University of Kentucky

Bluegrass Equine DIGEST

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Commentary: Biosecurity and Hygiene

The mainstays of biosecurity still center around good hygiene, diagnostics, quarantine, isolation, and traffic control.

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Equine herpesvirus myeloencephalopathy (EHM) outbreaks have put "biosecurity" in the social media, journal publication, and veterinary study spotlight. Infectious disease control lectures are now routinely seen in programs for veterinarians, racetrack superintendents, horse show managers, and horse owners of all experience levels. However, equine herpesvirus (EHV) is just one disease of concern; strangles, salmonellosis, influenza, and others still occur and must be considered in any biosecurity plan.

Biosecurity is a relatively new term in veterinary medicine. In general, it means taking steps to protect animals against infectious diseases and reduce disease outbreak spread. The phrase "animal hygiene"—practices that promote health and prevent disease with an emphasis on cleanliness—was commonly used more than 25 years ago and still is in many countries.

Scrubbing surfaces thoroughly with water and detergent can remove 90% of bacteria from nonporous materials. Detergents also disrupt many viral pathogens' lipid envelopes, which help them evade the host's immune system. Some disease-causing organisms, such as *Leptospira*, are extremely sensitive to drying and don't require harsh chemicals for germicidal activity. Simply keeping the horse's environment clean can go a long way toward reducing exposure to pathogens.

While doing some research recently, I read an article about procedures to control respiratory outbreaks caused by equine influenza and EHV-1 published in a 1983 edition of *The Irish Field*. (I did this in a library, holding the actual paper copy in my hands, as it was not available online.)

In 1983, David Powell, BVSc, then of the Animal Health Trust in Newmarket, England, advised implementing a vaccination program, having high hygiene standards in stables, isolating sick horses immediately to minimize possible disease spread, quarantining new horses on the farm, and being aware that rapid horse transportation facilitates the possibility of outbreaks.

In another 1983 article in *The Irish Field*, Powell specifically addressed dealing with equine abortions: Send the fetus and placenta to a diagnostic laboratory to determine the cause, isolate the mare pending test results (e.g., EHV-1 or other contagious etiology), properly dispose of all bedding and materials contaminated by the fetus and fluids, and thoroughly clean and disinfect the mare's stall and all equipment. These steps can mitigate an outbreak of contagious abortions from several causes. If an infectious agent did not cause the abortion, that hard work resulted in a clean stall and peace of mind.

After 34 years of scientific discovery, this basic advice remains the mainstay of biosecurity in 2017. Veterinarians and infectious disease specialists still repeatedly preach the foundations of hygiene, diagnostics, quarantine, isolation, and traffic control. Yet, hygiene is not easy. The average 1,000-pound horse produces 50 pounds of manure and urine per day and untold numbers of aerosols through sneezing, coughing, and vocalizing. Keeping stalls,

In This Issue

Biosecurity

aisleways, tack rooms, equipment, trailers, and water toughs clean is hard work, time-consuming, and never described as "fun."

Nearly everyone would like an environmentally safe, "one-step-kills-all-pathogens" chemical that makes biosecurity fast and easy against all equine pathogens, but it does not exist. We are still cleaning, disinfecting, isolating, quarantining, and preventing the spread of equine pathogens via feet, hands, tools, and equipment. We still need to control insect vectors and mice and other pests. Vaccination is not enough and never will be since vaccines are not 100% effective against all important equine infectious diseases.

Where do you begin? There are many reliable resources, starting with a veterinarian who can develop a customized preventive medicine program based on the horse's age, use, and risks. While you can find basic equine biosecurity guidelines, be wary of any universal "templates," since what works for a boarding facility might be inappropriate for a broodmare farm, show horse barn, or equine event venue. Following are some reliable information sources:

