

Use Caution When Bedding Horses on Rye Straw

A wheat straw shortage in the United States is causing many equine operations to switch to rye straw for bedding. The University of Kentucky's (UK) College of Agriculture, Food and Environment experts say this is generally a good option, but there are several unique considerations owners and managers must make when using rye straw.

Unlike wheat, where the grain is harvested first and the remaining stems are cut and baled, the whole rye plant is usually harvested and baled. This means the straw still has its seed heads, which often contain awns or appendages that could cause gum irritation if the horse consumes them. Thus, it's important to watch horses bedded on rye closely to ensure their gums remain healthy.

Additionally, molds can develop on rye stems and seed heads during wet harvest conditions. As with any hay or straw, only purchase bales that are clean and dust-free.

The most important consideration with rye straw is the risk of ergotism. Ergot alkaloids, caused by fungi, are poisonous to livestock—including horses—when infected cereal grasses are consumed. In horses, the most common signs of disease are observed in broodmares and include decreased or no milk production, prolonged gestation, and fertility problems. High doses of ergot alkaloids or prolonged exposure can cause other signs in all classes of horses, such as gangrene on the extremities.

Ergot fungal spores are found in the soil of much of the United States and infect the seeds of many grasses, particularly during wet springs. This infection results in the growth of sclerotia, also called ergot bodies, that look similar to mouse droppings instead of healthy seed. The sclerotia contain concentrated levels of many

ergot alkaloids, a number of which are similar to the major toxin found in endophyte-infected tall fescue (called ergovaline) and cause clinical signs comparable to fescue toxicosis in mares.

As mentioned, wheat straw is rarely ergot-infected because the grains are removed prior to the straw harvest. But, because most rye straw bales still contain the seed heads, ergot bodies are more likely to be present in the finished product. The good news is that ergot bodies usually fall off during the raking and baling process; however, horse owners and managers should inspect rye straw being used as bedding carefully to ensure it is free of ergot bodies. If you do find ergot bodies, do not use the straw.

Horse owners and managers with questions or concerns about ergotism should contact Ray Smith, PhD, forage extension specialist in the UK Department of Plant and Soil Sciences, at ukforageextension@uky.edu or 859/257-0597, or Cynthia Gaskill, veterinary clinical toxicologist at the UK Veterinary Diagnostic Laboratory at cynthia.gaskill@uky.edu or 859/257-7912. Additional information is available at ag.ndsu.edu/pubs/plantsci/crops/pp551.pdf. **UK**

>Krista Lea, MS, is the research analyst and coordinator of the UK Horse Pasture Evaluation Program within the UK Department of Plant and Soil Sciences.



PHOTOS COURTESY CYNTHIA GASKILL, UK VETERINARY DIAGNOSTIC LABORATORY

Ergot bodies resemble mouse droppings and form in the place of healthy seed of many cereal grains and grasses. Pictured here are grasses with ergot bodies, including tall fescue and ryegrass.

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Syndromic Surveillance and Spatial Epidemiology

Syndromic surveillance is the use of existing health data to provide real-time analysis and feedback to epidemiologists in the investigation of disease outbreaks. Spatial epidemiology is a subfield of health geography that allows the study of the distribution of disease and health outcomes. Utilizing both approaches allows for the mapping of disease geographically for correlation studies and detection of disease clusters (e.g., unusually high incidence of a particular disease or syndrome occurring in close proximity in terms of both geography and time). These methods are used to improve early detection of disease outbreaks or biologic terrorism in human and veterinary medicine.

Over the last 10 years, the UK Veterinary Diagnostic Laboratory (VDL) has established an epidemiology section and implemented multiple surveillance, reporting, and alerting systems to monitor animal health. Utilizing a custom syndromic event simulator, the UK VDL uses test results and syndromic events (e.g., abortions, cases of respiratory disease, number of deaths) to monitor the health of Kentucky's animal population to predict and model early disease outbreaks. This simulator monitors each day's syndromic events combined with the previous 29 days of data to create a "moving" 30-day window. These data are then compared with historical data during the same time frame over the last five years (e.g., background rate of disease bounded by time and space). This mathematical approach allows us to statistically calculate if increased levels of specific events are occurring. Any data set that indicates an increased level of disease is then geocoded into map coordinates to alert UK VDL epidemiologists of a potential outbreak.

