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Controlling Bush Honeysuckle on Farms

On most horse farms, trees grow along paddock fencerows, near barns, and in pastures. While many are planted for shade or aesthetics, other woody (and often undesirable) plants frequently encroach from surrounding fields. Additionally, several non-native invasive species grow throughout Kentucky, and these species can dominate an area to such an extent that desirable plants cannot survive. Regardless of the circumstances, property owners should remove undesirable trees and other woody plants.

Trees, shrubs, and vines are perennial plants that reproduce primarily from roots. Any attempt to control these plants must also address controlling the roots, either by digging and removing them or by killing the root buds with herbicides. Tree control is accomplished by cutting and treating the stump with herbicide, by treating the tree foliage with herbicide, or by treating the basal area (lower 18 inches) of smaller trees that have a diameter less than 2 inches. Woody vines (e.g., trumpet creeper) and bushy plants such as blackberry and multiflora rose are controlled more easily with foliar herbicide treatments because the stems might be too numerous to treat when cut.

Remove trees and shrubs with a diameter greater than 1 inch by cutting the plant at the ground level. Because the tree will be removed, there is no need to spray it with herbicide before cutting. However, treat the stump with herbicide to prevent sprouting. With many tree species, more stems will grow the year after cutting if a sprout-prevention herbicide treatment is not instituted.

Invasive Honeysuckle

The most serious invasive tree species throughout much of Kentucky are the bush honeysuckles that were introduced as ornamental plants as well as wildlife habitat plants due to the bright red berries that remain on the plant well into late fall and early winter. Birds eat the berries and distribute seeds widely, which results in fencerows comprised of very dense stands. Eventually, the honeysuckle bushes will destroy the fence.

So how can you control bush honeysuckles? Several techniques are effective but all require diligence and hard work. Seedling plants 12 to 15 inches tall are easily hand-removed. However, once the plants reach 24 to 36 inches tall, they have established a strong root system and are difficult to remove by hand. Treating foliage of plants up to 4 to 5 feet tall with herbicides is effective if done after foliage has developed completely. Honeysuckle bushes taller than 5 feet are challenging to treat because much of the foliage is above head height. Because the larger bushes will need to be removed from the fencerow by cutting, the preferred control method is to cut the tree and then treat the stump to prevent sprouting.

Treat bush honeysuckle plant stems with herbicide and colorant.

Top left: Bush honeysuckle plant showing multiple stems before treatment.

Bottom left: Bush honeysuckle stump one year after treatment showing no sprouts.

Articles of Interest

Bush Honeysuckle

Cut Stump Treatments

This technique is used after cutting a tree as close to the ground as possible. The purpose is to eliminate or reduce the number of sprouts from the cut surface. Immediately after cutting (less than 10 minutes), remove the sawdust and treat the outer edge of the stump with a water/herbicide mixture (e.g., 50% water/50% glyphosate). If you do not treat the cut stump immediately and before it has dried, use an herbicide/basal oil mixture, such as 25% triclopyr ester (Remedy Ultra or others)/75% basal oil. For trees wider than 4 inches, treat only the outer edge of the stump with the herbicide mixture. The outer edge contains the living tissue in which the herbicide will be translocated downward. With smaller diameter trees it is easier to treat the entire cut stump.

There are many products available that prevent sprouts, but it is imperative to follow the product label directions. Failures usually occur because people use herbicide concentrations less than suggested on the label or they wait too long to apply the herbicide to the stump. Glyphosate products are readily available, inexpensive, and safe to surrounding plants. But all glyphosate products are not created equal—the amount of glyphosate that a given product contains can range from less than 10% to 52%. For cut-stump treatments to be effective, the product needs to contain at least 41% glyphosate. A mixture of 50% glyphosate and 50% water is required. Remember, this is not the time to skimp on the rate, particularly considering the time you have already invested in cutting the honeysuckle. Add a colorant to the mixture to make it easier to determine which stumps you treated.

Farm supply stores can help you choose a glyphosate product that meets the criteria described above. You can also contact your local County Extension Agent for Agriculture and Natural Resources in Kentucky for specific information. UK

>William W. Witt, professor emeritus in UK's Plant and Soil Sciences, provided this information.

Small Strongyles might be Developing Drug Resistance against Ivermectin

Owners and veterinarians must consider the early return of parasite eggs in fecal samples after ivermectin treatment as a sign of developing resistance, said Gene Lyons, PhD, professor in classical parasitology, and colleagues from the University of Kentucky's (UK) Department of Veterinary Science.

Small strongyles (cyathostomes) are the most common parasites in horses, and they can cause severe damage when encysted stages merge in large numbers from the intestinal wall. Thus, it is important to treat infected horses with potent and effective drugs used for parasite control, particularly because small strongyles have the ability to develop resistance to dewormers. In addition, these parasites naturally have a relatively short life cycle.

Because no new drugs against small strongyles are currently being developed, an effective parasite control program should aim to prevent further resistance. Results from previous studies performed by Lyons and others have shown that strongyle eggs are currently returning sooner after ivermectin treatment than when the drug was introduced about 30 years ago. This has raised concerns about whether strongyles are developing ivermectin resistance.

