

Brought to you by the UK Equine Initiative and Gluck Equine Research Center

Four Inducted to Equine Research Hall of Fame

Four scientists will be inducted into the University of Kentucky Equine Research Hall of Fame by the Gluck Equine Research Foundation on Oct. 25 at Keeneland Race Course.

Douglas F. Antczak, VMD, PhD, of Cornell University; I.G. Joe Mayhew, DVM, of Massey University; Alan J. Nixon, BVSc, MS, Dipl. ACVS, of Cornell University; and Peter J. Timoney, FRCVS, PhD, of UK's Gluck Equine Research Center were selected for their contributions to equine science and research. Nominated by their peers and colleagues, the four individuals were selected by past Hall of Fame inductees.

"On behalf of the Gluck Equine Research Foundation board, I would like to congratulate this year's inductees," said Walter Zent, DVM, chairman of the foundation's board of directors. "We were fortunate to have many excellent nominees who have dedicated their lives to equine research."

Mats Troedsson, DVM, PhD, Dipl. ACT, director of the Gluck Equine Research Center and chair of the department of veterinary science at UK, said

"I am pleased to congratulate this year's Equine Research Hall of Fame inductees, who have each in their own way contributed to equine health and well-being through their distinguished research in equine veterinary science. I am of course particularly proud of having Dr. Peter Timoney, a long-standing faculty member and leader of the Gluck Center, receiving this prestigious award."



Dr. Douglas F. Antczak

Connecticut native Antczak, the Dorothy Havemeyer McConville Professor of Equine Medicine at the James A. Baker Institute for Animal Health, College of Veterinary Medicine at Cornell University, joined the staff in 1979. In 1994, he became the director of the Baker Institute for Animal Health, a post he held for 15 years until mid-2009.

For the past 30 years, Antczak has conducted research in equine immunology, genetics, and reproduction. For more than 15 years, Antczak was also a major participant in the Horse Genome Project.

"It is a tremendous honor to be inducted into

the University of Kentucky's Equine Research Hall of Fame," Antczak said. "I feel very privileged to be associated in this way with so many outstanding scientists who have devoted their careers to advance the health and well-being of the horse."

Mayhew, who focuses on studying neurologic disorders in horses in New Zealand and

ARTICLES OF INTEREST

Weed of the Month

Gluck Center's Horohov Receives \$200,000 Grant From USDA

Why Take Nasal Swabs?

Fall Conditions Perfect For Establishing Pastures and Hayfields

Visiting Scientist Completes Fourth Trip To Gluck Center

Credit Card Provides Research Dollars For the Gluck Center

Animal Genetic Testing and Research Lab Services Benefits Horse Owners

Upcoming Events

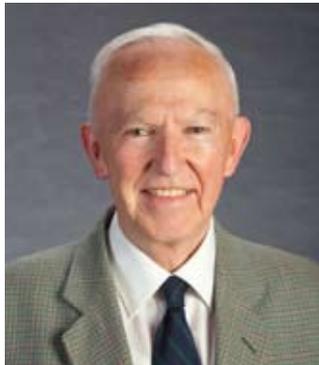
(HALL OF FAME ...)

worldwide, is a founding graduate of Massey Veterinary School and currently assists in training future veterinarians at Massey. Mayhew has an interest in equine medicine and comparative neurology and has spoken on these subjects in a variety of countries.

"My first thought on glancing at the message was that it was a generic invitation to attend an awards ceremony at the University of Kentucky for other recipients, and I was wondering if I could fit such a trip (together) to visit our son at the University in London, U.K.," Mayhew said. "After I realized what it meant, I am afraid I still felt that there were far more deserving contributors to equine science out there than a dirty-fingered, nervous person from New Zealand! Nevertheless, I certainly am grateful to the folks at the UK Equine Research Hall of Fame for even thinking that I might be worthy of such an award. Thanks sincerely from my heart, dear friends."

Nixon is professor of orthopedic surgery and director of The Comparative Orthopaedics Laboratory and the JD&ML Wheat Orthopaedic Sports Medicine Laboratory at Cornell. His clinical work and teaching at Cornell focuses on musculoskeletal injury and repair, with a specific interest in regenerative medicine. He also has an adjunct appointment as professor at Colorado State University.

Nixon has authored more than 280 papers and book chapters, two texts on equine orthopedics, and he is a member of numerous veterinary organizations. He currently has a five-year, \$1.8-million National Institutes of Health grant. He also serves as a consultant to the Food and Drug Administration panel on Cell and Gene Therapy.



