

UK Ag Equine Programs' Researcher Launches Equine Sports Science Initiative



Here we see the value of a healthy equine athlete: a horse that competed first at the racetrack succeeding later as an eventing horse.

COURTESY ANDY CLARK, DVM

James N. MacLeod, VMD, PhD, a professor and the John S. and Elizabeth A. Knight Chair at the University of Kentucky's Gluck Equine Research Center, has launched a collaborative and research-based initiative that aims to advance the health and well-being of the equine athlete.

Named the Equine Sports Science Initiative (ESSI), the program will center on racing and other elite athletic disciplines.

"I think of ESSI as a multidisciplinary collaboration within UK Ag Equine Programs that includes scientists, clinicians, pathologists, regulatory veterinarians, and others focused on making progress for equine athletes on important health

challenges by generating new knowledge," MacLeod said. "Discussions and debate about the many issues that impact the health and welfare of equine athletes are valuable, but to really move forward, we need to generate new knowledge and new understanding through science."

Current research projects include establishing a national database of equine athlete pathology, which has

attracted involvement from The Jockey Club; bone density studies; articular cartilage repair research; and research into a slew of "omics": genomics, transcriptomics (the study of the complete set of RNA transcripts produced by the genome), proteomics (large-scale study of proteins, particularly their structures and functions), and the emerging field of metabolomics (systematic study of the unique chemical molecules that specific cellular processes generate).

As an initiative through a land-grant university, ESSI will be committed to disseminating new knowledge across the spectrum of horse professionals and to the general public. There will also be student learning and research opportunities.

Founding members of ESSI working with MacLeod include Emma Adam, B.Vet.Med, Dipl. ACVIM, ACVS, from the Gluck Center; Katie Garrett, DVM, Dipl. ACVS, from Rood & Riddle Equine Hospital; Jennifer Janes, DVM, PhD, Dipl. ACVP, assistant professor of anatomic pathology from the UK Veterinary Diagnostic Laboratory; Laura Kennedy, DVM, Dipl. ACVP, pathologist from the UK Veterinary Diagnostic Laboratory; Chip Johnson, DVM, equine veterinary practitioner; and Megan Romano, DVM, and Mary Scollay, DVM, from the Kentucky Horse Racing Commission. **UK**

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

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Eastern Tent Caterpillar Egg Hatch Begins in Central Kentucky

Eastern tent caterpillar egg hatch was reported March 17 in Scott County.

"This year's first observed hatch is seven days earlier than 2015, reflecting the warm spring temperatures," said Lee Townsend, PhD, University of Kentucky College of Agriculture, Food and Environment extension entomologist. "The hatch is not synchronized; tiny larvae will continue to emerge over the next two weeks from eggs laid last summer on wild cherry, flowering cherry, apple, and related trees. This is a hardy insect, so predicted low temperatures in the 30° Fahrenheit range late this week should not affect their survival."

Eastern tent caterpillars spend the winter as tiny, fully developed insects in distinctive egg masses that encircle twigs of wild cherry and related trees. It is one of the first insect species to become active in the spring and is well adapted to survive Kentucky's erratic winter and early spring weather.

Eastern tent caterpillar populations have been increasing steadily over the past four to five years.

This trend is likely to continue, producing locally high numbers in some areas, Townsend said. The rise in numbers is normal and mirrors the cyclical aspects of insect populations in general. Eastern tent caterpillar cycles are roughly 10 years. After two or three high years, the numbers usually drop again due to disease or natural enemies.

When mature, the large, hairy caterpillars wander from their developmental sites along fencelines. Consumption of large numbers of caterpillars by pregnant mares precipitated staggering foal losses in the mare reproductive loss syndrome (MRLS) outbreak of 1999-2001. MRLS can cause late-term foal losses, early- and late-term fetal losses, and weak foals. UK researchers conducted studies that revealed horses will inadvertently eat the caterpillars, and the caterpillar hairs embed into the lining of the horse's alimentary tract. Once that protective barrier is breached, normal



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Eastern tent caterpillars spend the winter as tiny, fully developed insects in distinctive egg masses that encircle twigs of wild cherry and related trees.

alimentary tract bacteria can gain access to and reproduce in sites with reduced immunity, such as the fetus and placenta.

