

Vaccines, Dewormers, and Feed for Senior Horses

More and more horses are staying active into their golden years, but just because a horse is young at heart doesn't mean his body is just as fresh. Fortunately, researchers are on the hunt for ways we can help keep geriatric horses' bodies up to par.

At the University of Kentucky (UK) Equine Showcase, held Jan. 23 in Lexington, Amanda Adams, PhD, assistant research professor at UK's Gluck Equine Research Center, reviewed recent research on vaccinations, deworming programs, and feeding regimens for senior horses.

Adams said recent study results have shown that 7-15% of the U.S. horse population is 20 years or older, while 29% of the United Kingdom's equine population is 15 years or older—that's a lot of old horses. But, unfortunately, a horse's lifespan doesn't necessarily equate to his "healthspan," she said, noting that old horses' immune responses generally start diminishing around 20 years of age.

Adams explained that as horses age,

they experience a decline in immune function (known as immunosenescence) and an increase in inflammatory cytokines production resulting in chronic, low grade inflammation (known as inflamm-aging) that can contribute to age-related conditions. So, it's important for owners and veterinarians to work together to ensure senior horses age "gracefully," she said.

Three ways to counteract these challenges are through vaccination, deworming, and nutrition, Adams said. These are areas in which she's carried out research to evaluate old horses' responses, and she shared those results with attendees.

Vaccinations

Adams first described a study in which she evaluated whether aged horses with pituitary pars intermedia dysfunction (PPID, a common condition that affects about 20% of old horses) respond differently to vaccines than non-PPID senior horses.

Adams and colleagues employed 33

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aged horses and blocked them into four groups: non-PPID vaccinated, non-PPID controls, PPID vaccinated, and PPID controls. The team treated the control horses with saline and vaccinated horses with a multivalent product that protected against influenza, equine herpesvirus, Eastern and Western encephalomyelitis, West Nile virus, and tetanus.

The team found no significant difference in immune response to the influenza vaccine between PPID and non-PPID horses of matched age. However, she did note some differences in how PPID versus non-PPID horses responded immunologically to the vaccine's herpes and West Nile antigenic components. Work on this study is still underway. In the meantime, Adams said it's important that owners maintain geriatric horses on a regular vaccination program that keeps them up-to-date on all core vaccines. She also recommended that owners



Combat senior horses' decline in immune function through vaccination, deworming, and nutrition.

Vaccines, Dewormers, and Feed for Senior Horses

consult their veterinarians to consider two boosters per year of some risk-based vaccines for older horses at increased risk, including those that travel and/or compete frequently.

Dewormers

Next, Adams described a study evaluating age's effects on strongyle fecal egg counts and whether old horses have inflammatory responses to anthelmintic (deworming) treatments.

Proper nutrition can both reduce inflammation and improve senior horses' immune responses to vaccination.

For this study, Adams and colleagues employed 21 horses aged 20 and up and 19 horses aged 5 to 15. They separated the horses into three groups within each age group: one treated with moxidectin, one treated with pyrantel pamoate, and one untreated control group. The researchers also completed fecal egg count reduction tests (to test the dewormers' efficacy) on all the horses and evaluated their blood levels of two inflammatory markers (called IL-6 and SAA).

The team determined that, while older horses had higher fecal egg counts than younger horses, both moxidectin and pyrantel pamoate were effective at reducing the egg counts. The team also discovered that old horses treated with pyrantel pamoate had higher IL-6 and SAA levels compared to horses treated with moxidectin.

Adams stressed that while these study results suggest that old horses are more likely to be high egg shedders, it's important to let the fecal egg counts dictate how frequently you deworm your senior and with what drug class. She cautioned, however, that this study only evaluated the horses in her research herd.

She also emphasized that, while they observed less inflammation following

moxidectin treatment compared to pyrantel pamoate, "that doesn't mean (moxidectin) is the only drug that should be used. Use something that works, regardless of the horse's age."

She encouraged attendees to test their dewormers' efficacy routinely using fecal egg count reduction tests.

Nutrition

Finally, Adams shared the results of a study evaluating different dietary components' effects on old horses' inflammation and immune responses to vaccination.

For the study, Adams and colleagues used 40 healthy horses aged 20 to 33 housed on pasture and supplemented with free-choice grass hay. Each horse received one of four diet treatments for 23 weeks:

- Oats and alfalfa pellets;
- A commercially available senior horse feed;
- A commercially available senior horse feed with added proprietary prebiotics; or
- A commercially available senior horse feed with added proprietary omega fatty acids.

