

Quick Fixes to Improve Horse Pastures

Pastures are dynamic ecosystems that respond slowly to many external factors. Pasture management is often a long-term endeavor, with many improvements taking six months or longer to achieve the desired effects. While these substantial improvements require time and effort, there are some quick fixes that can produce noticeable results. Use the following tips to improve pastures in six weeks or less.

Temporary Electric Fencing

A temporary electric fence is an excellent tool to control both grazing and traffic. For a few hundred dollars or less, you can purchase a system and move it around the farm as needed. If you find toxic weeds or other pasture hazards, fence them off to eliminate the dangers to horses until you resolve



PHOTOS COURTESY KRISTA LEA

Use quick fixes to produce noticeable improvements in pasture quality.

the issues properly. Or, use electric fencing to subdivide pastures for rotational grazing or keep horses out of high-traffic areas.

For horses, 3/4-inch-wide tape is recommended for visibility. Chargers (solar, electric, or battery) vary in strength and the distance of tape they can charge successfully. Well-electrified fences are safer than weakly charged ones, because they command more respect from horses. Tread-in posts are lightweight, inexpensive, and easy to install and move, while properly insulated T-posts are sturdy and might be more useful if you intend to leave fencing in place for long periods.

Remember: Ensure fences are grounded properly and that grasses and weeds don't touch the fence. Also, Never use temporary electric fence as a perimeter fence.

Nitrogen

Nitrogen has the single greatest boost to plant production of any fertilizer, but it doesn't linger in the soil long and, therefore, must be applied regularly. Heavily grazed pastures can benefit from light nitrogen application rates (30-50 pounds of actual nitrogen) anytime desirable forages are growing (spring for cool-season grasses or summer for warm-season grasses). Always fertilize cool-season pastures in the fall to boost root growth and help pastures better survive the winter.

Use caution when applying fertilizer



Use temporary electric fencing to subdivide pastures for rotational grazing.

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Horse Pasture Quick Fixes

to pastures if weeds are very active—nitrogen will boost *all* plants' productivity, including the undesirable ones.

Rest

It's a simple, but often hard to implement, concept. However, the benefits of resting pastures make it worth the effort. When horses graze, they often return to the same areas over and over again, eliminating grass and letting weeds take over. Mowing weeds down followed by even a week or two of rest can help shift the advantage back to grass. Resting pastures can be as simple as subdividing one pasture with electric fence and grazing only half of it at a time. Ideally, rotate between pastures every three to four weeks or as dictated by forage availability and growth.

Perennial Ryegrass

This cool-season grass is known for its vigorous germination, good palatability, and excellent forage quality. It germinates in as little as four days (other grasses take weeks) and can provide quick cover in high-traffic areas or fill in bare areas left by aggressive grazing. Perennial ryegrass is a common base for pastures in Europe, but is not utilized as often in the United States because its longevity is poor (one to two years) in regions with hot summers. A word of caution: Perennial ryegrass can be infected with a toxic endophyte similar to tall fescue. Never buy turf-type perennial ryegrass for pastures. Always insist on an endophyte-free forage variety.

Take-Home Message

Small, inexpensive changes can have big impacts on pastures. These fixes can

Plan Ahead

Fall is the best time to seed cool-season grasses, but don't wait until the leaves change to start planning. Start preparing now for fall seeding by determining what pastures should be killed and re-established or overseeded to improve the stand.

Many herbicides have long reseeding windows and must be sprayed soon to allow for fall seeding.

Reserve seed drills and other equipment ahead of time, or perform annual maintenance on owned equipment.

Also, purchase seed soon, as there could be limited availability of desirable varieties closer to prime fall seeding time. Choose grass varieties proven to perform well in your area. Common, variety-not-stated (or VNS) seed might have a lower price, but likely will not perform as well and, ultimately, could be expensive in terms of lost productivity.

Now is also a great time to soil test pastures and apply any needed lime and fertilizers.

provide temporary relief to exhausted pastures until you can implement long-term solutions such as overseeding, complete re-establishment, targeted weed control, and a comprehensive soil fertility program. Contact your local county extension agent for more information, or find additional information in the resources below. [UK](#)

>Krista Lea, MS, coordinator of the University of Kentucky (UK) Horse Pasture Evaluation Program, and Ray Smith, PhD, professor and forage extension specialist at UK, provided this information.