Early return of strongyle eggs (egg reappearance period) is the interval between an anthelmintic treatment (dewormer) and the time when eggs can be detected in the feces. Early egg return can signify either selection for populations of worms that reproduce faster than normal or resistance to the anthelmintic.

Recent studies performed by researchers at UK have shown that ivermectin resistance is developing in the immature larvae of small strongyle parasites. The horse ingests infective larvae from the pasture that develop into adult egg-laying worms within the bowel. Small strongyles reside in the colon and cecum of the horse and undergo several developmental stages before they begin to shed eggs.

Lyons said they recently performed a follow-up study to obtain further information about ivermectin's activity against immature small strongyles in four Central Kentucky-born and -raised weanlings.

The weanlings in the study had not been given a dewormer prior to study, but other horses in the same herd had received ivermectin repeatedly over the course of several years, Lyons said. The weanlings were housed in stalls during the study, and the researchers measured their body weights and administered ivermectin to each according to a standard protocol. Worms were then recovered from fecal matter collected daily for six days following treatment. The researchers found 12 species of small strongyles parasites after counting and identifying worms.

Lyons said the study confirmed previous findings: "Ivermectin efficiency still was 100% against adult parasites, which is good news, but only ranged between 0% and 16% against the immature stages," he said. "Overall, the efficiency both against adult and immature stages combined was in the range of 68-83%."

The reason for strongyle eggs' early return after treatment, Lyons said, is most likely a lowered drug efficiency on immature small strongyles in the horse's large intestine. Interestingly, the drug efficiency against immature strongyles was lower in this study compared to a previous study, which might indicate declining ivermectin efficiency. UK

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

We need your feedback!

We want to give you, our valued readers, the opportunity to share your insights about the Bluegrass Equine Digest newsletter. We have created a brief online survey to collect this information, and we would appreciate your help. The information that you share with us will be very valuable as we plan for the future.

This quick survey asks you to share your perceptions of the Bluegrass Equine Digest as well as some information about yourself. Rest assured, your responses are completely anonymous. Your answers simply help us to better understand our readers and what we can do to provide improved content.

The survey should only take a few minutes to complete, but will provide us with better information about our readers and what you would like to see in the Bluegrass Equine Digest. Click here to access the survey now.

Bluegrass Equine DIGEST SURVEY

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The Horse: Your Guide to Equine Health Care

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Elbow Grease Required for Disinfection

Cleaning out the garage. Sorting through all the "stuff" in the attic. Shampooing the entire house's carpeting. All of these tasks require lots of time, hard work, and are few people's entertainment-of-choice for a weekend. Most horse people would rather soap and condition every saddle and piece of leather they own, or even wash and wax the horse trailer.

There is one horse-related duty that ranks right up there (on most people's scale) with the above dreaded assignments—cleaning and disinfecting stalls. Who wants to strip every barn stall and then wash, disinfect, and re-bed them? That is a lot of labor most people would gladly put off for a nice trail ride.

However, disease outbreaks are dangerous to your horse's health and can be economically disastrous for your business and reputation. They can be personally devastating when the disease prevents you from competing in a long-awaited event and causes significant financial strain.

So why disinfect? Isn't vaccination enough? If only it were that easy!

First, no vaccine is 100% effective. Second, there are many more disease-causing organisms (pathogens) than there are vaccines. The table on the following page shows only some of the known pathogens of horses and indicates those that commonly cause disease outbreaks (multiple cases on one farm). Many Gram-negative bacteria are present in feces and bedding and are common causes of septicemia, which can be deadly to foals. These bacteria also can cause localized infections in areas such as eyes and joints.

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Of course, there are always those "mystery microbes" in the environment that cause respiratory disease, diarrhea, limb swelling, and other conditions that veterinarians recognize as being caused by infectious agents, but are unable to find the specific cause. They can't find the exact cause usually due to limitations in current diagnostic tests. New bacteria and viruses are being found regularly with the advent of new microscopes and culturing methods. In 10 years, the list in the table will be increased—which is good since the more we know about the "bad guys," the more we can do to fight them and protect the health of horses.

Disinfection

Tough Bugs

Of the known common equine pathogens, clostridial organisms are the most difficult to kill because they are spore-forming bacteria found in feces and soil (organic matter). Clostridial diseases such as tetanus and botulism are individual animal diseases, and outbreaks are not common.

Of the contagious disease-causing pathogens in the table below, rotavirus is the most difficult to kill due to its being a "non-enveloped" virus. The lipid envelope of other viruses is disrupted by a variety of detergents and disinfectants, enabling the virus to be killed. Rotavirus, however, can remain infective after more than nine months.

Salmonella spp. also are difficult to kill, requiring thorough cleaning and stringent disinfection. And *Rhodococcus equi* lives in the environment for years.

So, by identifying the horse's bacteriologic and virologic enemies and knowing that vaccination is useful, but not 100% effective, often the only way to prevent and control disease outbreaks is through management and disinfection of the horse's environment.

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Notice: We did not say we are sterilizing or sanitizing the stalls. Rather, we are killing the pathogens as best we can with chemicals produced for that use.

