



How Sweet is Your Sweet Feed?

UK AG EQUINE PROGRAMS

Horses with increased energy requirements—equine athletes, growing horses, and broodmares—often consume concentrates as part of their diet. Most concentrates have high levels of digestible carbohydrates, such as starch and sugars, which horses use for energy. Commercially manufactured concentrates are available either in a pelleted form or as a sweet feed. Some horse owners have been moving away from sweet feeds (textured feeds) because of a perception that they contain greater sugar and starch concentrations than their pelleted counterparts. This concern is based on sweet feeds’ visible molasses and sticky texture. However, are sweet feeds really sweeter than pelleted feeds?

Some manufacturers offer feeds in both a sweet feed and pelleted form. To evaluate whether sweet feeds had more sugar than pelleted feeds, researchers at the University of Kentucky compared three products that had both pelleted and sweet feed options. The team analyzed the feeds for starch (long chains of glucose) and ethanol soluble carbohydrates (ESC). The ethanol soluble carbohydrate fraction includes simple sugars (such as glucose, sucrose, and fructose). The researchers also looked at the ingredient list to determine whether molasses was present. Table 1 on the next page shows the comparison between the pelleted and textured feeds examined.

In the study they found that pelleted and textured feed forms were equally likely (or unlikely) to contain molasses. Even though molasses isn’t visible in pelleted feeds, it is still included, probably to improve palatability. In all of the feeds, the concentration of simple sugars (ESC) was below 10%, and the average difference in simple sugars between sweet feed and pellets was less than 1.5%. For example, if a horse consumed 3 lbs of sweet feed or 3 lbs of the comparable pellets, the average difference in sugar content would be around 20 g, which is about the same as four peppermints! For these feeds, sugar intake from the sweet feed and its pelleted counterpart

was relatively similar despite differences in feed form, indicating textured feeds are not necessarily “sweeter” than pelleted feeds.

The amount of starch in a feed also contributes to the glucose available for absorption. In this study, textured feeds had slightly higher concentrations of starch compared to their pelleted counterparts. For example, when starch and ESC (simple sugars) contents were added together and compared for Feed 1, feeding 3 lbs of pellets would provide 0.96 lbs of starch and sugar whereas feeding 3 lbs of sweet feed would provide 1.13 lbs of starch and sugar.

Again, choosing a pelleted feed over a sweet feed might not make a big difference in the amount of sugar and starch a horse consumes each day. So, if horse owners want to provide a feed that is lower in starch and sugar, they can look for a feed formulated to have reduced starch and sugar concentrations. Feed 2 (Table 1) is an example of a feed with reduced starch concentrations. Feed 2 is slightly lower in ESC than Feed 1 and Feed 3, but it is markedly lower in starch. Again, Feed 2’s physical form (textured or pelleted) makes little difference in the amount of sugar or starch. The ingredients used to formulate the feed influence how much starch it has.

Table 1 shows the first three ingredients listed on the feed tag, which were similar among each pair of pelleted and textured feeds. However, ingredients varied between Feed 1, Feed 2,

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Sweet Feed

and Feed 3. Grains such as corn, oats, wheat, and barley are relatively high in starch while wheat middlings have a moderate starch level and soybean hulls are low in starch. Lower-starch ingredients help keep the total starch and sugar content lower in both the pelleted and textured forms of Feed 2.

Feeding your horse isn't all about the nutrient composition and ingredients. There are many other traits to take into consideration when determining what feed is best for your horse and stable management. Owners might offer sweet feeds to encourage picky horses to eat. Additionally, the sticky molasses helps bind powdered supplements or medications to grain. In contrast, pelleted feeds can offer more energy with less bulk, are often more digestible, and do not allow horses to sort through feed ingredients. Horses with declining dental

health might find pellets easier to chew than textured feeds.

Ultimately, when you are designing a diet for your horse, keep in mind that horses evolved to consume a high forage diet, not high grain. Many horses can meet their nutrient requirements by consuming forage alone (hay, pasture, etc.). However, some horses do require concentrates added to their diet to meet increased nutrient requirements. The NRC's *Nutrient Requirements of Horses 6th ed.* (2007) recommends that all horses consume at least 1% of their body weight in forage per day to maintain digestive health. Most horses consume around 2% of their body weight in dry matter (DM) per day; thus, at least 50% of the diet should consist of forage. **UK**

>Brittany Harlow, Tayler Hansen, and Ashley Fowler are all PhD students under Laurie Lawrence, PhD, in the Department of Animal and Food Sciences.

