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Controlling Grassy Weeds in Horse Pastures

In the right conditions, yellow foxtail can take over summer pastures.

REVIEW OF COMMON GRASSY WEEDS

Large Crabgrass (*Digitaria sanguinalis*)

- Warm-season annual
- Good forage quality

Yellow Foxtail (*Setaria pumila*)

- Warm-season annual
- Not grazed by livestock

Nimblewill (*Muhlenbergia schreberi*)

- Warm-season perennial
- Not grazed by livestock
- Native to Kentucky/Virginia

KY 31+ Tall Fescue (*Festuca arundinacea*)

- Cool-season perennial
- Good forage quality
- Toxic endophyte can be harmful to late-term mares

Prevention

The best way to control grassy weeds is to maintain a thick stand of desirable grasses, such as orchardgrass and Kentucky bluegrass, to prevent the undesirable ones from becoming established or spreading. You can achieve this by:

- Soil testing every two to three years and applying needed nutrients;
- Applying nitrogen in the fall;
- Maintaining a minimum 3" grazing/mowing height by not overstocking pastures and using rotational grazing;

Last year's record rainfall caused significant damage to pastures across the southeastern U.S. Farm owners reported stunted growth in established stands as well as new seeding failure in cool-season grasses.

Muddy conditions compounded hoof and vehicle traffic's effects on pastures, further damaging established grasses. Additionally, many farm managers couldn't apply fertilizers or herbicides, simply because it was too wet.

All these factors increased the amount of bare soil in many horse pastures, which will encourage weed growth this spring and summer.

When we think of weeds, we often envision broadleaves, such as dandelion and ragweed. But don't overlook grassy weeds—such as large crabgrass, yellow foxtail, and nimblewill—that can take over pastures.

What determines if a particular grass species is considered a weed? Simply, it's a weed if it's not desired in a pasture. For example, crabgrass is palatable to horses and cattle and typically has good quality, but it has a

narrow growth window in Kentucky and throughout the transition zone, making it a less desirable addition to pasture. Tall fescue is considered a weed on broodmare farms if it is infected with a toxic endophyte. And animals typically don't graze foxtail and nimblewill, so they're rarely desired.

Before we can manage or control these grasses, we first need to understand their life cycles and growth habits. Warm-season grasses prefer to grow during summer while cool-season grasses grow best in spring and fall's milder temperatures.

Annual plants reproduce from seeds that germinate in the spring (warm-season) or fall (cool-season). Perennials reproduce from seeds and vegetatively by rhizomes or stolons; these species typically go dormant during cold weather and survive to the following year.

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CONTROLLING GRASSY WEEDS

- Using broadleaf herbicides to control weeds;
- Overseeding thin stands in the fall; and
- Reducing traffic during periods of wet weather.

While these steps will help prevent future grassy weed spread, they'll do little to reduce their presence in pastures after significant damage, like what many farm managers experienced last year.

Control

Controlling grassy weeds in a pasture is much harder than controlling broadleaves. There are a few options available, but they all come with challenges.

Nimblewill No herbicides that control nimblewill are labeled for use in pastures. Some turf or seed-field herbicides can provide limited control, but applying them in pastures is considered off-label use (as there has been no testing to determine their effects on animals) and is not advised.



No targeted herbicides that control nimblewill are labeled for use in pastures.

Currently, the best way to remove nimblewill from pastures is to completely kill the existing stand using glyphosate (Roundup and many other products) in July and again in August, followed by re-establishing them with desirable grasses. While this process can seem overwhelming, many Central Kentucky farms have found success with it to remove nimblewill, toxic tall fescue, and other weeds and establish highly productive and safe pastures.

Tall Fescue Researchers know Plateau (imazapic) can remove tall fescue in cool-season pastures without seriously harming orchardgrass or Kentucky

bluegrass (the latter grasses might yellow at first, but stands generally rebound). Because tall fescue often covers a significant portion of a pasture, removing it can leave large bare areas, welcoming weed growth. As such, overseed pastures at least 10 weeks after application. This timing is critical, so plan ahead.

Another herbicide, Chaparral (metsulfuron+aminopyralid), can suppress tall fescue seedhead development.

Both products are labeled for use in cool-season pastures in Kentucky and have no grazing restrictions for horses. If you're using them for other crops or livestock or at farms in different states, consult the product labels before use.

Foxtail and Crabgrass A common herbicide in crops and turf recently received a supplemental label for use in Kentucky pastures. Prowl H₂O (pendimethalin) has an excellent ability to control foxtail in perennial grass stands without damaging Kentucky bluegrass, orchardgrass, and tall fescue. It is a pre-emergent herbicide, which means it must be applied early in the growing season, so application timing is key.