The team weighed the horses and collected blood samples before the study began and monthly throughout. At the end of the trial, each horse was vaccinated and evaluated further.

Adams and colleagues determined that the senior horse feed with prebiotics was effective in decreasing inflammatory cytokines over time and increasing horses' body weights and condition scores. The team also determined that the same feed improved horses' response to vaccination and reduced inflammation.

She concluded that proper nutrition can both reduce inflammation and improve senior horses' immune responses to vaccination. Still, she cautioned, ensure you're feeding a diet that works for your horse, even if it's not necessarily designed with a senior in mind.

Take-Home Message

While all horses age differently, they will need your help at some point to make their healthspan equal their lifespan. Adams stressed the importance of keeping geriatric horses' vaccinations up-to-date, conducting regular fecal egg counts and deworming accordingly, and feeding an appropriate diet. **UK**

>Erica Larson is the news editor for The Horse.

MASTHEAD

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UK Equine Farm and Facilities Expo Held June 2

University of Kentucky (UK) Ag Equine Programs hosted an Equine Farm and Facilities Expo June 2 at Kenny McPeck Racing's Magdalena Farm, in Lexington. Horse owners and horse farm managers attended demonstrations led by UK and other experts on subjects including footing, pasture weed management, and landscape decisions on horse farms. In addition, McPeck shared insights into what he looks for in yearlings.

McPeck Racing specializes in the selection, management, and training of Thoroughbred racehorses. McPeck serves on UK Ag Equine Programs' advisory committee and has been training racehorses since 1985. [UK](#)

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



UK AGRICULTURAL COMMUNICATIONS, MATT BARTON

Practice Good Stewardship When Applying Herbicides for Pasture Weed Control

Property owners can use various methods and strategies to combat weed problems in pastures. These include mechanical and cultural practices such as mowing or clipping fields, maintaining a good soil fertility program, grazing methods, and other management techniques that promote desirable forage grass growth, which in turn competes against weeds.

Herbicides are one of the best ways to effectively control several troublesome broadleaf weeds. However, good stewardship and management practices are required to ensure you're getting the most benefit from an herbicide application. Stewardship includes proper spray applications to minimize the potential

for herbicides to move off-site and damage nearby sensitive crops and vegetation. Furthermore, consider reseeding and a field's future uses before applying an herbicide.

Below are some important tips to consider when choosing and applying an herbicide product.

Tip 1: Select the appropriate product

It's important to choose the right herbicide for the specific weed(s) you want to control. Most pasture herbicide products selectively target broadleaf weeds, but certain products are better for controlling specific weed species. Consult the product label and other resources such as university weed

control guides (e.g., Weed Management in Grass Pastures, Hayfields, and Other Farmstead Sites, AGR-172 or Broadleaf Weeds of Kentucky Pastures, AGR-207) to determine if an herbicide will control the weeds of greatest concern. Also determine if an herbicide product is approved for application on grazed pasture fields. Many herbicides registered for use to control weeds in lawn or turf areas contain active ingredients that are not EPA-approved for application on pastures where animals graze.

Tip 2: Apply at the right time of the year

Herbicide products often work best on younger, actively growing weeds. Therefore, you must also consider the weeds' size and growth stage. As annual weeds grow larger and more mature, an herbicide's effectiveness often decreases. Furthermore, herbicides will provide

Applying Herbicides

little long-term control of weeds that have begun to flower and produce new seed.

Target cool-season weeds, such as buttercup, biennial thistles, and poison hemlock, in the early spring (March-April) or after they begin to emerge in the fall (October-November). Treat summer annual weeds, such as common ragweed, spiny amaranth, and cocklebur, with an herbicide in early summer (June) when these plants begin to emerge as seedlings. The preferred time to treat many perennial broadleaf weeds, such as curly dock, tall ironweed, and Canada thistle, is in the late summer (August-early September). A mid-summer mowing followed by herbicide treatment of the regrowth works best for perennial weeds such as tall ironweed. Late summer applications will often result in more herbicide



Responsible herbicide use can help promote desirable forage growth in pastures.

movement into perennial plants' root systems.