Townsend said horse owners and farm managers with pregnant mares should begin to monitor fencelines containing wild cherry and other host trees in about 10 days. They should look for small tents produced by developing caterpillars.

If practical, farm managers should plan to move pregnant mares from areas where these 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 might wander hundreds of yards in search of protected sites to spin cocoons and pupate.

To get rid of active caterpillars, Townsend recommended 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. Spot treatments to the tents and the foliage around them can be applied according to label directions, which vary by product.

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

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

Masthead

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Equine Leptospirosis: “Now We Have a Vaccine!” Presented at UK’s January Equine Short Course

Craig Carter, DVM, PhD, director of the University of Kentucky Veterinary Diagnostic Laboratory and professor of epidemiology, College of Agriculture, Food and Environment, gave a talk on equine leptospirosis, “Now we have a vaccine!” at the 7th Annual Kentucky Breeders’ Short Course, held Jan. 30 in Lexington, Kentucky.

Leptospirosis is a zoonotic (transmitted between animals and humans) bacterial disease found worldwide that can affect any mammalian species, including humans, wildlife, rodents, livestock, and horses.

Some risk factors for horses contracting leptospirosis are increased rainfall, standing water or bodies of water in the environment, wildlife/domestic animals shedding the organism upon urination, contaminated soil, overcrowding of horses in pastures, and feeding off the ground.

Clinical signs include fever, loss of appetite, swelling of eyes, light sensitivity, ocular discharge, eye cloudiness, redness around eye, lethargy, mid-to-late-term abortion, and kidney and liver failure. The primary signs consist of chronic uveitis (moon blindness) and abortion.

Researchers conducted two national studies investigating the prevalence of leptospirosis, and the results ultimately led to the development of a vaccine. Carter and the UKVDL conducted the initial National Equine Leptospirosis Seroprevalence Study from 2010-2012. The study consisted of 30 diagnostic labs in the United States and Ontario, Canada. Carter and his team looked at five geographic regions and evaluated serum from animals moving in the markets and to events. The team made an assumption that all horses in the study were healthy at the time of the study. The total population consisted of 1,495 horses, with 561 mares and 934 geldings.

The findings showed no differences in horses with leptospirosis by gender; advancing age was generally associated with seropositivity, meaning the horse had been exposed and could become



Risk factors for horses contracting leptospirosis include standing water or bodies of water in the horse's environment.

fully infected; and there was no difference in overall seropositive among regions, although Thoroughbreds were less likely to be seropositive than Quarter Horses or Quarter Horse-type breeds. The study demonstrated a strong evidence of broad-based horse exposure to a variety of leptospiral variations across the United States and Ontario.

As with human cases, said Carter, the disease is likely underreported for many reasons, including lack of clinical suspicion and lack of laboratory support. Diseases that occur commonly in an area carry a high clinical suspicion. If veterinarians have not diagnosed a disease routinely in an area, they are not as likely to suspect it as a possible cause. However, even if leptospirosis is suspected, many laboratories around the country do not test for it.

Vaccine manufacturer Zoetis conducted the second national study in 2012-2013. They studied 5,261 horses in 53 clinics across 18 states. Of those, 75% of the horses studied tested positive for leptospirosis. The data mirrored the UKVDL study. With that evidence, Zoetis then committed to produce a USDA-licensed leptospirosis vaccine for horses in 2013 and launched the vaccine in October 2015.

The vaccine, LEPTO EQ INNOVATOR, is the first and only USDA-licensed equine vaccine to help prevent leptospirosis. LEPTO EQ INNOVATOR helps prevent leptospirosis caused by *Leptospira pomona*, which could, but has not yet been demonstrated to, help reduce the potential risk of equine recurrent uveitis (ERU) infections, abortions, or acute renal failure caused

by *L. pomona*. During the vaccine's efficacy trial, none of the vaccinated horses showed any signs of leptospirosis infections. Ten horses in the control group (not vaccinated) developed a fever of at least 103°F Fahrenheit (a normal temperature is 99-101°F Fahrenheit). Upon post-trial testing, *L. interrogans* serovar *Pomona* was detected from all 15 controls but none of the vaccinated horses. In other words, LEPTO EQ INNOVATOR prevented leptospirosis, kidney colonization, and urinary shedding in this study. In the safety trial, only three of 681 (.004%) horses experienced injection site reactions. By preventing infection by leptospiral organisms, the vaccine minimizes contamination of the environment, transmission to other horses, and the presence of animals with a carrier state.