Table 1
Ingredients, starch, and soluble carbohydrate concentrations in pelleted and textured forms of the same feed product¹

| | | Starch, % | ESC, % | Starch + ESC, % | 1st three ingredients | Molasses added? |
|----------------------------|----------|-----------|--------|-----------------|--|-----------------|
| Feed 1 (growth) | Pellets | 26.1 | 6.0 | 32.1 | Wheat middlings, corn meal, soybean hulls | Yes |
| | Textured | 30.2 | 7.6 | 37.8 | Wheat middlings, corn meal, soybean hulls | Yes |
| Feed 2 (low starch) | Pellets | 4.1 | 3.3 | 7.4 | Soybean hulls, wheat middlings, oat products | No |
| | Textured | 7.9 | 5.4 | 13.3 | Soybean hulls, wheat middlings, oat products | No |
| Feed 3 (growth) | Pellets | 27.8 | 7.3 | 35.1 | Oats, corn, grain by-products | Yes |
| | Textured | 33.4 | 7.9 | 41.3 | Oats, corn, rice bran | Yes |

¹Values reported on a 100% DM basis.

Novel Equine Deworming Principles, Procedures in the Works

After the introduction of safe, effective, easy-to-administer chemical dewormers in the 1960s, the equine industry enjoyed the luxury of being able to control equine internal parasites with a simple push of a plunger.

Parasite-related conditions such as colic, diarrhea, poor hair coat, ill-thrift, poor performance, etc. were essentially eradicated. Rotational deworming programs—involving the frequent administration of chemical dewormers with various products—rapidly became the mainstay. Almost hand-in-hand with the use of those dewormers, however, came the age of resistance: Populations of internal parasites that could not be killed by those coveted chemical dewormers. (Continued on page 3)

Masthead

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Deworming Principles

“Populations of roundworms and small strongyles resistant to chemical dewormers, also called anthelmintics, have been identified in all parts of the world,” explained Martin Nielsen, DVM, PhD, Dipl. EVPC, ACVM, assistant professor at the University of Kentucky’s Gluck Equine Research Center, in Lexington. “This once again puts horses at risk for the development of parasite-related diseases.”

There are only three classes of chemical dewormers (benzimidazoles, tetrahydropyrimidines, and macrocyclic lactones), and parasites have developed either established or developing resistance to all three. Combined with the fact that there are no new chemical dewormers in the pipeline for horses (a process that usually takes a minimum of five years), horses with once-treatable parasite-related health issues are now in the pre-1960s position of having no (or very few at the least) treatment options.

“New, nonchemical deworming options are necessary to continue to control equine internal parasites and optimize horse health, welfare, and quality of life,” said Nielsen.

Dedicated to this endeavor, Nielsen and colleagues have devised several unique approaches for controlling equine parasites, including one non-pharmaceutical strategy to kill small strongyles.

Combination Deworming

This involves the co-administration of two chemical deworming products from different drug classes at the same time.

“This concept is based on research conducted in sheep,” Nielsen explained. “The theory is that if a horse has parasites that are already resistant to pyrantel and benzimidazoles, for example, using the two drugs together would result in improved efficacy of the dewormers.”

Nielsen and colleagues are currently putting this theory to the test. They are a few months into the one-year study and will be prepared to make clinical recommendations only once all the data have been gathered and analyzed, he said.

Fecal Egg Counts

As described by the American Association of Equine Practitioner’s Parasite



COURTESY DR. MARTIN NIELSEN

Many veterinarians strongly advocate for surveillance-based deworming via fecal egg counts.

Control Guidelines, surveillance-based deworming is strongly advocated.

“This involves using fecal egg counts to identify the type of internal parasite that is shedding eggs into the horse’s gastrointestinal tract, counting the number of roundworm and small strongyle eggs in one gram of feces, and recommending the appropriate timing and type of dewormer application,” Nielsen said.

Traditionally, fecal egg counts (FECs) have been performed at veterinary clinics or via mail-in services. But technology in this field is advancing. Nielsen and colleagues recently developed the Parasight System—a smartphone-based fecal egg diagnostic and intestinal parasite management tool.

“The Parasight System, which will be available next year, (is designed to allow) veterinarians to perform rapid, quantitative, on-site, and in-house FECs ... in five minutes,” Nielsen said. He also noted that the system is designed to minimize the chances of misidentifying the parasite eggs.

Let the Germs Get the Worms

“This is one of our most exciting projects,” Nielsen said. “The premise is that we can use a crystal protein, Cry5B, produced by the bacterium *Bacillus thuringiensis*. Cry5B kills strongyle larvae in a laboratory setting, and we now need to determine the safety and efficacy of Cry5B to deworm live horses.”

Such studies are underway and are anticipated to take about five years and cost about \$500,000. To help fund this research, Nielsen and colleagues are hosting a crowdfunding initiative. Details are available at www2.ca.uky.edu/gluck/NielsenMK.asp.

