Exercise Science, in the U.K., and Lorna Cameron, of the Sparsholt College Faculty of Equine and Applied Animal Science, in Winchester, U.K. Both teams are interested in how breast discomfort/pain and ill-fitting, poorly performing bras limit desire to ride.

In “An investigation into prevalence and impact of breast pain, bra issues and breast size of female horse riders” (*Journal of Sports Sciences*, 2016), Burbage and Cameron surveyed 1,324 women regarding breast size and discomfort’s impact on riding. Their survey showed that 40% of women suffer from breast pain, most frequently at the sitting trot, and this pain can deter them from riding. Their survey highlighted some of the issues of breast discomfort during riding and that educational steps

regarding bra design and fit are needed.

Pekarchik adapted Burbage’s and Cameron’s breast-focused survey to include a more general health focus to determine female equestrian health issues and outcomes over life stages. Female equestrians can start riding early in life and can ride well into their 70s and beyond, which is unusual in sports. While much research has been devoted to the equestrian athlete, less has been conducted on the human partner. Physical issues (excluding concussion and bone breakage, which are covered elsewhere in the scientific literature) that can limit riding are of great interest, as is the public health aspect of building an educational program to help mitigate breast discomfort and other health factors that can keep women out of the saddle.

The study is part of a larger project for Pekarchik and Tumlin, who are the “clients” of an engineering senior design team that is using a two-semester

course to apply engineering principles to design a better equestrian sports bra. Additionally, Pekarchik, Tumlin, and BAE engineers Joe Dvorak, PhD, PE, and Josh Jackson, PhD, are working on building a wireless sensor system that will allow Burbage and Cameron to gather breast biomechanics data in the field on horseback, rather than simulating riding on a mechanical horse.

Complete the team’s survey, “Attitudes, behaviors, and areas of educational opportunity for female equestrians toward bra use and health outcomes when engaged in equestrian sports,” at uky.az1.qualtrics.com/SE/?SID=SV_dm9h9FjQc0RUHKB. The survey will be available to respondents until March 19. **UK**

>Karin Pekarchik is a senior extension associate for distance learning within UK’s Department of Biosystems and Agricultural Engineering and master’s candidate within Community and Leadership Development.

Fertilizing Cool-Season Horse Pastures

Good pasture management begins with maintaining good soil fertility to promote the growth of desirable grasses, such as Kentucky bluegrass, orchardgrass, perennial ryegrass, and novel tall fescue. Now is an excellent time to review your soil fertility records and make plans for grazing this season.

You can have your soil sampled throughout most of the year, but early spring and fall are the most common times to do so. Sample only the top four inches of the pasture, and divide large pastures into “sub-pastures” for sampling based on the varying topography.

Phosphorus (P), potassium (K), and lime

- P and K promote plant growth and longevity, but plants don’t use lime directly. Rather, lime adjusts soil’s pH, making other nutrients more available for the plants to use.
- Soil tests can help determine whether you need to apply P, K, or lime (and other nutrients), and applications might not be needed annually. High-traffic areas might not require P or K as it is recycled in animal manure.
- P, K, and lime can be applied any time of the year, as long as the weather is cooperative.

Nitrogen applications

- A spring nitrogen application is generally not needed for cool-season horse pastures because grass growth is naturally rapid in the spring. However, farms that have high stocking rates and intensive grazing can benefit from light nitrogen applications in early spring.
- In the fall, apply nitrogen in two applications (30-60 pounds per acre each time) to prolong fall pasture growth and



Consider fertilizing cool-season grass pastures in early spring to improve the quality of forage your horses have to graze.

prepare plants for overwintering. Well-fertilized pastures will survive winter better and will green up sooner in the spring.

- Only fertilize in the summer if harvesting hay or managing warm-season grasses, such as bermudagrass. Be sure to apply it on cool days or use nonvolatilizing nitrogen sources such as ammonium nitrate.

While you don’t have to restrict grazing access to recently fertilized pastures, it’s best to give fields a week of rest or a good rain before returning animals to the pasture. For more information, see *Soil Sampling and Nutrient Management* (AGR-200) at www.uky.edu/ag/forage. **UK**

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

Mare and Foal Nutrition Study Creates New Areas of Interest

Morgan Pyles, a PhD student in the department of animal and food sciences at UK, became interested in mare and foal nutrition by accident.