In the midst of a salmonellosis, strangles, or rotavirus outbreak, the best way to slow and stop the infectious chain of events is to kill the organism before it can contaminate another horse and cause disease.

What are we going to disinfect? This actually is an important question, and its answer dictates the types of disinfectants appropriate for use.

Many disinfectant labels state they are for use in hospitals, nursing homes, and health care facilities, with many people's natural conclusion being, "If it is good enough to use in human hospitals, surely it is good enough to use in my barn."

But, what surfaces are being disinfected in hospitals? Stainless steel, glass, ceramic, linoleum, and solid plastics. Now, who has ever seen a horse stall made of glass and ceramic? Hospital surfaces are primarily nonporous and easily cleaned prior to disinfection.

Horse stalls are primarily made of wood or concrete block and might have some metal fittings and fixtures. Raw wood and unpainted concrete blocks are very porous and can trap and hide pathogens from disinfectants. This porous nature also makes the surfaces difficult to clean adequately.

There is a solution to this problem: Clean raw wood of all debris, fill holes and knots with caulking or plastic wood, and apply a marine-quality varnish or polyurethane to make the wood as nonporous as possible. Concrete block also can be cleaned and covered with two coats of enamel paint to make the surfaces easy to clean and disinfect.

Dirt, sand, or clay floors cannot be disinfected because they are soil. Removable rubber mats can hide many microorganisms beneath them, causing an increasing stench if not removed and cleaned routinely. Certain rubber mats can be placed and sealed along all seams and glued to the solid floor beneath, making them an excellent surface for the horse and stall cleaner. Asphalt or concrete flooring can be cleaned and disinfected easily, but can be hard on the horse's legs.

So, our first objective is to have as many nonporous surfaces in a stall as possible.

Disinfectant Considerations

Hundreds of disinfectants are available commercially. How are we to know which ones are the best?

First, we know what major pathogens we need to kill, and we know the types of surfaces there are on the farm. Second, we need to recognize where the pathogens are residing—in organic matter. Salmonella and rotavirus are in feces; *S. equi* is in nasal and abscess discharges;

Common Equine Pathogens

BACTERIA

PATHOGEN	*CLASSIFICATION*	*DISEASES*
Salmonella spp.*	Gram-negative	Salmonellosis, Septicemia, Diarrhea
*Streptococcus equi**	Gram-positive	Strangles
*Rhodococcus equi**	Gram-positive	Pneumonia, Diarrhea, other infections
Escherichia coli	Gram-negative	Septicemia
Actinobacillus spp.	Gram-negative	Septicemia
Pseudomonas spp.	Gram-negative	Septicemia
Klebsiella spp.	Gram-negative	Septicemia
Enterobacter spp.	Gram-negative	Septicemia
Clostridium spp.	Gram-positive, spore-forming	Tetanus, Botulism, Diarrhea, Sudden Death

VIRUSES

PATHOGEN	*CLASSIFICATION*	*DISEASES*
Rotavirus*	Non-enveloped virus	Foal Diarrhea
Influenza*	Enveloped virus	Respiratory Disease
Herpesvirus* tion,	Enveloped virus	Respiratory Disease, Abor- Neurologic Disease
Equine arteritis virus	Enveloped virus	Abortion, Systemic Disease

** Causes of disease outbreaks potentially involving large numbers of animals*

Disinfection

influenza virus and herpesvirus are in respiratory droplets. All of these materials (feces and discharges) are considered organic matter, which readily can inactivate some of the most potent disinfectants.

The situation is much different in a laboratory where a pure culture of bacteria is on glass or stainless steel. A disinfectant doesn't have to deal with any organic matter—it just kills the bacteria on the nonporous surface. As we know, the situation is quite different in a horse stall!

In the real world, a disinfectant must be able to work in the presence of organic matter on contaminated surfaces. It must be germicidal against the pathogens encountered, and it must be biodegradable, cost effective, and relatively safe for humans and animals.

The disinfectant also must be able to kill pathogens in the water you have available. Water hardness is an indication of calcium and magnesium levels. Those minerals can adversely affect the potency of a disinfectant.

Many disinfectants are labeled as to their effectiveness in hard water, such as, "Proven effective in 400 ppm water hardness." The abbreviation "ppm" means parts per million. This little fact is meaningless unless you know the hardness of the water on the farm. If you use city water, check with the water company on the average water hardness; if you have well water, contact the county extension service on how to test water samples. If you have used a disinfectant in your barn that only works to 400 ppm water hardness and your well water is 550 ppm, you've put a lot of money and labor into an ineffective cleaning effort!

Choices, Choices, Choices

So, where do you find a disinfectant that will work given all these factors? There are many different classes of disinfectants, including phenols, iodophores, hypochlorites (e.g., bleach), chlorhexidine, quaternary ammonium compounds, and others.

Phenolic compounds, recognized by the "-phenol" or "-phenate" at the end of the active ingredient names, will kill rotavirus, *Salmonella, R. equi*, and other equine pathogens in the presence of organic matter.

Iodophores, such as 10% povidone iodine, also will kill rotavirus in the presence of organic matter, but usually are used as surgical scrubs and antiseptics rather than stall disinfectants.