Dr. Peter J. Timoney



Dr. Alan J. Nixon



Dr. I.G. Joe Mayhew

"What an extraordinary honor to be recognized among such giants in equine research," Nixon said. "I doubt I measure up to many in the University of Kentucky Equine Research Hall of Fame, but I am humbled by this prestigious nomination, and thank the many driven people in my research career who have asked the questions and helped me seek the answers."

Ireland native Timoney is the Frederick Van Lennep Chair in Equine Veterinary Science at UK's Maxwell H. Gluck Equine Research Center and past president of the World Equine Veterinary Association. He has specialized in equine infectious diseases since 1973, with a research emphasis on equine viral arteritis, contagious equine metritis,

and equine herpesviruses. He is a designated international specialist on equine viral arteritis for the World Organisation for Animal Health (OIE).

Timoney joined UK's department of veterinary science in 1983. He was director of the Gluck Center from 1989 to 2006 and chair of the department of veterinary science from 1989 to 2008.

"I feel very privileged to have been selected for induction into the University of Kentucky Equine Research Hall of Fame," Timoney said. "Being aware of the number of other scientists worldwide who have made notable contributions to the field of equine research, I am humbled to have been selected for this prestigious award. It is a unique distinction to be so recog-

nized by a select group of one's scientific peers."

Equine Research Hall of Fame nominees can be living or deceased, and active or retired in the field of equine research. Established in 1990, the Equine Research Hall of Fame honors international scientific community members biennially who have made equine research a key part of their careers, recognizing their work, dedication, and achievements in equine research.

Past inductees include: W. R. Allen, John T. Bryans, William W. Dimock, Elvis R. Doll, Jr., Harold Drudge, Phillip R. Edwards, Baltus J. Erasmus, Harold E. Garner, Oliver J. Ginther, Harold Hintz, Sir Frederick Hobday, Leo B. Jeffcott, Robert M. Kenney, Travis C. McGuire, Jr., C. Wayne

WEED OF THE MONTH

Common name: Common ragweed

Scientific name: *L. Ambrosia artemisiifolia*

Amaranthus spinosus

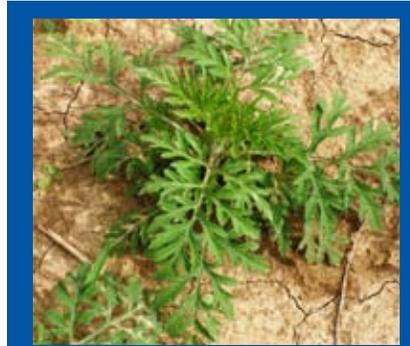
Life Cycle: Warm season annual

Origin: United States

Poisonous: No

Common ragweed is distributed widely across the United States and occurs in pastures and cultivated crops. Infestations in pastures are usually more of a problem during periods of drought or when overgrazing occurs. Leaves usually alternate between the upper and lower portions of the stem. Stems can be smooth or hairy and are usually branched. Mature plants can grow to be 3 to 5 feet tall, depending on the location where it grows. Common ragweed has small female flowers found in the leaf axils. Showier male flowers are at the top of the plant.

Common ragweed control is relatively easy: apply herbicides to plants less than 12 inches tall that have not been mowed. Treatment time is normally between May and July. Mowing is not very effective. Mowing heights in horse pastures tend to remove the top of the ragweed plant and lateral branching occurs on the remaining plant. This regrowth is much more difficult to control with herbicides. Hand weeding is effective and should be done before seed production. Consult your local Cooperative Extension Service personnel for information on herbicidal control in your area.



Common ragweed

GLUCK CENTER'S HOROHOV RECEIVES \$200,000 GRANT FROM USDA

David Horohov, PhD, the William Robert Mills Chair in Equine Immunology, has received a \$200,000 grant from the USDA-CSREES (United States Department of Agriculture-Cooperative State Research, Education, and Extension Service) Competitive Grants Program to study the development of immunological responses in foals.

Newborn animals of all species, including the horse, are susceptible to a number of bacterial and viral infections despite the presence of maternal immunoglobulins. The unique susceptibility of young foals to infection with



Drs. David Horohov and Amanda Adams

Rhodococcus equi is a well-recognized example of this age-dependent phenomenon.