“When I began looking into graduate school, I was deciding between equine reproduction research and equine nutrition research,” she said. “I worked with the reproductive health group in the UK Gluck Equine Research Center for the summer after finishing my undergraduate degree and met Dr. Laurie Lawrence (PhD, professor in the department

of animal and food sciences at UK) through that study. She had a graduate student position available to start that fall, which helped make my decision to study equine nutrition.”

Pyles said Lawrence already had funding available for a study in collaboration with Michael Flythe, PhD, a microbiologist with the USDA Agricultural Research Service Forage-Animal Production Research Unit. The study focused on the effects of starch source on mare and foal hindgut bacteria, which became Pyles’ thesis study.

The study, “Effect of Maternal Diet on Select Fecal Bacteria in Mares and Their Foals,” involved assigning pregnant Thoroughbred mares to one of two



KEVIN THOMPSON/THE HORSE

Pyles believes milk composition could play a vital role in hindgut microbial colonization in foals.

treatment groups; one group was fed an oat-based concentrate and the other group a corn- and wheat-middling-based concentrate. The team chose those starch sources because oats are considered more easily digestible for horses, while corn and wheat middlings are slightly less so. These differences would help demonstrate if these starch sources in pelleted concentrates have different effects on the bacteria in the digestive tract. Researchers in Lawrence’s laboratory had conducted previous studies that revealed that starch sources have differential effects on horses’ hindgut bacterial communities.

Using fecal samples, Pyles, Lawrence, and their colleagues evaluated the mares’ hindgut microbial communities in late pregnancy, immediately after foaling, and further post-foaling. The team examined the foals’ microbes after birth, as well.

Although no major issues occurred during the study, a few things made data collection a bit tricky, Pyles said.

The first challenge was predicting when the mares would foal, as they wanted to collect a pre-foaling fecal sample just before parturition (birth).

“Each mare is different and works on her own schedule,” she said. “Some mares are very predictable, as in we know she will foal before her due date every time, and others have few signs before they foal.”

Another surprising nuisance, said Pyles, was waiting for fecal samples from the foals.

“We found out through this study that foals do not defecate very frequently in the first few days after birth,” she said. “So we spent a lot of time sitting and

GRAD STUDENT SPOTLIGHT

CAROLINE LOOS

From: Schilde, Belgium

Degree and institute where received: Vives University, Belgium, BS in animal science; post-graduate certificate in animal rehabilitation in sports coaching



After completing an internship at KESMARC (Kentucky Equine Sports Medicine and Rehabilitation Center) and two-and-a-half years as a veterinary technician at Rood & Riddle Equine Hospital, in Lexington, Kentucky, Caroline Loos began looking for equine graduate programs.

“Having some of the top professors in the field of equine nutrition right here in Lexington, I was ecstatic to hear that Dr. Kristine Urschel (PhD, assistant professor in Animal and Food Sciences for the UK College of Agriculture, Food and Environment) had accepted me into her program,” Loos said.

Loos’ research focuses on muscle protein metabolism in horses—specifically, how it is regulated and how factors such as exercise, diet, medication, and disease can affect muscle development. Along with her own research projects, her diverse interests have also led her to opportunities to help with several studies involving treadmill exercise, working with metabolic horses, and collaborating with feed companies.

Loos said the department’s faculty knowledge and guidance has been important in her educational studies.

“Research, especially animal research, requires teamwork and participating in different studies,” she said. “Learning about other students’ research projects, even in species other than your own, is the best way to broaden your skills. I really believe you get as much or as little out of your time in college as you want.”

Loos is currently finishing her laboratory work and working on her dissertation. She has experience with research and working in the industry and will have the opportunity to teach this semester.

“Whether the next step will lead me to take a job in the industry, academia, or something entirely different, I hope to contribute to the well-being of the horse the way they have driven me to pursue my dreams,” Loos said. [UK](#)

>Alexandra Harper, MBA, is the operations and communications coordinator for the UK Ag Equine Programs.

Mare and Foal Nutrition Study

waiting for samples from foals.”

But in the end, the study brought to light several findings about foal hindgut microbial colonization and nutrition.

“We collected samples within the first 24 hours after birth and we were surprised at the amount of bacteria already present,” Pyles said.

Meanwhile, cellulolytic bacteria, which are essential in adult horses’ hindguts, were slower to colonize the foals’ hindguts.

Another surprise, Pyles said, was there were no differences between treatment groups in the mares, although there were some differences over time.