Ultrasonographic Roundworm Identification

We know that heavy roundworm burdens can put foals at risk for

impactions. We also know that FECs, although beneficial for many horses, are not able to identify foals with heavy burdens 100% of the time. But there might be a better way to identify these foals on the horizon: ultrasounds.

Recently, several Kentucky veterinarians underwent training for detecting adult roundworm infestations in young horses using ultrasound (see an example above). Nielsen said this technique is ideal for farms that already ultrasound foals aged 3 to 6 months to monitor for *Rhodococcus equi* abscesses and pneumonia.

Take-Home Message

In light of anthelmintics’ growing lack of efficacy and a dearth of future chemical dewormers, researchers are working diligently on projects to help us better evaluate and manage parasites in the future. **UK**

>Stacey Oke, MSc, DVM, is a practicing veterinarian and freelance medical writer and editor based in Saratoga Springs, New York.

Getah Virus: Significance as an Equine Pathogen

An outbreak of illness at a Japanese racing stable in the latter half of 2014 re-awakened awareness of Getah virus and its potential as an equine pathogen.

The first indication that the virus could cause illness in horses was the widespread occurrence of a disease syndrome among racehorses at two training centers in Japan in 1978. Subsequently, the virus was implicated in a clinically similar disease outbreak on a Thoroughbred breeding farm in India during 1990.

Getah virus is a mosquito-borne arbovirus that is a member of the genus *Alphavirus*, family *Togaviridae*. First isolated from mosquito pools collected in Sarawak (Malaysia) between 1968 and 1970, Getah or one of its antigenically related viruses, can be found over a wide geographic range extending from Eurasia to Australia. Results of serologic surveys have confirmed infection in humans and a

Getah Virus

wide diversity of domestic and wildlife animal species wherever the virus is present. Serologic evidence of Getah virus activity in horses in Japan can be traced back to 1961. Subsequent studies have shown that the infection was widespread in equine populations throughout that country. Notwithstanding this fact, however, disease

events caused by Getah virus have been very infrequent.

Naturally occurring disease caused by Getah virus has only been reported in horses and in swine. While the vast majority of primary infections in horses are asymptomatic, on occasion the virus can give rise to extensive outbreaks of mild illness characterized by fever, anorexia, serous nasal discharge, hind limb edema, stiff gait, scrotal edema, submandibular lymphadenopathy, and urticarial

skin rash. Affected horses may develop some or all of these clinical signs. Regardless of severity, the disease is not fatal, and complete clinical recovery occurs within 7 to 14 days. Symptomatic treatment is seldom indicated.

Based on the outbreak recorded in India, there was no evidence that Getah virus is abortigenic in the pregnant mare or that infection can result in congenital abnormalities in foals. The only other animal species in which Getah virus has been implicated in causing disease is swine. The virus has been isolated from newborn piglets that died of peracute disease and also from dead fetuses removed from a naturally infected sow.

Getah virus is primarily a mosquito-borne infection that is transmitted by different species of *Culex* and *Aedes* mosquitoes depending on the geographic region of the world in which it occurs. Swine are thought to play a role in amplification of the virus in endemic areas. The potential for transmission through direct horse-to-horse contact cannot be discounted considering some acutely infected horses shed significant quantities of infectious virus into the respiratory tract.

Diagnosis of Getah virus infection can be readily accomplished by virus detection in nasal swabs, unclotted blood (buffy coat) samples, and saliva either by PCR assay or virus isolation. It can also be confirmed by serological testing of acute and convalescent serum samples. Because of the close clinical similarity between Getah virus infection and equine viral arteritis and African horse sickness, it is important to differentiate it diagnostically from either of these two diseases.

Prevention and control of Getah virus infection is based on measures to reduce mosquito contact with horses and, optimally, vaccination of at-risk equine populations in countries in which the virus is endemic. While Getah virus is not considered an important equine pathogen, it can be significantly disruptive when extensive outbreaks occur. **UK**

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GRAD STUDENT SPOTLIGHT

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Taylor Hansen began studying equine nutrition with Lori Warren, PhD, associate professor of equine nutrition at the University of Florida, during her time as an undergraduate. Warren, a former student of Laurie Lawrence, PhD, professor in the Department of Animal and Food Sciences at the University of Kentucky, suggested that Hansen consider graduate school and directed her to UK and its internationally respected equine nutrition program.

Hansen's research for her master's degree at UK under the advisory of Lawrence focused on the influence of forage chemical composition (the amounts of fiber, protein, etc.) on digestibility and retention of forages in the gastrointestinal tract. Hansen earned her master's degree last year. She is continuing to study the effects of fibers on digestibility and retention time at the University of Florida while pursuing her doctoral degree.

"Forages, such as hay and pasture, are the main component of a horse's diet," Hansen said. "It is imperative that we understand forage digestion and utilization. This knowledge will help us determine the best forages to feed horses and may mitigate gastrointestinal tract disturbances, such as impaction colic."

