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A Closer Look at Racehorse Welfare

Researchers have recently conducted an overall look into the ethics of horse racing. Their work not only helps acknowledge the rightful concerns of a well-meaning public and contributes to better equine welfare but also helps resolve certain misconceptions.

"Poor racehorses! They lead such sad lives!"
Or do they?

As animal welfare awareness spreads, public concerns over certain equestrian sports are increasing. But many of these concerns could stem from a lack of understanding about the way the sport functions, said Camie Heleski, MS, PhD, an instructor and adviser in the University of Kentucky (UK) equine science and management program, in Lexington.

Still, it's important to address these concerns from a scientific perspective. That's why researchers recently conducted an overall look into horse racing ethics. Their work not only acknowledges the rightful concerns of a well-meaning public and contributes to better equine welfare but also helps resolve certain misconceptions.

"The horse racing industry gets a lot of media coverage, which makes it extremely visually impactful for the public," Heleski said during a presentation

at the 2017 International Society for Equitation Science Symposium, held Nov. 22-26 in Wagga Wagga, Australia.

Heleski and colleagues used a scientific ethical evaluation framework she designed in 2012 to objectively explore what's going on in horse racing. They identified five major areas of concern:

- Whip use;
- Horse wastage;
- Racing very young horses;
- Medication use; and
- Management.

Whip use, she said, is a valid concern because evidence shows that even padded whips are painful. Studies have also indicated that they don't make horses run faster.

"My experience is that once you have conditioned racehorses, if they want to run fast, they'll do it," Heleski said. "If not, there's nothing you can do to convince them to go faster. Even retired Thoroughbreds still spend a decent amount of time running fast against the horses in the next pasture."

Whip regulations should evolve in response to the public voice, she said, but that doesn't mean the whip should be banned entirely. This could be dangerous for both horses and jockeys.

"Jockeys' legs are too high to be able to do anything effective to control the horse," Heleski said. "They need that whip to do a pop on the shoulder and get their attention back.

"But we also need to accept that the public doesn't want to see horses getting whipped," she continued.

Horse wastage, on the other hand, is not as worrisome as it once was, Heleski said.

"We keep seeing people bashing the horse racing industry on social media, especially with regard to what happens with retired horses," she said. "But the industry has been working hard to keep wastage rates to a minimum, like keeping adoption fees low, developing rehoming centers, and contributing

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Racehorse Welfare

prize money to reconversion programs. And it's working. It's just remarkable what these horses ... are capable of doing."

Transformed into sport and pleasure mounts, off-track Thoroughbreds have gained a lot of attention recently, especially in regions near major racetracks. "In Lexington, for example, it's really become an especially popular type of horse," she said. "A nice niche has been created for those horses."

Racing young horses is also not a serious welfare concern, Heleski said. Trained appropriately following scientific guidelines, 2-year-olds actually benefit from the early workouts.

"People want to know, 'Why are we racing babies?'" she said. "But recent bone physiology research suggests that sensible conditioning and racing is actually better for the soundness of these horses than waiting until they're 5, 4, or even 3."

As far as medication use is concerned, it's a complicated issue because public perception will always affect it. "I don't have a problem with horses getting Salix (furosemide) for EIPH," or exercise-induced pulmonary hemorrhage, she said. "But the public does. Unfortunately, chances are the public perception isn't going to work in favor of educating people about which medications make sense. In the end, we'll probably just have to go clean slate—take on a zero-tolerance policy for medications."

Meanwhile, an issue of considerable concern, but less in the public eye, is how the horses are managed, Heleski said. "It's personally my biggest concern

in the racing industry," she said. "These horses spend a lot of time in the stall. You do see the unusual racehorse facility that allows the horses to go out and run around a little bit. But we need to be asking ourselves, 'How can we let the active racing horse have a somewhat more normal life?' And by that I mean more freedom of movement, more forage, and more access to friends."

One possibility is to encourage tracks to have more turnout areas for actively racing horses, she said. Another option, which some owners and trainers are already practicing, is letting young horses in training stay at the farm and even turn them out with other horses.

"They've decided they're going to accept that occasional kick or bite mark in exchange for the benefits they see," she said.

Overall, it's important for the industry to recognize the equine welfare concerns. "If we're going to use horses for entertainment and sport, we're going to have to consider the full lifespan of the horse," she said. "If we're in a position to make enhancements, we owe the horse that and should do so whenever we can."

