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Bluegrass Equine DIGEST

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Off-The-Track Thoroughbred Adoption Issues Examined

Researchers recently investigated two issues related to off-the-track Thoroughbred adoption: identifying individual horse characteristics that influence the length of stay at an adoption facility, and determining any identifiable horse characteristics that make adopted animals more likely to be returned to the adoption facilities.

Results from the study, funded by the Equine Drug Research Council and conducted by Jill Stowe, PhD, associate professor in agricultural economics at the University of Kentucky, in conjunction with Michelle Kibler, MS, PhD candidate in agricultural and resource economics at Colorado State University, potentially have real-world implications for nonprofit organizations dedicated to rescuing, retraining, and rehoming these horses.

According to the study authors, organizations can use these results to identify possible ways to reduce costs and/or maximize the number of horses they can re-home. The study results can also be used to educate racehorse owners and trainers about what types of horses the aftermarket desires most, which might help them determine the optimal time to put a horse up for adoption.

ANNE M. EBERHARDT

The study found that horses with fewer activity restrictions, those that were sound enough to do some jumping, and those that were young had faster adoption rates.

According to the study authors, horses that were sound enough for some amount of jumping were adopted 37 days faster than those that could only be ridden on the flat or were only pasture sound. Additionally, adopters preferred younger horses. Each year of age increased the length of a horse's stay at the facility by more than three days.

The study also found weak evidence of a color preference for horses, noting that gray horses are adopted about 33 days sooner than bays, and chestnut horses are adopted 24 days sooner than bays.

Interestingly, though, horses with fewer activity restrictions were more likely to be returned, as were grays, which led the authors to theorize that adopters who reacted quickly to horses with fewer activity limitations or a certain color might not put as much time into thoroughly evaluating temperament and overall fit. Those results might imply that it is important for facilities to encourage potential adopters to think seriously about their expectations and needs prior to adoption.

Overall, the researchers found that reasons for returning a horse to its adoption facility are highly variable and unpredictable and might depend more on the owner's personal circumstances rather than the horse's individual attributes.

According to the authors, this study contributes to the larger issue of the unwanted horse population in the United States. Nonprofit organizations dedicated to rescuing, retraining, and rehoming unwanted horses are critical to minimizing this problem.

The study focused on the off-the-track Thoroughbred segment of the unwanted horse population for several reasons. First, there is a steady supply of "unwanted" Thoroughbreds; the relatively large number of racehorses produced yearly combined with a low success rate on the track results in a yearly excess supply. Also, Thoroughbred racing is highly visible in the U.S., and unwanted Thoroughbreds often receive the bulk of media attention. Finally, there is a viable aftermarket for Thoroughbreds, as they are naturally suited for a number of other disciplines, such as combined training, jumping, and dressage, and are often competitive both nationally and internationally. UK

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

Information was provided by Jill Stowe, PhD, associate professor in agricultural economics at the University of Kentucky, and Michelle Kibler, MS, PhD candidate in agricultural and resource economics at Colorado State University.

Articles of Interest

Eastern Tent Caterpillar Outlook for Spring

Experts report that the Eastern tent caterpillar egg hatch for Central Kentucky will likely begin mid-March.

"The development of the Eastern tent caterpillar—and insects in general—is directly correlated with air temperature. This helps predict when they will be active," said Lee Townsend, PhD, University of Kentucky College of Agriculture entomologist. "Temperature data from UK's Ag Weather Center so far shows a pattern in Central Kentucky that is very similar to 2012."

Townsend said temperature information can help predict when eggs will begin to hatch but gives no clue as to how many caterpillars will be present in a given area.

"Last year's experience is the best thing to go by," he said. "There has been a gradual but relatively steady general increase in tent caterpillar numbers, and they have become much more apparent in some areas over the past few years. However, concentrations can be spotty, heavy in some areas and very light in others. The Eastern tent caterpillar overwinters in ringlike masses of 100 to over 400 eggs around pencil-sized twigs. A relatively small increase in the number of egg masses from one year to the next can mean a big jump in caterpillar numbers."

