

Equine Parasite Research Crowdfunding Project Launched

Martin Nielsen, DVM, PhD, Dipl. EVPC, equine parasitologist, veterinarian, and assistant professor at the University of Kentucky (UK) Gluck Equine Research Center, has launched the first research crowdfunding project at UK and possibly the first such effort in the field of veterinary science.

Crowdfunding is a relatively new term that describes reaching out to the general public, usually through the Internet, to reach a fundraising goal. Success in reaching the goal often depends on many individuals making various-sized donations through a website.

Nielsen's crowdfunding campaign, "Let the germs get the worms: Testing a novel probiotic compound for treatment of equine parasites," is hosted at <http://equineparasitology.ca.uky.edu> and has a goal of raising \$30,000 before March 10.

Nielsen's research team is devoted to providing solutions for worm control in horses. Equine parasites, such as small strongyles and large roundworm, are developing increased levels of re-

sistance to all available dewormers. No new drugs are being developed for use in horses, so the equine industry is seeking new reliable treatment alternatives. Horses on pasture are constantly exposed to different parasite types. These can cause clinical signs of disease such as colic, diarrhea, and weight loss. Foals are particularly vulnerable to parasite infection and need special attention through parasite control programs.

"It is our experience that horse owners are very interested in updated information about parasite control and have great concerns about drug resistance," Nielsen said. "We therefore felt that crowdfunding would be very appropriate for raising funding for research in this area. The crowdfunding platform allows direct interaction with the end users of our research, which is very valuable to us. A good question can inspire us to set up the next research project."

University of California researchers have identified a naturally-occurring bacterium, *Bacillus thuringiensis*, which produces a crystal protein capable of killing intestinal worms without harming the host animal. Nielsen and colleagues aim to evaluate the effect of this bacterial protein against important horse parasites under laboratory conditions. They will collect parasites from horses in a research herd and tested in the laboratory.

"We will test for the presence of receptors for the bacterial protein and test the effect against different horse parasites under laboratory conditions," Nielsen said. "We expect to use the results to apply for a larger grant to finally allow us to test the probiotic in horses."

Added Nancy Cox, PhD, dean of UK's College of Agriculture, Food, and Environment and Kentucky Agricultural Experiment Station director, "We are

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Dr. Martin Nielsen

proud of this innovative approach to fundraising which gives the donors a chance to participate in the research program and research findings. We are pleased that Dr. Nielsen's crowdfunding project is the very first one to be implemented at UK."

Guests can sign up for more information about the project and make online

Crowdfunding Project

donations at <http://equineparasitology.ca.uky.edu>. As a special feature, the site is set up with an exclusive questions forum where visitors can ask Nielsen about parasite control. **UK**

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



PHOTOS COURTESY DR. MARTIN NIELSEN

Nielsen and colleagues will collect parasit for their study from horses in the university's research herd.

UK Researchers' Work Discussed at AAEP Kester News Hour

While your veterinarian is stitching wounds, delivering foals, and monitoring colics, researchers from around the world are publishing research that often advances the collective of horse health care. So to bring busy practitioners up to speed on the top studies in a variety of fields, a panel of veterinarians presents a news-type program each year at the annual American Association of Equine Practitioners' Convention.

Pat McCue, DVM, PhD, Dipl. ACT, a professor of equine theriogenology at Colorado State University's Equine Reproduction Laboratory, described the reproduction studies he deemed most important and useful to a veterinary audience during the Kester News Hour. This year's lecture took place Dec. 7 at the convention, held in Nashville, Tenn.

Two of those studies featured research from the University of Kentucky's own Barry Ball, DVM, PhD, Dipl. ACT, and Mats Troedsson, DVM, PhD, Dipl. ACT, ECAR.

McCue described Ball's study results, which showed that blood anti-Müllerian hormone (AMH) concentrations appear to be a good biomarker for detecting granulosa-cell tumors (GCTs), the most common type of

ovarian tumor). Although mostly benign, GCTs can prevent pregnancy and cause stallion like behavior and other problems in mares.

After collecting blood from normal mares and mares with confirmed GCTs, the researchers found that mares with GCTs had significantly higher AMH levels than normal mares. Further, they found that AMH had a sensitivity (i.e., the ability

to correctly identifies mares with GCTs) of 98%.

McCue opined that the AMH screening should be a standard part of tumor diagnostic panels at diagnostic laboratories.