Although bleach commonly is used in human hospitals and laboratories, it is readily inactivated in the presence of organic matter and, therefore, is not suitable for use as the primary disinfectant on the farm.

Chlorhexidine does not kill rotavirus, but is useful for disinfecting surgical instruments and as an antiseptic.

Quaternary ammonium compounds, recognized by "-ammonium chloride" at the end of the active ingredient name, are inactivated in the presence of organic matter and do not kill rotavirus.

Pine oil, often used for its fragrant smell, is not useful as a disinfectant.

Keep in mind that disinfectants that are inactivated in the presence of organic matter might be perfectly useful for the countertops in the tack stall, cleaning out the refrigerator, and for other areas that are not heavily contaminated. However, for use in stalls, horse trailers, and aisleways that have heavy traffic and high levels of contamination, phenolic compounds work best.

Two phenolic disinfectants with greater than 20% active ingredients are approved for use in Kentucky equine quarantine facilities: Tek-Trol (Bio-Tek Industries Inc.) and 1-Stroke Environ (STERIS Corp.). Many other phenolic compounds are on the market.

Whenever you are comparing products, be sure to read the label for water hardness testing, organic load testing, biodegradability, proven efficacy against equine pathogens, dilution, and cost. UK

>Roberta Dwyer, DVM, MS, Dipl. ACVPM, professor in the University of Kentucky's College of Agriculture, Food and Environment and director of undergraduate studies in the Department of Veterinary Science, provided this information.

WEED OF THE MONTH

Common name: **Perilla mint (also, beefsteak mint, common perilla)**
Scientific name: ***Perilla frutescens*** **(L.)** ***Britt.***
Life Cycle: **Annual**
Origin: **Asia**
Poisonous: **Yes, all plant parts**


VIRGINIA TECH WEED IDENTIFICATION GUIDE

Perilla mint is an erect annual plant of the mint family. It was introduced as an ornamental plant because of its attractive green leaves with purple leaf edges, but escaped cultivation and is now a serious poisoning threat to horses and other livestock.

Perilla mint grows in moist soils of pastures, woodlands, stream banks, and other fields in most of the eastern United States. It can reach two feet in height at maturity. Leaves are opposite and coarsely serrated, and the stems are branched, square, and frequently have a purplish color. The plant has a strong pungent minty odor when crushed.

Perilla mint plants are toxic to horses, and all plant parts (especially the flowers and fruits) contain the toxin. The greatest risk is consumption of fresh plant material during late summer or early fall. Perilla mint plants harvested with hay also pose a risk to animals ingesting the dried plants. Animals that have consumed perilla mint might exhibit clinical signs of respiratory distress, such as labored breathing and possibly an elevated temperature.

Look for perilla mint in spring and early summer growing in moist, shady pasture margins. Mowing low to the ground in late spring is usually an effective control method. Consult your local Cooperative Extension Service personnel for herbicidal control in your area. UK

> William W. Witt, professor emeritus in UK's Plant and Soil Sciences, provided this information.

Fescue Sample Handling and Storage can Affect Analysis Results

Much of Kentucky's pastures contain fescue, and while those pastures can appear lush and beautiful, they can also be dangerous for the animals that graze them. There is a fungus that coexists with the fescue that produces compounds called ergot alkaloids that affect grazing animals' physiology. One of the most studied of the ergot alkaloids is ergovaline.

Ergovaline can cause issues in pregnant mares, including prolonged gestation, difficulty foaling, agalactia (no milk production), and mare and foal deaths. Many property owners test pastures routinely to evaluate ergovaline levels.

Researchers at the University of Kentucky and the UK Veterinary Diagnostic Laboratory (UKVDL) found that sample handling and storage methods affected ergovaline concentrations in tall fescue samples. Because property owners make costly decisions based on ergovaline analysis, it is important that analysis results be accurate.

In their study, the UK researchers subjected tall fescue samples to a variety of transportation and storage conditions to simulate actual situations horse owners and managers might face. Transportation conditions included in a cooler on ice or under ultraviolet (UV) lights to simulate the dashboard of a vehicle. Storage conditions included ambient temperature, refrigerator, and freezer storage for one to 28 days. They measured ergovaline concentrations using standard laboratory methods.

KRISTA LEA

Property owners often test pastures to evaluate ergovaline levels.

The team found that no ergovaline was lost when samples were transported in a cooler on ice (for two hours or less); however, a significant fraction was lost when samples were subjected to light and heat (like on the dashboard of a vehicle). Also, ergovaline was stable in the freezer for 28 days; however, some ergovaline was lost in the first 24 hours in the freezer. Ergovaline was not stable in the refrigerator or at ambient temperature, and those conditions resulted in significant changes in concentration during storage.

The team found that no ergovaline was lost when samples were transported in a cooler on ice for two hours or less.

Managers and owners who are interested in sampling their pastures for ergovaline should store the samples in a cooler on ice for no more than two hours and transport those samples to the laboratory immediately. Alternately, they should be stored in a freezer until they can be transported.