"I'm happy that the USDA continues its support for equine research and gratified that my project was selected for funding," Horohov says. "Infections caused by *Rhodococcus equi* continue to be a major problem for the horse industry and more effective measures for preventing this disease in foals are needed. By understanding the underlying reasons for the foal's susceptibility to

(HALL OF FAME ...)

McIlwraith, Peter D. Rossdale, Edward L. Squires, Clyde Stormont, and Sir Arnold Theiler.

The Gluck Equine Research Center, on UK's campus, is home to the Equine Research Hall of Fame.

For more information, visit ca.uky.edu/gluck.

Jenny Blandford is the Gluck Equine Research Foundation Assistant at the Gluck Center.

(GRANT ...)



Newborn foals are susceptible to a number of bacterial and viral infections despite the presence of maternal immunoglobulins

this infection, we should be able to develop new approaches for preventing this disease.”

Horohov’s research has shown that the immaturity of the foal’s immune system likely contributes to its reduced resistance to this bacterium. The current research project will further characterize the development of immune function in the lungs of foals with a focus on those cells that play a crucial role in stimulating immunity to pathogens such as *R. equi*.

The goal of this work is to identify more effective approaches for protecting foals against *R. equi* and other infectious diseases. Infections due to *R. equi* represent a priority in the USDA’s mission to improve equine health.

David Horohov, PhD, is the William Robert Mills Chair in Equine Immunology at the Gluck Center.

WHY TAKE NASAL SWABS?

Influenza is one of the most contagious diseases of horses and, therefore, requires a timely and accurate diagnosis to help prevent a major outbreak. This diagnosis can be achieved only by testing clinical specimens from nasal swabs.

Rapid diagnosis facilitates rapid intervention, including quarantine and vaccination—historically the most successful means to prevent the spread of influenza. Vaccination in the face of an influenza outbreak can work if the horse has already been primed by previous vaccinations and if at least seven days have elapsed between vaccination and exposure to the disease.

Influenza is a moving target, often changing its viral coat to confuse the immune system. Scientists have to update the vaccines periodically to keep up with the changing viruses. The only way to keep the vaccines in step with the circulating viruses is to obtain samples of those viruses for testing. The mechanism for updating the vaccines depends upon voluntary submission of nasal swabs from veterinarians to their state diagnostic laboratories or directly to the OIE (World Organisation for Animal Health) international reference laboratories for equine influenza in England, Germany, and in Kentucky at the Gluck Equine Research Center.

Same-day test results are now possible for equine influenza using commercial rapid detection kits. The limiting factors are expense (tests cost \$25-50 per swab) and the quality of the



Scientists use nasal swab submissions to help update the vaccines periodically to keep up with the changing viruses.

swab sample. Samples should be taken early in the disease process. Use 6-inch Dacron swabs in pairs or, alternatively, you can use uterine swabs. Do not use 4-inch cotton swabs, as they are too short to be effective!

Visit www.ca.uky.edu/gluck/ServFlu.asp for more information about nasal swabbing and swab submission to the OIE reference laboratory at the Gluck Center.

Thomas Chambers, PhD, is a professor of veterinary virology at the Gluck Center.

Reprinted from Equine Disease Quarterly, University of Kentucky, College of Agriculture, Department of Veterinary Science

FALL CONDITIONS PERFECT FOR ESTABLISHING PASTURES AND HAYFIELDS

Cool temperatures and abundant rainfall have created ideal conditions for forage producers to establish or thicken grass pastures and hayfields.

"The continuous rainfall this summer was very good for forage growth, and soil moisture levels are ideal across most of the state," said Ray Smith, MS, PhD, forage extension specialist in the University of Kentucky College of Agriculture.

These conditions are welcome news for many forage producers. The droughts of 2007 and 2008 made it difficult to establish new stands of cool-season grasses, such as orchard grass, tall fescue, and Kentucky bluegrass.

Producers who want to establish forages this fall should do so as soon as possible, Smith said. Ideal seeding dates for cool-season grasses are during the month of September, particularly early September, as this gives the new forage stand enough time to get established before the first frost.

It is extremely important to test soil before seeding. It allows producers to know the nutrient content of their fields and may save them money on unnecessary fertilizer applications. UK provides soil testing services. Kentucky producers can submit soil samples to UK through their county extension agent. Smith recommends that producers in other states also work through their



It is important to test soil before seeding. It allows producers to know the nutrient content of their fields and can save them money on unnecessary fertilizer applications.

local Cooperative Extension Services.