McCue then described Troedsson's recently published review of breeding-induced endometritis (an inflammation of the uterus lining caused by breeding). He said the researchers found breeding-induced endometritis in 10-15% of mares and that factors such as advanced age, poor perineal confor-

mation, a pendulous (i.e., downward facing or slanted) uterus, and an altered immune response put mares at a greater risk for developing this condition.

He said the researchers identified six hours as the critical timeframe to clear breeding-induced inflammation from a mare's uterus; mares that failed to clear inflammation by six hours after breeding remained inflamed. **UK**

>Erica Larson is the news editor for TheHorse.com.

New Biomarkers for Diagnosing Bacterial Placentitis in Mares

Placentitis is a common cause of late-pregnancy abortion in mares and poses a significant threat to fetal and neonatal viability. Bacterial agents commonly associated with the occurrence of placentitis include *Streptococcus equi* subspecies *zooepidemicus*, *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Leptospira* spp, nocardioform bacteria (*Crossiella equi*, *Amycolatopsis* spp) and others.

Except for leptospiral and nocardioform placentitis, most cases of bacterial placentitis are thought to originate due to bacterial invasion via the cervix. Therefore, these cases of ascending placentitis usually start at the cervical star (where the foal normally erupts through the placental membranes) and spread from there. Infection of the placenta results in subsequent infection of the fetus and in the release of prostaglandins from the inflamed placenta, which ultimately leads to abortion or delivery of a premature foal with bacterial sepsis.

Effective treatment of placentitis requires early diagnosis prior to the appearance of clinical



ANNIE M. EBERHARDT

Placentitis is a common cause of late-pregnancy abortion in mares and poses a significant threat the fetal and neonatal viability.

New Biomarkers

signs such as premature udder development with or without the streaming of milk and/or vulvar discharge.

Currently, ultrasonographic evaluation of the placenta is used to detect early cases of placentitis and to implement treatment to prevent abortion and delay premature labor. While this practice has allowed more effective treatment and has improved the outcome in many cases, it is often not practical to ultrasound every mare repeatedly during late gestation. In addition, early stages of placentitis can be missed during ultrasonographic examination, and the technique is also prone to false positive diagnoses, resulting in unnecessary treatment.

In the absence of an accurate and practical method to detect early subclinical cases of placentitis, it has become increasingly common to treat all pregnant mares with antibiotics for five to seven days each month during late gestation. The long-term risk of developing widespread bacterial resistance against antibiotics and the development of “superbugs” should be of great concern, not only to the breeding industry, but to veterinary medicine as well as human health. Additional diagnostic tools are therefore needed to accurately identify pregnant mares with early stages of placentitis and to specifically target these mares for treatment.

The equine placenta synthesizes and metabolizes progestagens (a type of hormone), which are critical for pregnancy maintenance. Experimentally, mares that develop chronic placentitis often have increased plasma progesterone concentrations, whereas mares with acute placentitis often demonstrate a rapid drop in plasma progesterone concentrations. Repeated measurement of plasma progesterone concentrations in mares with placentitis can be a useful method to identify mares at risk for abortion or premature delivery.

Serum estrogen concentrations are elevated in pregnant mares between 150-310 days of gestation (the average mare's gestation length ranges from 320 to 362 days). The predominant estrogens in pregnant mares include estrone, equilin, equilenin, estradiol-17 β , and estradiol-17 α . Determinations of serum concentrations of estrone sulfate are useful in pregnancy diagnosis and to monitor fetal viability.

MASTHEAD

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Researchers have observed that mares aborting from placentitis had serum estrogen concentrations below those normally detected in pregnant mares. Preliminary studies in our laboratory indicate that in mares with experimentally induced bacterial placentitis, concentrations of estradiol-17 β sulfate may decline precipitously after infection, also suggesting that maternal estrogen concentrations may be useful as an early marker of placental insult.

In addition to endocrine monitoring, measurement of acute phase proteins (a type of inflammatory molecule) in blood may also be a useful biomarker for placentitis in mares. Serum concentrations of acute phase proteins are elevated when inflammation is present. This group of proteins is mainly produced by the liver in response to an inflammatory stimulus. The major acute phase protein in the horse is serum amyloid A (SAA), whereas the minor acute phase proteins include haptoglobin and fibrinogen.

In ongoing research at the Maxwell H. Gluck Equine Research Center, mares

with experimentally induced placentitis have a rapid and dramatic elevation in SAA within two days after intracervical inoculation with *S. equi* subspecies zooepidemicus. Although SAA appears to be a very sensitive indicator for acute bacterial placentitis, it is also a very nonspecific indicator, as many other acute inflammatory conditions may result in an elevation of SAA.