Hansen described her experience as a graduate student at UK as a true team effort. Graduate students assisted one another on trials, and Hansen had the opportunity to work on equine reproduction, behavior, immunology, microbiology, and pharmaceutical studies in addition to many equine nutrition trials.

"At UK I was able to develop a strong support system for my research and career development," Hansen said. "I still interact with professors and colleagues from UK to learn more about certain topics, write articles, and develop research ideas."

Hansen valued the connections she made not only within her department, but also with other departments such as Plant and Soil Sciences and UK Ag Equine Programs. She said obtaining her master's at UK expanded her network of connections and immersed her in the equine industry.

Hansen looks forward to continuing her research and education while at the University of Florida, and she plans to continue her equine nutrition research after receiving her PhD. Eventually, she hopes to teach and mentor graduate students. **UK**

>Hannah Forte is a communication intern with the UK Ag Equine Programs and Gluck Equine Research Center and undergraduate student majoring in community and leadership development at UK.



Broodmare Nutrition: Preparing for Fall and Winter

All broodmares should have their body condition assessed regularly, as mares in good body condition have a reservoir of stored fat that can be used during cold winter weather. Good body condition helps barren and maiden mares establish normal cycles sooner in the breeding season and results in higher conception rates. Similarly, mares in good body condition at foaling are easier to rebreed than thin mares.

Owners can usually assess

a horse's body condition by evaluating the amount of fat deposited on the ribs, along the neck and spine, and behind the shoulder. The typical scoring system uses a 1 to 9 scale, where a horse with a score of 1 is emaciated and 9 is obese. A horse with a condition score of 5 is considered to have "moderate" body condition. Mares that enter the breeding season with a condition score below 5 have reduced reproductive efficiency. Therefore, the target body condition

score for broodmares is at least 5. While there is no advantage to a mare having a very high score (being very fat), if she has a score of 6 in late fall she will have a small reserve of fat during winter when she will be burning extra calories to stay warm.

Horses with body condition scores between 5 and 6 have ribs that can be felt easily, but that are not visible. In addition, these horses have enough fat cover over their topline that the loin area is relatively flat. Their necks are not thin and blend smoothly into the shoulder. A horse with a score higher than 7 has ribs that are difficult to feel and so much fat along the spine that there is a deep crease in the loin area. On the other hand, if the spine is visible along the loin area and the ribs are also visible, then the body condition score would be closer to a 4. If more of the mare's bony structures are visible (e.g., the shoulder or hip bones are prominent) then the body condition score would be below a 4.

Many mares that nursed a foal during the summer and early fall as well as mares used for strenuous competitive activities during the summer (racing, endurance competition, polo, etc.) often enter the fall with condition scores below 5. These horses will need to consume extra calories in the fall to ensure they are in good body condition for the next breeding and foaling season.

Mares that have been grazing abundant, high-quality pasture all summer and fall might have body condition scores above 7. Although high condition scores have not been shown to negatively affect reproduction, they might increase a mare's risk for limb and hoof problems, including laminitis. If a horse is overweight, winter is a good time for weight loss be-

cause the pasture is less nutritious and the cold weather increases calorie use.

Pasture and Hay

As pasture quality and quantity decline in late fall, owners should supplement mares' forage intake with hay. Some horse managers in Central Kentucky begin feeding hay to pastured mares beginning Nov. 1, but make a decision based on the condition of your individual mares and pasture. If the mares are losing body condition, the nutrients available to them are likely insufficient. Even if the mares seem to be maintaining body condition but the pasture is showing signs of overgrazing, it is probably time to offer hay. Providing hay in the fall will serve two purposes: First, it ensures mares will have enough to eat; and second, it might reduce overgrazing of the pasture. Overgrazing in the fall can weaken the plants, thus reducing their vigor the next spring and summer. Overgrazing can also allow more weeds to invade the pasture.

The best way to evaluate whether pastured mares need hay is to put some in the pasture. If the horses ignore the hay, then the pasture is probably meeting their forage needs. If they eat some but not all of the hay, then the amount of hay fed can be reduced until the amount that remains at the next feeding is small. If the horses devour the hay rapidly, the pasture quality is clearly declining and the horses need hay.

Many types of hay are acceptable for broodmares, but the main selection characteristics should be safety and nutrition. Most tall fescue in the southeastern United States is infected with a fungal endophyte that can negatively affect mares in late

Broodmare Nutrition

gestation. Unless tall fescue hay has been tested and is known to be endophyte-free, it should not be used for mares, especially pregnant mares. Any hay that is fed to horses should also be free of toxic weeds, dust, and mold.