“There was a decrease in cellulolytic bacteria and lactobacilli just after parturition,” she said. “There are a lot of changes in the mare around parturition; therefore, it is not surprising that we saw some changes in bacteria around that time.”

There were treatment differences in the foals, however, which has helped open up new areas of study.

“We did see some differences between treatments in the foal bacteria, specifically in the first few days after birth, which is interesting because foals don’t typically consume much solid feed at that time,” Pyles said. “From these results, we are turning our attention to milk composition.”

The foal’s primary nutrition source during his first few days of life is milk. Due to the early changes in foal hindgut bacteria Pyles observed and the foal’s diet at this time, she believes that milk composition could play a vital role in microbial colonization, an important finding from the study.

The study results might also help with understanding the normal progression of microbes in the horse, from birth to adulthood, which can help veterinarians correct problems, such as pathogen proliferation, when they arise, said Pyles.

Foal diarrhea is also an issue that, while not usually life-threatening, can result in a major economic loss. Pyles said hindgut colonization with normal bacteria could help alleviate this problem.

Meanwhile, postpartum mares are at a higher risk for colic, and a better understanding of the changes in microbes around parturition could help with this problem, as well, Pyles said. This study

helps put researchers on the right track to investigate this area more.

“There is very little research investigating the changes in microbes in the mares’ gastrointestinal tract around foaling,” Pyles said. “Changes in bacteria have been associated with many negative health effects such as laminitis and colic. Therefore, understanding what the microbes are doing around this time (postpartum) and developing strategies to prevent upsets may provide some health benefits for the postpartum mare.”

Pyles said foal development is definitely a “hot topic” in the equine research industry, and her study has opened the doors to new possibilities for research into mare and foal diets. **UK**

>Maddie Regis is a sophomore marketing major at the University of Kentucky and communications and student relations intern within UK Ag Equine Programs.

UK’s MacLeod Featured in ESPN’s In the Gate Podcast

James MacLeod, VMD, PhD, John S. and Elizabeth A. Knight chair and professor of veterinary science at the UK Gluck Equine Research Center, was recently featured in an ESPN In the Gate podcast.

During the podcast he discussed advances in equine genetic testing. MacLeod studies at a cellular level the genetics that predispose horses to injury due to physical exercise.

Listen to the podcast at espn.com/espnradio/play?id=18409655. **UK**

>Jenny Evans, MFA, is the senior marketing and promotion specialist at the Gluck Equine Research Center.



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Nielsen Named North American Co-Editor-in-Chief of Veterinary Parasitology

Martin Nielsen, DVM, PhD, Dipl. EVPC, ACVM, associate professor and Schlaikjer professor of equine infectious disease at the UK Gluck Equine Research Center, was recently named the North American co-editor-in-chief of the scientific journal *Veterinary Parasitology*.

“This journal is highly rated within our discipline and is the official organ of the American Association of Veterinary Parasitologists, the European Veterinary Parasitology College, and the World Association for the Advancement of Veterinary Parasitology,” Nielsen said.

Nielsen replaces Dan Howe, PhD, a professor at the UK Gluck Center, who served as co-editor-in-chief for the past seven years.

“I think this is a tremendous acknowledgement of the parasitology program in UK’s Department of Veterinary Science,” Nielsen said. “I am proud and humbled to continue this leadership role within our field of research.”

According to the journal’s website, *Veterinary Parasitology* is an international scientific journal concerned with aspects of helminthology, protozoology, and entomology, which are of interest to animal health investigators, veterinary practitioners, and others with a special interest in parasitology. Papers of the highest quality dealing with all aspects of disease prevention, pathology, treatment, epidemiology, and control of parasites in all domesticated animals fall within the journal’s scope.

More information on the journal is available at journals.elsevier.com/veterinary-parasitology. **UK**

>Jenny Evans, MFA, is the senior marketing and promotion specialist at the Gluck Equine Research Center.

Buckeye Nutrition Partners With Gluck Center on EMS Research

Buckeye Nutrition is partnering with the UK Gluck Equine Research Center to continue supporting research dedicated to advancing the science of equine nutrition, specifically in the areas of obesity, laminitis, and senior horses.

The research partnership will be led by Amanda Adams, PhD, assistant research professor at the Gluck Center, along with Pat Harris, MA, VetMB, PhD, Dipl. ECVCN, MRCVS, head of the WALTHAM Equine Studies Group, in the United Kingdom, and Director of Science for MARS Horsecare.