University of Kentucky (UK) experts agree that, to effectively control foxtail in pastures, the herbicide must be applied before the soil warms enough for seeds to germinate. Late April or early May is likely the best time in Kentucky, but the exact timing will depend on spring temperatures and rainfall. Pastures might also benefit from a secondary spray in the summer.

A significant question remains with this herbicide, and it focuses on how soon pastures can be reseeded after application. The label states four months for wheat and 10 months for other crops, but experts believe pasture grasses can possibly be seeded sooner.

Finally, Prowl H₂O impacts many grasses, including crabgrass. While many farm managers would enjoy having pastures cleared of crabgrass, they likely underestimate the amount of crabgrass in their horses' summer diet. As such, successful application could reduce summer grazing in pastures, and managers should be prepared to feed extra hay or concentrate when it traditionally isn't required.

The UK Forage Extension team will work with Bill Witt, PhD, (UK professor emeritus) on Prowl H₂O farm trials this

Masthead

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summer. The researchers will conduct these trials on Central Kentucky horse farms and hope to determine ideal application and reseeding windows with Prowl H₂O alone and in combination with other herbicides.

Summary

Good pasture management and new herbicides offer many options for

controlling weedy grasses. Your local county extension agent can help you determine the best ways to improve your pastures this summer.

Regardless of which herbicides and other products you choose for your pastures, always read and follow all label instructions.

For more information on pasture weed control and herbicides, visit the UK Weed Science website at weedsience.ca.uky.edu and consult the herbicide safety publication *Practicing Good*

Stewardship When Applying Herbicides for Pasture Weed Control.

Find more information on pasture management or establishment at forages.ca.uky.edu. **UK**

>Bill Witt, PhD, professor emeritus; Krista Lea, MS, research analyst and coordinator of UK's Horse Pasture Evaluation Program; and Ray Smith, PhD, professor and forage extension specialist, provided this information. All three are from UK's Department of Plant and Soil Sciences.

Storing Toxic Substances in Horse Stables

You head toward the barn one morning and, as you approach, a raccoon runs out the door. Inside you discover he's been rummaging through items on your storage shelves, knocking over several pesticide and herbicide containers and spilling their contents onto the floor.

Bob Coleman, PhD, PAS, associate professor in equine extension for the UK Department of Animal Sciences, says accidents like this sometimes happen, and when they do you need to know how to handle the substances involved. If a potentially harmful product's contents leak or spill down the side of a bottle, for instance, and you grab the container with your bare hands before noticing, you could suffer serious consequences; some products commonly found on farms are highly concentrated chemicals and are dangerous if they contact or are absorbed through your skin.

Other barnyard products can be deadly if inhaled or ingested; some are highly flammable if mishandled; and others can contaminate the environment. It behooves you to follow label instructions carefully, pay close attention to storage instructions, relabel items appropriately, and dispose of them in a safe and responsible way.

Storing Chemicals & Flammables

Chemicals you might use around the farm include pesticides (beyond those labeled for topical use on horses), herbicides, paint, solvents, cleaners, wood preservatives, and disinfectants.

Storing farm chemicals and their associated equipment (e.g., a pesticide sprayer) in a designated location will help you ensure they don't contaminate horse feed or poison children or pets.

"If chemicals are kept in a closet it should be locked and/or have a sign stating the closet is for authorized personnel only," says Carey A. Williams, MS, PhD, associate equine extension specialist and associate professor director in the Rutgers University Department of Animal Sciences, in New Jersey. "Some of these chemicals ... are toxic if they come into contact with skin, and anyone handling them should wear gloves and/or proper eye protection or masks/respirators."

To handle some pesticides and herbicides legally, you must take a course on proper pesticide application and be licensed. "Just for this reason it's a good idea to have these kept in a locked area," she says.

Proper storage is also important to minimize product degra-



ALEXANDRA BECKSTETT/THE HORSE

Store chemicals and/or medications in a designated location to help you ensure they don't contaminate horse feed or poison children or pets.

dation over time, which can diminish efficacy. Store pesticides, for instance, at room temperature in a controlled environment. "They should be stored according to label directions," says Jason Turner, MS, PhD, associate professor and extension horse specialist at New Mexico State University. "If you no longer have the label directions, go to the manufacturer's website. You can get a supplemental label from them."

Jenifer Nadeau, MS, PhD, associate professor and equine extension specialist at the University of Connecticut, notes that you should never store gas or diesel in your barn. These and other flammable or hazardous materials should be stored in another building. Or, if there are no other options, she says these can be stored in a special cabinet designed for flammables so the materials inside won't ignite or explode if the temperature around the cabinet rises. "Or you might use an old freezer or refrigerator that no longer works," she says.