The Eastern tent caterpillar is active early each spring. It is an important insect in horse country due to its causative role in mare reproductive loss syndrome (MRLS), which resulted in staggering foal losses during the 1999-2001 outbreak. MRLS can cause late-term foal losses, early- and late-term fetal losses, and weak foals. Subsequent studies by UK researchers revealed that horses will inadvertently eat the caterpillars, and the caterpillar hairs embed into the alimentary tract lining. Once that protective barrier is breached, normal alimentary tract bacteria might gain access to and reproduce in sites with reduced immunity, such as the fetus and placenta.

According to Townsend, horse owners with spring-foaling mares should now check their fencelines for wild cherry trees and in a few weeks for signs of tent caterpillar activity.

"This is a good time to prepare," Townsend said. "Begin by checking pasture fencelines to see how abundant wild cherry is (around) them. If practical, plan to move pregnant mares from areas where these trees are abundant to minimize the chance of exposure to the caterpillars. The potential is greatest when the mature tent caterpillars leave trees and wander to find places to pupate and transform to the moth stage." UK

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Eastern tent caterpillar egg mass

>Lee Townsend, PhD, UK College of Agriculture entomologist, and Holly Wiemers, MA, communications director for UK Ag Equine Programs, provided this information.

MASTHEAD

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UK's Horse Pasture Evaluation Program Identifies Kentucky Pasture Trends

With more than 20,000 total farm acres evaluated since its inception in 2005 to the end of 2012, the University of Kentucky's Horse Pasture Evaluation program, led by Ray Smith, PhD, professor and forage extension specialist within UK's department of plant and soil science, knows a thing or two about what's growing (or not growing) in Kentucky's horse pastures.

In 2012, the program's evaluations started early due to a mild winter that left many farms concerned about tall fescue in the winter months. Sampling began in mid-February and continued until early November. During this time, the program's team completed 18 farm evaluations.

In addition to providing valuable information to each of its client farms, the

Pasture Evaluation Program

program also produces valuable research. With almost 130 evaluations performed over eight years, the program has a large data set about Kentucky horse pastures. That data set has been determined to be representative as well. A senior research project conducted by student Jacy Ritchie analyzed the team's sampling technique to calculate how much field variation was being missed. She concluded that its sampling technique captures 95% of the variation within a field.

Understanding the program's clients is essential to tailoring its services to meet their needs. The program has determined that there are two main types of clients: the large-scale commercial breeding operations and the small "backyard" pleasure farms. Each type has its own concerns and challenges.

According to a year-end report, the larger farms have typically been Thoroughbred operations with extremely low stocking rates, experienced managers who are versed in agronomic practices, and the necessary resources for continued pasture improvement. Typically these farms are largely unaware of what is in their pastures until a problem, such as pregnancy loss, colic, or a mysterious death, arises. For these farms, endophyte-infected tall fescue is always their biggest concern and rightfully so. Of the pastures sampled in this client set for ergovaline concentration (a toxic compound produced by infected tall fescue), 92% had detectable levels of ergovaline and 20% had levels higher than 1,000 ppb (parts per billion), four times higher than what UK considers dangerous to late-term pregnant mares. These farms are often surprised at the amount of tall fescue present, as well as the shortage of bluegrass and orchardgrass concentrations are. Weeds, with the exception of nimblewill, are not often an issue, especially in the larger pastures.

UNIVERSITY OF KENTUCKY

Using a grid to evaluate pasture

Tall fescue grass

In these situations UK's team focuses on removing or managing around tall fescue and selecting pastures that should be killed off entirely. In 2012 the program had several farms choose to spray out pastures completely due to the tall fescue and nimblewill present. Several others selectively removed tall fescue in pastures that were otherwise in good shape. These farms also tend to have set schedules for seeding, mowing, dragging, and fertilizing. In many cases the Horse Pasture Evaluation Program team advised client farms to reduce those scheduled practices and do them at more opportune times to maximize the return on investment and save money for other needs.