Legume hays (e.g., alfalfa and clover) are higher in nutrients than most grass hays (timothy, orchard-grass, etc.). In a recent study conducted at the University of Kentucky (UK), Thoroughbred mares in mid and late gestation were able to eat enough good-quality alfalfa hay to meet their protein requirements. Mares fed timothy hay were able to eat enough hay to meet their protein requirements in mid-gestation, but not in late gestation. When applied to practical feeding situations, these results mean horses fed good-quality alfalfa hay will require less concentrate (sweet feed or pellets) than horses fed timothy hay.

In addition to considering the type of hay to use, a broodmare owner might want to estimate how much hay he or she will need to provide during the fall and winter. In the UK study

mares consumed about 2-2.25 pounds of hay for each 100 pounds of body weight. So a medium-sized Thoroughbred mare (1,250 pounds) would consume about 25-28 pounds of hay daily. Remember that this figure represents the amount of hay consumed, not the amount fed. There will always be some wasted hay, so the amount fed should be slightly greater than the amount to be consumed.

However, the mares in the study received only a small amount of concentrate each day, and mares fed greater amounts of concentrate would need less hay. If hay is fed at 30 pounds/horse/day from Nov. 1 through March 30, then a little more than two tons of hay will be needed to feed the medium-sized mare over this period. If the hay feeding period is longer or shorter, or the mare is expected to eat more or less hay, then the total amount of hay would change.

Concentrates and Supplement Pellets

In addition to pasture and/or hay, broodmares are usually fed either a commercially



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Add concentrates to the diet when forage alone does not provide enough calories to meet a mare's needs.

manufactured concentrate or supplement pellet (sometimes called a balancer pellet). The term "concentrate" refers to a feed that is a concentrated source of calories. Common concentrates such as oats, corn, and other cereal grains are good sources of calories but they are low in calcium and other necessary nutrients. Commercially manufactured concentrates usually include cereal grains, but they also contain additional nutrients. If a concentrate is formulated for a broodmare, the level of nutrient supplementation will be targeted to meet her needs. Concentrates are added when the forage portion of the diet does not

provide enough calories to meet a mare's needs. Most Thoroughbred-type mares should receive 5-10 pounds of concentrate in late gestation. Mares from small, thrifty breeds will usually be fed less concentrate in late gestation.

Supplement pellets are concentrated sources of vitamins, minerals, and sometimes protein. They are fed in small amounts (usually 1-2 pounds per day) when the pasture or hay provides all the calories a mare needs. For example, if a mare can maintain a condition score of 6 on pasture or hay alone, then she does not need the extra calories provided by a concentrate. But, she does need many of the minerals provided in the supplement pellet. Supplement pellets are not needed if a mare is getting at least 4 pounds of a commercially manufactured broodmare concentrate. However, a supplement pellet can be combined with a plain cereal grain (such as oats) if an owner prefers not to use a commercially manufactured feed. [UK](#)

>Laurie Lawrence, PhD, a professor in the Department of Animal and Food Sciences at the University of Kentucky, provided this information.

UKAg's Barrett Fills Unique Role as EPA Liaison

Farmers who have ever wondered how directions for use, warnings, and other information from the U.S. Environmental Protection Agency (EPA) get on herbicide labels need look no further than the University of Kentucky College of Agriculture, Food and Environment for an explanation.

UKAg weed scientist Michael Barrett, MS, PhD, serves as the Weed Science Society of America's liaison to the EPA's Office of Pesticide Programs. Barrett is the society's third EPA liaison and came into the role two years ago after serving as an officer in the society for several years prior.

As liaison, he has intimate access to the inner workings of the agency. As a weed scientist, he is able to use his knowledge to influence national policy concerning herbicide rules and regulations. The most common topic for which he provides

expertise is the agency's plans to reduce herbicide resistance.

"They have been wrestling with how to handle new herbicides that will come on the market in the future so the problem is not made worse," he said.

His other duties as liaison include connecting the agency to other technical experts and committees, training new agency employees on weed science and herbicide issues, and arranging for agency personnel to meet with farmers.

"These farmer meetings are really important for agency personnel as it gives them a chance to talk with individuals who are directly impacted by the agency's rules and regulations," Barrett said.

At UK, he's able to share with his students the types of government jobs that may be available to them upon graduation and better explain EPA labels to students and farmers. [UK](#)

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

Rider Safety Program Releases New Booklet on Safe Return to Riding

UK HealthCare, in partnership with University of Kentucky colleges of Agriculture, Food and Environment, and Public Health and in conjunction with nearly 50 community, equine, and medical organizations, has released a new educational booklet within the



Saddle Up Safely educational partnership.

“Safe Return to Riding” covers topics including preparing for an injury, what to do immediately after an accident, returning to riding after

a significant injury or long illness, and includes a newly developed equestrian injury and concussion assessment tool. In addition, the booklet gives information about calories burned during 30 minutes of activity, safety tips, and helmet information.