Ultimately, it appears likely that more than one biomarker may be required for accurate and early detection of placentitis in the mare. Ongoing research will address these needs and evaluate the utility of these markers in mares under field conditions. **UK**

CONTACT—Barry Ball, DVM, PhD, Dipl. ACT (859/218-1141—b.a.ball@uky.edu); Igor Canisso, DVM, MSc, Dipl. ACT, ECAR; and Mats Troedsson, DVM, PhD, Dipl. ACT, ECAR—University of Kentucky Maxwell H. Gluck Equine Research Center—Lexington, Ky.

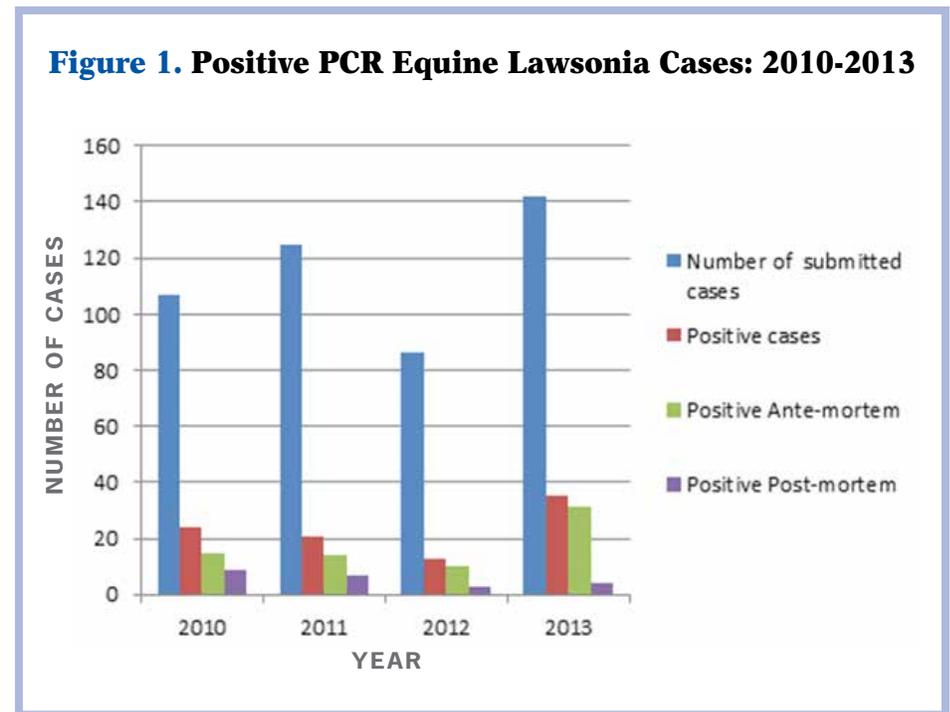
This is an excerpt from Equine Disease Quarterly, funded by underwriters at Lloyd's, London, brokers, and their Kentucky agents.

Lawsonia intracellularis Infections in Foals on the Rise

Lawsonia intracellularis, a bacterium causing equine proliferative enteropathy (EPE) in mostly young horses, can result in thickening segments of small intestines and sometimes large intestines. *L. intracellularis* does not grow in routine aerobic/anaerobic culture and can only grow in vitro (in the lab) in cell culture, which is not practical. Therefore, several quick and reliable PCR tests have been developed to directly detect the bacteria.

Besides horses, *L. intracellularis* infects pigs and many other domestic and wild animals, including hamsters, rabbits, foxes, deer, ferrets, ostriches, and nonhuman primates. Previous studies have shown that a variety of wild and domestic animals, including dogs, cats, rabbits, opossums, skunks, mice, and coyote, shed *L. intracellularis* on farms with diagnosed EPE cases. Researchers have documented fecal-oral transmission of *L. intracellularis* in naïve foals housed with clinically infected foals experimentally challenged with an equine isolate of *L. intracellularis* (Pusterla et al. 2010).

Clinical signs of EPE include depression, anorexia, fever, peripheral edema (fluid swelling of the throat latch, sheath, and distal limbs), hypoproteinemia (low blood protein levels), hypoalbuminemia (low levels of the protein albumin in the blood), weight loss, colic, and diarrhea in affected foals. Early clinical signs are generally unspecific and include mild depression, partial anorexia, and fever. Signs of EPE might resemble those of other gastrointestinal disorders such as parasitism, bacterial infections (*Clostridium* spp., *Salmonella* spp., *Neorickettsia risticii*), rotavirus, coronavirus, ulcerations, sand accumulation, intestinal obstruction, and intoxication with plants, chemicals, and pharmacologic agents such as non-steroidal anti-inflammatory drugs or antimicrobials (Pusterla and Gebhart, 2013). Therefore, treating veterinarians



should first rule out other diseases with diagnostic tests.