And while horse racing is in the public spotlight, other disciplines face similar welfare issues—but with less public outcry. People in various disciplines would do well to support rather than criticize each other, Heleski added.

"Don't throw stones if you don't want your own industry to also be closely inspected," she said. "Nobody is completely without flaw. We're supposed to be in this together, not taking down individual bits and pieces." **UK**

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A number of owners and trainers are keeping young horses in training at the farm rather than the track, and some even turn them out in pastures with other horses.

Reducing Horse Racing Fatalities: Where Do We Go From Here?

The occurrence of fatal injuries to horses in flat racing in North America has decreased by 23% since the inception of standardized injury reporting into The Jockey Club's Equine Injury Database.

The declining trend in fatalities began in 2013, and achieved statistical significance by 2015. This reduction, we believe, can be attributed to meaningful change within the culture of horse racing as expressed in multiple safety initiatives.

In Kentucky, this change has manifested not only as a decrease in racing fatalities, but also decreases in regulatory veterinarian-initiated scratches for unsoundness and the number of horses observed to be unsound post-race. These findings are evidence that the overall health of the racing population has improved. Multiple safety initiatives have been implemented and credited for contributing to the improved safety record. Examples include:

- Constraints on traction devices on horse shoes;
- Changes to therapeutic medication regulations;
- Systematic and objective racing surface monitoring and management;
- Implementation of "voided claim" regulations;
- The National Thoroughbred Racing Association's Safety and Integrity Alliance accreditation of racetracks;
- Necropsy programs and mortality review panels;
- Employment of safety stewards; and
- The adoption of an Association of Racing Commissioners' Model Rule on the veterinarians' list.

Others assert that the decreased occurrence in fatalities is an expression of the Hawthorne Effect, in which there is an improved outcome as a consequence of a population's awareness of being observed. This is perhaps not so rewarding as the idea that the combined effort of the entire spectrum of racing stakeholders made it a safer sport. But at the end of the day, either way, we'll take it. The 23% reduction in racing fatalities is not

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an abstraction. Hundreds of horses did not die that, in the past, might well have.

The important message is that the occurrence of racing fatalities is not immutable. This should serve both as encouragement and warning. Encouragement in that positive change is possible, and so efforts to improve safety should, and must, continue. There is additional work to be done through investigating biomarkers of early onset orthopedic disease, improving decision making at all levels that further safeguards the long-term health of the horse during and after its racing career, identifying business models that incentivize human and equine health and safety, and developing relevant and engaging continuing education programs for all those in contact with race horses.

And the warning? Change can also be

negative. Complacency, the assertion of a mission accomplished, puts horses and their riders as well as the sport as a whole at risk, should racing fatalities be allowed to increase as a consequence of inertia and a loss of vigilance. The occurrence of racing fatalities in North America continues to exceed that experienced elsewhere in the world.

Until North America can legitimately be acknowledged as a leader in protecting the health, safety, and welfare of racehorses and those who ride or drive them, our work is far from done.

CONTACT—Mary Scollay, DVM—mary.scollay@ky.gov—859/246-2040—Kentucky Horse Racing Commission, Lexington. **UK**

>Reprinted from the *Lloyd's Equine Disease Quarterly*, January 2018, Volume 27, Number 1

Eastern Tent Caterpillar Eggs Hatching Soon in Central Kentucky

Eastern tent caterpillar (ETC) eggs will begin hatching soon after spending about nine months as masses on twigs of wild cherry and related trees, said Lee Townsend, PhD, UK College of Agriculture, Food and Environment extension entomologist.

"The onset of the single generation that occurs each year varies with the character of the season," he said. "Hatch was noted as early as March 14, 2012, during an unseasonably warm spring, and as late as April 2, 2014, during one that was slow to develop."

The larvae are among the first insects to become active in the spring and are prepared to cope with Kentucky's erratic temperature swings.

Eastern Tent Caterpillar Eggs

“Egg hatch is relatively random and occurs over an extended period,” Townsend said. “This increases the chance for survival in case of late freezes.”

“In addition, the small but hardy caterpillars will remain clustered on egg masses to ‘wait out’ temperatures that are too low for feeding and development,” he continued. “ETCs grow and develop when the temperature is above 37°F.”

Townsend said while it is possible to predict approximately when to expect ETC activity, there’s no reliable information to track general population trends other than observing local activity and watching for tents to develop from mid-March through mid-April.