Masthead

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■ The Horse: Your Guide To Equine Health Care

Erica Larson, News Editor
Brian Turner, Layout and Design

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Find more information in the following UK forage publications:

ID-165 Temporary Fencing for Horse Pastures
www2.ca.uky.edu/agcomm/pubs/id/id165/id165.pdf

AGR-200 Soil Sampling and Nutrient Management in Horse Pastures
www.uky.edu/Ag/Forage/agr200.pdf

ID-143 Rotational Grazing
www2.ca.uky.edu/agcomm/pubs/id/id143/id143.pdf

ID-142 New Recommendations for Perennial Ryegrass Seedings for Kentucky Horse Pastures
www2.ca.uky.edu/agcomm/pubs/id/id142/id142.pdf

ID-147 Establishing Horse Pastures
www.uky.edu/Ag/Forage/id1471.pdf

How Does Transport Impact Senior Horse Immune Function?

Researchers have long known that transportation can be stressful for horses—not only for their minds but also for their bodies. Still, scientists haven't yet zeroed in on all the ways travel impacts horses' body systems. They've proven that transport negatively affects the immune function of other species, but little is known about horses, particularly senior horses.

So recently, Alessandra Campana-Emard, a UK student working under the direction of Amanda Adams, PhD, an associate professor at UK's Gluck Equine Research Center; and colleagues including Suzanne Schindler, a veterinary student at Lincoln Memorial University, in Harrogate, Tennessee, set out to determine how transport impacts horses' immune systems. Specifically, they studied a group of horses that could be particularly at risk when immune function is diminished: senior horses.

"Senior horses, comprising a significant percentage of the equine population, travel frequently ... which is of concern for two reasons," Campana-Emard said. "First, it has been shown that, with increasing age, there is a decline in immune function and an increased production of inflammatory cytokines," which results in a chronic, low-grade state of inflammation known as inflamm-aging.

"Second, it is imperative to understand the impact of age and traveling stress on immune function to determine if the transportation of older horses may increase their susceptibility to infection and, if so, for how long," she said.

Campana-Emard said the team hypothesized that, following short-distance transportation:

- Stress hormone (cortisol) levels would increase;
- Cell-mediated immune responses (which protect the body against intracellular organisms, such as viruses, using special white blood cells called T-cells; the T-cells recognize when a cell has been infected by a pathogen and act to eliminate it before the pathogen can replicate) would decrease; and



PHOTOS COURTESY DR. AMANDA ADAMS

The senior horses in Dr. Amanda Adams' herd experienced decreased immune function and elevated stress hormones following transport, changes that could take more than a month to return to normal levels.



Regardless of their age, always ensure horses are healthy prior to transport.

- Inflammatory cytokine production would increase.

The team used 16 senior horses with an average age of 25. They collected baseline blood samples and evaluated clinical parameters a week before a 1.5-hour trip. They gathered the same samples and data 15 minutes before the trip, 15 minutes after, and on Days 3, 7, 14, and 21 after transport.

Some of the team's key findings included:

- Horses had decreased INF- γ (interferon-gamma, an inflammatory mediator produced by lymphocytes) production starting 15 minutes after travel and through Day 21;
- After transport, lymphocyte gene expression showed reduced INF- γ , TNF- α (tumor necrosis factor alpha, a cytokine involved in mediating systemic inflammation), and IL-10 (interleukin-10, another anti-inflammatory cytokine) levels;
- Cortisol levels were increased 15 minutes after travel;
- There were no differences in whole blood gene expression before and after transportation; and

- Horses' body weights decreased on Day 3 post-transport.

So what do these results mean?

"Horses transported experienced decreased immune function and elevated stress hormones," Campana-Emard said, "and these changes may take more than a month to return to normal levels."

Adams said owners can use these results when deciding when and if to transport their senior horses, as well as after transport.

"Given transportation has an impact on immune function it is important to ensure recovery time for horses after being transported and to watch for any signs of illness, including decreased appetite, temperature, or nasal discharge," she said. "It is also important to implement biosecurity measures to reduce exposure or introduction of disease, as the immune response may be weakened and not able to combat as efficiently after travel. Most definitely avoid transporting a horse that is sick or even slightly sick, especially those with respiratory illness.