For more information on tall fescue or ergovaline sampling, please contact your local county extension agent or visit uky.edu/Ag/Forage/ForagePublications.htm#Tall%20Fescue. UK

>Krista (Cotten) Lea is a graduate student in UK's Department of Plant and Soil Sciences

GRAD STUDENT SPOTLIGHT

LAUREL MASTRO

From: **Concord, N.C.**

Degrees and institute where received: **BS, Animal Science, North Carolina State University**

After moving to Lexington, Ky., for the Kentucky Equine Management Internship (KEMI) program, Laurel Mastro began her master's degree in January 2012. As an undergraduate, Mastro's research focused primarily on swine; however, her personal interest in horses led her to consider focusing on them for her graduate research. When she found the opportunity to work with Kristine Urschel, PhD, assistant professor within the University of Kentucky's Animal and Food Sciences Department, she said she jumped at the chance.

"I was really excited about the research Dr. Urschel was doing, and I knew I wanted to work with her," she said. "Her research utilizes some new techniques in the horse that only she has used."

Mastro's research focused primarily on pituitary pars intermedia dysfunction (PPID), also known as equine Cushing's disease.

"PPID is believed to affect around 20% of our aged horses," she explained. "With such a large population affected, it is becoming increasingly important to find out more about this disease through research."

Specifically, she investigated two clinical signs associated with PPID: insulin resistance and muscle atrophy. Mastro looked at protein metabolism and insulin sensitivity in horses with PPID compared to healthy, aged horses using euglycemic hyperinsulinemic clamp and isotope infusion techniques. Her research focused on the insulin-mediated signaling pathways that lead to protein synthesis and breakdown in the equine skeletal muscle.

"It was exciting to look at some of the factors associated with protein breakdown that had never been studied in the equine skeletal muscle," Mastro said. "The projects were interesting in that we didn't find the distinct differences between our two groups of horses as we previously expected. Our research highlights the variable and multifaceted nature of PPID, as it can affect each horse in a different way."

Mastro said she believes her research created additional questions about aging in horses that she hopes will lead to better management of aged horses in the future.

Mastro recently graduated and is currently pursuing a position that utilizes her knowledge of equine nutrition and physiology as well as her communication skills. UK

Lessons in Agriculture from the Land Down Under

In September 2013, 10 agriculture and natural resources county extension agents, six Kentucky producers, and four University of Kentucky Cooperative Extension personnel traveled to Australia to observe the country's agricultural practices, including several relevant to the horse industry.

The group began its journey on Sept. 7, flying through Sydney to Townsville, in the northern portion of Queensland. Here they toured the Commonwealth Scientific and Industrial Research Organization (CSIRO), similar to the U.S. Department of Agriculture. Scientists at CSIRO are studying different feedstuffs' effects on methane production in cattle. They are also evaluating new herd management technologies for use on low input grassland cattle production. The group toured the Great Barrier Reef and discussed the impacts of agriculture and other human activities on this natural wonder.

Next, the team took a four-day driving tour from Brisbane to Sydney with a series of agricultural stops that covered topics important to several species. Those stops included:

Coolmore Stud, which has several farms around the world, including its Versailles, Ky., operation, Ashford Stud. Coolmore Australia uses improved, irrigated pastures of kikuyu, a common warm-season grass similar to Bermuda grass, alfalfa, and other grasses to provide year-round grazing on irrigated pastures for their horses. Horses stay out on pasture year-round and even foal in small paddocks rather than in stalls. Coolmore stands several stallions, including Encosta De Lago, Fastnet Rock, and Uncle Mo. Coolmore Stud is located in the Horse Capitol of Australia: Hunter Valley, New South Wales (NSW). Coolmore Australia also uses Angus cattle to graze pastures as a means of pasture management and to supplement farm income.

KRISTA LEA PHOTOS

The Kentucky group visited Coolmore Australia (top), alfalfa chaff producer Manuka Chaff (above left), Rob Cooper Dairy Farm (above right), and Rockvale North merino sheep farm (far left), among other agricultural destinations.

Manuka Chaff, owned by David Wallis, which produces

Australia

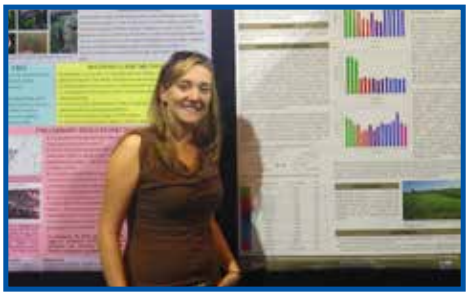
several niche products for the horse market. These include hemp bedding, chopped alfalfa (chaff), and alfalfa haylage packaged in small plastic bags for horses. Feeding horses haylage is common in Europe and growing in Australia thanks to Wallis' efforts.

Ross Watson Agriculture, run by Ross Watson, an agronomist located in NSW. Because the extension function common in the United States is largely absent in Australia, Watson serves as a private consultant for several operations, including Rob Cooper Dairy Farm, Manuka Chaff, and Coolmore Stud. Watson performs a similar service as UK's Horse Pasture Evaluation Program.