If you do rely on a flammables cabinet, place it in a climate-controlled area of a building, with the temperature maintained well below the stored chemicals' flashpoint, says Turner. And just in case an accident does happen, make sure a fire extinguisher is readily accessible in each farm building.

If you have a smaller farm that does not have the kind of space and capability to handle all this extra storage, do not keep more product on hand than you need for the short-term, and make sure you keep it in a safe place, Turner says.

Store bleach and ammonia safely away from each other and

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other materials. Even the residue on the outside of their containers coming into contact with the other could create a dangerous fume, says Nadeau. With these and other chemicals, read the storage recommendations, warnings, or precautions for handling listed on the labels, and follow directions closely.

“If you have rodent problems in your barn, you may have poisons for them and need to be careful where those are stored or placed so that cats, pets or other animals, or children can’t get into those,” Nadeau says. Store delousing powders, sprays, or gels in a safe place, where they won’t spill or contaminate feed or water.

Be Wary of These

Examples of potentially harmful products or items on horse farms that require careful storage, labeling, and disposal include:

- Ammonia
- Antifreeze
- Bleach
- Delousing products
- Detergent
- Dimethylsulfoxide (DMSO)
- Disinfectants
- Fluorescent or mercury light bulbs
- Gasoline and/or diesel
- Herbicides
- Hormonal products such as Regu-Mate
- Kerosene
- Medical waste
- Medicated shampoos and ointments
- Oil filters
- Old batteries
- Old thermometers
- Paint and/or solvents
- Pesticides
- Pest poisons
- Wood preservatives

Williams says fly sprays or medicated shampoos, topical skin treatments, and hoof treatments are not as toxic as pesticides, but do not handle some of these with bare hands (for example, hoof packing materials), as some labels state the products can be carcinogenic.

Storing Medications

Some equine medications can have damaging side effects, so owners should store them in safe and secure places. “Every barn should have a medication cabinet, and it is important to have it locked,” says Williams. “Otherwise, some medications might be overused, abused,

or stolen. Things that should be stored in the locked cabinet would include hormonal products like Regu-Mate, anti-inflammatories such as Bute and Banamine, and certain antibiotics that don’t need to be refrigerated.”

Always handle Regu-Mate, for one, with great care. “Women should handle this with gloves and make sure it never comes in contact with their skin,” Nadeau says. “It should be stored in a leakproof container with a warning label.” Liquid tends to dribble down the sides of some bottles or containers due to their design, so transferring it to a leakproof vessel further helps prevent skin contact.

“Every barn should have a medication cabinet, and it is important to have it locked.”

DR. CAREY WILLIAMS

“DMSO should be handled and stored carefully because anything dissolved in it can be absorbed by the body,” Nadeau says. “You can store it inside another container so that if it spills or leaks it won’t come into contact with anything else.”

Also, check drug expiration dates. Some substances might become ineffective after a certain amount of time, she says, while others can become dangerous.

For products that need to be kept cool or refrigerated, Turner recommends purchasing a small dorm refrigerator or a used full-sized refrigerator solely for storing these products in an area where children or critters can’t access them. “Here at the university we have a refrigerator in the barn where we keep the drugs and injectables, and we don’t want someone’s lunch or any food product in there,” says Turner. “We see this from time to time; somebody takes the greasy Regu-Mate bottle and puts it back. It may not have gotten on the sandwich, but did it get on the outside of the bag where someone might touch it? Make sure you never store food where you are storing drugs.”

Labeling

Product labels provide directions for safe and effective storage. But occasionally the label is worn past recognition or has fallen off the container altogether. In either case, relabel the container.

“You can write on bottles and other containers with marking pens, but if the

product is alcohol-based and any of the liquid spills onto the label, it will take the writing off,” Williams says.

Coleman suggests using a sticky label on which you’ve typed the information, then cover it with clear tape. “Not only should the label tell what it is, but also how it should be used (proper dilutions if it’s a concentrate, dosage and administration instructions if it’s an animal product), expiration date, etc.”

Turner adds, “Here at the university labs we do research and feed analysis and use various chemicals. One of the things we always need when working with any chemical is a material safety data sheet (MSDS). It states the hazards of working with that product, how to store it, etc. The MSDS for kerosene, for instance, gave me its flashpoint and other characteristics regarding its flammable nature.”

Also consider extreme temperatures on the other end of the spectrum: Depending on their formulation, pharmaceuticals, pesticides, paints, and other products might lose potency if they freeze. This should also be indicated on the label. “Improper storage will cost money in the long run,” says Turner.

Proper Disposal

It cannot be emphasized enough: Buy, store, and keep only what you need for the job at hand. If you have a section of fence to paint, for instance, don’t buy and store enough paint/solvent for an entire property’s worth of fencing. If you buy conservatively and still have some left over, remember that it can be hazardous to keep and should be disposed of properly.