"Following general and practical guidelines to minimize stress during transportation is important with consideration to duration of travel, offering dust-free hay, providing clean water every three to six hours, and orientation in the trailer," she added.

Moving forward, Adams said she and colleagues are working to determine "if there is anything we can do in terms of nutrition or supplementation to support the immune system of the horse during transportation."

Additionally, she said, she and her team plan to conduct studies over the next year to determine whether young and adult horses yield similar results as the senior horses.

"More importantly, we plan to determine if previous history of travel may have an effect on the immune responses or not," she said. "For instance, if the horses are acclimated to travel, will we still see dramatic changes in immune function as we saw in this study using horses that only recently travel once per year at the most?"

Adams added, "We recognize that we're not going to stop transporting horses, but the goal of this research would be to improve how we manage and support horses through travel." **UK**

>Erica Larson is the news editor for *The Horse*.

Why Can't You Kill Equine Internal Parasites in the Field?

Q Why isn't there a worm-killing treatment for the fields? I rotate my horses from one grazing pasture to another and would be interested in some type of treatment after I move them off the field.

A The simple answer is that most such treatments, if effective, would also kill a lot of the natural fauna. Earthworms, other free-living nematodes, beetles, mites, etc., would die as well, and that's not desirable.

One remedy has shown promise in this regard, though. Nematode-trapping fungi are free-living soil-dwelling organisms that can effectively kill parasitic larvae in feces. Some of these fungi species have acid-resistant spores that can make it through the intestinal tract of a horse or a ruminant. This means you can feed the spores to animals and ensure they end up in the feces with the parasitic eggs and larvae. But, while there's been a lot of research done with these fungi over the last 25 years, so far none of these products are commercially available. **UK**



Nematode-trapping fungi can effectively kill parasitic larvae in feces, but there aren't currently any such products commercially available.

>Martin Nielsen, DVM, PhD, Dipl. ACVM, is an associate professor of parasitology and the Schlaikjer professor in equine infectious disease at the UK Maxwell H. Gluck Equine Research Center.

GRAD STUDENT SPOTLIGHT

NAME: VERONICA BILL

From: Pasadena, Maryland
Degree and institute where received:
 University of Kentucky, BS, Equine Science and Management with a dual minor in Animal Science and Agriculture Economics

When Veronica Bill visited UK, she fell in love with the College of Agriculture, Food and Environment and all opportunities in the equine and agriculture industry.

"I wanted to go to a university that was involved in the community and had opportunities for internships and employment so I could have hands-on learning, in addition to a solid academic foundation," Bill said.

After earning a BS from UK, she decided to continue her education at the university and is currently pursuing her master's in Animal Science with an equine nutrition emphasis. Specifically, Bill is studying the relationship between forage chemical composition and equine digestion and nutrition.

"I have loved being involved in some of the extension and education efforts of the department," she said. "It has been such a great experience to see my education come full-circle from taking classes at the college and attending extension events as a spectator, to now being involved in helping to teach animal nutrition courses and volunteering at extension events."

Bill plans to graduate this fall and hopes to find a job where she can continue to contribute to the equine and agriculture industry. **UK**



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

Tapeworms in Horses

The equine tapeworm, *Anoplocephala perfoliata*, is present on most properties where horses have pasture access. Therefore, it's not surprising to find this parasite in a horse. As is the case with all parasite infections, the overwhelming majority of horses harboring tapeworms tolerate them very well without any signs of discomfort or colic. It is just not in the interest of the parasites to cause disease; the horse is their home.

Occurrence

Tapeworms are widespread and common in horses across the world. However, their presence depends on climatic conditions favoring the oribatid mite, which is the intermediate host. In dry and arid states such as Arizona, Texas, Nevada, and parts of California, horses are rarely—if ever—exposed to tapeworms. Rather, tapeworms usually live in areas with lush green pastures.

Disease

Why does tapeworm-related disease sometimes occur? There are many possible reasons. Horses might be exposed to an unusually high infection pressure, which basically means an uncommonly large number of tapeworms. This could be driven by climatic conditions or overstocked and overgrazed paddocks and pastures. A horse with a suppressed immune system due to other disease or stressful events is more susceptible to parasite infection and disease.