- **The American Association of Equine Practitioners Equine Disease Communication Center** has disease information, vaccination guidelines, and biosecurity resources: equinediseasecc.org;
- **The California Department of Food and Agriculture** Biosecurity Toolkit for Equine Events: cdfa.ca.gov/ahfss/animal_health/equine_biosecurity.html;
- **The University of Guelph Equine Biosecurity Risk Calculator** can help pinpoint areas of improvement on farms: equineguelph.ca/Tools/biosecurity_calculator.php; and
- **The Thoroughbred Worker Health and Safety Study**, conducted by researchers at University of Kentucky (UK) College of Public Health and the University of Maryland, Baltimore, resulted in Safety on the Farm: A bilingual guide in images for the Thoroughbred worker: workersafetyandhealth.com/wp-content/uploads/2016/11/SafetyOnTheFarm_FINAL.pdf. UK

>Roberta M. Dwyer, DVM, MS, Dipl. ACVPM, a professor in the UK Department of Animal and Food Sciences, provided this information.

Small Strongyle Arrested Development Not Found in Foals

Researchers have rigorously studied small strongyles, or cyathostomins, and their impact on horses over the years. After all, these ubiquitous parasites affect virtually every grazing horse throughout the world. Scientists focused the bulk of that research, however, on adult horses rather than foals, and a recently published study suggests that small strongyles might not behave the same way in foals, potentially necessitating alternative treatment and management strategies.

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Foals rarely develop larval cyathostominosis because they don't have a large enough population of encysted third-stage larvae, researchers learned.

"Data collected from 2014 to 2016 indicates that cyathostomin infection in foals progresses in a substantially different manner than adult horses," said Martin Nielsen, DVM, PhD, Dipl. EVPC, ACVM, associate professor and Schlaikjer Professor of Equine Infectious Disease at the UK Maxwell H. Gluck Equine Research Center, in Lexington. He co-authored

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The Horse: Your Guide To Equine Health Care

Erica Larson, News Editor

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Small Strongyles in Foals

the study on the topic with Eugene T. Lyons, PhD, a professor at the Gluck Center.

Researchers have a good understanding of small strongyles' life cycle in horses, regardless of age:

- Adult parasites in the intestine lay eggs that pass with feces into the environment;
- Larvae hatch from these eggs and develop through first, second, and third life stages;
- Grazing horses ingest third-stage larvae (L3s), which travel through the gastrointestinal tract to the large intestine, penetrate the intestine wall, and become encysted; and
- Encysted L3s molt into fourth-stage larvae (L4s) and re-emerge from the intestine's wall before developing into adults and laying more eggs.

Foals and horses rarely develop clinical disease associated with infection. The main exception is a condition called larval cyathostominosis, which is reported to occur most frequently in horses 1 to 4 years of age. It occurs when large numbers of L4s emerge en masse, causing damage to the intestinal walls. Signs of disease include profuse watery, sometimes bloody, diarrhea; dehydration; and ventral edema (fluid swelling under the abdomen). While larval cyathostominosis is rare, its mortality rate can reach 50%.

In some cases, encysted L3s can suffer arrested development (hypobiosis) and remain in the intestine wall up to two years before finally molting into L4s and emerging. In adult horses, encysted L3s appear to prefer taking up residence in the cecum and ventral colon rather than the dorsal colon.

> **"This data makes us question the need for larvicidal therapy in foals."**
>
> DR. MARTIN NIELSEN

"Little is known about encysted L3s, factors that promote their arrested development, what finally triggers the emersion of L4s, and which horses are at risk of developing larval cyathostominosis," Nielsen said. "This is especially true for foals because the bulk of our information was derived from studies using adult and juvenile horses."

Researchers believe season, previous deworming, and the animal's immune status could impact the strongyles' arrested development. It's possible that horses previously exposed to small strongyles and capable of mounting an immune response against them could contribute to hypobiosis.

In their recent study, Nielsen and Lyons found no difference in normal encysted L3 counts in foals among seasons. In contrast, adult horses had significantly higher encysted L3 counts during seasons unfavorable for parasite transmission (e.g., winter).

They also found fewer encysted L3s in the wall of the foals' dorsal colon, just like in adult horses.

"The results from this study suggest that although the life cycle of the parasite remains unchanged, the progression of cyathostomin infection in foals occurs differently than in fully mature horses," Nielsen said. "This information helps us understand that foals only rarely develop larval cyathostominosis, because they don't have a large enough population of encysted L3s. This data also makes us question the need for larvicidal therapy in foals."