“This is a fantastic opportunity to work with Dr. Adams and collaborate on innovative research which will

address both fundamental as well as practical questions of key interest to all those interested in the health and welfare of horses,” Harris said.

Adams’ research focuses on improving aged horses’ health and well-being and understanding obesity’s effects on various metabolic and inflammatory components, particularly in horses affected by equine metabolic syndrome (EMS). Adams is a past recipient of the Buckeye Nutrition and WALTHAM Equine Research Grant, with which she discovered that age does play a role in regulating certain aspects of inflammatory and metabolic function in geriatric horses.

“Collaborations are critical to the success of any research program, and I

very much look forward to collaborating with Dr. Pat Harris and the Buckeye Nutrition and WALTHAM Equine Research team, who are truly passionate about the horse and are a team that not only supports product development research but basic research in order to better understand the mechanisms of biology behind aging, obesity, and laminitis, allowing us, as an industry, to provide better care for the horse,” Adams said.

>Edited press release

Warm Winter Could Increase Broodmares’ Fescue Toxicosis Risk

Mild weather this winter could be to blame for the higher-than-average concentrations of a toxic substance in tall fescue that have been observed in Fayette and Bourbon County pastures in Central Kentucky, say UK College of Agriculture, Food and Environment experts.

Tall fescue toxicosis in broodmares, which is caused by ingesting the toxin ergovaline, is rare in the early months of the year due to typically cold winter temperatures.

Naturally occurring tall fescue is often infected with an endophytic fungus that can produce ergovaline, a known vasoconstrictor that causes blood vessels to narrow. This can cause



Tall fescue toxicosis can cause prolonged gestation and/or low or no milk production.

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Fescue Toxicosis

prolonged gestation and low milk production in late-term pregnant mares. The UK Horse Pasture Evaluation Program sampled three farms in Fayette and Bourbon counties this year and found a handful pastures with higher-than-average ergovaline concentrations for the time of year.

"These levels would not be alarmingly high in May, because pastures would have other forages such as bluegrass and orchardgrass actively growing, providing sufficient dilution in the total diet," said Krista Lea, MS, UK Horse Pasture Evaluation Program coordinator. "However, other grasses are not active in February. Therefore, horses are likely to consume more tall fescue, especially in pastures that were overgrazed last fall."

Ray Smith, PhD, UK forage extension specialist, agreed that dilution is the key to minimizing ergovaline's effects.

"Farms should move mares to pastures where more desirable forages are available and tall fescue is less prevalent," he said. "Keeping good-quality hay in front of mares on pasture will also dilute any ergovaline the horses may consume."

He urged farm managers whose mares experience foaling complications to work closely with their veterinarians to evaluate all possible causes.

"There are so many ways and reasons foaling can go wrong," said Cynthia Gaskill, DVM, PhD, Dip. ABVT, veterinary toxicologist at the UK VDL. "Any time foaling complications are observed, all appropriate tissues and samples should be sent to us to evaluate possible causes immediately."

Gaskill said there isn't a direct test for ergovaline levels in animal tissues, so diagnosing suspected cases of tall fescue toxicosis involves ruling out other possible causes and determining ergovaline concentrations in forages or bedding. In some cases, domperidone can be administered to alleviate the clinical signs of fescue toxicosis, but this can have adverse side effects and is costly, making prevention the ideal treatment.

Ergovaline concentrations in pasture, hay, and bedding can be evaluated at the UK VDL for \$52 per sample. Pasture samples should be frozen and transported on ice to the lab immediately.

Henning Leaving Post as Head of UK Cooperative Extension to Return to Forage Programs

Jimmy Henning, PhD, stepped down as associate dean for extension and director of the UK Cooperative Extension Service on Feb. 15 to return to the College of Agriculture, Food and Environment's faculty as an extension forage specialist. Henning has led the extension service since 2007.

"I have wanted to return to the field for some time," Henning said. "With the renewed emphasis on forage programs as part of the Grain and Forage Center of Excellence and the continued need for the same in Eastern Kentucky, the timing just seems right."

Nancy Cox, MS, PhD, dean of the College of Agriculture, Food and Environment, added, "About a year ago, Jimmy told me he would like to resume working directly with forage and livestock producers. He has provided great leadership for extension for the past 10 years. I understand his desire to return to the field and know that he will bring great passion to his new role as he did while leading extension."

The search for a new leader will begin after a review of the Cooperative Extension Service is complete later this spring.