Rockvale North, a large merino sheep farm owned and operated by the McClenaghan family in Armidale, NSW. The McClenaghan family manages roughly 5,000 merino sheep on pasture year-round for fine wool production frequently used in Italian suits. The group was able to get up close with these animals to observe their fine coats as well as observe a large flock (3,500+) being moved to fresh pasture. The McClenaghans use native pastures and no irrigation to manage their flocks (using just three people) in the semi-arid climate. They also raise around 600 beef cattle each year.

Sundown Pastoral, a large-scale beef cattle farm. This farm finishes 80,000+ animals per year on improved pastures. Technology is the driving force behind this operation and includes automated working pens, complete herd tracking and management software, and precision pasture management.

Rob Cooper Dairy Farm, located on a small river in Manilla, NSW. Cooper uses center pivot irrigation to maintain improved pastures and 1,000 milking Holstein cows. Common forage species found in his pastures include tall fescue, white clover, alfalfa (called lucerne in Australia), and kikuyu.



Group members Krista Lea (top left), and Ray Smith, Phd, and Tom Keene (top right) presented their recent research at the International Grassland Congress.

Just hours after visiting the large sheep farm, the group dressed in their best and were off to Robb College to attend its Rural Focus Dinner. Here the group interacted with current students of this agricultural college as well as professors and administration before attending a dinner and lecture on the economics and future of coal mining in Australia.

The group arrived in Sydney on Sept. 15, just in time for the 2013 International Grassland Congress (IGC) opening ceremonies. Over the next five days, they attended the IGC and learned about agricultural research being conducted all around the world. UK extension personnel in attendance from the Department of Plant and Soil Sciences included Ray Smith, PhD, Garry Lacefield, PhD, Tom Keene, and Krista (Cotton) Lea, all of whom presented their recent research at the congress. Todd Clark, a producer from Fayette County, was also featured in a prerecorded video discussing agriculture in Kentucky. Each day after the conference, the group enjoyed sightseeing in Sydney, including visiting the famous Sydney Opera House, the Taronga Zoo, and the Royal Botanical Gardens.

This trip was exciting and educational for all involved. Each agent, producer, or UK extension professional learned about agriculture in Australia and will be able to apply this knowledge in Central Kentucky. UK

>Krista (Cotten) Lea is a graduate student in UK's Department of Plant and Soil Sciences.

PHOTOS.COM

Rodeo Team Makes its Debut at UK

There's a new team on the roster for the University of Kentucky, one with barrels, bulls, roping, wrestling, and a whole lot of enthusiasm by a group of students who have worked hard to put their dreams into reality.

Housed within UK's College of Agriculture, Food and Environment student organizations, the UK Rodeo Team joins an accomplished stable of equine clubs and teams available to UK's student body. The team practices at Kismet Farm in Paris and is open to all students, with or without prior rodeo experience.

The team's stated mission is to promote and develop the sport of rodeo at UK, providing students with the opportunity to further pursue this sport educationally and competitively at the intercollegiate level.

"I am really excited that this has become an opportunity for our students to learn about the sport of rodeo," said equine science and management junior Kyle Karadak, the team's vice president and one of its founding members. "Since rodeo showcases a different perspective of the horse industry from what is typically known in Central Kentucky, we hope the team will help broaden students' awareness and give them a unique experience they can use in the future."

One of the team's main goals is to give its members the chance to participate in activities covering every aspect of the industry, from learning about rodeo in general to competing as part of the team. The team plans to become part of the National Intercollegiate Rodeo Association in 2014, and organizers are using 2013 to form the team and recruit members.

"I'm so proud of our students for their initiative and proud to serve as their advisor," said lecturer and internship coordinator, Elizabeth LaBonty, MS. "Rodeo is such a great sport, and it offers tremendous opportunities for our students to learn, compete, have fun, and build relationships with each other and the community."

Dues start at $25 a semester. Additional fees depend on the specific event students choose. Barrel racing, roping, goat tying, or steer wrestling cost $150 per semester. Bull riding starts at $500 per semester.

Those interested in learning more about the team can e-mail ukrodeoteam@gmail.com. Information about the team, including upcoming clinics and events, can be found by visiting http://equine.ca.uky.edu/node/321. UK

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

Two Upcoming Continuing Education Events

The University of Kentucky Ag Equine Programs, which includes the Gluck Equine Research Center and Veterinary Diagnostic Laboratory, will host two continuing education events in the next three months.

Role of Genetics in Studying Equine Diseases
Tuesday, Dec. 17, 8 a.m.-5 p.m.
at Embassy Suites
https://rgsedsymposium.eventbrite.com

Hosted by the University of Kentucky's Gluck Equine Research Center—a UK Ag Equine Program—the Role of Genetics in Studying Equine Diseases Symposium will offer an in-depth look at the latest information in this rapidly evolving field. Special consideration will be given to select features of equine viral arteritis (EVA), including host-related factors that might influence establishment of the carrier state in this infection.

The event is targeted toward veterinarians and anyone else with an interest in learning more about equine genetics. The symposium is free and funded by a USDA-NIFA-AFRI grant titled "Identification of genetic factors responsible for establishment of equine arteritis virus carrier state in stallions."

Seven hours of continuing education is pending approval by the Kentucky Board of Veterinary Examiners for veterinarians and veterinary technicians. CE sheets must be signed at the meeting to receive credit.