When mature, the 2- to 2.5-inch-long hairy caterpillars wander from their developmental sites, sometimes to within horses’ reach. If a pregnant mare inadvertently consumes large numbers of caterpillars, she could develop mare reproductive loss syndrome (MRLS)—resulting in late-term foal losses, early and late-term fetal losses, and weak foals—which caused



COURTESY DR. LEE TOWNSEND

An Eastern tent caterpillar egg mass on a wild cherry twig.

staggering foal losses in an outbreak in 1999-2001.

Researchers from UK conducted studies that revealed when horses eat the caterpillars, hairs from the insects embed into their digestive, or alimentary, tract lining. Once that protective barrier is breached, normal alimentary tract bacteria can gain access to and reproduce in sites with reduced immunity, such as the fetus and placenta.

If practical, farm managers should plan to move pregnant mares from areas with wild cherry or similar trees

to minimize the risk of caterpillar exposure. The threat is greatest when mature tent caterpillars leave trees to find places to pupate and transform into moths.

Eastern tent caterpillars are also a significant nuisance to people living near heavily infested trees. The caterpillars can wander hundreds of yards in search of protected sites, such as houses, to spin cocoons and pupate.

To eliminate active caterpillars, Townsend recommends pruning them out of trees and destroying nests. Farm managers can use any one of several biorational insecticides registered for use on shade trees, as needed. These types of insecticides are relatively non-toxic to humans. Apply spot treatments to tents and the foliage around them according to label directions, which vary by product.

Find more information about how to assess trees for egg masses in the UK Entomology publication *Checking Eastern Tent Caterpillar Egg Masses* at entomology.ca.uky.edu/ef449. [UK](http://www.uk.edu)

>Lee Townsend, PhD, is an extension entomologist within the UK College of Agriculture, Food and Environment’s Department of Entomology.

Horse-Related Injuries and Concussions in Equestrians

Fernanda Camargo, DVM, PhD, equine extension professor at UK, described Saddle Up Safely and shared recent research on horse-related injuries and assessing riders’ concussions in riders at the 7th annual UK Equine Showcase, held Feb. 2 in Lexington.

Saddle Up Safely is a coalition of 40 medical, public health, and horse organizations in the U.S. and Canada that aims to raise awareness about horse riding and handling issues and educate equestrians on how to practice safer horsemanship.

In a recent study, researchers found that 14% of individuals seen in emergency rooms for horse-related injuries were admitted to the hospital. The number of equestrians seeking treatment at emergency rooms was lower for horseback riding than other sports, but riders represented the highest percentage of participants admitted for further observation and/or treatment among other activities.

Researchers also found that instructors and professionals are at the greatest risk of serious injury. The most common injury cause was falling from a horse, followed by being kicked. The main reason patients were hospitalized was due to head, neck, and spine injuries.

Camargo also discussed concussions in equestrians. There are 11 “Rs” when it comes to concussions: recognize, remove,



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Researchers found that instructors and professionals are at a greater risk of serious injury from accidents such as falls from horses.

re-evaluate, rest, rehabilitation, refer, recover, return to sport, reconsider, residual effects and sequelae, and risk reduction.

Equestrian culture has traditionally dictated that, after a fall or accident, “if you’re not dead, get back in the saddle,” she said. However, as researchers and doctors are learning more about concussions, they’re emphasizing the importance

Horse-Related Injuries

of following those Rs when it comes to injuries, concussions, and returning to riding.

Saddle Up Safely also recently launched a safety app, which gives individuals access to the concussion and injury assessment and the return to riding protocol. Additionally, the app provides access to all Saddle Up Safely publications and checklists, which be helpful for equestrians recovering from injuries and thinking about returning to riding, she said. **UK**

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

'EquCab3.0' Horse Genome Reference Assembly Available Online

Scientists met at the 2018 International Plant and Animal Genome Conference, held Jan. 12-13 in San Diego, to discuss research and share new discoveries made using the horse genome sequence.

The USDA National Research Sponsored Project 8 (NRSP8) sponsored the meeting.

At the conference researchers announced that the third version of the reference assembly of the horse genome, EquCab3.0, is now available online through the National Center for Biotechnology Information. This assembly is the complete genome sequence for the reference horse Twilight, a Thoroughbred mare.

The team creating the new assembly was led by Ted Kalbfleisch, PhD (University of Louisville); Jamie MacLeod, VMD, PhD (UK); and Ludovic Orlando, PhD (University of



COURTESY DR. ERNIE BAILEY

EquCab3.0 represents the complete genome sequence for the reference horse Twilight, the Thoroughbred mare seen here.