Practitioners generally make a presumptive EPE diagnosis based on age of the affected animal, hypoproteinemia/hypoalbuminemia, fever, and presence of thickened small intestinal loops on ultrasonographic evaluation.

Laboratory diagnosis is through PCR detection of *L. intracellularis* in feces or rectal swab. For these results to be accurate, samples should be obtained before any antimicrobial treatment. Interested owners can send serum for albumin (\$5) and total protein (\$5) evaluations (the equine Serum Chemistry Panel can also be requested, \$17). Owners can also submit fecal specimens, rectal swabs, or mucosal scraping for PCR confirmation in clean screw tubes, not in gloves (in-state fee is \$35). Post-mortem diagnosis is achieved by PCR combined with thickening of the mucosa of the ileum and cecum grossly

and compatible histopathologic lesions.

Figure 1 depicts the total number of cases submitted to University of Kentucky Veterinary Diagnostic Laboratory between 2010 and 2013. We are seeing an increasing trend of positive cases submitted this year as compared to recent years. This might be due to a higher number of ante-mortem cases being submitted for diagnosis than in previous years.

You can access the article by Pusterla and Gebhart at this link: http://ac.els-cdn.com/S0378113513003313/1-s2.0-S0378113513003313-main.pdf?_tid=42dea2c8-7c6c-11e3-af00-00000aab0f02&acdnat=1389629201b5f98bd3b6d159f500c41a5c0d7e8560. UK

> Information provided by:

UKVDL's Erdal Erol, DVM, PhD, Head of Diagnostic Microbiology; Jackie Smith, PhD, Head of Epidemiology; and Craig N. Carter, DVM PhD, Dipl. ACVPM, Director & Professor, Epidemiology

January Issue of the Kentucky Ag Weather Observer

This issue contains the December review for Kentucky weather, the past year in review, and the outlook for the opening months of 2014.

http://weather.uky.edu/Latest_kyweatherobserver.pdf

Kentucky Equine Encephalitis Cases in 2013

West Nile virus (WNV) causes disease in humans, horses, and birds. It is a mosquito-borne virus that first appeared in the United States on the East Coast in 1999. Many horses were infected and died during the following years, and WNV is now considered endemic in the United States.



ANNE M. EBERHARDT

The AAEP includes WNV and EEE in their list of core vaccinations for horses.

Infected birds develop a high viremia (virus in the blood) and serve as the source of virus to infect mosquitoes. The incubation period in horses is seven to 10 days and clinical signs in horses consist of low-grade fever, anorexia, and lethargy progressing to neurologic signs that may appear suddenly and worsen over the ensuing days. Fortunately, once infected, horses do not pose a risk to other horses, people, or birds due to low virus levels.

Since the appearance of WNV, cases have continued to be diagnosed in horses in the United States and Kentucky. As of November, Kentucky officials reported 12 cases of WNV for 2013. These cases occurred in 10 Kentucky counties. None of the 12 horses were vaccinated against WNV. Seven were Quarter Horses, two were Standardbreds, and the remaining were a Paint Horse, a Percheron cross, and a Rocky Mountain Horse. Ten of the horses survived, and two were euthanized. In 2012, 13 cases of WNV were reported versus one case in 2011. The 2012 cases were centered in Central Kentucky while in 2013 the cases were in Western Kentucky.

Eastern equine encephalomyelitis (EEE) is uncommon in Kentucky. This viral disease is also mosquito transmitted and is characterized by clinical signs similar to those seen with WNV. Eastern equine encephalomyelitis is considered to have a mortality rate approaching 90%. In 2013 in Kentucky, two cases of EEE were reported. One case was in a 10-year-old Tennessee Walking Horse and the other in a 17-year-old Quarter Horse. Neither had been vaccinated against EEE, and both horses died as a result of disease.

The American Association of Equine Practitioners includes

WEED OF THE MONTH

Common name: Eastern Poison-ivy

Scientific name: *Toxicodendron radicans* (L.) Kuntze

Life Cycle: Perennial

Origin: North America

Poisonous: Severe skin irritant to sensitive humans

Eastern poison ivy, frequently called poison ivy, occurs in much of the eastern United States. It is a woody perennial that can grow as a low shrub, trailing vine, or climbing vine. As a climbing vine, it can grow several yards and often reaches into the tops of trees. It will grow in a wide range of habitats, such as pastures, fence rows, and the edge of woods.