Producers need good weed control before seeding. Mowing or grazing will help control competitive summer annual weeds. When completely re-establishing a new pasture or field, it is important to use one or more applications of a herbicide containing glyphosate to kill the existing field. If the goal is simply to thicken an existing pasture or field, then the producer can spray a broadleaf herbicide to kill weeds. In either case, producers should follow the instructions on the herbicide label or recommendations in UK publication AGR-172 (www.ca.uky.edu/agc/pubs/

[agr/agr172/agr172.pdf](http://www.ca.uky.edu/agc/pubs/agr/agr172/agr172.pdf)) in order to allow enough time between the application and seeding. As a general rule, apply herbicide when daytime temperatures are above 60 degrees.

Tilling the seedbed is the most effective establishment method, but sod seeding using a no-till drill is preferred on sloped ground. Planting seeds too deeply is one of the most common causes of stand failure. Producers should plant forage grasses and legumes no deeper than one-fourth to one-half inch.

It is important to plant an adequate amount of seeds. The best way to ensure this is to plant the highest recommended seeding rate. For example, if AGR-18, "Forage and Crop Seeding Guide," (<http://www.ca.uky.edu/agc/pubs/agr/agr18/agr18.pdf>) recommends 15 to 20 pounds per acre, then 20 pounds is best. While using high seeding rates is a costly initial investment, low yields and weedy fields caused by thin stands will cost producers more money in the long run, Smith said.

It can take up to a year to fully establish new grass stands, but a good rule of thumb is to refrain from grazing or cutting until next spring. Then when horses are turned out, graze the fields lightly the first few rotations and provide a good rest period between grazing or hay harvests.

More information on pasture and hayfield establishment is available through publications on the UK forage Web site at www.uky.edu/Ag/Forage.

Katie Pratt is an Agricultural Communications Editorial Officer at the University of Kentucky.

VISITING SCIENTIST COMPLETES FOURTH TRIP TO GLUCK CENTER

Mariana Ionita, DVM, PhD, is no stranger to the Gluck Equine Research Center. A resident of Romania, Ionita has been a visiting scientist in the Parasitology program four times since 2006 and completed her fourth visit to the Gluck Center at the end of August.

Ionita is part of the Faculty of Veterinary Medicine of Bucharest in Romania, where she is a lecturer and teaches animal biology and veterinary parasitology. However, she has spent her summer vacations doing research at the Gluck Center, which she said "is worth the time to sacrifice my vacation to do research here."

Ionita has worked in the labs of Gene Lyons, PhD, and Dan Howe, PhD, each year. Since Ionita's first visit here, Lyons spent about a week in Romania to get an understanding of the teaching and research programs there.

"She has a classical parasitology background, so she's unique with knowing molecular biology as well," Lyons said. "It is important to have both the classical and molecular background to improve the understanding of various aspects of parasites, including their drug resistance, which is a major problem in the world."

Her first visit to the Gluck Center in 2006 was part of a faculty exchange program coordinated by the United States Department of Agriculture



Dr. Mariana Ionita

(USDA) and hosted by the University of Kentucky. During the first visit, which was for three months, her time was split between evaluating teaching methods in the United States and research. She also spent some time at the USDA headquarters in Washington, D.C.

She realized from then on that she would like to have more time for research at the University of Kentucky.

In 2007 and again in 2008 she was awarded the Albert and Lorraine Clay Research Fellowship by the Gluck Center. This allowed her to spend two months each summer at the Gluck Center, where she focused on molecular parasitology research.

Briefly, she worked on molecular identification of equine strongyle species using DNA extracted from eggs and PCR-based methods. Ionita used a new method (reverse line blot hybridization) which allowed simultaneous detection of up to 43 species in one assay. This molecular identification method is very useful because species identification of eggs morphologically (through a microscope) is not possible.

The following summer (2008) she took her research further by studying drug-resistant small strongyle populations in horses before and after treatment with antiparasitic drugs. She accomplished this by counting eggs per gram in feces (EPGs) and using a PCR-based RLB assay. She conducted her research in the laboratory as well as in the field. The results of the study are in the process of being published.

"I was lucky to receive the fellowship to do more research," Ionita said. "It is very good for universities to have these types of fellowships. It is important to have interaction with other researchers."