UK Equine Showcase and 5th Annual Kentucky Breeders' Short Course
Friday, Feb. 7, 1-5:30 p.m., and Saturday, Feb. 8, 8 a.m.-5 p.m. at Four Points by Sheraton
https://2014ukequineshowcase.eventbrite.com

The UK Equine Showcase, now in its third year, will highlight the university's current equine programs and relevant industry findings. It will run from 1-5 p.m. Feb. 7, with a light reception following. The 5th Annual Kentucky Breeders' Short Course is an in-depth program on equine reproduction and horse management issues from 8 a.m. to 5 p.m. Feb. 8, with lunch provided.

New this year, an in-depth reproductive "wet lab" will also be offered on Feb. 9 to a limited number of participants who want a hands-on educational opportunity led by some of the equine industry's foremost experts.

The 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

> Jenny Evans is the marketing and promotion specialist senior at the Gluck Equine Research Center.

Lloyd's of London Continues Partnership with UK

The long-standing and successful partnership between Lloyd's of London and the University of Kentucky College of Agriculture, Food and Environment continued when representatives from Lloyd's recently presented a check for $45,000 to UK.

The contribution supports the Lloyd's *Equine Disease Quarterly*, a research-based publication dedicated to equine health produced by the UK Department of Veterinary Science.

The award-winning publication includes articles written by prominent researchers from around the world and provides timely and authoritative reports on some of the most important issues facing the equine industry. The *Quarterly* reaches more than 18,000 readers in 102 countries. Available in paper and online, its articles are regularly reprinted in numerous scientific and lay equine publications worldwide.

"Last year, Lloyd's cumulative support surpassed the $1 million mark. That speaks significantly of the market's long-standing commitment for supporting equine research and health," said Julian Lloyd, bloodstock underwriter with Amlin and chair of Lloyd's Livestock Committee. "This year's contribution of $45,000 continues that effort, and we are proud to support the global distribution of *Equine Disease Quarterly*."

Mats Troedsson, DVM, PhD, Dipl. ACT, ECAR, chair of the Department of Veterinary Science and director of the Maxwell H. Gluck Equine Research Center, agreed.

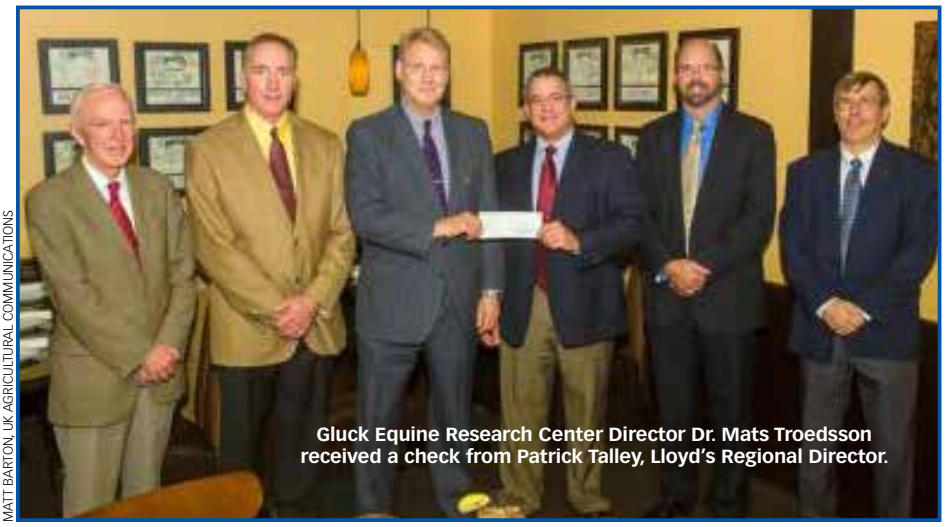
"The *Equine Disease Quarterly* is a valuable and popular source of information to equine veterinarians and industry leaders around the world, and the contributions from Lloyd's cannot be overemphasized," he said. "We are very thankful and proud of the long-standing support that has made the success of the *Quarterly* possible, and we are looking forward to future years of collaborations with Lloyd's."

Lloyd's *Equine Disease Quarterly* is available to subscribers at no charge. It is co-edited by Roberta Dwyer, DVM, MS, Dipl. ACVPM; Peter Timoney, PhD, FRCVS; and Neil Williams, DVM, PhD, from the Department of Veterinary Science.

The current version of the *Equine Disease Quarterly* is located online at www2.ca.uky.edu/gluck/q_oct13.asp. For more information about the Department of Veterinary Science and the Maxwell H. Gluck Equine Research Center visit www2.ca.uky.edu/gluck.

Lloyd's of London is a 325-year-old insurance market whose members underwrite risk on a direct and reinsurance basis in more than 200 countries. As a global leader in specialty insurance, Lloyd's remains committed to supporting equine research and providing the insurance coverage essential to the well-being and prosperity of bloodstock interests worldwide. UK

> Aimee Nielson is an agricultural communications specialist at the University of Kentucky.



MATT BARTON, UK AGRICULTURAL COMMUNICATIONS

Gluck Equine Research Center Director Dr. Mats Troedsson received a check from Patrick Talley, Lloyd's Regional Director.