There have been no reactions in 99.8% of horses tested, the vaccine is safe for healthy, pregnant mares in their second trimester, and horses should be vaccinated prior to exposure. LEPTO EQ INNOVATOR is given in a single dose 1 mL intramuscular vaccine followed by a booster in three to four weeks. The manufacturer recommends annual revaccination for continued protection.

Carter said this is an excellent example of how a unit in UK's College of Agriculture, Food and Environment can work in concert with the equine industry to help solve a major health problem in Kentucky and beyond. **UK**

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

Ready to Run: 2-Year-Old in Training Breeze Times, Sale Prices, and Racetrack Performance

Jill Stowe, PhD, associate professor in the University of Kentucky's Department of Agricultural Economics, and Marion Robert, former MS student in agricultural economics and current PhD student at the French National Institute for Agricultural Research, teamed up to investigate factors that explain prices paid for 2-year-old Thoroughbreds sold at undertack sales, with a focus on breeze times' influence on auction prices.

In their study they used data from all 2013 U.S. Thoroughbred 2-year-old in training sales. While many academic studies have focused on price analysis in yearling markets, the 2-year-old market is one that researchers have not yet investigated. This market is different from the more common yearling market for a few reasons. First, the 2-year-old in training auctions occur just a few months prior to a horse's first start on the racetrack. Second, and the focal point of this study, is that before interested buyers bid on the horse, they have the opportunity to watch the horse "breeze," or run a short distance on a racetrack that is timed. Breeze times provide a new type of relevant information to potential buyers prior to the sale, in addition to the horse's action and running style.



ANNE M. EBERHARDT/THE HORSE

At 2-year-old in training sales buyers can watch horses "breeze," or run a short distance that's timed.

Stowe and Robert found that a horse's breeze time is the most statistically significant factor in explaining auction prices. All else equal, the estimated market value for a horse's ability to run a furlong one-fifth of a second faster is about \$8,000 at select sales and about \$24,000 at nonselect sales, which translates to averages of about \$40,000 and \$120,000, respectively, for a horse that can run a furlong 1 second faster.

Other factors known to be important in explaining yearling prices were also influential in determining 2-year-old prices, such as whether the horse was born earlier in the year or whether the horse was sold at a select sale. Pedigree quality was also important, with

sire stud fee and dam produce records entering into the pricing equation. One additional result of interest is the significant premium (nearly \$30,000) buyers are willing to pay for horses by freshman sires, which suggests recovery in the market when buyers become willing to take risks on progeny from sires of unknown producing quality.

The paper is titled "Ready to Run: Price Determinants of Thoroughbreds from Two-Year-Olds in Training Sales" and is forthcoming in a future issue of Applied Economics. [UK](#)

>Jill Stowe, PhD, associate professor in the University of Kentucky's Department of Agricultural Economics, provided this information.

GRAD STUDENT SPOTLIGHT

KELSEY SMITH

From: Washington
Degrees and institute where received:
BS from Cornell University
MS candidate at the University of Kentucky



Kelsey Smith chose to pursue her master's degree under Kristine Urschel, PhD, an associate professor in the department of animal and food sciences at the University of Kentucky (UK), to gain a solid foundation in basic nutrition. She chose equine nutrition because of the unique difficulty of balancing performance and health, as well as the prevalence of nutrition-related diseases.

The objective of Smith's research is to determine the dietary requirement for threonine in growing horses. Threonine is an essential amino acid and an important component of many proteins within the body. In the study, she fed horses six diets that all had the same energy and crude protein contents but contained varying levels of threonine. She used the indicator amino acid oxidation method to estimate the rate of synthesis for all proteins within the body. Smith predicts that as horses consume increasing amounts of threonine, protein synthesis will also increase until reaching a plateau at the threonine requirement (meaning that any excess threonine would not make a difference in protein synthesis).

"If we can determine the requirement for individual amino acids, we can reduce crude protein intake and nitrogen excretion," Smith said. "Excess nitrogen excretion can cause environmental damage, increase the ammonia concentration in barns and possibly cause negative physiological effects that may affect performance in horses."