UKVDL

Disease Mapping Initiative **FEATURED MAP**

EHV-1 Abortions

This month's featured map is equine herpesvirus-1 (EHV-1) abortions in Kentucky's 2018 foal crop.

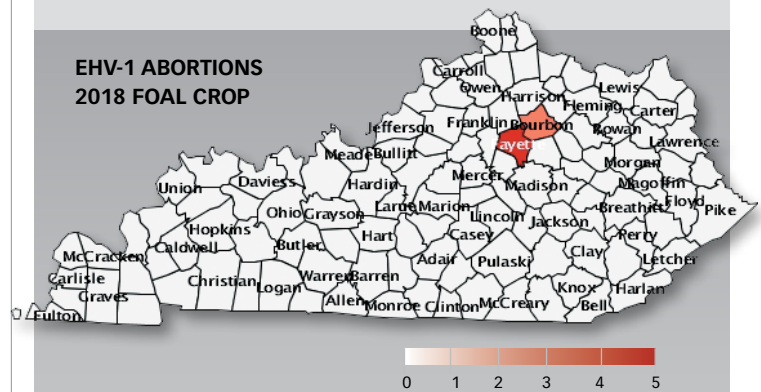
Equine herpesvirus-1 spreads in nasal discharge or aerosol droplets. Horses can also contract the virus via contaminated surfaces such as stalls, water, feed, tack, transportation vehicles, or people's contaminated hands and clothing from being around another affected horse.

This relatively common virus' incubation period ranges from two to 10 days. Clinical signs of respiratory EHV-1 infection include fever, nasal discharge, and lethargy/depression. Infected horses can shed the virus even when showing no clinical signs.

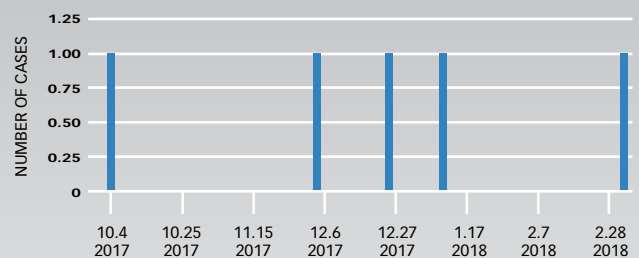
Disease caused by EHV-1 can be mild or severe, potentially resulting in late-term abortion in pregnant mares and/or severe neurologic disease. Equine herpesvirus myeloencephalitis, EHV's neurologic form, is rare.

Individuals with questions or concerns about disease outbreaks can contact UKVDL Veterinary Diagnostic Laboratory (UKVDL) 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.



EHV ABORTIONS MONTHLY TREND



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

'EquCab3.0' Horse Genome

Copenhagen) and was made possible through funding from a Morris Animal Foundation grant, supplemented with additional financial support from the individual laboratories and the USDA NRSP8 program. The new assembly used cutting-edge technologies to improve the accuracy of this vital research resource. EquCab3.0 will be a critical resource for equine geneticists and scientists working to identify the causes and related biology of horses' inherited traits.

Participants also discussed progress toward developing new resources for investigating mechanisms to understand how the genome functions in individual equine tissues. The work

was initiated with a grant from the Grayson-Jockey Club Research Foundation and supplemented by the USDA NRSP8 program. This effort is part of an international collaboration among the agricultural animal community known as the Functional Annotation of Animal Genomes.

The Grayson-Jockey Club project involves many researchers and is led by Carrie Finno, DVM, PhD, Dipl. ACVIM, and Rebecca Bellone, PhD, of the University of California, Davis, and Jessica Petersen, PhD, of the University of Nebraska. An improved understanding of genome function will enable scientists to study complex traits as well as changes occurring as a result of disease or management (e.g., diet). This project will be a focus of a Dorothy Russell Havemeyer Foundation workshop, tak-

ing place Sept. 12-15, 2018, in Pavia, Italy. In addition to combining data from each of these efforts to annotate the new genome assembly, scientists will discuss collaborative activities and report discoveries made in the last year using horse genomic tools.

The Horse Genome Workshop is an international collaboration among scientists, designed to foster cooperation to develop new genomic tools and information to investigate significant aspects of equine biology and health. Find more information about the workshop, its participants, and meeting activities at horsegenomeworkshop.com. **UK**

>Ernie Bailey, PhD, a professor at the UK Gluck Equine Research Center, and others provided this information.