“Most toxic products have label directions for disposal of empty containers,” says Williams. “For many chemicals it may be as simple as a thorough rinse with soapy water before the container is put into the trash or recycle bin.”

Other disposal processes require a little more work. For instance, the old oil you drained out of vehicles or tractors should go to a mechanic’s shop for disposal.

If you have to discard expired or unused drugs, dispose of them properly as well. Never flush medications down the toilet; they might end up in a water source. Nadeau recommends mixing old liquid drugs with something like kitty litter or coffee grounds and putting the mixture in a waterproof container before tossing so no animals can get into it and it’s less likely to leak out.

But before you toss, make sure you

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do so legally; some municipalities don't allow for landfill disposal of discarded drugs, hazardous waste, or chemicals and, instead, designate certain times for drug and other chemical disposal. "Check with your local regulations for disposal and see if there is a pickup day for these, or a place these can be taken," says Nadeau.

Old thermometers are another potential hazard if they break and mercury spills. Consider these hazardous waste.

"Medical wastes should also be carefully disposed of, including syringes and needles," Nadeau says. Put needles in a sturdy metal container that won't permit the needles to poke through if it gets crushed.

"Fluorescent light bulbs are another possible hazard if broken, so the burned out lights need to be disposed of or recycled properly," she explains. "You are not supposed to put them in the trash unless they are environmentally rated bulbs. There is a new mercury bulb that's controversial as well."

Other farm wastes include oil filters from farm trucks, tractors, or other vehicles. "Recommendations are to hot



ALEXANDRA BECKSTETT/THE HORSE

Store medical waste in appropriate, well-labeled containers.

drain the oil (after the motor has been running and the oil is warm) by taking out the oil plug and draining the oil overnight," Nadeau says. "The old oil filter can be put into a sealable bag inside a coffee can with lid or some other leakproof container."

Antifreeze is another hazardous liquid that you should never leave in an open container or where it might spill. Pets are attracted to this poisonous (and even deadly) product's sweet smell/taste, and horses might try to sample it as well. "Sometimes you can bring it back to the store where you purchased it, or take it to a gas station or automotive repair shop for disposal," Nadeau says.

Old automotive batteries could contain lead and should not be put into a dump or garbage site. "These can often be taken back to the store when you get a new one," Nadeau says.

Wood preservatives are another environmental hazard; do not discard, burn, or bury their residues or containers. These too must go into a secure container for hazardous collection.

Take-Home Message

Coleman says the important approach to storing dangerous substances is, simply, to think about what you are handling and stockpiling.

"We routinely use a lot of things, but are we following all the precautions on the label?" he says.

Typically, we don't read labels completely because we've purchased, stored, and used these substances before and think we are managing them correctly. We might need to remind ourselves every now and again of the proper procedures to safeguard our horses' and our own health and safety, along with that of our barn and visitors. **UK**

>Heather Smith Thomas ranches with her husband near Salmon, Idaho, raising cattle and a few horses.

Mineral of the Month: Magnesium

Magnesium (Mg) is a macromineral, meaning a horse requires larger quantities (in excess of a gram per day) compared to trace (or micro-) minerals, which they need in minute amounts.

Many of the historical medicinal references about Mg circle back to the "mineral water well" a cattle farmer in Epsom, England, discovered around 1618. The mineral water contained large amounts of magnesium sulfate, giving it a bitter taste, and it became famous for alleviating or even curing an array of ailments. Later, many extracts or preparations from this water (including Epsom salts) were manufactured and sold.

Although scientists knew Mg was present in living organisms as early as 1880, chemist Richard Willstätter discovered that Mg played a functional role in chlorophyll in plants (previously researchers believed Mg to have a nonfunctional presence). This discovery, together with some of his other work on plant structures, led to a Nobel Prize in 1915.

In animals, about 60% of the body's Mg is found in the skeleton, while approximately 30% of Mg resides in muscle. Magnesium plays a role in muscle contractions but also activates many enzymes so they can perform their duties. Therefore, it is an important mineral for normal bodily function.

Magnesium is found naturally in grains and forages commonly



ERICA LARSON/THE HORSE

Commercial feeds might contain supplemental Mg, such as magnesium oxide or magnesium sulfate, because some factors (such as other minerals) have the potential to negatively affect how much Mg is available for absorption.

fed to horses—on average, from 0.1 to 0.3% (National Research Council's *Nutrients Requirements of Horses*, 2007; NRC). However, if you inspect your commercial horse feed's tag, you might notice additional supplementary Mg sources, such as magnesium oxide or magnesium sulfate. This is, in part, due to the fact that some factors (such as other minerals) have the potential to negatively affect how much Mg is available for absorption. Feed company nutritionists take these factors into account when they formulate products for horses at different life stages and classes

MINERAL OF THE MONTH: MAGNESIUM

(for example, an idle mature horse or a lactating broodmare).