A. perfoliata tapeworms live at the junction between the ileum and the cecum, which is where the small intestine connects to the large intestine. They attach to the intestinal wall just inside the cecum. As a result, the disease this parasite usually causes is colic related to the ileocecal region. The horse might experience a simple ileal impaction or a more complicated intussusception, in which parts of the ileum telescope into the cecum. In rare cases, the intestinal tract can twist and rupture. While veterinarians can typically treat the simple impactions medically, intussusceptions and twisted intestines definitely require surgery.

Tapeworms

Tapeworms infect horses of all ages, and horses do not appear to establish immunity to them. Thus, tapeworm-caused disease can happen at any age. In recent years, clinicians have observed that weanlings and yearlings experiencing their first tapeworm infection might be particularly at risk for developing ileocecal colic. So it's a good rule of thumb to begin tapeworm treatment right around or shortly after weaning.



COURTESY JAMIE K. NORRIS

The *A. perfoliata* tapeworm, pictured here, can be found on most farms.

Diagnosis

Researchers have shown that regular fecal egg counts generated with the McMaster technique do not detect tapeworms reliably, missing more than 90% of infected horses. Fortunately, better modified methods exist. One of these can detect at least 90% of horses with worm burdens of at least 20 worms, which is a moderate to low count. Veterinarians can also detect antibodies against these parasites in either serum or saliva. The presence of tapeworm antibodies means the horse is either currently infected or has recently been exposed to the parasite in the environment. This information can help guide veterinarians toward recommending an appropriate parasite control protocol for the farm.

Treatment

There are two types of dewormers available for treating equine tapeworms. One is praziquantel, which can be found in several products. It is most often combined with ivermectin or moxidectin, but manufacturers also produce it in a stand-alone formulation in some countries. Praziquantel has been found to be very effective against *A. perfoliata*. The other type of dewormer is pyrantel pamoate, which is just as effective as praziquantel when administered in a double dose. A single dose of pyrantel can be expected to reduce tapeworm burdens by 80-85%, while a double dose reduces them by at least 95%.

Equine tapeworms don't appear to be resistant to either of these dewormers, but that does not mean it cannot occur. Researchers have not studied resistance in tapeworms extensively, and it is possible that emerging resistance could go undetected.

Other Tapeworms

There are two other tapeworm species infecting the horse: *Anoplocephaloides mamillana* and *Anoplocephala magna*. These are both very rare and have not been associated with disease. Their life cycles are similar to that of *A. perfoliata*, but they live in the small intestine and not the cecum. Sometimes migrating tapeworm segments (proglottids) of either species can be observed in the feces of healthy horses. This is generally not observed for the other two species. None of the three species can infect other animals or humans. Similarly, horses cannot get tapeworms from dogs, cats, or wildlife. **UK**

>Martin Nielsen, DVM, PhD, Dipl. ACVM, is an associate professor of parasitology and the Schlaikjer professor in equine infectious disease at the UK Maxwell H. Gluck Equine Research Center.

UKVDL Disease Mapping Initiative Featured Map

Rhodococcus equi

Rhodococcus equi is the most serious cause of bacterial pneumonia in foals 4 to 6 months old.

Visit TheHorse.com/39257 to watch Fernanda Cesar, DVM, MS, Dipl. ACVIM, a PhD candidate in the UK Department of Veterinary Science, provide an update on the most current *R. equi* research taking place at UK.

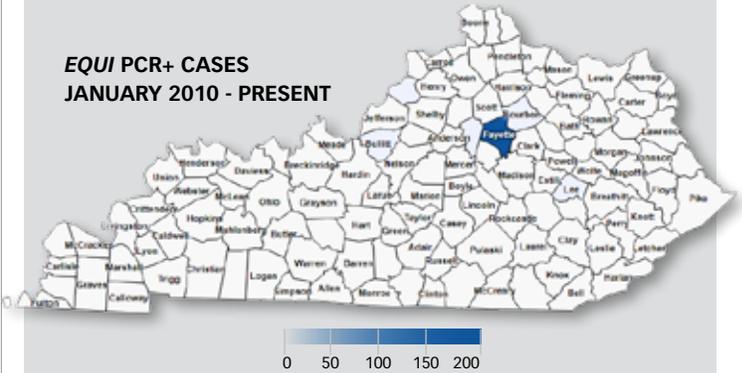
Individuals with questions or concerns about disease outbreaks can contact UK Veterinary Diagnostic Laboratory (VDL) at 859/257-8283. **UK**