During this most recent visit, which was June through August, her research was funded by a grant from Romania she obtained herself. She spent time during the trip using the same molecular method, RLB hybridization, to identify tick-borne pathogens.

"I'm trying to apply a reverse line blot hybridization assay for molecular detection of pathogens transmitted by ticks," Ionita said.

She has focused her research on several pathogens, including Babesia and Theileria, which are

(VISITING SCIENTIST ...)

carried by ticks and can cause diseases in equines, too. Lyons said this research is important in Kentucky with the 2010 Alltech FEI World Equestrian Games approaching.

"There are only a few people doing research on equine parasites now," Lyons said. "This type of research is so important since there is drug resistance of several species (ascarids and small strongyles) of internal parasites in horses has been recorded. Constant monitoring of these parasites is necessary because of the ever-changing aspects of them regarding prevalence and resistance to commercial parasiticides."

Ionita said it is difficult to complete all of her molecular research in such a short time span, especially since molecular research is not a quick process. However, she noted that the research she completes at UK will assist her with molecular research she will conduct in Romania.

Ionita hopes to visit the Gluck Center again to continue her research in the near future but funding is a concern since her grant ends this year.

"I met wonderful people here, especially the Parasitology group, the teams of Dr. Lyons and Dr. Howe, (to) whom I am deeply grateful for their support," she said.

Jenny Blandford is the Gluck Equine Research Foundation Assistant at the Gluck Center.

CREDIT CARD PROVIDES RESEARCH DOLLARS FOR THE GLUCK CENTER

Every time The Horseman's Card is swiped for everyday purchases, a contribution is made to the Gluck Equine Research Center at no extra cost to the cardholder.

Since the credit card program's inception in 1992, hundreds of thousands of research dollars have been donated to the Gluck Center to benefit horse health. The card was created specifically to help support the world-renowned research that occurs at Gluck.

"Funds from The Horseman's Card are used to support research on equine health and well-being at the Gluck Center," said Mats Troedsson, DVM, PhD, Dipl. ACT, chair of UK's Veterinary Science Department and director of the Gluck Center. "This source of support is very valuable to our program, since it can be used to fund a variety of needs within our program. Several pilot studies that have produced data to attract funding from industry and federal granting agencies have been possible through support from The Horseman's Card."

For instance, he said, The Horseman's Card funded some of the construction cost for an equine infectious disease confinement building at UK's Main Chance Farm.

"This building allows us to conduct research on diagnostics and the development of vaccines against equine infectious diseases," Troedsson said. "The kind of support that The Horseman's Card provides us is really what makes advancement in equine health and science possible."

In addition to raising money for equine research, The Horseman's Card provides exclusive savings for cardholders through its VIP benefits program, including discounts for the horse owner, rider, and equine enthusiast.

For more information or to apply for The Horseman's Card, call 800/932-2775 (mention code UAAQA2) or visit HorsemansCard.com.



ANIMAL GENETIC TESTING AND RESEARCH LAB SERVICES BENEFITS HORSE OWNERS

Established in 1986 as the Horse Bloodtyping Laboratory, the University of Kentucky Animal Genetic Testing and Research Lab (AGTRL) offers a number of testing services of value to practitioners, horse owners, and breed registries.

After being housed in the Dimock Animal Pathology Building for 23 years, the program relocated to the Gluck Equine Research Center in 2009.

Until the 1990s, blood typing was the identification method of choice for the cattle and equine

(GENETIC TESTING ...)

industries. Unlike the human A, B, O blood-type system, horse red cell types are more complicated and, therefore, more informative than human blood typing. Horse blood types are not only useful for donor/recipient cross-matching, but could function as an identification system and method to confirm parentage of foals. Because reagents (substances used to detect/measure other substances by means of the reactions they cause, in this case processed serum from horses that have been immunized to develop



Samples of blood are collected and examined at the Animal Genetics and Research Laboratory at the Gluck Center.

antibodies to specific red cell factors) to detect the more than 20 red cell factors in horses are not commercially available, the lab previously maintained a large group of horses at the Department of Veterinary Science farm facilities to perform its own immunizations for reagent production. Red cell typing is only one component of generating a horse blood type, and scientists used genetic differences in red cell and serum proteins to compile a profile of 17 genetic systems per animal. Three different laboratories were required to house the equipment and personnel needed to process about 200 samples per day.