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Mineral of the Month: Manganese

Manganese (Mn) is an essential dietary trace mineral that is also used in industrial processes, such as battery manufacturing. However, long before it was known to be useful for these applications, early humans used black/brown-colored Mn dioxide as a pigment. Cave paintings estimated at 30,000 years old are reported to contain Mn and, even prior to these cave paintings, researchers suspect Mn might have been used as a cosmetic.

Manganese was first indicated as an important nutrient to plants before it was later shown to be essential to mammals in a study conducted in rats in 1926 (McHargue), followed by a study in swine in 1928 (Skinner and co-workers).

Today, scientists know Mn has multiple functions—most notably in bone formation. Enzymes involved in chondroitin sulfate (which is necessary for cartilage formation) synthesis require Mn. It is also involved in fatty acid synthesis, amino acid and energy metabolism, and the antioxidant system.

An average 500-kilogram (approximately 1,100-pound) adult horse at rest or lightly exercised only requires about 400 milligrams of this multifaceted mineral per day (National Research Council's *Nutrient Requirements of Horses*, 2007).

Mineral of the Month

In ruminants, swine, and poultry, Mn deficiencies are most notable in newborn or young animals. In particular, Mn deficiency can result in weak newborns with incoordination or leg deformities and weak bones. In horses, however, scientists have yet to confirm a Mn deficiency in newborn or young foals.

Forage and grain Mn concentrations depend on soil Mn concentrations, which tend to vary. Typically, Central Kentucky pastures aren't reported as Mn-deficient, and with unrestricted pasture access, an idle or lightly exercised mature horse should be



Central Kentucky pastures aren't typically Mn-deficient, so many horses can meet their recommended daily requirements by consuming grass alone.

able to meet its recommended daily Mn requirements by consuming pasture alone. Any commercial feeds or supplements will also be formulated to

provide Mn in sufficient quantities to meet your horse's requirements when fed according to the manufacturer's guidelines.

If you live in an area known to have low soil Mn content, buy forage for your horse from a low-Mn area, or simply are concerned about your horses' Mn intake, contact an equine nutritionist. A nutritionist can help you appropriately evaluate the mineral sources in your horses' complete diet to ensure all mineral and other dietary requirements are met and balanced. **UK**

>Mieke Holder, PhD, is an assistant research professor within UK's Department of Animal and Food Sciences.

Savannah Robin Named UK Ag Equine Programs Internship Coordinator

Savannah Robin, MS, a UK College of Agriculture, Food and Environment (UK Ag) alumna and one of the very first interns within UK Ag Equine Programs' office more than 10 years ago, has been named its new equine science and management internship coordinator. She will begin June 11.

In this role, Robin will administer internships for the college's large and dynamic equine degree program, assist in academic advising for equine majors, support the program's teaching mission, and help plan student events.

"I am excited and honored to be stepping into this position and being able to serve the students of the college in this capacity," Robin said. "I feel like my professional passions have collided in this job, and I can't wait to see what it holds."

With close to 320 students enrolled in the equine undergraduate program and an internship being required for graduation, Robin's role is a pivotal one.

"The equine internship coordinator is a unique position, which links some of the most talented students from around the country to an economically crucial

industry, one that is a signature of the Bluegrass State," said Mick Peterson, PhD, UK Ag Equine Programs director and faculty member in the college's Department of Biosystems and Agricultural Engineering. "We are honored to have someone of Savannah's stature and experience as internship coordinator. She brings unique experience and talent to this role."

A Kentucky native, Robin currently teaches at Harrison County High School, where she has been an agriculture teacher and a Future Farmers of America (FFA) advisor since 2014. Prior to that, she was the advocacy coordinator

and meeting planner for the National Association of Agricultural Educators.

She has also worked as an instructor within the college's Department of Community and Leadership Development since 2013, where she developed and taught a course focused on engaging students in policy and advocacy processes. Robin served in the college as a research and teaching assistant in agricultural education, as an agriculture teacher and FFA advisor for Nelson County High School, and as a UK

Ag Equine Programs communications and editorial assistant intern.

"I have loved being a high school ag teacher; it's been a true joy in my life," she said. "I have the best students and have learned so much in the past four years. But, when I read this job description, I felt my heart being pulled toward the things I feel that I am strongest at in my current job: mentorship of students, helping students map out their futures, and being engaged in the industry and teaching others to do the same. I couldn't pass up the opportunity to return to the Big Blue Nation and serve the college and the equine industry in this way."