Therefore, it's important to know problem weeds' life cycles and reproductive characteristics when determining the right time of the year for herbicide treatment. In addition,

applying synthetic auxin (i.e., plant growth regulator-type) herbicides (e.g. the active ingredients 2,4-D, dicamba, triclopyr, and aminopyralid) at certain times of the year, particularly during the early and mid-summer months, has a higher potential to expose sensitive plants to off-target movement of spray particles.

GRAD STUDENT SPOTLIGHT

WENYING ZHU

From: China

Degrees and institute where received: B.S., Hangzhou Normal University, China

PhD, Veterinary Science, University of Kentucky

Wenyong Zhu came to the United States to be with her husband and chose to obtain her doctoral degree at the University of Kentucky Maxwell H. Gluck Equine Research Center because of its leading equine research program. Zhu said her time at the Gluck Center was invaluable and taught her how to become an independent researcher.

Zhu's doctoral research project focused on the evaluation of intra-articular glucocorticoid (medicines injected directly into a joint) therapies for equine osteoarthritis. Veterinarians can use intra-articular glucocorticoid to treat joint inflammation in horses. It effectively relieves pain, swelling, and other signs of joint inflammation. However, glucocorticoid use has also been linked to negative effects on chondrocyte (cells found in cartilage connective tissue) function and cell viability.

"The goal of this study was to generate scientific data to provide a reference for administering intra-articular glucocorticoid injections in equine practice," Zhu said. "Results from this study suggest that lower glucocorticoid dose ranges for intra-articular therapy in horses should be validated to maximize the ratio of their therapeutically beneficial anti-inflammatory efficacy against detrimental effects on cell function and viability."

During her time in the laboratory of James MacLeod, VMD, PhD, John S. and Elizabeth A. Knight chair and professor of veterinary science at the Gluck Equine Research Center, Zhu also worked to identify genes with cartilage-restricted patterns of expression using one of the first equine-specific cDNA microarrays.

After completing her doctoral program, Zhu moved to North Carolina to live with her family. She currently works at the Research Square in Durham and plans to use her education at the Gluck Center to contribute to science and research. **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.

Tip 3: Spray attention

Herbicides are chemical compounds designed and intended to kill undesirable plants. When applied appropriately, they selectively kill broadleaf weeds in grass pastures and not the desirable forage grasses. At times an herbicide treatment's success depends on the applicator. The applicator should be knowledgeable of the herbicide being used and the application conditions. He or she must be familiar with the proper use of the spray equipment to ensure adequate coverage on the weeds to be controlled.

Tip 4: Minimize the potential for off-site movement

When herbicides move off-target, they can damage or kill nearby sensitive vegetation. Thus, applicators should follow some important guidelines to ensure good spray coverage of weeds and minimize off-target spray movement.

Be aware of your surroundings, and know what your neighbor is growing. Look around and determine whether sensitive crops or plants such as tobacco, soybeans, grapes, vegetables, home gardens, or landscape trees are growing nearby, particularly if they are within a half-mile of the proposed application area.

Become familiar with the herbicide you plan to use. In addition to the

Applying Herbicides

potential for physical particle drift, does the product contain active ingredients that can potentially convert into a gas or vaporize when temperatures are high and humidity is low? Herbicides containing 2,4-D are particularly at risk for volatility, and different formulations of 2,4-D respond differently to temperature. For example, 2,4-D LV Ester formulations are more likely to volatilize at lower temperatures than a 2,4-D Amine-formulated herbicide. Therefore, consult the label of any herbicide product to determine what steps the manufacturer recommends to minimize off-target spraying, including recommended buffer distances or label requirements for setback distances to downwind sensitive plants.

Be aware of wind speed and direction. The wind speed should range between 3 and 10 mph for optimum performance. When winds rise above 10 mph, spray patterns might become inconsistent, and some herbicide labels prohibit applications under these conditions. In general, avoid applications when wind speed exceeds 10 mph to reduce the potential for downwind spray particle movement. On the other hand,



Know how to use spray equipment properly.

when the wind is still (less than 2 mph) a temperature inversion might exist, which can permit fine spray particles or vapors to move long distances.

Use the right nozzles and spray pressure. Spray nozzles are designed to operate within a specified range of spray pressures to deliver the solution at various volumes and droplet sizes. Nozzles that produce coarse to ultra-coarse droplets (>400 microns) are the desired output for most pasture applications. Fine and very fine droplets are likely to move herbicide several hundred feet away from the target area.