Smith also assists with other equine nutrition graduate students' research projects. This research includes amino acid supplementation of mature and aged horses and potential management strategies for horses with equine metabolic syndrome.

When asked what she has learned during her time at UK, Smith said, "Expect the unexpected when working with horses, especially yearlings. They will inevitably decide that the same procedure they have experienced for months is now a threat to their lives. It was a good lesson in thinking on my feet."

After completing her master's degree, Smith plans to enter a combined PhD and DVM program and eventually work in academia. [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.

10th International Equine Infectious Diseases Conference

The 10th International Equine Infectious Diseases Conference (IEIDC X) will convene April 4-8 in Buenos Aires, Argentina. Several faculty and graduate students from the University of Kentucky (UK) Gluck Equine Research Center and UK Veterinary Diagnostic Laboratory will present research at the conference.

The Gluck Center serves as the conference's international headquarters. David Horohov, PhD, chair of the Department of Veterinary Science at UK, director of the Gluck Center, and Jes E. and Clementine M. Schlaikjer Endowed Chair, serves as the conference's international chair. Gluck Center faculty members Martin Nielsen, DVM, PhD, Dipl. ACVL, Dipl. EVPC, assistant professor at the Gluck Center, and Peter Timoney, MVB, MS, PhD, FRCVS, Frederick Van Lennep Chair in equine veterinary medicine at the Gluck Center, are part of the international committee that oversees the scientific program. Horohov, Nielsen, and Timoney will all serve as moderators of sessions throughout the conference. Jenny Evans, MFA, interim executive director of the Gluck Equine Research Foundation and marketing/promotion specialist senior at the Gluck Center, serves as the international coordinator.



The conference kicks off with a Practitioners' Day and is followed by a second Practitioners' Day session and the beginning of the "full conference" with the first day of oral abstract presentations. Two-hundred and nineteen abstracts were received from 34 countries. Oral and poster presentations will focus on these 10 topics: biosecurity, diagnostics, emerging and re-emerging diseases, gastrointestinal, neurologic, other system diseases, parasitology, reproduction, respiratory, and working equids. A special session on the international movement of horses, chaired by Timoney, is also part of the schedule.

UK faculty presenting on Practitioners' Day 1 and 2 include:

- Charles Issel, DVM, PhD, Wright-Markey Chair in equine infectious diseases at the Gluck Center, "Equine infectious anemia: management and control with accurate diagnostics"
- Alan Loynachan, DVM, PhD, Dipl. ACVP, veterinary anatomic pathologist at the UKVDL, "When bugs go bad: bacteria association reproductive pathology" and "Placentitis: a pathologist's perspective"
- Nielsen, "Anthelmintic resistance—the need for diagnostic surveillance"
- John Timoney, MVB, DSc, PhD, professor at the Gluck Center, "Leptospirosis: diagnosis and control"
- Peter Timoney, "Viruses and their role in compromising reproductive performance in equines"

Oral abstract presentations from UK include:

- Jennifer Bellaw Smith, BS, PhD candidate at the Gluck Center, "Evaluation of Baermann apparatus sedimentation time on recovery of third stage *Cyathostominae*, *Strongylus*

THE GRASS GUIDE

ALFALFA (*MEDICAGO SATIVA*)

Life Cycle: Cool-season perennial

Native to: Middle East (Iran)

Uses: Hay, haylage, pasture

Identification: Long, narrow leaves in groups of three with serrated edges only at the tip. A purple flower.

This erect-growing legume is one of the most in-demand species for hay production in the United States. Well-managed alfalfa hay contains high amounts of protein, minerals, and vitamin A, making it very desirable for high-performance animals such as horses and dairy cattle. Alfalfa is drought-tolerant because it grows a long taproot, enabling it to reach moisture reserves in the ground that many other plants can't. However, alfalfa can't tolerate acidic soils and requires a higher level of management than many other types of forage. Alfalfa is generally not recommended for use in horse pastures in the United States because it cannot tolerate frequent close grazing, but it is commonly used for pasture in Argentina and Australia under rotational grazing. **UK**



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Alfalfa, known as the Queen of Forages, is an erect growing cool season legume with long narrow leaflets, serrated only at the tip.