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

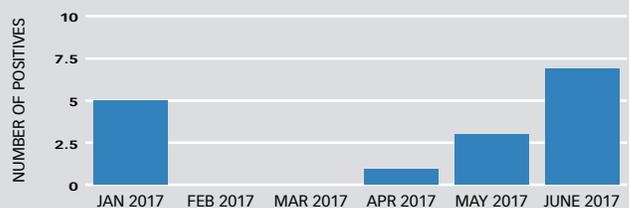
2017 R. EQUI PCR+ CASES



EQUI PCR+ CASES JANUARY 2010 - PRESENT



2017 R. EQUI PCR+ CASES BY MONTH



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

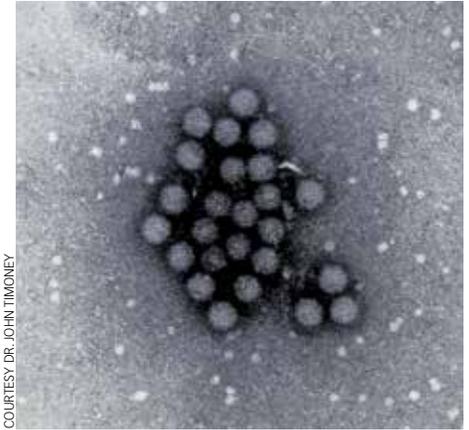
Laboratory Diagnosis of Strangles

Highly contagious equine strangles is transmitted by inhalation or ingestion of *Streptococcus equi* originating from discharges of the nose or abscess of infected horses. Nasal shedding begins approximately 4-16 days after initial infection and continues for two to three weeks in most horses. However, survival of the organism in pus located in the guttural pouch may continue for months or years and be associated with periodic escape of the organism through the nasal passages. Persistent carrier animals may therefore serve as long-term sources of infection for naive, susceptible horses with which they have contact. Some carrier horses may be

recognized by an intermittent unilateral nasal discharge, cough, or have palpable swelling in the throatlatch area below the larynx. Numbers of viable *S. equi* in infected guttural pouches become very few and detection of carrier horses generally requires direct endoscopic examination and sampling of the pouch.

Bacteriologic Culture

Nasal swabs and nasopharyngeal washes collected two to three days after onset of fever in the acute phase of strangles and pus from abscesses usually contain abundant *S. equi*. The characteristic watery colonies are easy to recognize on appropriate selective culture media within 18 hours of incubation. Sugar fermentation assays can then be completed in three hours



COURTESY DR. JOHN TIMONEY

Strangles is caused by *Streptococcus equi*.

to confirm identity. The wide availability, low cost, and diagnostic certainty provided by demonstration of the pathogen argue strongly for inclusion of culture in strangles outbreak diagnosis. Ideally, three to five horses in a nascent outbreak should be cultured to establish presence of the pathogen and mitigate effects of poor sample quality. In contrast to its value in acute phase diagnosis, culture has low sensitivity in detection of chronic carrier horses. This is explained by massive die-off of *S. equi* in pus-filled guttural pouches in combination with infrequent drainage into the nasopharynx.

Polymerase Chain Reaction (PCR)

A variety of formats and gene targets based on PCR have been shown to be at least three times more sensitive than culture in detection of *S. equi* in diagnostic samples from the nasopharynx and guttural pouch. PCR will detect DNA of *S. equi* in numbers too few to be detectable by culture and is effective in the presence of background contaminants. However, in addition to cost and limited local availability, a positive PCR reaction is not proof of presence of viable *S. equi* and hence there is risk of false positive reactions. Also, PCR is vulnerable to accidental contamination during collection and in the laboratory. Nevertheless, PCR is by far the most sensitive diagnostic aid in detection of possible guttural pouch carrier horses.