Any indication by the program of a possible outbreak is then investigated and verified by the epidemiology section. Upon verification of an increase in sickness or deaths, the UK VDL then alerts Kentucky veterinarians and officials.

Aside from surveillance, the UK VDL utilizes necropsy and test data to generate a Kentucky animal health map that is published on our website at vdl.uky.edu. This map allows users to click on any county in Kentucky and see what diseases have been diagnosed during the last month. If a county lacks information, then it means no cases have been diagnosed in that county at the UK VDL. The map does not identify owners or the specific location in which the disease was diagnosed, only the county of the submitting veterinarian. This allows us to maintain client confidentiality while at the same time provide users with a method of determining the diseases in their area so biosecurity measures can be implemented or increased.

While syndromic surveillance and spatial methods of epidemiology are always evolving and being refined, it should be noted that there are some challenges to these methods. Spatial epidemiology is almost always based on data analysis. Because of this, data collection must be routine and accurate. Syndromic surveillance currently used by the UK VDL depends upon the data collected solely at this laboratory; the inclusion of field data from veterinarians or other laboratories would further enhance this important surveillance technique. **UK**

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The Horse: Your Guide To Equine Health Care

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Surveillance and epidemiology allow researchers to detect clusters of disease.

KEVIN THOMPSON/THE HORSE

Toxin Topic: Johnsongrass Poisoning in Horses

Johnsongrass (*Sorghum halepense*) is a drought-tolerant noxious weed that can infiltrate pastures and hayfields. Especially in pastures that are not mowed and maintained, drought conditions can cause many grass species to die off while Johnsongrass survives and flourishes. Horses grazing in such fields could ingest large amounts of Johnsongrass if caretakers do not provide supplemental hay.

All sorghums, including Johnsongrass, are associated with four major disease syndromes:

- Neuropathy (nerve damage) and teratogenesis (damaging effects to the fetus);
- Photosensitization;
- Nitrate intoxication; and
- Acute cyanide poisoning.

For cattle, nitrate and cyanide poisoning are the major concerns associated with Johnsongrass. However, for horses, neuropathy and teratogenesis are the most important risks; rarely, if ever, do photosensitization or nitrate or acute cyanide poisoning occur in horses due to Johnsongrass ingestion.

Clinical signs of toxicity can occur after a few weeks to months of continuously grazing Johnsongrass or other sorghums at any growth stage. Hay containing sorghums has also been incriminated. Horses gradually develop ataxia (incoordination),

difficulty backing, and dribbling urine, progressing to flaccid paralysis of the tail and hind legs. Mares repeatedly open and close the vulva as if in heat and have continuous urine dribbling and hind leg scalding. Abortions and fetal malformations such as arthrogryposis (fused joints) can occur during any stage of pregnancy. Males exhibit an extended and relaxed penis and urinary incontinence in addition to ataxia.

The mechanism by which sorghums cause these problems is not well understood, but involves damage to the spinal cord and problems with innervations to the bladder and hind end. Inflammation of the bladder and sometimes the kidneys occurs. The condition is sporadic, and not all horses eating sorghums are affected. The amount of sorghum horses must ingest for clinical signs to occur has not been determined, but poisoning generally requires continuous exposure to large amounts of sorghum for several weeks or longer.

There is no specific treatment for the condition, but if owners remove sorghum from the diet and initiate treatment for bladder and kidney problems soon after the onset of



UNIVERSITY OF KENTUCKY

Johnsongrass is a drought-tolerant noxious weed.

clinical signs, some horses' conditions can improve. However, the nerve damage is permanent, and once ataxia occurs the prognosis is poor.

Prevention is important and includes minimizing exposure to Johnsongrass and other sorghums by controlling these plants in hayfields and pastures and by not feeding hay containing sorghums. Johnsongrass can be controlled in pastures by mowing and close grazing; control in hayfields is more problematic. Consult a weed extension specialist for more information on controlling Johnsongrass. [UK](#)

>Cynthia Gaskill, DVM, PhD, clinical veterinary toxicologist at the University of Kentucky Veterinary Diagnostic Laboratory, provided this information.