Robin earned two bachelor's degrees from UK, one in agricultural education and the other in agricultural communications. She earned her master's degree from the college's Department of Community and Leadership Development. She is currently in the process of earning her doctorate from the UK College of Education in educational leadership.

Robin is a longtime member of the American Quarter Horse Association and Kentucky Quarter Horse Association and current president of the Bourbon County Farm Bureau as well as a

(Continued on page 10)



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¹ Mason ME, Voris ND, Ortis HA, Geeding AA, Kaplan RM. Comparison of a single dose of moxidectin and a five-day course of fenbendazole to reduce and suppress cyathostomin fecal egg counts in a herd of embryo transfer-recipient mares. *J Am Vet Med Assoc.* 2014;245(8):944-951.

*This study compared QUEST (*moxidectin*) Gel with Panacur Powerpac (*fenbendazole*).



10th Annual Career and Opportunities Fair a Success

More than 125 students from 14 universities attended the 10th Annual UK Career and Opportunities Fair, held March 6 at Spindletop Hall, in Lexington. The fair featured 27 exhibitors and three career-track speakers focused on the Thoroughbred industry, business, and communications.



EMMA TILGHMAN AND EMILY SKLAR PHOTOS

Savannah Robin

member of the Kentucky Association of Agriculture Teachers, National Association of Agricultural Educators, and Kentucky Cattlemen's Association.

"Besides helping our students grow and develop—which is one of my favorite things ever—one of the things I am really looking forward to is getting re-engaged in the equine industry," she said. "I was raised in the equine industry, and it has molded me into who I am today. Giving back to it is something I am really looking forward to doing." **UK**

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

Horse Farms: Remember to Complete USDA Agriculture Census

The USDA's National Agricultural Statistics Service (NASS) is reminding horse farm operators that it needs a Census of Agriculture response from all U.S. farms.

To get an accurate representation of Kentucky agriculture—of all farmers across the commonwealth—NASS will continue to accept completed census questionnaires through spring.

It came to NASS' attention that some producers weren't sure if the census applies if they don't sell crops or livestock, but, in fact, all operations are important and every response matters. NASS is committed to giving producers every opportunity to be represented in this widely used data. Federal law mandates that everyone who received the 2017 Census of Agriculture questionnaire complete and return it, even if not currently farming.

NASS will follow up via mailings, phone calls, and farm visits with producers who have not yet responded. To avoid these additional contacts, farmers are encouraged to complete their census either online at agcounts.usda.gov or by mail as soon as possible.

For more information about the 2017 Census of Agriculture, visit agcensus.usda.gov. Individuals with questions about the census or who require assistance completing it can call toll-free 888/424-7828. **UK**

>David Knopf, the USDA Regional Director, National Agricultural Statistics Service, Eastern Mountain Regional Field Office, provided this information.



The USDA NASS needs a Census of Agriculture response from all U.S. farms, including Kentucky horse farms.

Upcoming Events

April 28, 9 a.m.

UK Equine Science and Management Alumni Tailgate
Land Rover Kentucky Three-Day Event
Kentucky Horse Park, Lexington

April 28, 6-11 p.m.

Call to the Post Derby Bash
Red Mile Round Barn
Lexington, Kentucky

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UK Veterinary Diagnostic Laboratory:

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UK Ag Equine Programs: An overarching framework for all things equine at UK, including the undergraduate degree program, equine-related student organizations, equine research, and outreach activities.

UK Equine Alumni: A community established for the alumni of UK's equine programs, including ESMA, graduate students and clubs and teams' members.

UK Maxwell H. Gluck Equine Research Center: The Gluck Center's mission is scientific discovery, education, and dissemination of knowledge for the benefit of horse health and well-being.

UK Veterinary Diagnostic Laboratory: The mission of the UKVDL is to develop and apply state-of-the-art diagnostic methodology to improve animal health and marketability, to protect the public health and to assist in the preservation of the human-animal bond through the principles of One Health.

UK Horse Pasture Evaluation Program: A service offered to horse farms in Kentucky with the goal of overall improved pasture management.

Saddle Up SAFELY: A rider safety awareness program sponsored by UK HealthCare; the UK College of Agriculture, Food and Environment, and many community organizations. It aims to make a great sport safer through education about safe riding and horse handling practices. **UK**