The booklet was written by members of the Saddle Up Safely Auxiliary, a group of dedicated volunteers passionate about rider safety issues who serve to help create and disseminate the campaign’s educational messages.

“The auxiliary regularly met to discuss and debate each safety point to ensure the recommendations were grounded in good horsemanship and were realistic,” said Bill Gombeski, MBA, MPH, Senior Advisor, Office of the Executive Vice President for Health Affairs at UK HealthCare and Saddle Up Safely lead. “I really appreciate their dedication and vision.”

One of those auxiliary members and longtime core member of the campaign, Fernanda Camargo, DVM, PhD, equine extension professor within UK’s Department of Animal and Food Sciences, shared what it meant to her to return to riding and why she felt the booklet was helpful.

“I was a little anxious to return to riding after having a child. But I did it slowly; I used a horse that I trusted,

Eastern Equine Encephalomyelitis Update

Eastern equine encephalomyelitis (EEE) is only one of several important vector-borne diseases that is of significant concern to horse owners. With a mortality rate of 90%, it is a deadly disease. The U.S. Department of Agriculture Animal and Plant Health Inspection Service, Veterinary Services works with the U.S. Centers for Disease Control and Prevention and public health officials to collect data on EEE and other vector-borne diseases.

Figure 1 shows the geographic location (shaded states) of equine EEE cases from 2003-2014, although not every state had cases each year. Figure 2 shows reported U.S. equine EEE cases (which include presumptive positive and confirmed positive cases) from 2003-2014.

Despite the geographic distribution of equine EEE cases, the rapid interstate and international transportation of horses for show, racing, recreation, sales, breeding, and other activities strongly supports the use of EEE vaccines. The EEE vaccine is considered by the American Association of Equine Practitioners to be a “core” vaccine.

Insect control and appropriate use of approved insecticides are critical to reducing the risks of EEE as well as West Nile virus infections, vesicular stomatitis, and other insect-borne diseases. [UK](#)

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

Figure 1
States with Equine EEE Cases, 2003-2014*

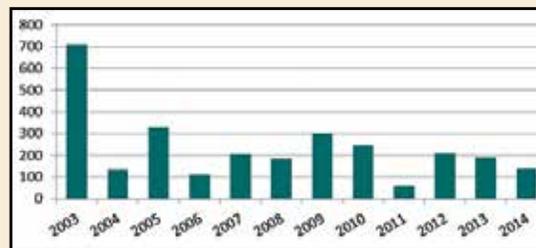


Figure 2
Reported US Equine EEE Cases*

*Adapted from www.aphis.usda.gov

and I leaned on the solid equitation foundation I had built throughout the years,” she said. “Those three elements together ensured I returned to riding successfully and gave me the confidence to start on new riding challenges.”

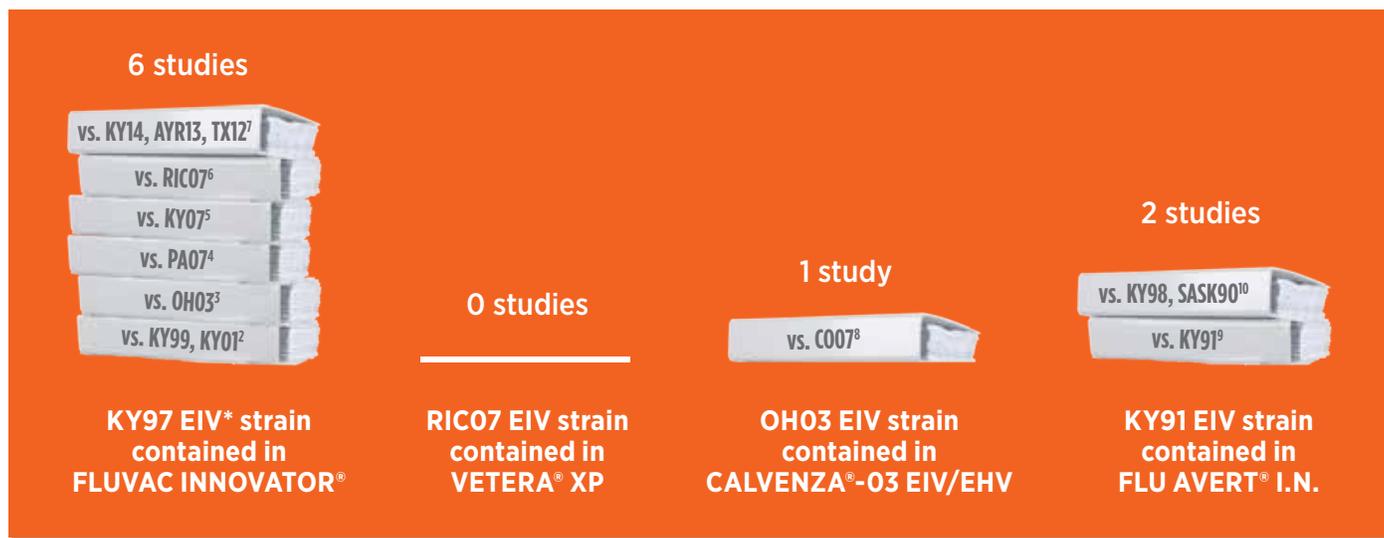
Saddle Up Safely was launched in 2009 in advance of the 2010 World Equestrian Games in response to the number of riders admitted to UK’s Chandler Emergency Department. The campaign aims to increase awareness and educate riders about riding and horse handling safety. The campaign’s