The second kind of client farm the program predominantly serves is the small "backyard" pleasure farm, which has an entirely different focus and challenges than large farms. The pasture evaluation team has found that these farms tend have far too many horses for the amount of land available, the soil types are generally less productive, and the owners have little or no experience in many agronomic practices. Very few of these farms ever breed horses, so tall fescue is an asset to them, as it is extremely tolerant of intense grazing. Their goals are usually to improve ground cover, reduce weeds, and maintain those results. Some also express an interest in

STUDENT SPOTLIGHT

Name: **Kathryn Laura Smith**
From: **North Augusta, S.C.**
Degrees and institute where received: **BS, Abilene Christian University; MS and PhD in Veterinary Science, University of Kentucky**

Kathryn Laura Smith's combined interest in science and horses led her to pursue her master's degree at the University of Kentucky Gluck Equine Research Center.

Smith's research at the Gluck Center focused primarily on the neurologic manifestation of equine herpesvirus 1 (EHV-1). EHV-1 can cause acute upper respiratory tract disease, abortion, neonatal death, and neurologic disease in horses. Accurate and rapid diagnosis is essential to curtailing the pathogen's spread.

Smith began her research by investigating the prevalence of neuropathogenic EHV-1 strains in Central Kentucky by analyzing archived samples from the 1950s to 2000.

"Later, I worked on improving upon a real-time PCR assay developed by my first mentor, the late Dr. George Allen (PhD), for the diagnosis and genotyping of EHV-1 from clinical samples," Smith said.

One of the objectives was to develop a more sensitive and specific allelic discrimination real-time PCR assay for the detection of EHV, and this was accomplished by redesigning the probes and the primers targeting the viral gene encoding viral DNA polymerase enzyme (ORF30).

"My most recent work involved determining the virulence phenotype of highly cell culture-passaged strains of EHV-1 in BALB/c mice," Smith said. "The EHV-1 strain I inoculated the BALB/c mice with could possibly be used as the basis for a new vaccine."

According to Smith, the improved PCR assay will allow for more expedient and accurate EHV-1 diagnosis, which will be invaluable during outbreaks. Smith recently accepted a job offer from a pharmaceutical company in Pullman, Wash., where she will work in the research and development division. UK

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

Pasture Evaluation Program

reducing clover in order to prevent slobbers or because they have an overweight horse.

When these client farms are advised to seed or spray, follow-up questions tend to be centered on how to do that. These farms are interested in what equipment is needed, where to get that equipment, and how to use it. County extension agents often know the local stores or private farms that allow equipment to be leased. Many of these agents are familiar with the equipment and can help farm owners learn to operate it.

Controlling pasture renovation cost is also a big issue on these farms. Since the program began offering a more affordable, small-farm package in 2010 that excludes expensive tall fescue testing, 16 small farms have invested in the Horse Pasture Evaluation Program and have been making improvements. One in particular has requested services every year indefinitely. That farm has extremely steep-sloped land that was recently a forest. The farm is working one field at a time to improve pastures, with a goal of feeding hay less than 60 days a year.

On small farms, the team encounters a variety of horse breeds. All are usually described as members of the family. These farms typically hear about UK's program through their local county extension agents and over time become regular attendees to many extension events.

Some other trends the team identified:

- 92% of pastures sampled had detectable levels of ergovaline;
- Nimblewill is one of the most common weeds seen on large-scale farms, and most managers have no idea it is there;
- UK specialists frequently recommend more efficient pasture management on large farms, such as mowing, seeding, and dragging of pastures at strategic times;
- Mud is small private farms' biggest challenge; and
- County extension agents are valuable assets to farms big and small. UK

For more information and forage publications, visit www.uky.edu/ag/forage/foragepublications. The group also maintains a Facebook page: UKHorsePastureEvaluation.

>Krista Cotten, graduate student and assistant coordinator of UK's Horse Pasture Evaluation Program, provided this information.