Regardless, the NRC set the maximum tolerable level of Mg at 0.8% of a horse's total dietary dry matter intake.

The current recommended dietary Mg intake for a mature horse weighing 500

kilograms (1,100 pounds), is 7.5 grams (g) per day if idle or 9.5 g per day if lightly exercised. This recommendation increases to 11 g Mg per day for the same-size broodmare in early lactation and 15 g Mg per day for a horse in heavy exercise (NRC, 2007).

Given the varying range of Mg in feedstuffs, as well as the range in requirements, consult an equine nutritionist if

you have questions or concerns about your horse's dietary mineral intake. A nutritionist can help you evaluate your horse's mineral intake, while considering his or her life stage, activity level, and physiological status. **UK**

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

GRAD STUDENT SPOTLIGHT

JENNIFER CAIN

From: Meadville, Pennsylvania

Degrees and institutions where received: BS in Biology, Westminster College, Salt Lake City, Utah

MS in Biology, University of Nebraska, Kearney



Jennifer Cain, MS, chose to pursue her PhD in veterinary science at UK and study under the direction of Martin Nielsen, DVM, PhD, Dipl. ACVM, associate professor and Schlaikjer Professor of Equine Infectious Disease at the Gluck Center, because it allowed her to combine her love of horses with her interest in biology.

"I've been in love with horses my entire life," she said. "I started riding when I was 8 years old. Biology was always my favorite topic in school. I took every biology class my high school offered and had the most awesome biology teacher I could ever ask for (shoutout to Jason Drake at Maplewood High School). The combination of those two passions just naturally led to equine research."

For her master's research, Cain studied *Strongylus vulgaris* (bloodworm) prevalence in the feral horses living at Fort Polk, in Louisiana.

"Naturally, I cited a large number of Nielsen's papers for that project, and that eventually led me to UK and studying parasites," she said.

Her current research focuses on characterizing the microbiome of the equine roundworm (*Parascaris* spp). Microbiome research is a hot topic, and because anthelmintic resistance is rampant in *Parascaris* spp, Cain hopes to determine if there is a unique bacterium living within these parasites that can be targeted for potential treatments.

She has worked on a precision study using an automated fecal-egg-counting system undergoing validation in the laboratory. And, she helped analyze data collected from an extension outreach project at Pennsylvania State University, in State College, and studied analyst variability when parasite eggs are counted under a microscope for commonly used fecal egg count methods, including the automated system.

When asked about her experience as a graduate student at the Gluck Center, Cain said, "The graduate and postdoc community at Gluck is a wonderful, tightknit, and collaborative group, despite the wide variety of research interests. At the end of the day, we are all connected by a love of horses and science."

Looking toward the future, Cain is tossing a few ideas around, but she is open to a variety of opportunities. **UK**

>Samantha Geller, a senior double-majoring in equine science and management and environmental and sustainability studies, is a communications intern with UK Ag Equine Programs and the Gluck Equine Research Center.

Studying Santa Anita: A Key to Making Horse Racing Safer

Finding the cause of a spate of equine fatalities at Santa Anita Park, in Arcadia, California, is key to the future of not only the venue but also the horse racing industry in general, says a Kentucky-based scientist who's among those investigating the incidents.

"We're doing the best we can with the information that we have, but we need to do more to improve safety for horses and riders in order to keep racing," Mick Peterson, PhD, director of UK Ag Equine Programs and a professor of biosystems and agricultural engineering, told *The Horse* in early March.

Peterson is also the executive director of the Racing Surfaces Testing Laboratory, through which he evaluates surface conditions at Santa Anita and other major racetracks nationwide.

From the time Santa Anita's current race meet began in December 2018 until Feb. 25, 19 racehorses died or were euthanized as the result of injuries sustained while racing or training on its dirt and turf tracks. In response, management closed the track to racing and training for two days so Peterson and others could evaluate soil samples and thoroughly examine the track's cushion, pad, and base. However, those investigations revealed no track-related link to the fatalities.

"The ground-penetrating radar verified that all of the materials—silt, clay, and sand, as well as moisture content—were consistent everywhere on this track," he said. "We saw absolutely nothing that would have contributed to the deaths."

Santa Anita reopened the main track to racing and training on Feb. 28. But on March 5, after two more horses sustained fatal injuries, track officials suspended all

STUDYING SANTA ANITA



COURTESY SANTA ANITA

Thorough investigations have revealed no track-related link to the recent horse fatalities at Santa Anita Park.

racetrack and training on Santa Anita's dirt and turf courses indefinitely, pending the results of another round of testing.