Time for Kentuckians to Take Mosquito Protection Measures

University of Kentucky entomologists have captured Asian tiger mosquitoes in the Central Kentucky area during the past month and are encouraging Kentuckians to take measures to prevent mosquito bites.

"The Asian tiger mosquito is the most common mosquito in Kentucky," said Grayson Brown, PhD, entomologist with the UK College of Agriculture, Food and Environment. "We are seeing it earlier than normal this year. What's different this year is this mosquito is implicated as a possible carrier for Zika. Kentuckians who are concerned about Zika should start

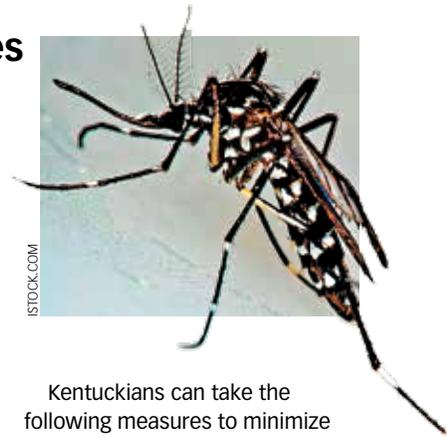
taking precautions."

The Asian tiger mosquito normally begins to appear in Central Kentucky in mid-June, and populations begin to climb throughout the summer, peaking in late July and early August. The mosquitoes tend to arrive in Western Kentucky a little earlier and appear in Eastern Kentucky a little later than in Central Kentucky. The mosquito is the primary carrier of canine heartworm.

"The Asian tiger mosquito is an opportunistic feeder and will feed on other things besides humans," said Lee Townsend, PhD, UK Extension entomologist. "It tends

to bite humans around the ankles, an area that is often overlooked when applying repellents."

The Asian tiger mosquito was found to transmit Zika in Mexico, but, so far, no locally acquired Zika cases have been reported in the United States. Kentucky has seen six Zika cases, and all have been individuals who acquired Zika while traveling to other countries. The *Aedes aegypti*, or the yellow fever mosquito, is the known carrier of Zika in most of the cases in South America. Kentucky is on the northern edge of the *Aedes aegypti* range, and they typically appear much later in the summer.



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Kentuckians can take the following measures to minimize their chances of getting mosquito bites this summer:

- Use Environmental Protection Agency-registered insect repellents. When used as directed, these repellents have been

Mosquito Protection

proven safe and effective for pregnant and breastfeeding women.

- Drain any standing water, as it creates potential mosquito breeding sites. This includes bird baths, bottles, and any other items with water-holding capacity, such as old tires or trash.
- Fill in holes, depressions, and puddles in yards.
- Keep gutters in proper working order.
- Ensure door and window screens are in good repair.

- Stay indoors between 4 p.m. and 8 p.m. when mosquitoes are most active.
- Wear long-sleeve shirts and pants when outdoors.

Individuals wanting additional information about mosquitoes in Kentucky can visit UK's Zika website at <http://pest.ca.uky.edu/EXT/ZIKA/1kyzika.html>. Additional information for women concerned about Zika during pregnancy is available at cdc.gov/zika/pregnancy/protect-yourself.html. **UK**

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

UK Veterinary Science Graduate Student Named Zoetis Resident in Veterinary Parasitology

Ashley Steuer, DVM, a PhD student in the UK Department of Veterinary Science, has been named the Zoetis Resident in Veterinary Parasitology. Steuer will be the first student to participate in a dual residency and PhD program in parasitology in the department.

Steuer, who earned her DVM from the University of Tennessee in May, will begin her PhD studies and residency training in August. Martin Nielsen, DVM, PhD, Dipl. EVPC, ACVM, associate professor at the UK Gluck Equine Research Center, will serve as her primary advisor for both her PhD and residency efforts. For the residency part, Steuer and Nielsen will work closely with Craig Carter, DVM, PhD, Dipl. ACVPM, director at the UK Veterinary Diagnostic Laboratory, and his team at the diagnostic lab, where Steuer will read diagnostic samples submitted for evaluation.

"The goal is to educate well-rounded DVM parasitologists that can be competitive candidates for parasitology positions at universities and veterinary schools around the world," Nielsen said. "We are particularly excited to host this program because it allows us to graduate an equine-focused candidate."