>Krista Lea, MS, coordinator of UK's Horse Pasture Evaluation Program within the Department of Plant and Soil Sciences; and Ray Smith, PhD, professor and forage extension specialist within UK's Department of Plant and Soil Sciences, provided this information.



Alfalfa grows throughout the United States.

IEIDC X

vulgaris, and *S. Endentatus* larvae from equine coprocultures” and “Objective evaluation of two deworming regimens in young Thoroughbreds using average daily gain, body condition score, and parasitological parameters”

- Craig Carter, DVM, PhD, Dipl. ACVPM, director of the UKVDL, “Diagnostic epidemiology of nocardioform placentitis and abortion in Kentucky, 1991-2005”
- Fernanda Cesar, DVM, MS, Dipl. ACVIM, PhD candidate at the Gluck Center, “Variation of anti-*Rhodococcus equi* VapA specific IgGs among eleven different lots of one commercially available *R. equi* specific hyperimmune plasma product”
- Thomas Chambers, PhD, professor of veterinary virology at the Gluck Center, “Equine Herpesvirus-1 interferes with Type-1 IFN-mediated immune responses in vitro in equine endothelial cells”
- Nielsen, “Visualizing ascarid worm burdens in foals by transabdominal ultrasonography”
- Jessica Scare, BS, PhD candidate at the Gluck Center, “Combination deworming—a solution or exacerbation?” and “Comparison of a smartphone-based automated parasite egg count system to the McMaster and mini-FLOTAC methods”
- John Timoney, “Interaction of *Streptococcus equi* with equine tonsillar complex”
- Peter Timoney, “Contagious equine metritis: Efficacy of U.S. post-entry testing protocols for identifying car-

rier stallions and mares”

- Sridhar Velineni, PhD, a research scientist II at the Gluck Center, “Influence of serum antibody on occurrence of *Streptococcus zooepidemicus* in the nasopharynx of weanling foals” and “Dual antigen ELISA to differentiate infection from vaccine antibody responses to *Leptospira* spp”

The series of meetings began in 1966 in Stresa, Italy. Previous meeting sites included Paris, France (1969 and 1972); Lyon, France (1976); Lexington, Kentucky (1987); Cambridge, United Kingdom (1991); Tokyo, Japan (1994); United Arab Emirates (1998); and Lexington, Kentucky (2012). An international committee was formed in 2012 to help plan future conferences and to ensure the conference reconvenes every four years.

For more information about IEIDC X, including a link to the proceedings for the conference, visit internationaleidc.com. **UK**

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

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Hyperimmune Plasma and *R. equi* Pneumonia Severity

Ah, the foal's life: Nurse, play, nap, repeat. But it isn't always a walk in the park for youngsters—they are susceptible to a number of unique health conditions, including *Rhodococcus equi* pneumonia, which can mean a rocky start to life.

There's no vaccine to protect foals against this potentially deadly bacterial infection, so veterinarians must try other means to prevent it. One of those methods is administering *R. equi*-specific hyperimmune plasma (HIP), but available research supporting its use is controversial. So researchers recently evaluated the efficacy of one commercially available plasma product (ReSolution, produced by Mg Biologics) for preventing clinical disease in foals.

Macarena Sanz, DVM, MS, PhD, Dipl. ACVIM, an assistant professor of equine

Hyperimmune Plasma

internal medicine at Washington State University's College of Veterinary Medicine, presented the results of the study at the 2015 American Association of Equine Practitioners Convention, held Dec. 5-9 in Las Vegas.

Veterinarians administer HIP, which contains antibodies against *R. equi*, with the goal of providing foals with additional immunity to the condition. Still, we don't fully understand the plasma's protective mechanism, Sanz said, and previous studies have yielded conflicting results about its usefulness for preventing disease. These differences could be attributed to foal age, bacterial dose used for the disease challenge, and the plasma product used, she said.

At the start of the study, conducted when Sanz was based at the University of Kentucky's Gluck Equine Research Center, she and colleagues completed a physical exam, thoracic ultrasound, and bloodwork on 18 healthy foals to confirm they were disease-free.

The researchers treated one group of foals with HIP, and the other group consisted of untreated controls; HIP foals received plasma intravenously within 48 hours of birth. Then the team challenged all the foals with pathogenic (disease-causing) *R. equi* to determine whether HIP administration would prevent the development of clinical disease.