This latter point is important because unnecessary deworming contributes to the ever-increasing resistance to available chemical dewormers, and no new chemical deworming products effective against these internal parasites will be available in the foreseeable future, Nielsen said.

He also reminded owners that the main parasite infecting foals is roundworms (*Parascaris*), and to test and treat foals appropriately, especially considering anthelmintic resistance exists in roundworms. UK

>Stacey Oke, DVM, MSc, is a practicing veterinarian and freelance medical writer and editor.

Friesian Dwarfism, Hydrocephaly Tests Now Available at Genetic Testing at Gluck

Genetic Testing (GeT) at Gluck is now offering tests for two disorders in Friesians: dwarfism and hydrocephaly.

Dwarfism in Friesians is characterized by abnormally short limbs and flexor tendon laxity resulting in an abnormal gait. The rib cage might also be malformed. Dwarfism has a simple recessive mode of inheritance. Carriers appear normal, but if two carriers breed there is a one-in-four chance of a dwarf being born. Recently, researchers discovered a mutation in the B4GALT7 gene that can cause dwarfism. As a result, they've developed the genetic test to identify Friesian and Friesian crossbred carriers so breeders can avoid breeding two carriers.

Hydrocephaly is a developmental defect in foals characterized by an accumulation of cerebrospinal fluid in the brain's ventricular system. Affected foals are born with grossly enlarged foreheads and are often stillborn or require euthanasia soon after birth. A hydrocephalic foal also presents a potential dystocia (difficult

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Testing for the dwarfism and hydrocephaly mutations before breeding can help ensure a healthy foal results.

Genetic Testing

birth) risk for the mare. While hydrocephaly can have other causes, such as infection or trauma, researchers have identified a mutation associated with this condition in the B3GALNT2 gene. Like dwarfism, hydrocephaly is caused by a recessive mutation, meaning there's a one-in-four chance of having an affected foal if two carriers are bred. As such, Friesians and Friesian crossbreds should be tested prior to breeding to avoid producing an affected foal.

The cost is $35 for each test or $60 for both tests. Submission forms and instructions are available at getgluck.ca.uky.edu/content/submission-forms. Friesian Horse Association of North America members should contact that association regarding testing procedures and sample submission.

For more information or questions, contact Kathryn Graves, PhD, GeT at Gluck director, at 859/218-1193 or ktgraves@uky.edu. UK

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

GRAD STUDENT SPOTLIGHT

FATAI OLADUNNI

From: Nigeria
Degrees and institute where received: DVM, MS in veterinary microbiology from the Federal University of Agriculture Abeokuta, in Nigeria

Fatai Oladunni said he chose to attend UK for his doctoral degree because of his interest in virology.

"I had my master's in veterinary microbiology, so I wanted to specialize in virology and do something unique in veterinary medicine," he said. "I realized that the Gluck Equine Research Center does something uncommon—focusing only on equine research—and I became interested in their virology program."

He applied for a graduate position and was accepted in 2014.

Oladunni is currently studying under Thomas Chambers, PhD, professor of veterinary virology in the UK Department of Veterinary Science. His research focuses on how equine herpesvirus-1 (EHV-1—a virus similar to human herpes simplex virus-1) suppresses the host's innate immune response.

"I am particularly interested in understanding how this virus thwarts the type-1 interferon-signaling (IFN) pathway," Oladunni said.

Type-1 IFN is a very potent antiviral agent that helps resist viral replication and cell-to-cell spread during viral infection. Like other known herpesviruses, EHV-1 is very successful in down-regulating this important player of the horse's innate immune system. Its intrinsic ability to dampen the host's type-1 IFN response enables it to promote disease manifestations like abortion and neurologic syndromes in infected horses.

Oladunni also hopes to identify which viral protein is responsible for down-regulating a host's type-1 IFN response. Identifying that viral protein could, in the long-term, allow for more effective therapeutics and vaccine development.