ultimate goal is to reduce the number and severity of rider injuries and help make a great sport safer.

“Saddle Up Safely is an example of the type of collaborative effort that a land-grant institution strives for—it involves a number of different colleges and draws on the expertise of industry participants to produce an educational product beneficial to the entire equine industry,” said Jill Stowe, PhD, director of UK Ag Equine Programs.

Statistics underscore the need. According to the National Electronic Injury

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* Equine Influenza Virus

** World Organization for Animal Health

¹ West Nile-Innovator and Fluvac Innovator MDI Sales Data as of 12/31/14. Zoetis. Dec. 2014.

²⁷ Data on file, Study Report No. 671-02-001R, 671-08-004.R, 766-09-002.R, 100REQBIO-01, 140REQBIO-1 and 15EQRGBIO-02, Zoetis Inc.

⁸ Calvenza vs. C007 ACVIM 2011 abstract reference.

⁹ Townsend HGG, Penner SJ, Watts TC, Cook A, Bogdan J, Haines DM, Griffin S, Chambers T, Holland RE, Whitaker-Dowling P, Youngner JS, and Sebring RW: Efficacy of cold-adapted, intranasal, equine influenza vaccine: challenge trials.

¹⁰ Chambers TM, Holland RE, Tudor LR, Townsend HGG, Cook A, Bogdan J, Lunn DP, Hussey S, Whitaker-Dowling P, Youngner JS, Sebring RW, Penner SJ and Stiegler GL: A new modified-live equine influenza vaccine: phenotypic stability, restricted spread and efficacy against heterologous virus challenge.

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Rider Safety Program

Surveillance System's 2014 estimates, millions of people ride horses each year, generating approximately 50,688 emergency room visits, with more than 16.6% of those being admitted to the hospital.

While motorcycle riders experience a serious injury every 7,000 hours of riding, horseback riders experience one every 350 hours, according to the U.S. Centers for Disease Control and Prevention. It is estimated that one in five equestrians will be seriously injured during their riding careers. And novice riders, especially children and young adults, are eight times more likely to suffer a serious injury than professional equestrians.

The campaign features several tools to inform and educate, including a series of informational brochures; an

interactive website featuring safety tips and stories from riders who were injured; a horse rider safety blog written by Camargo; continuing education opportunities for medical personnel and first responders; education-based programs; and an auxiliary comprised of volunteers.

To visit the campaign website, read one of several booklets, share tips about experiences involving horse and rider safety, or to read the blog, go to <http://ukhealthcare.uky.edu/SaddleUp>.

For a copy of the safe return to riding booklet, visit <http://ukhealthcare.uky.edu/uploadedFiles/about/CommunityNew/Programs/SaddleUp/Publications/saddle-up-safely-safe-return-to-riding.pdf>. **UK**

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

UK Ag Equine Programs to Host Equine Showcase, Breeders' Short Course

University of Kentucky Ag Equine Programs will host the 5th Annual UK Equine Showcase and the 7th Annual Kentucky Breeders' Short Course Jan. 29-30, both at the Fayette County Extension Office at 1140 Red Mile Place, in Lexington.

The UK Equine Showcase will highlight the university's current equine programs and relevant industry findings, focusing specifically on the equine athlete. It will run from 12:30 p.m. to 5 p.m. on Jan. 29.

The Kentucky Breeders' Short Course is an in-depth program on equine reproduction and horse management issues. It will run from 8 a.m. to 4:30 p.m. on Jan. 30, with lunch provided.

"I very much look forward to the upcoming showcase and its focus on exercise and the performance horse," said David W. Horohov, PhD, chair of the Department of Veterinary Science and director of the Maxwell H. Gluck Equine Research Center within the College of Agriculture, Food and Environment. "The program will highlight some of the ongoing research efforts and provide a preview of a developing programmatic emphasis in this area. Likewise, the breeders' short course will provide the latest information on research as it relates to the various aspects of equine reproduction. Together, both topics encompass important aspects of equine health and well-being."