The main track again reopened for limited training on March 11 after further inspection yielded similar results as the first round. But three days later during a training session, a 3-year-old filly named Princess Lili B became the 22nd casualty for the race meet after sustaining fractures in both front legs.

"It's challenging," Peterson said. "We are working with the equine medical director and with pathologists to bring all available information to find out what happened; this has to be a multifaceted approach."

Track Maintenance a Priority

Peterson said operators of major tracks across the country already take a multipronged approach to track maintenance that includes harrowing during training breaks and between races, daily grading, and watering as needed throughout the day. They also measure moisture content and surface cushion depth daily.

"Track officials also have a weather station on-site where they receive weather reports every 15 minutes," Peterson said.

As an added precaution, Peterson examines surface samples from Santa Anita on a monthly basis and conducts on-site surface studies every six months. Results from those studies, as well as reports from the regular track maintenance crew, are added to a database of daily and monthly track conditions.

When injuries or fatalities do happen, officials work with veterinarians performing necropsies to uncover the cause of each incident.

Communication Key to Making Racing Safer

No matter how rigorous a venue's maintenance plan or how detailed its track safety database, overall safety might ultimately hinge on how well racing industry members communicate with each other, Peterson said.

"For example, trainers need more information about the effects of weather and data from the track surface to help them with their training decisions," Peterson said. "We also have to communicate with the veterinarians because soundness is a seven-day-a-week, 24-hour-a-day challenge."

UKVDL

Disease Mapping Initiative **FEATURED MAP**

EHV-1 Abortions

This month's featured map is equine herpesvirus-1 (EHV-1) abortions in Kentucky's 2019 foal crop.

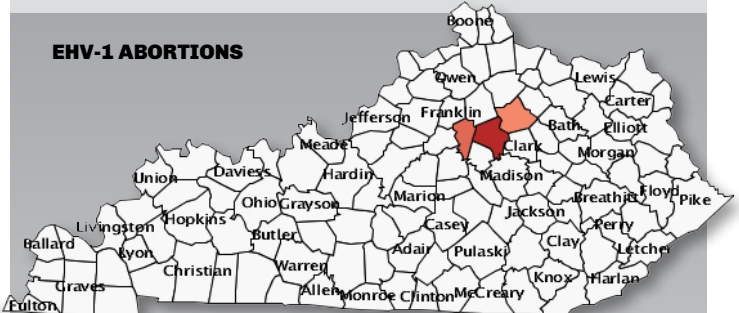
Equine herpesvirus-1 spreads in nasal discharge or aerosol droplets. Horses can also contract the virus via contaminated surfaces such as stalls, water, feed, tack, transportation vehicles, or people's contaminated hands and clothing from being around another affected horse.

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.

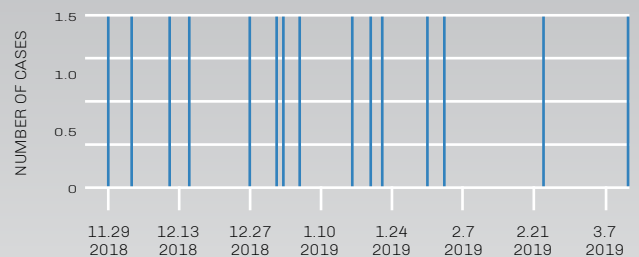
Disease caused by EHV-1 can be mild or more severe, potentially resulting in late-term abortion in pregnant mares and/or severe neurologic disease. Equine herpesvirus myeloencephalitis, EHV's neurologic form, is rare.

Individuals with questions or concerns about disease outbreaks can contact UK Veterinary Diagnostic Laboratory (UKVDL) at 859/257-8283. [UK](http://uk.edu)

>Jacqueline Smith, PhD, MSc, BSc, Dipl. AVES, epidemiology section head at the UKVDL, is the founder of the UKVDL Disease Mapping Initiative, a database designed to record all infectious disease cases submitted to the diagnostic laboratory.



MONTHLY TRENDS



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zoetis

STUDYING SANTA ANITA

The Bottom Line

Ultimately, Peterson believes addressing the Santa Anita situation can determine the future of racing in the U.S.

“If there are issues, they are going to be addressed,” he said. “The safety of horses, jockeys, and exercise people is our No. 1 priority.”

“We must approach this challenge with the knowledge that this is always a process, and in order to continue racing, we need to always strive to get better no matter how good the results.” **UK**

>Pat Raia is a veteran journalist who enjoys covering equine welfare, industry, and news.