Another important aspect of Oladunni's research is investigating the difference in type-1 IFN suppression between EHV-1 (a highly pathogenic virus) and EHV-4 (a less pathogenic virus).

When asked what his most valuable take away from the program has been so far, Oladunni said, "I have several, but my most important one is learning how to write and review grants."

Oladunni plans to graduate in 2018 and seek a postdoctoral position in virology at a university. UK

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

More Than a Pretty Face: Study Shows Agriculture's Impact on Woodford County Economy

Very few would dispute the beauty of Kentucky farmland in the lushness of spring. But results from a study by researchers from the UK Community and Economic Development Initiative of Kentucky (CEDIK) show that agriculture is more than just a pretty face: In Woodford County, agriculture and the businesses that support it are responsible for one out of three jobs and $565 million in annual revenue.

The CEDIK study results were revealed at a recent news conference at the UK College of Agriculture, Food and Environment's C. Oran Little Research Center in Woodford County. The researchers examined the influence of the agricultural cluster to Woodford County's economy.

"As a college, we are proud to assist counties in characterizing the value of agriculture and equine enterprises on economic development," said Dean Nancy Cox, MS, PhD. "This research takes a lot of time and effort, and the methods used by CEDIK produce unique and sound insights."

Traditionally, employment associated with agriculture has been confined solely to production. The study's authors expanded that view to include not only production agriculture but also businesses that produce agricultural inputs, wholesale and retail businesses, and service-based businesses dedicated to agriculture, such as veterinary, finance, recreation, and transportation. Study authors Alison Davis, PhD; Simona Balazs, MS; Joe Kercsmar, BS; and Melody Nall, MS, MCHES, assert that including these types of businesses shows the true importance of the agricultural sector in the area.

"We often focus on more traditional industry as representing a predominantly large share of employment, so the tendency is to focus on manufacturing, health care, and education," said Davis, UK agricultural economist and CEDIK

Woodford County Economy

ANNE M. EBERHARDT/THE HORSE

Thoroughbred stud fees are a significant source of revenue and sales tax revenue in Woodford County.

executive director. "But in these counties like Woodford County, agriculture and the equine industry are equally as important to their local economy. We drive by and see these pretty farms and think, this is a beautiful place to live, but they are also significant contributors to the local economy."

When the agricultural cluster is defined to include companies with some or all of their business related to agriculture in the county, the researchers attributed an estimated 2,783 jobs to the cluster. Without an agricultural base in the county, many of those businesses would not exist.

"Woodford County has a relatively small employment base; there are just under 10,000 full-time employees in the county," Davis said. "One of every five jobs is directly attributable to agriculture and its supporting services, and if you widen that to include the multiplier effect of the agricultural cluster, then it's one out of three. That's a pretty significant market share for a county the size of Woodford."

In Woodford County, agricultural production is among the top five industries, with manufacturing leading in the number of jobs. Government, educational services, and retail trade round out the top five. Woodford County has a higher concentration of employment in animal and crop production than the national average. The higher the concentration, the more likely support industries will be present in the area.

In addition, the researchers estimated that the ag cluster contributes $1.1 million to the local tax base through payroll taxes. Approximately 14% of total properties in the county are farms, which generate $5.2 million in property taxes—25% of the total tax base.

In addition to the $565 million in annual revenue, the researchers found that the county's agricultural cluster generated more than $340 million in additional income, profits, and dividends.

One of the unique aspects the researchers examined were stud fees for the Thoroughbred industry in Woodford County. The county is home to 11 of the top 20 Thoroughbreds covering mares in the country. The sales tax imposed on those services gets turned around into breeders' incentive funds.

"While the stud fees that are posted aren't necessarily the final prices that are negotiated, it's still a really significant source of revenue and sales tax revenue," Davis said.

Because of the increasing pressures on land use, the researchers looked at the effect of a loss in production agriculture. They found that if production agriculture declined by 10%, or $26.8 million, there will be an overall additional decrease of more than $8.4 million in output. Part of that loss would come from approximately $2.4 million reduction in

UKVDL Disease Mapping Initiative Featured Map

EHV-1 Abortions

Equine herpesvirus-1 is a viral infection spread from nasal discharge or aerosol droplets. Horses can also contract the virus via contaminated surfaces such as stalls, water, feed, tack, transportation vehicles, or people's contaminated hands and clothing from being around another affected horse.