In the interim, Gary Palmer, MS, PhD, UK assistant extension director for agriculture and natural resources, will oversee operations and specialists and agents working in family and consumer sciences, community and economic development, agriculture and natural resources, and 4-H youth development.

"We are very fortunate to have Gary Palmer serve in this interim role," Cox said. "Gary has served extension in an exemplary manner and will provide stability as well as progressive ideas for continuing that service."

As extension director, Henning emphasized local advisory councils, strong county programs, and the value of a close connection between counties and campus. He led a team that improved infrastructure at 4-H camps, increased the security of county programs funding, and improved campus/county communication and collaboration in programming.

Henning and his team brought a greater emphasis to diversity and inclusion in staffing and programs and brokered a new level of partnership with Kentucky State University (KSU). This greater collaboration between UK Cooperative Extension and KSU will produce stronger county programs with greater breadth. He also led the process of giving counties a greater voice in the selection process for agents.

Henning, a 27-year veteran of the Cooperative Extension Service, has also represented the college and the university in national roles, including chair of the national level Extension Committee on Organization and Policy. Henning was selected by his peers to receive the Southern Region Excellence in Extension Leadership award in 2015. **UK**

>Laura Skillman is the director of the UK College of Agriculture, Food and Environment's Agricultural Communications Services.

Hay and bedding samples should come from several bales and can be transported at ambient temperature out of direct sunlight. Find detailed sampling instructions at www.uky.edu/Ag/Forage/Tall%20fescue%20sampling.doc.

Local county extension agents can assist farms in sampling pastures, hay, or bedding. Find more information on the UK Forage Extension website, www.uky.edu/ag/forage or e-mail UK's forage group at UKForageExtension@uky.edu. **UK**

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

Brown Named Chair, Banahan Named Vice Chair of UK Gluck Equine Research Foundation

Stuart Brown, DVM, a veterinarian and partner at Hagyard Equine Medical Institute, in Lexington, Kentucky, was named chair of the UK Gluck Equine Research Foundation's board of directors at its January meeting. Michael Banahan, director of farm operations for Godolphin LLC's Jonabell Farm, also in Lexington, was

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¹ Cortese V, Hankins K, Holland R, Syvrud K. Serologic responses of West Nile virus seronegative mature horses to West Nile virus vaccines. *J Equine Vet Sci.* 2013;33:1101-1105.

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Brown, Banahan

named vice chair.

"I am honored to have the opportunity to serve the Gluck Equine Research Foundation and to work with the leaders in the horse industry who are members of the foundation's board and engaged in the mission of the Gluck Center's commitment to the advancement of equine health," Brown said. "The Gluck Center has an international reputation of excellence in the area of equine research and remains a vital resource for the horse industry, both locally and globally, in addressing the needs of the industry's stakeholders. I look forward to collaborations with this esteemed faculty, led by Dr. David Horohov (PhD), and to furthering its accomplishments as we approach the 30th anniversary of this unique institution. I cannot envision a more tangible way to contribute to our horse industry than through contribution to this partnership with the University of Kentucky and its College of Agriculture, Food and Environment."

Brown joined the board in January 2011 and has served as vice chair since January 2012. In veterinary practice, he specializes in equine reproduction with a primary focus on broodmare reproductive evaluations, prepurchase evaluations including radiographic and endoscopic examinations for horse sales at public auction, herd health preventive medicine and primary care, and federally required testing for the international equine import and export. Brown consults on national and international cases and speaks regularly at various veterinary and horse owner conferences. He also serves on numerous national veterinary and Thoroughbred industry boards and committees.

"I am very pleased to have Dr. Brown as chair of the foundation's board of directors," said Horohov, director of the Gluck Equine Research Center and chair of the UK Department of Veterinary Science. "Our program very much relies upon the leadership and assistance provided by our board, and having Dr. Brown as our new chair will certainly further this relationship. He has long been a proponent and supporter of our program in the community, and I welcome this opportunity to work with him more."

Brown takes the leadership reins from Case Clay, chief commercial officer at



Stuart Brown, DVM



Michael Banahan

Three Chimneys Farm, in Versailles, Kentucky, who served as chair from January 2012 until his term expired this past January. Clay will remain on the board until his term as a board member expires.

"I greatly appreciated the advice and help Mr. Clay provided as chair," Horohov said. "He was particularly effective in this capacity during the recent changes in our program. While I will miss working with him as chair, I am happy that he will continue to serve as an active member of the board. His experience and advice will be an asset for us."