Beginning in the early 1990s, DNA-based technology became available for identification purposes in humans and animals. Microsatellites,

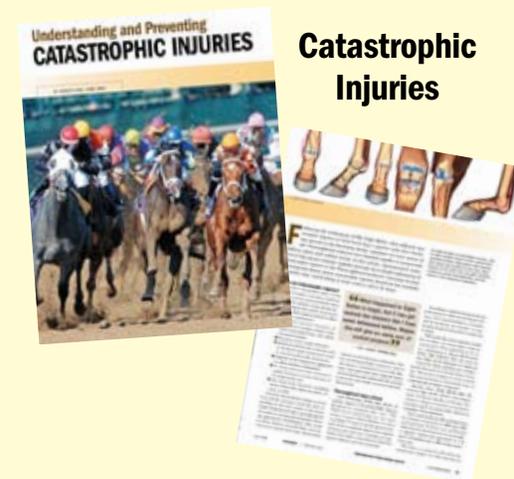
which are segments of DNA containing simple nucleotide repeats of varying sizes, became the standard for equine identification and parentage. While only slightly more accurate than blood typing, the great advantage of DNA testing is it can be done using hair samples from the mane or tail. This eliminates the need for perishable blood samples that often had to be collected by a veterinarian. Now owners can send their horses' hairs by mail for DNA sampling.

The lab uses a standard internationally recognized panel of 17 microsatellite markers to generate a DNA profile for each sample. The majority of samples are processed on behalf of breed registries that have contracts with the laboratory. The registries use the services of the lab to verify

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(GENETIC TESTING ...)

parentage of foals prior to registration and to resolve cases of misidentified horses.

The AGTRL is the only remaining U.S. laboratory offering horse blood typing, including antibody screening and crossmatching for neonatal isoerythrolysis (NI, acute hemolytic of the newborn caused by ingestion of antibodies in the mare's colostrum and milk that are directed against the neonate's red blood cells). Laboratory personnel are using stored serum from years of reagent production to continue the program without the need for a large herd of horses. Instead, a small group of horses with known blood types is used to verify reagent specificity and screen serum samples from potential donors and pregnant mares for anti-red cell antibodies. Local veterinary clinics purchase panels of red cells and reagents so they can perform in-house testing of NI samples.

The University of Kentucky has been at the forefront of test development for equine color gene mutations, and it offers a number of available color gene tests. Color gene mutations, which were discovered by the genetics program of Ernie Bailey, PhD, include the Tobiano spotting pattern and the Champagne dilution. In addition to these tests, the lab also offers a panel of other color genotype tests. These tests allow breeders to determine what color genes a horse might pass to its offspring or in some cases, allow the owner of an odd-colored horse to determine which color genes a horse possesses.

As researchers identify more disease-causing

mutations, the lab plans to offer testing so owners can confirm whether their horse is affected, a carrier, or does not have the mutation. Current disease mutation tests offered include the overo lethal white syndrome mutation and the junctional epidermolysis bullosa (JEB) test in Saddlebreds. The latter was discovered at the AGTRL by the author, who is the director of the AGTRL, and Pamela Henney.

For more information, contact Graves at 859/257-4757, ext. 81193. For forms and submission instructions visit www.ca.uky.edu/gluck/ServEPVL.asp.

Kathryn Graves, PhD, is the director of the Animal Genetic Testing and Research Laboratory at the Gluck Center.

UPCOMING EVENTS

October 21-24, College of Agricultural Round-Up. More information at www.ca.uky.edu/alumni/roundup.php

October 29, "Wobblers," by Jennifer Janes, DVM, and Steve Reed, DVM, Dipl. ACVIM. This is part of the Department of Veterinary Science Equine Diagnostic and Research Seminar series. Location: LDDC conference room. 4 p.m.

November 3, Distinguished Industry Lecture Series kicks off inaugural event with Nick Nicholson, president of Keeneland, sharing his perspective about Keeneland and the racing industry. The event will be held at 6:30 p.m. in the Seay Auditorium located in the UK Agricultural Science Building.

November 19, Imported Diseases, Peter Timoney, MVB, PhD, FRCVS, Frederick Van Lennep Chair. This is part of the Department of Veterinary Science Equine Diagnostic and Research Seminar series. Location: LDDC conference room. 4 p.m.

The above listings are events in which faculty and/or staff members from the UK Equine Initiative and/or Gluck Equine Research Center are participating.



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WITH OTHER HORSES.
NOT PARASITES.**



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