Poison ivy roots are fibrous from a taproot (the main root that grows vertically downward) and long subterranean rhizomes (rootstalks). Vines are woody and light brown or grayish and frequently have aerial roots on them. Poison ivy's easiest identifying characteristic is a trifoliate (having three leaves) compound leaf. Leaflets are shiny, typically 2 to 4 inches in length, and pointed at the tip. Leaves turn a bright red or reddish-yellow in the fall and produce greenish to grayish white berries in late summer to early fall. Reproduction is by seeds, rootstalks, and stems that root when they come into contact with the soil. Berries are spread by birds.

All parts of the poison ivy plant, both live and dead, contain urushiol oil and might cause acute dermatitis to humans sensitive to the oil. Fumes from burning poison ivy plants might also transmit the oil. Animals such as cats, dogs, and horses are not sensitive to poison ivy, but can transfer the oil to humans.

Poison ivy plants in pastures usually grow low to the ground, and mowing is not an effective control tactic. Cutting the vines and removing plants from fences or trees does not offer long-term control since the poison ivy plant will regrow from root buds or rhizomes. The most effective control is by herbicidal sprays. Several herbicide products are available to control poison ivy. Consult your local Cooperative Extension Service personnel for herbicidal control in your area. **UK**

>William W. Witt, PhD, professor emeritus in UK's Plant and Soil Sciences, provided this information.

WNV and EEE in their list of core vaccinations for horses. The other core vaccinations are Western equine encephalomyelitis, tetanus, and rabies.

Additional information can be found at www.kyagr.com. **UK**

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This is an excerpt from *Equine Disease Quarterly*, funded by underwriters at Lloyd's, London, brokers, and their Kentucky agents.

UK Forage Bowl Team Wins National Title

The University of Kentucky (UK) Forage Bowl team took the top spot at the National Forage Bowl, held during the 2014 American Forage and Grasslands Council meetings in Memphis, Tenn., in early January. The contest is an undergraduate quiz bowl competition that tests students on their forage and livestock management knowledge.

"I am both extremely proud and humbled by the level of effort put in by these young ladies and their graduate coaches, and it showed in their performance," said Ben Goff, PhD, assistant professor within UK's Department of Plant and Soil Sciences.

Jessica Williamson (graduate coach; PhD candidate in IPSS), Meredith Tapp (junior in Animal Science), Veronica Bill (co-captain; senior in Equine Science), Cecilia Purtee (senior in Animal Science), Elizabeth Langlois (co-captain; senior in Animal & Equine Science), and Caitlin Timberlake (graduate coach; MS candidate in IPSS). [UK](#)

2014 AFGC National Forage Bowl Champions



Final Score: UK 4401, Penn St. 999, UT-Martin 0

CREDIT

UK's Horohov, Page Receive Grant for *Lawsonia intracellularis* Research

University of Kentucky Gluck Equine Research Center faculty member David Horohov, PhD, and postdoctoral scholar Allen Page, DVM, PhD, were selected to receive one of five Boehringer Ingelheim Vetmedica Inc. (BIVI) 2013 Advancement of Equine Research Awards.

Horohov and Page will receive a \$15,000 grant for the equine research project titled "Subisotypic differences in the immunoglobulin G response to *Lawsonia intracellularis* in vaccinated, seropositive and clinically affected horses." The grant is to study the diagnosis, pathogenesis, transmission, control, and/or prevention of equine infectious diseases during 2014. The awards were announced Dec. 9 at the American Association of Equine Practitioners Annual Convention in Nashville, Tenn.

Awards are selected based on established criteria, including potential impact on the equine industry; originality and scientific quality; and probability of success in completing the year-long studies.

For more information on the award, visit www.equinediseaseresearch.com. [UK](#)

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

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Register Now for UK Equine Showcase and Kentucky Breeders' Short Course

Registration closes Feb. 1 for the University of Kentucky Ag Equine Programs' Equine Showcase and the 5th Annual Kentucky Breeders' Short Course, both to be held at the Four Points Sheraton at 1938 Stanton Way in Lexington.

The UK Equine Showcase, now in its third year, will highlight the university's current equine programs and relevant industry findings. It will run from 1-5 p.m. Feb. 7, with a light reception following.

The 5th Annual Kentucky Breeders' Short Course is an in-depth program on equine reproduction and horse management issues held 8 a.m. to 5 p.m. Feb. 8, with lunch provided.