As part of the combined residency and PhD program, Steuer will also receive training in diagnostic parasitology to prepare her for taking the board examination in veterinary parasitology with the American College of Veterinary Microbiologists.

The position is supported by the National Center for Veterinary Parasitology at Oklahoma State University for four years. **UK**

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

GRAD STUDENT SPOTLIGHT

LAUREN GOEDDE

From: Boulder, Colorado

Degrees and institute where received: B.S. in equine science with a business minor and B.A. in Spanish language from Colorado State University



Lauren Goedde came to the University of Kentucky Gluck Equine Research Center to pursue her master's degree in equine reproduction under Ed Squires, PhD, Dipl. ACT (hon.), former professor at the Gluck Equine Research Center. Prior to coming to UK, Goedde completed an internship under the Kentucky Equine Management Internship program in Lexington and became very interested in the veterinary science program after meeting with different professors in the UK veterinary science department.

During her master's program, Goedde collected stallion semen before and after treatment with an omega-3 docosahexaenoic acid (DHA) supplement. She evaluated fresh, cooled, and frozen stallion sperm to see if the treatment affected sperm motion characteristics and viability. Goedde found that motility in fresh and cooled stallion sperm improved significantly after treatment with the DHA supplement; however, cryopreserved sperm was not affected.

"My most valuable takeaway from my time spent at the Gluck Equine Research Center was the research and veterinary skills that I learned working at the farm and also the connections and relationships I built with my lab mates," Goedde said.

Now that her master's is completed, Goedde plans to apply to veterinary school and work at a veterinary hospital. **UK**

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

A Memo from the UKVDL Regarding CEM Sample Submissions

The USDA Animal and Plant Health Inspection Service has issued a revised guideline for contagious equine metritis (CEM) culture. To assure compliance with this guideline and continued equine health monitoring, the UKVDL offered the following guidelines:

Specimen Identification

The CEM Accession Form must include:

- The name, address, phone number, and signature of submitting veterinarian;
- The owner/agent contact information, including name, address, and phone number;
- The location of the horse, including the county; and
- The horse's unique identification.

Sample Collection

- Samples should be collected and submitted by an accredited veterinarian, federal veterinarian, or state animal health official.
- Sample collection should include date and time.
- Each sample should be uniquely identified and include the anatomical site of collection.
- Small diameter (mini-tip) rayon swab should be used for clitoral sinus sampling.
- Samples in expired media, degraded media, or in any transport media other than Amies media with charcoal will be rejected.
- Cervical, uterine, or endometrial swabs must be collected with a guarded uterine swab of adequate size.
- Specimen swabs submitted for culture must be placed in Amies transport medium with charcoal (a single swab per tube) and delivered to the laboratory with sufficient ice packs to keep the specimens cold for shipping until arrival. Direct delivery or overnight shipment is the method of choice, as specimens must be set up in the laboratory no more than 48 hours after collection. Samples arriving after 48 hours from collection will not be tested.

While every effort will be made to process samples at the time of submission, to allow for correct processing of all samples, those received after 4 p.m. cannot be guaranteed to be set up that day for bacterial culture.

The UKVDL has developed a new CEM Accession Form (vdl.uky.edu/portals/0/documents/UKVDLCEMAccessionForm.pdf) and will no longer distribute the CEM accession form with the client report starting June 1, 2016. **UK**

Please contact Steve Locke, bacteriology laboratory, or Deborah Maples, diagnostic services, at 859/257-8283 for further information.

THE GRASS GUIDE

TALL FESCUE (*FESTUCA ARUNDINACEA*)

Life cycle: Cool-season perennial

Native to: Europe

Uses: Pasture and hay

Identification: Leaves are sharp, pointed, and rough to the touch and almost seem to cup the stem at their origin.

Tall fescue is a very hardy forage able to withstand high summer temperatures, drought, moisture stress, and shade. The traditional variety KY-31+ is infected with a fungal endophyte, which produces

the toxin ergovaline in the plant's seed head, leaf, and stem. Ergovaline can cause agalactia (decreased or no milk), dystocia (slow or difficult labor or delivery), and prolonged gestation in broodmares. The endophyte provides tall fescue greater tolerance to overgrazing and harsh conditions. Endophyte-free varieties are available, but these plants tend to be less hardy than their infected counterparts.