For example, spray tips that produce fine and very fine spray droplets (150 microns or smaller in diameter) can travel long distances (600+ feet) from the target in a 4 mph wind compared to less than 10 feet with medium to coarse spray droplets.

Select the appropriate spray volume. Another practice to produce larger droplets is to use spray tips designed for spray volumes of 15 or more gallons of water per treated acre. But avoid increasing spray pressure to achieve larger spray volumes, which in turn could result in finer droplets with some spray tips.

Control sprayer boom height. Keep the spray boom as close to the target as possible, preferably no more than 24 inches above the canopy. Choosing spray nozzles with wider angles (e.g., 110-degree spray angle) will allow the boom to be placed lower to the vegetative canopy while maintaining the right spray pattern across the spray boom.

Tip 5: Reseed fields and future crop uses

After applying an herbicide, how long should you wait before interseeding new forage grasses or legumes into the treated pasture? This often depends on the specific herbicide used. As a general rule of thumb, do not reseed immediately after treatment with selective broadleaf herbicides, including 2,4-D. Some herbicide products require a waiting period of

several weeks (or months) after treatment. Thus, read the herbicide label to determine the minimum waiting period before reseeding grass or legume forages or other crops.

In some situations it might be desirable to convert a field that has been treated with a pasture herbicide to agricultural cropland or other uses. However, certain crops are highly sensitive to herbicides that remain in the soil for extended periods. For example, aminopyralid-containing products (e.g., Chaparral, ForeFront, GrazonNext, and Milestone) can damage tobacco and other sensitive broadleaf crops even if they're planted into herbicide-treated fields two to three years after an application. Obtain a successful field bioassay before planting an alternative sensitive crop. Also, composted manure from animals that have been fed hay produced from aminopyralid-treated fields can harm sensitive plants. Always consult the product label for specific restrictions and guidelines. **UK**

>J.D. Green, PhD, is a researcher in the Department of Plant and Soil Sciences.

What is a Neck Threadworm, and Can it Hurt My Horse?

An equine parasite expert answers a horse owner question about these mysterious worms.

Q Have you any knowledge of and advice for dealing with equine neck threadworms? I suspect my mare is experiencing all the symptoms of having neck threadworms. I have always thought she had sweet itch, but now the open, oozing wounds on her belly—some as big as silver dollars—are very bad, and I can't get them to heal. My veterinarians both said they have never heard of neck threadworms.

Deborah via Facebook

A The neck threadworm is a common name for the filarial parasite *Onchocerca cervicalis*. The adult worm lives in or around the large nuchal ligament that runs from the withers to the base of the skull. No clinical signs have been associated with presence of the adult worms. However, the worms release microfilariae, which are microscopic parasite stages that can be found in the loose connective tissue under the skin.

The adult worms live for many years, but the majority of clinical signs associated with this parasite are due to the microfilaria. These are typically present in areas where the intermediate host, the *Culicoides* midges (no-see-ums), have free access to exposed skin, such as on the ventral midline or along the neck.

Clinical signs typically involve dermatitis with itching and swelling. Skin reactions are sometimes exacerbated by deworming, as there seems to be a tissue reaction to dead or dying microfilariae. These signs can look a lot like summer eczema (sweet itch), which ironically is caused by an allergic reaction to *Culicoides* midges. In other words, the same insect can cause two different diseases that look very much alike.

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Telling the two conditions apart can be a big challenge, but your horse's clinical signs should resolve following deworming with ivermectin and moxidectin. If they appear unaffected by treatment, then they are more likely to be caused by sweet itch.

Diagnostic options are not great, but one approach has been successful in some cases. A simple skin biopsy collected from an affected area is left in warm saline. Microfilariae can then be observed swimming under the microscope.

Because of the lack of reliable and practical diagnostic methods, very little prevalent information is available. Given its insect vector, the parasite might depend on suitable habitats for the midges, but that is unknown. Midges generally prefer areas with running creeks to hatch their larvae, and they are rarely found in windy regions.

I hear a lot of talk about neck threadworms in various horse communities, and the parasites often get accused of causing all sorts of unlikely problems in horses. But most

often the infection is not confirmed and the issues people are reporting might not have to do with the parasite at all.