WEED OF THE MONTH

Common name: **Buckhorn Plantain**
Scientific name: ***Plantago lanceolata*** **L.**
Life Cycle: **Perennial**
Origin: **Eurasia**
Poisonous: **No**

Buckhorn Plantain

Buckhorn plantain is widespread across North America and is common in various pastures and turf. Also called narrow leaf plantain, this weed is well-known because of its unique growth habit. Leaves are narrow and have three to five prominent veins. Flowers and seeds are born on a leafless, slightly hairy stem. Flowers are golden brown and arranged in a dense cluster at the tip of the stem, which makes it difficult to distinguish individual flowers. The fruits are brown capsules and are easily recognized atop the stem. Both flowers and fruits occur from May through about September or October.

Fibrous roots are produced from a thick, short taprootlike underground stem. This structure allows buckhorn plantain plants to survive mowing several times during the year. Buckhorn plantain is relatively easy to control with several herbicides; however, it's generally unresponsive to mowing. Hoeing or digging the tap root is successful and should be done before the seed heads are formed. Consult your local Cooperative Extension Service personnel for herbicidal control in your area. UK

>William W. Witt, PhD, a retired researcher in Plant and Soil Sciences, provided this information.

UK Art Museum Features Animal Exhibit

The University of Kentucky (UK) Art Museum will showcase "Art and the Animal," a diverse collection of artwork that highlights animals, including equines, from around the world. The exhibit runs from Feb. 3 to April 28.

An exhibition of the Society of Animal Artists (SAA), "Art and the Animal" portrays both domestic and wild animals in their natural habitat; some might be sleeping while others are in extreme motion. SAA members sent in artwork that was then selected by a jury to be included in the exhibit. The artists combine the beauty of the animals and fine art in numerous ways to display the importance of animals in our lives.

This exhibition includes 70 paintings, sculptures, watercolors, and drawings from all over the United States and tells a story about the animal kingdom. Visitors will have the chance to see a bronze sculpture of a weary lioness, a pastel of a blue jay, and an oil painting portraying a wet kiss between two otters, to name a

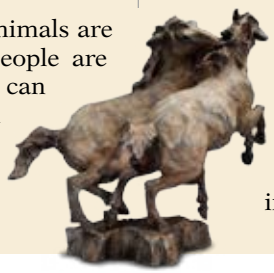
COURTESY UNIVERSITY OF KENTUCKY ART MUSEUM

Susan Fox's *Enchanted Evening*, 1953

Animal Exhibit

few. In addition, 10 works of art featuring horses have been added exclusively for the exhibit's stop in the Bluegrass.

"Our hope is that since animals are something a majority of people are interested in, hopefully they can appreciate the art more and enjoy these incredible animals," said Deborah Borrowdale-Cox, education director for the UK Art Museum. "When art is a subject you understand, it has a stronger voice."



Noted wildlife art scholar David J. Wagner organized the exhibition drawing from the SAA's larger annual juried exhibition, located at the historic Salmagundi Art Club, in New York City.

The UK Art Museum is located in the Singletary Center for the Arts at Rose Street and Euclid Avenue in Lexington, Ky. The hours are noon to 5 p.m. Tuesday through Sunday, and noon to 8 p.m. on Friday. Admission to the "Art and the Animal" is $8 for general admission, $5 for senior citizens, and free for all students, UK faculty, staff, and alumni. The exhibition is also free on Friday nights from 5 to 8 p.m. For more information or to schedule a tour, contact The UK Art Museum at 859/257-5716.

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

Lawsonia Prevalence Patterns Investigated

Yearly variability in exposure to a severe disease-causing bacterium of young horses appears to be different than previously thought. Despite the common belief that the incidence of equine proliferative enteropathy (EPE), a severe gastrointestinal disease of foals and long yearlings, spikes higher in some years than in others, researchers have recently found that perception might not reflect reality.

EPE is caused by *Lawsonia intracellularis*, a Gram-negative bacterium. The condition appears seasonally in Central Kentucky with spikes of cases in October and November and in January and February. At the 2012 American Association of Equine Practitioners Convention, held Dec. 1-5 in Anaheim, Calif., Allen Page, DVM, of the University of Kentucky's Gluck Equine Research Center, presented a retrospective study on the "Incidence of Yearly *Lawsonia intracellularis* Assay Variations from Horses in Kentucky."