Novel or "friendly endophyte" varieties are now available that do not produce ergovaline, but show improved plant survival. **UK**

>Krista Lea, MS, is the research analyst and coordinator of the UK Horse Pasture Evaluation Program within the UK Department of Plant and Soil Sciences.



The tall fescue leaf cups the stem at the base.



Tall fescue seed heads



Tall fescue leaves

TALL FESCUE DISTRIBUTION



Teri L. Lear Memorial Scholarship Fund Established

The UK Gluck Equine Research Foundation has established the Teri L. Lear Memorial Scholarship Fund. Lear, PhD, was an equine genetics researcher and associate professor at the UK Gluck Equine Research Center. She died May 14 after a long battle with cancer.

Lear became one of the foremost experts in cytogenetics of the horse, published numerous studies on equine genetics, trained MS and PhD students, and was one of the leaders of the Horse

Genome Project—a project that resulted in the first map of a horse’s genetic sequence.

Lear loved training graduate students, participating in conferences, and meeting scientists from around the world. The fund will support invited lecturers to the Gluck Center and graduate student travel to scientific conferences.

Gifts to the fund are tax-deductible. Checks, made payable to the University

of Kentucky and designated “Teri L. Lear Memorial Scholarship Fund” in the memo, can be mailed to UK Gluck Equine Research Center, Attn: Jenny Evans, 108 Gluck Equine Research Center, Lexington, KY 40546-0099. [UK](#)

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

The Teri L. Lear Memorial Scholarship Fund

All gifts to this fund are tax-deductible. A receipt will be provided by the University of Kentucky Development Office.

I/We would like to contribute to the Teri L. Lear Memorial Scholarship Fund.

Enclosed is my/our gift in the amount of \$ _____.

I/We would like to make my gift by payments of \$ _____ in _____ annual installments (up to five years) beginning on (date) _____, 20 ____ and ending (date) _____. Please send me a reminder in (month) _____ each year.

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Address: _____

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Email: _____

Mail to: UK Gluck Equine Research Foundation
Attn: Jenny Evans
108 Gluck Equine Research Center
Lexington, KY 40546-0099

Please make your check payable to the University of Kentucky and designate “Teri L. Lear Memorial Scholarship Fund” on the check. If you would like to make a gift of securities, please contact Marci Hicks at 859-257-8783 for transfer information.



Save the Dates for the UK Gluck Center Fall Events

The UK Gluck Equine Research Center will host several events this fall, so be sure to save the dates and watch for future announcements as the events get closer.

Friday, October 7, John F. Timoney Symposium

John Timoney, MVB, DSc, PhD, a long-time faculty member in the Department of Veterinary Science, retires June 30 after 34 years. The symposium will be held from 1:30 to 5:30 p.m. at Spindletop Hall, in Lexington, and will feature talks on infectious diseases, including glanders and *Streptococcus equi*. A more detailed schedule of the symposium and registration information will be released in August.

A retirement reception in his honor will follow from 5:30-7 p.m.

Tuesday, October 25, Equine Research Hall of Fame

This biennial event honoring distinguished careers in equine research will be held at 6 p.m. at the Hilary J. Boone Center on the University of Kentucky campus in Lexington. Inductee(s) will be announced in late July.

The Hall of Fame is located at the Gluck Center and was established to honor those individuals who have dedicated their careers to expanding the body of knowledge in some field of equine science through their contributions to basic or applied research. The Hall of Fame is a lasting tribute to those internation-

ally renowned for their endeavors as equine researchers.

Saturday, November 19, Reproductive Diseases in Horses Symposium

This one-day symposium will be held from 8 a.m. to 5 p.m. at Hilton Lexington Green. The symposium is funded by a USDA National Institute of Food and Agriculture-Agriculture and Food Research Initiative grant titled “Identification of genetic factors responsible for the establishment of equine arteritis virus carrier state in stallions.” Registration for the symposium will open in August.

See the next page for the symposium schedule.