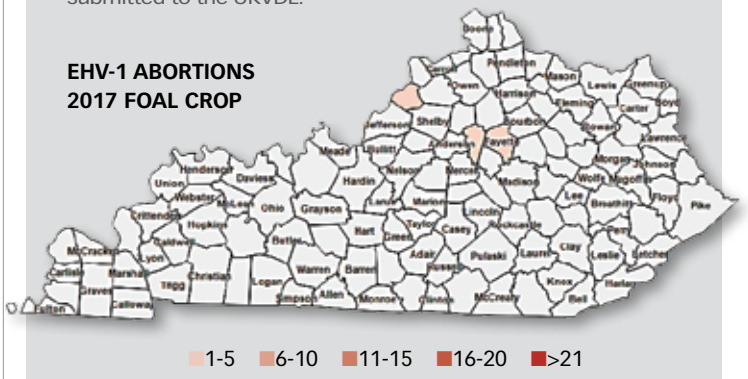
The incubation period for this relatively common respiratory disease ranges from two to 10 days. Clinical signs of EHV-1 include fever, nasal discharge, and lethargy/depression. Infected horses can shed the virus even when showing no clinical signs.

Disease caused by EHV-1 can be mild or severe and can result in late-term abortion in pregnant mares and/or neurologic disease. Equine herpesvirus myeloencephalitis, the neurologic form, is rare.

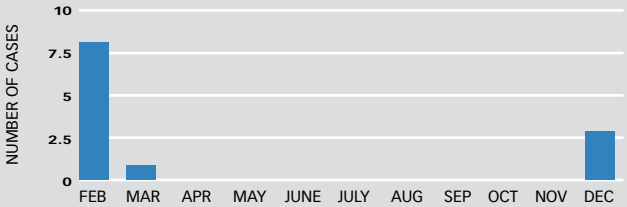
Individuals with questions or concerns about disease outbreaks can contact the UK Veterinary Diagnostic Laboratory (UKVDL) at 859/257-8283.

>Jacqueline Smith, PhD, MSc, BSc, Dipl. AVES, UKVDL epidemiologist and adjunct professor of epidemiology at Lincoln Memorial University, is the founder of the UKVDL Disease Mapping Initiative, a database designed to record all infectious disease cases submitted to the UKVDL.

EHV-1 ABORTIONS 2017 FOAL CROP



EHV-1 ABORTIONS MONTHLY TREND



See each month's featured map at vdl.uky.edu/FeaturedMap

Woodford County Economy

sales from business spending. Businesses involved in food products, truck transportation, warehousing, veterinary services, and wholesale trade, just to name a few, would be most affected by a reduction in production agriculture in the county. The loss suffered by industries as a result of a reduction in household spending, what's known as the induced effect, would be even greater, approximately $6 million.

"The ag industry is not necessarily the most important industry, it's not the largest industry, but it's important for these communities—particularly small communities—to have a diverse portfolio of economic development strategies and industries," Davis said. "This study illustrates that in Woodford County, it's an important part of the economy, and it should be an important part of the discussion with economic development professionals, educators and planners in the county."

Study sponsors include Kentucky Performance Products, Kentucky Thoroughbred Owners and Breeders Inc., Pisgah Community Historic Association, and Woodford Forward. View the full study online at cedik.ca.uky.edu/sites/cedik.ca.uky.edu/files/final_woodford_forward_report_april_23.pdf.

>Carol Lea Spence is an agriculture communications specialist in the UK College of Agriculture, Food and Environment.