L. intracellularis incidence did not vary significantly from year to year.

He compiled fecal and post-mortem (necropsy) polymerase chain reaction (PCR, a type of DNA test) results and serum immunoperoxidase monolayer assay results from cases across Kentucky logged from July 1, 2002, to June 30, 2010. He and his colleagues also reviewed enzyme-linked immunosorbent assay (ELISA) test results of weanlings from three farms where EPE is endemic.

Page said veterinarians and scientist haven't confirmed how horses contract *L. intracellularis*, but they think it is likely through ingesting contaminated feces. While post-mortem examination is the gold standard for diagnosing EPE, the fecal PCR test is highly specific; this means that a positive result has a high correlation with infection. However, the PCR is not as sensitive, meaning that some PCR-negative horses might still be infected. Researchers also believe infected horses shed the organism

Lawsonia Prevalence Patterns

intermittently in feces, so it might be missed with one-time testing. Some at-risk horses without clinical signs were positive on serological assay, meaning that the horses had likely been exposed to *L. intracellularis* but did not develop clinical EPE.

Veterinarians also use serum total protein and albumin concentrations to screen horses for EPE; Page pointed out that low albumin and protein are not very specific for *L. intracellularis* infection, however.

In this study Page and his co-authors found that *L. intracellularis* incidence did not vary significantly from year to year across Kentucky, although they noted October and February spikes in each year. However, on the three endemic farms, seropositivity to *L. intracellularis* was significantly lower from 2011 to 2012 than it was from 2010 to 2011.

Page and his colleagues aren't certain whether the seasonal spikes are the result of increased numbers of susceptible animals (weanlings) during this time or specific seasonal environmental factors. They did find that although the statewide incidence of disease does not appear to change from year to year, specific farms might see variation in *L. intracellularis* exposure rates from one year to the next.

This study helps shed light on the patterns of EPE development and on the relative value of the various forms of *L. intracellularis* screening. UK

>Christy Corp-Minamiji, DVM, is a writer and equine practitioner from Northern California.

COMMENTARY

The Evolution of *Equine Disease Quarterly*

Twenty years ago the Lloyd's Equine Disease Quarterly was born. The inaugural commentary stated: "The purpose of the *Equine Disease Quarterly* is to provide accurate information highlighting an increase or decrease in the incidence of a particular equine disease or syndrome. It will also document the emergence of new or unfamiliar conditions."

In the first edition, the International Collating Centre report was 44 words long; now it fills an entire page at 600+ words. Why should the average horse owner even want to know about equine diseases on other continents? As was repeatedly emphasized at the October 2012 9th International Conference on Equine Infectious Diseases in Lexington, Ky., horses are worldwide travelers, and only through constant disease surveillance, testing, and communication can we further the understanding of disease incidence and spread.

This valuable information provides a glimpse into disease incidence and prevalence not easily obtained anywhere else in the world.

As an example, prior to 1999 the average horse owner had never heard of West Nile virus (WNV). In a few short years after its diagnosis in the United States, the first equine WNV vaccine was produced, and now several vaccines are commercially available.

Twenty years ago, Hendra virus was unknown. While this disease is still foreign to North America, we can all learn valuable lessons on how the Australians have dealt with the disease since its emergence. In contrast, grass sickness has been a recognized equine disease for nearly a century, yet remains mysterious despite research efforts.