REPRODUCTIVE DISEASES IN HORSES SYMPOSIUM SCHEDULE

8-8:30 a.m.	REGISTRATION
8:30-9	Update on USDA-NIFA grant on identification of genetic factors responsible for the establishment of EVA carrier state in stallions <i>Udeni Balasuriya, BVSc, MS, PhD, University of Kentucky Gluck Equine Research Center</i>
9-9:45	Pathology of the stallion's reproductive tract <i>Dixon Varner, DVM, PhD, Dipl. ACT, Texas A&M College of Veterinary Medicine</i>
9:45-10:15	Diagnostic techniques for evaluating breeding soundness in mares <i>Etta Bradecamp, DVM, Dipl. ACT, ABVP, Rood & Riddle Equine Hospital</i>
10:15-10:30	BREAK
10:30-11	Diagnosis and treatment of fungal infection <i>Kristina Lu, VMD, Dipl. ACT, Hagyard Equine Medical Institute</i>
11-11:30	Ovarian abnormalities in mares <i>Karen Wolfsdorf, DVM, Dipl. ACT, Hagyard Equine Medical Institute</i>
11:30-noon	Genetic causes of embryonic losses in mares <i>Ernie Bailey, PhD, University of Kentucky Gluck Equine Research Center</i>
Noon-1:30 p.m.	LUNCH & LECTURE: Reproductive tract infection in horses and their impact <i>Peter Morresey, BVSc, MACVSc, Dipl. ACT, ACVIM, Rood & Riddle Equine Hospital</i>
1:30-2:15	Biomarkers for feto-placental well-being in the mare <i>Barry Ball, DVM, PhD, Dipl. ACT, University of Kentucky Gluck Equine Research Center</i>
2:15-3	Equine Placental Pathology <i>Alan Loynachan, DVM, PhD, Dipl. ACVP, University of Kentucky Veterinary Diagnostic Laboratory</i>
3-3:15	BREAK
3:15-4	Leptospirosis <i>Jacqueline Smith, PhD, University of Kentucky Veterinary Diagnostic Laboratory</i>
4-4:45	Contagious Equine Metritis <i>Peter Timoney, FRCVS, PhD, University of Kentucky Gluck Equine Research Center</i>
4:45	CLOSING REMARKS <i>Ed Squires, MS, PhD, Hon. Dipl. ACT, University of Kentucky Gluck Equine Research Center</i>

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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.

“Parasight System” Featured on Cover of International Journal for Parasitology

The Parasight System, a smartphone-based fecal egg diagnostic and intestinal parasite management tool for veterinarians, will be featured on the July cover of *International Journal for Parasitology*.

The Parasight System’s development was a collaboration between MEP Equine Solutions; the UK College of Agriculture, Food and Environment; the UK Gluck Equine Research Center; the USDA (via a Small Business Innovation Research Grant); and Zoetis.

“We are very proud about this recognition,” said Martin Nielsen, DVM, PhD, Dipl. EVPC, ACVM, associate professor at the Gluck Center. “The *International Journal for Parasitology* is the leading scientific journal in medical

and veterinary parasitology, and their acceptance of our article and decision to feature our technology is a clear sign of our work being acknowledged by our peers.”

The featured article is titled “Automated parasite fecal egg counting using fluorescence labelling, smartphone image capture and computational image analysis,” by Paul Slusarewicz, Stefanie Pagano, Christopher Mills, Gabriel Popa, K. Martin Chow, Michael Mendelhall, David Rodgers, and Martin K. Nielsen.

According to the journal’s website, the *International Journal for Parasitology* publishes the results of original research in all aspects of basic and



applied parasitology, including all the fields covered by its specialist editors, and ranging from parasites and host-parasite relationships of intrinsic biological interest to those of social and economic importance in human and veterinary medicine and agriculture. The journal is sponsored by the Australian Society for Parasitology.

More information on the Parasight System is available at theparasightsystem.com. **UK**

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Upcoming Events

July 28, 4 p.m.

UK Department of Veterinary Science Equine Diagnostic and Research Seminar Series

David Poole, PhD, DSc, Kansas State University, will speak about “Pushing and pulling across the blood gas barrier mechanisms of EIPH” at the UK Veterinary Diagnostic Laboratory

July 30

Hats Off Day, Kentucky Horse Park

August 16

Kentucky Equine Networking Association (KENA) Meeting, Networking 6 p.m.; Dinner 6:30 p.m., Fasig Tipton

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