Other parasites can cause skin lesions as well. Most widely known are probably the summer sores caused by larvae of the stomach worm *Habronema*. Flies deposit the larvae in open wounds, which then remain open until the larvae are removed. Owners might observe a bloody fluid oozing out of these wounds, but the lesions generally look much different than with *Onchocerca*. Some veterinarians report that *Habronema*, unlike *Onchocerca*, can appear resistant to anthelmintic treatment.

The term neck threadworm can be confusing as horses can also get infected with another parasite called "threadworm." This parasite, *Strongyloides westeri*, primarily infects foals and has an intestinal lifecycle with eggs being passed in the horse's feces.

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UK Ag Regulatory Services Plays Important Role for Kentuckians

Many folks probably associate the statement "to protect and serve" with military, police, or fire department missions. Yet when it comes down to it, that's what the work of the Division of Regulatory Services, part of the University of Kentucky's College of Agriculture, Food and Environment, is all about.

Nearly 130 years ago, a bill passed by the Kentucky General Assembly and signed into law by then Governor J. Proctor Knott regulated fertilizer sales in the Commonwealth and protected "the agriculturalist in the purchase and use of the same." This milestone legislation placed the director of the Kentucky Experiment Station in full administrative charge of fertilizer control work. Subsequently, laws were passed to regulate the feed, seed, and milk industries. In addition, service programs were added for seed and soil testing. As a practical matter, Regulatory Services was born, and it is as relevant today as it was back in the late 19th century.

The division and most of its employees are headquartered in a modern building near the intersection of University Drive and Alumni Drive.

"We are proud of what we do and want consumers to realize the importance of our division," said Darrell D.

UK Ag Regulatory Services

Johnson, executive director of Regulatory Services since August 2012.

Johnson owns two degrees from UK, is certified by the American Registry of Professional Animal Scientists (ARPAS) as a professional animal scientist (PAS), and has a diplomate in the American College of Animal Nutrition (ACAN). Johnson is a past president of ARPAS.

The responsibilities the 55 full-time and three part-time employees in the Division of Regulatory Services carry out annually include:

- A total of 1,200 visits by its eight inspectors in each category of feed, seed, and fertilizer.
- Laboratory analysis of 3,000 feed samples, 3,000 fertilizer samples, and 2,000 seed samples. Regulatory Services analyzes multiple components on feed and fertilizer to ensure they meet their tag guarantees, resulting in more than 30,000 lab analyses each year.
- The division analyzes milk samples from dairies in Kentucky to make sure farmers are being paid properly for what they produce. One inspector is dedicated strictly to milk regulation.
- Approval, registration, and licensing of thousands of feed and fertilizer products; issuing hundreds of agricultural, vegetable, and flower seed permits; and registration of seed dealers across the state.
- Through a contract with the U.S. Food and Drug Administration, Regulatory Services conducts compliance inspections of feed mills.

- Monitors shipments of seed into the state as per the USDA's Federal Seed Act.
- In addition to the four mandated programs (feed, seed, fertilizer, milk), the division carries out its seed and soil service programs. In 2014, Regulatory Services analyzed nearly 3,400 seed service samples and ran nearly 50,000 service samples through its soil labs, which are located both in Lexington and at UK's Princeton Research Station in West Kentucky. County Extension offices can send samples to either location—basically, those west of I-65 go to Princeton, and those east of I-65 come to Lexington.

The Division of Regulatory Services inspects the feed, seed, dairy, and fertilizer industries.

The Division of Regulatory Services also supports UK's research mission by analyzing samples, primarily in soils but also in its seed and milk units. From time to time, college classes tour the division's facilities to see the operation up close. And, employees from Regulatory Services provide ongoing education in the field to those they regulate in order to help them comply with all applicable laws.

About 30 percent of the division's budget is made up of funds from the state. The remainder comes from revenues generated through a modest fee structure paid by those they serve.

Johnson said the best part of his job is the people he works with and for.

"We have a dedicated group of employees, many of whom have been with the division for 30 years or more. And the vast majority of the people we regulate appreciate what we do," he said. "It is satisfying when you can help folks with an issue instead of just being a regulator. We strongly believe in 'educate before you regulate' and look for opportunities to work with our clients to solve challenges."