Jostes Named UK Equine Philanthropy Director

The UK College of Agriculture, Food and Environment has added Danielle Jostes to its stable of equine-focused professionals. Jostes came on board in March as equine philanthropy director, a role that will capitalize on both her track record of fundraising in a university setting and her passion for equine and agriculture.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Danielle Jostes

"To me, this position was the perfect combination of my profession and passion," Jostes said. "I believe philanthropy has the ability to make such a meaningful impact, and as a horse owner and enthusiast, I am thrilled to join a great university located in the horse capital of the world. Lexington's dominance of the equine industry and UK's equine focus make this a perfect opportunity to grow and continue the long-standing tradition of excellence in equine."

Pamela Gray, senior director of philanthropy within the college, added, "I am so pleased to have someone of Danielle's passion and experience join the philanthropy team in the college. She will be vital to attaining our goals to build the premier equine program for research and education in the world."

Jostes grew up on a Quarter Horse farm in Central Illinois, where her family continues to raise horses and produce hay. She comes to UK from the University of Louisville, in Kentucky, where she served as assistant director of development and managed the School of Medicine's Department of Ophthalmology and the Cardiovascular Innovation Institute's philanthropy efforts. Before that, she was operations manager for the Clark Memorial Hospital Foundation, in Jeffersonville, Indiana, and worked for the American Cancer Society, in Louisville.

Jostes Joins UK

Jostes earned her bachelor's degree in organizational communications with a minor in agriculture from Murray State University's College of Business and Public Affairs, in Kentucky, and is currently pursuing a master's degree in higher education from the University of Louisville.

"I am very pleased that Danielle has joined our program as the director of equine philanthropy," said David Horohov, PhD, chair of the UK Department of Veterinary Science and director of the Gluck Equine Research Center. "The UK Gluck Equine Research Foundation has provided important financial support to the Gluck Equine Research Center for the past 30 years, and her position is intended to continue and expand those efforts by recommitting the board to its philanthropic mission. Danielle brings the necessary experience, skills, and expertise to facilitate this effort. I very much look forward to working with her and the board on this important task."

Added Mick Peterson, PhD, director of UK Ag Equine Programs, "Danielle brings a unique enthusiasm and experience to this new position. We are excited to work with her to bring the UK Ag Equine Program to the next level."

Gray said Jostes will focus on connecting individuals and stakeholders in meaningful ways to the strategic priorities within the UK Gluck Equine Research Foundation and all of the college's equine-related programs. She will serve as a conduit for their passion for the industry and will work to match that passion with the college's strategic goals and objectives to better serve the industry. UK

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

Elzinga Wins Second Annual UK's Veterinary Science Three-Minute Thesis Competition

UNIVERSITY OF KENTUCKY PHOTOS

Clockwise from top left: 3-MT winner Sarah Elzinga, runner-up Mariano Carossino, and third-place finisher Wangisa Dunawille

Sarah Elzinga, MS, won the second annual UK Department of Veterinary Science's Three-Minute Thesis (3-MT) competition for PhD candidates (i.e., post-qualifying examination) April 7 at the Gluck Equine Research Center.

Elzinga's research focuses on inflammation and insulin dysregulation in horses. Her advisor is Amanda Adams, PhD, an assistant professor at the Gluck Center. Elzinga earned her master's degree in animal science with an equine nutrition emphasis from Michigan State University, in East Lansing, and a bachelor's in equine science from Saint Mary-of-the-Woods College, in Indiana. She will finish her doctoral degree this year.

Mariano Carossino, DVM, finished second and Wangisa Dunuwille, MSc, BVc, finished third. Udeni Balasuriya, PhD, MS, BVSc, professor and Schlaikjer professor of equine infectious disease at the Gluck Center, serves as both candidates' advisor.

Other presenters, including area of research and advisor, were:

- Michelle Wynn, BS, reproductive health, Barry Ball, DVM, PhD, Dipl. ACT;
- Fatai Oladunni, DVM, MS, infectious diseases, Thomas Chambers, PhD;
- Gloria Gellin, MPH, MS, BS, infectious diseases, Craig Carter, DVM, PhD, Dipl. ACVPM;
- Annet Kyomuhangi, MSc, BS, infectious diseases, Balasuriya; and
- Melissa Siard, BA, immunology, Adams.