UPCOMING EVENTS

November 29-30

The Spirit of the Horse, Kentucky Horse Park, Alltech Arena. For more information visit http://kybdressage.com/spiritofthehorse.

December 17, 8 a.m.-5 p.m.

Role of Genetics in Studying Equine Diseases, Embassy Suites, Lexington. https://rgsedsymposium.eventbrite.com.

Like Us on Facebook

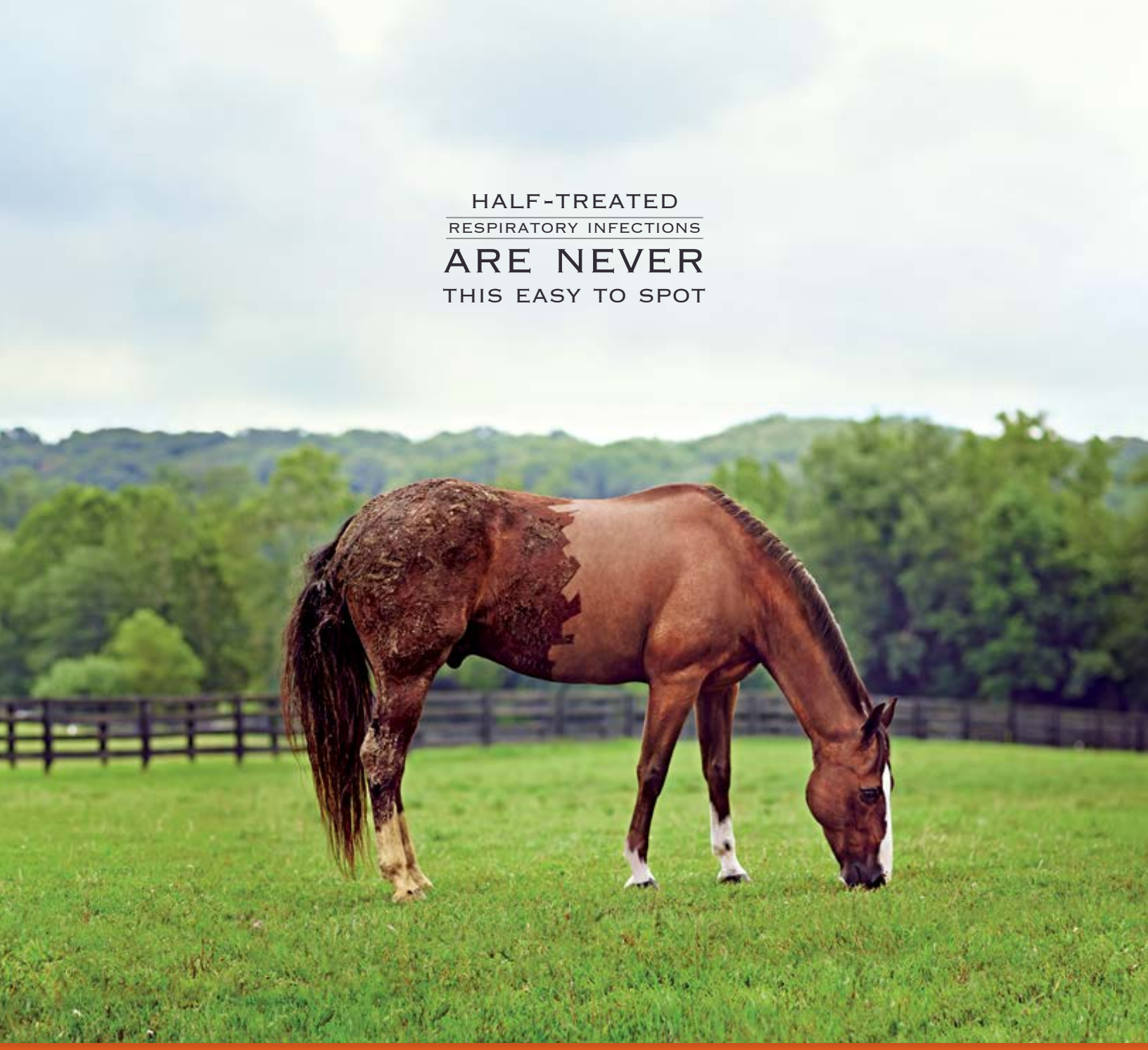
The University of Kentucky College of Agriculture, Food and Environment have several equine-related pages on Facebook with the latest news and events information. Stay up-to-date with the latest happenings by following our activity on the following pages:

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

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

Kentucky Equine Networking Association (created by the Kentucky Horse Council and University of Kentucky): The mission of the Kentucky Equine Networking Association (KENA) is to provide an educational and social venue for equine professionals and other horse enthusiasts from all disciplines to share ideas and business strategies, and obtain current knowledge on horse and farm management with the principal objective of enhancing individual horse ownership and the horse industry at large.

Saddle Up SAFELY: Saddle Up SAFELY is a new rider safety awareness program sponsored by UK HealthCare, UK College of Agriculture and many community organizations. It aims to make a great sport safer though education about safe riding and horse handling practices.



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