When asked if there is a worst part of the job, this dedicated leader of Regulatory Services answered in a slightly different way:

"It gets a little frustrating sometimes that more people don't know we are here and what we do. Dealing with pet treats and horse treats, plus small package fertilizers and seed for urban consumers has become an increasingly larger part of what we do, yet most consumers aren't aware we are looking out for them," said Johnson. "The state of New Mexico has started placing placards at the point of sale to make consumers more aware of their work. I hope to do something like that here in Kentucky."

To learn more about the Division of Regulatory Services and all of the services its people provide, visit uky.edu/Ag/RegulatoryServices.

>Source: UK Now. Carl Nathe is with University of Kentucky's Public Relations.

Does Equine PPID Affect Immune Responses to Vaccination?

It is hardly surprising that as many as 20% or more of the equine population consists of horses older than 20. Veterinarians report that 30% of these are afflicted with Cushing's disease (PPID or pituitary pars intermedia

dysfunction), a degenerative endocrine condition that causes muscle wasting, an overly shaggy hair coat that doesn't shed well, and/or susceptibility to the hoof disease laminitis.

As horses age, the immune system also changes and experiences an overall decline (immunosenescence) and enhanced inflammation, now termed "inflamm-aging." Inflamm-aging describes a key characteristic

of the aging process that involves a shift toward circulation of substances (pro-inflammatory cytokines) that elicit low-grade, chronic inflammation.

In PPID horses, this immune function is even more diminished than it is in normal aging horses. So researchers have asked the question: Does PPID affect horses' immune response to vaccination?

Amanda Adams, PhD, of

the University of Kentucky's Gluck Equine Research Center, examined this, and Steve Grubbs, DVM, PhD, Dipl. ACVIM, of Boehringer-Ingelheim Vetmedica, presented her results at the 2014 American Association of Equine Practitioners Convention, held Dec. 6-10 in Salt Lake City, Utah.

In the study, Adams evaluated 33 horses immunized with a multivalent vaccine (Vetera Gold by Boehringer)





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Equine PPID

containing Eastern and Western equine encephalomyelitis (EEE/WEE), tetanus, equine influenza, rhinopneumonitis, and West Nile virus (WNV).

She found no significant difference in immune response to the influenza vaccine between PPID horses and non-PPID horses of matched age. However, she did note significant differences in

rhinopneumonitis and West Nile vaccine responses, with fewer antibody titers following immunization, in PPID horses.

In light of this research, Grubbs reported: "Make sure to maintain geriatric horses on regular vaccine programs and keep up to date with core vaccines (EEE/WEE, tetanus, WNV, and rabies). If there is a high risk of extensive travel or co-mingling of horses, then influenza and rhinopneumonitis vaccines should

UPCOMING EVENTS

July 25

Hats Off Day, Kentucky Horse Park

be boosted every six months." **UK**

>Nancy Loving, DVM, is a freelance writer for The Horse and owns Loving Equine Clinic, in Boulder, Colorado.

UK Equine Law Conference Held in April

On April 29-30, the UK College of Law held its 30th annual National Equine Law Conference in Lexington, Kentucky. The annual conference attracts more than 180 participants from 35 states and typically two to three countries.

The event was chaired by 1996 University of Kentucky Law School graduate Laura D'Angelo, JD, MBA, partner at the Lexington office of Dinsmore & Shohl LLP. The conference attracted well-known speakers from California, North Carolina, New York, Kentucky, Washington D.C., Tennessee, Maryland, and Michigan.

The conference covers wide-ranging legal topics related to the horse industry and is traditionally attended by lawyers, bankers, accountants, insurance brokers, students, and business people.

Topics this year ranged from medications in racing and sport horse fields to understanding equine insurance provisions and current hot topics facing racing commissions—including the enforceability of out-of-competition testing rules, enforceability of application of house rules at racetracks, equine tax issues, fraud in horse sales, annual equine case law update, and a federal legislative update.

The conference is held annually on the Wednesday and Thursday prior to Kentucky Oaks and Kentucky Derby weekend. Please watch the University of Kentucky College of Law continuing legal education's website for details about the 2016 program and registration. For the past four years, the event has been held at Keeneland race course and will be held there again in 2016. **UK**

>Laura A. D'Angelo, JD, MBA, partner at the Lexington Dinsmore & Shohl LLP office, provided this information.



Equine Law Conference attendees included lunch speaker Chris Kay, CEO of New York Racing Authority (left); Laura D'Angelo introducing the racing regulator panel (top); and UK grads David Roysse and Craig Robertson (above).