Eastern Tent Caterpillar Eggs Hatching in Central Kentucky

Eastern tent caterpillars (ETCs) have begun to hatch in Central Kentucky, with the first instances being seen in Lexington on March 24, said Daniel Potter, PhD, professor of entomology at the UK College of Agriculture, Food and Environment.

Potter said that, after spending about nine months in egg masses on twigs of wild cherry and related trees, the first tiny caterpillars of the season are now leaving their eggs. The larvae are among the first insects to become active in the spring and are well-equipped to cope with Kentucky’s erratic temperature swings.

Entomology researchers at UK said the egg hatch occurs over several weeks in early spring, which increases the chance for survival in case of late freezes. The caterpillars grow and develop when the temperature is above 37 degrees F. Their preferred food plants are wild cherry, apple, and crabapple, but they can be found on hawthorn, maple, cherry, peach, pear, and plum trees, as well.

When mature, the 2- to 2.5-inch-long hairy caterpillars wander from their host trees to seek protected areas to spin their cocoons or additional food if their natal tree becomes defoliated. At such times, they can crawl along fence lines and into pastures.

Pregnant broodmares consuming large numbers of ETCs caused staggering early and late-term foal losses and weak foals during the mare reproductive loss syndrome (often referred to as MRLS) outbreak of 1999-2001.

Studies by UK researchers revealed that after horses inadvertently eat the caterpillars, the caterpillar hairs embed into the lining of their alimentary (digestive) tracts. 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 move pregnant mares from areas with abundant wild cherry trees to minimize the risk of caterpillar exposure. The threat is greatest when the mature caterpillars leave trees and wander to find places to pupate and transform to the moth stage.

Eastern tent caterpillars can also be a nuisance to people living near heavily infested trees. The nests and defoliation are unsightly, and the caterpillars can wander



COURTESY DR. LEE TOWNSEND

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AAEP Publishes Equine Rotavirus Guidelines

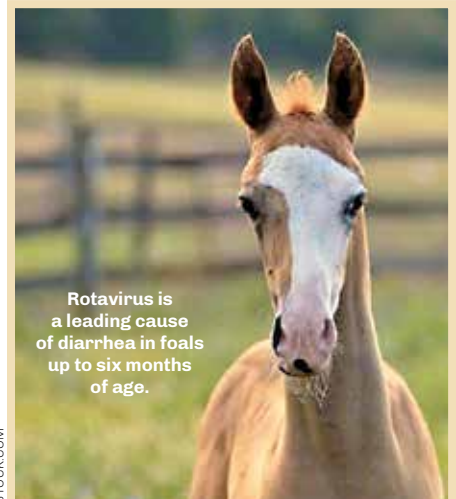
The American Association of Equine Practitioners (AAEP) has published comprehensive guidelines for identifying, managing, and preventing equine rotavirus, a leading cause of diarrhea in foals up to six months of age.

The document, available for download at aaep.org/guidelines/infectious-disease-control/using-guidelines, summarizes the disease’s clinical signs, risk factors, diagnostic methods, control measures, biosecurity issues, and other management protocols.

At the AAEP’s Infectious Disease Committee’s request, Roberta Dwyer, DVM, MS, Dipl. ACVPM, equine extension veterinarian and professor at UK, and Ashley Whitehead, DVM, BSc, DVSc, Dipl. ACVIM, senior instructor in equine clinical sciences at the University of Calgary, created the guidelines. Then, the committee and the AAEP Board of Directors reviewed and approved the guidelines.

“Foal diarrhea remains a disease of enormous significance to the horse industry,” said Dwyer. “Rotavirus is one of the most common pathogens in major breeding areas worldwide. Early recognition, diagnosis, treatment, and biosecurity in cases of foal diarrhea are key to minimizing disease impacts to breeding farms.” **UK**

>Edited AAEP press release.



Rotavirus is a leading cause of diarrhea in foals up to six months of age.

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EASTERN TENT CATERPILLAR HATCH

hundreds of yards in search of protected sites to spin cocoons and pupate.

“Managing ETCs in small ornamental trees, such as flowering crabapples, is easy,” Potter said. “Just wear a pair of grocery store plastic bags like mittens, climb a stepladder, pull out the tents, turn the bags inside out to ‘bag’ the caterpillars, and stomp them.

“Pruning out nests in ornamental trees sounds great, but in reality, by the time they are noticed, they’re often in branch crotches where pruning will compromise the symmetry of the tree,” he added.

“Spraying the flowering fruit and decorative trees preferred by the caterpillars can be a bee hazard—and with some products, a label violation—because the trees are in bloom with bees visiting them at the same time Eastern tent caterpillars are active,” Potter said.