Serum Antibody Detection:

S. equi specific antibody responses are detectable in serum two to three weeks following exposure, persist at high levels in most horses for 10-12 weeks, and—with the exception of SeM

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Diagnosing Strangles

antibodies—decline to near baseline by 30 weeks. Ideally, antibody responses to two or three proteins of *S. equi* should be measured in combination for greatest sensitivity and allow for differences in responses of individual horses. A positive level of antibody could indicate infection or vaccination within

the previous six months or possibility of persistent guttural pouch carriage. Serology is especially helpful in diagnosis of occult (bastard) strangles abscesses and *S. equi* associated immune mediated vasculitis (purpura). Affected horses usually have very high antibody levels to *S. equi* proteins. Serology is also helpful in deciding whether to vaccinate. Horses with a preexisting positive level of antibody are likely to have

protective immunity and a few of these will be at risk of developing purpura if vaccinated.

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COMMENTARY

Biosecurity

Biosecurity is a commonplace term these days among horse owners and equestrian event managers. Horse owners must take personal responsibility for reducing risks of equine infectious disease outbreaks. Newly implemented vaccination and isolation facility requirements for horse event venues are another layer of protection, but cannot take the place of an implemented farm biosecurity plan.

Biosecurity guidelines from reliable resources are readily available on the internet and in printed materials. The word “guideline” should be emphasized. Protocols and disinfectant products used in a university equine hospital that has painted concrete stalls, drains, and a cadre of well-trained personnel whose sole responsibilities are cleaning and disinfecting stalls might not be appropriate or practical for a different equine facility. The environments are different, the horses’ risks are different (hospital patients vs. healthy horses), and the types of pathogens likely present are very different. The best biosecurity plan is one tailored to the facility and environment, the horses, and the risks. Risks are the types of pathogens of concern (horse show vs. a broodmare foaling barn), as



ALEXANDRA BECKSTETT

One rub rag used to polish several horses’ muzzles prior to entering the show ring can be the weak link in biosecurity. Common sense is the first step to effective biosecurity.

well as the volume of human and horse traffic at the facility (busy horse sales venue vs. closed herd of retirees).

Obtaining biosecurity information from reliable resources is also critical. I was amazed at how much interesting (and often inaccurate) information is available regarding biosecurity.

Take the internet article on the dangers of mosquitoes to horses (true) since they can transmit West Nile virus to horses (true), and also the deadly chikungunya virus to horses (false, false, false). Chikungunya virus is not known to cause disease in horses anywhere, let alone be a “deadly disease to horses” in the U.S. Somehow I was not surprised that the origin of the article was a manufacturer of insecticides. While insect control is part of a comprehen-

sive biosecurity program, scare tactics are not effective or ethical marketing strategies.

In another article on biosecurity, the author referred to a disinfectant type that was the “gold standard” of disinfectants. However, there is no “gold standard” of disinfectants for horse facilities. Disinfectants have varying capabilities of killing different pathogens under different environmental conditions (hard water, cold environmental temperatures, organic matter, etc.).

One of the broadest spectrum disinfectants is bleach. However, bleach is readily inactivated in the presence of organic matter (soil, manure, etc.), and is most effective on hard, nonporous surfaces that have been thoroughly cleaned and are free of organic matter.

Most commercially available disinfectants with label claims for equine pathogens have been tested in 5% organic matter, which still means a very, very clean surface.

One rub rag used to polish several horses’ muzzles prior to entering the show ring can be the weak link in biosecurity. Allowing show ponies to sniff noses at the entry gate “to get acquainted” is an effective way to spread respiratory disease. Common sense is the first step to effective biosecurity.

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Inside the UK, Kentucky Horse Park's Kids' Barn

There are many different educational barns at the Kentucky Horse Park for visitors to explore, including the very popular Kids' Barn. This attraction includes informative stations for younger guests to learn about horses and horse care. University of Kentucky Ag Equine Programs partnered with the Kentucky Horse Park to include several stations for guests to learn about aspects of horse care and the equine industry, including the Kentucky 4-H Horse Program, equine parasites, and more.



PARASITE STATION

Visitors can learn about the different types of parasites or "worms" that can inhabit a horse's body by taking a journey through the equine digestive system with a worm named Ichy. Pictures of various types of worms are included, along with the worms' characteristics and any problems they might cause. Actual preserved parasites, such as roundworms and strongyles, are on display in jars at the station.



BODY CONDITION SCORING STATION

At the body condition scoring station, visitors learn about the importance of and methods behind body condition scoring. A diagram displaying the different body condition indicator areas on a horse is paired with pictures of horses on interactive panels, so kids can even try their hand at using the body condition scale themselves to score the horse pictures.