"I always anticipate this educational event, which continues to grow in popularity," said Jill Stowe, PhD, director of UK Ag Equine Programs and associate professor in agricultural economics. "The sessions really highlight the breadth and depth of expertise found at UK."

Topics and speakers for the UK Equine Showcase include:

- The use of bisphosphonates in horses (Tildren and OsPhos), Laura Kennedy, DVM, Dipl. ACVP, assistant professor at the UK Veterinary Diagnostic Laboratory (UK VDL)

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- Undergraduate and graduate opportunities and seven student teams and clubs
- Year-round programs and educational materials for horse owners, farm managers and equine professionals



The horse is at the heart of everything we do.





The College of Agriculture, Food and Environment is an Equal Opportunity Organization.

UK Ag Equine Programs

- Our current understanding of navicular disease from pathology to therapeutic options, Jennifer Janes, DVM, PhD, Dipl. ACVP, assistant professor at the UK VDL
- 2-year-old in training sales—breeze times, sales prices, and racetrack performance, Stowe
- Gene expression as an aid in training racehorses, Horohov
- Equine sports science initiative, James MacLeod, VMD, PhD, John S. and Elizabeth A. Knight chair and professor of veterinary science at the Gluck Equine Research Center
- Understanding the equine digestive system, Laurie Lawrence, PhD, professor in the department of animal and food sciences
- Prevention of horse-related injuries to humans, Fernanda Camargo, DVM, PhD, associate professor in the department of animal and food sciences

Topics for the Kentucky Breeders' Short Course include:

- Identification and treatment of high risk pregnancies, Barry Ball, DVM, PhD, Dipl. ACT, Albert G. Clay Endowed Chair in Equine Reproduction and professor at the Gluck Equine Research Center
- Assessing the foal and placenta at birth, Peter Morresey, BVSc, MACVSc, Dipl. ACVIM, Dipl. ACT, Rood & Riddle Equine Hospital
- Development of the foal's immune system, Horohov
- The what, why, and how of measuring progesterins in pregnant mares, Ball

- Abnormal estrous cycles, Alex Esteller-Vico, DVM, PhD, assistant professor at the Gluck Equine Research Center
 - Evaluation of the problem mare, Karen Wolfsdorf, DVM, Dipl. ACT, Hagyard Equine Medical Institute
 - Equine Herpes Virus-1, Udeni Balasuriya, BVSc, MS, PhD, professor at the Gluck Equine Research Center
 - Endocrine evaluation of the stallion, Esteller-Vico
 - Leptospirosis, Craig Carter, DVM, PhD, Dipl. ACVPM, director of the UK VDL
 - Management of the subfertile stallion, Charles Scoggin, DVM, MS, Dipl. ACT, Rood & Riddle Equine Hospital
- Both programs are open to veterinarians, owners, and managers of all horse breeds or anyone with an interest in learning more about equine reproduction and topics concerning horse management. Continuing education credit for veterinarians and veterinary technicians is pending approval by the Kentucky Board of Veterinary Examiners.

UK is also accepting sponsor participation for the event. Display opportunities are available to participating organizations. Please email equine@uky.edu for details.

To register for the event, visit <http://2016ukshowcaseshortcourse.eventbrite.com>. Early bird registration rates last until Jan. 4. UK Equine Showcase early bird rates are \$50 per person or \$40 each when two or more people from the same organization register at the same time. Early registration rates for the Kentucky Breeders' Short Course are \$100 per person or \$90 each when two or more people register at the same

Upcoming Events

October 24-31

Breeder's Cup Festival, Downtown Lexington

October 29, 4 p.m.

Seminar Series: Gastric Ulcers with Dr. Frank Andrews from Louisiana State University, UKVDL

October 30-31

Breeders' Cup World Championships, Keeneland

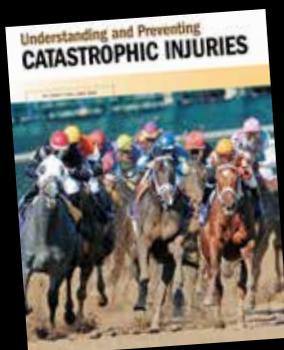
November 21

Role of Immunology in Equine Health Symposium, Embassy Suites. Register at immunologysymposium.eventbrite.com.

time. Attendees can enroll in both the showcase and the short course for \$125 per person or \$115 each when two or more people from the same organization register. Registration will close Jan. 16. College students are eligible for a reduced rate to the showcase and short course, but student-designated space is limited and on a first-requested, first-served basis. Students or UK faculty interested in attending either or both days should email jenny.evans@uky.edu. More about this event and other information about UK Ag Equine Programs can be found at ca.uky.edu/equine. **UK**

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