“Except for *Bacillus thuringiensis*, which is not all that effective once the ETCs are about half-grown, the only spray product I know of that controls ETCs and is bee-compatible is Acelepryn (chlorantraniliprole),” he said. “That is available in a formulation used mainly by professional grounds managers and arborists, but has not yet found its way into homeowner spray products.”

Caterpillar management around horse farm paddocks comes down to keeping pregnant mares away from infested trees and either removing or not planting preferred host trees near pastures, Potter added. In addition to those preventive measures, controlling the caterpillars with insecticides might be warranted in some settings; that might involve treating tall trees that are difficult to spray.

For the latter scenario, professional arborists treat via trunk injection. Products labeled for ETC control include Tree-äge (emamectin benzoate), Inject-A-Cide B (Bidrin), Abacide 2 (abamectin), and Lepitect (acephate). End users should read and follow all label instructions. All four injectable products are labeled for use on horse farms.

For more information about how to assess trees for egg masses, the UK Entomology publication, *Checking Eastern Tent Caterpillar Egg Masses*, is available at entomology.ca.uky.edu/ef449. **UK**

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

Horse Industry Safety Summit to Promote Education

The UK Ag Equine Programs, Saddle Up Safely, and other partnering organizations will host an inaugural Horse Industry Safety Summit on Tuesday, April 23, prior to the Land Rover Kentucky Three-Day Event, taking place at the Kentucky Horse Park, in Lexington.

The event will be held at Spindletop Hall, 3414 Iron Works Pike, also in Lexington, from 7:30 a.m. to 6:30 p.m. and will host researchers, equestrians, and other equine enthusiasts. Featuring panels of experts, individual speakers, and poster presentations, the summit will



ANNE M. EBERHARDT/THE HORSE

Sessions will include, among other topics, discussions on traumatic brain injuries and concussion protocol for equestrians.

focus solely on ways to keep horse riders and handlers safe.

“Saddle Up Safely and the University of

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UK College of Agriculture, Food and Environment

The College of Agriculture, Food and Environment is an equal opportunity organization.

HORSE INDUSTRY SAFETY SUMMIT

Kentucky are thrilled to gather this stellar lineup of professionals from all facets of equestrian sport to highlight the importance of safety in all aspects of equine interaction,” said Fernanda Camargo, DVM, PhD, UK associate professor and equine extension specialist. “Working with horses inherently places riders and handlers at risk. We look forward to offering an event entirely focused on what can be done to keep people safe when working around horses.”

Sessions will include discussions on:

- Helmets and helmet testing;
- Traumatic brain injuries;
- The safest way to fall from a horse;
- Concussion protocol;
- Protective vests; and
- How competitors and competition organizers view safety.

The summit organizing committee consists of representatives from the UK College of Agriculture, Food and Environment’s Ag Equine Programs, the UK College of Health Science, Kentucky 4-H Horse Program, United States Pony Clubs, New Vocations Racehorse Adoption Program, Retired Racehorse Project, Saddle Up Safely, the North American Racing Academy, and the

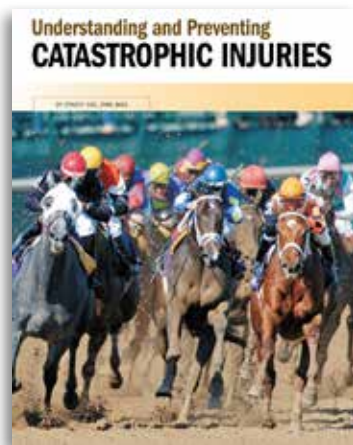
UK College of Public Health.

The Horse Industry Safety Summit is sponsored by the Kentucky Horse Council, the Kentucky Department of Agriculture, the National Horsemen’s Benevolent and Protective Association, and Dinsmore Equine Law/Laura Holoubek.

Registration is \$50 per person and includes lunch. For more information and/or to register, visit eventbrite.com/e/horse-industry-safety-summit-tickets-49906582933. **UK**

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

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Upcoming Events

April 3 – 6 p.m.

Equine-Assisted Therapy Day
Location: Seay Auditorium at UK

April 4 – 4 p.m.

Gluck 3-Minute Thesis competition for graduate students
Location: Gluck Center Auditorium

April 12 – 2 p.m.

3-Minute Thesis competition for UK College of Agriculture, Food and Environment graduate students and postdoctoral scholars
Location: Seay Auditorium at UK

April 18 – 6 p.m.

UK Ag Equine Programs Internship Showcase and Reception
Location: Seay Auditorium at UK

April 23

Horse Industry Safety Summit
Location: Spindletop Hall, Lexington, Kentucky

May 30

Equine Farm & Facilities Expo
Location: Olive Hill Sport Horses, Lexington, Kentucky