Also at the competition, Carleigh Fedorka, PhD, the 2016 UK 3-MT winner who represented UK at the Southern Council of Graduate Schools Regional Competition in March, presented "The Dirty Broodmare … Cleaned Up." Fedorka recently finished her doctoral program in reproductive health with advisor Mats Troedsson, PhD.

The rules of the 3-MT, which were originally developed at a university in New Zealand, allow students three minutes to discuss their research using only one presentation slide and no gimmicks (e.g., props, costumes, songs, etc.)

Judges included Danielle Jostes, equine philanthropy director at the UK College of Agriculture, Food and Environment; Laura Kennedy, DVM, Dipl. ACVP, assistant professor and pathologist at the UK Veterinary Diagnostic Laboratory; and Stephen Reed, DVM, Dipl. ACVIM, internist and shareholder at Rood & Riddle Equine Hospital, based in Lexington, Kentucky. UK

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

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UK Equine Programs Receives $6.8 Million Gift From Alumnus

John Pirri Jr., DVM, a retired veterinarian and UK College of Agriculture, Food and Environment alumnus, has pledged a gift totaling more than $6.8 million for the immediate and long-term facility needs for UK Ag Equine Programs' undergraduate programs.

Pirri graduated from UK in 1951 with a bachelor's degree in agriculture and again in 1952 with a master's degree. He went on to complete his degree in veterinary medicine at Iowa State University, and after a few stops along the way in Florida and Georgia, built a successful small-animal practice in Connecticut. He is now retired and resides in South Carolina.

While it has been more than six decades since Pirri attended UK, his love for horses and racing, as well as his memories of visiting Kentucky's top horse farms as a student, were part of what inspired him to give to a program teaching the future horse industry leaders.

"I never did forget Kentucky," he said. "I had a good time in Kentucky. I enjoyed myself in Kentucky. My memories of Kentucky have always been good."

While his studies kept him busy, Pirri made time to go to the area farms—such as Calumet, Claiborne, and Spendthrift—calling those visits his salvation. He said the farms were used to him showing up on his "little putt-putt bike." He studied genetics as part of his degree emphasis and was interested in the bloodlines of the racehorses he followed.

Pirri recalls fondly his time at UK. Back then, the equine educational landscape on campus was radically different than it is today. There was no equine undergraduate major or dedicated facility for teaching horse-handling. Fast forward 65 years, and there is now an equine teaching pavilion on UK's Maine Chance Farm and an interdisciplinary equine major with approximately 315 students enrolled in the program.

While the farm's current teaching space—a simple indoor pavilion for horse-handling instruction—was finished in 2007, it is already in need of renovations and expansion to accommodate the program's burgeoning needs. Pirri's gift will help fund those upgrades.

UNIVERSITY OF KENTUCKY

John Pirri Jr., DVM, (here with Dean Nancy Cox, MS, PhD) pledged a gift totaling more than $6.8 million for UK Ag Equine Programs' immediate and long-term facility needs.

The pavilion will officially be named the Pirri Equine Teaching Pavilion. Renovations will include construction of teaching space equipped with smart classroom capabilities; installation of heating, ventilation, and air conditioning in designated areas; and construction of Americans with Disabilities Act-compliant bathrooms.

"Dr. Pirri's gift enables our equine program to take a giant leap in service to our students," said Nancy Cox, MS, PhD, dean of the UK College of Agriculture, Food and Environment. "His passion for horses and students will enable another generation of students to grow and strengthen the equine industry. We are honored by the confidence he has placed in UK Ag Equine Programs and appreciate the funding he has provided for this excellent facility."

Added Mick Peterson, PhD, UK Ag Equine Programs director, "This is truly a transformational gift. It will provide our students a chance to put into practice what they have learned in their classes. Hands-on learning helps them retain the information they've learned and can even change how they think about the world." UK

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

Former Graduate Student Spotlight: Patrick Gallagher

Born in Cicamore, Illinois, Patrick Gallagher was surrounded by horses from the start. His family owned American Saddlebreds, and Gallagher spent much of his free time in the barn even through his undergraduate work at the University of Wisconsin.