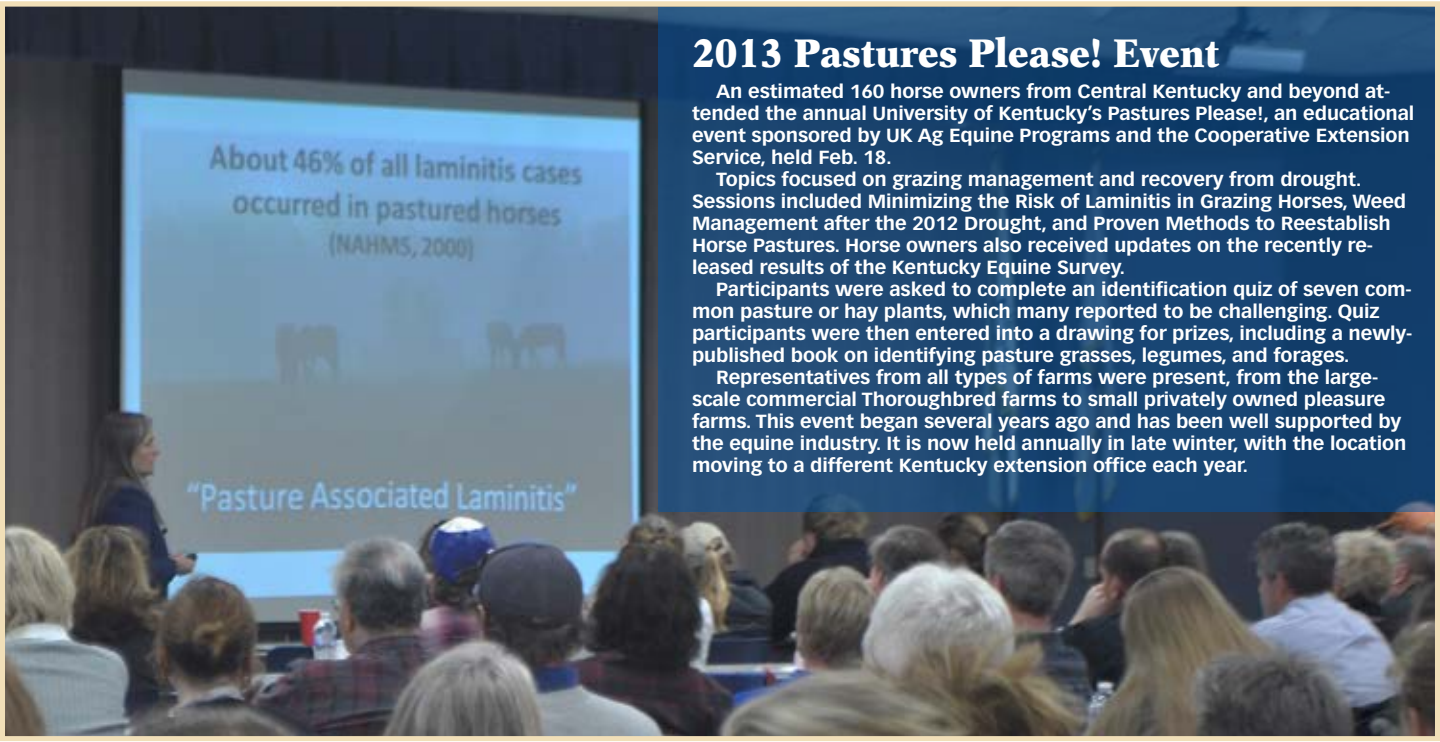
Equine Disease Quarterly has reported on diseases of importance in North America via national database data and a cadre of generous guest authors, leaders in their fields. Documenting numbers of cases of diseases and conditions in Kentucky has been accomplished through combing the records of the University of Kentucky (UK) Livestock Disease Diagnostic Center (now the UK Veterinary Diagnostic Laboratory). From necropsy cases with diagnoses of cardiovascular disease (1997) to *Salmonella* isolates (2002) and leptospiral abortion updates (2011), this valuable information provides a glimpse into disease incidence and prevalence not easily obtained anywhere else in the world. Other Kentucky-specific data is generously provided from the office of the Kentucky state veterinarian, the Kentucky public health veterinarian, and others.

Unlike most other things in life, *Equine Disease Quarterly* remains free in print copy due to the generous support of Lloyd's of London and is mailed to individuals in more than 100 countries. All editions are archived and available online, and articles are widely disseminated by reprinting in veterinary publications, lay equine magazines, and newsletters.