Sanz said the foals were turned out and monitored daily for signs of disease. The researchers collected blood samples weekly, along with conducting physical exams, evaluating bronchoalveolar lavage fluid (BALF), and performing ultrasound exams of the foals' lungs. They developed a scoring system to classify lung lesions identified on ultrasound—the higher the score, the more severe the lesions—and monitored the foals for at

Researchers recently evaluated the efficacy of hyperimmune plasma for preventing *R. equi* in foals.



THE HORSE STAFF

least eight weeks, or longer if they were treating the foals for clinical disease.

Upon reviewing their results, the team found that:

- None of the treated foals developed adverse reactions to HIP;
- Four of nine control foals and one of nine HIP foals developed clinical pneumonia;
- Treatment foals had significantly lower ultrasound scores, white blood cell counts, and fibrinogen (a protein important in blood clotting; high levels indicate inflammation or infection) levels throughout the study;
- Control foals' ultrasound scores remained higher for a longer period than treatment foals' did;
- Treatment foals had significantly higher levels of some VapA (virulence-associated protein A, which is needed to cause clinical *R. equi* disease) antibodies—IgG, IgGa, and IgGb—than the control foals; essentially, foals that received HIP produced more IgG, IgGa, and IgGb antibodies when challenged than untreated ones;
- IgG and IgGb were significantly higher in treatment foals' BALF than in control foals; and

■ On the whole, control foals showed more evidence of disease than did treatment foals.

Sanz said that while these study results suggest HIP has a protective effect, the study had several limitations, including a small number of foals, researchers not being blinded to whether foals were treated or untreated, and the fact that foals were experimentally challenged rather than naturally infected. She also reminded attendees that they only tested one plasma product.

"Not all products are equal," she said. "We can't extrapolate these results to all the available plasma products."

Ultimately, the team determined that the tested HIP did not prevent infection, but it did reduce the severity of *R. equi* pneumonia. Still, Sanz said, this is clinically important because it reduced the number of foals requiring antimicrobial treatment, which in turn might reduce the development of antimicrobial resistance. She said researchers on future studies should delve further into better understanding why HIP provides protection. [UK](#)

>Erica Larson is the News Editor at *The Horse: Your Guide to Equine Health Care* and TheHorse.com.

UK Researchers Study MicroRNAs Throughout Gestation in Mares

Shavahn Loux, a postdoctoral scholar at the University of Kentucky Gluck Equine Research Center, is studying microRNAs (or miRNAs), a small nonprotein coding gene in animals,

in pregnant mares.

She said the research into miRNAs began due to their potential to act as biomarkers (a measurable indicator of a biological state or condition). The body expresses

them in response to disease, and they act as a measurable substance as concentrations change.

"If we could easily assess different aspects of placental health in the mare with a simple blood test, that would have phenomenal implications for the equine breeding industry," Loux said.

The research is still in preliminary stages, with work being done to characterize miRNA expression throughout gestation in the mare in order to provide a baseline for further research. Essentially, current research is establishing "normal" miRNA concentrations in

KEEP YOUR HORSE IN THE PICTURE.

Although not well-known, *Leptospira interrogans* serovar Pomona can cause devastating problems. *L. pomona* can colonize in the kidneys, be shed in the urine and the horse can become septicemic, which can potentially lead to abortion, uveitis and acute renal failure. LEPTO EQ INNOVATOR® is the first *Leptospira* vaccine developed specifically for horses to help prevent leptospirosis caused by *L. pomona*. It also helps prevent infections of the blood, which could, but has not been demonstrated to, help reduce the potential risk of equine recurrent uveitis, abortion or acute renal failure caused by *L. pomona*.* An efficacy trial demonstrated LEPTO EQ INNOVATOR safely helps prevent *L. pomona* infections and urinary shedding.¹ A safety trial showed it was 99.8% reaction-free.^{2,3} To learn more, visit LEPTOEQINNOVATOR.com.

*Currently, there are no vaccines available with USDA-licensed label claims against equine abortions, uveitis or acute renal failure due to *L. pomona*.

¹ Data on file, Study Report No. B850R-US-12-011, Zoetis Inc.

² Data on file, Study Report No. B951R-US-13-043, Zoetis Inc.

³ Data on file, Study Report No. B951R-US-13-046, Zoetis Inc.