New this year, an in-depth reproductive "wet lab" will also be offered Feb. 9 to a limited number of participants who want a hands-on educational opportunity led by some of the equine industry's foremost experts. Participation in the wet lab also requires attendance in either the showcase or short course on the previous two days.

Both the showcase and short course are open to veterinarians, owners, and managers of all horse breeds or anyone with an interest in learning more about equine reproduction and horse management. Continuing education credit for veterinarians and veterinary technicians is pending approval by the Kentucky Board of Veterinary Examiners.

To register for the event, visit <http://2014ukequineshowcase.eventbrite.com>. More about this event and other information about UK Ag Equine Programs can be found at www.ca.uky.edu/equine. **UK**

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

Topics for the UK Equine Showcase include:

- Equine Cushing's disease in the aged horse
- Is your horse fat? There's an app for that!
- The Kentucky Horse Racing Necropsy Program: For the health and welfare of horses, humans and the racing industry
- The economic impact of Kentucky's equine industry
- Stem cells for equine tissue regeneration
- Age-related susceptibility of foals to *Rhodococcus equi*
- Genetics, health and performance
- Why did my performance horse test positive for prohibited substances?

Topics for the Kentucky Breeders' Short Course include:

- Reproductive anatomy and physiology of the mare
- Starting and stopping a mare's cycle
- Methods for evaluating stallion sperm
- Methods to predict foaling
- Diagnosing cryptorchids and ovarian tumors
- Problems in newborn foals
- Managing your stallion for a natural mating or artificial insemination program
- Diagnosing placentitis (placental problems)
- Problem mare panel

Horse Management Tips for Cold Temperatures

Bitter cold temperatures have been a theme this winter and don't appear to be leaving anytime soon. Experts at the University of Kentucky College of Agriculture, Food and Environment offer tips for managing horses during extremely cold weather.

While the ideal time for cold weather preparation is in the fall, researchers recommend the following management tips to help keep your horses healthy now. Bob Coleman, PhD, PAS, extension horse specialist within the University of Kentucky's Department of Animal and Food Sciences, said horse owners should think about preparing for acute versus chronic cold. Acute cold is a cold snap that last for a short period of time. Chronic cold is the cold that takes hold



MATT BARTON, UK AGRICULTURAL COMMUNICATIONS

and stays with a region for a much longer duration. Sometimes an acute situation can prove to be more dangerous to animals, he said, because they aren't

as accustomed to the cold and owners might not be as well-prepared as those in locations where intense cold is more typical and long-lasting.

Regardless of the type of cold present, horse owners should make sure animals have adequate shelter, water, dry bedding, and feed, he said.

Coleman said digestion is one way horses generate heat during cold weather. The average horse, with a lower activity level, should consume between 1.5 and 2% of its body weight in feed per day to maintain weight.

Feed requirements increase as temperatures drop and horses use more calories to keep warm. Coleman said mature horses can, when adapted, handle a temperature of 5°F, which is called the lower critical temperature. When temperatures falls below this, the horse needs to increase heat production or

Tips for Cold Temperatures

reduce heat loss to maintain core body temperature. One way to do this is for the horse to eat more. A drop in temperature to -5°F will require the horse to consume 15% more forage to receive adequate calories, meaning he needs to eat 2-3 more pounds of hay each day.

“As a horse owner, making sure there is some extra hay available will help your horses get through the short-term cold snaps. Long or more chronic exposure to cold will need some other management changes to meet the horse’s calorie needs,” Coleman said. “On the short-term, add more forage. But if forage supplies are limited, adding a concentrate feed to the diet may be needed.”

For mature horses at maintenance, good quality legume-grass mixed hay should be adequate, while young growing horses or broodmares in late gestation require a concentrate in their diets to meet their increased calorie needs. If

an owner is adding concentrate for the first time, he or she should make those additions gradually to prevent digestive upsets.

“As a horse owner, making sure there is some extra hay available will help your horses get through the short-term cold snaps.”

Dr. Bob Coleman

Coleman said it’s also critically important that horses have access to clean, unfrozen water to ensure that they eat adequate amounts of feed. Water intake each day helps reduce the risk of colic due to impaction. While this can be one of the most difficult and time-consuming aspects of winter horse management, its importance can’t be

over-emphasized.

In addition, horses will need shelter to provide protection from the wind and any precipitation that might fall.

For horse owners who choose to use blankets, Coleman urged them to make sure those blankets are both wind and waterproof. A wet blanket equals a wet horse, and that wetness disrupts the hair coat’s ability to insulate the animal and can quickly lead to cold stress.