Since 1986, Lloyd's has donated more than $1 million to support various activities undertaken within the Department of Veterinary Science, including funds for the *Equine Disease Quarterly*. The outcome of this partnership has provided tangible benefits to the equine industry, not just locally, but at national and international levels. We look forward to an ongoing relationship to benefit the health of horses around the world.

CONTACT: Roberta Dwyer, DVM, MS, Dipl. ACVPM, 859/218-1122, rmdwyer@uky.edu,
Maxwell H. Gluck Equine Research Center, University of Kentucky, Lexington, Ky.

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



2013 Pastures Please! Event

An estimated 160 horse owners from Central Kentucky and beyond attended the annual University of Kentucky's Pastures Please!, an educational event sponsored by UK Ag Equine Programs and the Cooperative Extension Service, held Feb. 18.

Topics focused on grazing management and recovery from drought. Sessions included Minimizing the Risk of Laminitis in Grazing Horses, Weed Management after the 2012 Drought, and Proven Methods to Reestablish Horse Pastures. Horse owners also received updates on the recently released results of the Kentucky Equine Survey.

Participants were asked to complete an identification quiz of seven common pasture or hay plants, which many reported to be challenging. Quiz participants were then entered into a drawing for prizes, including a newly-published book on identifying pasture grasses, legumes, and forages.

Representatives from all types of farms were present, from the large-scale commercial Thoroughbred farms to small privately owned pleasure farms. This event began several years ago and has been well supported by the equine industry. It is now held annually in late winter, with the location moving to a different Kentucky extension office each year.

Like us on Facebook

The University of Kentucky College of Agriculture has 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 Program: The UK Ag Equine Program is an overarching framework for all things equine at the University of Kentucky, including the undergraduate degree program, equine-related student organizations, equine research, and outreach activities.

University of Kentucky Maxwell H. Gluck Equine Research Center: The mission of the Gluck Center is scientific discovery, education and dissemination of knowledge for the benefit of the health and well-being of horses.

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 HealthCare, UK College of Agriculture, and many community organizations. It aims to make a great sport safer though education about safe riding and horse handling practices. UK

UPCOMING EVENTS

Feb. 28, 3:30-5:30 p.m.