MicroRNAs

the pregnant mare before looking for abnormalities. However, through this initial research, Loux and colleagues have identified several miRNAs for future further research.

The research has comprised of collecting tissues and serum throughout gestation, then using next-generation sequencing

to assess novel miRNAs that were previously unidentified.

“Next-generation sequencing has the capability of identifying every single RNA in the sample, whether we expect it to be there or not,” Loux said. “With previous technology, such as qPCR or microarray, you are limited by the fact that you can only look for the RNAs which you specify. There is no capacity for discovering the unknown.”

Loux said miRNAs hold potential as a novel way to diagnose various diseases in horses. The Gluck Center research team is primarily studying them as potential biomarkers for placental health, specifically to diagnose placentitis, although they might prove useful for diagnosing other conditions, such as intra-uterine growth retardation, as well. Other groups studying miRNAs in horses are evaluating their

potential as biomarkers and treatment in joint pathologies such as osteochondrosis. Work is also being performed to evaluate the role of miRNAs in follicular development. **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.

Serandu Custom Riding Boots Wins UK Venture Challenge

University of Kentucky (UK) College of Agriculture, Food and Environment students Caitlin Halliwell and Allison Burke of Team Serandu won the UK Venture Challenge and \$1,500 on Feb. 20 with their idea for custom-fitted riding boots.

Eight student teams pitched their new business concepts to judges from the local entrepreneurial community at the fifth annual competition, held at the William T. Young Library UK Athletics Auditorium. The teams' written proposals were judged prior to their pitches.

“Competing in Venture Challenge sparked a passion for me to continue pursuing business as a career,” said Serandu team member Allison Burke, who was a December graduate in merchandising. “I am so inspired by the ideas of other young people and the amazing support by the faculty and staff at UK.”

Team Serandu was part of the 10-week Venture Studio Bootcamp, a new program in the Von Allmen Center for Entrepreneurship, which wrapped up at the end of the fall 2015 semester. The idea for the fitted boot originated from UK faculty members Janet Kurzynske, PhD, and Scarlett Wesley, PhD. “Because of the Venture Studio Bootcamp, both of us are planning on enrolling in the Gatton MBA program next semester,” said Halliwell, a senior in equine business management.

The three sponsors were the Bluegrass Business Development Partnership, an economic development partnership between UK, the Lexington-Fayette Urban County Government, and Commerce Lexington; the Gatton College of Business and Economics; and the College of Communication and Information.

UK Venture Challenge is organized by iNET, the Innovation Network for Entrepreneurial Thinking, hosted by the College of Communication and Information, with the Von Allmen Center for Entrepreneurship, Venture Studio, and the Lexington Office of the Kentucky Innovation Network in the Gatton College of Business and Economics. **UK**



Team Serandu won the UK Venture Challenge for their custom riding boot idea.

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 YOUR GUIDE TO EQUINE HEALTH CARE

>Gail Hairston from University of Kentucky Public Relations provided this information.

Annual Career Fair Unites College Students, Equine Industry

More than 150 college students attended the University of Kentucky Ag Equine Programs' eighth annual UK Equine Career and Opportunity Fair March 1 in Lexington.

The free event provided college students the chance to meet prospective equine industry employers and to learn about potential volunteer, internship, and part-time and full-time employment opportunities. In addition to booths from area equine businesses, attendees participated in sessions led by industry professionals, who offered tips and one-on-one career advice. Those sessions included graduate school, careers in the Thoroughbred and sport horse industries, as well as marketing and business careers. [UK](#)

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



COURTESY UK CAFE



Upcoming Events

April 4-8

10th International Equine Infectious Diseases Conference (IEIDC X), Buenos Aires, Argentina, www.internationaleidc.com

April 30, 9 a.m. - 4 p.m.

Equine Science and Management Alumni Tailgate at Rolex Kentucky Three Day Event, Kentucky Horse Park

May 4-5,

31st Annual National Conference on Equine Law, Keeneland http://128.163.184.63/ukcle/Equine/2016/Equine2016_Brochure.pdf

May 14, All Day

Equine Nutrition Workshop for Horse Owners, VDL & Maine Chance Farm

May 17, 6 p.m.

Kentucky Equine Networking Association (KENA) meeting, Fasig-Tipton

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.