Banahan replaces Brown as vice chair. Banahan has served on the foundation's board of directors since April 2014. Banahan worked for several leading Thoroughbred industry professionals in Australia, the United Kingdom, and the United States prior to his current position at Godolphin. He is also a successful breeder on a limited scale and serves on the board of Godolphin, the Kentucky Equine Management Internship,

and Central Kentucky Riding for Hope.

"We are grateful for all of our distinguished board members and especially appreciative of those willing to take on leadership roles to help the Gluck Center serve the industry," said Dean Nancy Cox, MS, PhD. "Stuart and Michael are at the top of their professions. Additionally, Stuart serves an invaluable role as adviser to all equine programs in the college and thus has deep knowledge to help us coordinate our services."

Gluck Equine Research Foundation directors are elected to four-year terms and can serve two four-year terms. The Gluck Equine Research Foundation is a nonprofit organization that secures funds and provides the exchange of information between the Gluck Center and the horse industry. Since the foundation's inception, it has been supportive in raising funds for equine research, endowed faculty positions, and facilities.

The mission of the Gluck Center, a UK Ag Equine program in the College of Agriculture, Food and Environment, is scientific discovery, education and dissemination of knowledge for the benefit of the health and well-being of horses. The Gluck Center faculty conducts equine research in seven targeted areas: genetics and genomics, immunology, infectious diseases, musculoskeletal science, parasitology, pharmacology/toxicology, and reproductive health. **UK**

>Jenny Evans, MFA, is the senior marketing and promotion specialist at the Gluck Equine Research Center.



Researchers evaluated the 92 shelters that service Kentucky's 120 counties.

UK Animal Shelter Study First in More Than 20 Years

Researchers at the UK of Agriculture, Food and Environment's Department of Veterinary Science recently conducted the first comprehensive study of conditions and compliance with state shelter laws in Kentucky's county animal shelters in more than two decades. In doing so, they partnered with a new Tennessee veterinary school.

The team traveled across Kentucky to gather information for the study, including data on current conditions and major problems. They also identified needs based on visits to the shelters and interviews with shelter personnel. Students from the Lincoln Memorial University veterinary school collaborated on the study and traveled thousands of miles to curate data.

"We divided up the students and assigned them a number of counties," said

UK Animal Shelter Study

Cynthia Gaskill, DVM, PhD, Dip. ABVT, a researcher at the UK VDL. “What we found is that the county shelter conditions greatly varied. Each county is responsible for its own shelter, but no one has any enforcement capability. There was no master list of shelters and locations, so some of them were hard to find.”

After the last study of Kentucky shelters, the Humane Shelter Act required all counties to come into compliance with new statutes by 2007, but no formal follow-up studies assessed that progress.

The students identified 92 shelters that service Kentucky’s 120 counties. They examined the shelters visually and communicated with available staff and animal control officers. They found that the majority of shelter workers identified a lack of sufficient funding as the major problem. Other significant problems were pet overpopulation leading to overcrowding at shelters, insufficient work force, and a lack of education.

“Many shelter workers said they just don’t have proper training in proper animal handling, sanitation, and

disease control,” said Gaskill. “Without funding, it’s hard to provide that training.”

Researchers recommended that more free education be provided, which would give county officials and volunteers access to resources they need to do their jobs and to protect the animals and people who care for them.

Gaskill said she hopes people will see that further studies are needed to build on the work that has been done.

“We’re talking about broad issues of animal welfare and public health; there’s an enormous need for education and public awareness,” added Craig Carter, DVM, MS, PhD, Dipl. ACVPM, UK VDL director. “It (the study) opens a whole universe of issues. But the first step is that we have to have adequately funded shelters that can provide care with a minimum standard.”

The students presented their findings to the Kentucky Animal Control Advisory Board in Frankfort, which advises the Kentucky Commissioner of Agriculture about animal control issues. They concluded that although much progress has occurred since the last study in 1996, there is still work to be done.

The student team also identified a list of Kentucky’s best shelters—those that appear to be doing a good job

meeting state requirements and providing essential services such as adoption, spay/neuter programs, and basic veterinary care to incoming animals. The shelters that made that list were Boone County, Bowling Green Warren County Humane Society, Grand County Animal Shelter, Hardin County (also serves Larue), Hopkins County, Humane Society of Nelson County, Jessamine County Animal Care and Control, Kenton County, Knox-Whitley (also serves Clay and McCreary County), Lexington Humane Society for Fayette County, McCracken County Humane Society, Ohio County, Oldham County Animal Control, Paris Animal Welfare Society for Bourbon County, Pike County, Scott County, and the Tri-County Animal Shelter (Rowan, Bath, Carter, and Fleming).