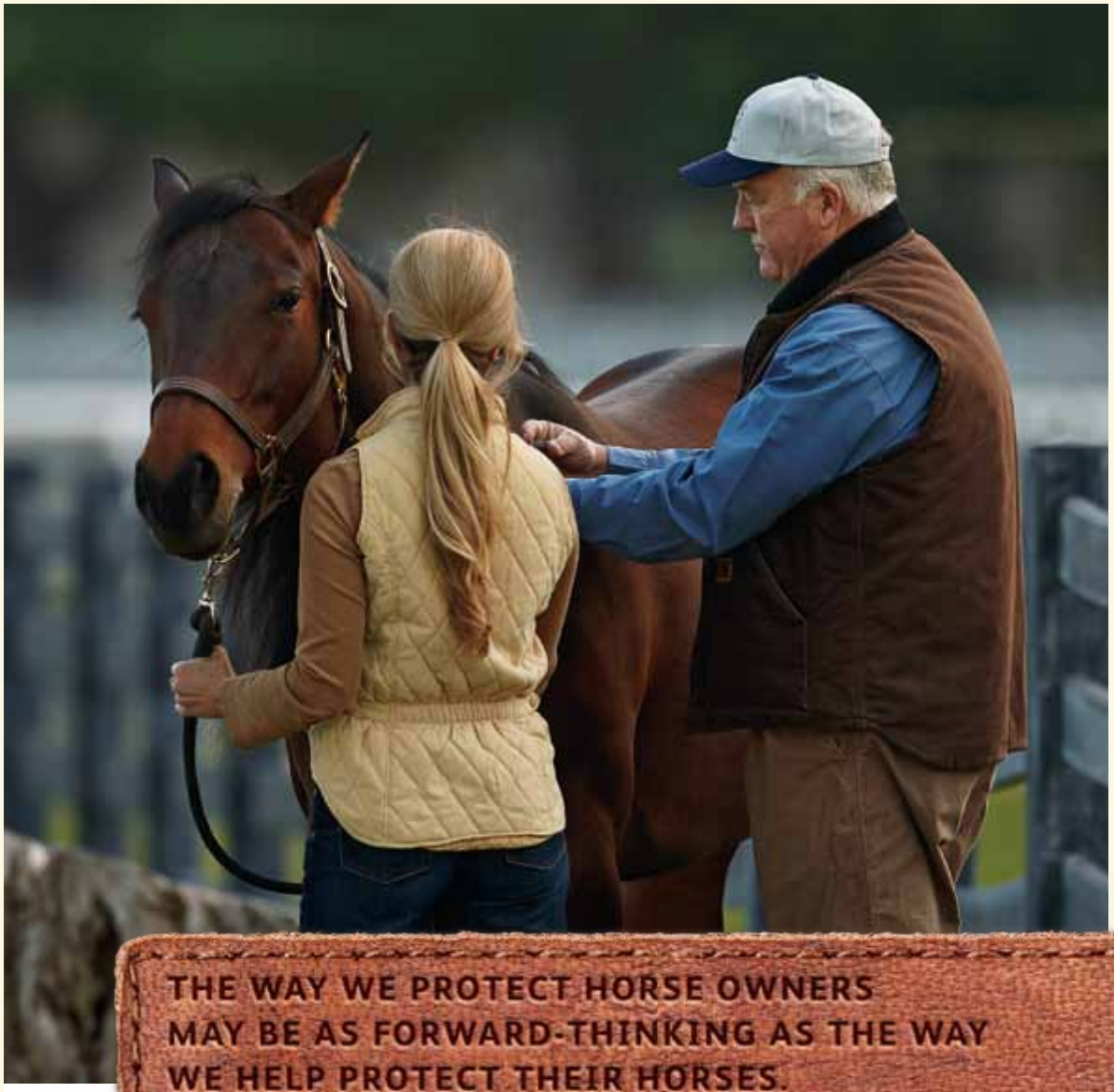
Department of Veterinary Science Equine Diagnostic and Research Seminar Series at the University of Kentucky Veterinary Diagnostic Laboratory. Seminar I: Placentitis, with Barry Ball, DVM, PhD, Dipl. ACT, Albert G. Clay Endowed Chair in Equine Reproduction, UK Gluck Equine Research Center; and Karen Wolfsdorf, DVM, Dipl. ACT, Hagyard Equine Medical Institute.
Seminar II: Case Studies in Foal Problems, with Nathan Slovis, DVM, Dipl. ACVIM, CHT, Hagyard Equine Medical Institute; and Peter Morresey, BVSc, MACVSc, Dipl. ACVIM, ACT, Rood & Riddle Equine Hospital.

March 14

Kentucky Equine Networking Association (KENA) meeting: Legislative Update. Networking 6 p.m., dinner 6:30 p.m., Clarion Hotel, Lexington, Ky. To register, visit www.kentuckyhorse.org/kena.

March 27

Kentucky Equine Youth Festival, Alltech Arena, Kentucky Horse Park, Lexington. Students and equine youth groups are invited to an event featuring live demonstrations of equestrian sport in a variety of disciplines performed by several different breeds. Demonstrations include vaulting, barrel racing, working cow, jumping, native costume, dressage, endurance, and carts being pulled by Miniature Horses, Draft horses, and mules. There will also be several demonstrations of gaited breeds, including those native to Kentucky. Other educational opportunities include up-close-and-personal sessions about forging horse shoes, horse dentistry, therapy horses, size comparisons of different breeds, and equine land conservation topics. More information about the event can be found at www2.ca.uky.edu/afs/4hhorse/KyEquineYouthFestival.



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[1] Market Dynamics Inc, February 2011

[2] Data on file, Study Report No. B671-08-004R, Zoetis Inc.