His combined interest in genetics and love for horses led him to the UK Gluck Equine Research Center. At the Gluck Center, Gallagher worked under Ernest Bailey, PhD, professor in the Department of Veterinary Science at the Gluck Center, and the late Teri Lear, PhD, associate professor at the Gluck Center.

Gallagher's work concentrated on the equine genome, and his dissertation's focus was repetitive genomic sequences in the horse genome. Bailey described Gallagher as being a sharp student, exhibiting initiative and creativity from the start.

> **"I rely on my training from the Gluck Center every day."**
>
> PATRICK GALLAGHER

"When he first came to the lab, we assigned him a 'starter project,'" Bailey recalled. "We told him a little about a project and asked him to find the answer to three questions. He came back a little later and gave the results for those three questions. Then he reported results for another two questions he had come up with during the course of the project."

After earning his doctoral degree at UK, Gallagher traded in his laboratory coat to pursue a law career. He now works at a law firm where he litigates for pharmaceutical, biotic, and agricultural companies.

The switch might seem unlikely on the surface, but Gallagher said they're not all that different. In fact, he still uses much of what he learned at the Gluck Center on a daily basis.

"I rely on my training from the Gluck Center every day in what I do because the technology is such

Patrick Gallagher

an important part of the type of law I practice looking at cutting-edge developments and the molecular biology of medicine," Gallagher said.

Gallagher's interest in the research side of the work he was doing at the Gluck Center sparked the career change.

"I loved the library part of research, reading new journal articles; I liked that more than being in the lab," he said. "A large part of what I do is researching scientific literature, reading articles, and keeping up with what the new advances are in my area of work."

A jack-of-all-trades, Gallagher also has his hand in the Thoroughbred industry. After graduating from UK in 2001, he worked on the racetrack for John Ward and has owned racehorses for the last five years.

Gallagher currently owns two fillies, Dia Dura and Zipessa. Dia Dura won her first two starts, including the Arlington-Washington Lassie Stakes. Zipessa placed fifth in the 2016 $2 million Breeders' Cup Filly & Mare Turf.

"It was super exciting," he said. "We were thrilled with her finish. She normally runs close to the front. The way the race set up she ended up starting in the back so we were worried about how she would finish but she ran a fabulous race." UK

>Taylor Pence is the former 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.

UK Equine Nutrition Short Course Takes Place May 13

The second annual UK Equine Nutrition Short Course will be held May 13 from 8:30 a.m. to 4 p.m.

Presented by UK Ag Equine Programs' Equine Nutrition Working Group, the event is designed for equestrians who want to understand how nutrition can affect their horses' health and performance.

Morning lectures will be held at the UKVDL and will cover how to determine if a horse needs an immune supplement and if he is getting enough (or too much) protein, healthful hay and grain, and horse nutrition myths and mysteries.

Afternoon labs will be held at UK's Maine Chance Farm and will include:

- Hands-on evaluation skills for determining if a horse is fit or thin and what is fat or muscle;
- Feeding through a horse's life cycle, including the right feeds and supplements for performance, growth, and reproduction;
- Best hay-feeding practices, including whether dry, soaked, or steamed forage is right for your horse; and
- Pasture and hay evaluation.

The $75 registration fee includes lunch and materials. Register online at 2017ukequinenutrition.eventbrite.com. UK

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

Upcoming Events

May 13
UK Equine Nutrition Short Course
8:30 a.m. to 4 p.m., UKVDL and Maine Chance Equine Campus, Lexington, Kentucky.
The cost of the course is $75, which includes lunch and materials.
Register online at 2017ukequinenutrition.eventbrite.com.

June 8
UK Equine Farm and Facilities Expo
3:30 to 8 p.m., New Vocations at Mereworth Farm, Lexington, Kentucky.
Dinner is included at this free event.
RSVP to equine@uky.edu.

June 29
Equine Diagnostic Research Seminar Series
4 to 5 p.m., UKVDL
Topic: Evolution of Equine Infection Control Management
Speaker: Josie Traub-Dargatz, DVM, MS, Dipl. ACVIM, of Colorado State University.