All horse owners should take extra time observing horses during cold snaps to make sure they are okay. This means checking on horses daily. Ones who are feeling the effects of the cold will need extra attention.

One last bit of advice? Coleman strongly recommended keeping horses out of pastures or paddocks with ponds or other open water sources. There are cases each winter of horses falling through ice and into a pond. **UK**

>Holly Wiemers, MA, is communications director for University of Kentucky Ag Equine Programs.

STUDENT SPOTLIGHT

RAFAELA DE NEGRI

From: Brazil

Degrees: Doctor in Veterinary Medicine from Universidade Federal de Uberlandia, Uberlandia, Minas Gerais, Brazil.

Veterinary anatomic pathology residency at University of Kentucky Veterinary Diagnostic Laboratory, Lexington, Ky.

Masters in Veterinary Science at University of Kentucky, Gluck Equine Research Center, Lexington.

Rafaela De Negri said that when the opportunity arose to come to Kentucky, she couldn’t resist. The remarkable equine caseload at UK’s Veterinary Diagnostic Laboratory gave her the opportunity to study a collection of equine diseases she wouldn’t be able to see anywhere else in the world.

“During my pathology residency, I became more engaged in veterinary sciences, and my interest in infectious diseases grew stronger,” she said. “This led me to pursue a master’s degree with Dr. John Timoney, a renowned scientist and professor in equine infectious diseases at the Gluck Center.”

Streptococcus infections are important to the global horse industry because they can cause large outbreaks and severe disease in horse populations. There are two key pathogenic bacterial species of *Streptococcus* in horses: *Streptococcus equi* and *Streptococcus zooepidemicus*.

De Negri has investigated differences in equine serum antibody responses to these two bacterial infections. *Streptococcus equi*, the causative agent of strangles, is highly contagious, and horses can be carriers

and shed the bacteria, although they themselves might show no outward clinical signs. The other bacterium, *Streptococcus zooepidemicus*, causes lower respiratory and reproductive tract infections that can lead to sporadic abortions in pregnant mares.

“I investigated and compared the antibody response of horses infected with *S. zooepidemicus* in their respiratory and reproductive tracts and investigated the antibody responses of donkeys and horses with *S. zooepidemicus* bronchopneumonia,” she said.

S. equi is a clonal descendent of an ancestral strain of *S. zooepidemicus*. Although they share more than 98% DNA and express many similar proteins and virulence factors, they display different pathogenic properties. Of note is infection by one organism does not cross-protect the horse against the other, De Negri said.

According to De Negri, very little is known about how these two pathogens can be so similar and yet have different host interaction and cause distinctly different infections. Therefore, her research aims to gain a better understanding of the pathogenic differences of the two organisms. This information can be used for the development of improved vaccines and diagnostic tools.

De Negri recently graduated and is currently looking for a position that taps into her interest in and knowledge of molecular mechanisms of pathogenesis and immunology of infectious disease, vaccine development, and diagnostics. **UK**

>Shaila Sigsgaard is an editorial assistant for the Bluegrass Equine Digest.



Seminar Series Kicks Off Jan. 30

The schedule for the 2014 University of Kentucky Department of Veterinary Science Diagnostic and Research Seminar Series at the UK Veterinary Diagnostic Laboratory kicks off Thursday, Jan. 30, with two speakers discussing inflammatory airway disease.

Laurent Couetil, DVM, PhD, professor at Purdue University College of Veterinary Medicine, and Jean-Pierre Lavoie, DMV, professor at the University of Montreal will speak from 3:30-5:30 p.m. on Thursday.

All seminars, except the showcase, short course, and October symposium, are free. The showcase and short course on Feb. 7 and 8 are held at the Four Points by Sheraton.

The seminar series is co-sponsored by Boehringer-Ingelheim, Kentucky Association of Equine Practitioners (KAEP), TheHorse.com, and UK Ag Equine Programs. The series is hosted by the UK Gluck Equine Research Center and UKVDL.