The study documented successful animal control programs so this information can be shared with other counties, particularly those with similar population and financial demographics.

The full report is available at www2.ca.uky.edu/agcomm/pubs/misc/2016_KY_shelter_study_report.pdf. UK

>Aimee Nielson is an agriculture communication specialist in the UK College of Agriculture, Food and Environment.

Early Eastern Tent Caterpillar Egg Hatch Anticipated for Central Kentucky

Eastern tent caterpillars will likely begin to hatch soon, said Lee Townsend, PhD, UK College of Agriculture, Food and Environment extension entomologist.

“Eastern tent caterpillars are among the first insects to appear in the spring,” he said. “Consequently, they can cope with the erratic temperature swings that are common in Kentucky. This year’s unseasonable warmth points to abnormally early activity.”

Eggs from a mass Townsend collected on Feb. 17 hatched after a weekend indoors.

“Although the temperature was artificially high (in the

lab), clearly (outside) conditions are close to prompting eastern tent caterpillar hatch,” he said. “In addition, black cherry leaf buds are starting to open. High and low temperatures from Feb. 17-24 are about 20 degrees above seasonal normal. Egg hatch this year may beat the previous record soundly.”

That record, Townsend

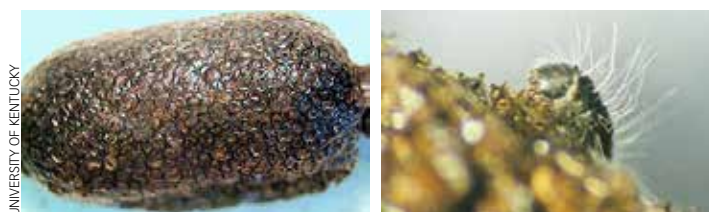
said, was March 14, 2012. The latest observed hatch since 2011 was April 4, 2013.

Arborist Larry Hanks has reported the first observed egg hatch in Scott County since 2011.

“It is important for horse farm managers to keep these hairy caterpillars in mind and, barring a significant weather change, to begin watching early for developing tents,” Hanks said. “If the warm weather continues, they may become

visible in black cherry trees in pasture and paddock tree lines in seven to 10 days.”

When mature, the 2- to 2 ½-inch-long hairy caterpillars wander from their developmental sites along fencelines. Inadvertant consumption of large numbers of caterpillars by pregnant mares precipitated staggering foal losses in the 1999-2001 outbreak of mare reproductive loss syndrome, which can cause late-term foal losses, early- and late-term fetal losses, and weak foals. Researchers from UK found that following consumption the caterpillar hairs embed into the horse’s alimentary tract lining. Once that protective barrier is breached, normal alimentary tract bacteria can gain access to and reproduce in



Be on the lookout for egg masses (left) and newly hatched caterpillars.

Eastern Tent Caterpillar Egg Hatch

sites with reduced immunity, such as the fetus and placenta.

If practical, farm managers should move pregnant mares from areas where black cherry trees are abundant to minimize the chance of caterpillar exposure. The threat is greatest when the mature tent caterpillars leave trees and wander to find places to pupate and transform to the moth stage.

Eastern tent caterpillars are also a significant nuisance to people living near heavily infested trees. The caterpillars can wander hundreds of yards in search of protected sites to spin cocoons and pupate.

To eliminate active caterpillars, Townsend recommends pruning them out

and destroying the nests if practical. Farm managers can use any one of several biorational insecticides registered for use on shade trees as needed. These types of insecticides are relatively nontoxic to humans. Spot treatments to the tents and the foliage around them can be applied according to label directions, which vary by product.

Find more information about how to assess trees for egg masses in the UK Entomology publication, *Checking Eastern Tent Caterpillar Egg Masses*, which is available at entomology.ca.uky.edu/ef449. **UK**

>Holly Wiemers, MA, APR, is communications and managing director for UK Ag Equine Programs.

Annual Career Fair Unites College Students, Equine industry

The UK Ag Equine Programs will host its ninth annual Equine Career and Opportunity Fair from 4:30 to 7 p.m. EST March 7 at Spindletop Hall in Lexington.

The free event provides college students the chance to meet prospective equine industry employers and to learn about potential volunteer, internship, and part- and full-time employment opportunities. In addition to booths from area equine businesses, attendees can participate in sessions led by industry professionals, who will offer tips and one-on-one career advice.