PHOTOS BY MADDIE REGIS AND KATIE LAMPERT, UNIVERSITY OF KENTUCKY



FORAGE STATION

At the forage station, visitors will learn about the essential components of a horse's diet, including grass, hay, and grain. Quality of hay, types of hay, and how much to feed different classes of horses are also discussed in interactive panels. Types of hay, including alfalfa and orchardgrass, are on display at this station.



4-H HORSE PROGRAM STATION

At this station, visitors can learn about the various aspects of the Kentucky 4-H Horse Program, including horse judging, hippology, and the State 4-H Horse Show. Kids can even try their hand at judging with photos of horses on interactive panels, as well as a hippology panel where English tack is matched to its name. The station also provides information about the different disciplines one can compete in at the State 4-H Horse Show.

100th Equine Diagnostic and Research Seminar Series is Sept. 27

The UK Department of Veterinary Science invites you to a mini-symposium focused on “Ensuring the Golden Years: Problems and Care of Old Horses” to celebrate our 100th Equine Diagnostic and Research Seminar Series on Sept. 27 at 1 p.m. at the UKVDL, in Lexington.

The mini-symposium is free but registration is required at <https://100thseminarseries.eventbrite.com>. The registration deadline is Sept. 22.

A reception to celebrate the 100th seminar series will immediately follow the lectures.

The series began in August 2006 and features speakers from universities and companies across the United States. The series is held monthly at the UKVDL to provide continuing education credit to veterinarians and veterinary technicians. **UK**

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

SYMPOSIUM SCHEDULE

1:00 - 1:15	Introduction and Welcome <i>David Horohov, PhD, UK Gluck Equine Research Center</i>
1:15 - 1:45	Immunosenescence and How it Affects the Care of the Old Horse <i>Amanda Adams, PhD, UK Gluck Equine Research Center</i>
1:45 - 2:15	How to Incorporate an Aging Horse Health Care Program into your Practice <i>Marian Little, DVM, Luitpold Pharmaceuticals</i>
2:15 - 2:45	Endocrine Diseases of the Older Horse and How to Diagnose Them <i>Lisa Tadros, DVM, PhD, Dipl. ACVIM, Michigan State University</i>
2:45 - 3:15	BREAK
3:15 - 3:45	Dental Care of the Geriatric Horse <i>Jack Easley, DVM, MS, ABVP, Dipl. AVDC (Eq), Easley Equine Dentistry</i>
3:45 - 4:15	Feeding the Old Grey Mare <i>Sarah Ralston, VMD, PhD, Dipl. ACVN, Rutgers, The State University of New Jersey</i>
4:15 - 4:45	Feeding the Older Horse with PPID and/or Insulin Resistance <i>Kristine Urschel, PhD, University of Kentucky</i>
4:45 - 5:15	Podiatry Care of Older Horses <i>Scott Fleming, DVM, CF, Rood & Riddle Equine Hospital</i>

Upcoming Events

Aug. 31, 4-5 p.m.

UK Department of Veterinary Science Equine Diagnostic Research Seminar Series

Topic: Regenerative Medicine

Speaker: Jamie MacLeod, VMD, PhD, UK Gluck Equine Research Center

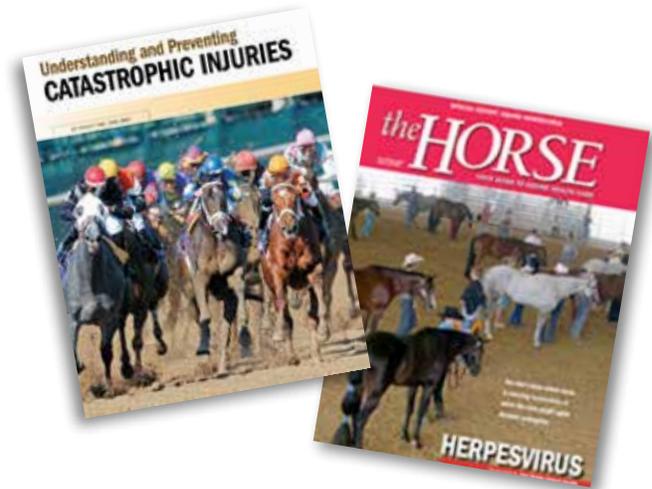
Location: UKVDL, Lexington, Kentucky

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