For those who cannot attend in person, TheHorse.com films and archives these lectures, which are free to registered users at Horse Health videos through sponsor Boehringer-Ingelheim. **UK**

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

UK DEPARTMENT OF VETERINARY SCIENCE
EQUINE DIAGNOSTIC AND RESEARCH
2014 Seminar Series
UK Veterinary Diagnostic Laboratory Auditorium
1490 Bull Lea Road, Lexington, KY

January 30 4:00 pm
Inflammatory airway disease—Laurent Couetil, Purdue University; Jean Pierre Lavoie, University of Montreal

February 7 1:00 - 5:30 pm
UK Equine Showcase—Multiple speakers; A program highlighting the university's current equine programs and findings relevant to the industry. **Location:** The Four Points by Sheraton

February 8 8:00 am - 5:00 pm
Kentucky Breeders' Short Course—Multiple speakers; An in-depth program on equine reproduction and horse management issues. **Location:** The Four Points by Sheraton

February 27 3:30 - 5:30 pm
Hot topics in equine reproduction presented at the 11th International Symposium on Equine Reproduction (ISER) in New Zealand—Barry Ball, Ed Squires and Mats Troedsson, UK Gluck Equine Research Center

No seminars in March, April or May

June 19 4:00 pm
Equine welfare—Tom Lenz, Zoetis

July 31 4:00 pm
Foot—Debra Taylor, Auburn University

August 28 4:00 pm
Foal diseases—Pam Wilkins, University of Illinois

September 25 3:30 - 5:30 pm
Equine Herpes Virus-1 (EHV-1)—Steve Reed, Rood and Riddle Equine Hospital; and Udeni Balasuriya and Peter Timoney, UK Gluck Equine Research Center

October 20 1:30 - 5:00 pm
Racetrack Breakdown Symposium—Mary Scollay, Kentucky Racing Commission; David Horohov, UK Gluck Equine Research Center; and John Pelosa, Equine Medical Center of Ocala

November 20 4:00 pm
Shock wave therapy—Scott McClure, Iowa State University

For more information: (859) 218-1089
jenny.evans@uky.edu

UPCOMING EVENTS

January 30, 4 p.m.

Department of Veterinary Science Equine Diagnostic Research Seminar Series, Veterinary Diagnostic Laboratory, Lexington, Ky. Inflammatory airway disease, with Laurent Couetil, DVM, PhD, Purdue University, and Jean Pierre Lavoie, DVM, University of Montreal.

February 6, 6 p.m.

Pastures Please!! Scott County Extension Office

February 7-9

UK Equine Showcase and KY Breeders' Short Course, Four Points by Sheraton, Lexington <http://2014ukequineshowcase.eventbrite.com>

February 15-16

Kentucky Round-Up, Alltech Arena, Kentucky Horse Park, Lexington <http://kentuckyroundup.com/>

February 27, 3:30-5:30 p.m.

Department of Veterinary Science Equine Diagnostic Research Seminar Series, Veterinary Diagnostic Laboratory, Lexington, Ky. Hot topics in equine reproduction presented at the 11th International Symposium on Equine Reproduction in New Zealand, with Drs. Barry Ball, Ed Squires and Mats Troedsson, UK Gluck Equine Research Center.

Like us on Facebook

The University of Kentucky College of Agriculture, Food and Environment have several equine-related pages on Facebook with the latest news and events information. Stay up-to-date with the latest happenings by following our activity on the following pages:

University of Kentucky Ag Equine Programs: UK Ag Equine Programs is an

overarching framework for all things equine at the University, 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, educa-



tion and dissemination of knowledge for the benefit of the health and well-being of horses.

Kentucky Equine Networking Association (created by the Kentucky Horse Council and University of Kentucky): The mission of the Kentucky Equine Networking Association (KENA) is to provide an educational and social venue for equine professionals and other horse enthusiasts from all disciplines to share ideas and business strategies, and

obtain current knowledge on horse and farm management with the principal objective of enhancing individual horse ownership and the horse industry at large.

Saddle Up SAFELY: Saddle Up SAFELY is a new rider safety awareness program sponsored by UK Health-Care, UK College of Agriculture and many community organizations. It aims to make a great sport safer through education about safe riding and horse handling practices. **UK**



Equine influenza virus (EIV) and equine herpesvirus (rhinopneumonitis) cause the most common respiratory diseases in horses — and without a second vaccination, the risk increases.^{1,2} Don't take the gamble. Help protect your at-risk horse by vaccinating with FLUVAC INNOVATOR® EHV 4/1 every six months. Download the Equine Influenza Calculator on iTunes® or learn more at FluVacInnovator.com/calculator.

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*EHV-1 and EHV-4

¹ Fretz PB, Babiuk LA, McLaughlin B. Equine Respiratory Disease on the Western Canadian Racetracks. *Can Vet J* 1979;20(2):58-61.

² Manley L, Caceres P. Retrospective Cohort Study of an Equine Influenza Outbreak in the Chilean Army in the Metropolitan Region of Santiago, Chile, during 2006, in *Proceedings*. 12th Symposium of the International Society for Veterinary Epidemiology and Economics, Durban, South Africa 2009:64.

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