"This is such a great event. It benefits the equine industry by putting businesses and organizations into contact with students and potential employees," said Elizabeth James, lecturer and internship coordinator in UK's equine science and management undergraduate degree program. "It benefits students by exposing them to so many opportunities. And it benefits the equine event planning class by giving students hands-on event planning experience. Every year the class and the event just keep getting better."

Informational sessions will allow participants to explore opportunities related to veterinary professions, the Thoroughbred industry, feed sales/nutrition, marketing/communications, and graduate school. A shuttle service for UK students to and from campus will also be available.

"I chose to take equine event planning with Mrs. James because I view it as a very valuable course," said Paige

UK Equine Showcase, Breeders' Short Course Well-Attended



Presenters included UK's Mick Peterson, PhD (top); Robert Stout, DVM, and Rusty Ford from the Kentucky State Veterinarian's Office (center); and David Horohov, PhD, from UK (bottom).



More than 150 participants attended the UK Equine Showcase and Kentucky Breeders' Short Course Jan. 27-28 at the Fayette County Extension Office.

Presenters included researchers in the UK Ag Equine Programs as well as veterinarians from Hagyard Equine Medical Institute, in Lexington; Rood & Riddle Equine Hospital, also in Lexington; and the Kentucky State Veterinarian's Office.

Sponsors included The Franklin Williams Company, Hagyard Equine Medical Institute, Kentucky Equine Research, Kentucky Performance Products, McCauley's, the North American Equine Ranching Information Council, Park Equine Hospital, Precision Pharmacy, Tribute Equine Nutrition, and Zoetis. Supporters included Ag Credit, Animal Reproduction Systems, BET, Hallway Feeds, KBC, the Kentucky Quarter Horse Association, KESMARC, The Pond Lady, and Rood & Riddle Equine Hospital. **UK**



Annual Career Fair

Schanke, an equine science and management senior who is helping plan the event. "Mrs. James instills in us the skills it takes to become a successful event planner and event participant. I am looking forward to seeing our class' dedication and hard work come together to make this year's Career and Opportunity Fair the best yet."

Some of the confirmed participants include Bourbon Lane Stable, Camp Thunderbird, Central Kentucky Riding for Hope, Godolphin Flying Start, Gollenhon Quarter Horses, Hagyard Equine Medical Institute, KBC Horse Supplies, League of Agriculture and Equine Centers, Park Equine Hospital, Keeneland, Kentucky Equine Education Project, Kentucky Equine Humane Center, Kentucky Equine Research, Kentucky Equine Management Internship, Kentucky Horse Council, Kentucky Horse Park, Maker's Mark Secretariat Center, Miramonte Equine, New Vocations, Neogen, Rood & Riddle Equine Hospital, Split Rock Jumping Tour, and Spy Coast Farm.

Students and potential employers that would like more information about the UK Equine Career and Opportunity Fair can contact James at 859/257-2226 or e-mail equine@uky.edu. Up-to-date information is also available on the event's Facebook page at [Facebook.com/UKEquineCareerFair](https://www.facebook.com/UKEquineCareerFair).

More information about UK Ag Equine Programs is available at www2.ca.uky.edu/equine. **UK**

>Holly Wiemers, MA, APR is communications and managing director for UK Ag Equine Programs.



Attendees of last year's Equine Career and Opportunity fair learned about different career opportunities available to them in the equine industry.



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Upcoming Events

March 7, 4:30 p.m.

UK Equine Career and Opportunity Fair, Spindletop Hall, Lexington, Kentucky.

April 26, 8 a.m.

Equine Summit "Developing Tomorrow's Equine Workforce," Spindletop Hall, Lexington, Kentucky.

32nd Annual National Conference on Equine Law to be Held May 3-4

The 32nd annual National Conference on Equine Law, presented by the UK College of Law, will take place May 3-4 at Keeneland Race Course, in Lexington, Kentucky.

According to the event's promotional materials, the conference aims to convey an understanding of current legal issues affecting breeding, buying, selling, ownership interests, racing, and other business operations of the horse industry. The program is designed for attorneys who counsel, represent, or litigate on behalf of buyers, sellers, breeders, brokers, owners of interests in horses, and other entities involved with the industry. This conference is open to the public.

More information and registration information is available at http://128.163.184.63/ukcle/Equine/2017/Equine17_Brochure.pdf.

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